

CONCRETE PAVEMENTS IN IOWA
BUILT 1922 AND EARLIER

(Built Prior to Designation of State Primary Road System)

County	Length : Miles	Road : No.	Year : Built	Location
Benton	Approx. 0.5	101	:1912-13	North from North city limits of Vinton
Cass	Approx. 0.5	6	:1915(?)	East from E. city limits of Atlantic (resurf. with concrete about 1930)
Cerro Gordo	1.00	18	:1913(?)	Begins 1 mi. W. of W. city limits of Mason City. (resurf. with concrete in 1934)
Cerro Gordo	1.00	18	:1915	W. from W. city limits of Mason City
Cerro Gordo	4.07	18	:1918	E. from E. city limits of Clear Lake
Des Moines	1.00	80	:1913	Along S. side of city of W. Burlington
Linn	1.00	30	:1918	Midway between Cedar Rapids and Mt. Vernon known as the "Seedling Mile"
Louisa	1.60	2	:1914	In town of Fredonia.
Mahaska	Approx. 0.5	Co. Rd.	:12-13-14	From Eddyville N.E. to Cemetery
Muscatine	Approx. 0.5	Co. Rd.	:1914	W. from town of Moscow.
Polk	Approx. 0.5	Co. Rd.	:1918	W. from W. city limits of Des Moines on University Avenue.

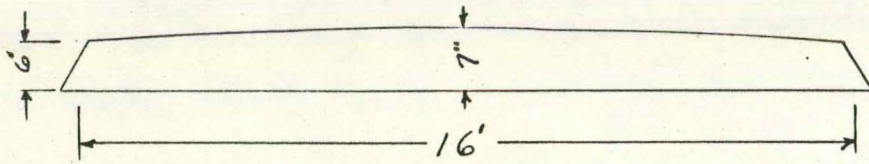
(Built Subsequent to Designation of State Primary Road System)

Benton	8.88	101-218	: 30-21	:1921	5.17 mi. N.E. and S. of Vinton 3.71 mi. N.E. and S. of Belle Plaine
Black Hawk	17.17	20	:1922-23		7.60 mi. E. from city limits of Waterloo. Built 1922. Remainder built 1923.
Buchanan	14.13	20	:1922		From Jessup E. thru Independence to Winthrop Winthrop.
Cerro Gordo	5.14	18	:1920		Clear Lake city limits W. to Co. line.
Cerro Gordo	7.43	18	:1920-21		Mason City E. to county line.
Cerro Gordo	15.55	65	:1920-21		Mason City S. to county line.
Clinton	17.56	30	:1921-22		Clinton city limits to a point 2 mi. W. of DeWitt. Excluding part within city limits of DeWitt.
Clinton	16.44	30	:1922-23		From point 2 mi. W. of DeWitt to W. county line. 13.61 mi. built 1922. Remainder in 1923.
Des Moines	4.89	34	:1921		W. from city limits of W. Burlington.

County
Cerro Gordo

Project

Design No. 1. Width 16 ft 6-7-6.
First Used in Letting of Day Labor. 1913
Miles
1.0

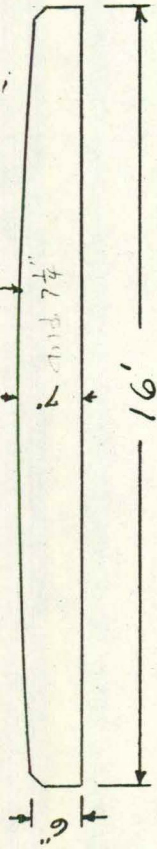


Edges knocked down and finished with shovel.

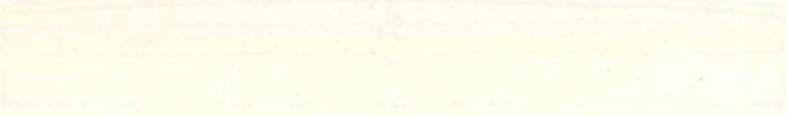
No reinforcing in slab

		Design No. 2.	Width 16 ft	6-7-6	
		First Used in Letting of	<u>Day Labor</u> 1914		
County	Project	Miles			
Louisa	-----	?			
Muscatine	-----	0.413			

Arc of a circle - 4" crown



No reinforcing in slab.



Design No. 3. Width 16 ft ~~6-7¹/₄-6~~
First Used in Letting of 1915. 3

County	Project	Miles
Cerro Gordo	-----	1.0

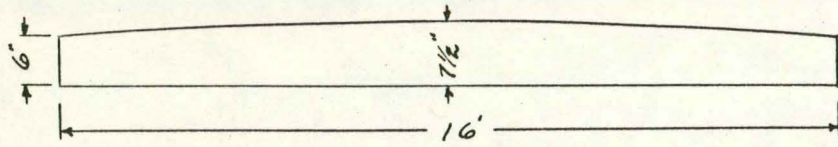
County
Des Moines

Project
~~FA 252~~

Miles
1.0

Design No. 4. Width 16 ft 6-7 $\frac{1}{2}$ -6
First Used in Letting of 7-26-15.

4



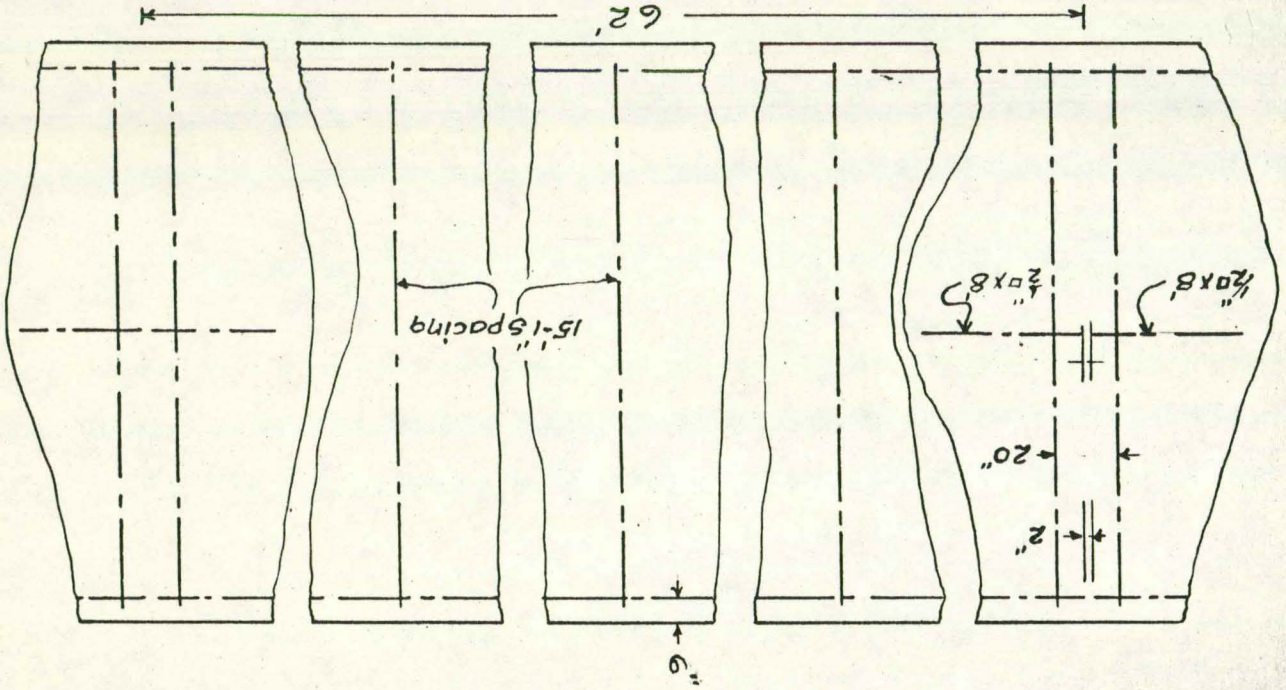
Handwritten notes:
1. 6" x 7 1/2" x 16'
2. 16'

Design No. 5. width 16 ft 6-7 $\frac{1}{2}$ -6
First Used in Letting of 7-17-18.

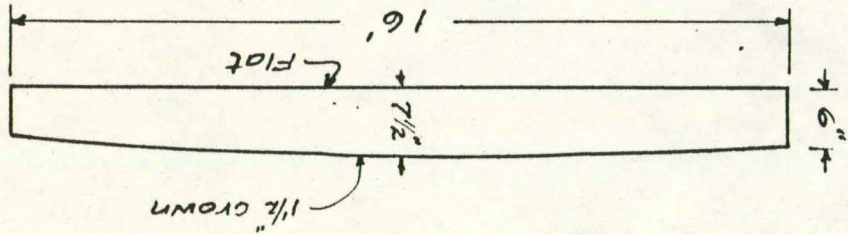
5

County	Project	Miles
Cerro Gordo	F-1	4.07
Linn	Seedling Mile	1.0

All steel $\frac{1}{2}$ " bars at center of section.



①



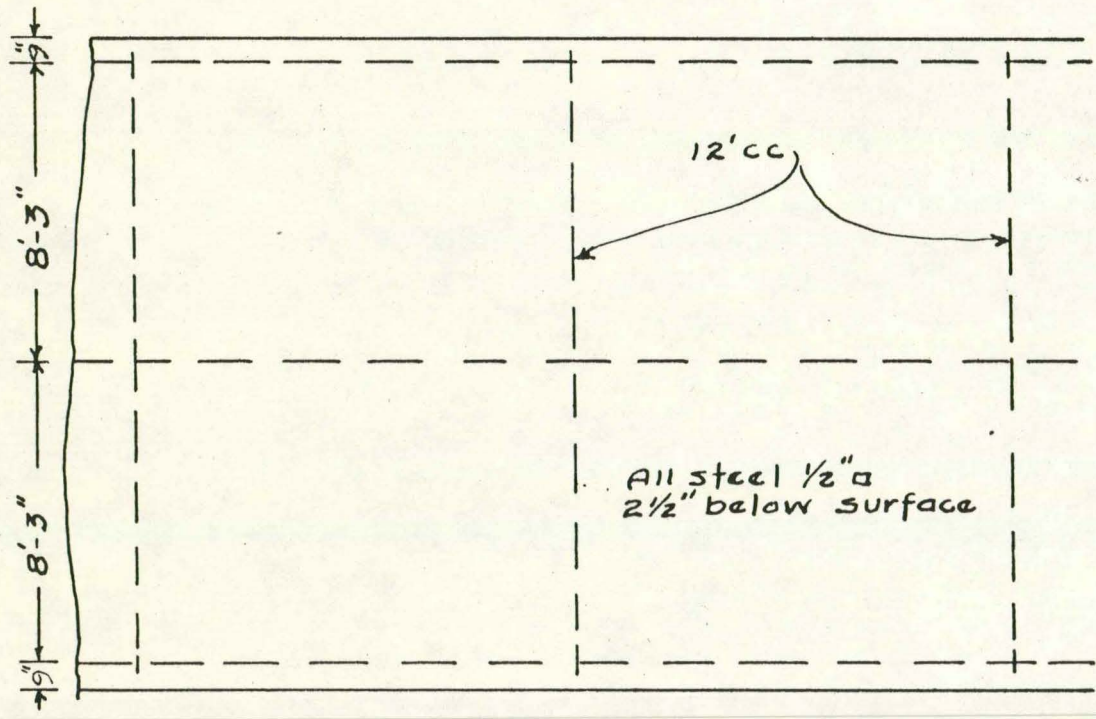
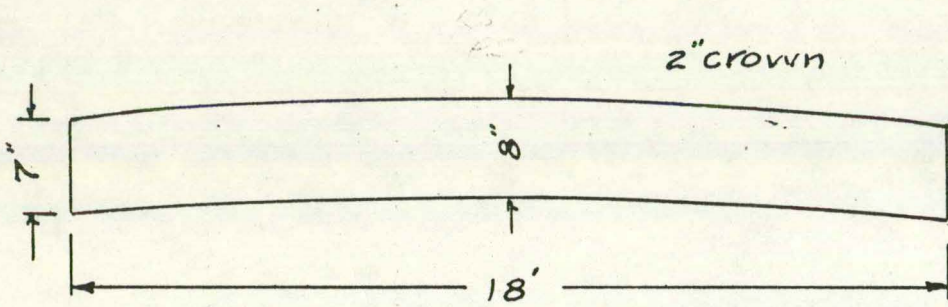
		Design No. 6. Width 18 ft 7-8-7			
		First Used in Letting of			
County	Project	Miles	County	Project	Miles
Benton	FA-58-B	4.24 ²	Sioux	P-26	2.196
Benton	FA-58-B	0.92	Sioux	FA-84	2.94
Benton	FA-58-C	1.22	Woodbury	P-45	14.0
Benton	FA-58-C	2.50	Woodbury	FA-78	2.73
Cerro Gordo	FA-61	2.94			
Cerro Gordo	FA-61	3.11			
Cerro Gordo	FA-115	4.49			
Cerro Gordo	FA-115	5.14			
Cerro Gordo	FA-115	12.44			
Clinton	FA-18	1.750			
Clinton	F-18-AD	15.17			
Des Moines	P-53	2.336			
Dickinson	FA-68	4.3			
Floyd	FA-41	4.783			
Floyd	FA-41	6.857			
Greene	FA-39	2.00			
Greene	FA-39	2.497			
Greene	FA-39	1.963			
Humboldt	FA-48	1.31			
Johnson	FA-128	2.54			
Linn	FA-22-A	6.50			
O'Brien	FA-43	22.50			
Palo Alto	FA-109	11.05			
Polk	FA-89	7.22			
Polk	FA-104	6.57			

6

Handwritten signature
348

1573

6 Feb
1963 2. J. L. Smith



15

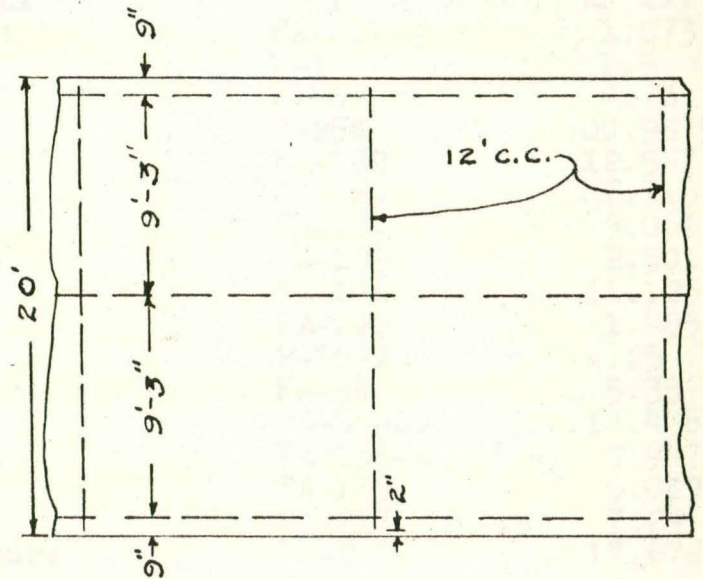
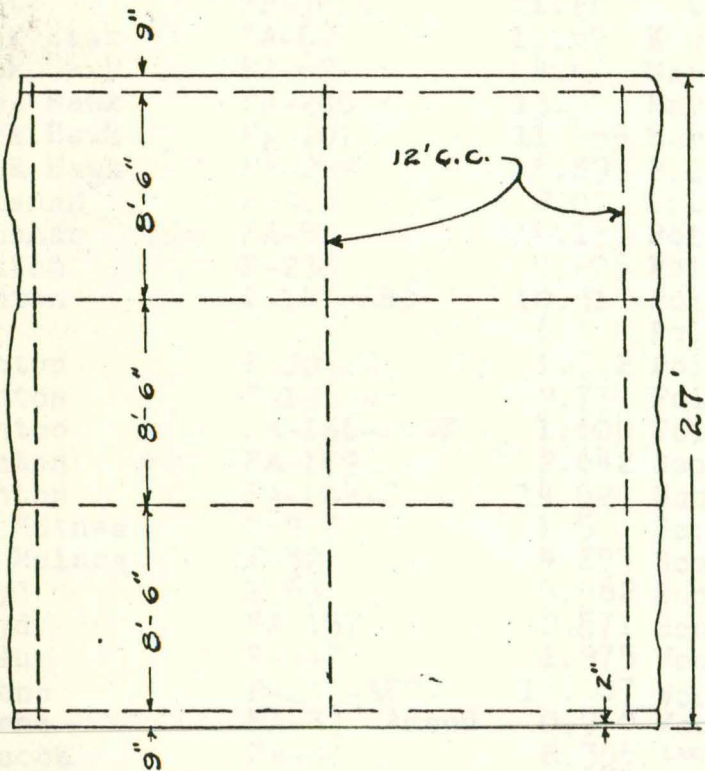
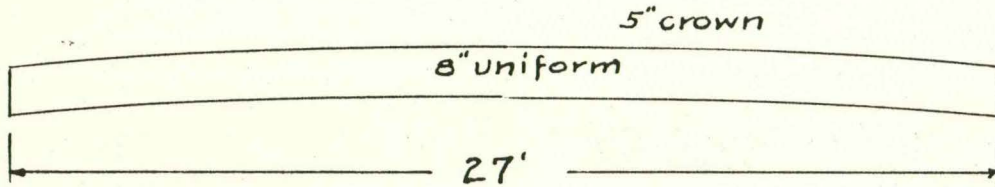
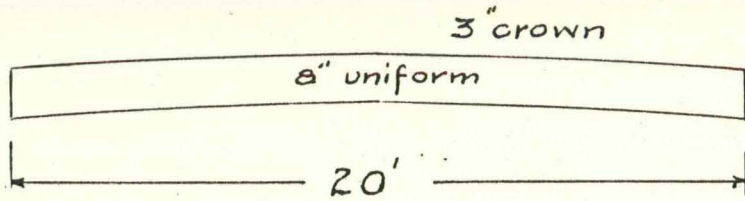
County
Johnson

Project
FA-9

Design No. 7. Width 20 & 27 8in uniform
First Used in Letting of 1924.
Miles
1.09

7

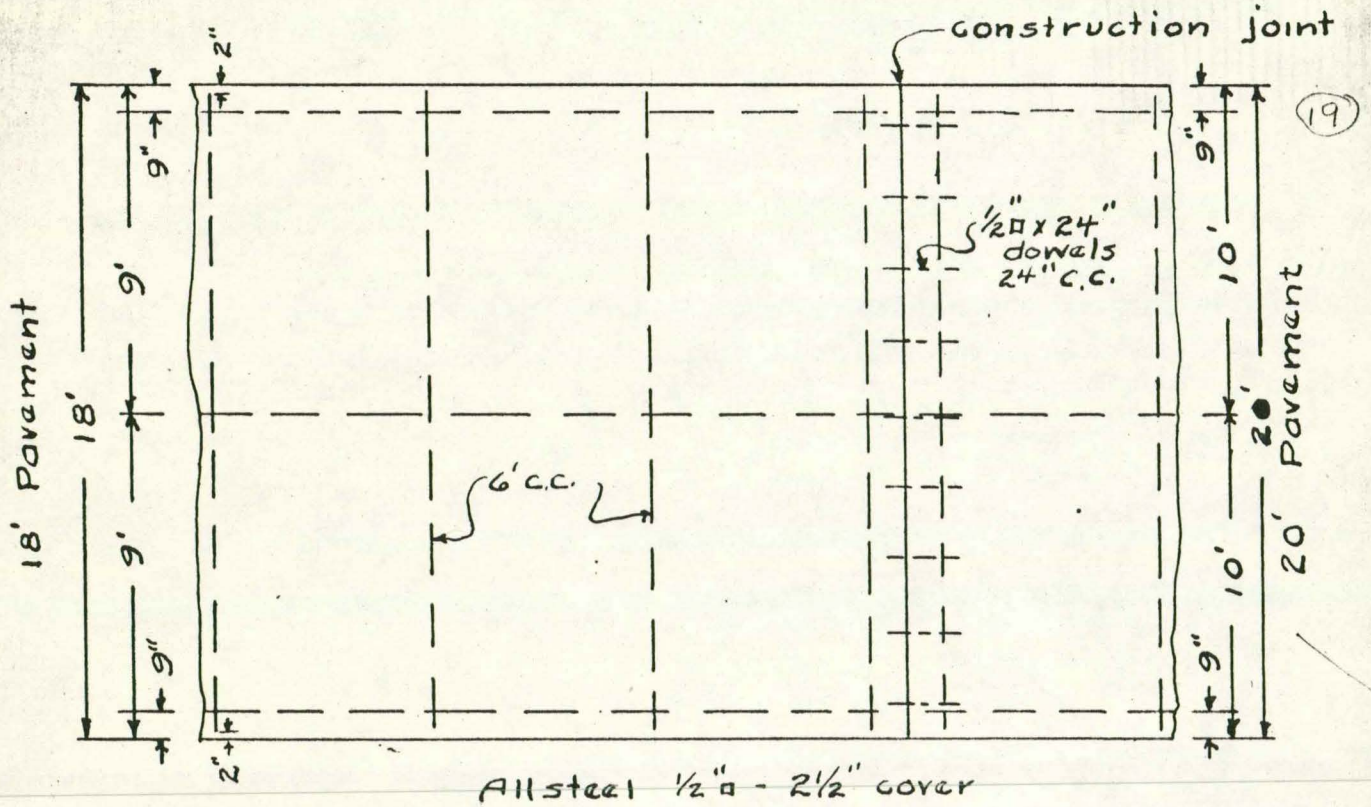
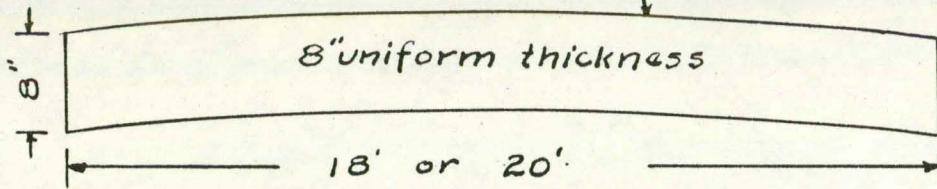
No Parting 6/14/63
Top. outside



26

All steel $\frac{1}{2}$ " \square bars in center of section.

No Parking Strip
6 Feb '63 O.H.L. Co.
2" crown



(19)

Design No. 9.

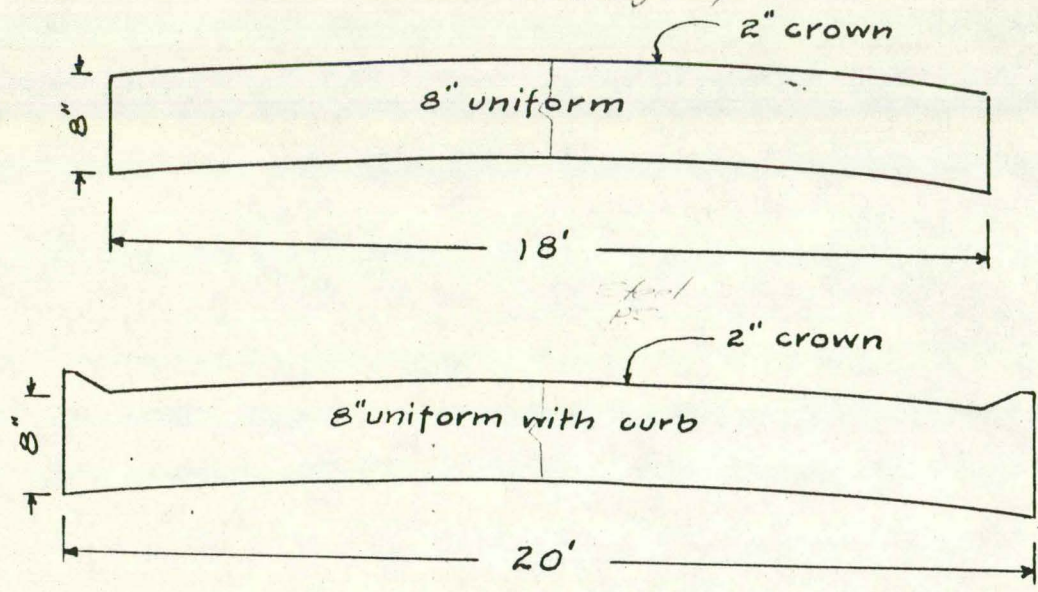
First Used in Letting of 2-10-25.

County	Project	Miles	
Clinton	P-434	0.304	Width 18 and 20 ft. 8" uniform
Harrison	P-423	0.538	
Ann	FA-96-A	7.218	
Ann	FA-96-B	5.53	
olk	P-418	2.737	
olk	FA-215	7.324	
olk	FA-216	9.371	
Ottawattamie	P-400	0.68	
Scott	P-405	1.436	
Scott	FA-221	9.788	
Scott	FA-243-ABC	8.142	
Winneshiek	P-121		

MARSHALL C-36 1.00
 OIK FA 199 B 0.133

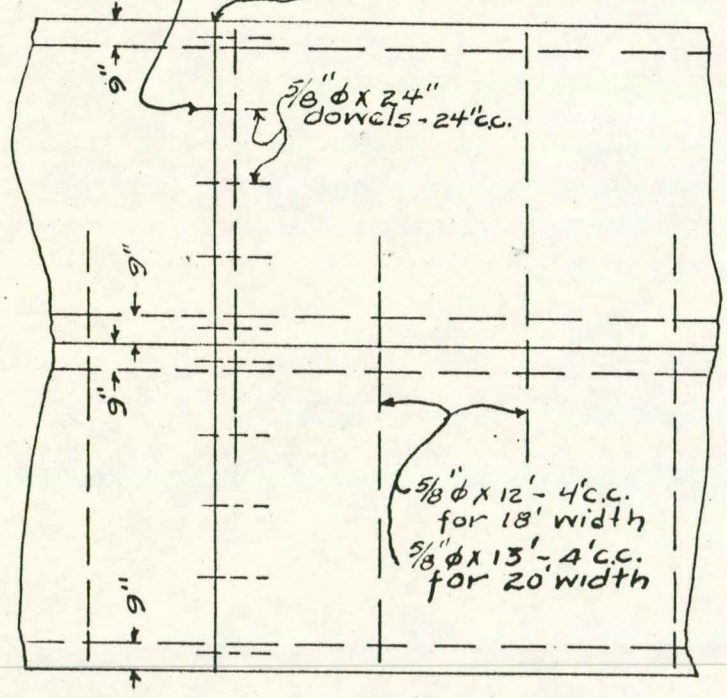
1.0

Steel Parting Strip Feb. 63 Plans Checked
 O. J. Lane.



Expansion tubes at exp. joints Any construction joint

(23)



All steel 5/8" ϕ plain round
 2 1/2" cover.
 dowels at center of section.

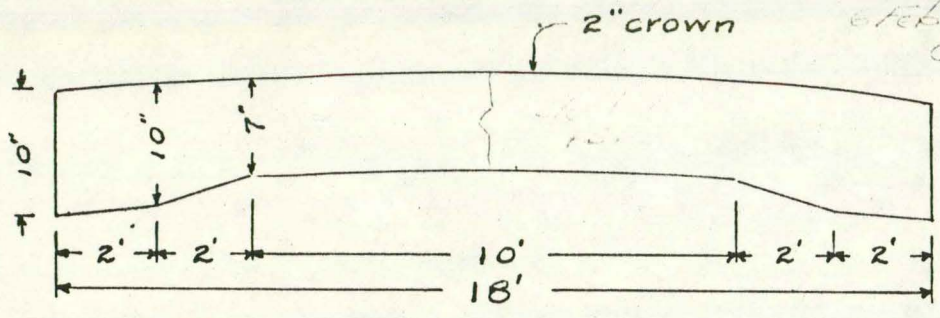
Design No. 10;
First Used in Letting of 5-11-26.

1080

County	Project	Miles	Width	Date
Des Moines	FA-282-	8.347	18 ft.	10-7-10
Johnson	FA-289-A	13.49		
Linn	FA-225	6.62		
Wapello	FA-159	8.558		

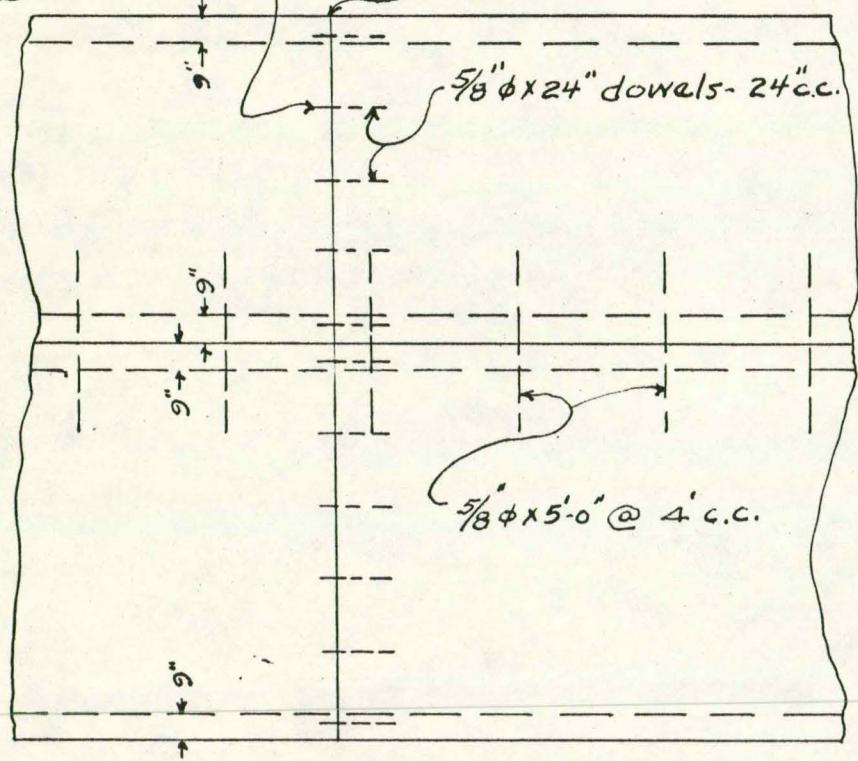
3707

Feb. 63 O. J. Lemo
Checked Plans



Expansion tubes
at exp. joints

Any construction joint.



All steel 5/8" φ plain bars
2 1/2" cover except
dowels at center of
section.

24

10

6

County
Plymouth
Plymouth

Project
FA-38
FA-273

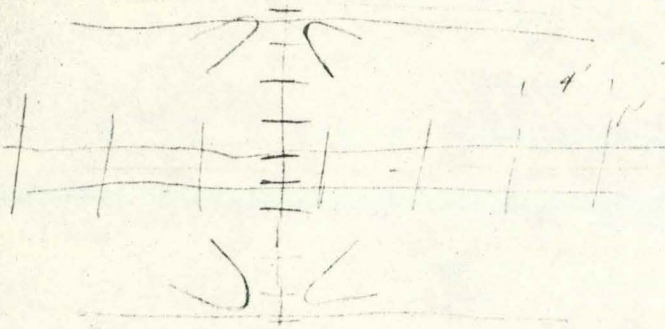
Design No. 11.
First Used in Letting of 3-8726.
Miles.
10.184
6.5

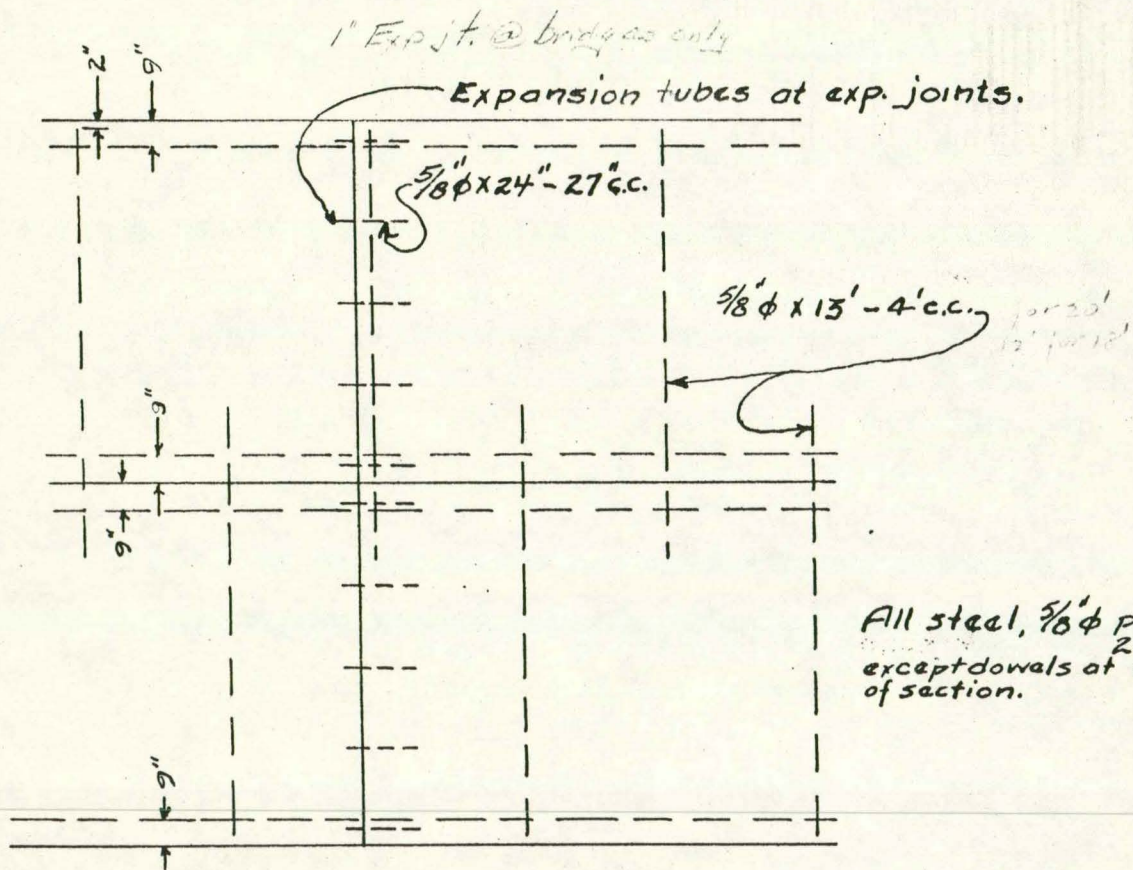
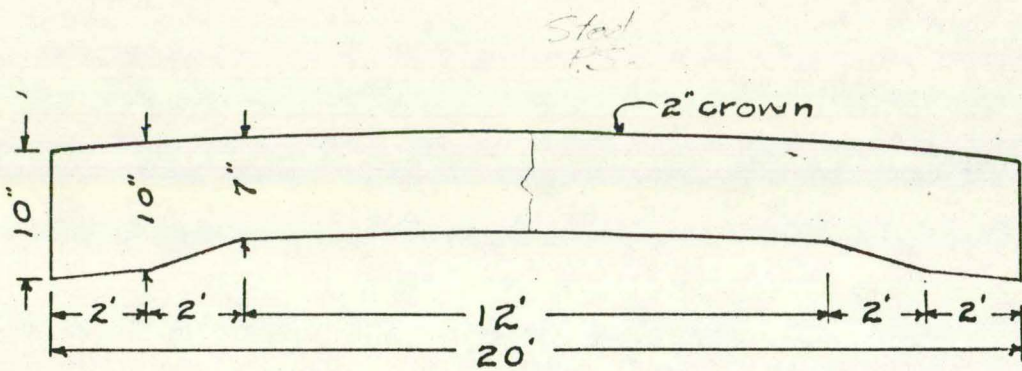
Width 20 ft. 10-7-10

11

*This is the typical
design for FA-38 Plymouth*

*6 Feb. 63 C.W. Long
Plans Checked*





All steel, 5/8" ϕ plain round
2 1/2" cover
except dowels at center
of section.

X "

Design No. 12

First Used in Letting of July 15, 1926

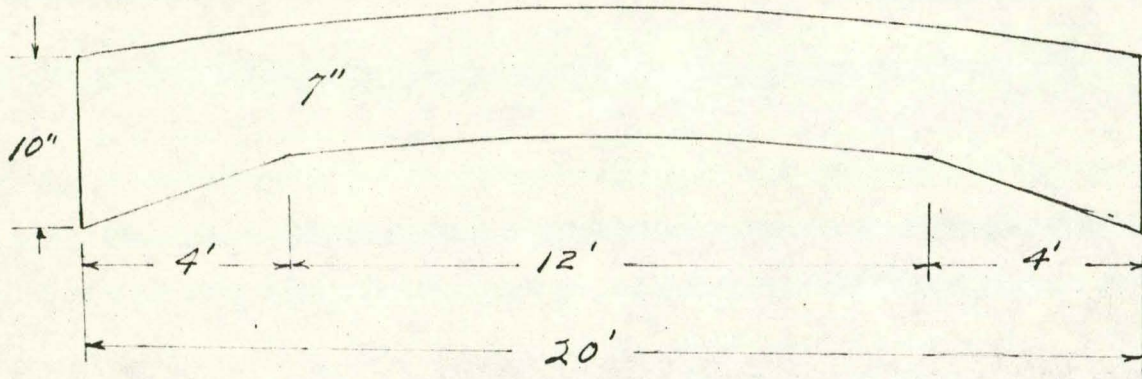
Width 20 ft. 10-7-10

Scott
Dubuque

FA 55(C)
FA 148

0473 miles 1926
15.277 Miles 1926-27

{ ?
 Checked Plans
 6 Feb 1923 Oshkosh
 Design 12
 No. 12 of 1926-27

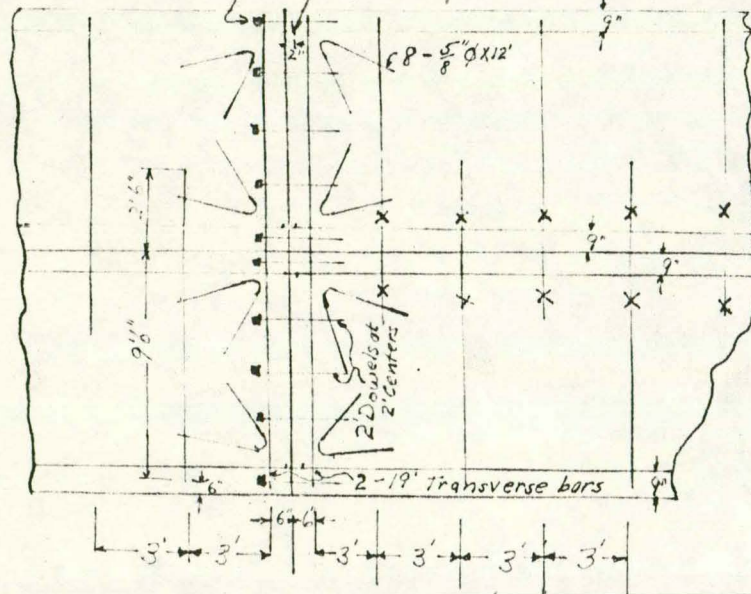


Longitudinal Reinforcing Steel to End
2" from Transverse Joints

All Bars Plain $\frac{5}{8}$ " ϕ

Exp. tubes at E.J.

1" Exp St @ bridges only



Design No. 12.
First Used in Letting of 6-8-26.

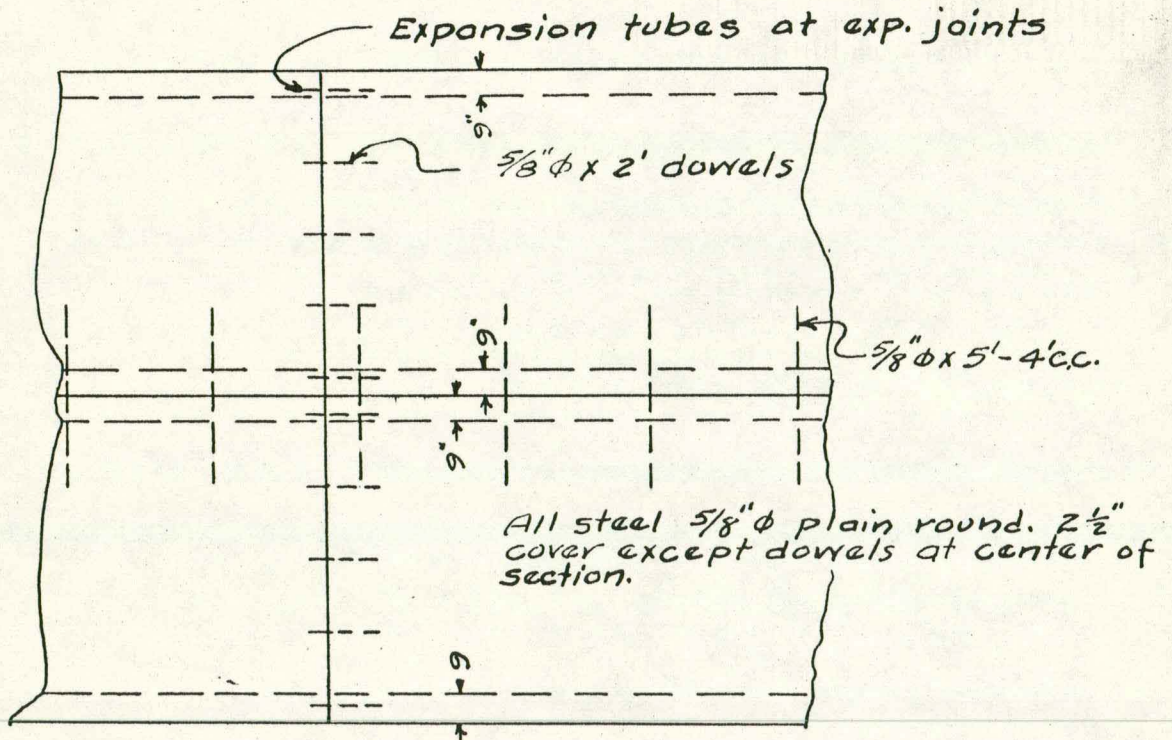
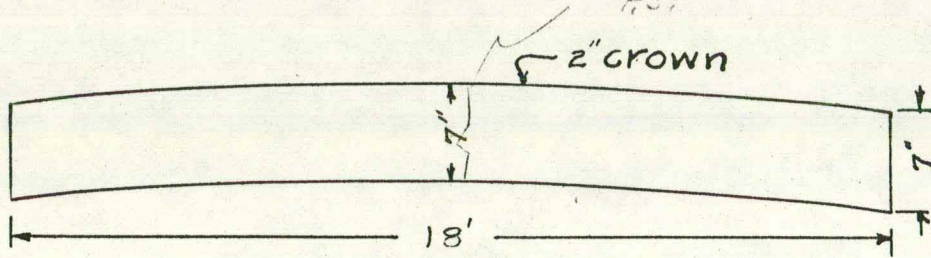
12
a

County	Project	Miles
Appanoose	FA-27	7.039
Dubuque	FA-148	15.277
Jasper	FA-64-D	4.897
Jasper	FA-64-D	5.099
Jefferson	FA-3	9.128
Jefferson	FA-294	3.063
Mahaska	FA-70-A	0.791
Mahaska	FA-70-B	12.80
Mahaska	FA-146- Ext.	4.116
Mahaska	FA-293	2.74
Scott	FA-55-C	0.473

6 Feb 63 Plans checked

O.J. Lane

Steel
MS.



(6)

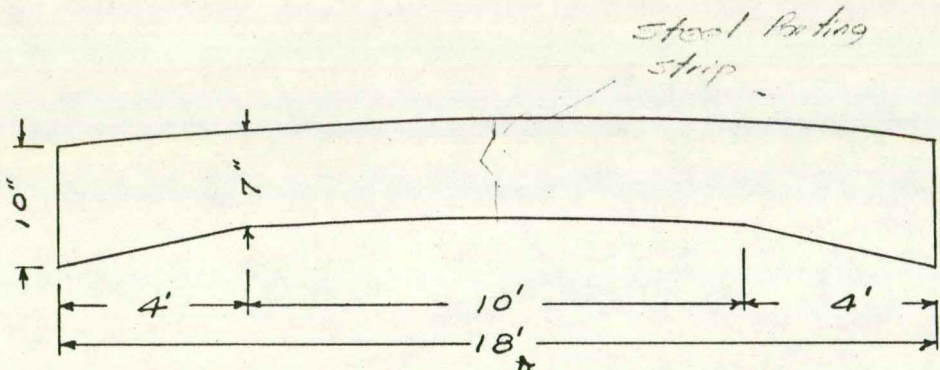
Design No. 13.
 First Used in Letting of 8-31-26.

13

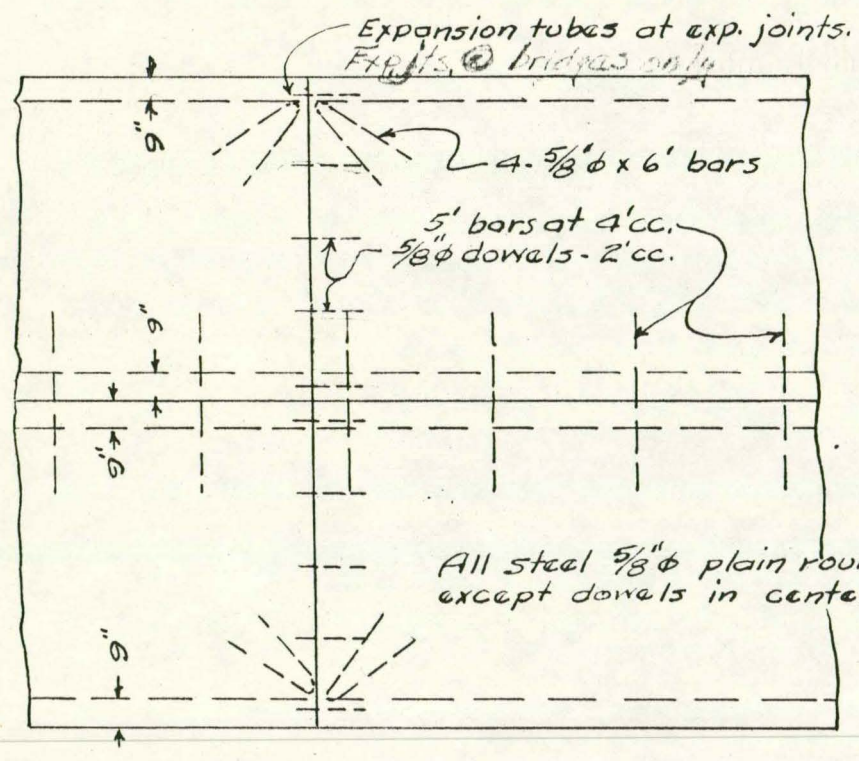
County	Project	Miles	County	Project	Miles
Benton	FA-58-A	8.50			
Benton	FA-233	10.145	Width 18 ft.	10-7-10	
Benton	FA-278	11.07			
Benton	FA-285	2.54			
Floyd	FA-279-A	8.905			
Harrison	FA-214	9.584			
Jefferson	FA-3	10.927			
Lee	P-480	7.589			
Mahaska	FA-70-B Ext.	0.510			
Tama	P-458	1.809			
Tama	FA-276	15.611			
Wapello	FA-246	10.885			

Tama FA 211 CD 5.273
 Clayton P 489 0.215

Plan checked 6 Feb 63
D. J. Lane



The above dimensions are
12' and 20' resp. for 20' widths.

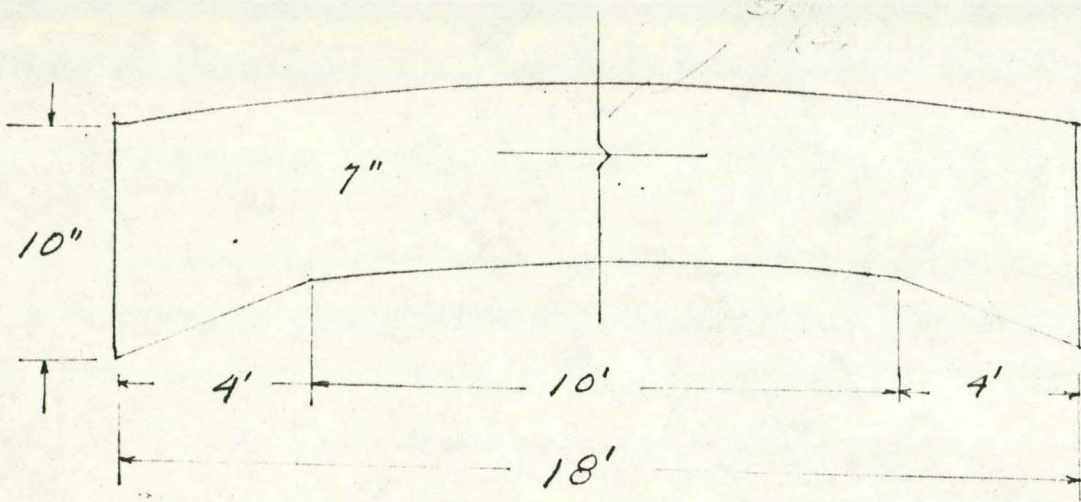


All steel $\frac{5}{8}$ " ϕ plain round 2 1/2" cover
except dowels in center of section.

Design No. 15
First Used in Letting of October 16, 1928
Width 18ft. 10-7-10
Wayne F 150 4.739 Miles 1929
Wayne F91 B, E, F, G 7.076 Miles 1929.

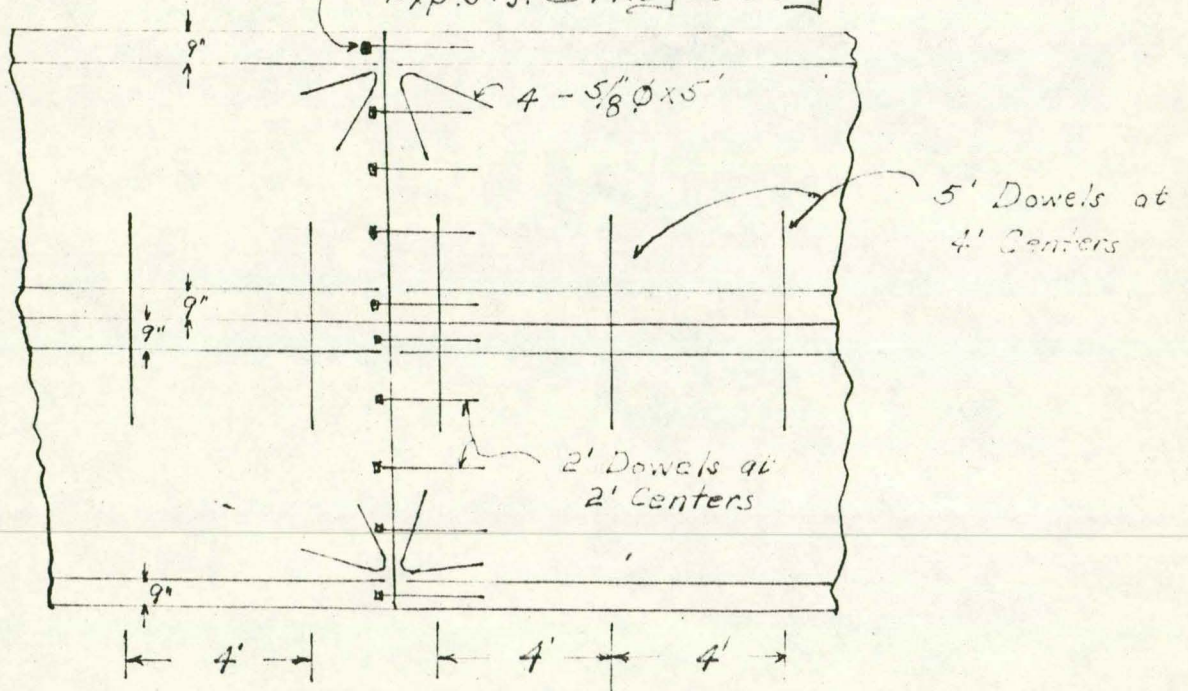
15
a

6. Fabric Plans checked
O.S. Lewis



All Bars Plain $\frac{5}{8}$ " ϕ
Exp. Tubes at E.J. Only

Exp. Jts. @ Bridges only



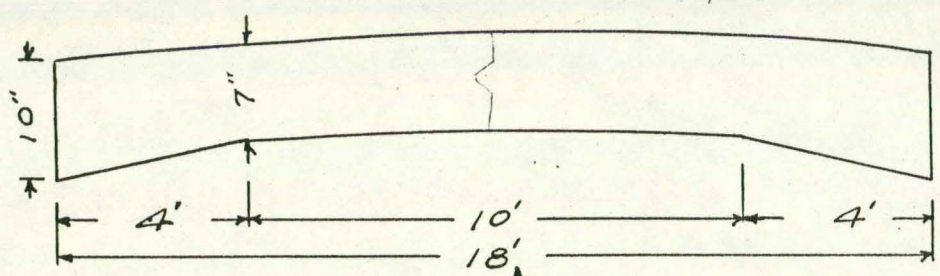
County	Miles	Project	County	Miles	Project
Lucas	13.79	P-551	Warren	10.456	P-580
Mahaska	16.205	P-510	Warren	4.777	P-596
Mills	8.968	P-479	Warren	4.01	F-11
Mills	1.583	P-605	Warren	6.255	FA-265-AB
Mills	4.204	FA-15	Washington	0.84	P-543-A
Mills	8.322	FA-15-AB	Washington	0.934	P-544
Mills	8.099	FA-226	Washington	9.286	P-602
Monona	10.936	FA-184 B&C	Wayne	7.076	F-91-DEF&G
Monroe	16.269	P-554	Wayne	4.739	FA-150
Montgomery	12.218	FA-16-AB	Winneshek	9.9	P-585
Montgomery	3.487	FA-16-C	Winneshek	7.360	FA-98-A & C
Montgomery	5.38	FA-238	Winneshek	7.3049	FA-308
Muscatine	13.252	P-481	Winneshek	2.904	P-555-C
O'Brien	7.257	P-335	Worth	8.326	P-555-F
O'Brien	17.94	P-545-A & B	Worth	0.33	P-555-F
Page	23.56	P-27	Lee		Supp to P149 CD
Palo Alto	13.147	FA-307	Lee		
Plymouth	7.976	FA-275	Lee		
Polk	0.319	FA-216	Lee		
Pottawattamie	5.238	FA-280-B	Lee		
Pottawattamie	11.068	FA-309	Lee		
Pottawattamie	6.9	FA-310	Lee		
Poweshiek	2.173	P-385-A	Lee		
Poweshiek	14.446	P-385-B	Lee		
Van Buren	17.796	FA-165-A to F	Lee		
Van Buren	1.446	FA-222	Lee		
Wapello	5.429	P-326	Lee		
Wapello	11.60	P-559	Lee		

51

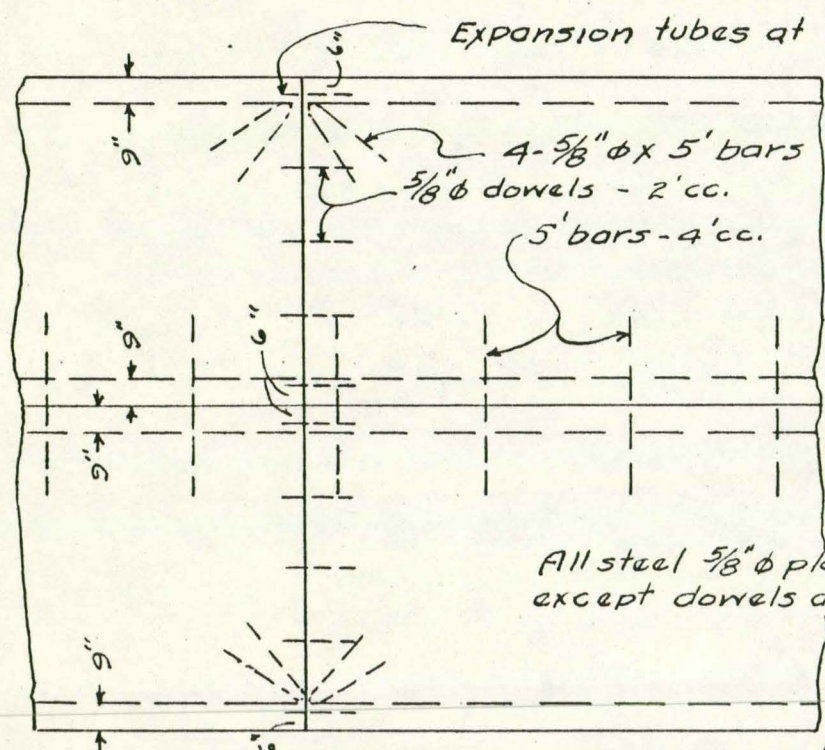
Design No. 15. First Used in Letting of 11-15-22

County	Miles	Project	County	Miles	Project	Miles
Adair	19.644	FA-77	Fremont	0.747	P-472	19.644
Adair	4.876	FA-266-A	Grundy	10.320	F-173	4.876
Adams	13.890	F-138	Harrison	5.2	F-152-A	13.890
Allamakee	11.574	F-228	Harrison	1.893	P-305	11.574
Appanoose	17.115	FA-56-DE+G	Henry	5.192	FA-239	17.115
Benton	8.922	FA-151	Henry	8.00	FA-251-C	8.922
Bremer	10.218	FA-219-A to F	Henry	5.091	P-334	10.218
Bremer	21.727	P-590-A & B	Howard	4.44	P-421	21.727
Bremer	5.005	FA-244-B	Iowa	6.541	P-598	5.005
Buchanan	2.319	P-600	Jackson	11.816	P-548-B	2.319
Butler	1.469	FA-21-A	Jackson	9.142	P-167-F	1.469
Butler	14.127	FA-21-BCD	Jackson	19.468	P-558	14.127
Cerro Gordo	10.133	FA-64	Jasper	4.163	P-89	10.133
Chickasaw	8.849	P-220	Jefferson	10.33	P-601	8.849
Clayton	1.062	P-207-F	Johnson	12.784	F-74-BCDF&G	1.062
Clayton	445	P-589	Johnson	9.60	F-169-CD	445
Clarke	18.514	F-86-BC	Jones	12.149	P-31	18.514
Clarke	6.92	FA-86-AB	Jones	8.993	FA-33	6.92
Davis	17.274	FA-163-A	Jones	14.828	FA-158	17.274
Decatur	8.251	P-246-BCD	Keokuk	8.53	P-588-V	8.251
Decatur	1.039	P-574-C	Keokuk	10.865	P-588-BC	1.039
Decatur	10.787	P-6	Kossuth	2.738	FA-122-B	10.787
Dubuque	21.650	FA-111	Kossuth	7.88	FA-298	21.650
Dubuque	0.965	P-149	Lee	3.332	FA-17	0.965
Dubuque	14.55	P-149-A	Lee	11.1	FA-304	14.55
Fayette	18.88	P-149-CD	Lee	15.415	FA-59-DE	18.88

11 rows checked
cut. Lane



The above dimensions are
12' + 20' resp. for 20' widths.



All steel $\frac{5}{8}$ " ϕ plain round $2\frac{1}{2}$ " cover
except dowels at center of section

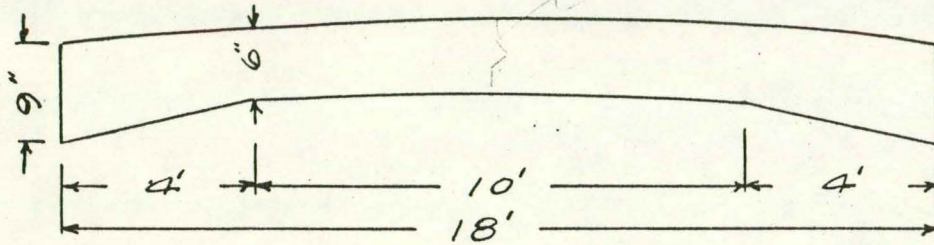
Note: This design is similar to (14) except
the "hairpins" are 5' long
This was used after 12-22-27

County
Lee

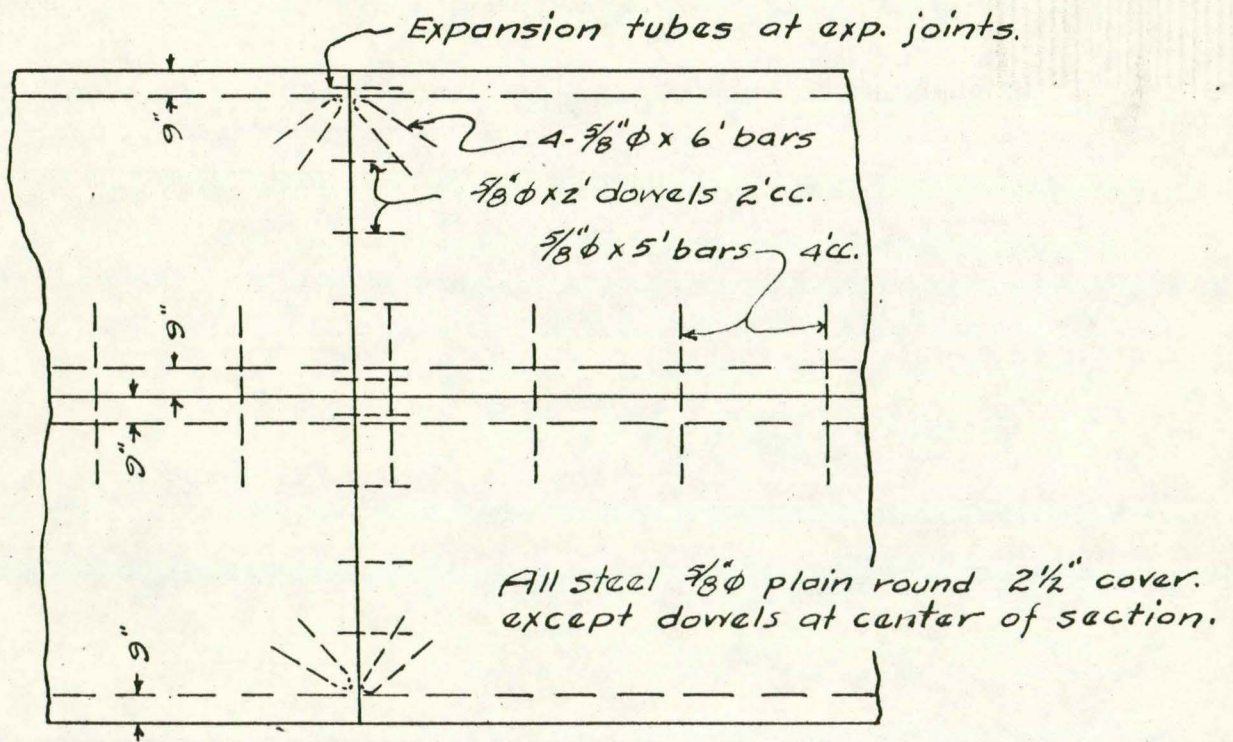
Design No. 16.
First Used in Letting of 7-12-27.
Project Miles
Coleman Road 10.92
Width 18 ft 9-6-9

16

6. Fabrication Plans Checked
C. H. Lane



Note: This design is 1" thinner than design 14.



Project	Miles	County	Project	Miles	County
Hamilton	12.8	Hamilton	Hamilton	12.8	Hamilton
Hamilton	14.7	Hamilton	Hamilton	14.7	Hamilton
Iowa	7.2	Iowa	Iowa	7.2	Iowa
Iowa	6.1	Iowa	Iowa	6.1	Iowa
Iowa	6.3	Iowa	Iowa	6.3	Iowa
Keokuk	11.8	Keokuk	Keokuk	11.8	Keokuk
Linn	0.7	Linn	Linn	0.7	Linn
Lucas	6.4	Lucas	Lucas	6.4	Lucas
Mahaska	10.8	Mahaska	Mahaska	10.8	Mahaska
Mahaska	0.1	Mahaska	Mahaska	0.1	Mahaska
Mahaska	10.8	Mahaska	Mahaska	10.8	Mahaska
Montgomery	10.0	Montgomery	Montgomery	10.0	Montgomery
Page	11.6	Page	Page	11.6	Page
Page	10.8	Page	Page	10.8	Page
Pottawattamie	5.2	Pottawattamie	Pottawattamie	5.2	Pottawattamie
Pottawattamie	1.4	Pottawattamie	Pottawattamie	1.4	Pottawattamie
Poweshiek	2.6	Poweshiek	Poweshiek	2.6	Poweshiek
Scott	1.0	Scott	Scott	1.0	Scott
Shelby	13.5	Shelby	Shelby	13.5	Shelby
Shelby	9.8	Shelby	Shelby	9.8	Shelby
Story	17.4	Story	Story	17.4	Story
Story	2.1	Story	Story	2.1	Story
Story	13.4	Story	Story	13.4	Story
Story	10.6	Story	Story	10.6	Story
Tama	25.7	Tama	Tama	25.7	Tama
Tama	2.8	Tama	Tama	2.8	Tama
Taylor	12.8	Taylor	Taylor	12.8	Taylor

Handwritten notes:
 1.306
 1.099
 0.856
 0.176
 2.272

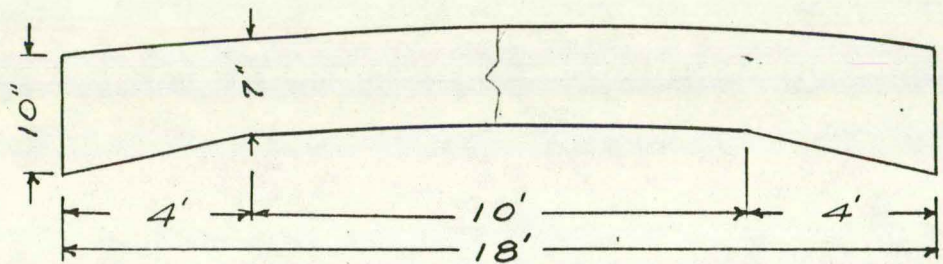
Design No. 17. Width 18ft 10-7-10
 First Used in Letting of 5-14-29

17

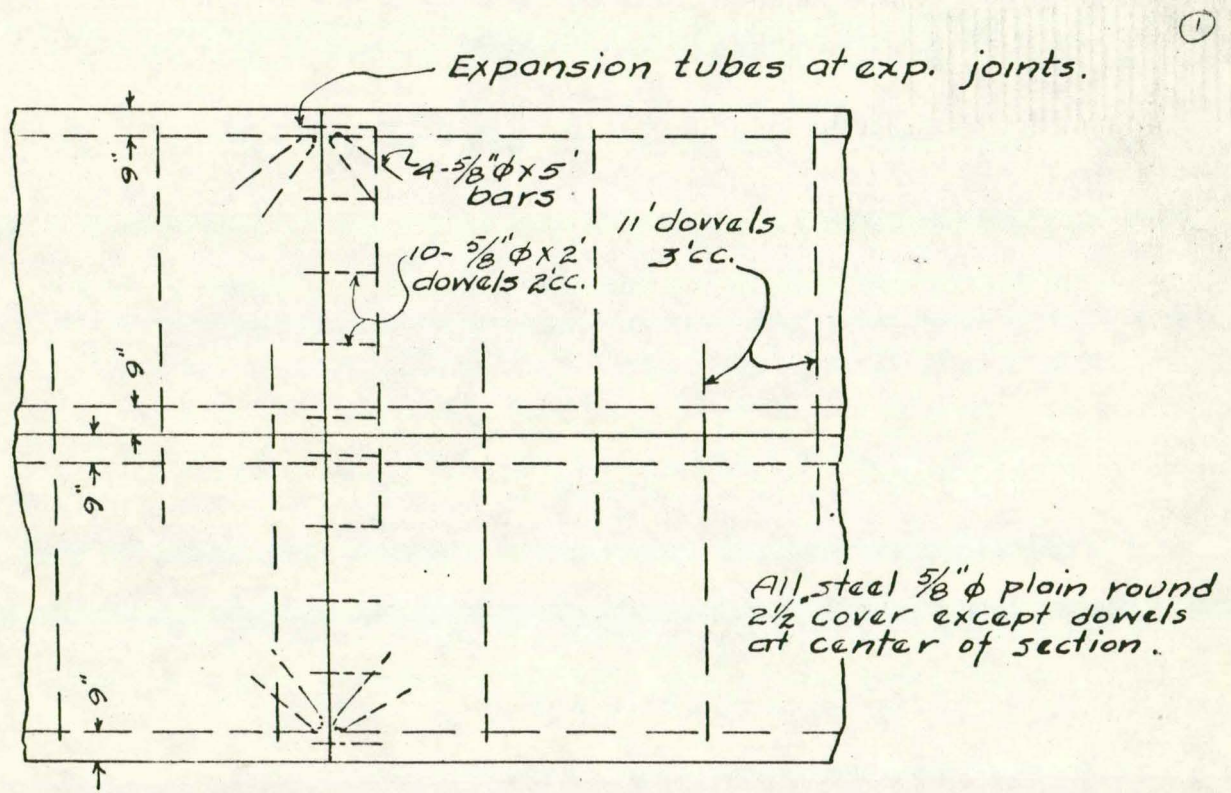
County	Project	Miles	County	Project	Miles
dair	P-162	3.982	Guthrie	FA-145-ABC	10.308
dair	FA-173	3.021	Clay	F-218	5.017
dams	F-26	10.129	Clayton	P-586-B	1.572
udubon	P-503	1.16	Clinton	P-295	11.92
udubon	FA-52	9.104	Clinton	FA-18	0.891
udubon	FA-52-E	9.55	Crawford	P-289	13.943
udubon	FA-208	8.54	Crawford	FA-232	8.885
lack Hawk	P-164	7.91	Crawford	FA-287-BC	7.60
lack Hawk	P-359	4.13	Davis	FA-153-AB	8.07
lack Hawk	P-359	7.13	Delaware	F-103	12.873
lack Hawk	P-625	3.52	Des Moines	F-301	4.156
oone	P-61	10.16	Dickinson	P-23-ABCD	13.51
oone	P-630-A	9.39	Dubuque	FA-17	20.08
oone	P-644	14.29	Dubuque	FA-148-C	3.45
remer	P-483	5.997	Fayette	P-639	16.451
remer	F-88-A	3.894	Fayette	FA-164-ABC	8.815
remer	F-88-B	6.901	Fayette	F-172	7.097
utler	P-167-A	7.085	Floyd	P-572	1.089
utler	FA-274-BCD	10.434	Franklin	FA-105-ABCD	11.89
uchanan	FA-262	11.31	Franklin	FA-171-AB	11.90
arroll	P-611	12.271	Fremont	F-235	7.0933
ass	P-150	3.116	Fremont	F-235	7.3927
ass	FA-44-DEFG	11.456	Grundy	FA-19	12.203
larke	P-313	10.384	Guthrie	P-624	11.624
larke	FA-241	12.706	Hamilton	P-79-C	1.996

Handwritten note:
 Special Letting
 4/21/29
 4/21/29

6 Feb 63 P/S. Shockey
A.J. Lane



Some projects listed have joints only at bridges some at regular intervals.



County	Project	Miles	County	Project	Miles	County	Project	Miles
Clay	NRH-361-B	5.652	Fayette	P-553	1.172	Clay	NRH-361-B	5.652
Clayton	P-70	9.355	Floyd	P-269-A	5.27	Clayton	P-549	9.355
Clayton	P-549	0.686	Floyd	EF-41	1.163	Clayton	F-74	0.686
Clayton	F-323	12.12	Floyd	EF-369-ABC	6.59	Clayton	F-323	12.12
Clayton	NRH & M-371-AB	10.9	Fremont	P-136	1.789	Clayton	NRH & M-412	10.9
Clayton	P-272-B	0.284	Fremont	P-136	9.440	Clayton	P-272-B	0.284
Clinton	F-147	1.316	Fremont	P-136	1.793	Clinton	F-147	1.316
Clinton	NRH-419-AB	6.230	Fremont	P-562-	4.662	Clinton	NRH-419-AB	6.230
Clinton	P-8-B	4.196	Grund	FA-19	9.229	Clinton	P-8-B	4.196
Crawford	P-289-B	0.695	Grund	FA-315	16.203	Crawford	P-289-B	0.695
Crawford	FA-321	10.255	Grund	FA-319-ABC	10.401	Crawford	FA-321	10.255
Crawford	NRH & M-412	4.512	Grund	FA-332-B	3.835	Crawford	NRH & M-412	4.512
Crawford	P-670-ABC	13.851	Grund	FA-51-A	12.333	Crawford	P-670-ABC	13.851
Dallas	P-623-A	2.225	Guthrie	FA-179	7.378	Dallas	P-623-A	2.225
Dallas	P-623-B	8.331	Guthrie	FA-179	7.378	Dallas	P-623-B	8.331
Dallas	P-640-AB	16.84	Guthrie	FA-624	0.65	Dallas	P-640-AB	16.84
Dallas	P-641	24.198	Hamilton	P-344-B	0.720	Dallas	P-641	24.198
Dallas	P-684	5.653	Hamilton	FA-67-EFG	16.627	Dallas	P-684	5.653
Dallas	F-330	13.772	Hamilton	FA-316	6.843	Dallas	F-330	13.772
Davis	F-209-AB	11.038	Hamilton	FA-318	16.454	Davis	F-209-AB	11.038
Davis	FA-153-A	3.978	Hamilton	P-642	23.55	Davis	FA-153-A	3.978
Davis	NRH & M-50-ABC	10.67	Hardin	P-642-FGHI	12.48	Davis	NRH & M-50-ABC	10.67
Delaware	P-103-D	0.09	Hardin	P-642-H	0.34	Delaware	P-103-D	0.09
Delaware	P-236	10.01	Hardin	P-642-J	0.701	Delaware	P-236	10.01
Emmet	P-702-ABCD	23.55	Hardin	P-642-K	0.330	Emmet	P-702-ABCD	23.55
Emmet	EF-363-BC	6.430	Hardin	F-139-B	9.852	Emmet	EF-363-BC	6.430
Emmet	NRM-363-D	0.319	Hancock	FA-79-ABC	11.383	Emmet	NRM-363-D	0.319
Project			Project			Project		

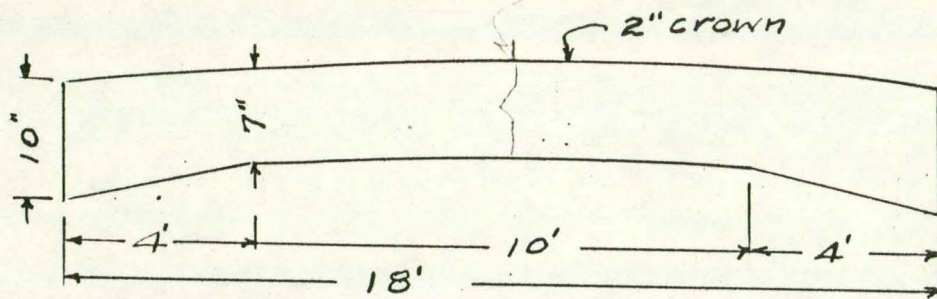
Design No. 18. Width 18 ft. 10-7-10
 First Used in Letting of Feb 4 1930.

County	Project	Miles	County	Project	Miles
Adair	FA-256	4.387	Calhoun	P-25-A	0.999
Adams	F-152	8.933	Calhoun-Webster	P-676-A	0.435
Allamakee	P-677	10.00	Calhoun	NRH & M 370-ABCDE	10.802
Allamakee	P-677	6.595	Carroll	P-14	0.734
Allamakee	P-685-B	4.809	Carroll	P-611	11.937
Allamakee	NRH-170-AB	3.879	Carroll	P-706	0.946
Allamakee	FA-197	2.917	Carroll	P-713	1.586
Appanoose	P-648	8.182	Carroll	F-334	6.271
Appanoose	P-674-A	8.853	Carroll	FA-154-AB Ext.	16.510
Appanoose	P-674-B	1.954	Carroll	FA-154-CDE	9.796
Appanoose	FA-239	0.277	Cass	P-571	4.470
Audubon	FA-52-A	6.774	Cass	F-314	7.171
Audubon	FA-320	9.686	Cass	FA-44-AB	6.401
Benton	P-435	2.904	Cass	FA-155	17.048
Benton	P-501	3.97	Cedar-Muscatine	P-635-AB	5.488
Benton	FA-58	0.354	Cerro Gordo	P-653	8.027
Black Hawk	F-317-ABC	6.635	Cerro Gordo	FA-115	5.064
Boone	FA-328	4.66	Chickasaw	EF-35	4.549
Boone	FA-350	12.20	Chickasaw	NRH-177-AB	6.271
Bremer	EF-367	10.89	Clay	P-256	14.485
Bremer	P-421	1.673	Clay	P-256	0.698
Bremer	P-763-A	3.331	Clay	P-259	4.638
Buena Vista	FA-355	2.561	Clay	P-259-CD	12.709
Butler-Hardin	P-267	4.366	Clay	F-218	2.969
Butler	P-558	0.173	Clay	EFA-361-A	6.353
Buena Vista-Sac	FA-333-B	4.50			

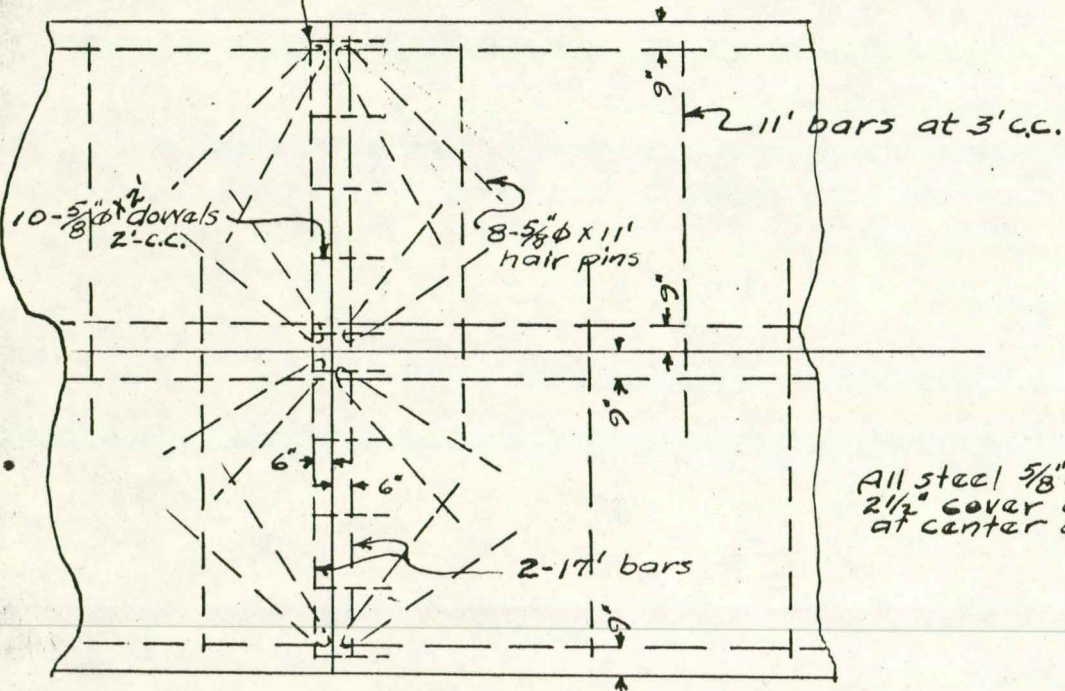
6 Feb. 63 Hans Overland
O. J. Lams

Steel
Parting Strip

1" x 7" Crown?



Expansion tubes at exp. joints



All steel 5/8" plain round
2 1/2" cover except dowels
at center of section.

135.1 Miles
 17.9
 576.2
 225.7
 94.3
 135.3
 166.3
 1551.8

260

Second Sheet Design 18

County	Project	Miles	County	Project	Miles
Monroe-Winnebago	EF-139-BCD	11.86	Kossuth	P-667	11.999
Harrison	P-563-AE	1.628	Kossuth	P-667	6.155
Howard	FA-190-ABCD	12.129	Kossuth	FA-66-B	6.189
Howard	NRH & M-93	1.443	Lee	P-467-A	8.58
Humboldt	NRH & M-117 ABC	5.020	Lee	P-480	0.969
Ida	FA-248-A	7.811	Lee	FA-346	9.428
Iowa	FA-294-AB	8.793	Linn	P-443	9.403
Iowa	F-194	7.14	Linn	F-230	11.698
Jackson	P-448	2.205	Linn	FA-22	0.613
Jackson	P-532	0.43	Linn	FA-229-ABC	24.451
Jackson	FA-143-A	11.643	Linn	NRH-NRM-255-A	6.118
Jasper	P-77	16.354	Linn-Benton	NRH-255-A	3.693
Jasper	P-520	0.6825	Lucas	P-550	0.27
Jasper	FA-64-BC	4.05	Louisa	FA-299	18.045
Jefferson	FA-3	0.327	Lyon	NRH-M-420-AB	5.524
Johnson	P-311	0.305	Madison	P-764	12.814
Johnson	P-412	3.003	Madison	FA-169-B & E	5.023
Johnson	P-658	6.163	Madison	FA-325	8.098
Johnson	F-296	0.617	Madison	FA-327-A	11.795
Johnson	FA-9	0.444	Madison	NRM-327-B	0.603
Jones	P-687	0.688	Mahaska	P-686	7.858
Jones	F-86	0.392	Mahaska	EF-364	6.622
Jones	FA-86-B	0.354	Marion	P-253-C	5.154
Jones	FA-163-C	4.224	Marion	P-663	15.204
Keokuk	FA-34	10.025	Marion	FA-7	4.561
Keokuk	FA-191	3.990	Marion	FA-75-B	3.874
Keokuk	FA-331	12.257	Marion	FA-253-ABC	10.238
Kossuth	P-6	1.439	Marion	FA-335-D	3.925

Design No 18

56

County	Project	Miles	County	Project	Miles
Marion	FA-336	3.331	Warren	P-569	9.008
Marshall	FA-211-B	1.809	Warren-Polk	P-662	12.129
Marshall	FA-211-E	0.253	Warren	EFA-335-ABC	8.108
Marshall	FA-211-H	0.224	Warren	EFA-335-C	3.956
Marshall	FA-332	8.313	Warren	FA-365	2.807
Mills	P-512	6.464	Washington	P-578-A	8.893
Mills	FA-15	0.552	Washington	P-578-G	2.618
Mitchell	FA-45-A&B	14.41	Washington	FA-324	8.885
Mitchell	FA-45-B	4.823	Washington	FA-324	6.207
Mitchell	FA-368	7.102	Wayne	FA-237	1.694
Mitchell	EF-45-C	4.266	Webster-Calhoun	P-25-ABC	11.394
Mitchell	EF-45-C	5.320	Webster	P-184	2.418
Monroe	P-649	8.132	Webster	P-643	10.020
Monroe	P-294-A	1.2653	Webster	P-673-A	16.215
Monroe	P-294-B	1.704	Webster	P-673-BCD	4.409
Monroe	P-294-C	7.090	Webster-Calhoun	P-676-ABC	12.264
Montgomery	P-607	7.609	Webster	FA-272	4.127
Montgomery	FA-73-A	8.077	Winnebago	P-750-A & C	9.561
Muscatine	P-523	0.275	Winnebago	P-750-A & C	8.589
Muscatine	P-523-B	0.322	Winnebago	P-750-D	2.954
Muscatine-Cedar	P-635 A & B	5.488	Winnebago	P-752-E & F	0.907
Muscatine	P-635- D & G	0.685	Winnebago	FA-30-A	5.871
Muscatine	P-635-CEFH	13.274	Winneshiek	FA-98	0.094
Muscatine	FA-87	9.109	Winneshiek	FA-98-D	4.617
Muscatine	NRH-372	9.124	Winneshiek	FA-98-E	1.587
O'Brien	NRH-M-43	2.044	Winneshiek	FA-284-D	4.043
Osceola	P-725-ABCD	15.369	Worth	P-555-B	0.360
Osceola	NRH-M-329	6.816	Wright	FA-29-A-B	14.424
Palo Alto	FA-362	12.169	Wright	FA-29-C	6.275
Page	P-264	13.514	Wright	FA-29-DEF	4.433
Pocahontas	NRH-M 421	4.886	Wright	FA-267-C	12.051
Pottawattamie	P-576	6.589	Wright	FA-267-D	0.246
Pottawattamie	P-576-A	8.877	Wright	FA-267-E	12.174
Pottawattamie	FA-46	0.431	Wright	FA-267-F	0.152
Pottawattamie	FA-310-C	14.766	Wright	FA-343-ABCD	7.746
Pottawattamie	FA-310-D	1.067	Wright	FA-360-AB	6.829
Pottawattamie	FA-312	11.862	Henry	FA-56-F	1.712
Poweshiek	F-261	0.324			
Poweshiek	FA-313	8.380			
Sac-Buena Vista	FA-333-A	7.120			
Sac	NRH-M 333-C & D	9.749			
Shelby	FA-322	14.475			
Sioux	NRH-281-BC	4.064			
Story	P-700	1.082			
Story	FA-72-B	12.124			
Tama	FA-257	0.093			
Tama	FA-257	9.100			
Tama	FA-257	1.185			
Tama	FA-276	0.406			
Tama	F-276	0.767			
Tama	FA-303	1.677			
Taylor	FA-149-A & B	14.154			
Taylor	NRM-81-C	0.093			
Union	P-664-ABC	6.709			
Union	P-664-ABC	3.155			
Union	FA-83-DEGHIJ	13.731			
Union	FA-326	9.548			

Lincoln FA-332 0.148
" FA-332 2.276
Deer P-643 2.275

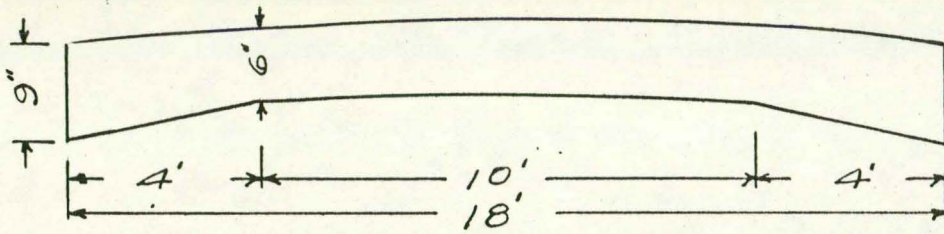
County
Franklin
Kossuth

Project
NRS-407-AB
FA-66-B

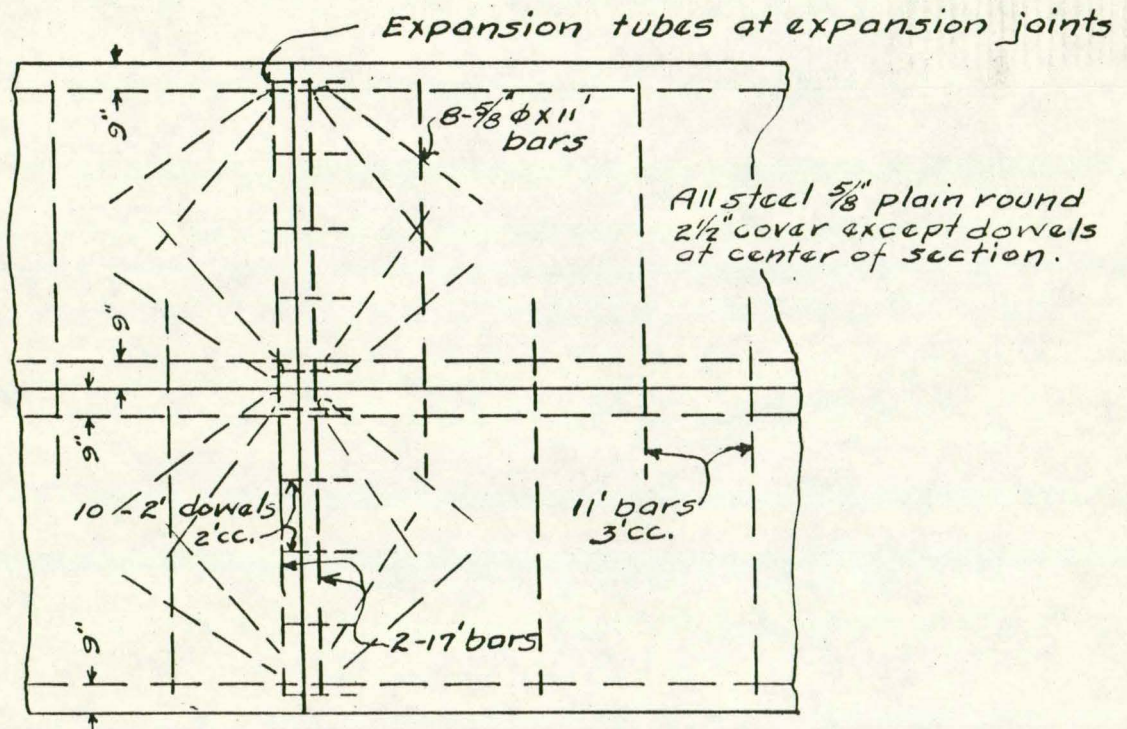
Design No. 19. Width 18 ft. 9-6-9
First Used in Letting of 6-8-32.
Miles
2.076
0.675

19

Handwritten notes:
NRS-407-AB
FA-66-B
TCS



Note: This section is 1" thinner than section - 18'



Design No. 20. Width 20 ft. 10-7-10
 First used in Letting of 6-23-30 .

20

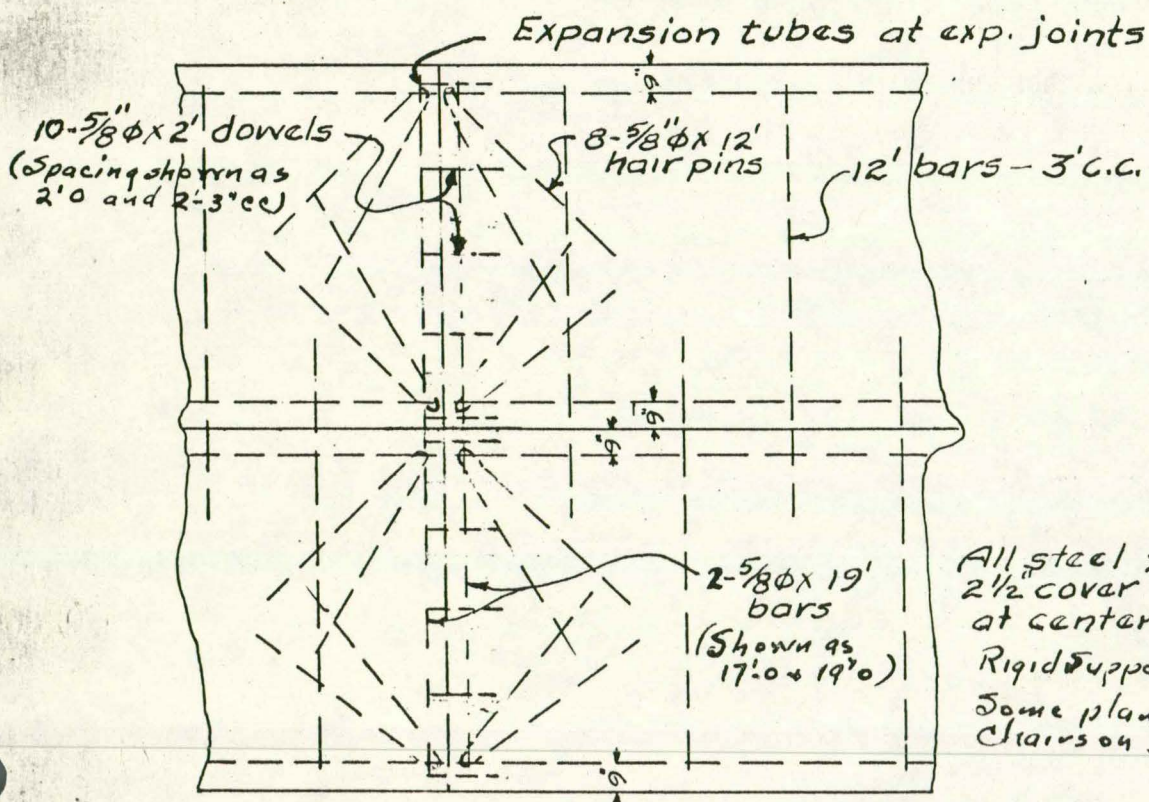
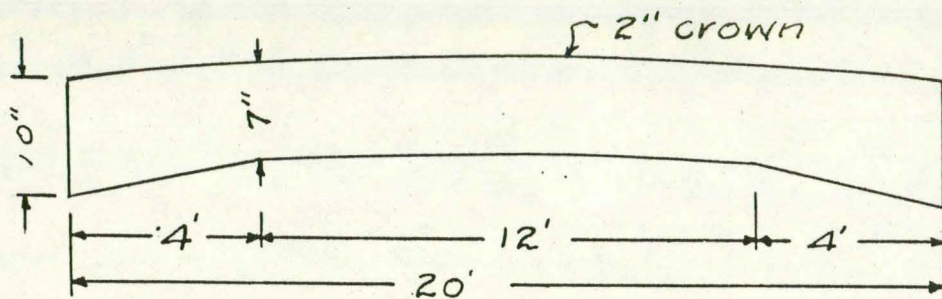
County	Project	Miles
Adams	NRM-348	0.315
Cerro Gordo	NRH-1-B	1.059
Clayton	P-671	1.13
Clinton	P-748	1.818
Des Moines	F-306	0.893
Dubuque	FA-148-D	8.365
Johnson	P-766	1.018
Lee	FA-149	0.260
Mahaska	NRM-293-C	0.457
Polk	P-758-ABC	5.727
Polk	FA-206-E	0.231
Polk	FA-340-A	4.007
Pottawattamie	State Institution 8-31	0.489
Scott	P-762	1.108
Woodbury	P-45	1.8015
Woodbury	P-45-A & B	0.578
Woodbury	P-767-ABC	4.865
Woodbury	NRS-404-A	7.569

amount
 Boone
 Black Hawk
 " "
 " "

NRM 77E
 NRM 772 C
 " 779
 " 771
 " 772 B

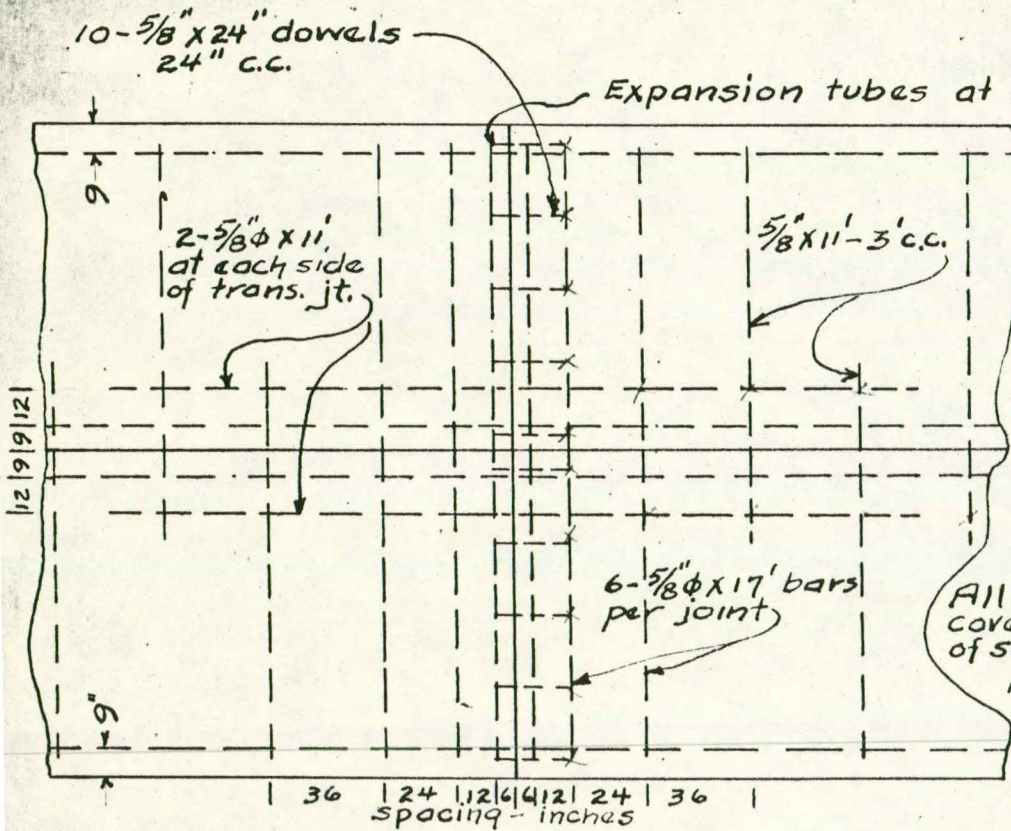
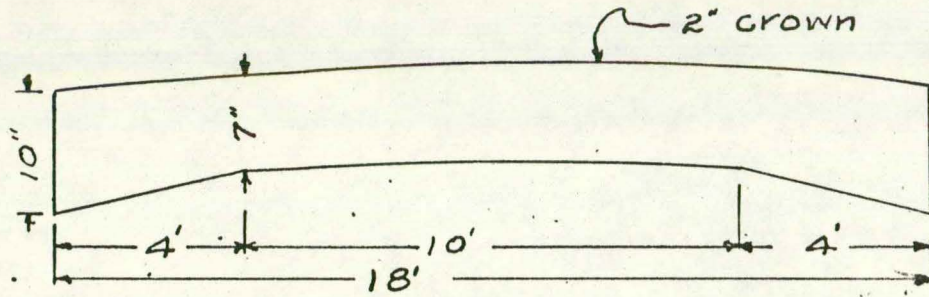
0.143 (exceptions)
 0.286
 0.293
 0.853
 1.021
 2.557

Black Hawk FA317 0.488



County	Project	Miles	Design No. 21. First Used in Letting of	Width 18 ft. <u>11-21-33</u>	10-7-10	21
Appanoose	NRM-27-CD	0.983				
Bremer	NRH-367-B	0.3947				
Cerro Gordo	NRH & M-61	1.017				
Delaware	NRM-249	1.272				
Floyd	NRH-& M-41 D & E	0.328				
Hancock	NRM-94	0.196				
Hancock	NRH-139	0.346				
Jasper	NRH & M-425	6.447				
Jones	FA-163-EF	0.259				
Lee	NRH & M-416 AB	1.875				
Mahaska	NRM-427	0.736				
Marshall	FA-23-CD	0.340				
O'Brien	NRH-446	0.265				
Scott	NRS-481-A	0.312				
Sioux	NRH-M 28-ABC	7.462				
Warren	NRH-M 415-ABC	11.008				
Webster	NRH-422	0.307				

Front P-136



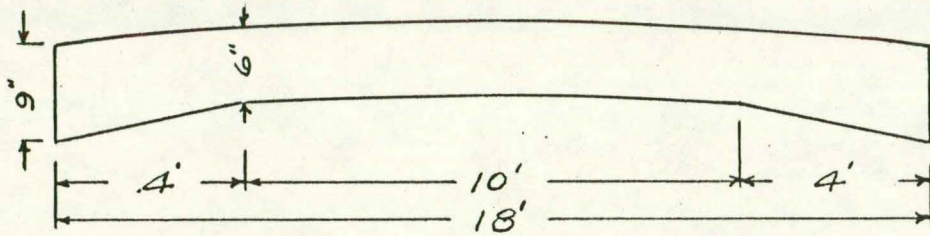
Expansion Joints to be spaced 60 ft $\frac{3}{4}$ " with gravel aggregate and 1" @ 80 ft with Stone. If Bil Curing is used Joints to be 1" @ 80 ft with 1 Contraction Joint Midway between

of expansion tubes in some cases

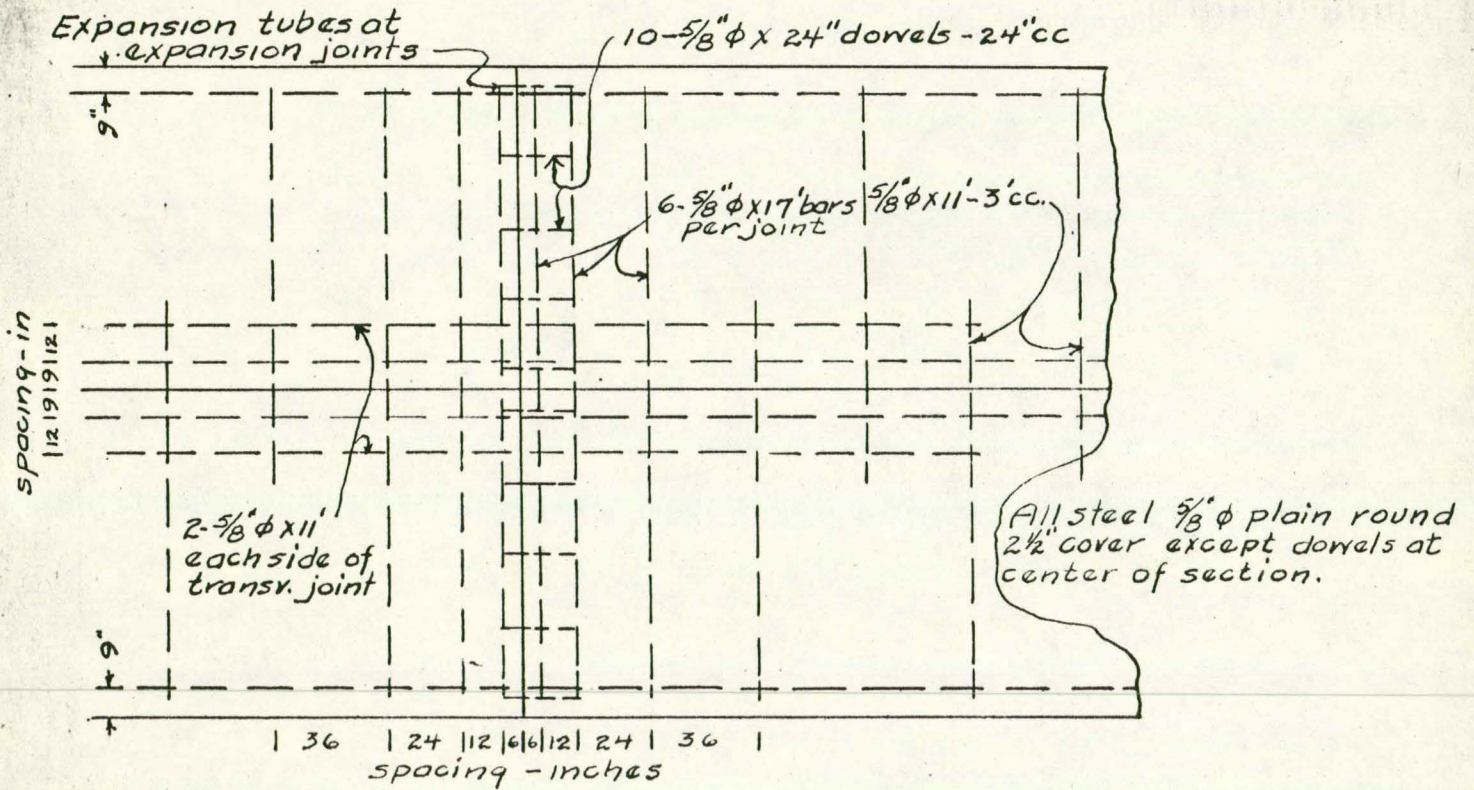
All steel $\frac{5}{8}$ " ϕ plain round 2 $\frac{1}{2}$ " cover except; dowels in center of section.
Permanent Chairs at each dowel and 2 on each Transverse Bar

(8)

Design No. 22. Width 18 ft. 9-6-9 22
First Used in Letting of 11-21-33.
County Project Miles
Audubon NRM-52-F 0.490
Franklin NRM-212-F 0.749



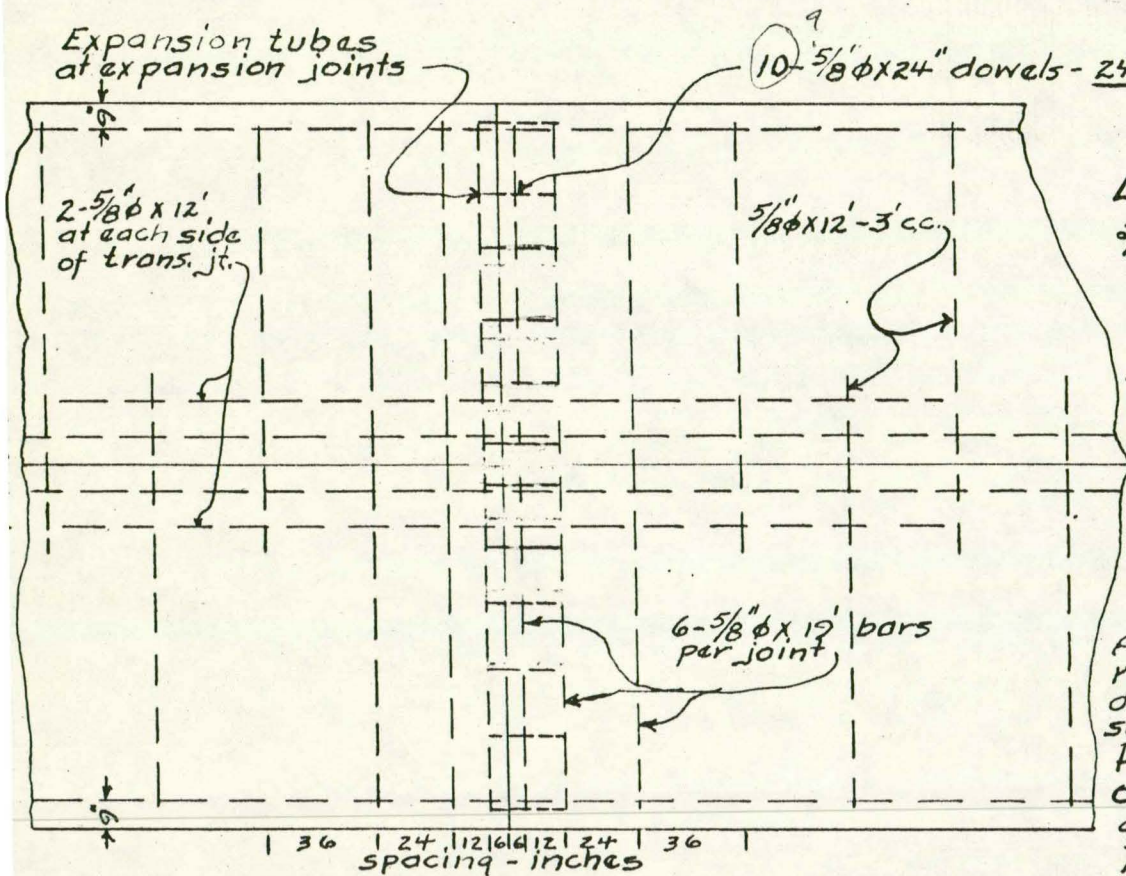
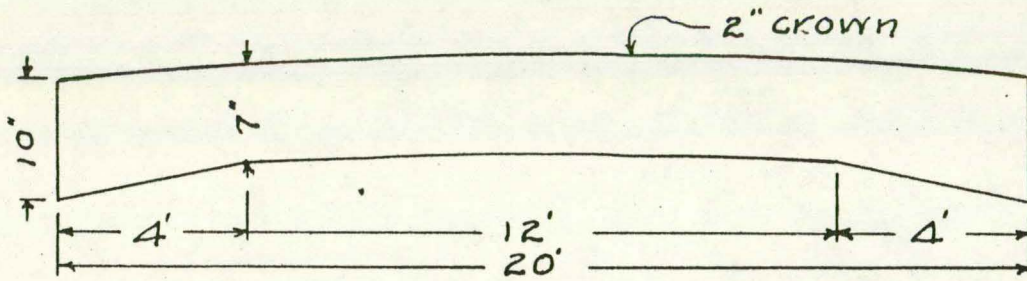
Note: This section is 1" thinner than section 21



Design No. 23. Width 20 ft. 10-7-10
 First Used in Letting of 12-5-33

County	Project	Miles
Adair	NRM-41-C	0.6259
Atchison	NRM-67-D	0.602
Atchison	NRM-67-J	0.227
Atchison	NRM-450	0.484
Barber	NRM-120-B & C	0.568
Barber	NRM-111C-D	0.956
Barber	NRM-63-GH	0.468
Cherokee	FA-199-A & C	0.519
Cherokee	NRM-280-E	0.484
Cherokee	NRM-114-E & F	2.030
Cherokee	NRM-185-B	0.688
Cherokee	NRM-83-K	0.151

Handwritten:
 Morgan NRM 17-C 0.633
 Core NRM 115 0.253
 Leckham NRM 202EF 0.390
 Bremer NRM 85 CND 1.102



Expansion Joints
 3/4" @ 60' with Gravel
 or 1" @ 80' with Stone
 Course Aggregate.
 If Bit Curving is
 Used. Joints to be
 1" @ 80ft With 1
 Contraction Joint
 Midway between
 2 expansion tubes in
 some cases

All steel 5/8" plain
 round - 2 1/2" cover except
 dowels in center of
 section.
 Permanent Chairs
 on each dowel
 and 2 on each
 Transverse bar.

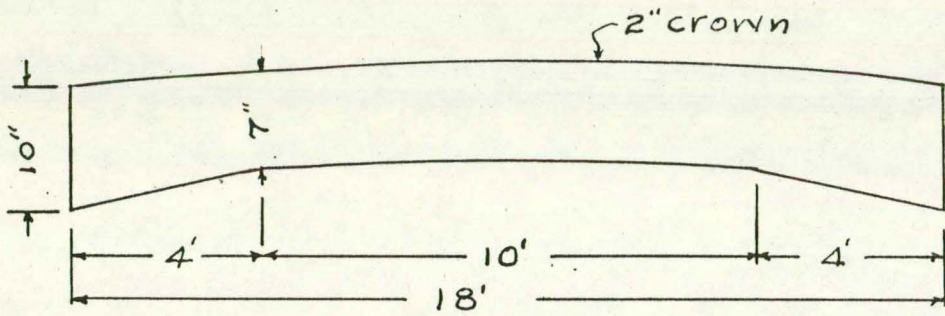
Design No. 24 Width 18 ft. 10-7-10
 First Used in Letting of Sept 12 1934.

24

County	Project	Miles	County	Project	Miles
Allamakee	NRH-543A	2.765	Scott	FA-55C	0.145
Blackhawk	NRS-487A	2.53	Scott	FA-114C	0.391
Buena Vista	NRH-M37CD	3.964	Sioux	FA-342BA	7.912
Carroll	NRH-538A	2.899	(Plymouth)		
Chickasaw	NRH-M-76BDE	3.917	Sioux	FA-342CD	0.941 20'
Dallas	NRH-M-557AB	0.854			
Franklin	WPSO-M-S529AB	1.55			
Hancock	WPSSM8571AB	0.751			8.4
Harrison	NRS-528-A	4.781			
Jasper	WPGM-64H	0.231			
Jefferson	NRH-120E	0.356			
Kossuth	NRH-504A	3.997			
Mitchell	NRH-259	0.415			
Mitchell	NRH-368A	6.593			
Osceola	P-296-A	5.249			
Page	NRH-M524D&F	1.230			
Palo Alto	NRH-421DE	6.122			
(Pocahontas)					
Plymouth	NRH-342-A	6.156			
Plymouth-	FA-342-AB	<u>7.912</u> (20')			
(Sioux)					
Pocahontas	NRH-421DE	6.122			
(Palo Alto)					

60.9

67.3



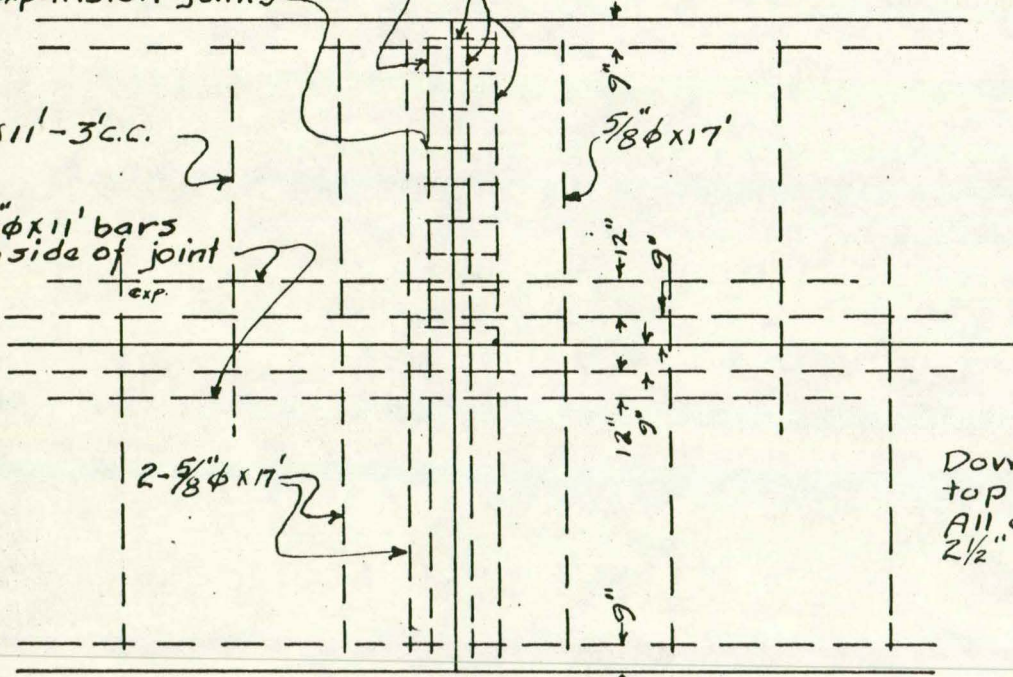
$\frac{5}{8}\phi \times 17'-4"$ bar
wired to expansion tubes
at expansion joints

Welded Dowel Assembly
 $18-3/4\phi \times 2'$ dowels spaced 1'-c.c.
welded to $2-\frac{5}{8}\phi \times 17'-4"$ bars

$\frac{5}{8}\phi \times 11'-3\text{c.c.}$

$2-\frac{5}{8}\phi \times 11'$ bars
each side of joint
exp.

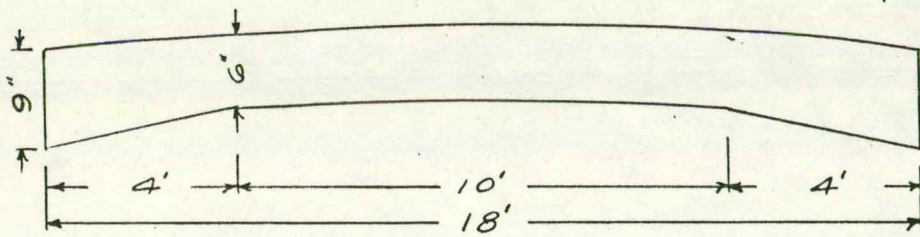
$2-\frac{5}{8}\phi \times 17'$



Dowels $3/4\phi \times 2'$, $-3/2"$ below
top surface
All other steel $\frac{5}{8}\phi$
 $2\frac{1}{2}"$ below top surface.

Design No. 25 Width 18 ft. 9-6-9
Used on Projects: First Used in Letting of 10-1-35
County Project Miles
Franklin WPSO-577 1.137
Hancock WPSS-WPMS
 571AB 0.751

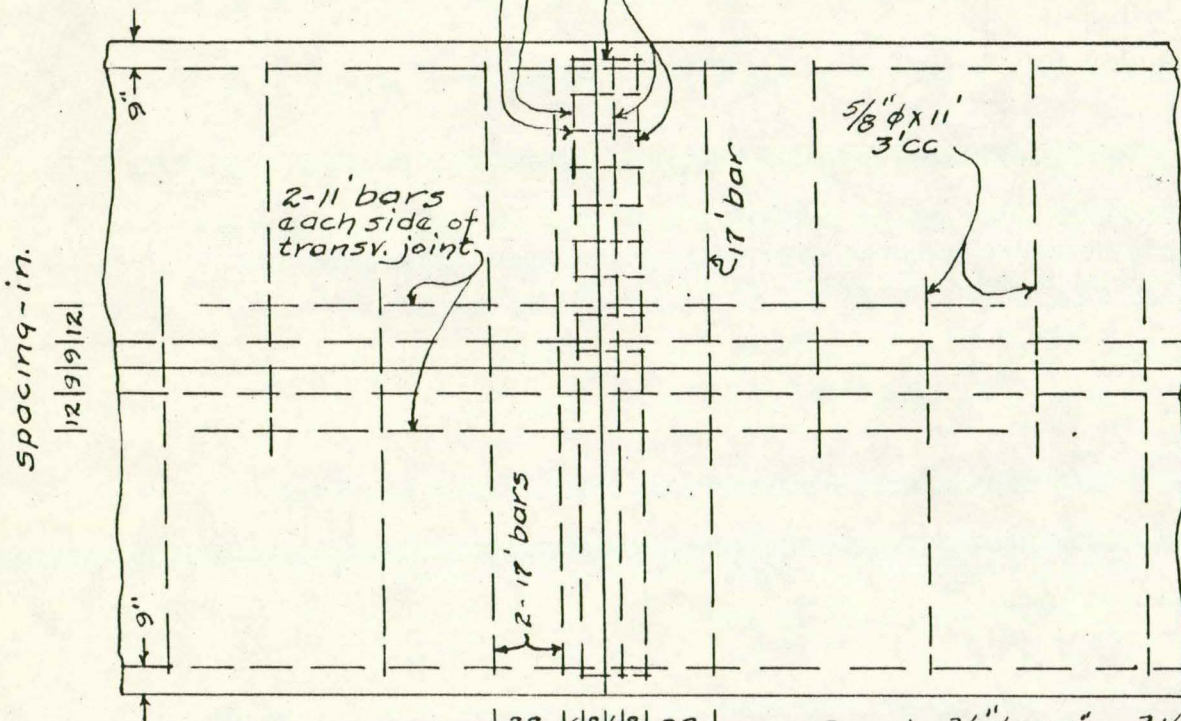
25



Note: This section is 1" thinner than section 24

$\frac{5}{8}$ " ϕ x 17'-4" bar
wired to expansion tubes
at expansion joints

Welded Dowel Assembly:
18- $\frac{3}{4}$ " ϕ x 24" dowels spaced 12" cc.
welded to 2- $\frac{5}{8}$ " ϕ x 17'-4" bars.



spacing - in.
| 12 | 9 | 9 | 12 |

| 22 | 6 | 8 | 6 | 8 | 22 |
spacing - inches

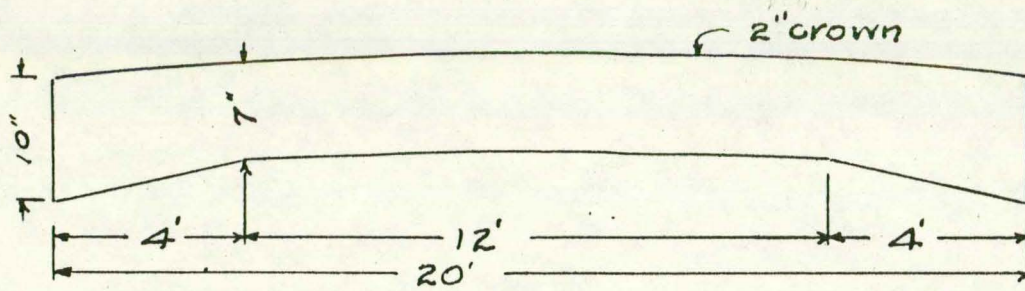
Dowels $\frac{3}{4}$ " ϕ x 24" - $3\frac{1}{2}$ " cover
All other steel $\frac{5}{8}$ " ϕ - $2\frac{1}{2}$ " cover.

County	Project	Miles	County	Project	Miles
Jasper	FA-376-I	5.476	Union	WPMH-573	0.572
Kossuth	FA-351-C	0.846	Union	FA-69-A(1)	3.295
Kossuth	FA-504-B	6.369	Union	FA-552-A	1.079
Lee	WPMH-650-A	0.738	Union	WPMH-552-C	0.18
Linn	WPGHM-96-BC	0.386	Union	WPMH-552-B	50 ft. only
Louis	NRM-250-CD	0.536	Union	WPMH-552-A	0.540
Louis	FA-250-ABC	6.165	Union	WPMH-575-A	0.968
Louis	FA-420-C	6.110	Union	WPMH-13-B	0.540
Louis	FA-366-A	5.122	Union	WPMH-17	0.540
Maddison	FA-366-A	5.122	Union	WPMH-185-CD	2.973
Mahaska	WPGH-70-C	0.511	Union	WPMH-185-EF	4.988
Marton	WPHWPMH-7-CD	1.23	Union	WPMH-114-G	0.259
Marshall	WPGH-376-H	0.545	Union	FA-114-C	0.391
Marshall	FA-376-JK(2&3)	8.138	Union	FA-55-C	0.145
Marshall	WPMH-573	0.572	Van Buren	FA-517	FA-174
Monroe	WPMH-20	0.710	Van Buren	FA-174-ACD	11.134
O'Brien	FA-566-A	6.664	Van Buren	FA-174	0.355
Palo Alto	WPGH-362	0.417	Van Buren	FA-174	0.355
Pocahontas	FA-421-F	3.655	Van Buren	FA-174	0.355
Pocahontas	WPGH-421	0.378	Van Buren	FA-174	0.355
Polk	NRMH-376-F	4.023	Van Buren	FA-174	0.355
Polk	NRM&H-376-BCD	8.611	Van Buren	FA-174	0.355
Polk	WPMH-695-A	1.868	Van Buren	FA-174	0.355
Polk	WPMH-696-A	0.594	Van Buren	FA-174	0.355
Pottawattamie	NRMH-280-FGH	1.96	Van Buren	FA-174	0.355
Pottawattamie	NRM-310-E	0.85	Van Buren	FA-174	0.355

Design No. 26 width 20 ft. 10-7-10
 First Letting used in 9-12-34 . 26

Used on Projects:

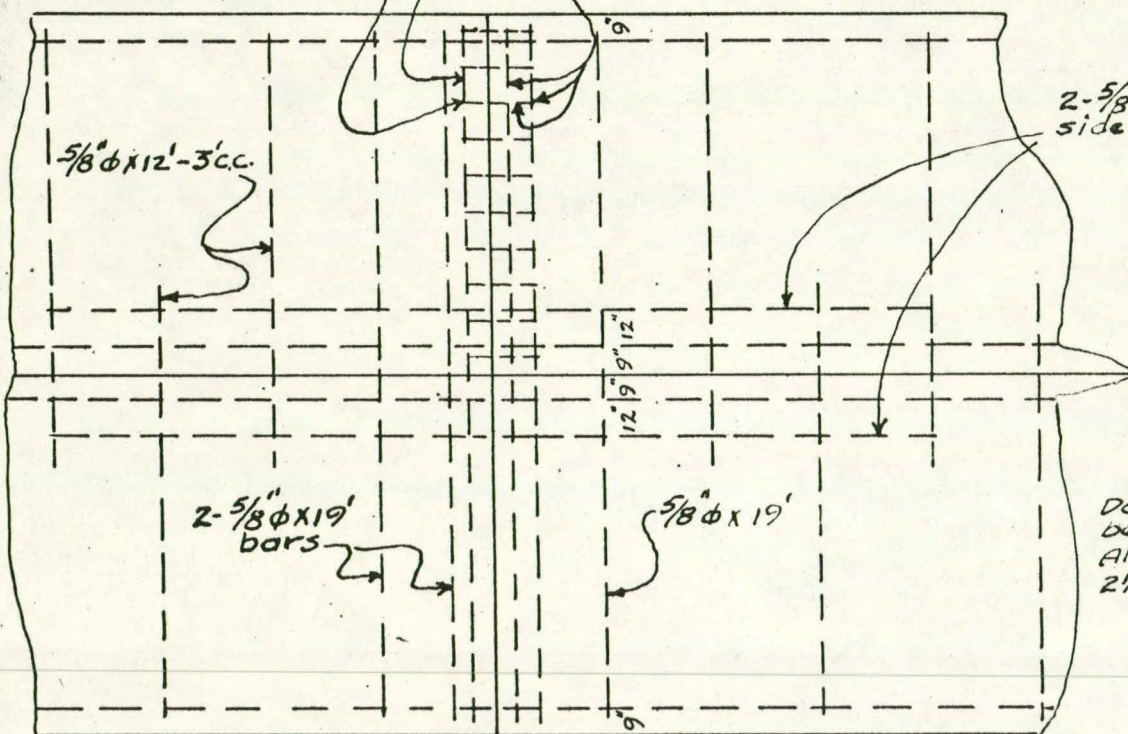
County	Project	Miles	County	Projects	Miles
Appanoose	WPGH-27-B	0.309	Franklin	Hardin	
Benton	F-58-DE	0.332	Hardin	WPGH-569-A	0.326
Benton	FA-553-A	3.065	Fremont	WPGH-581	0.334
Bremer	FA-380-F	5.305	Greene	WPGM-203-E	1.385
Bremer	FA-380-GA	3.228	Greene	WPMH-WPH-203FG	
Butler	WPMH-85-G	0.646	Guthrie	FA-51-D&E	0.255
Butler	WPGH-85-H	0.332	Hamilton	FA-360-C	6.102
Carroll	WPGH-154-H	1.033	Hancock	FA-94-AF	4.577
Cedar	FA-213-ADiv-1	7.384	Hardin	WPGH-568-A	0.303
Cherokee	WPMH-596	1.393	Harrison	NRS-528-A	4.781
Chickasaw	FA-76-B	3.495	Howard	FA-31	2.484
Chickasaw	FA-160-AB(1)	--	Humboldt	WPGH-117-I	0.340
Chickasaw	WPGH-160-B(2)	0.568	Humboldt	FA-117-J	6.191
Clayton	NRM-358-CE	0.874	Humboldt	FA-117-D&E	0.992
Clayton	FA-579-ABC	8.258	Humboldt	WPGH-117-H	0.356
Dallas	FN-65-C(2)	0.362	Humboldt	FA-117-G	5.358
Delaware	WPH-WPMH-249B&C	1.387	Ida	FA-80	0.421
Dickinson	FA-564-A	10.347	Ida	FA-248-B	0.29
Dubuque	WPGH-305	0.208	Ida	FA-445	4.889
Emmet	WPMH-439-B	0.536	Ida(Sac)	FA-517-ABC	8.763
Emmet	FA-363-A	4.878	Iowa	WPGH-90-D	0.116
Fayette	FA-172-ABC	6.492	Jasper	WPH-64-A	0.151
Floyd	FA-271-D	2.002	Jasper	FA-376	2.753
			*Howard	FA-93-B	3.620



$\frac{5}{8}$ " ϕ x 19'-4" bar
wired to expansion
tubes at exp. joints

Welded Dowel Assembly
20- $\frac{3}{4}$ " ϕ x 24" dowels spaced 12" c.c.
welded to 2- $\frac{5}{8}$ " ϕ 19'-4" bars

(7)

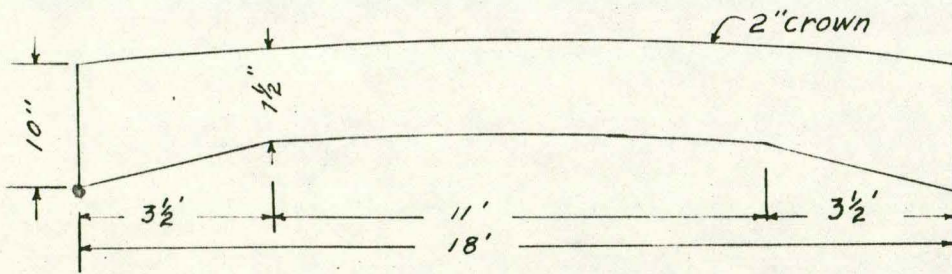
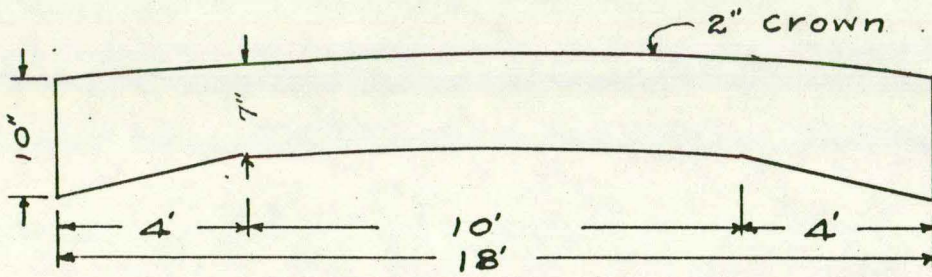


Dowels $\frac{3}{4}$ " x 2'-3/2"
below top surface.
All other steel $\frac{5}{8}$ " ϕ
2 1/2" below surface.

22 | 8 | 8 | 22 |
spacing 9-in.

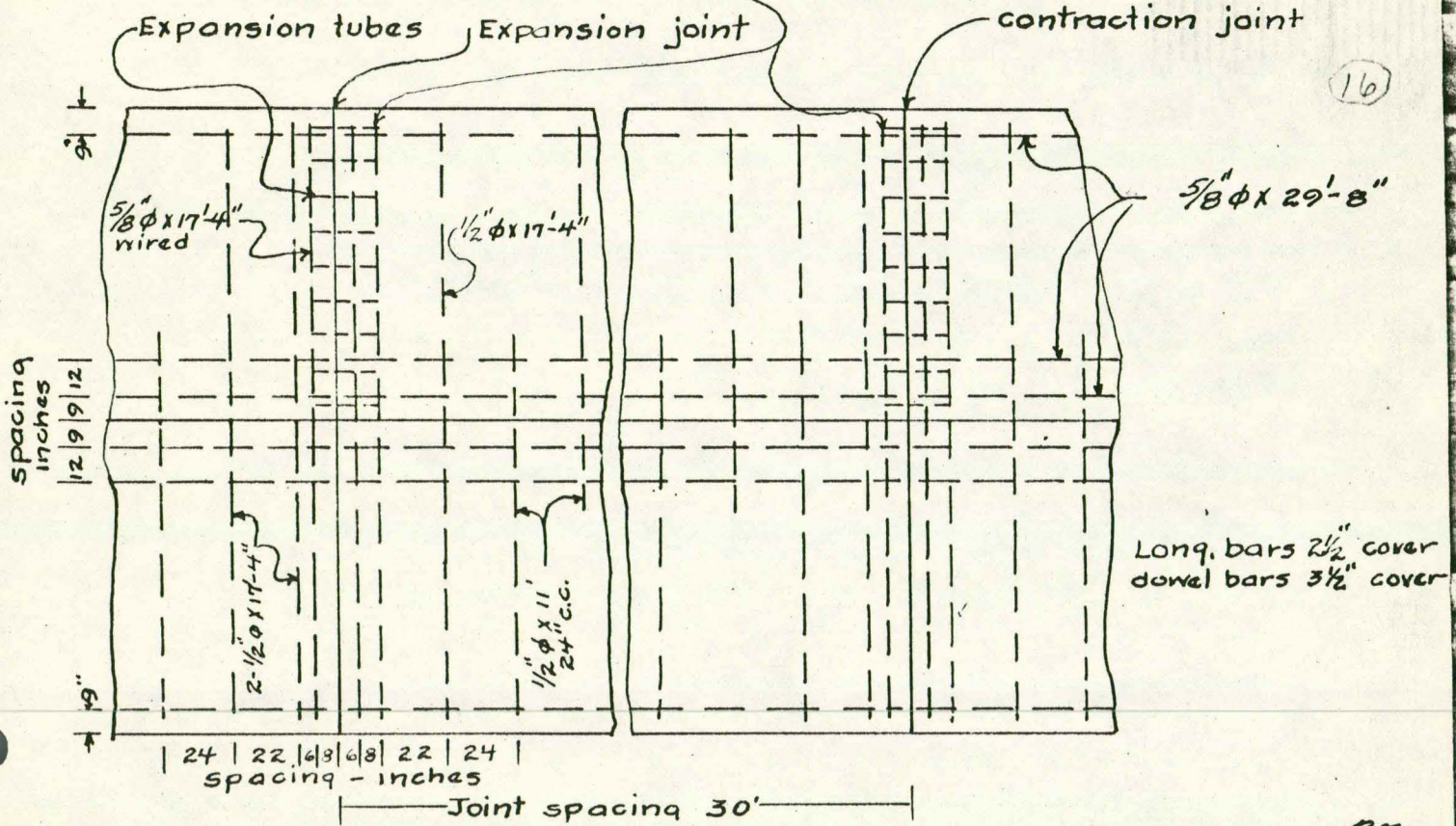
County	Project	Design No. 27 First Used in Letting of Miles	Width 18 ft. 10-7-10 <u>Sept 15 - 1936</u>	27
Benton	FN-58	0.475		
Cherokee	FA-728	1.805		
Ida	FA-731	2.385		
Lyon	FA-733A	0.963		
Humboldt	P-874	7.182		
Osceola	P-876	1.996		
Palo Alto	P-888AB	0.422		
Washington	T-835	0.327		
Woodbury	(PWA1316F) WPGM-604	0.955		
Dickinson	P 936	1.887		

Muscataine P-635 0.1460
1936



This section applies to following.
Dickinson P936-1887M

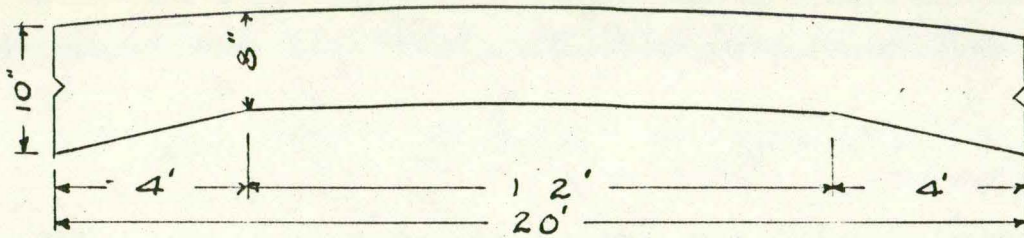
Welded Dowel Assembly: 18- $\frac{3}{4}$ " ϕ x 24" - 12" c.c. to 2 $\frac{5}{8}$ " ϕ x 17'-4" bars



Design No. 28 Width 20 ft. 10-8-10
First Used in Letting of 8 - 17 - 37.

County	Project	Miles
Inn	FN-96B	0.115
olk	FA-104B	1.501
	WPGM-104D	0.453
	WPMH-104G	0.269
	WPGM-220C	0.175
	WPGM-220D	0.648

3.2

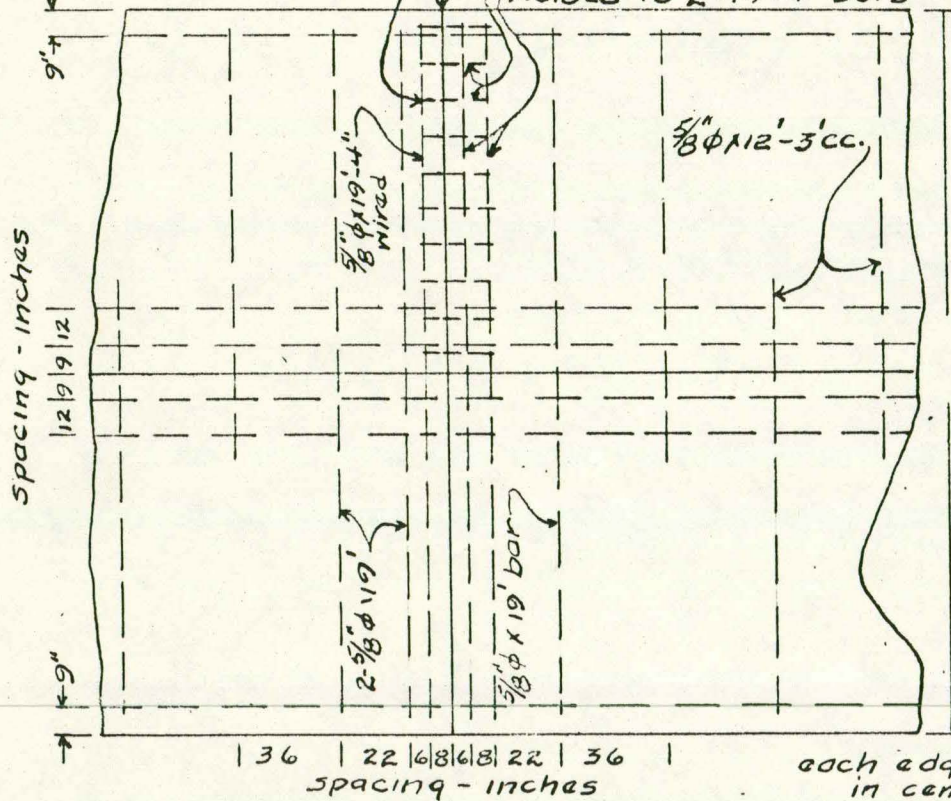


Expansion tubes at exp. joints

Transverse joint

Dowel Assembly
20- $\frac{3}{4}$ " ϕ x 24" dowels
welded to 2-19'-4" bars

(29)



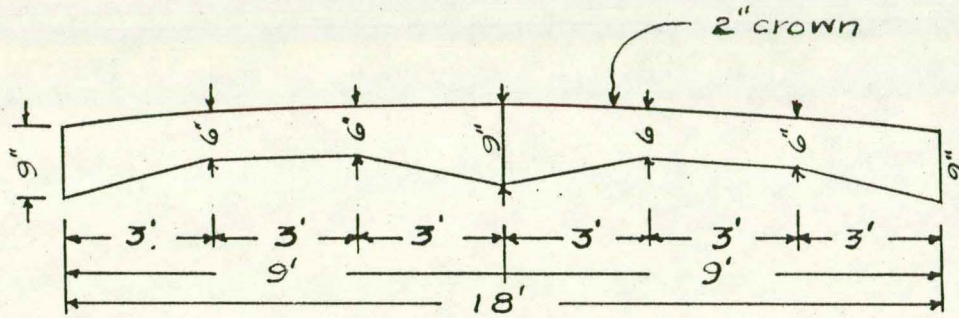
All steel $\frac{5}{8}$ " ϕ
except $\frac{3}{4}$ " ϕ dowels
Long. bars 29'-8"

Long. bars $2\frac{3}{4}$ " cover
dowels 4" cover

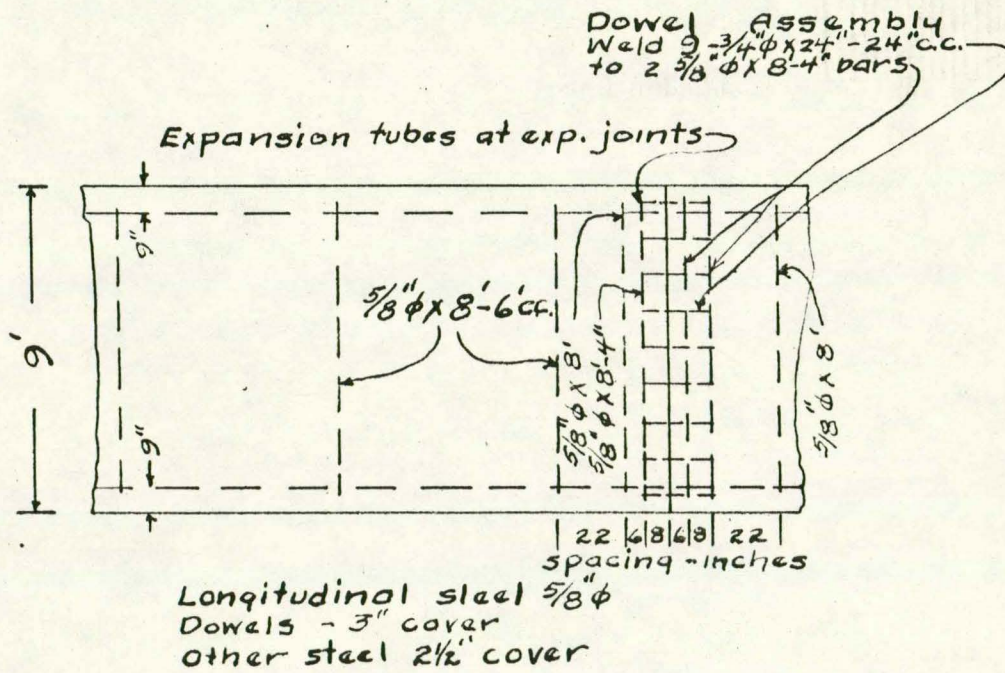
each edge - $\frac{5}{8}$ " ϕ x 5' tie dowels
in center of section.

		Design No. 29	Width 9ft strips (18'0)	# 29 9-6-29
County	First Used in Letting of	Project	Miles	
Butler		FA-375 ABC	2.766	
		NRH-M 375 ABC	2.974	

Jan 26 1935



Pavement built in separate 9' strips



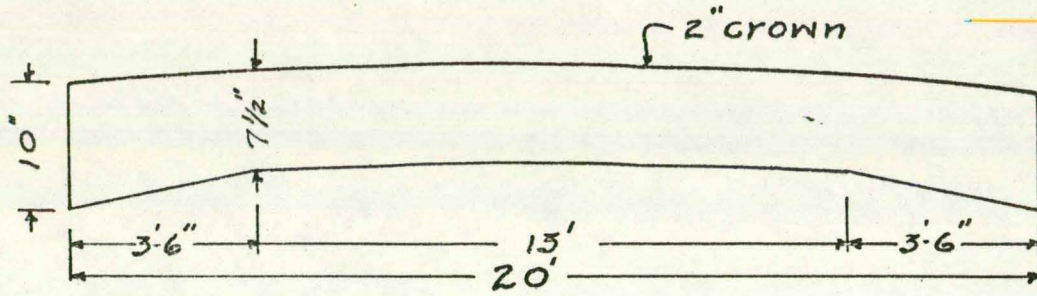
#29

County	Project	Miles	County	Project	(5) Miles
Washington	FA-71-D	0.673	Clinton	FA 18(2)	0.255
Washington	FN-71-S	0.124	Clinton	FN 18	0.201
Wayne	FA-344(2)	2.707	Clinton	FN 18	0.226
Wayne	FA-770-A	2.890	Clinton	FA 147 ABC(2)	0.205
Wayne	FA-770-B(1)	3.726	Henry	WPGH 151 A	0.284
Webster	FN-475-E	0.815	Louisa	WPMH 338C	0.067
Winnebago-Worth	FA-771-A	6.073	Lyon	FA 576 A	0.345
Winnebago	FA-748	8.439	Mahaska	P 510	0.241
Woodbury	P-886-H	0.456	Mahaska	FA 70 AD(3)	0.221
Woodbury	P-911	0.992	Polk	FA 216 D	0.224
Worth	FA-268	5.242	Polk	FAGM 216C	0.215
Worth	FA-268(3)	6.288	Sac	FA 423 AB	0.436
Worth	FA-134	4.915	Sac	FA 413 A	4.368
Wright	FN-29-GH	2.535	Plymouth	FN 38	0.189
			Henry	WFGM*GS 637 AB	0.094
			Dickinson	FN 564	0.047
			Johnson	FA 765 D	4.382
			Lee	P 149A	0.428
			Carroll	FAGH 154 E	0.155

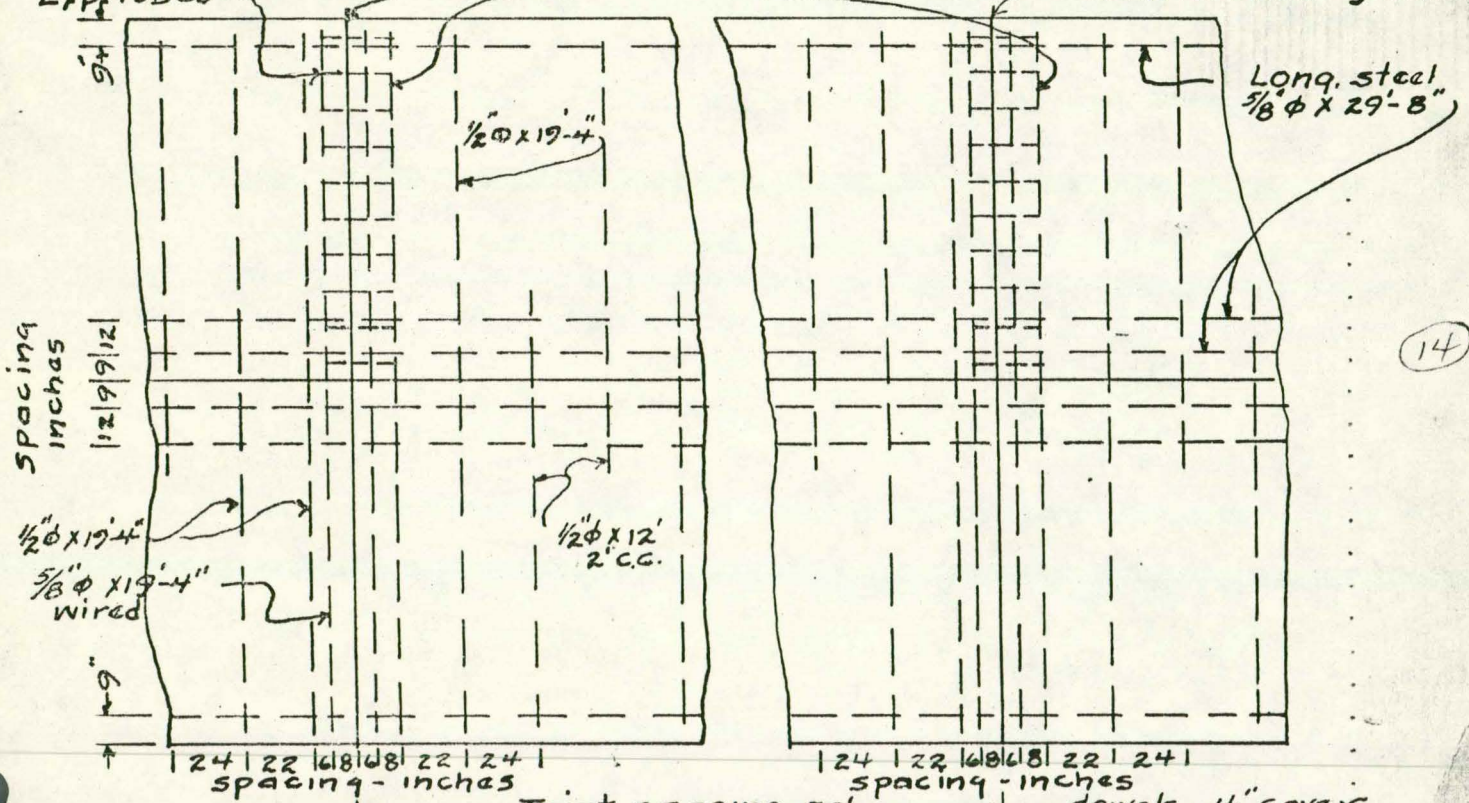
Design No. 30 Width 20 ft. 10-7¹/₂-10³⁰
 First Used in Letting of August 18, 1936.

Used on Projects:

County	Project	Miles	County	Project	Miles
Audubon	FA-52G	0.401	Calhoun	FAGH-10-E	0.430
Audubon	FN-52	0.1616	Calhoun	FA-726-A	11.641
Black Hawk	FN-62	0.095	Calhoun	FA-727-A	3.894
Black Hawk	P-949	2.231	Calhoun	FA-727-B	5.235
Boone-Dallas	FA-65A(2)		Calhoun	FA-736-C(Div.1&2)	6.264
	Ext. 1	7.799	Calhoun-Sac	FA-727-C	7.086
Boone-Dallas	FA-843-A(1)	7.156	Calhoun-Sac	FA-736-C(Div.3&4)	5.769
Bremer	FA-88-E1	0.646	Carroll-Crawford	FA-739-CD	7.870
Bremer	FN-380-H	6.032	Cass-	FN-44	- -
Buena Vista	FA-37-B&J	13.359	Cass	FA-738-A	0.558
Buena Vista	FA-37-J	5.056	Cedar	FA-213(2)	6.568
Buena Vista	FA-355-B	7.435	CerroGordo	FAGM-61-G	0.0135
Buena Vista	FN-473	0.249	CerroGordo	FAGM-61-GH	1.241
Buena Vista	FN-473-N	0.697	Cherokee	FA-37-EF	2.419
Buena Vista	FA-649-A	3.376	Cherokee	(Buena Vista)FA-37-GH	6.356
Buena Vista	FA-762-A	5.45	Cherokee	FA-116-AB	16.940
Buena Vista	P-875-(10-7-10)	0.539	Cherokee	FA-247-C	3.006
Butler	FA-85-EF(2)		Cherokee	FA-288-A	6.633
	Ext. (1)	4.402	Cherokee	FA-379-AB	6.575
Calhoun	FA-10	8.974	Cherokee	FA-596-B(1)	0.893
Calhoun	WPMH-10-BC	0.435	Cherokee	FA-776-A(3)	8.079
Calhoun&Pocahonta	FA-10D-E	4.618			



Expansion joint Welded Dowel Assembly: 20-3/4" ϕ x 24" - 12" c.c. to 2-5/8" ϕ x 19'-4" bars contraction joint



14

Joint spacing - 30'

30B - 3 contr. - 1 exp. joint to 120'

.30A - 2 " - 1 " " " 90'

dowels 4" cover
other steel - 3" cover
(A+B) #30

Design No. 30
First Used in letting of August 18, 1936

Used on Projects:

County	Project	Miles	County	Project	Miles
Jackson	FA-470-D(1)N	5.459	Mitchell	FA-368-C	3.933
Jasper	FA-425-B	6.932			
Jasper	FA-772-B(1)	3.732	Monona	SNFAGH-184BC(3)	0.436
Jasper	FA-846-A(1)	0.858	Monona	FA-426	6.456
			Monona	P-960	0.500
Jefferson	FN-3	0.736			
Johnson	FA-765-A(1)	5.044	Monroe	FAGM-802-A(1)	0.927
Johnson	FA-765-B(1)	3.855	Monroe	FAGH-712-A	0.340
Johnson	FAGH-765-C(1)	0.460	Monroe	FN-802	1.380
Johnson	FA-765-D(1)	4.362			
Jones	FA-565-B	3.777	Muscatine	FA-87-D	1.982
Jones	WPGHM-565-CD	0.567	Muscatine	P-523	0.248
			Muscatine	P-523-C	0.623
			O'Brien-Osceola	FA-498ABFCF	6.924
Kossuth	FA-66	7.901			
Kossuth	FN-111-N	0.176	Osceola	FA-498-H	6.124
Kossuth-PaloAlto	FA-607-A	8.645	Osceola	FA-734-A	16.537
			Osceola	FA-734-B	0.720
Lee	P-149	0.056			
Lee	FA-346-B	2.234	Page-	FN-524	0.293
			Page	FA-524-D	0.543
Linn	FAGM-22-(3)	0.227	Page	FA-651	0.249
Linn	FA-22(2)&B(1)	1.780			
Linn	FN-96	0.120	Palo Alto	FA-363-E	9.330
Linn	FA-96-A	2.697			
Linn	FN-96-C	0.076	Pocahontas	P-339	0.993
Linn	FA-96-E	0.898	Pocahontas	FA-421-C	9.448
			Pocahontas	FA-723-A(2)	0.480
Louisa	FA-53	6.869	Pocahontas	FA-723-B	5.359
Louisa	FA-53-D	1.565	Pocahontas	FA-723-C(Div 2)	6.541
Louisa	FA-63-E(3)	5.043	Pocahontas	FA-730-A	11.372
			Pocahontas	FA-745-A(2)	5.166
Lyon	FA-110-AF	7.271			
Lyon	FA-110-CD	0.456	Polk	FN-104	0.397
Lyon	FA-110-EDReop	14.257	Polk	FA-216-AB(2)	1.193
Lyon	FA-542-C	4.474			
Lyon	FA-542-D	3.386	Pottawattamie	FN-280(1&2)	1.491
Lyon	FA-576-B	4.784	Pottawattamie	FA-280-D	0.244
			Pottawattamie	FN-280-H	0.104
Madison	FA-366-B(1)	0.453	Pottawattamie	FN-310-F	0.900
			Pottawattamie	WPGM-554-E	0.387
Marion	FA-7	3.419	Pottawattamie	FN-554-EF	0.660
Marion	FA-75-ABC(3)	1.008			
Marion	FA-260-E	0.863	Poweshiek	FA-174-A	4.940
Marshall	FA-211-D	0.286	Ringgold	FA-6	4.970
Marshall	FA-376-HJ	7.646	Ringgold	FN-6	0.826
Marshall	FA-791-A(1)	5.867	Ringgold	FA-6-AB	3.405
Marshall	FA-791-B(2)	0.291	Ringgold	FA-123ABC(2)	2.757
			Ringgold	FA-123-C	2.983
Mills	FAGM-801	0.366	Ringgold	FA-141	5.968
			Ringgold	FA-142(2)	4.345

County	Project	Design No 30 Miles	County	Project	(4) Miles
Ringgold-Taylor	FA-844-A	7.090			
Sac	FA-413-C	3.946	Sioux	FA-43-C	0.369
Sac	FA-423-AB	0.789	Sioux	FA-43-D	0.480
Sac	FA-719-A	0.568	Sioux - O'Brien	FA-43-EFA	12.854
Sac	FA-735-A	4.609	Sioux	FN-84-C(1)	0.479
Sac	FA-736-A	6.469	Sioux	FA-342CDEFGHI(5)	8.069
Sac	FN-736	0.026	Sioux - O'Brien	FA-342 CFGHJ	8.104
Sac	FA-743A(1&2)	6.766	Sioux	FA-420E(Div2, Sec.2)	11.767
Sac	FA-743A(3&4)	7.658			
Sac	FA-741	5.508	Sioux	FA-420-D	0.409
Sac	FA-746A	5.175	Sioux	FA-542-B	0.283
Sac	FA-746-B	3.810	Sioux	FA-542-E(1)	5.769
Sac	FA-747-A	1.636			
Sac	FA-813-A	3.026	Story	FA-72-A	6.517
			Story	FA-72-A(3)	4.625
Scott	FN-221	0.160	Story	FA-72-D	0.346
Scott	WPGS-582-A	0.033	Story	FAGM-72-E Reop.	0.256
Scott	FA-821-A(1)	0.887			
Scott	SNFA-831-A(1)	0.276	Tama	FA-553-B	7.937
Scott	P-900	0.280	Tama	FA-553-C	0.297
Shelby	FN-476-B	0.194	Van Buren	FA-60-A3B(1)	8.162
Shelby	FA-860-A(1)	0.3917	Warren	SNFA-265	0.387
Sioux	FA-28	8.240			
Sioux	FA-28-E	7.042	Washington	FAGM-71	0.198

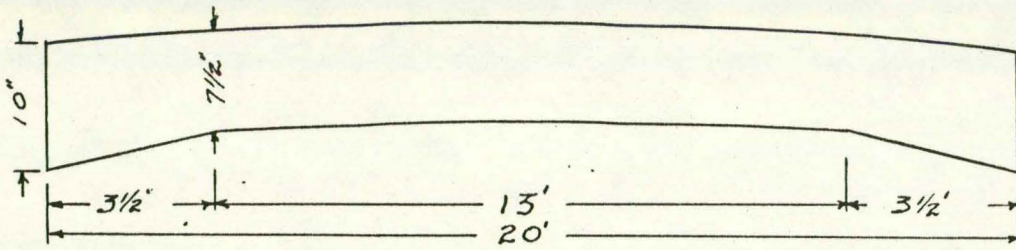
County	Project	Design No 30 Miles	County	Project	(2) Miles
Greene	FA-776-B(1)	4.021	Greene	FA-39	0.288
Wickasaw	FA-177-A	5.529	Greene	FN-39	0.170
Wayton(Delaware)	FA-358CDE(3)	3.036	Greene	FA-193-A(2)	10.903
Winton	FA-18(2)Div ⁵⁶⁷	2.266	Greene	FN-402	0.591
Winton	FA-419-G(1)	4.547	Grundy	P-961	0.468
Wawford	FA-739-A	7.389	Hancock	FA-195-A	0.584
Wawford	FAGH-739-B	0.285	Harrison	P-563	0.049
Willas	FA-65-C(2)	0.362	Harrison	P-614	4.934
Wills	FA-50-E	0.191	Harrison	P-614	0.323
Wills	FA-153-C	0.716	Howard	FA-93	6.088
Watur	FA-122(4)	4.493	Humboldt	FA-730-B	11.908
Watur	FA-300	10.10	Humboldt	FA-730-C	10.997
Waylaware	FA-4-E(1)	0.167	Humboldt	P-952	0.533
Wickinson-Clay	FA-68(2)	4.234	Ida	FA-80(2)	6.287
Wickinson	FN-564	0.047	Ida	FA-80(3)	1.549
Wickinson	FA-749-A(1)	1.449	Ida	FA-80-A	8.901
Wickinson	FA-823-A(1)	1.19	Ida	WPGHM-80-C	2.303
Wickinson	P-936	1.887	Ida	FA-286	4.761
Wickinson	P-942-A	8.408	Ida	FA-732-A	4.487
Wabuque	FA-305-B(2)	2.485	Ida	FA-732-B(1)	5.544
Wabuque	FA-358-B(2)	3.049	Jackson	FA-419-D	0.316
Wamet	P-845	0.244	Jackson	FA-419-E	2.795
Wayette	FA-172-ABC	6.518	Jackson	FA-419-F	2.586
Wayoyd	FNWPGH-41	0.751	Jackson	FA-470-A	7.883
Wayoyd	FA-271-ABC	7.043	Jackson	FA-470-B	6.334
			Jackson	FA-470-C	7.003

Design Number 31 Width 20 ft. 10-7½-10
 First Letting Date 4 - 29 - 41

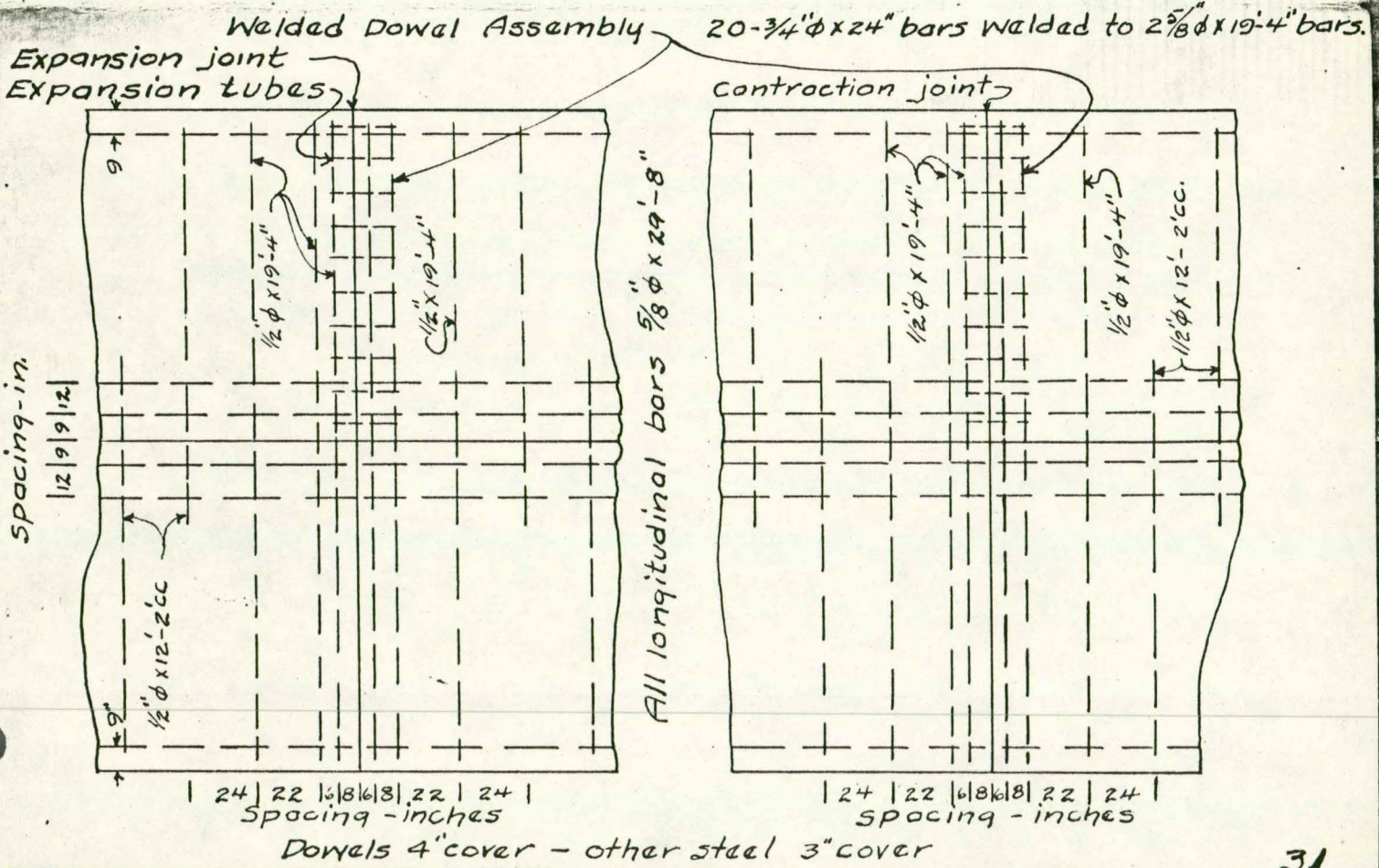
31

Used on Projects:

County	Project	Miles	County	Project	Miles
Boone	FA-65-A(3)D(1)	7.031	Buchanan	FA 262 BCD	0.155
Buena Vista	FA-745-B(1)	8.045	Cerro Gordo	FAGM 365 A(1)	0.195
Chickasaw	FA-357-AB(2)	0.861	Bremer	FN 86 B	0.215
Chickasaw	FA-357-C(2)	7.246	Delaware	FA 358 F(1)	5.919
Dallas	FA-493-C(2)	3.412	Des Moines	FAGM 414 C(1)	0.380
Dallas	FA-493-A(2)	1.661	Jasper	FA 764 A(1)	5.304
Decatur	FA-122 (5)	5.028	Polk	FA 89 (2)	3.251
Dickinson	FA-823-B(1)	3.853	Ringgold	FA 6 (3)	3.579
Jackson	SN-FA-419-I(1)	2.422			
Lyon	FA-110-F(3)	0.294			
Lyon	FA-835-A(2)	0.163			
Lyon	FA-835-B(2)	0.384			
Lyon	FA-835-C-(1)	5.702			
Mitchell	FA-368-D(1)	6.004			
Plymouth	FN-38	0.457			
Plymouth	FA-38BCD(2)	0.265			
Pocahontas	FA-745-C(1)	4.795			
Ringgold	FA-142	0.994			
Ringgold	FA-123-ABC	2.978			
Worth	FA-134-A(3)	4.008			
O'Brien	FA-769 (1)	4.996			

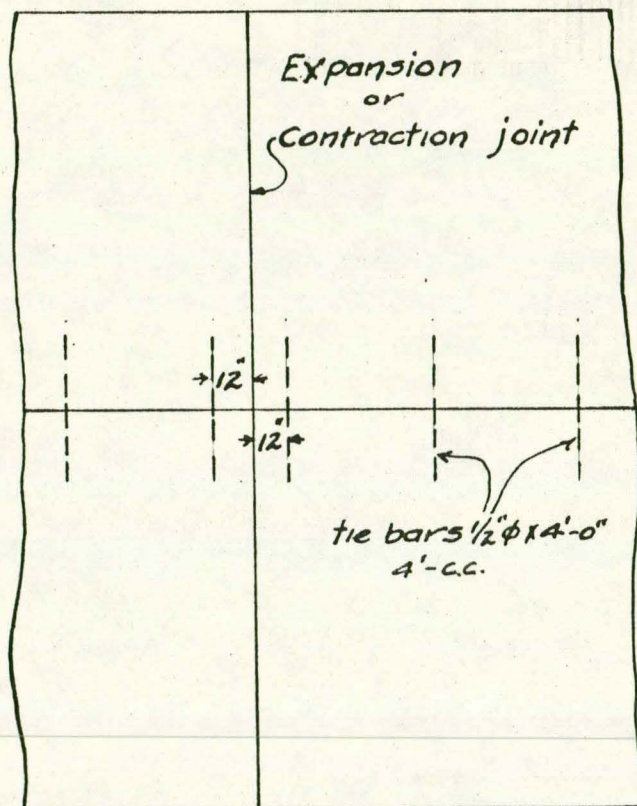
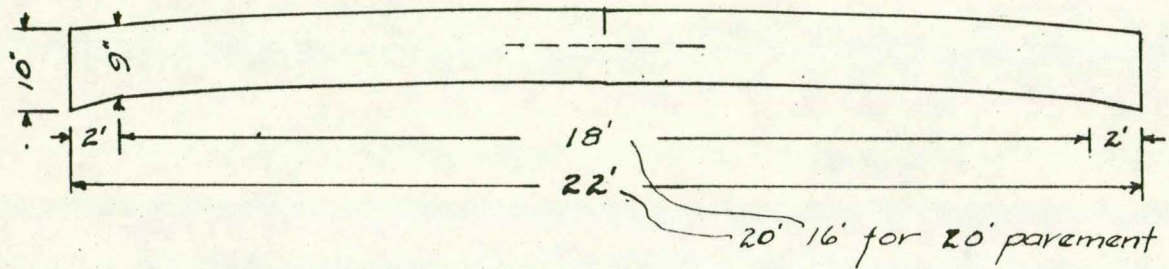


Note: This design differs from 30 in that the bar tied to the welded assembly is 1/2" ϕ instead of 5/8" ϕ



Design No. 32 Width 22 ft. 10-9-10
First used in letting of 4-21-42

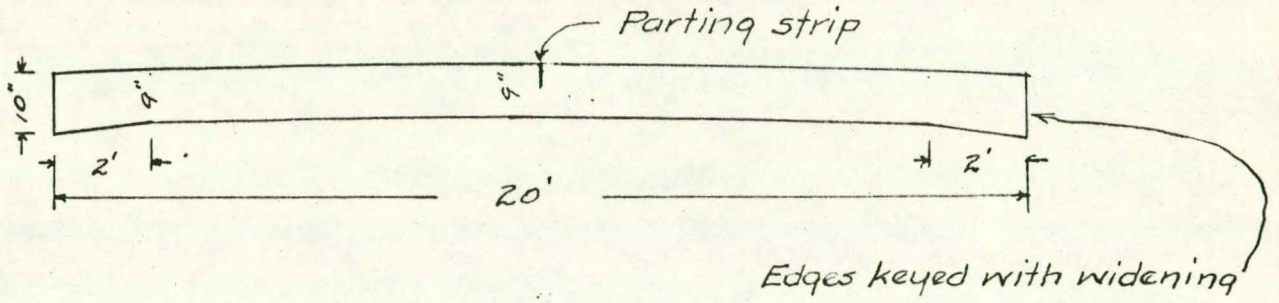
Clinton	F.N. 18	(20')	0.055
Des Moines	DA-WI-1		3.187
Polk	DA-WI 3		5.318
Polk	F.A. 132 (2)		1.288
Woodbury	DA-W.R. 5	(20')	1.540
Delaware	F.A. 358		0.475



Design No. 33 Width 20 ft. 10-9-10
First used in Letting of 2-9-43

33

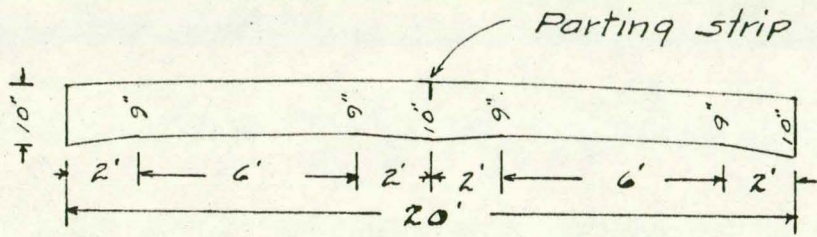
Clinton DA-WR-7 0.291



No steel

Design No. 34 Width 20 Ft. 10-9-10-9-10 34
First used in Letting of 3-23-43

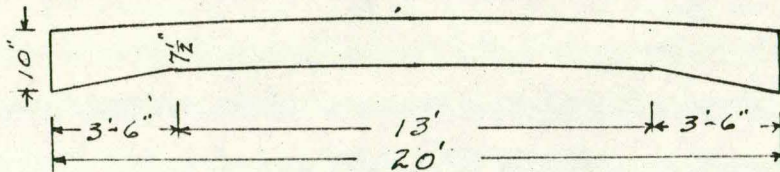
Wapello DA-NR-1 1.296



No steel

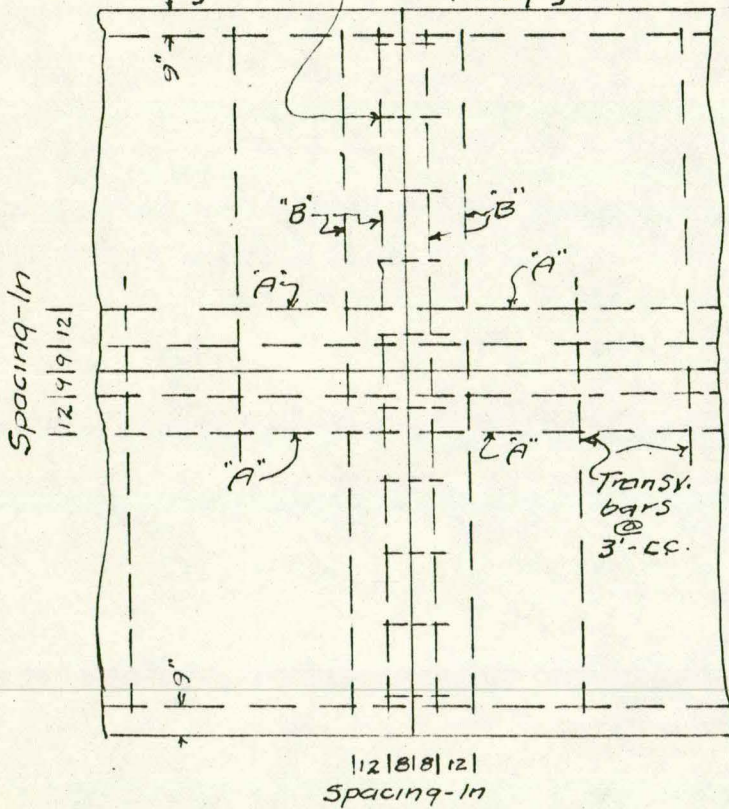
Design No. 35 Width 20 Ft. 10-7 $\frac{1}{2}$ -10 35
First letting 9-7-43

Harrison P. 614 0.231



Expansion tubes at joints

Any joint

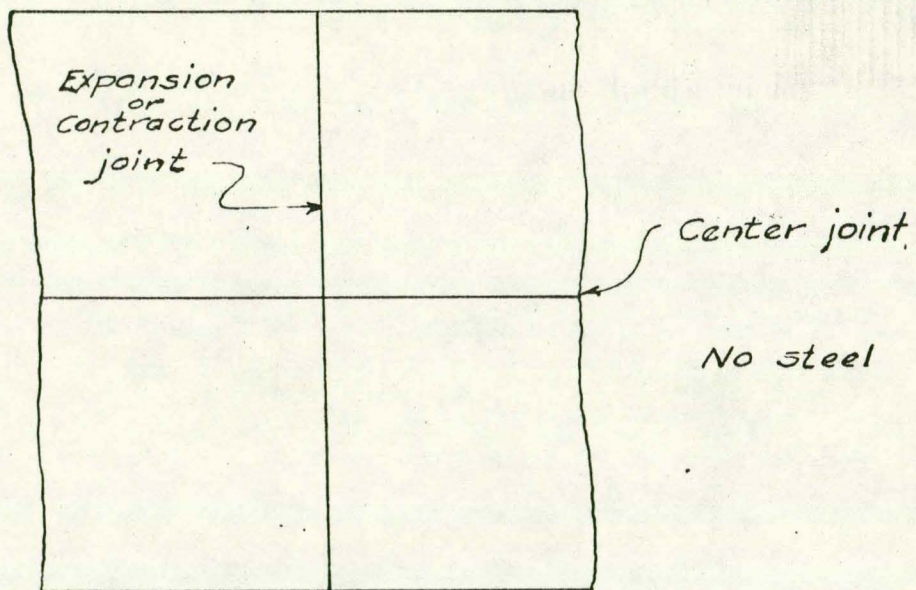
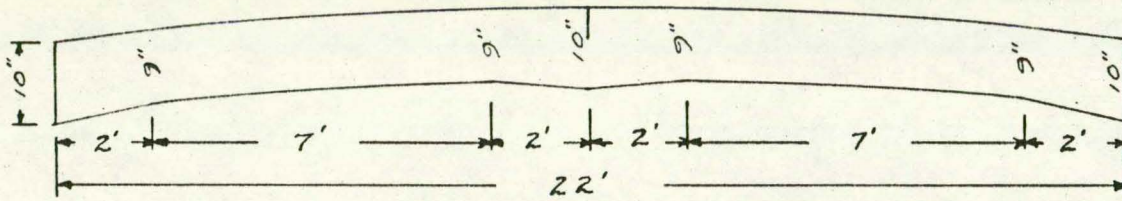


All steel $\frac{5}{8}$ " ϕ
 Dowels $\frac{5}{8}$ " ϕ x 24" @ 24" cc.
 Dowel assembly 4" cover
 Other steel - 3" cover
 "A" bars $\frac{5}{8}$ " ϕ x 12'-0"
 4 "B" bars - $\frac{5}{8}$ " ϕ x 19'

Design No. 36 Width 22 Ft. 10-9-10-9-10
First used in letting of 9-22-42

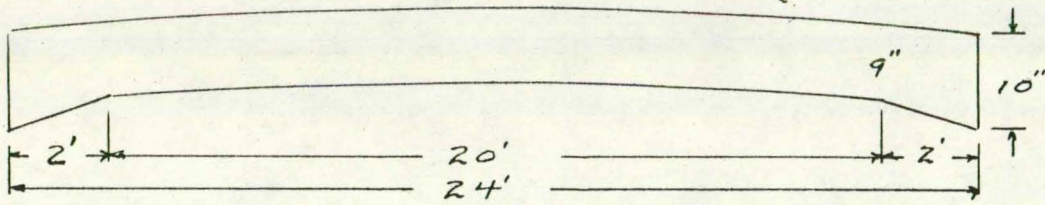
36

Guthrie P-624 0.189



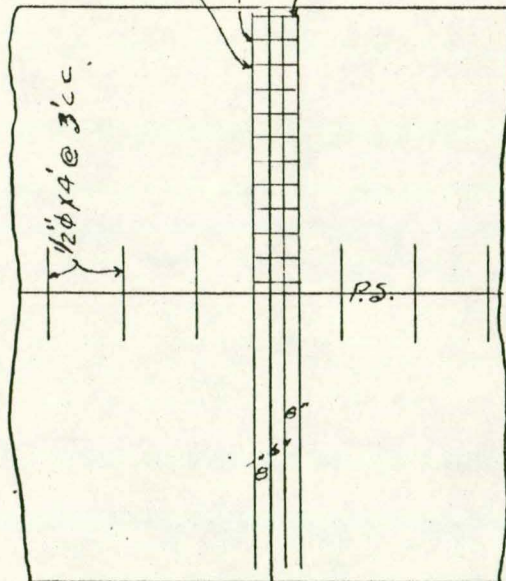
Design No. 37 Width 24 Ft. 10-9-10
First used in Letting of 5-2-44

Des Moines AI-FA-883 A (1) 1.746 Miles 1944



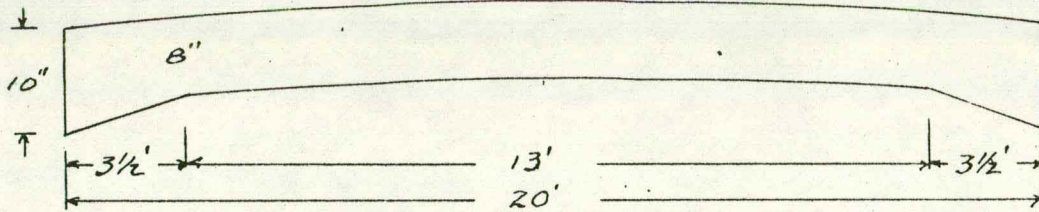
Exp. tubes at Exp. Jts.
 $\frac{1}{2}$ " ϕ x 23' bar wired

Welded Assembly - 22 - $\frac{3}{4}$ " ϕ x 24"
 dowels @ 12"cc to 2 - $\frac{5}{8}$ " ϕ x 23' bars.



De sign No. 38 Width 20 Ft. 10-8-10
 First used in Letting of 8-8-44

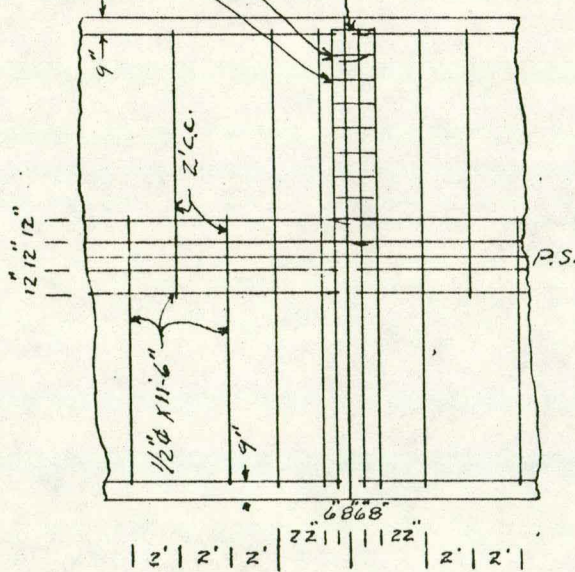
Buena Vista-Pocahontas	PWFA - 745 D (1)	6.532 Miles	1946
Cedar	FA-213	0.143 Miles	1945
Decatur	PWFA - 122 D (1)	4.035 Miles	1946
Dubuque-Jackson	SN-FA - 385 A (1)	15.008 Miles	1946-7
Franklin	FA - 212 E (1)	0.217 Miles	1947
Linn	FA 765 E (2)	0.758 Miles	1946
Linn	FA 765 F (1)	4.608 Miles	1946-7
Lyon	F-835 (6)	5.664 Miles	1946
Marion	F-7 (7)	4.695 Miles	1946-7
Marion	F-75 (4)	3.168 Miles	1946
Mills	FAGH- 842 B (1)	0.811 Miles	1946-7
Mills	FA-842 (4)	1.953 Miles	1946-7
Mills	FA-842-C (1) N	4.5415 Miles	1946
Mills	FN-842	0.182 Miles	1947
Pocahontas	F-878 (1)	5.517 Miles	1946
Sioux	PW-FA-28 (4)	6.063 Miles	1946
Winnesiek	FA-357-AB (3)	4.335 Miles	1946-7



$\frac{1}{2}$ " ϕ x 19'-4" bar wired
Exp. tubes at E.J.

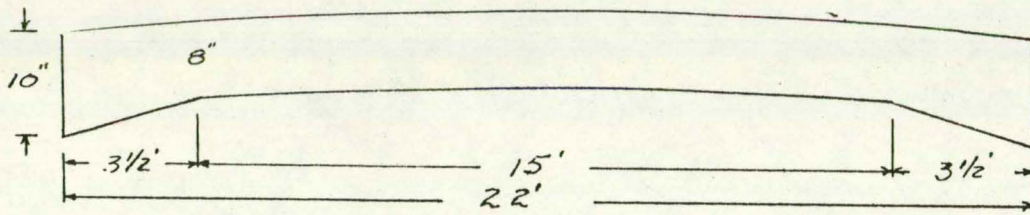
Welded Assemblies - 20- $\frac{3}{8}$ " ϕ x 24"
dowels @ 12" c.c. to 2- $\frac{5}{8}$ " ϕ x 19'-4" bars

Cover - 3" over long. bars
Longitudinal bars $\frac{5}{8}$ " ϕ
Dowels in center of 8" sec.



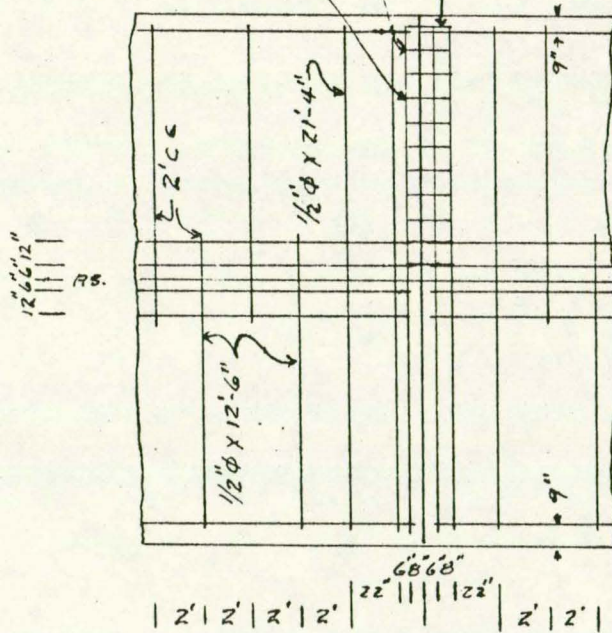
Design No. 39 Width 22 Ft. 10-8-10
First used in Letting of 7-10-45

ayette	U-59 (4)	0.283 Miles	1947
ayette	U-782 (2)	0.326 Miles	1947
arrison	FN-14	0.2757 Miles	1946
ookuk	F-34 (3)	0.621 Miles	1946
olk	F-877 (1)	1.250 Miles	1947
olk	DAWI-11	0.410 Miles	1945
olk	DAWI-12	1.002 Miles	1945
oodbury	U-918 (1)	1.356 Miles	1947



Exp. tubes at Exp. Jts.
 $\frac{1}{2}$ " ϕ x 21'-4" bar wired

Welded Assemblies - 22- $\frac{3}{4}$ " ϕ x 24"
 dowels @ 12" c.c. to 2- $\frac{5}{8}$ " ϕ x 21'-4" bars.



12'-6" 12" RS.

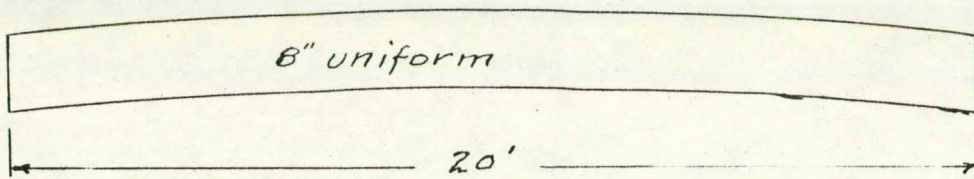
2' | 2' | 2' | 2' | 22" | 12" | 2' | 2'

68'6"

Cover 3" over long. bars. Dowels in center of 8" sec.
 All longitudinal bars $\frac{5}{8}$ " ϕ

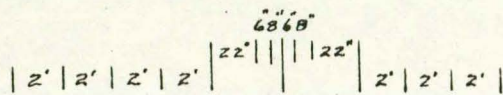
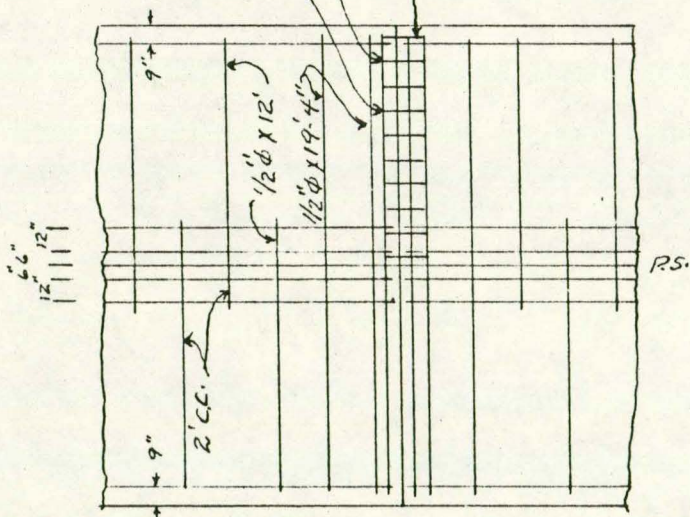
Design No. 40 Width 20 Ft 8" uniform
First used in Letting of April 30 1946

Linn FA-22 B (1) 0.265 Miles



Exp. tubes at E.T.
1/2"φ x 19'-4" bar wired

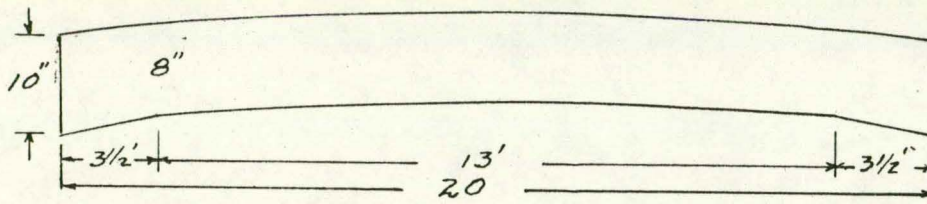
Welded Assembly - 20-3/4"φ x 24"
dowels @ 12"cc to 2-5/8"φ x 19'-4" bars



Cover 3" over long. bars
Longitudinal bars 5/8"φ
Dowels in center of 8" sec.

Design No. 41 Width 20 Ft. 10-8-10
First used in Letting of 11-12-46

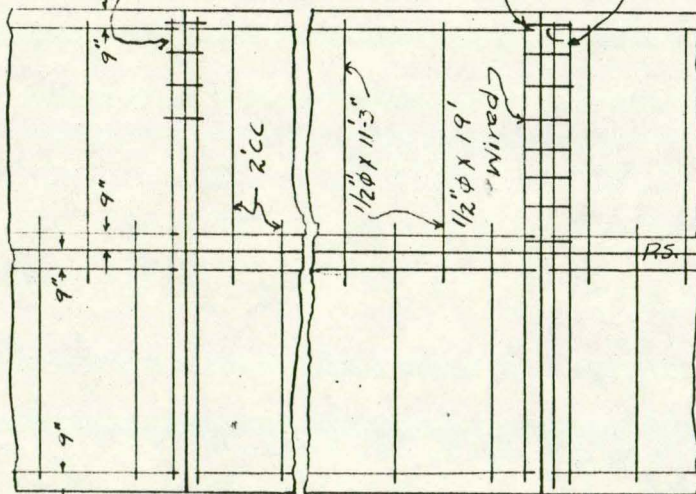
Calhoun	F-10 (7)	8.492 miles	1947	Station 1756+16.3 to 1861+91.8
Floyd	FA-271 E (1)	8.048 miles	1947	
Jefferson	F-120 (7)	0.515 miles	1948	
Worth F 268	F-268 (5)	1.988 miles	1947	
Worth	F-953 (1)	0.472 miles	1947	



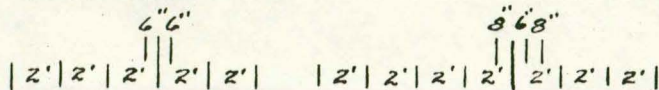
Construction joints - 16-5/8" ϕ x 18" dowels
wired to 2-1/2" ϕ x 19' bars

Welded Assembly - 16-3/4" ϕ x 24" dowels
to 2-5/8" ϕ x 19' bars

Exp. tubes at Exp. Jts

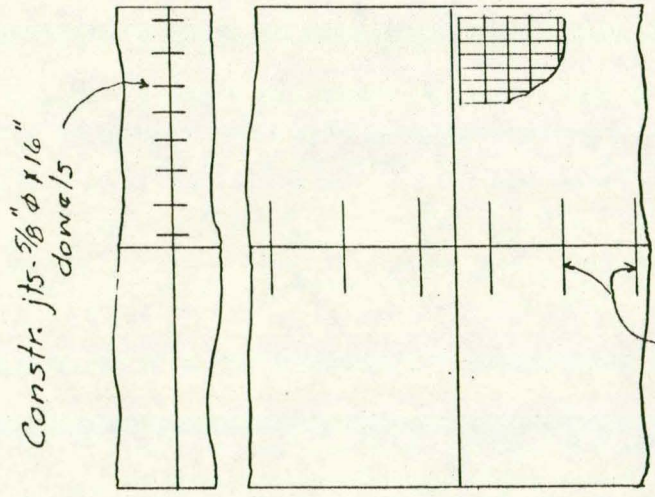
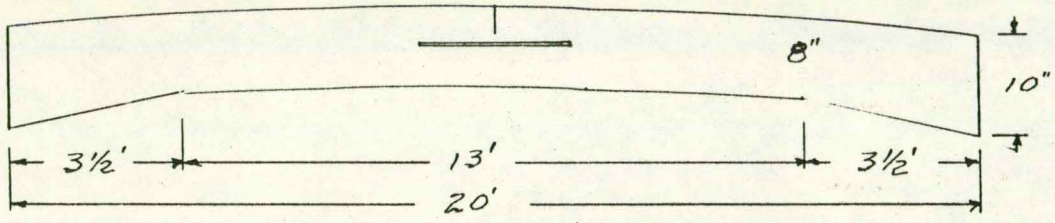


Cover 3" over long. bars
Dowels in center of 8" sac.
Longitudinal steel 5/8" ϕ



Design No. 42 Width 20 Ft. 10-8-10
First used in Letting of 1-21-47

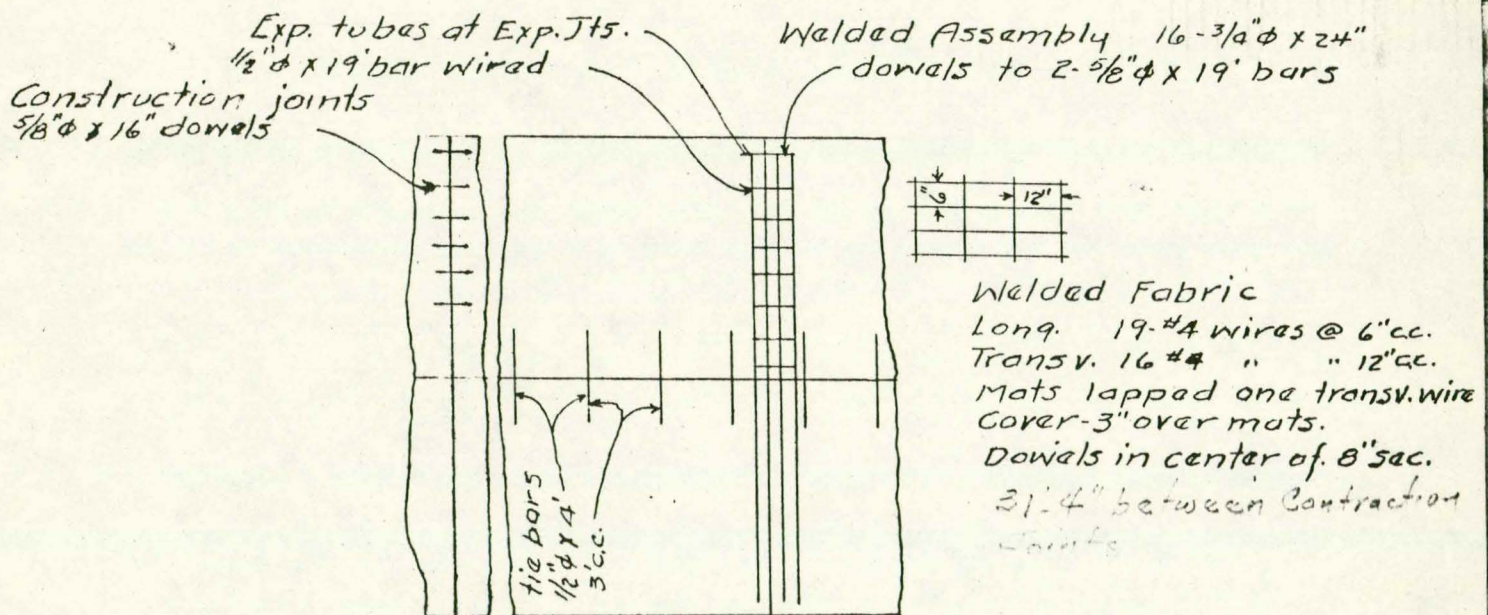
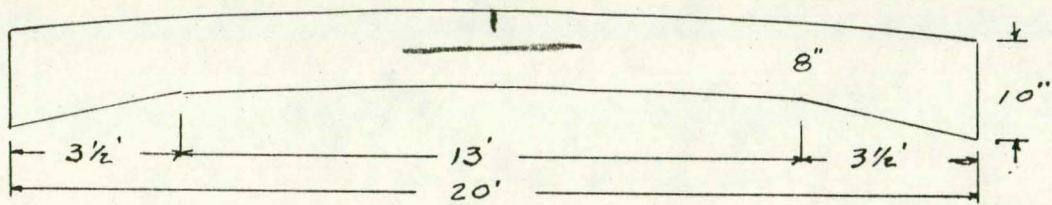
Winnebago F-884 (1) 1.986 Miles 1947 (Fabric Reinforced)
Station 1440+00.4 to Station 1544+90.



Welded Fabric
 Long. 19-#4 wires @ 6"cc.
 Transv. 16 #4 " " 12"cc.
 Mats lapped one transv. wire
 Cover - 3" over mats.
 Dowels in center of 8" sec.
 3'-4" between construction jts.
 Tie bars 1/2" ϕ x 4" @ 3'cc.

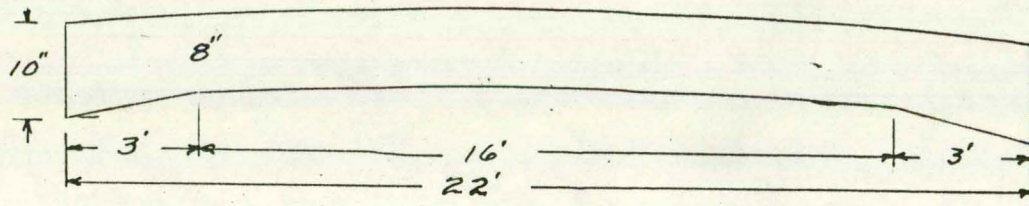
Design No. 43 Width 20 ft. 10-8-10
First used in Letting of 1-27-47

Winnebago F 384 (1) 1.994 Miles 1947
Station 1544+90 to 1650+96.



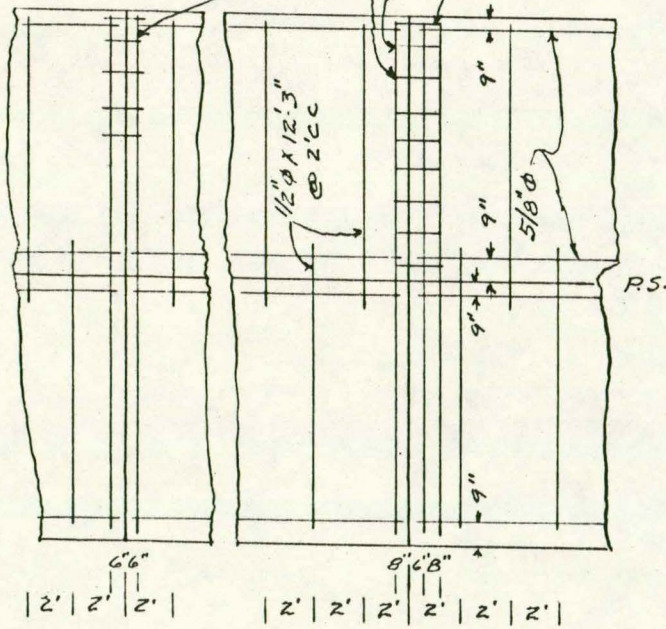
Design No. 44 Width 22 ft. 10-8-10
 First used in Letting 2-18-47

Des Moines	F-414 (3)	2.421 Miles	1948-9
Des Moines	U-414 (4)		
Linn	U-909 (5)	1.219 Miles	1948
Lucas	F-63 (8)	2.393 Miles	1947
Lucas	F-252 (2)	5.132 Miles	1947
Muscatine	U-820 (3)	0.726 Miles	1948
Wayne	F-237 (2)	0.249 Miles	1947
Appanoose	F-781 (6)	7.642 Miles	1949
Marshall	F-791 (3)	3.880 Miles	1949-50
Adair	F-464 (5)	6.051 Miles	1950
Floyd	FN-41	0.360 Miles	1950
Jasper	F-764 (5)	9.897 Miles	1949-50
Polk	U-206 (8)	3.375 Miles	1950
Page	F-433 (3)	0.890 "	1950
Mills	ERF-19 (7)	0.288 Miles	1950
Mills	ERF-19 (8)	0.095 Miles	1950
Pottawattamie	F-959 (1)	0.262 Miles	1949-50
Warren	ERF-4 (12)	0.438 Miles	1949
Lyon-Osceola	F-882 (1)	7.610 Miles	1950
Osceola	F-950 (1)	5.198 Miles	1950



Exp. tubes at Exp. Jts.
 $1/2" \phi \times 21'-4"$ bar wired
 Construction joint - $18-5/8" \phi \times 18"$
 dowels wired to $2-1/2" \phi \times 21'-4"$ bars

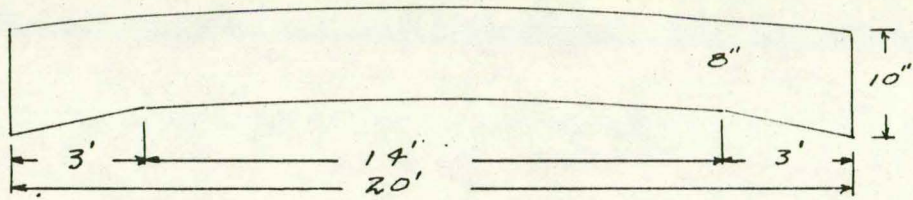
Welded Assembly - $18-3/4" \phi \times 24"$ dowels
 @ $15" \text{cc}$ to $2-3/8" \phi \times 21'-4"$ bars



Cover - 3" over long. bars
 Dowels in center of 8" sec.

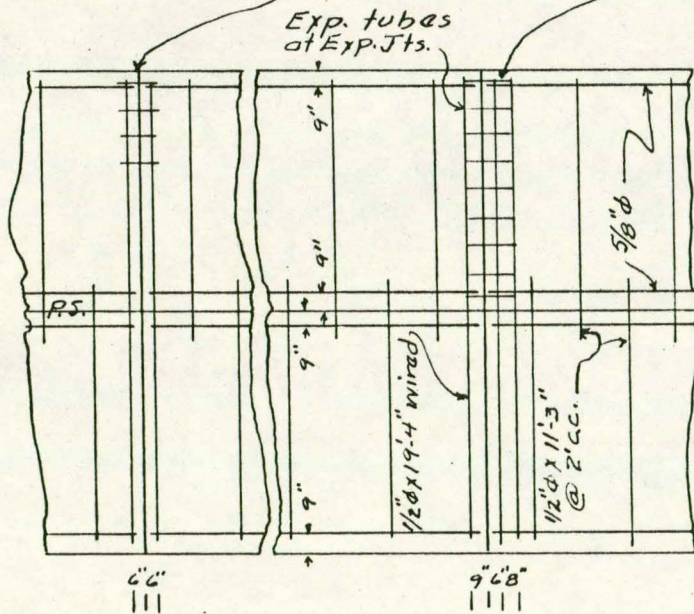
Design No. 45 Width 20 Ft. 10-8-10
First used in Letting of 3-18-47

Butler	F-85 (13)	2.538 Miles	1947-48
Butler	F-85 (14)	4.386 Miles	1947-48
Dallas-Madison	F-366 (5)	7.457 Miles	1947
Taylor	F-562 (2)	7.826 Miles	1947



Construction joints. - 18 - $\frac{5}{8}$ " ϕ x 18" dowels
wired to 2 - $\frac{1}{2}$ " ϕ x 19'-4" bars

Welded Assembly - 18 - $\frac{3}{4}$ " ϕ x 24" dowels
to 2 - $\frac{5}{8}$ " ϕ x 19'-4" bars

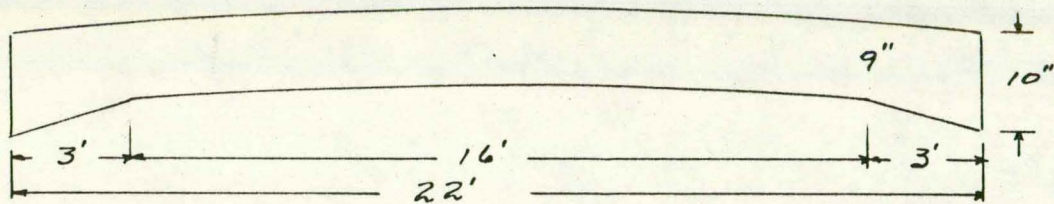


Cover - 3" over long. bars
Dowels in center of 8" sec.

Design No. 46 Width 22 ft. 10-9-10

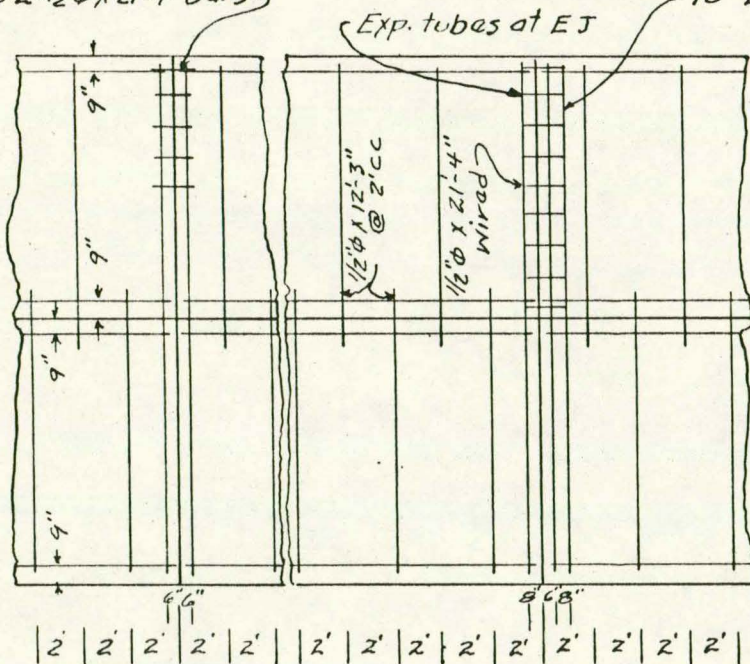
First used in Letting of 5-13-47

Linn	F - 909 (5)	4.835 Miles	1948
Linn	FG - 909 (6)	0.463 Miles	1948
Linn	U - 909 (3)	1.299 Miles	1948
Marshall	FAGH - 881 B (1)	0.203 Miles	1947
Marshall	F - 881 (3)	9.208 Miles	1947
"	F-211 (3-4)	0.503 Miles	1947-8



Construction joint - 18- $\frac{5}{8}$ " ϕ x 18" dowels
wired to 2- $\frac{1}{2}$ " ϕ x 21'-4" bars

Welded Assembly - 18- $\frac{3}{4}$ " ϕ x 24" dowels
to 2- $\frac{5}{8}$ " ϕ x 21'-4" bars.

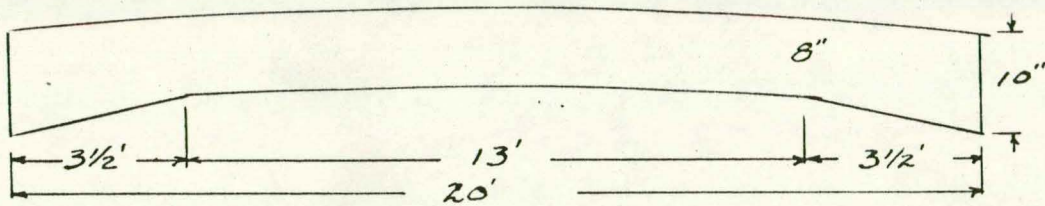


Cover - 3" over long. bars
Dowels in center of 9" sec.
Longitudinal bars $\frac{5}{8}$ " ϕ .

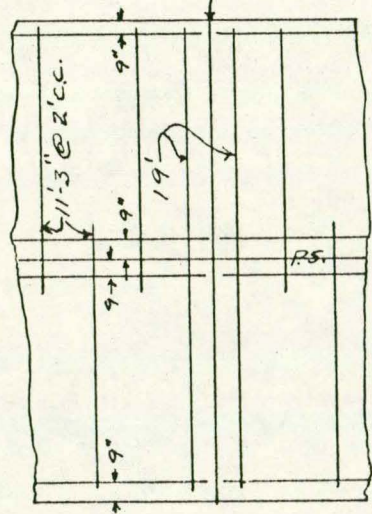
Design No. 47 Width 20 Ft. 10-8-10

First used in Letting of Jan 21, 1947

Orth F-268 (5) 1.992 Miles 1947 Station 1650+96 to Station 1756+16.3



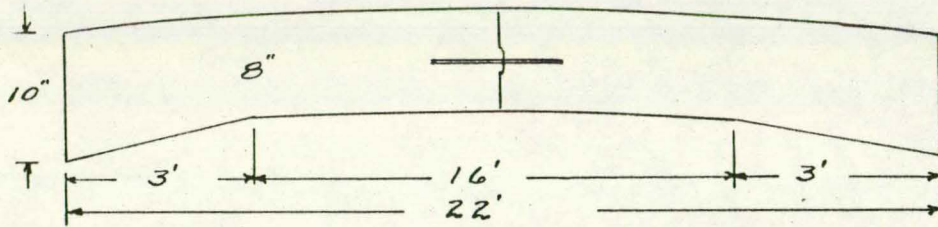
Contraction joints - no dowels
30L



Long. bars 5/8"φ
 Transv. " 1/2"φ
 Cover 3" over long. bars

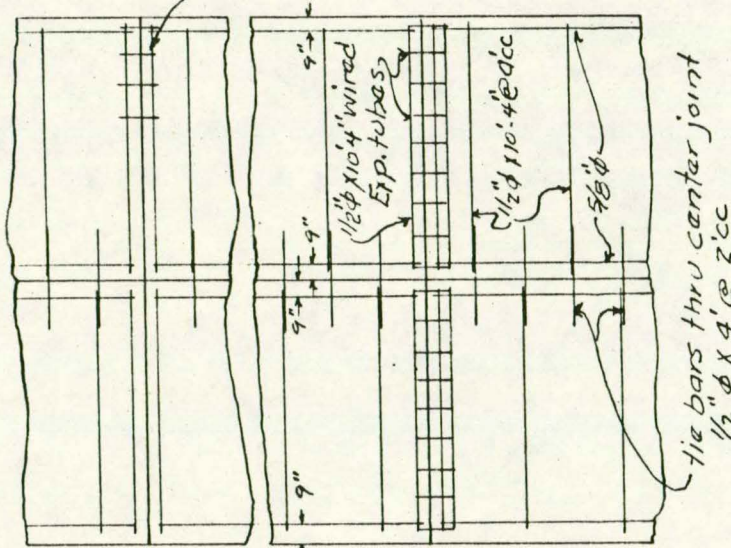
Design No. 48 Width 22 ft. 10-8-10
First used in Letting of 2-5-43

Davis	F-50 (7)	0.813 Miles	1948
Warren	F-11 (5)	1.594 Miles	1948
Lucas	F 252 (2)	0.079 Miles	1948

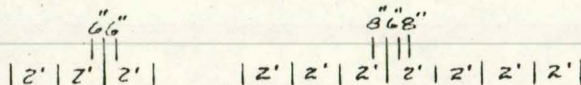


Construction joints (each half) 9-5/8" ϕ x 18" dowels wired to 2-10'4" bars 1/2" ϕ

Walded Assembly (each half.) 9-3/4" ϕ x 24" dowels to 2-5/8" ϕ x 10'4" bars



Cover - 3" over long bars
dowels in center of 8" sec.



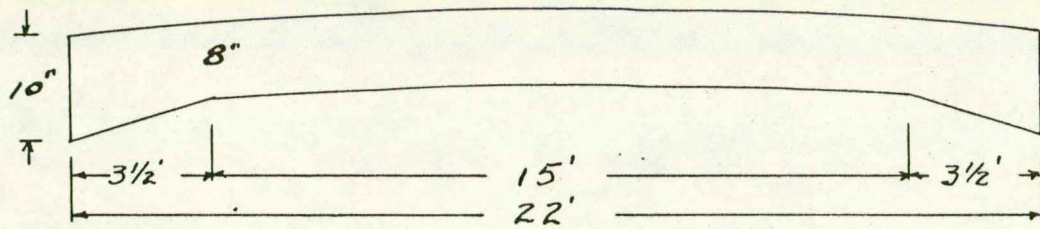
Design NO. 49 Width 22 Ft. 10 in. uniform
First Letting used in 2-3-48

49

Marshall U - 23 (5) 0.251 Miles 1948

Design No 50.
Width 22 ft. No 10-8-10
First used in Letting of 3-2-43

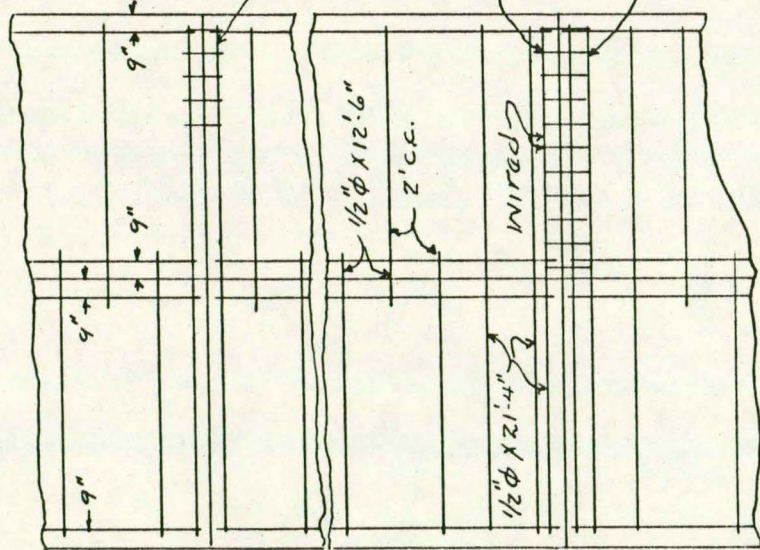
Floyd	U41 (7)	0.714 Miles	1948
Floyd	U41 (9)	0.236 Miles	1948



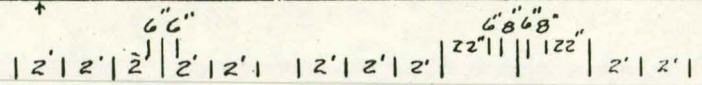
Construction joints - 22-5/8" x 18" dowels wired to 2-1/2" φ x 21'-4" bars

Welded Assembly - 22-3/4" φ x 24" dowels to 2-5/8" φ x 21'-4" bars.

Exp. tubes at E.J.



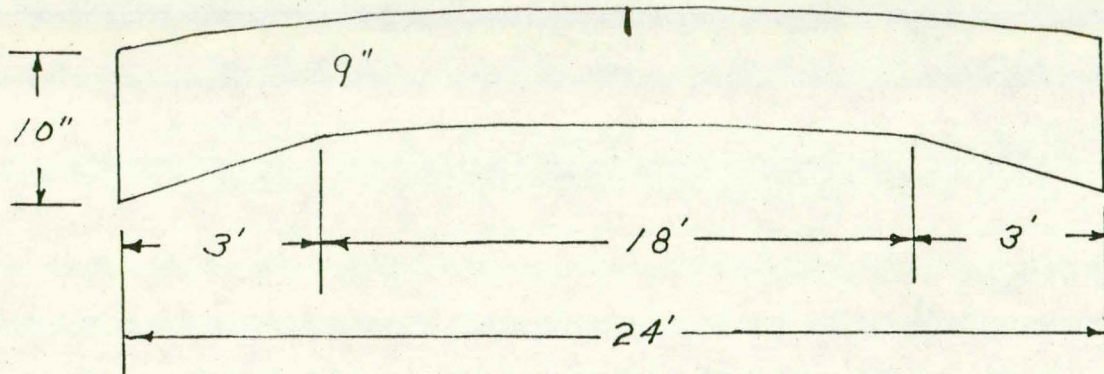
Cover 3" over long. bars. Longitudinal bars 5/8" φ Dowels in center of 8" sac.



Plymouth
Woodbury-Plymouth F 273(4)
F 38(7)

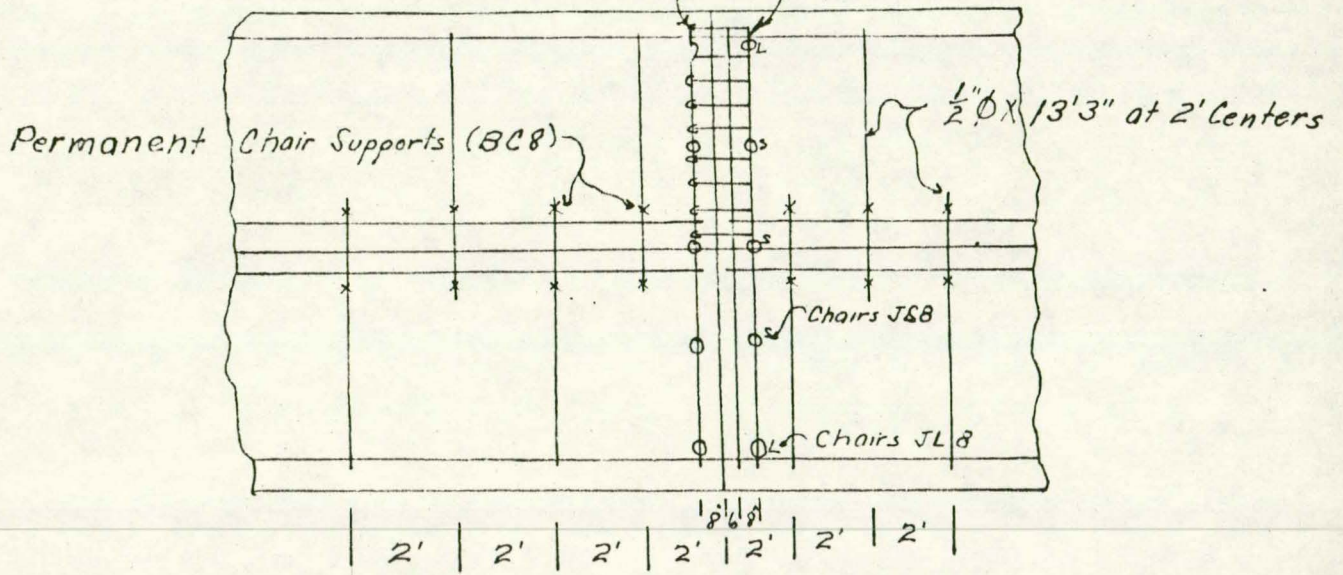
Design No. 51
First used in Letting of 6-21-49

Design No 51.
Width 24 ft. 10-9-10
First used in Letting of 6-12-49.
Plymouth F 38(7) 5.093 Miles 1949
Plymouth-Woodbury F 273(4) 6.239 Miles 1949.



Welded Assembly 20 - $\frac{3}{4}$ " ϕ X 24" dowels
to 2 - $\frac{5}{8}$ " ϕ X 23' 4" bars

Exp. tubes at E.J.

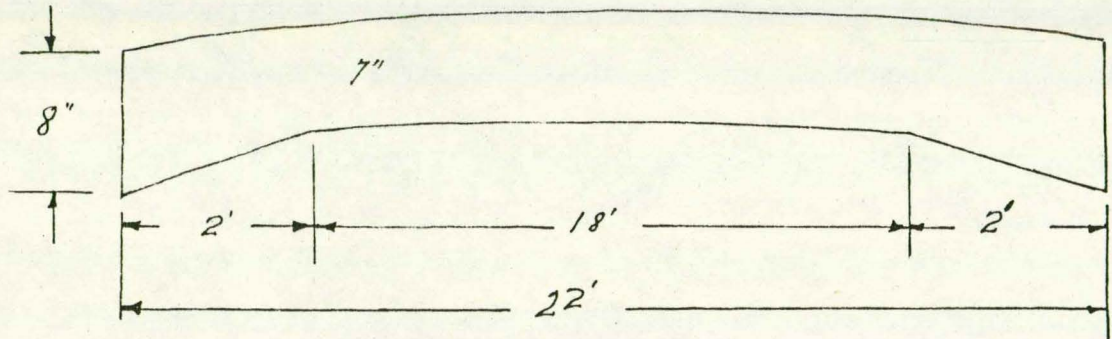


Design No. 52 Width 22 Ft. 8-7-8

52

Letting First Used 5-24-49

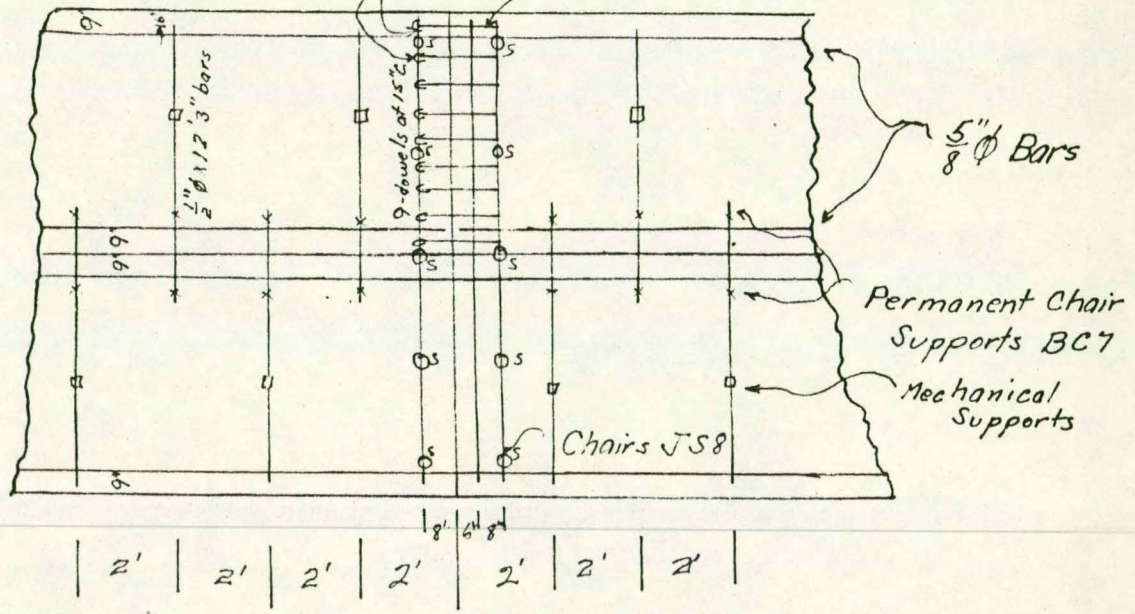
Crawford	F 879(6)	12.864 Miles	1949
Cass	FN 466	0.454 Miles	1949
Montgomery	F915(1)	2.313 Miles	1949
Wright	S-444(2)	0.612 Miles	1950
Wright	S-197(4)	0.1498 Miles	1950
Mills	F-767(2)	7.843 Miles	1949-50
Mills	F-442(6)	1.328 Miles	1950
Monona	F-356(9)	6.284 Miles	1950
Keokuk	F-897(2)	4.075 Miles	1950



$\frac{1}{2}$ " ϕ X 21' 4" bar wire tied to each Exp. tube & dowel

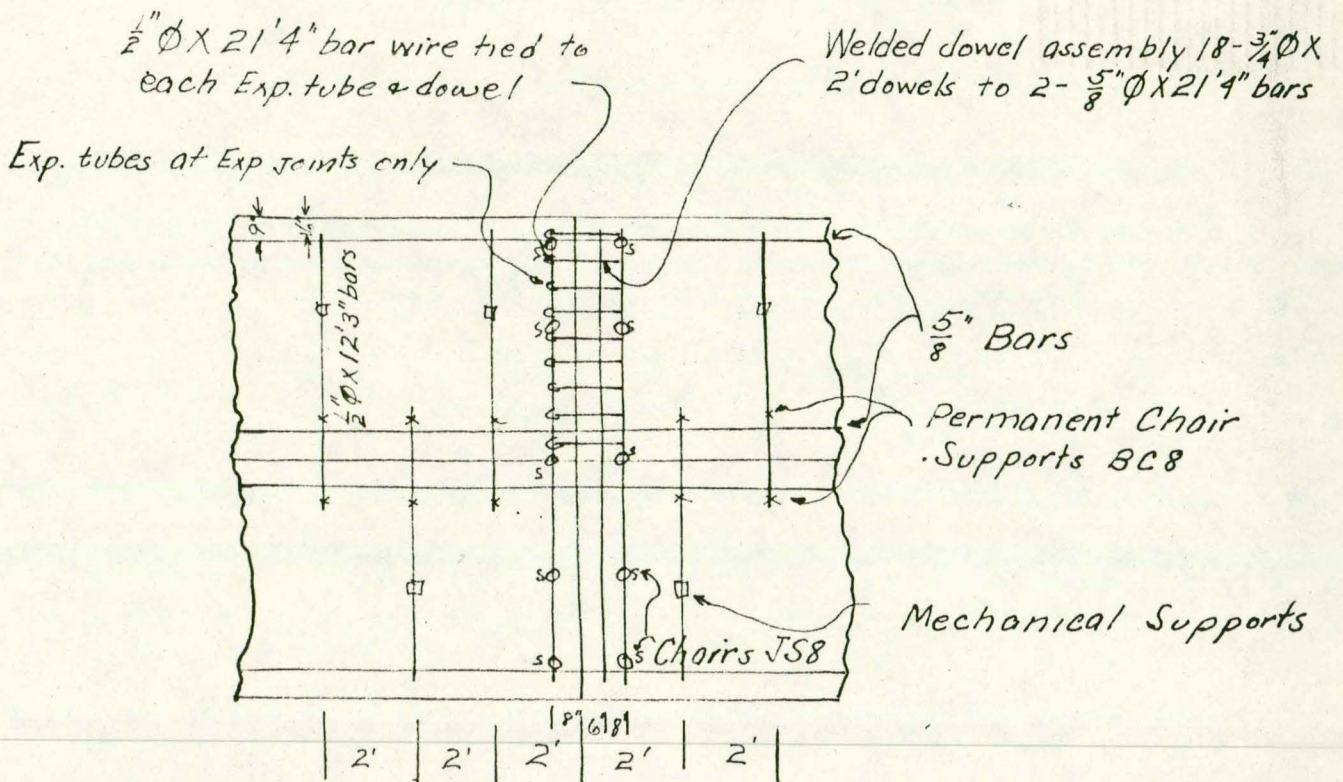
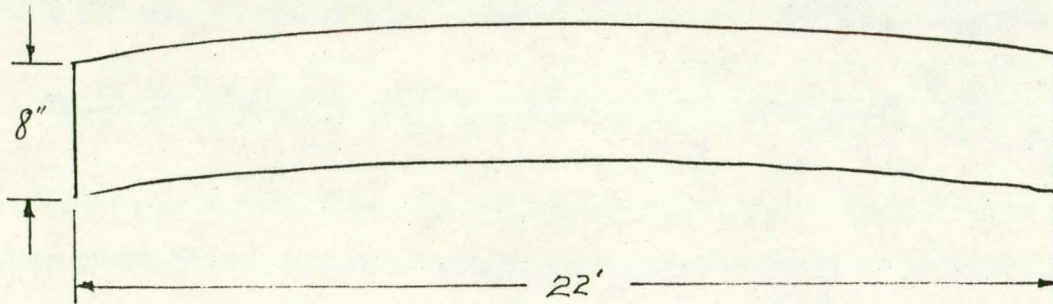
Welded dowel assembly 18- $\frac{3}{4}$ " ϕ X 2' dowels to 2- $\frac{5}{8}$ " ϕ X 21' 4" bars

Expansion tube at Exp. joints only



Design No. 53 Width 22 Ft. 8 in uniform
First Used in Letting of 4-26-49

Jasper	FN 963	0.892	Miles	1949
Sioux	F 542(9)	10.787	Miles	1949
Guthrie-Dallas	F-619(5)	11.535	Miles	1950

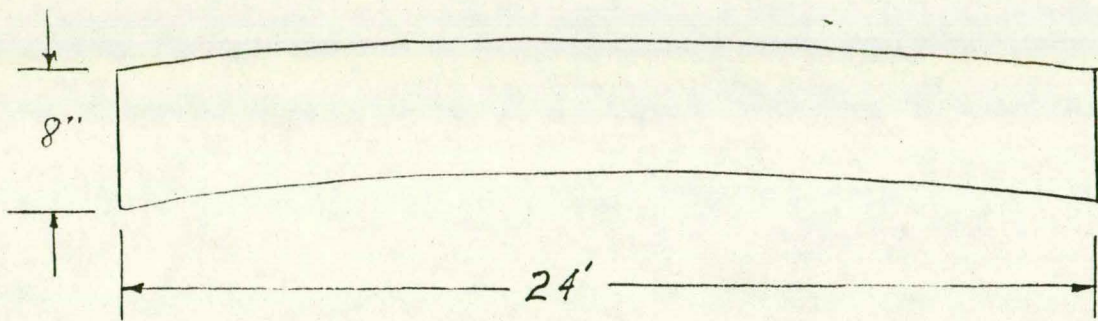


Design No. 54 Width 24 ft. 8 in. uniform

54

First Used in Letting of 8-16-49
F 970(1) 0.176 miles 1949

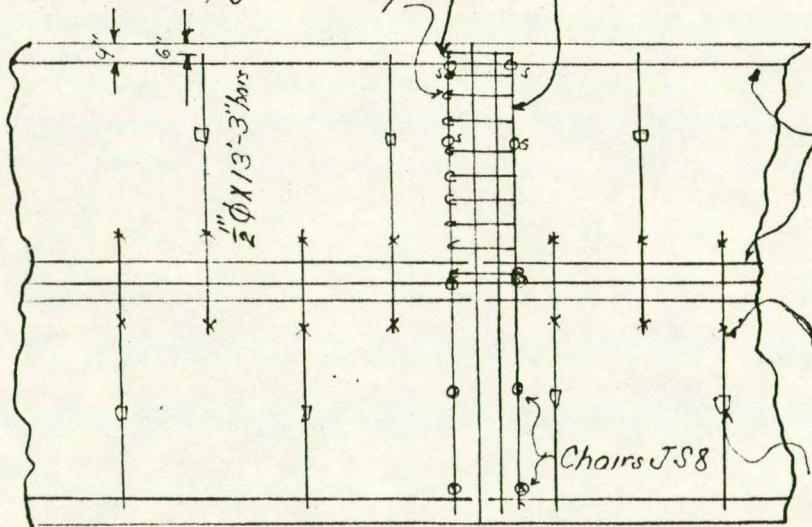
Jasper



$\frac{1}{2}$ " ϕ x 23'-6" Bnr wire tied to each exp. tube & dowel

Exp. tubes at Exp joints only

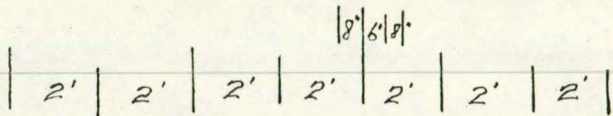
Welded dowel assembly 20- $\frac{3}{4}$ " ϕ x 2' dowels to 2- $\frac{5}{8}$ " ϕ x 23'-6" bars



$\frac{5}{8}$ " Bars

Permanent Chair Supports (BC8)

Approved Mechanical Supports



Design No. 55 Width 24 ft. 10 in. uniform

55

First Used in Letting of 7-20-48

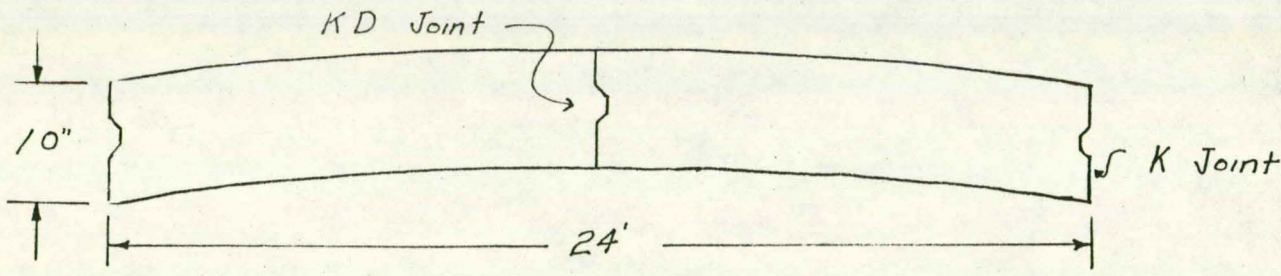
Polk

FN 340

0.199

Miles

1949



$\frac{1}{2}$ " ϕ x 11'-0" bar wire tied to each Exp tube & dowel

Welded dowel assembly 9-
 $\frac{3}{4}$ " ϕ x 24" dowels to 2- $\frac{5}{8}$ " ϕ x 10'6"
 at 15" Centers

Exp. tubes at Exp. Joint only

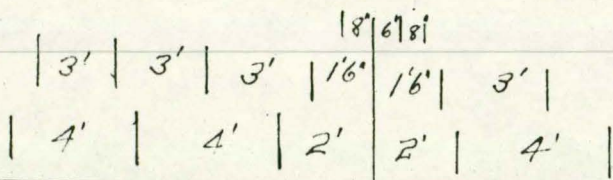
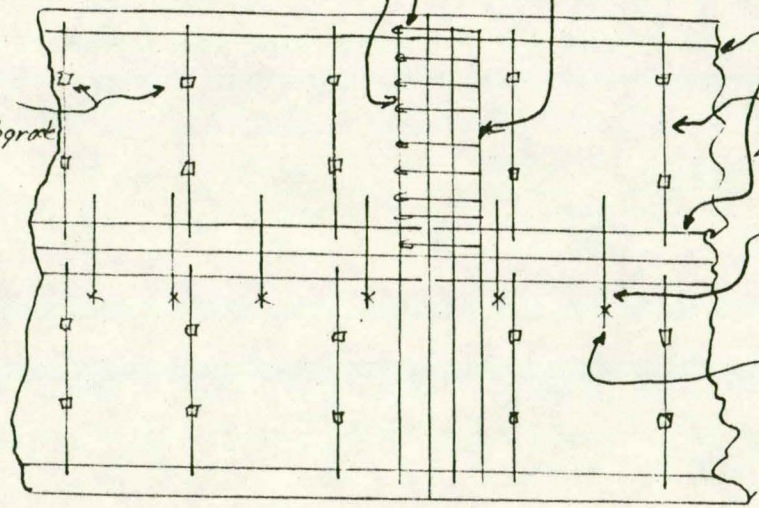
Mechanical Supports
 (Bottom $\frac{1}{2}$ " bar - $\frac{1}{8}$ " above Subgrade)

$\frac{5}{8}$ " ϕ Bars

$\frac{1}{2}$ " ϕ x 11'-0" bars

$\frac{5}{8}$ " ϕ x 4' Tie bars at 3' C's

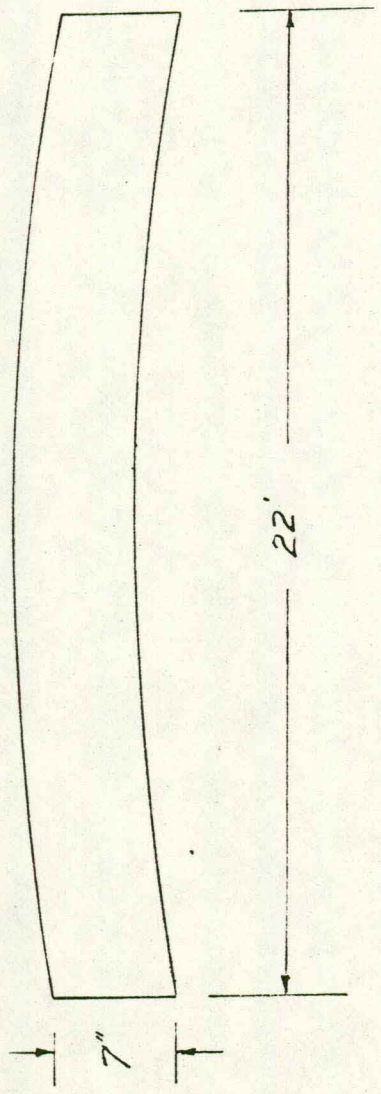
BC 8 Chairs



Design No. 56 Width 22 ft. 7 in. uniform
First Used in Letting of 9-13-49

Wright
Wright
Wright

SN-825	0.886	Miles	1949
S 1256(1)	0.65	Miles	1949
SN 1516	0.705	Miles	1949

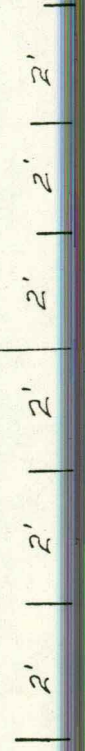
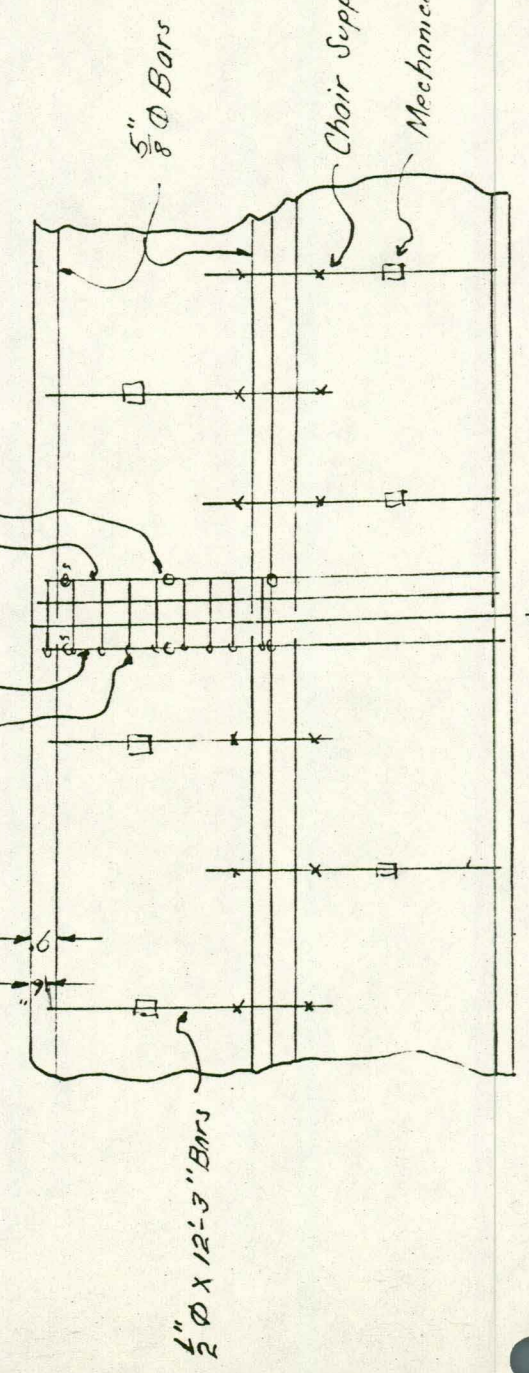


$\frac{1}{2}$ " ϕ X 21'-4" bar wire tied to each Exp. tube + dowel

Welded dowel assembly 18- $\frac{3}{4}$ " ϕ X 2' to 2- $\frac{5}{8}$ " ϕ X 21'-4" at 15" Centers

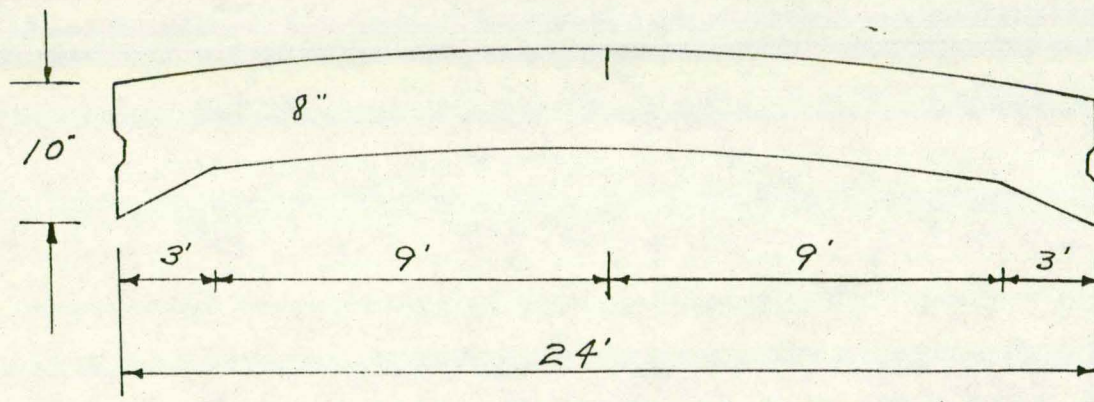
Exp. tubes at Exp. joint only

Chairs JSE



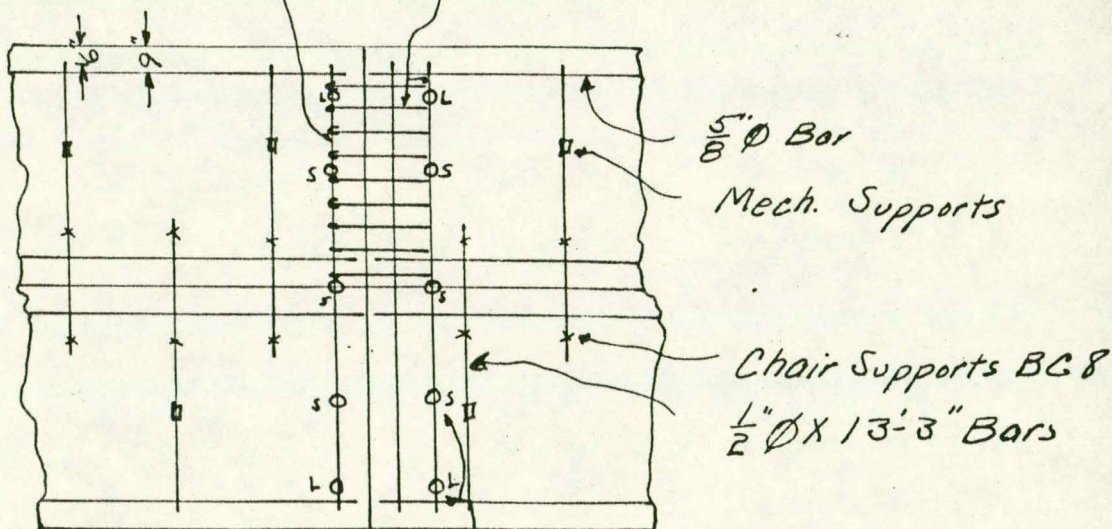
Design no 57 Width 24 Ft 10-8-10

Blackhawk UG -62(6) 0.752 Miles 1950
First used in letting of 11-22-49



$\frac{1}{2}$ " ϕ X 21'-8" wire tied to each Exp tube & dowel

18 - $\frac{3}{4}$ " ϕ X 2' dowels at 15" C's to $2 - \frac{5}{8}$ " ϕ X 21'-8" bars



8' 6" 8'

2' | 2' | 2' | 2' | 2'

Design No. 1581 Width 27 ft 6in
First Used in Letting of 8-1-50

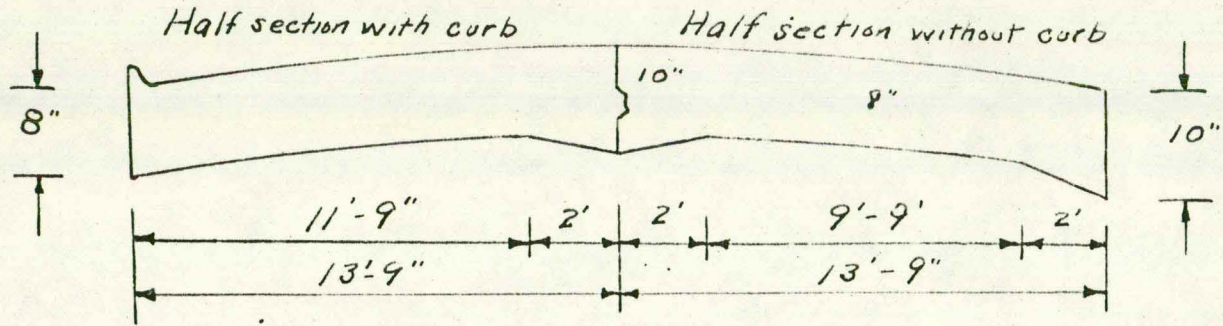
8-10-8
10-8-10-8-10

1581

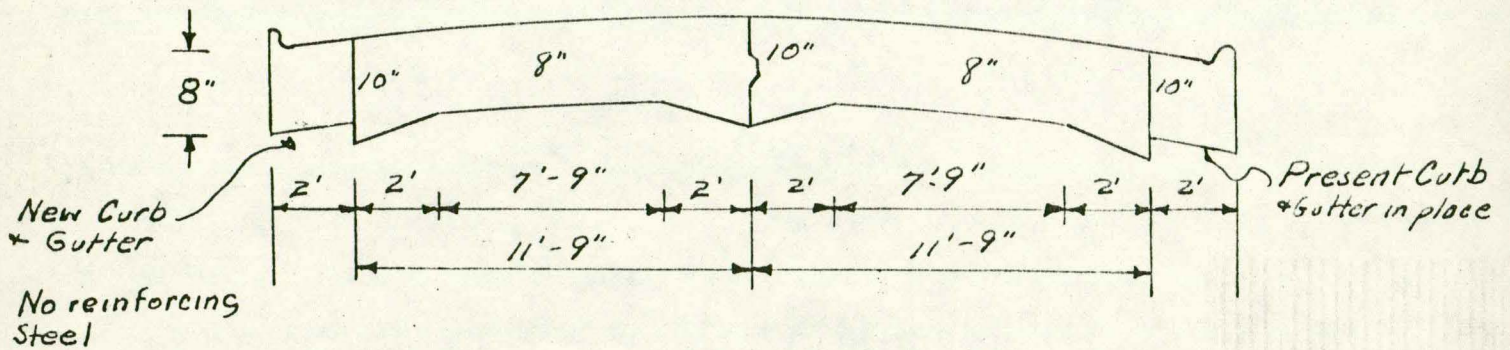
Webster

FN-780 0.142 Miles 1950

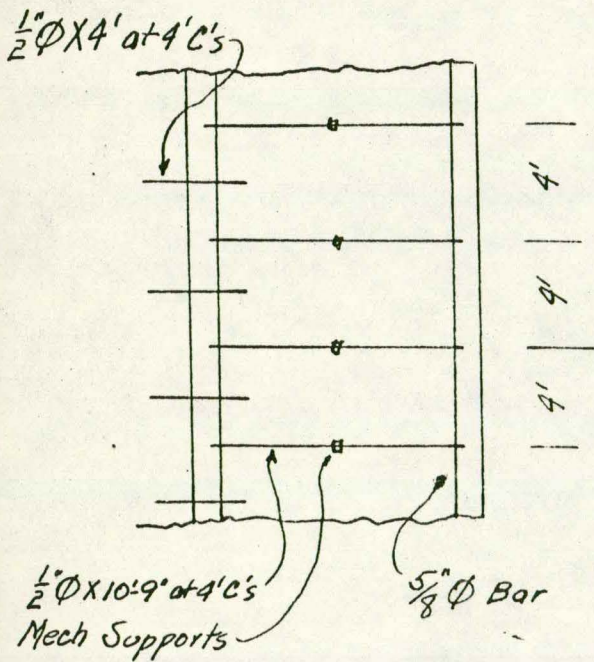
Section A



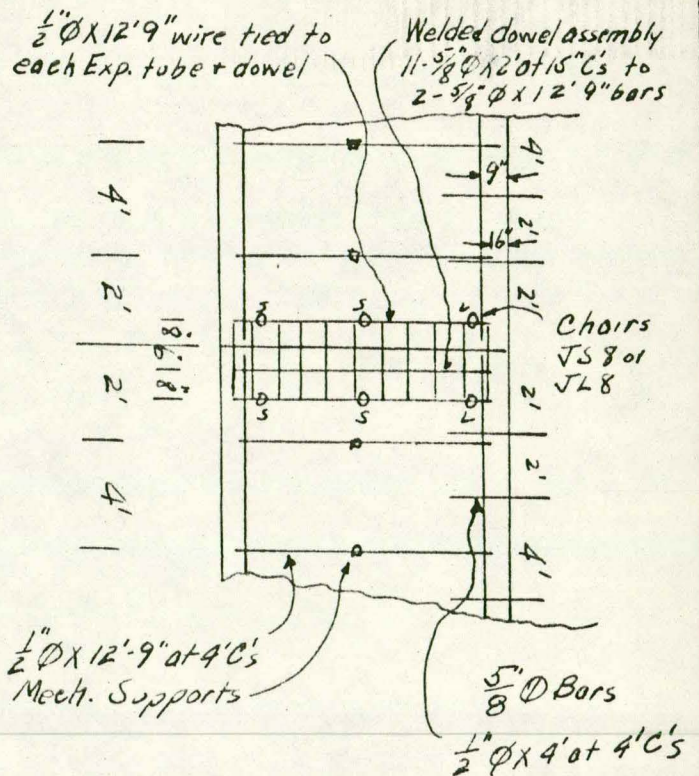
Section C



Section C 11'-9"



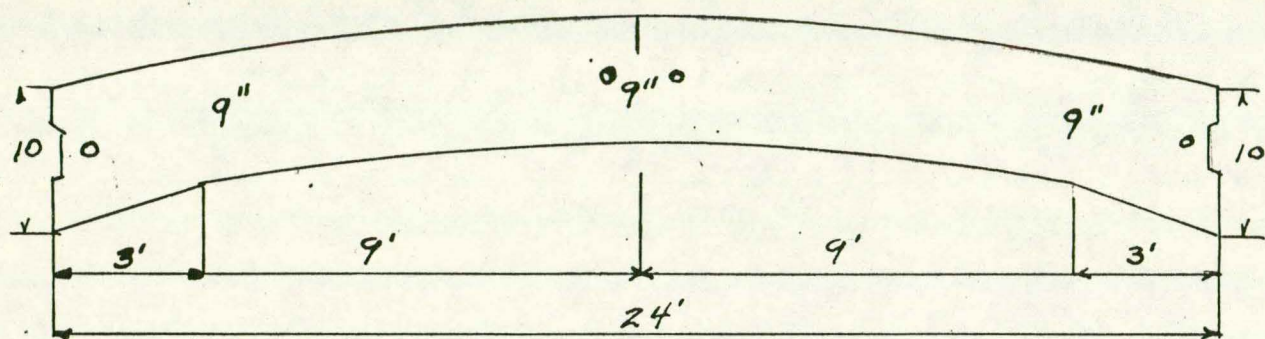
Section A 13'-9"



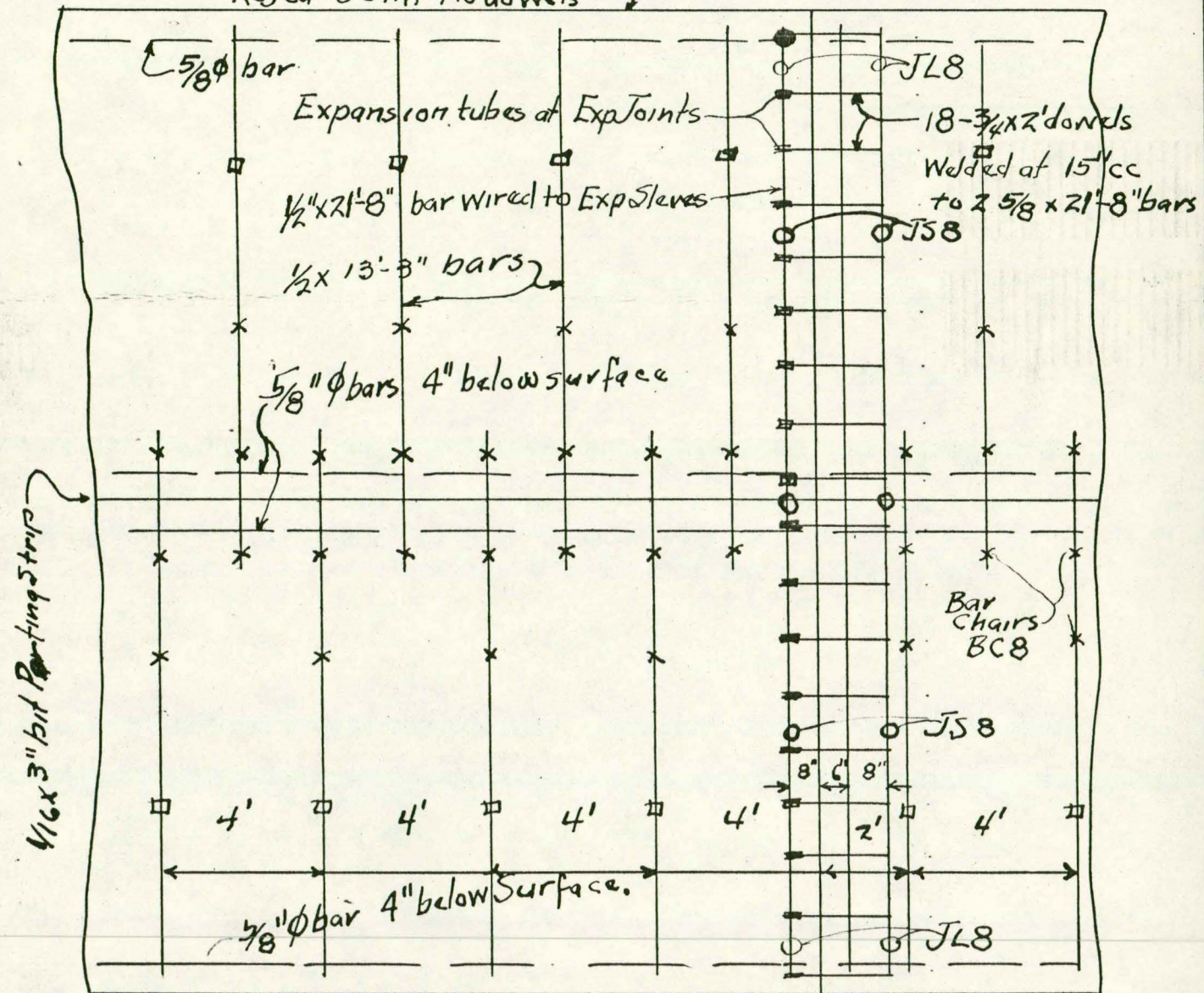
Design No 59 Width 24 ft 10-9-10

First used in letting of 5-24-49

Woodbury UI 886(3) 3.420 Miles 1949



Keyed Joint No Dowels →



Keyed Joint No Dowels ↗

Expansion Joints as Listed on Plans

Design No 60 Width 22 Ft 10-8-10
 First used in letting of 6-6-50
 Muscatine U 372(2) 0.502 Miles 1950

60

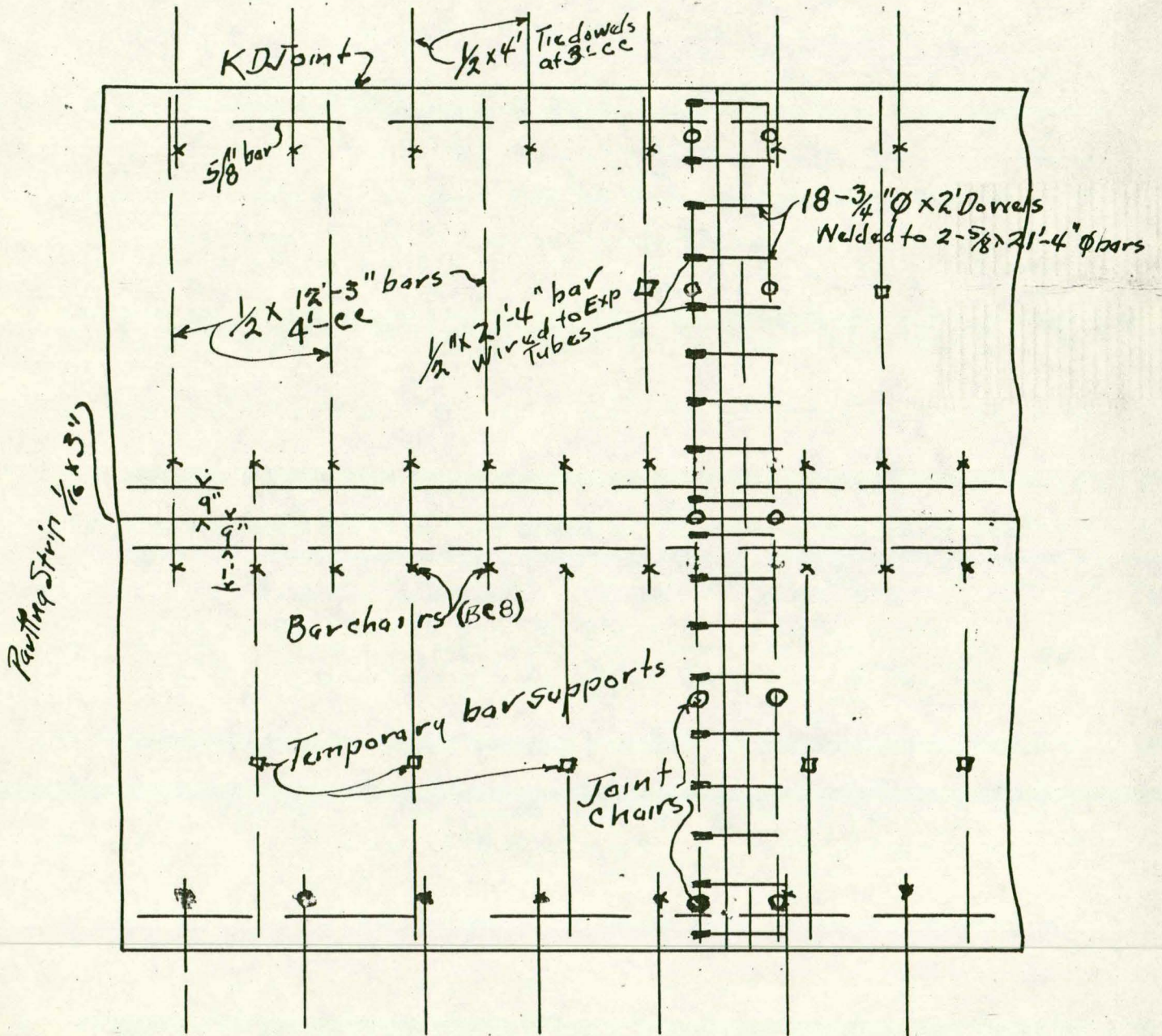
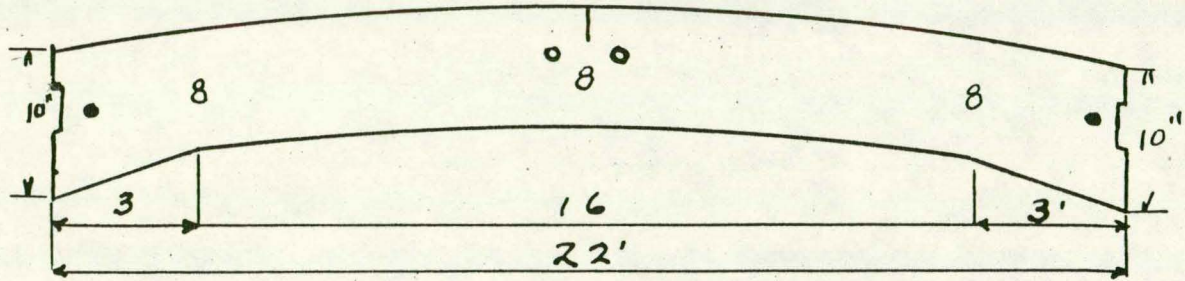
Design no 60 Width 22 Ft 10-8-10

60

First used in letting of 7-19-49

Harrison	F	965(1)	0.898	1949
Muscatine	U	372(2)	0.502	1950
			0.898	1949

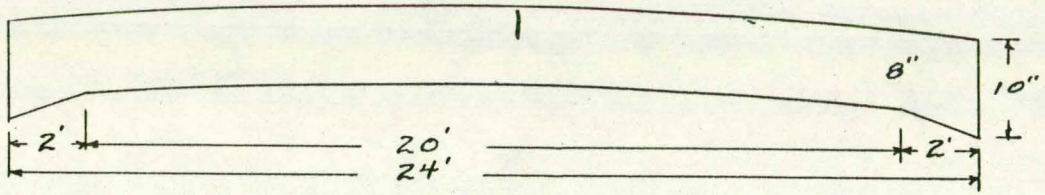
#60
Miscellaneous
U372(3)



Design No. 61 Width 24 ft 10-8-10
First used in Letting of 7-8-48

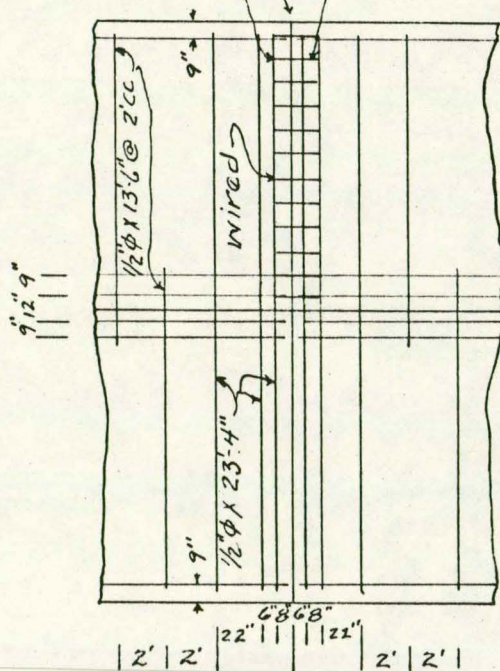
61

Blackhawk U-200 (4) 0.458 Miles 1948



All transverse joints
Exp. tubes at E.J.

Welded Assembly - 24-3/4" ϕ x 24" dowels
@ 1' c.c. to 2-5/8" ϕ x 23'-4" bars.

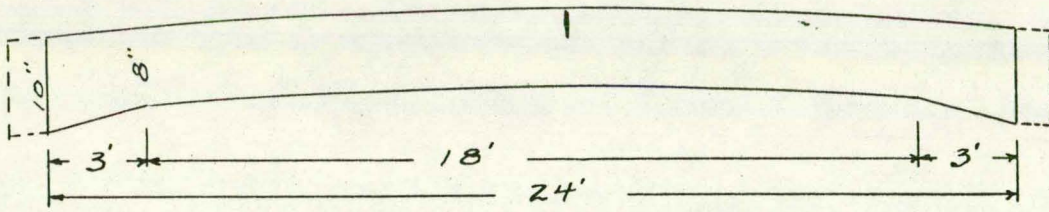


Cover 3" over long. bars.
Dowels in center of 8" sec.
Longitudinal bars 5/8"

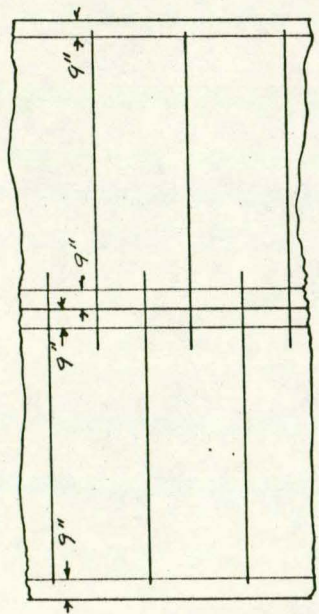
Design No. 62: Width 24 ft. 10-8-10
First used in Letting of 9-14-48

Blackhawk P-994 0.053 Miles 1948

M



1 x 10" fill in each side



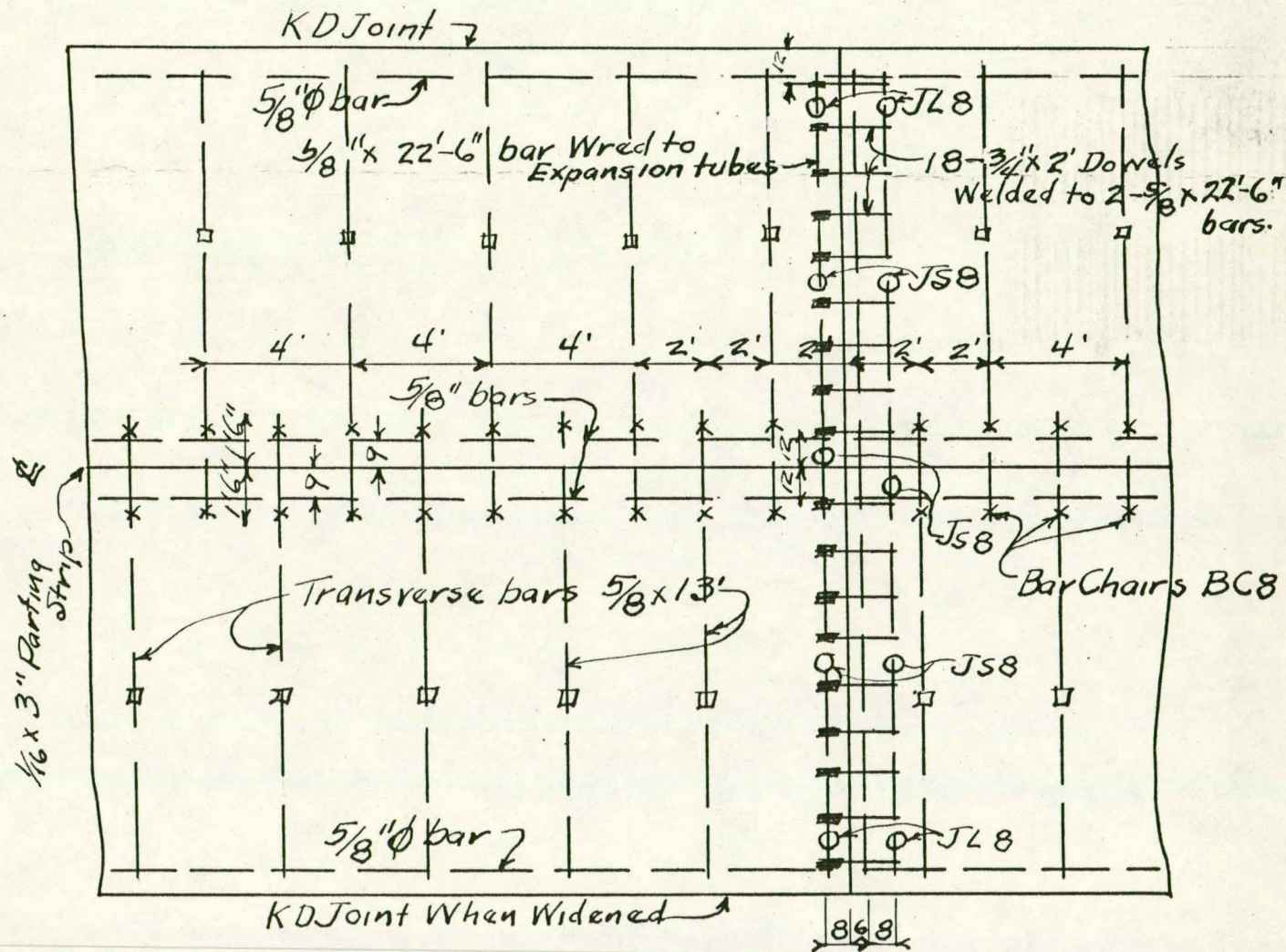
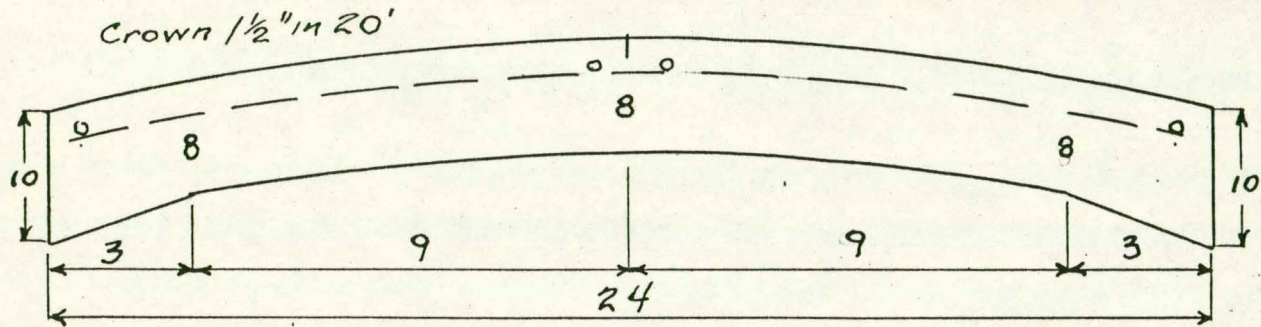
Transverse steel $\frac{1}{2}$ " ϕ x 13'-3"
Longitudinal .. $\frac{5}{8}$ " ϕ
Cover 3" over long. steel.

P.S. $\frac{1}{16}$ " x 3"

Design 63 Width 24 10-8-10
First used in letting of 7-6-50

63

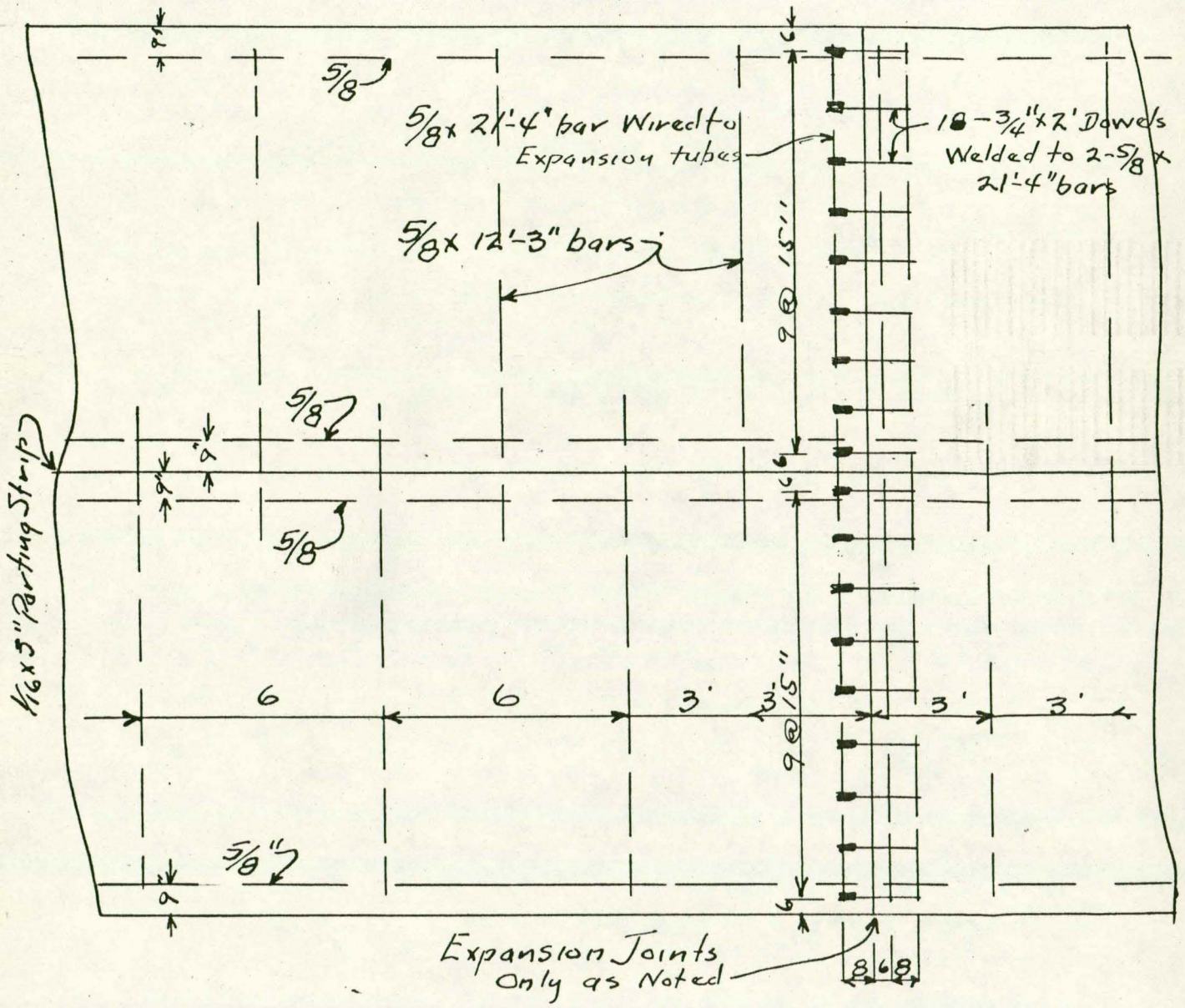
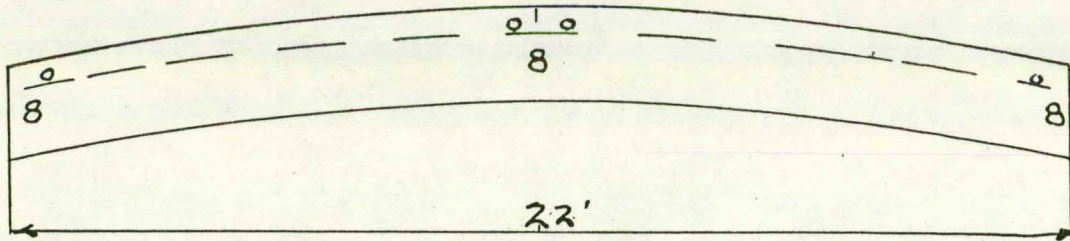
Page U 651(4) 0.989 Miles 1950



Design No 64 Width 22 ft 8 In uniform.
First used in Letting Of 1-23-51

Appanoose	F 399(1)	2.575 Miles	1951
Carroll	F 99(4)	7.359 Miles	1951
Johnson	F 9 (7)	14.635 Miles	1951

Crown 2" in 22'



Design No 65 Width 22 ft 10-8-10

65

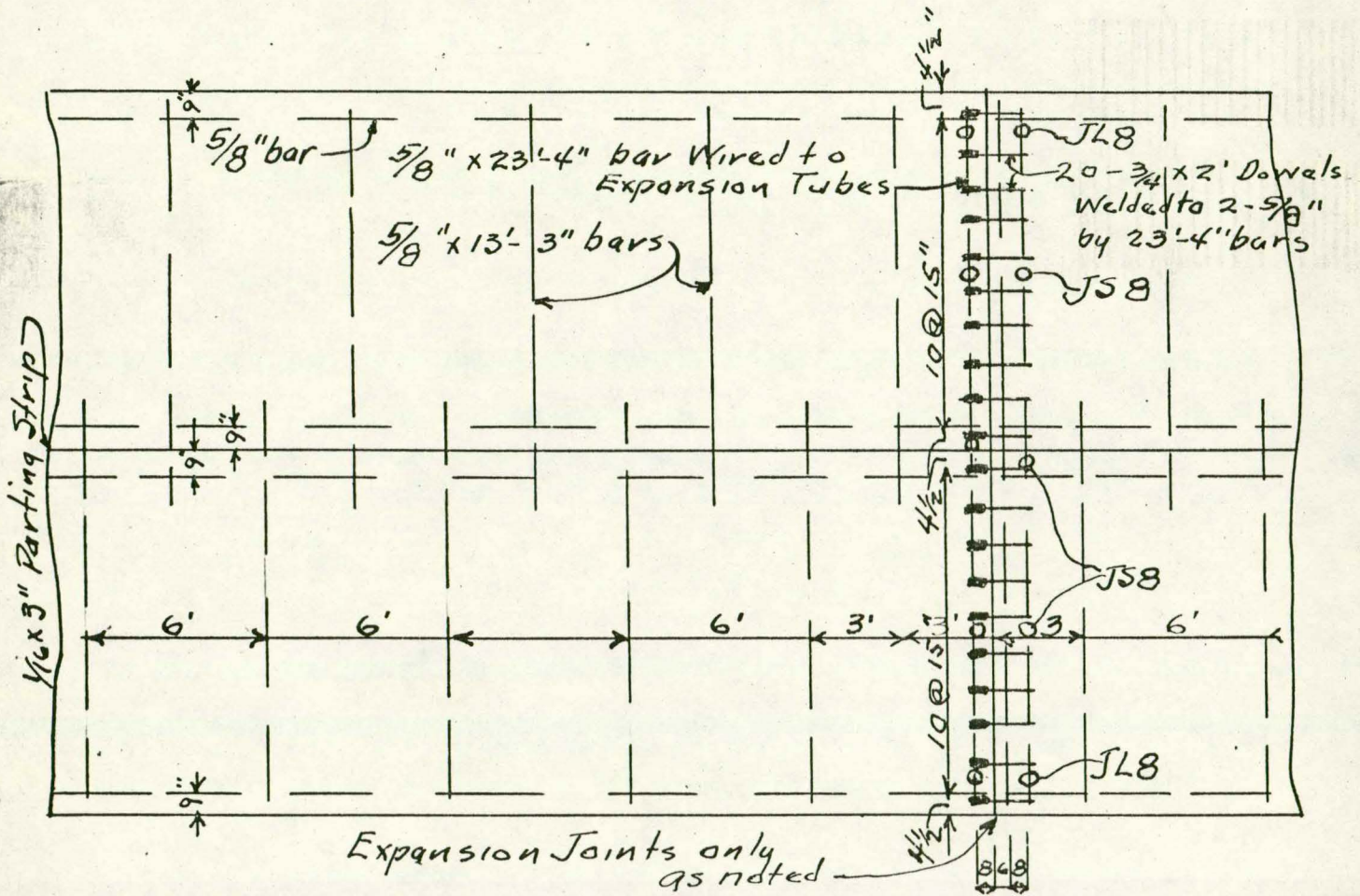
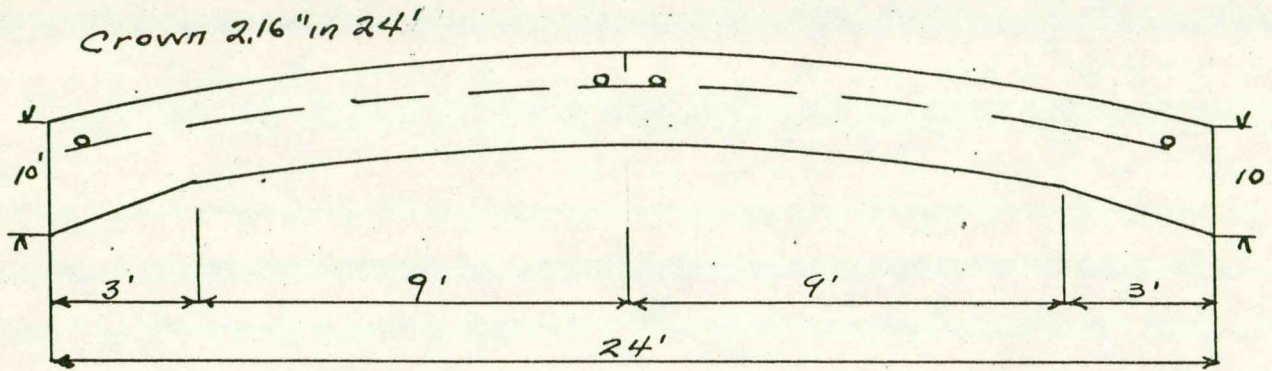
First used in Letting of 1-23-51

Chickasaw Wingshield FN 357(8) 6.546 Miles 1951
Dallas F 366(6) 6.562 Miles 1951
CANTON W 99(4) Miles 1951

Design No 66 Width 24 Ft 10-8-10
First used in Letting of 4-17-51

66

Johnson U I 128(3) 2387 Miles 1951



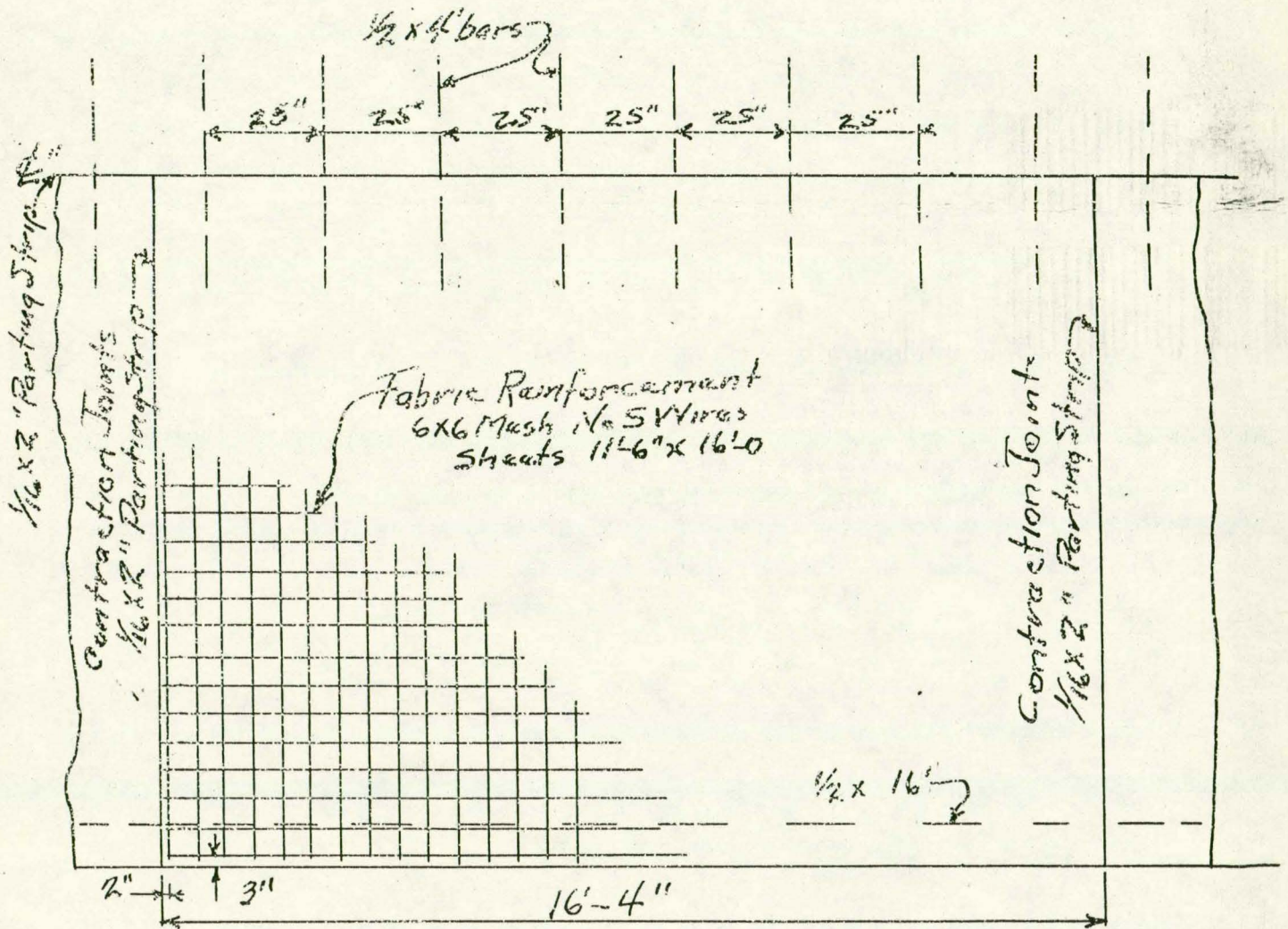
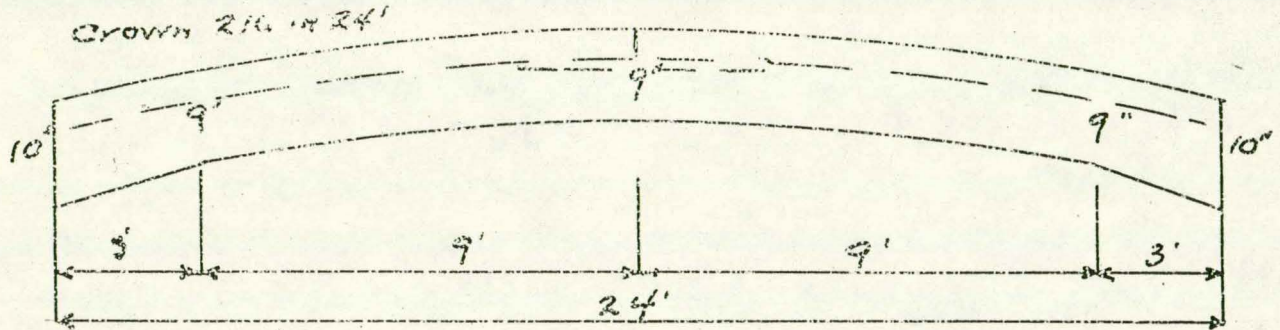
Design No 67 Width 24 Ft 10-9-10
First used in Letting of 1-23-51

67

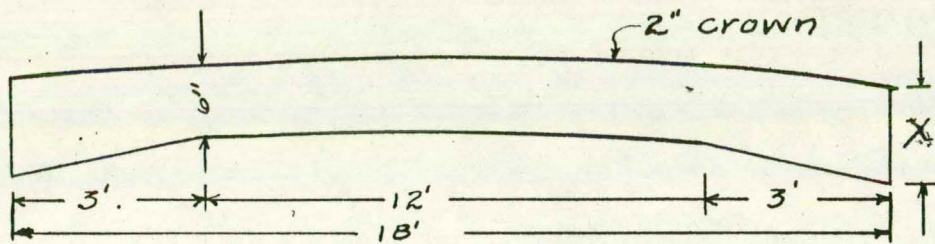
Jasper	FN	64	1.310	Miles	1951
Jasper	F	64 (16)	6.396	Miles	1951
Tama	F	276(5)	5.031	Miles	1951

67

Regular

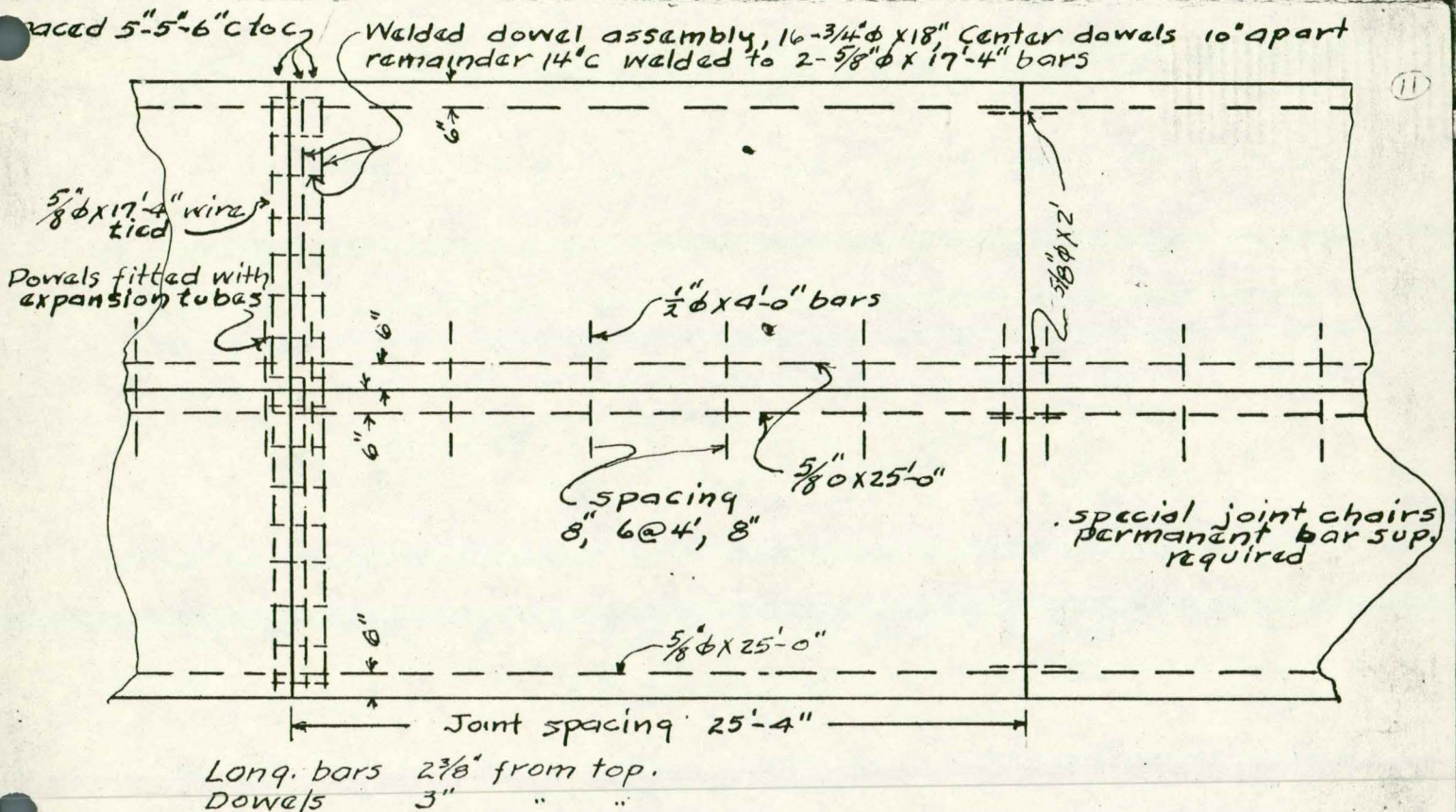


~~Design No. A-1 to A-18~~
Design No. A-1 to A-18



Design No.	Edge thickness X	
A 1 A	8"	
A 1 B	9"	this was by agreement
A 1 C	12"	" " " "

Exp. Joints spaced 202'-8"



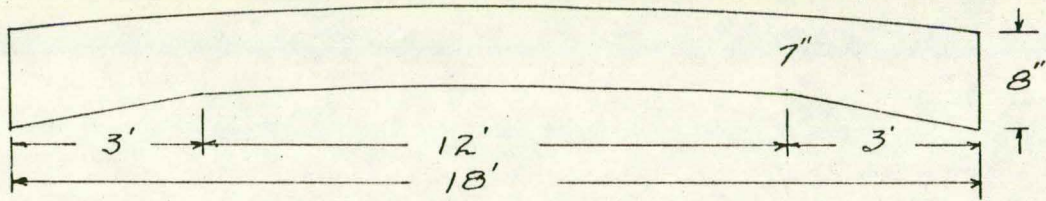
Design No. A - 2
First used in letting

Palo Alto P - 908
Shelby FA, - 779 B (1)

Design No.
A 2 B 2.020 miles built 1938
A 2 A 12.054 " " 1939

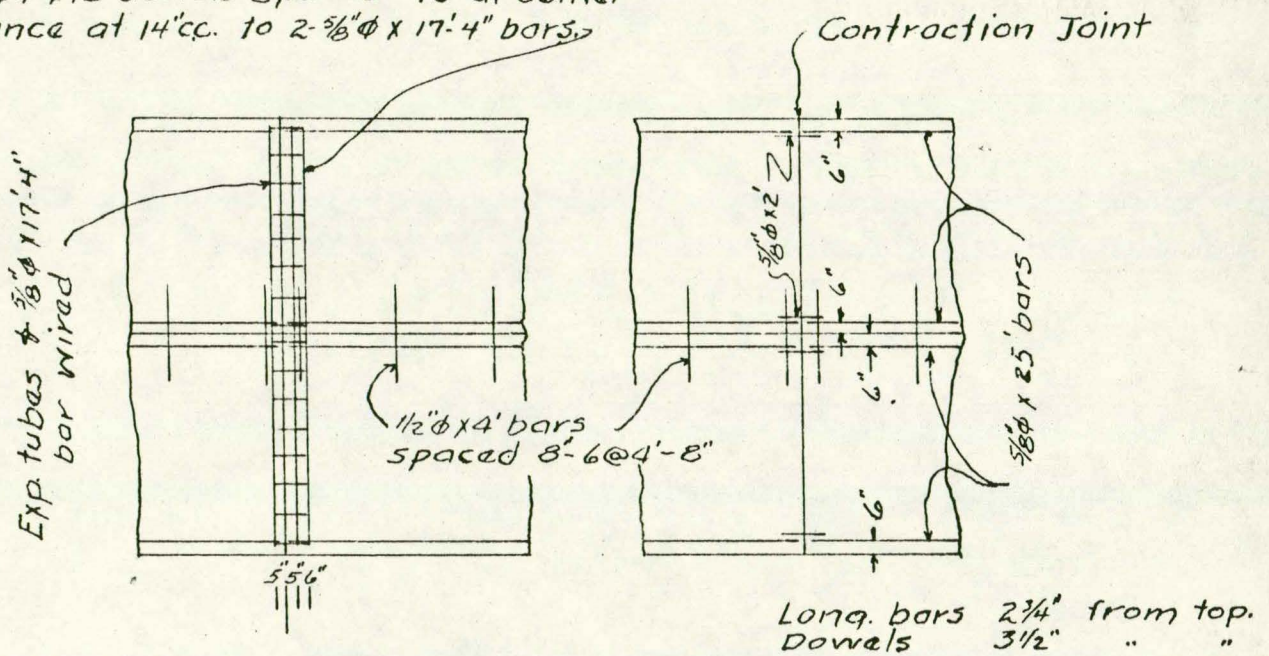
Design No. A - 3
First used in letting of

Mahaska FN - 544 2.32 Miles Built 1939



This design is similar to A-1-A except center thickness and cover over bars

Welded Assembly at Expansion Joints
 16- $\frac{3}{4}$ " ϕ x 18" dowels spaced 10" at center
 balance at 14" cc. to 2- $\frac{3}{8}$ " ϕ x 17'-4" bars

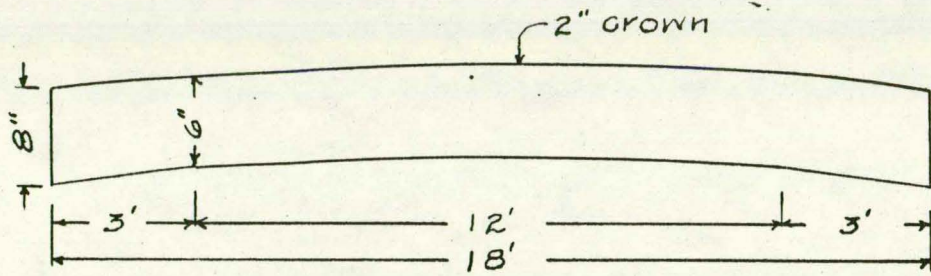


Design No. A-4

First Letting 11-28-39

A-4

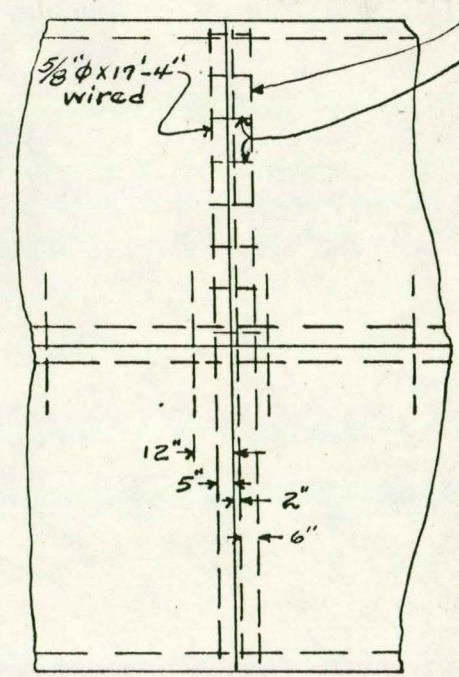
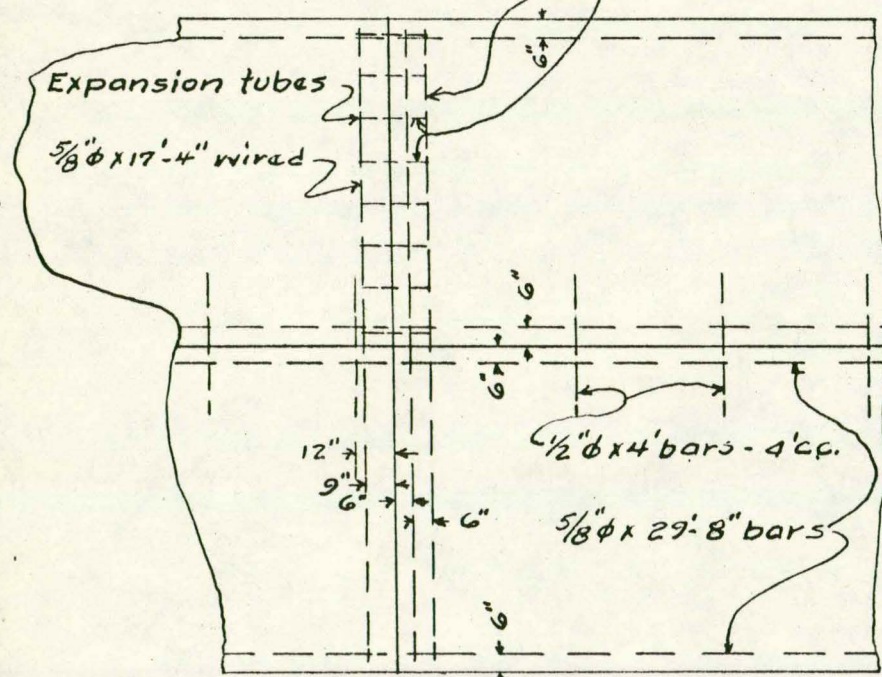
Delaware ✓	FA818A	5.171	Built 1940
Palo Alto	FA833A	6.344	" 1940
Webster	FAS292B	0.293	" 1940



Joint Spacing? 30' 3 cont 1 exp 120 PF

Expansion joint Assembly
 16-3/4" ϕ x 23" dowels - 14" c.c.
 welded to 2-5/8" ϕ x 17'-4" bars

Contraction joint Assembly
 16-3/4" ϕ x 15" dowels - 14" c.c.
 welded to 2-17'-4" bars



Dowels 3" cover - other steel 2 3/8" cover

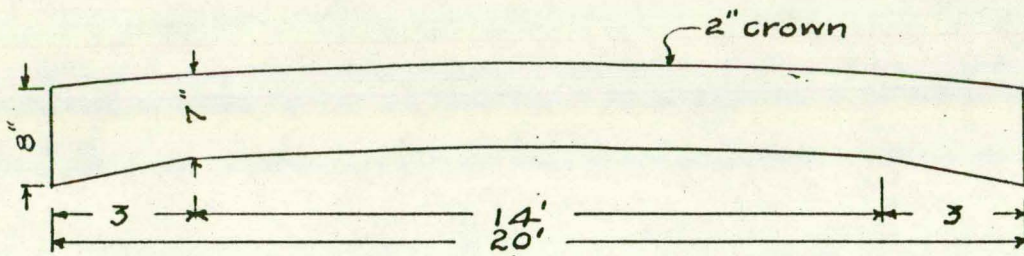
Design No. A-5

First Letting 5-2-40

701-878

A-5

Black Hawk	FA-837-A(1)	9.856	built 1940
Black Hawk	FA-832-A	5.197	" 1940
Black Hawk	State Inst. 1-40	0.122	" 1940

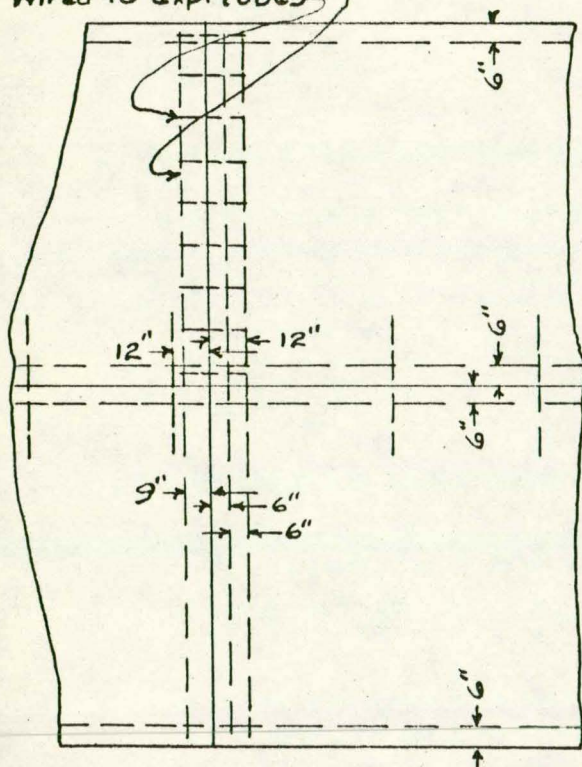


Dowel Assemblies

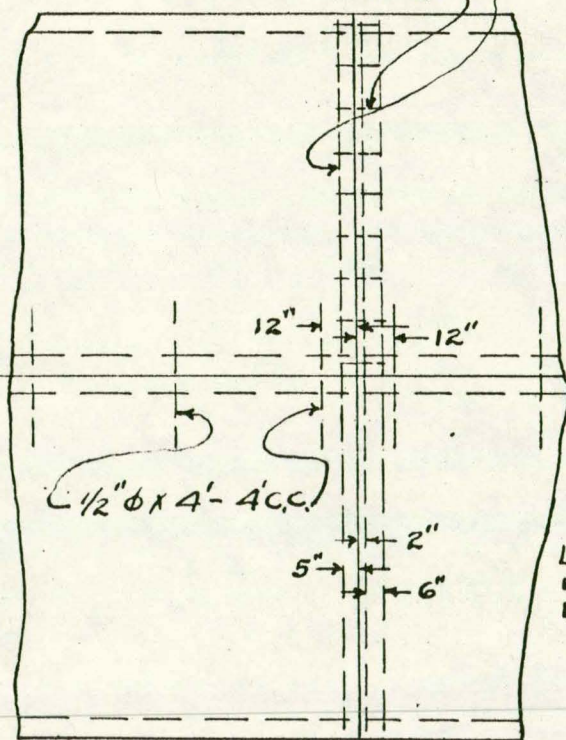
Expansion
 18-3/4" ϕ x 23" dowels spaced
 center 8" others 14" c.c.
 welded to 2-5/8" ϕ x 19'-6" bars.

Contraction
 18-3/4" ϕ x 15" dowels spaced
 center 8" others 14" c.c.
 welded to 2-5/8" ϕ x 19'-6" bars.

Expansion Joint
 5/8" ϕ x 19'-6"
 wired to exp. tubes



Contraction Joint
 5/8" ϕ x 19'-6"
 wired to dowels



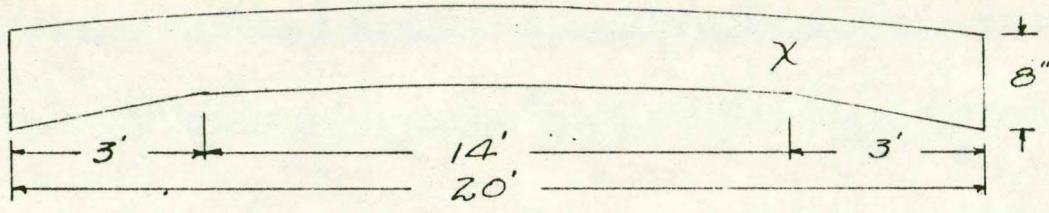
Long. steel 5/8" ϕ bars
 with 2 3/4" cover
 Dowels 3 1/2" cover

(18)

Design No. A - 6
First used in letting of

Clay FA - 871 A (1)

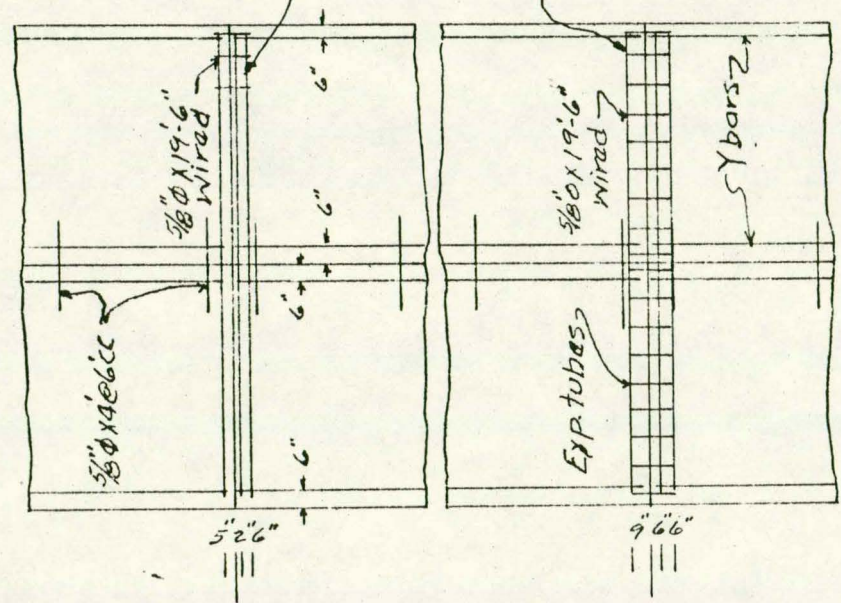
Design No.
A-6AB 6.328 miles built 1942



Design No.	Thickness χ	Longitudinal steel Y
A-6-A	6"	$\frac{5}{8}" \phi$
A-6-B	7"	none

Contraction Joint
 18- $\frac{3}{4}" \phi \times 15"$ dowels spaced 8" at \perp -balance 14"cc. welded to 2- $\frac{5}{8}" \phi \times 19'-6"$ bars

Expansion Joint
 18- $\frac{3}{4}" \phi \times 23"$ dowels spaced 8" at \perp -balance @ 14"cc. welded to 2- $\frac{5}{8}" \phi \times 19'-6"$ bars.



Long. bars $2\frac{3}{8}"$ from top
 Dowels 3" " "

Design A-7

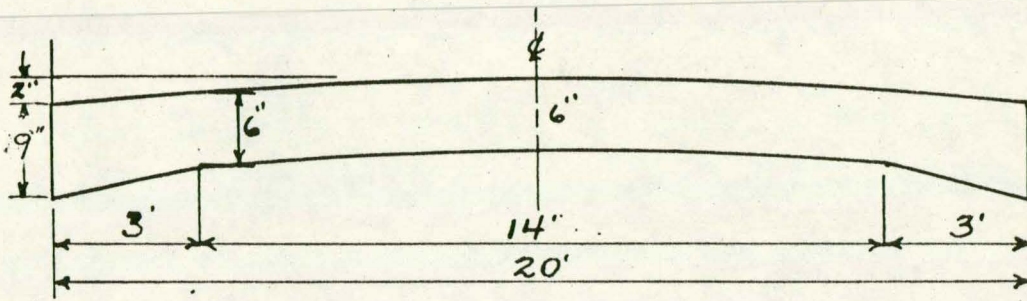
First Letting Oct. 21, 1941

A-7

Muscatine FSN280-N

0.45M. built 1942

70' 96'



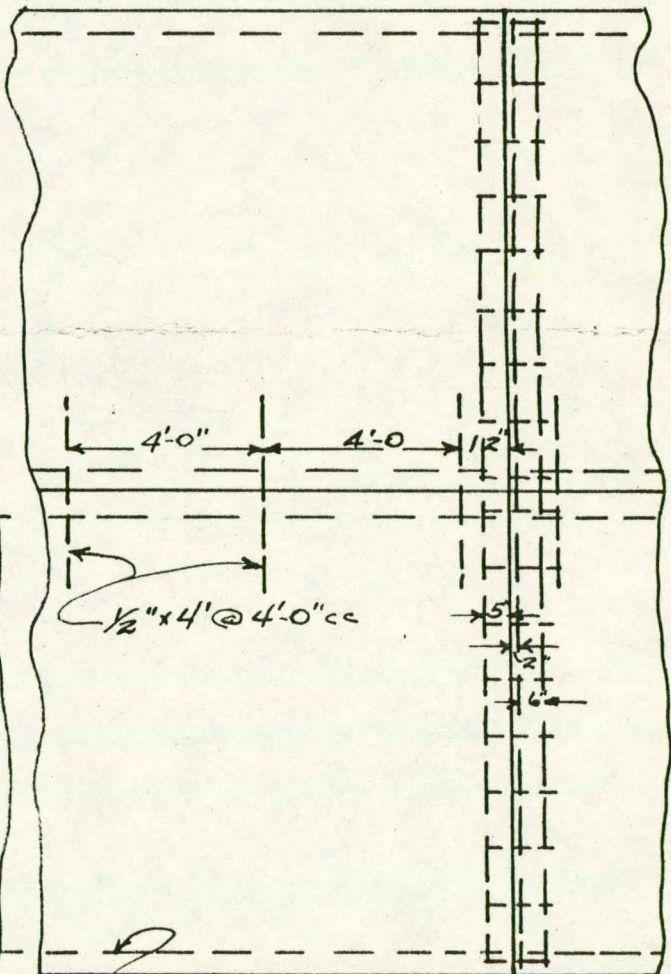
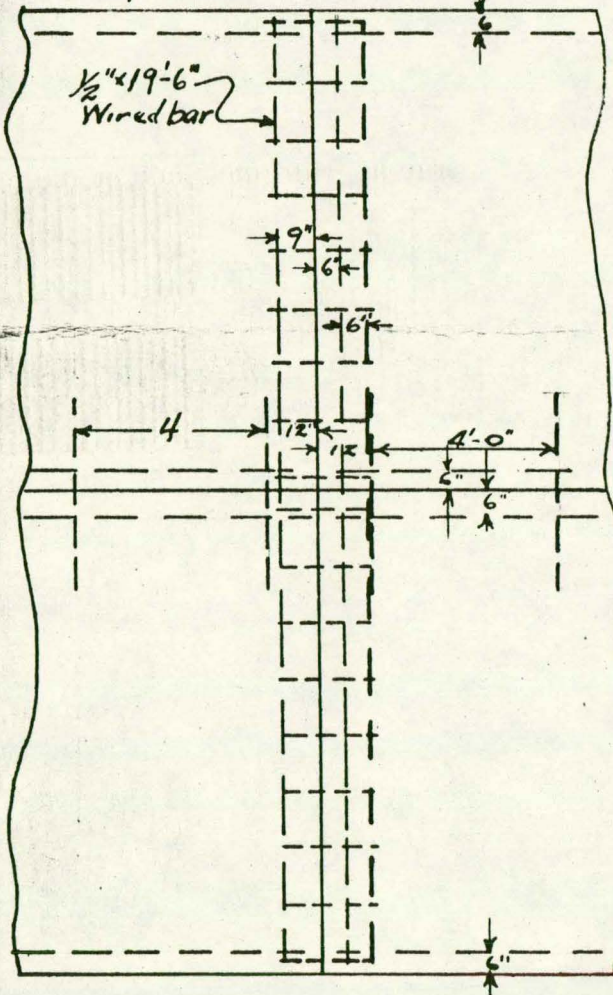
EXPANSION JOINT DOWELS

18 - $\frac{3}{4}$ " x 23" dowels spaced
8" cc at $\frac{1}{2}$ " and 14" cc outside $\frac{1}{2}$ "
welded to 2 - $\frac{5}{8}$ " x 19'-6" bars

CONTRACTION JOINT DOWELS

18 - $\frac{3}{4}$ " x 15" dowels spaced
8" cc at $\frac{1}{2}$ " and 14" cc outside $\frac{1}{2}$ "
welded to 2 - $\frac{5}{8}$ " x 19'-6" bars.

1 Exp & 3 Contraction Joints in 120 Feet 30' cc.



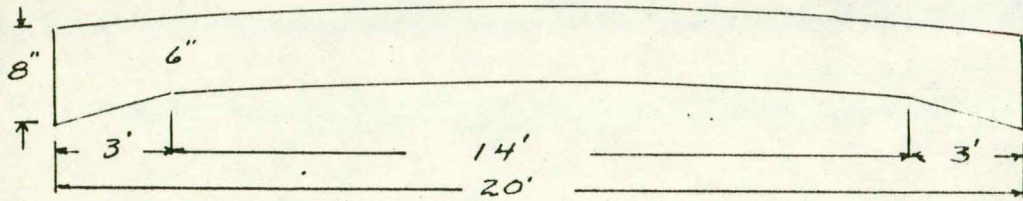
Longitudinal bars $\frac{5}{8}$ " x 29'-6"
 $2\frac{3}{8}$ " Cover over Longitudinal bars.

Design No. A - 8

20' - 868

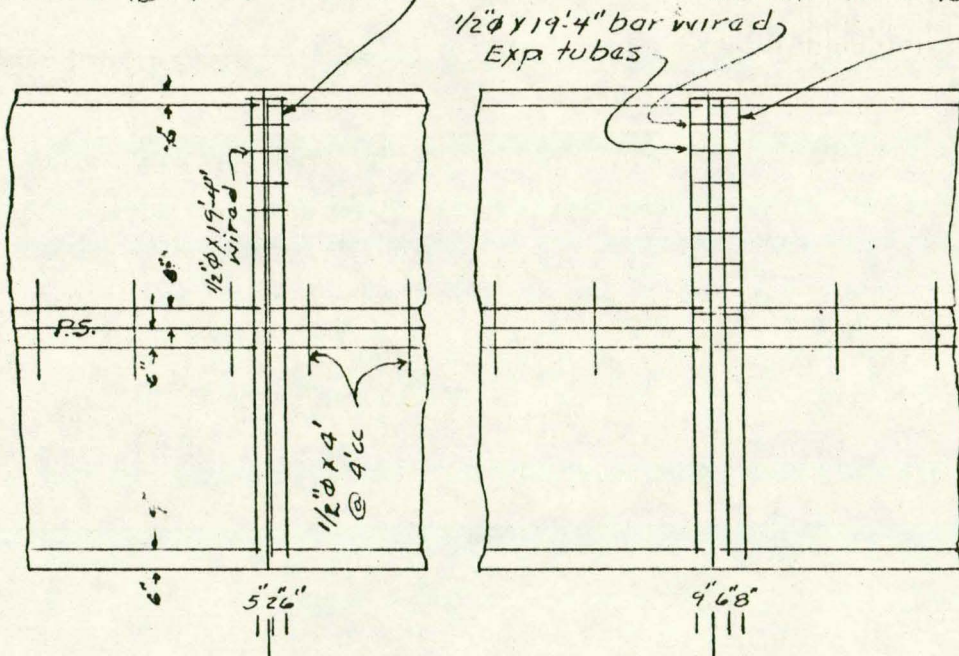
First used in letting of 6-24-46

Buene Vista	F - 937 (1)	0.746 Miles	built	1946
Hancock	S - 197 (2)	0.711 "	"	1947



Contraction joints - Weld 18-3/4" x 15" dowels to 2-5/8" x 19'-4" bars

Expansion joints - Weld 18-3/4" x 23" dowels to 2-5/8" x 19'-4" bars

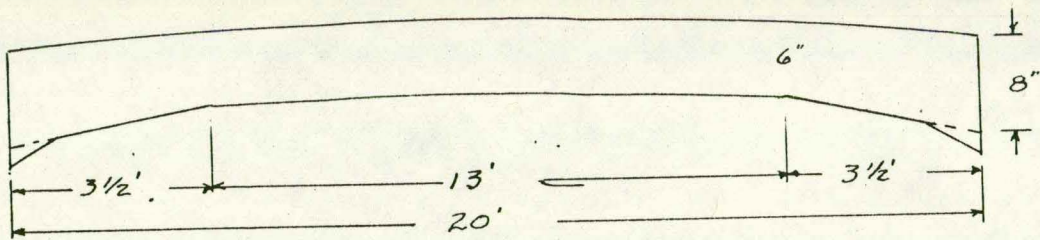


Cover 2 1/16" over long. bars
 Longitudinal bars 5/8" x
 Cover over dowels 3"

Design No. A - 9

201 866

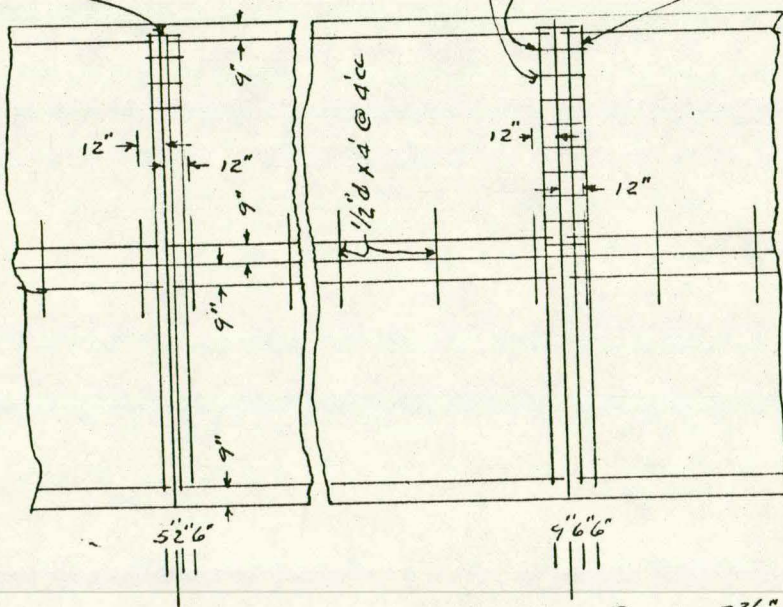
Plymouth - Woodbury F - 453 (2) 8.853 Miles built 1946



Plymouth-Woodbury F453(2) Contractor thickened edge to 10" in 12"

Contraction joint 18-3/4" ϕ x 15" dowels welded to 2-5/8" ϕ x 19'-4" bars
1/2" ϕ x 19'-4" wired

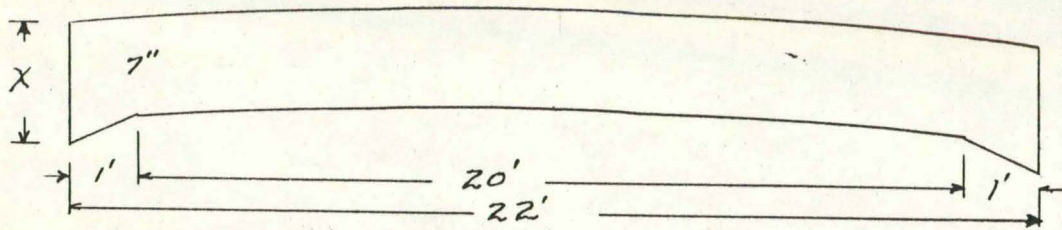
Expansion joint 18-3/4" ϕ x 23" dowels welded to 2-5/8" ϕ x 19'-4" bars
EXP. tubes



Cover 2 3/8" over long. bars.
" 2 1/16" over dowels.
Longitudinal steel 5/8" ϕ

Design No. A - 10
First used in letting of 2-3-48
Design No.

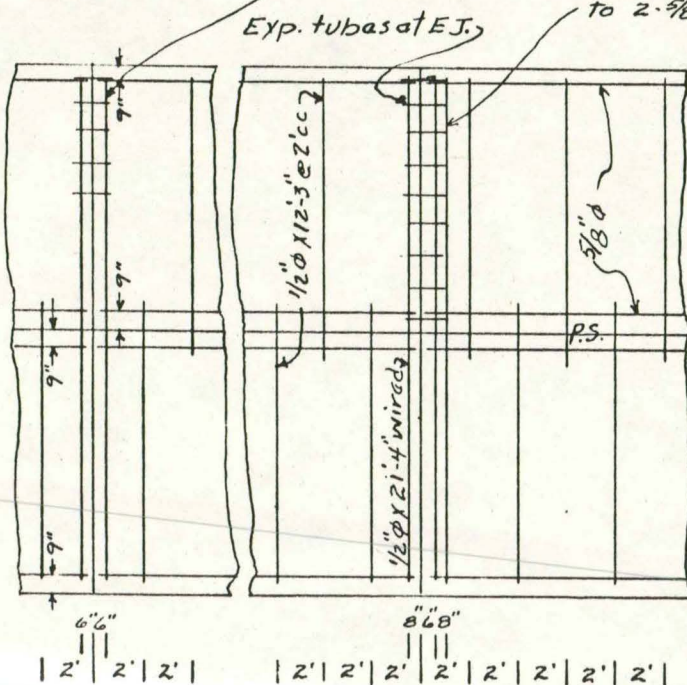
Adams	F - 348 (4)	A-10 C	3.971 miles	built	1948
Delaware	F - 358 (1)	A-10 A	6.973	"	" 1948
Ida	F - 819 (3)	A-10 A	8.312	"	" 1948
Marshall - Tama	F - 766 (2)	A-10 A	10.054	"	" 1948
Wayne	F - 770 (3)	A-10 B	6.155	"	" 1948
Wayne	F - 770 (4)	A-10 B	6.379	"	" 1948
Mercer Co. Mo.	F - 376 (7)	A-10 B	0.379	"	" 1948



Design No.	Thickness	X	(Thickness X variable due to height of forms used)
A-10 A	8"		
.. B	9"		
.. C	10"		

Construction joint - 18 $\frac{5}{8}$ " ϕ x 18" dowels wired to 2- $\frac{1}{2}$ " ϕ x 21'-4" bars

Welded Assembly - 18- $\frac{3}{4}$ " ϕ x 24" dowels to 2- $\frac{5}{8}$ " ϕ x 21'-4" bars.

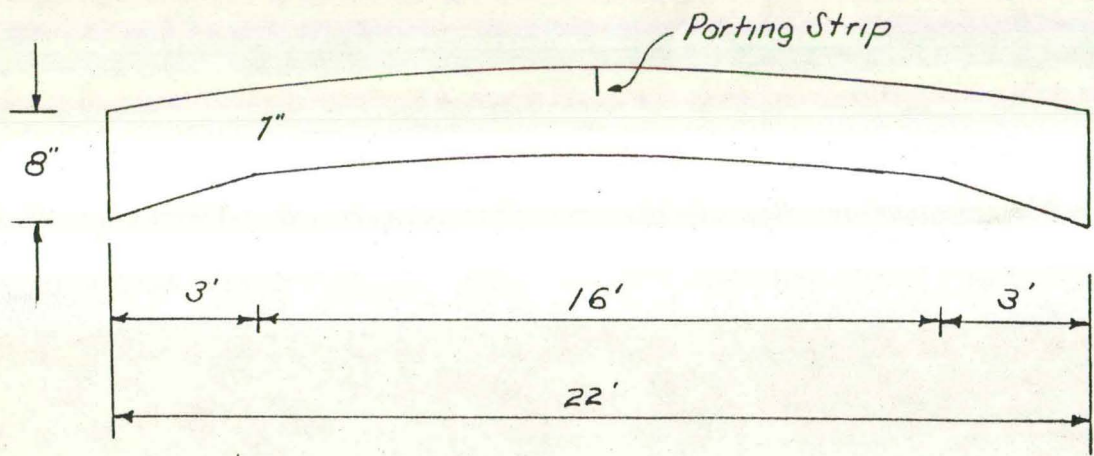


Muscatine

Design No. A 11 Width 22 ft. 8-7-8-
First Used in Letting of 7-6-50
SN-416B 1.442 Miles 1950

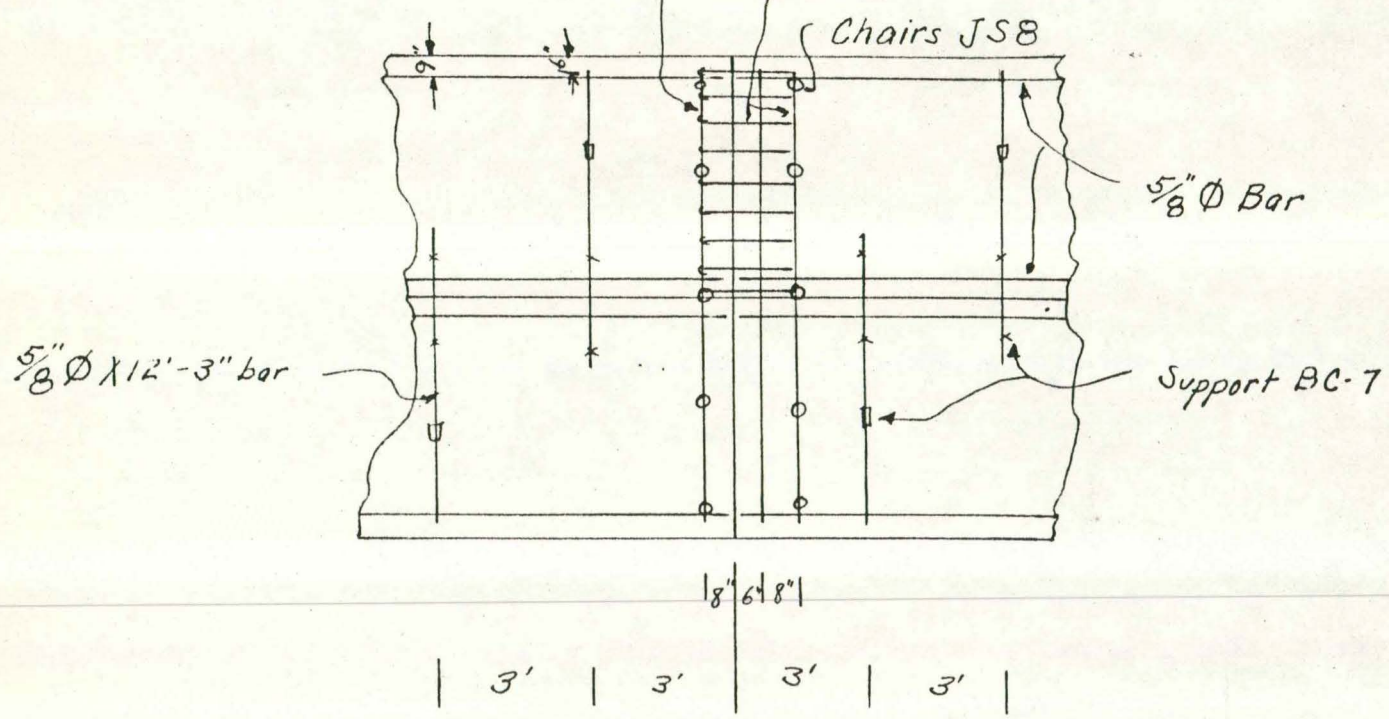
A 11

Type A



$\frac{5}{8}$ " ϕ X 21'-4" bar wire tied to each Exp tube + dowel

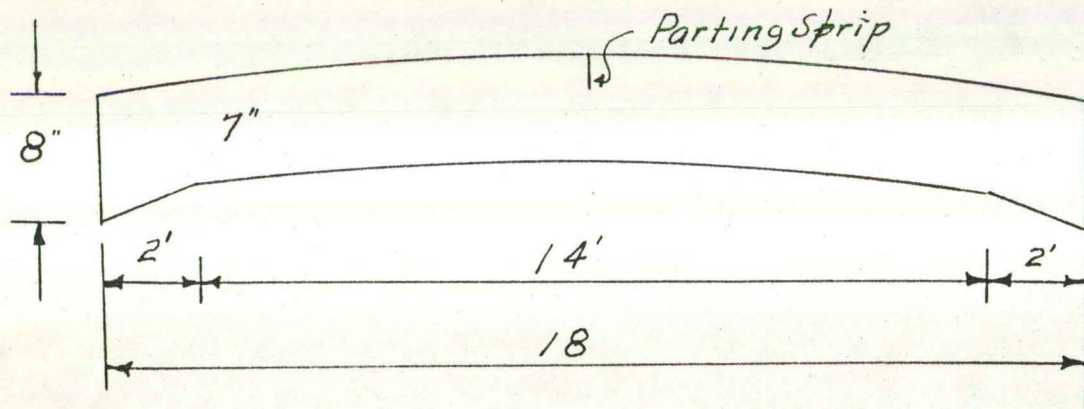
Welded dowel assembly 18 - $\frac{3}{4}$ " ϕ X 2' to 2 - $\frac{5}{8}$ " ϕ X 21'-4" at 15" C's



Design No. A 12
Width 18 ft 8-7-8
First Used in Letting of 7-6-50

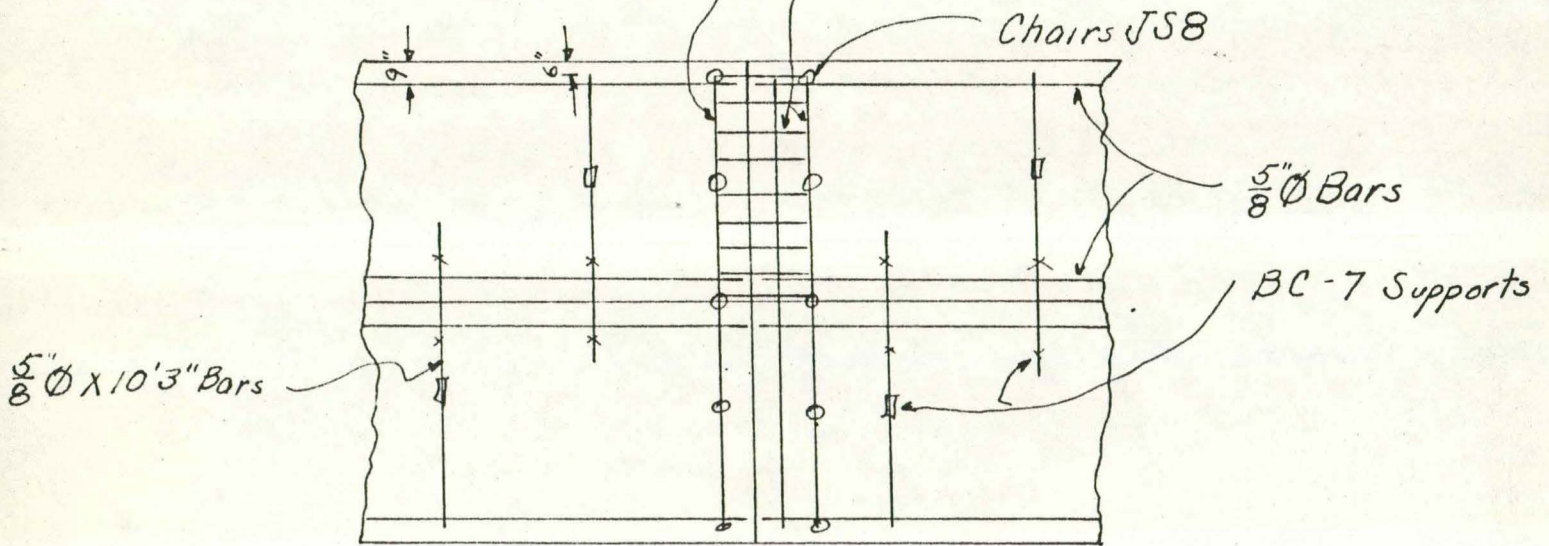
A 12

Muscatine	SN-1825	0.792 Miles	1950
Muscatine	SN-1826	1.316 Miles	1950



$\frac{5}{8} \text{ } \phi \times 17'-4"$ Bar wire tied to each Exp tube and dowel

Welded dowel assembly $18-\frac{3}{4} \text{ } \phi \times 2'$ to $2-\frac{5}{8} \text{ } \phi \times 17'-4"$ at 12" C's



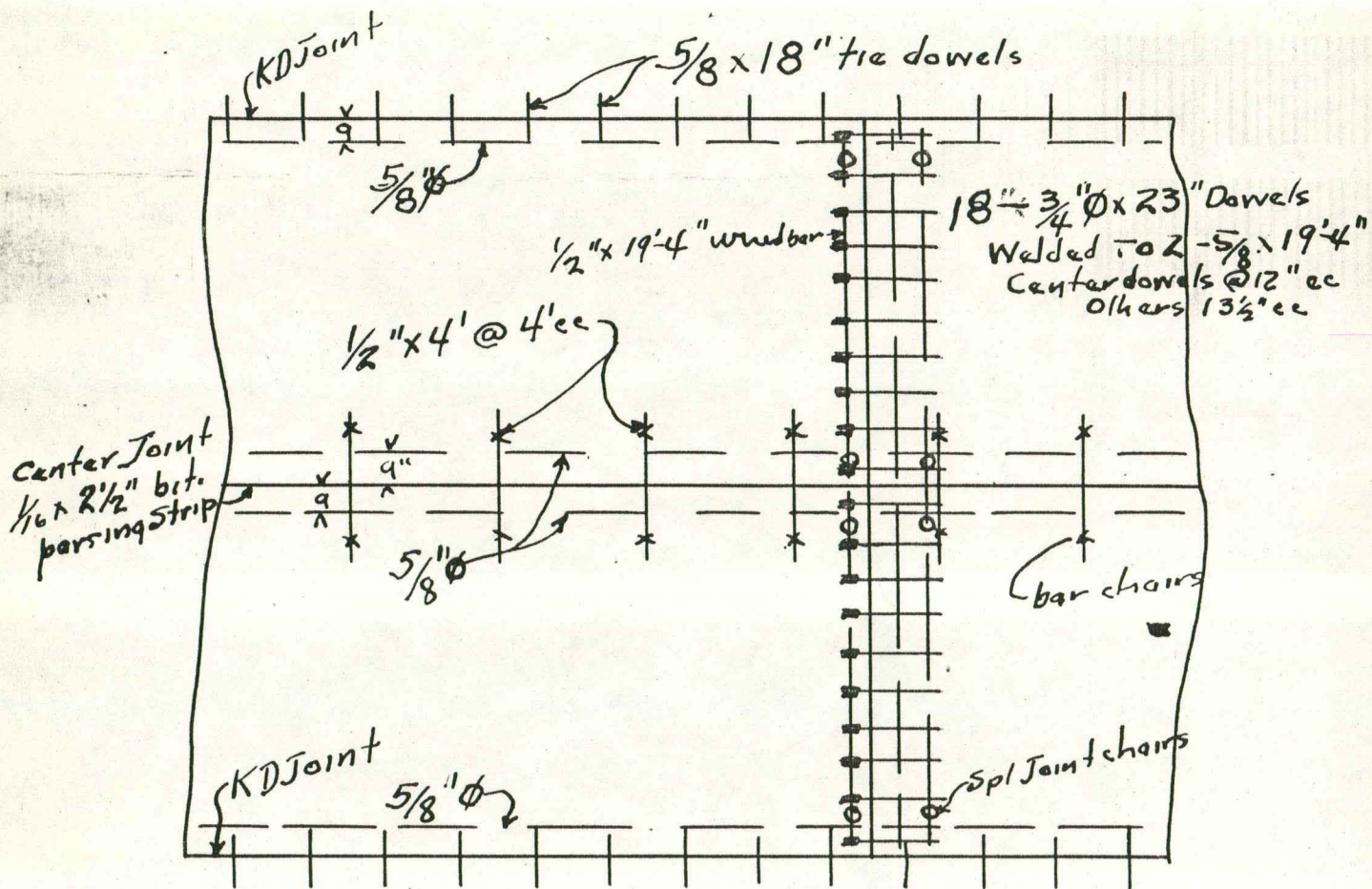
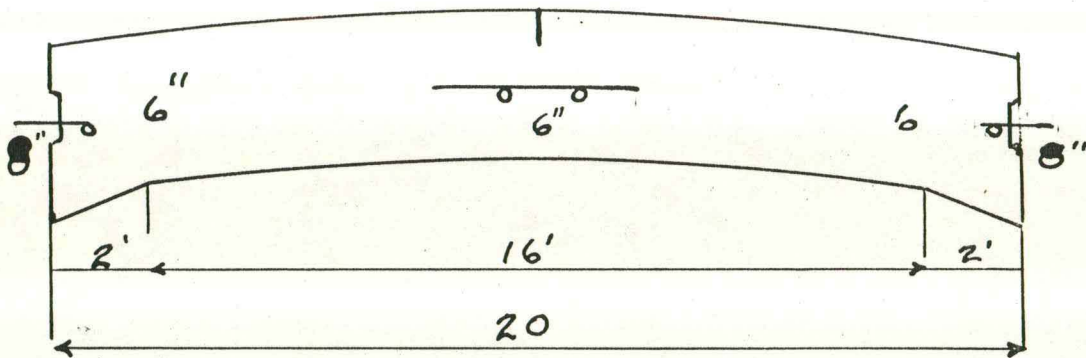
18'6" | 18"

| 3' | 3' | 3' | 3' |

Design No A 13 Width 20 Ft. 8-6-8

A 13

Hancock First used in letting of 3-29-49
S -1040 (3) .268 Miles 1949.

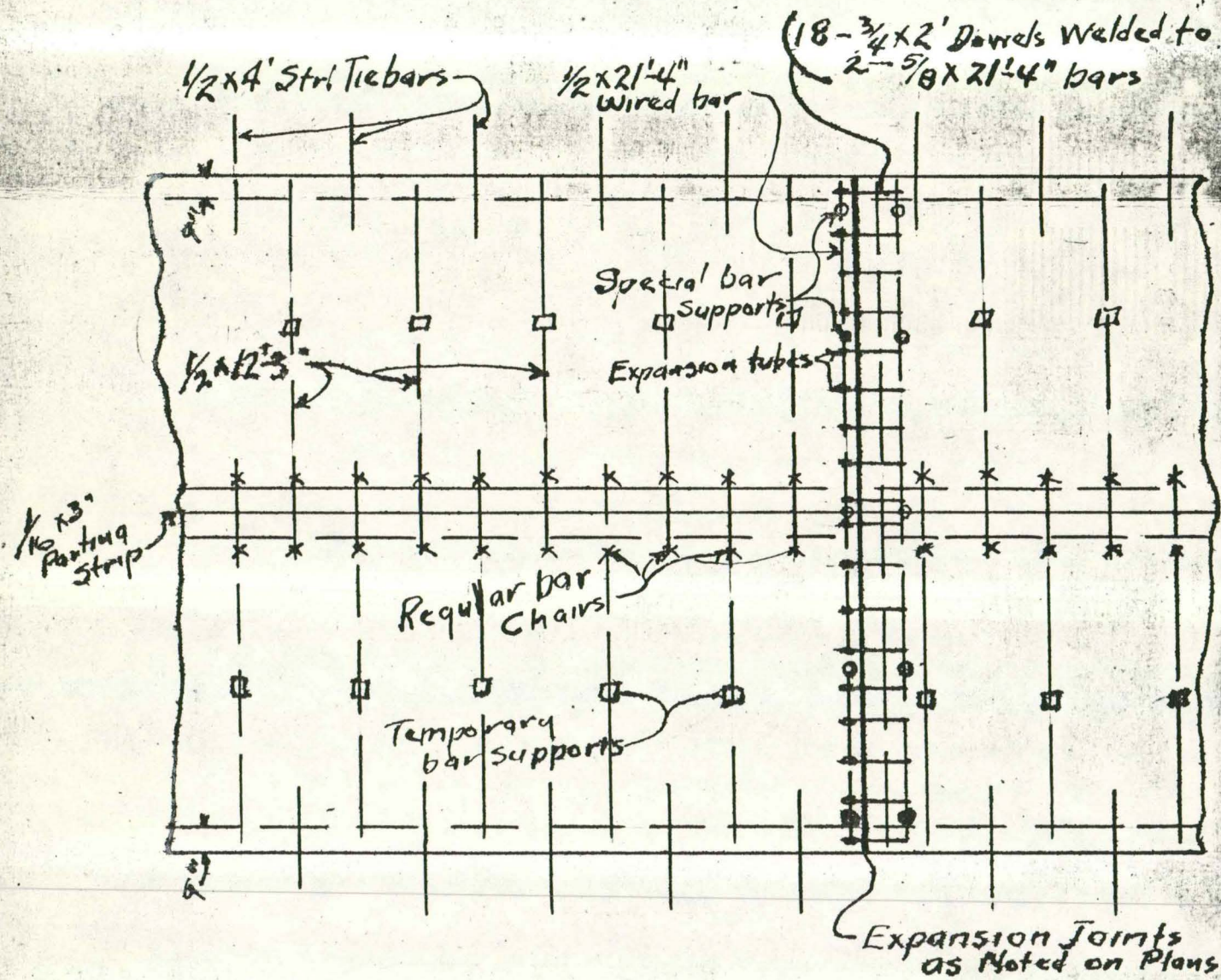
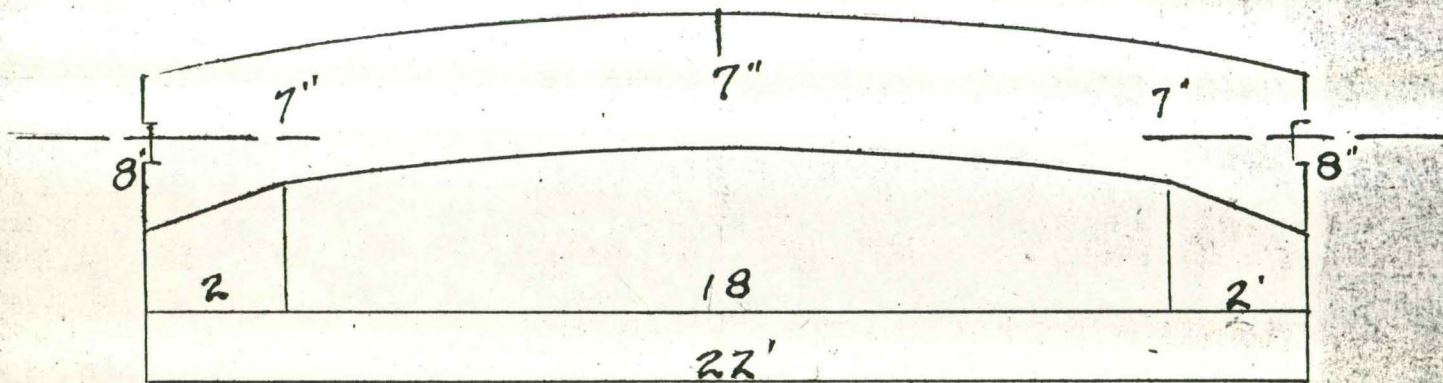


Design No A 14
Width 22 feet 8-7-8

A 14

First used in letting of 2-14-50

Wright	SN 1516	0.705	Miles	1950
Franklin-Wright	S 548 (3)	0.695	Miles	1950



A'15

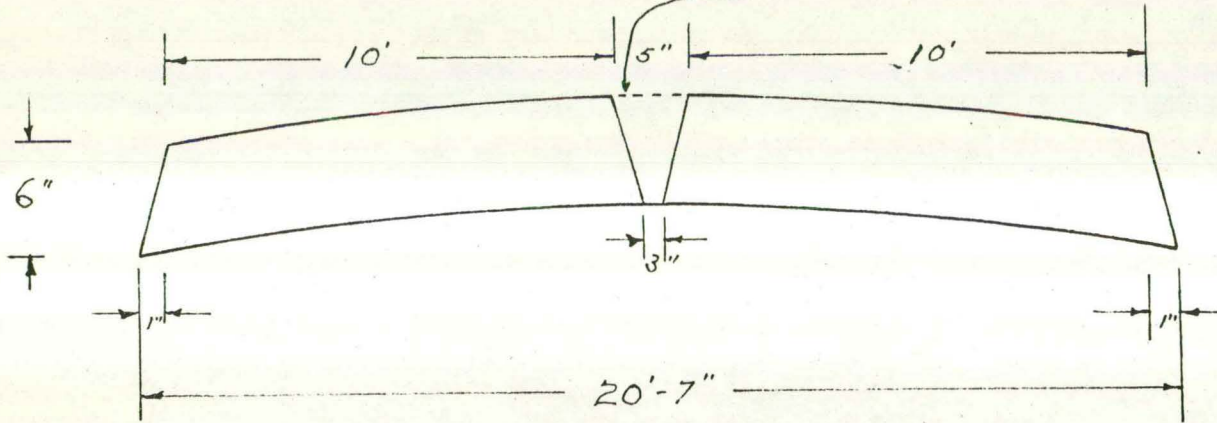
Design No. A'15 Width 20 ft 5 in 6 in uniform
First Used in Letting of 9-13-49 (Laid in two separate slabs
With Commission Machine)

Cerro-Gordo
O'Brien

SN-1189
SN-725

0.990 Miles 1949
0.463 Miles 1949

Bituminous Premix Filler



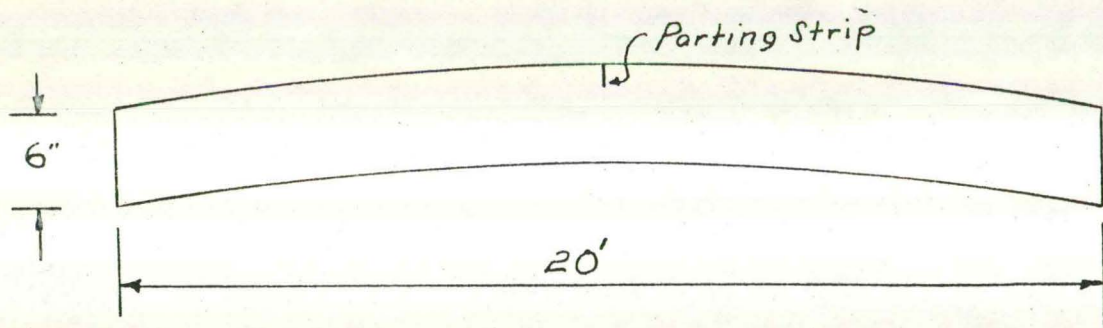
Design No. A 16 Width 20 ft 6in uniform

A 16

First Used in Letting of 6-6-50

Palo Alto

SN-1050 0.566 Miles 1950.



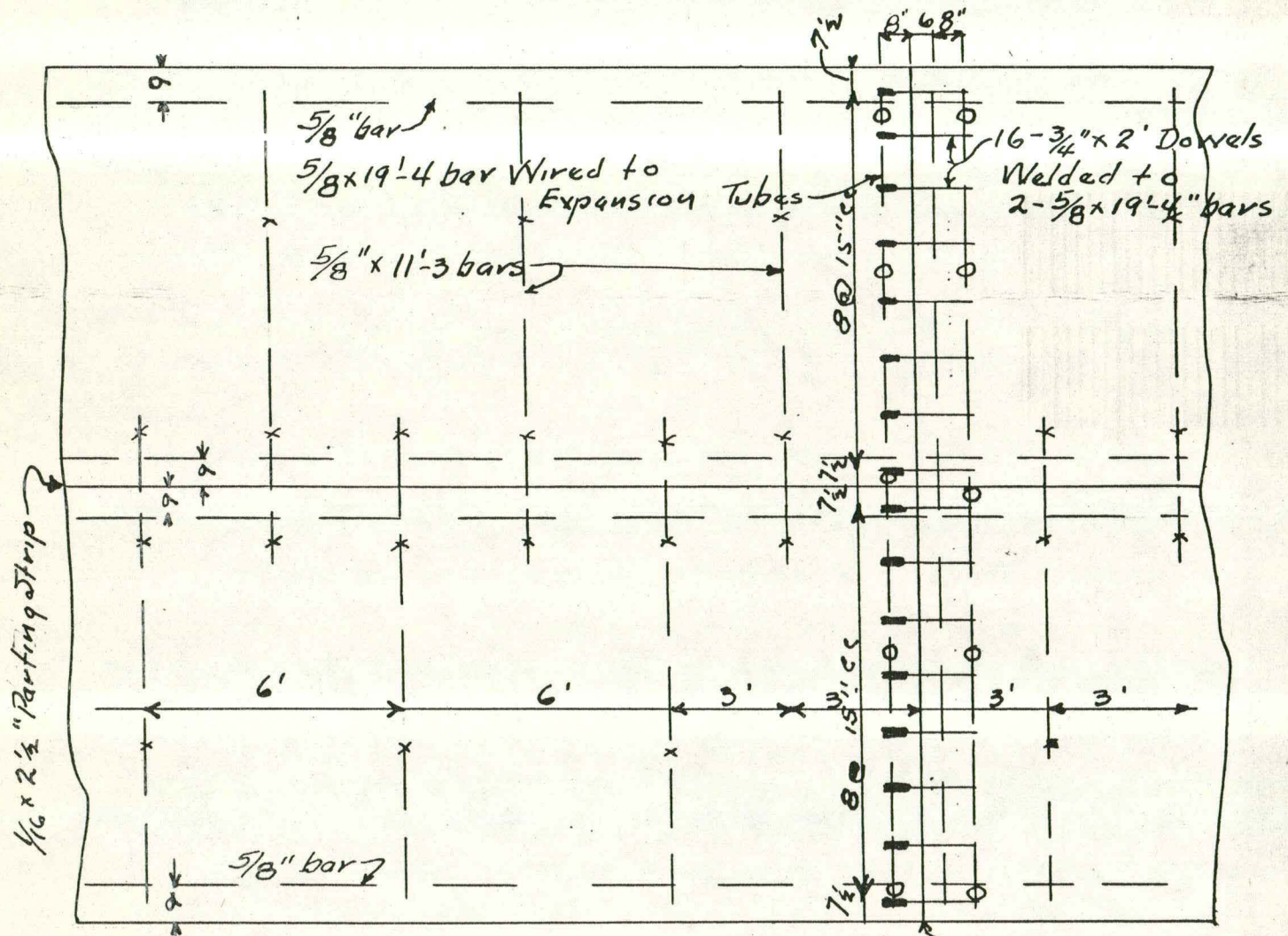
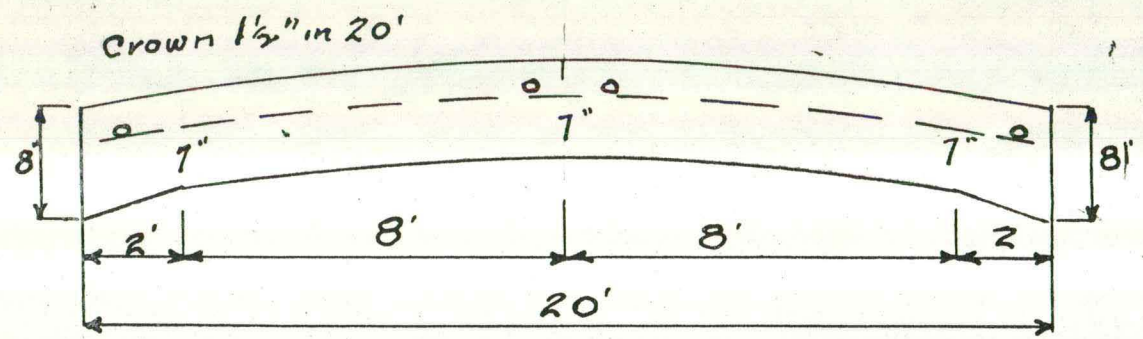
No Reinforcement.

A 17

Design No A 17 Width 20 Ft 8-7-8

First used in Letting of 2-20-51

Hamilton FN 966 1.456 Miles 1951



Expansion Joints Only as Noted

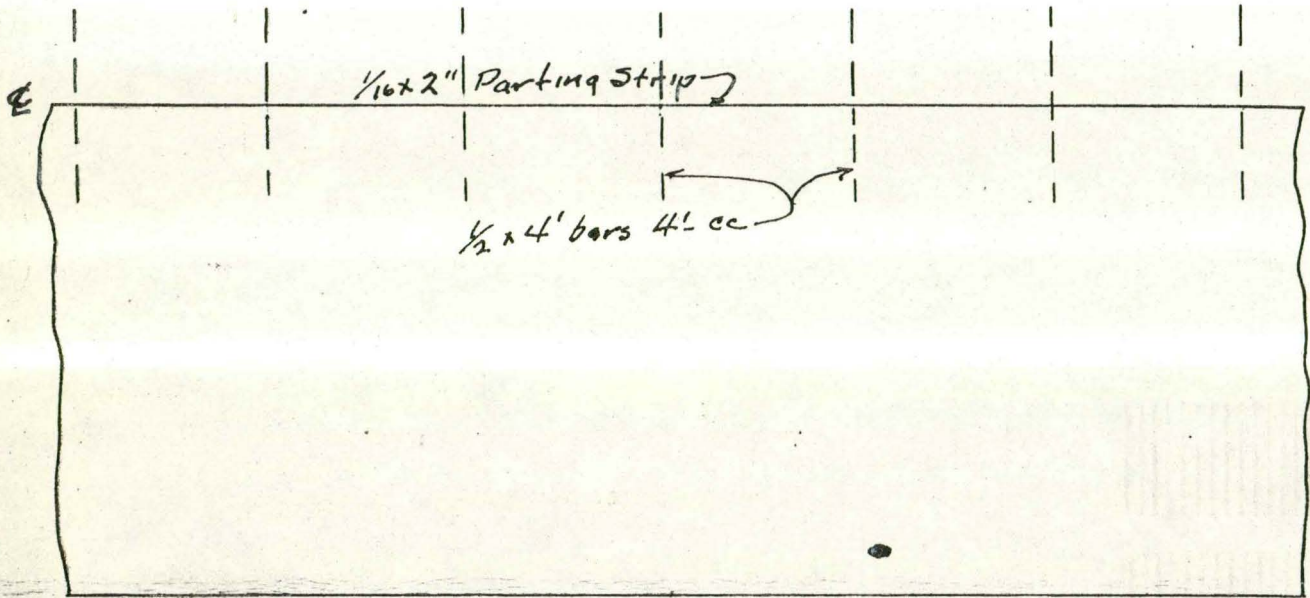
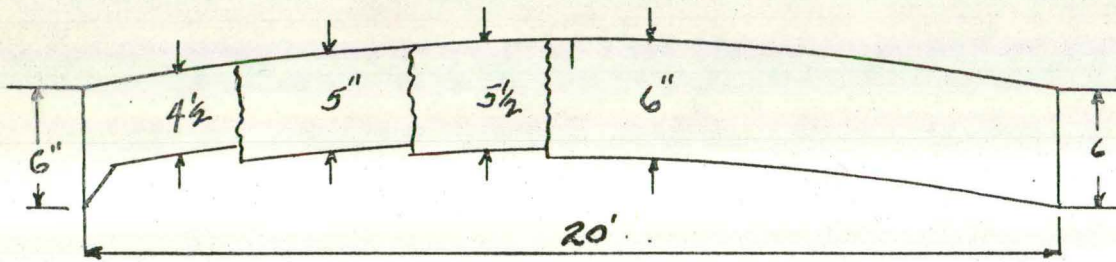
Main St. Part 2- 20' strips with KD & Dowels $5/8$ " x 4' @ 4' cc.

Design No A 18 Width 20 Ft.
Experimental section .

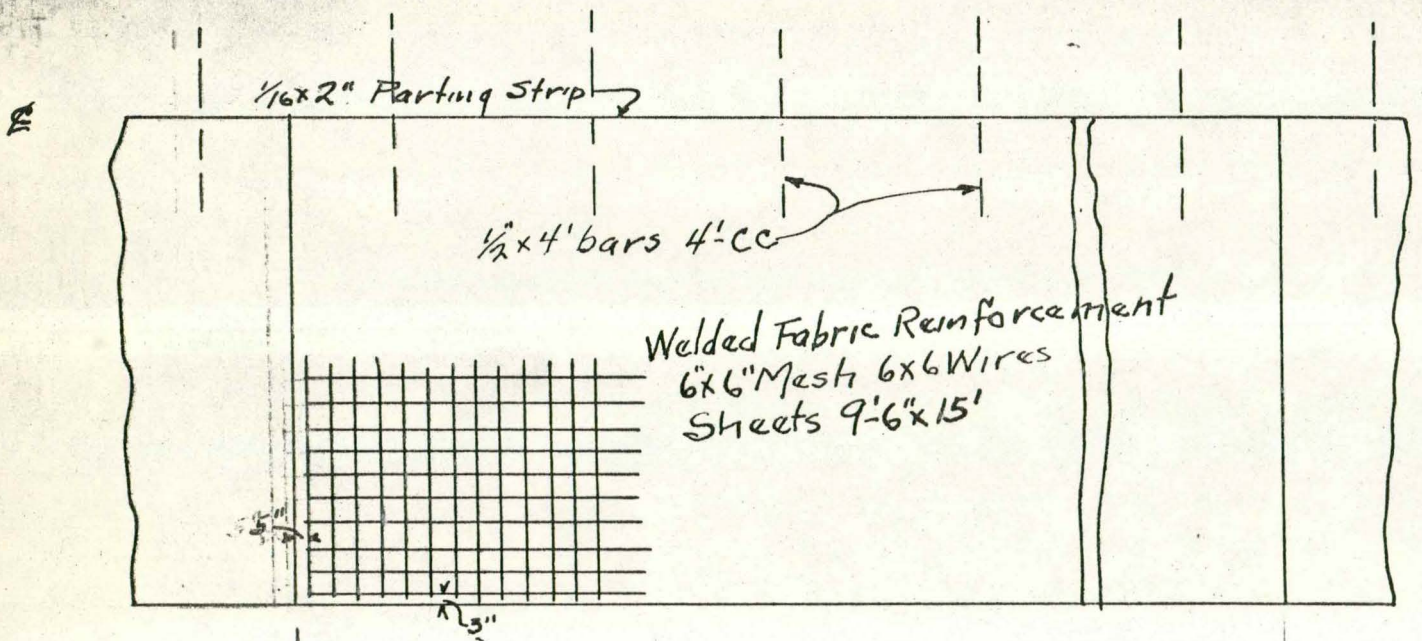
A 18
A 18

Green SN 853 3.978 Miles 1951

A18



Half Plan Plain Sections



29'-7" between Contracting Joints.
Half plan Reinforced Sections.