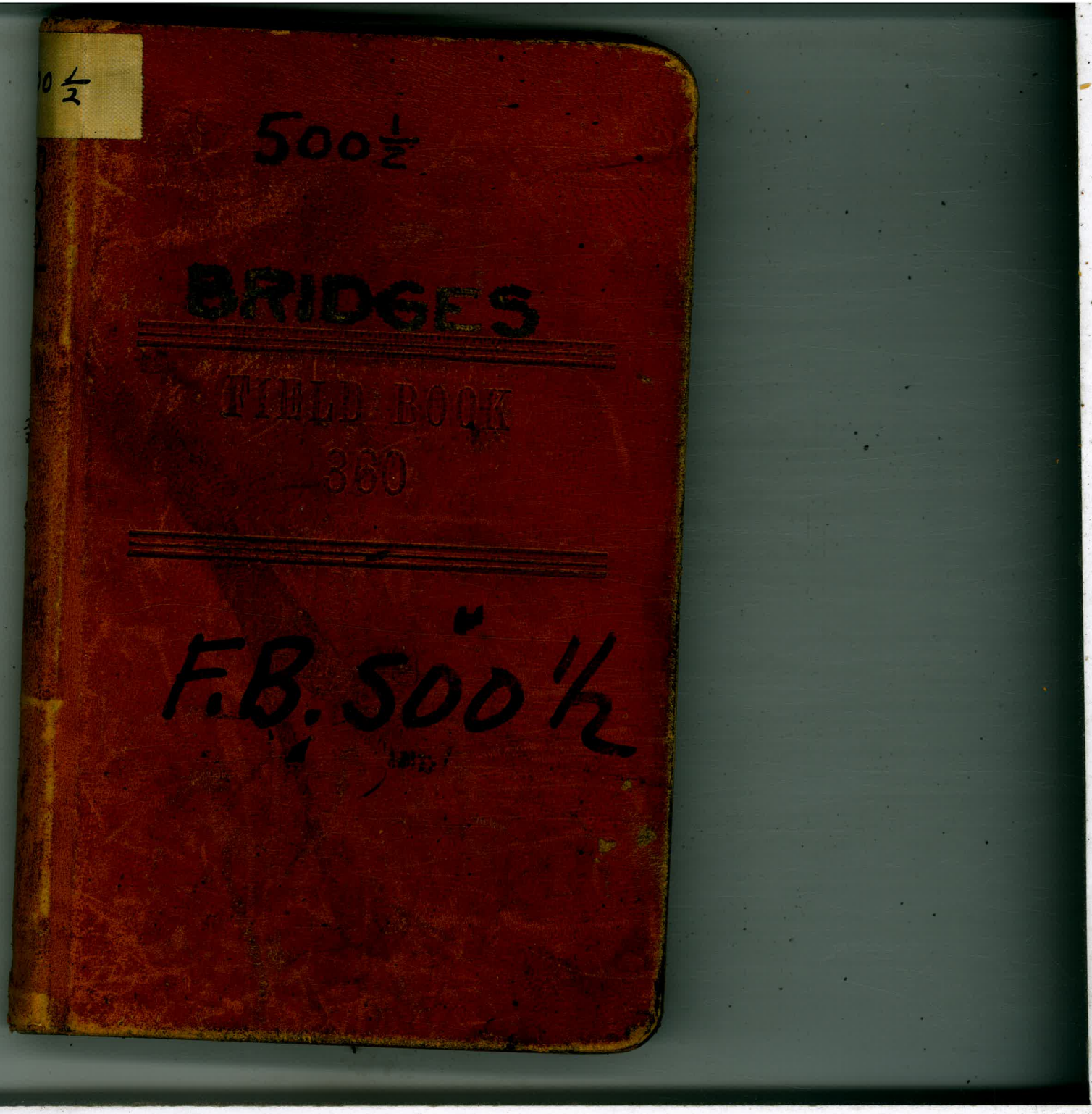
500½
BRIDGES
FIELD BOOK
360
F.B. 500½

KEUFFEL & ESSER CO.
DRAWING MATERIALS
AND
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NEW YORK.
CHICAGO. ST. LOUIS. SAN FRANCISCO. MONTREAL.

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DEC 1 1954

TABLES FOR EXCAVATIONS AND EMBANKMENTS.

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.
ROADWAY 18 FEET WIDE SIDE SLOPES 1 TO 1.
FOR SINGLE TRACK EXCAVATION.

"Copyright, 1895, by Keuffel & Esser Co."

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	0
1	10.0	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	1
2	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	2
3	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	3
4	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	4
5	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	5
6	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	6
7	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	7
8	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	8
9	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	9
10	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	10
11	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	11
12	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	12
13	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	13
14	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	14
15	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	15
16	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8	25.9	16
17	26.0	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8	26.9	17
18	27.0	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8	27.9	18
19	28.0	28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8	28.9	19
20	29.0	29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8	29.9	20
21	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8	30.9	21
22	31.0	31.1	31.2	31.3	31.4	31.5	31.6	31.7	31.8	31.9	22
23	32.0	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8	32.9	23
24	33.0	33.1	33.2	33.3	33.4	33.5	33.6	33.7	33.8	33.9	24
25	34.0	34.1	34.2	34.3	34.4	34.5	34.6	34.7	34.8	34.9	25
26	35.0	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8	35.9	26
27	36.0	36.1	36.2	36.3	36.4	36.5	36.6	36.7	36.8	36.9	27
28	37.0	37.1	37.2	37.3	37.4	37.5	37.6	37.7	37.8	37.9	28
29	38.0	38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8	38.9	29
30	39.0	39.1	39.2	39.3	39.4	39.5	39.6	39.7	39.8	39.9	30
31	40.0	40.1	40.2	40.3	40.4	40.5	40.6	40.7	40.8	40.9	31
32	41.0	41.1	41.2	41.3	41.4	41.5	41.6	41.7	41.8	41.9	32
33	42.0	42.1	42.2	42.3	42.4	42.5	42.6	42.7	42.8	42.9	33
34	43.0	43.1	43.2	43.3	43.4	43.5	43.6	43.7	43.8	43.9	34
35	44.0	44.1	44.2	44.3	44.4	44.5	44.6	44.7	44.8	44.9	35
36	45.0	45.1	45.2	45.3	45.4	45.5	45.6	45.7	45.8	45.9	36

Calculated by Julien A. Hall, M. Am. Soc. C. E.

For Keith's Railroad Curve Tabels see end of book.

RETURN TO CITY ENGINEER'S OFFICE
CITY HALL, SAN DIEGO, CAL.

Old Town Bridge

Bents are numbered starting on south side of river
Piles are numbered from East
2500# hammer

Bent 1	Pile 1	pen.	19		
"	" 2	"	19	hard driving	
"	" 3	"	19	2-3" to the blow 18' final 1/2"	
" 2	" 1		25	fin. 6" soft	
"	" 2		25	2" pen. to 18' drop fin. 1"	
"	" 3		25		
Bent 3	" 1		25	8' soft	
"	2		25	2"	
"	3		25	fin. 1"	
B 4	1		25		
	2		25		
	3		25		
B 5	1		25		
	2		25		
	3		25		

Bent	6	Pile	1	25	first 10 drops 2" & 15 drops 1 final
"	"	"	2	25	
		"	3	25	
Bent	7	"	1	31	
"			2	31	
			3	31	
Bent	8		1	31	
			2	31	
			3	31	
"	9		1	31	
			2	31	
			3	31	
	10		1	31	
			2	31	
			3	31	
	11		1	31	
			2	31	
			3	31	

2

Bent 12	Pile	1	31
"	"	2	31
"	"	3	31
"	13	1	31
"		2	31
"		3	31
"	14	1	31
"		2	31
"		3	31
"	15	1	31
"		2	32
"		3	33
12" soft from bottom 16		1	31
2" & 18" drops		2	31
1 final		3	32
	17	1	31-6
2 same		2	26
		3	26
	18	1	28
2 same		2	30
		3	31

Bent 18		1		
		2		
		3		
Same	19	1	31-6"	
		2	30	
		3	31	
	20	1	28	
		2	31-6	
		3	32.0	
12' soft 1-2' to 18' drops 1/2 final indication quicksand and clay 4' on bottom	21	1	31-6	hard
		2	31	
		3	32	
	22	1	30	hard
		2	31	
		3	32	
"	23	1	33	hard
		2	31	
		3	32	

Bent 24	Pile 1	31	
	2	31	
	3	31	
25	1	31	
	2	31	
	3	31	
26	1	31	
	2	31	
	3	31	
27	1	30	3/27 16
	2	31	
	3	32	
28	1	31	
	2	30-6	
	3	31.0	
29	1	31	
	2	30	
	3	30-6	

30	1	32
	2	31
	3	33
31	1	28
	2	30
	3	29
32	1	27
	2	26
	3	28
33		28
		29
		28
34		27
		29
		29
35		29
		30
		29

36	1	30
	2	30
	3	30
37	1	30-6
	2	30-6
	3	29.0
38	1	31
	2	31
	3	31
39		[illegible]
	1	32
	2	30
	3	31
	4	32

East wing all 32 6 piles

West 32 6 "

these are cut to pitch of fill

30th St Bridge (West End of Gap)

Sept 25-16 (Cromwell, Hayler, Schmidt)

				Top of Rail Gr.
4.62	284.62		280.00	
5.12	285.12			
8.40		7.90	276.72	279.85
		6.78	-.03 277.84	279.94
		6.72	+.05 277.90	280.03
		6.78	-.02 277.84	280.12
		6.83	-.05 277.79	280.21
		6.75	-.02 277.87	280.30
		6.40	-.06 278.22	280.39
		6.44	-.05 278.18	280.40
		6.34	+.05 278.28	"
		6.35	+.07 278.27	"
		6.75	0 277.87	"
		6.40	+.03 278.22	"
		6.37	+.03 278.25	"
		6.35	+.09 278.27	"
		6.35	+.10 278.27	"
		6.80	+.03 277.82	"
		6.40	-.04 278.22	"
		6.40	-.09 278.22	"
		6.40	-.05 278.22	"
		6.42	-.02 278.22	"
		6.78	-.03 277.84	"
		6.40	-.02 278.22	"
		6.44	-.06 278.18	"

End of Rail on E + S. Assumed Elev = 280.00

Concrete Abut. on South

Bent #1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

284.62			Top of Rail Gr.
6.43	-.03	278.19	280.50
6.40	-.07	278.22	"
6.80	-.05	277.82	"
6.40	-.08	278.22	"
6.48	-.14	278.14	"
6.45	-.12	278.17	"
6.40	-.05	278.22	280.40
6.80	-.04	277.82	280.30
6.80	+.01	277.82	280.20
6.80	-.04	277.82	280.10
6.80	+.02	277.82	280.00
6.80	-.02	277.82	279.90
7.92	-.02	276.70	279.80
4.71		279.91	

Bent #23

24

25

26

27

28

29

30

31

32

33

34

Concrete Abut. on North

Top of Rail 15' N. of End of Bridge

30th Street Bridge
Panel Lengths No 1 at South

Panel	Carpenters Meas.		Sta.	Check Feet	Meas. Feet & Ins.
No 1	20'-5"	20.42	0+20.42	20.50	
2	20'-1¼	20.10	+40.52	20.04	
3	19-11½	19.96	+60.48	19.95	
4	19-11	19.92	+80.40	19.90	
5	20'-0¾	20.06	1+00.46	20.06	
6	21-11	21.92	+22.38	21.92	
7	19-3"	19.25	+41.63	19.32	
8	20'-½	20.04	+61.67	19.99	
9	19'-3½	19.29	+80.96	19.28	
10	21'-9"	21.75	2+02.71	21.80	
11	21'-10¼	21.85	+24.56	21.82	
12	19'-4"	19.33	+43.89	19.31	
13	20'-1"	20.08	+63.97	20.09	
14	19-3¾	19.31	+83.28	19.26	
15	21'-9½	21.79	3+05.07	21.84	
16	21'-10"	21.83	+26.90	21.84	
17	19-5"	19.42	+46.32	19.33	
18	20-0	20.00	+66.32	20.01	
19	19-5	19.42	+85.74	19.33	
20	21-6¾	21.56	4+07.30	21.74	
21	21-11	21.92	+29.22	21.87	
22	19-5	19.42	+48.64	19.34	
23	20-0	20.00	+68.64	20.07	
		468.64		468.61	

8 10 9

9 11 10

Panel				
24	19-4"	19.33	4+87.97	19.30
25	21-11½	21.96	5+09.93	21.94
26	21-10½	21.87	+31.80	21.87
27	19-3½	19.29	+51.09	19.33
28	20-0½	20.04	+71.13	20.03
29	19-4½	19.37	+90.50	19.29
30	21-8½	21.71	6+12.21	21.75
31	20-4½	20.37	+32.58	20.34
32	20-0¾	20.06	+52.64	20.09
33	19-11½	19.96	+72.60	19.94
34	19-11	19.92	+92.52	19.90
35	20-7"	20.58	7+13.1	20.58
		244.46		~~243.56~~ 244.36

Levels 30th St Bridge Sept 26-16

	284.65	4.83	279.82
		4.88	279.77
		4.62	280.03
		4.80	279.85
10.60	293.36	1.89	282.76
		3.65	289.71

468.64
244.46
713.10

468.61
244.36
712.97

Cromwell & Hayler

Top of Rail on N. end of Bridge (1 rail)
" " " " (3 rails)
Top of Rail 12' S. of S. end of Bridge
" " " at " " "
T.P. on rail
Brass Plug S.E. Curb 30th & Kalmia Sts.

Hayler
Griggs
Sept. 27, 1916

30th St Bridge

Levels on Floor Beams W. Side against Sidewalk

	5.12	285.12		280.00
Concrete Abutment			8.40	276.72
Panel # 1			7.25	277.87
# 2			7.27	277.85
# 3			7.26	277.86
# 4			7.28	277.84
# 5			7.23	277.89
# 6			6.84	278.28
# 7			6.89	278.23
# 8			6.89	278.23
# 9			6.92	278.20
# 10			7.25	277.87
# 11			6.93	278.19
# 12			6.90	278.22
# 13			6.94	278.18
# 14			6.95	278.17
# 15			7.33	277.79
# 16			6.86	278.26
# 17			6.81	278.31
# 18			6.85	278.27
# 19			6.88	278.24
# 20			7.25	277.87
# 21			6.88	278.24
# 22			6.88	278.24
# 23			6.90	278.22

	285.12✓		
# 24		6.83	678.29
# 25		7.25	677.87
# 26		6.82✓	678.30
# 27		6.84	678.28
# 28		6.83	278.29
29		6.85	278.27
30		7.24	277.88
31		7.31	277.81
32		7.26	✓77.86
33		7.32✓	✓77.80
34		7.28	✓77.84
North Abutment on Concrete.		8.40	276.72

Levels on 30th Street Bridge Caps or Floor Beams

Bent.	+	H.I.	West End		Center		East End	
	478	284.78	−	Elev.	−	Elev	−	Elev
S. Concrete Abt.			8.05	276.73	8.02	276.76	8.02	276.76
#1			6.92	277.86	6.92	277.86	6.94	277.84
2			6.95	27783	6.93	277.85	6.88	277.90
3			6.94	277.84	6.91	277.87	6.93	277.85
4			6.94	277.84	6.94	277.84	6.99	277.79
5			6.91	277.87	6.91	277.87	6.90	277.88
6			6.51	278.27	6.53	278.25	6.55	278.23
7			6.54	278.24	6.57	278.21	6.58	278.20
8			6.56	278.22	6.51	278.27	6.48	278.30
9			6.55	278.23	6.54	278.24	6.51	278.27
10			6.91	277.87	6.90	277.88	6.90	277.88
11			6.57	278.21	6.54	278.24	6.53	278.25
12			6.56	278.22	6.55	278.23	6.54	278.24
13			6.59	278.19	6.55	278.23	6.48	278.30
14			6.59	278.19	6.56	278.22	6.50	278.28
15			6.98	277.80	6.97	277.81	6.95	277.83
16			6.50	278.28	6.52	278.26	6.52	278.26
17			6.48	278.30	6.48	278.30	6.52	278.26
18			6.48	278.30	6.52	278.26	6.53	278.25
19			6.52	278.26	6.54	278.24	6.56	278.22
20			6.90	277.88	6.92	277.86	6.88	277.90
21			6.52	278.26	6.52	278.26	6.54	278.24
22			6.53	278.25	6.52	278.26	6.56	278.22

280.5

{ Cromwell Sept 27-16.
Hayler
Griggs

E. Rail Elev. 280.00 at South End of Bridge. 12'5" of Abutment.

Elev. Center	Grade Bot. Tie	Feet	Inches
276.76	279.02	2.26 = ~~27 1/4~~	27 1/4"
277.85	279.13	~~1.26~~ 1.28 ~~15 1/8~~"	15 3/8"
277.88	279.24	~~1.25~~ 1.39 ~~16 1/4~~"	16 3/4"
277.87	279.35	~~1.42~~ 1.48 ~~17~~"	17 3/4"
277.84	279.46	~~1.54~~ 1.62 ~~18 1/2~~"	19 3/8"
277.87	279.57	~~1.60~~ 1.70 ~~19 1/4~~"	20 3/8"
278.25	279.69	~~1.31~~ 1.44 ~~15 3/4~~"	17 1/4"
278.21	279.69	~~1.48~~ 1.48 ~~16 3/8~~"	17 3/4"
278.27	"	~~1.4~~ 142 ~~15 5/8~~"	17"
278.24	"	~~1.4~~ 1.45 ~~16~~"	17 3/8"
277.88	"	~~1.79~~ 1.81 ~~20 1/4~~"	21 3/4"
278.24	"	~~1.43~~ 1.45 ~~16~~"	17 3/8"
278.23	"	~~1.44~~ 1.41 ~~16 1/8~~"	17 1/2"
278.23	"	~~1.44~~ 1.41 ~~16 1/8~~"	17 1/2"
278.22	"	~~1.45~~ 1.47 ~~16 1/4~~"	17 5/8"
277.81	"	~~1.86~~ 1.88 ~~21 1/4~~"	22 5/8"
278.26	"	~~1.41~~ 1.43 ~~15 3/4~~"	17 1/8"
278.30	"	1.37 1.39 ~~15 1/4~~"	16 3/4"
278.26	"	1.41 1.43 ~~15 3/4~~"	17 1/8"
278.24	"	1.43 1.45 ~~16~~"	17 3/8"
277.86	"	1.81 1.83 ~~20 1/2~~"	22"
278.26	"	1.41 1.43 ~~15 3/4~~"	17 1/8"
278.26	"	1.41 1.43 ~~15 3/4~~"	17 1/8"

P		284.78	5.98		278.80		
"	5.64	284.44	West End		Center		East End
			—	Elev.	—	Elev.	—	Elev
#23			6.22	278.22	6.19	278.25	6.22	278.22
24			6.17	278.27	6.16	278.28	6.17	278.27
25			6.57	277.87	6.58	277.86	6.58	277.86
26			6.19	278.25	6.19	278.25	6.18	278.26
27			6.15	278.29	6.20	278.24	6.25	278.19
28			6.15	278.29	6.20	278.24	6.25	278.19
29			6.21	278.23	6.22	278.22	6.17	278.27
30			6.58	277.86	6.57	277.87	6.59	277.85
31			6.55	277.89	6.55	277.89	6.61	277.83
32			6.60	277.84	6.57	277.87	6.60	277.84
33			6.68	277.79	6.59	277.85	6.60	277.84
34			6.61	277.83	6.57	277.87	6.59	277.85
N Concrete Abut.			7.73	276.71	7.72	276.72	7.72	276.72

278.25	279.69	1.44	~~1.42~~'	~~15 2/8~~"	17 1/4
278.28	"	1.41	~~1.37~~'	~~15 1/2~~"	16 7/8
277.82	"	1.83	~~1.84~~'	~~20 1/2~~"	22
278.25	"	1.44	~~1.42~~'	~~15 7/8~~"	17 1/4
278.24	"	1.45	~~1.43~~'	~~16~~"	17 3/8
278.24	"	1.45	~~1.43~~'	~~16~~"	17 3/8
278.22	279.69	1.47	~~1.45~~'	~~16 1/8~~"	17 5/8
277.87	279.57	1.70	~~1.60~~'	~~19 1/2~~"	20 3/8
279.89	279.46	1.57	~~1.48~~'	~~17 3/4~~"	18 7/8
277.87	279.35	1.48	~~1.40~~'	~~16 3/4~~"	17 3/4
277.85	279.24	1.41	~~1.32~~'	~~15 7/8~~"	16 7/8
277.87	279.13	1.26	~~1.20~~'	~~14 3/8~~"	15 1/8
276.72	279.02	2.30	~~2.25~~'	~~27~~"	27 5/8

279.85	279.02
279.96	279.13
280.07	279.24
280.18	279.35
280.29	279.46
280.40	279.57
280.52	279.69

30th Street Bridge Record

Note { Panel No 1 on South. — Stringer " " East. Eleven Stringers to the panel doubled } under car rails. (4 Sets of double 3 single stringers)

Panel No	Old Stringers		New Stringers		Panel Length
1	1, 6, 10, 11	= 4	2, 3, 4, 5, 7, 8, 9	= 7	20'-5"
2	1, 6, 11	= 3	2, 3, 4, 5, 7, 8, 9, 10.	= 8	20'-1¼
3	1, 9, 11	= 3	2, 3, 4, 5, 6, 7, 8, 10,	= 8	19'-11½
4	1, 2, 6, 10, 11	= 5	3, 4, 5, 7, 8, 9.	= 6	19'-11
5	1, 6, 10, 11	= 4	2, 3, 4, 5, 7, 8, 9.	= 7	20'-0¾
6	1, 11	= 2	2, 3, 4, 5, 6, 7, 8, 9, 10	= 9	21'-1
7	1, 2, 5, 8, 9, 11	= 6	3, 4, 6, 7, 10	= 5	19'-3
8	1, 11	= 2	2, 3, 4, 5, 6, 7, 8, 9, 10	= 9	20'-½
9	1, 2, 10, 11	= 4	3, 4, 5, 6, 7, 8, 9	= 7	19'-3½
10	1, 11	= 2	2, 3, 4, 5, 6, 7, 8, 9, 10	= 9	21'-9
11	1, 11	= 2	2, 3, 4, 5, 6, 7, 8, 9, 10	= 9	21'-10¼
12	1, 5, 6, 10, 11	= 5	2, 3, 4, 7, 8, 9,	= 6	19'-4
13	1, 2, 6, 10, 11.	= 5	3, 4, 5, 7, 8, 9	= 6	20'-1
14	1, 2, 5, 8, 10, 11	= 6	3, 4, 6, 7, 9	= 5	19'-3¾
15	1, 11	= 2	2, 3, 4, 5, 6, 7, 8, 9, 10,	= 9	21'-9½
16	1, 11	= 2	2, 3, 4, 5, 6, 7, 8, 9, 10.	= 9	21'-10
17	1, 2, 5, 7, 10, 11	= 6	3, 4, 6, 8, 9	= 5	19'-5
18	1, 6, 10	= 3	2, 3, 4, 5, 7, 8, 9, 10	= 8	20'-0
		66		132	

Repair Work started removing old deck Sept 21-1916.
Old Deck removed and Work started on redecking Sept 27, 1916.

	No. of Built up Str's.
No 11 Built up out of 2-3x16	1
" " " " "	1
No 1 & 11 " " " "	2
— — — —	0
— — — —	0
— — — —	0
— — — —	0
— — — —	0
No 1 & 11 " " " "	2
" " " " " "	2
" " " " " "	2
" " " " " "	2
" " " " " "	2
" " " " " "	2
	16

Panel No.	Old Stringers	=	New Stringers	=	
19	1,3,5,6,8,10,11	=7	2,4,7,9	=4	19-5
20	1,11	=2	2,3,4,5,6,7,8,9,10	=9	21-6¾
21	1,7,9,11	=4	2,3,4,5,6,8,10	=7	21-11
22	1,3,4,7,9,11	=6	2,5,6,8,10	=5	19-5
23	1,3,5,7,10,11	=6	2,4,6,8,9	=5	20-0
24	1,2,4,7,9,11	=6	3,5,6,8,10	=5	19-4
25	1,11	=2	2,3,4,5,6,7,8,9,10,	=9	21-11½
26	1,11	=2	2,3,4,5,6,7,8,9,10	=9	21-10½
27	1,3,5,8,9,11	=6	2,4,6,7,10,	=5	19-3½
28	1,3,5,8,10,11	6	2,4,6,7,9.	5	20'-0½
29	1,2,4,7,9,10,	=6	3,5,6,8,10	=5	19-4½
30	1,2,8,10,11	=5	3,4,5,6,7,9	=6	21-8½
31	1,2,5,10,11	=5	3,4,6,7,8,9	=6	20-4½
32	1,4,8,9,11	=5	2,3,5,6,7,10	=6	20-¾
33	1,2,4,8,&11	=5	3,5,6,7,9,10	=6	19-11½
34	1,2,6,10 & 11	=5	3,4,5,7,8,9	=6	19-11
35	1,3,6,10 & 11	=5	2,4,5,7,8,9	=6	20'-7"
		83		104	
		CC		132	
Total		149		236	

{17 - 6x11x22'-0" Stringers Built up out of old 3"x11" Str.
{21 - 6x16x20'-0" " " " " " "

22 - 6x18x22' stringers Old Material.
89 - " " x20' " " "
Total 111 - 6"x18" " " "
38 - 6x16 " " "
Total 149 " " "

No1 & 11 Built up out of 2-3"x16" pcs. spiked together 2
" " " " " " " " " 2
" " " " " " " " " 2
— — — — — 0
" " " " " " " " " 2
— — — — — 0
" " " " " " " " " 2
" " " " " " " " " 2
No 11 " " " " " " " 1
No1 & 11 " " " " " " " 2
— — — — — 0
" " " " " " " " " 2
" " " " " " " " " 2
" " " " " " " " " 2
No 11 " " " " " " " 1
— — — — — 0
— — — — — 0
22
16
38

Total Ordered 249 Stringers 6"x18"
146 - 6"x18" - 20'-0"
93 - " " - 22'-0" (Three over)

Total 236 New Stringers ✓ (Checks with orders.)
104 - 6"x18"x22' Stringers New Material in Bridge
132 - 6x18x20' " " " "

~Note - Some of the 20' stringer were over length enough so that they would frame short 22' lengths.

Benson Lumber Co.

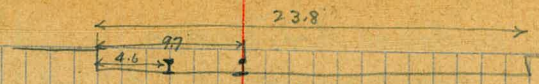
	20'	22'
First Order 6"x18" Stringers	130	60
Second " " " "	9	33
Third "	7	0
Total	146	93
Less three 22 not needed		3
In Bridge	146	90

Material to be returned for credit to W.M.S.Co.

1 Box 175 - 5/8"x13" Sq Hd. Mach Bolts
1 " 185 - 5/8 x 14" " " " "
" " 100 - 5/8 x 17" " " " "
" " 66 - 3/4 x 20" " " " "
" " 100 - 5/8 x 20" " " " "
~~#1320 5/8" C.I. Washers.~~ (?)
1 Box 100 - 5/8 x 18" " " "

To Storeroom. -

2 Kegs 50 - 5/8 x 14" Mach Bolts with nut.
1 " 25 - 5/8 x 14" " " " "
1 " 20 - 5/8 x 18" " " " "
1 Box 100 - 5/8 x 17" " " " "
1320 - 5/8" C.I. Washers (1260 new 60 old)
100 - 5/8 x 28" Drift Pins



West Span 17.8 from West End to Ctr of First Bent
West Frame Bent Section 76.4
Truss 139.8'
East Frame Bent Section 79.8'
Total Length 296'

Hayler Level
Cromwell Rod
5-18-17

Levels on Adams Ave. Bridge

	2.20	102.20	100.00
East Abutment			
		4.51	97.69
		3.21	98.99
		3.24	98.96
		3.32	98.88
		4.47	97.73
Bent # 1		5.64	96.56
		4.48	97.72
		4.44	97.76
		4.48	97.72
		5.79	9641
Bent # 2		6.14	96.06
		4.83	97.37
		4.85	97.35
		4.89	97.31
		6.03	96.17
Bent # 3		6.53	95.67
		5.37	96.83
		5.26	96.94
		5.35	96.85
		6.60	95.60
Bent # 4		6.90	95.30
		5.60	96.60
		5.57	96.63
		5.67	96.53
		6.79	95.41

Assumed Elev. End S. Rail East End of Bridge.
North End Cap
N String
C "
S "
S End Cap
" " "
S String
C "
N "
N End Cap
" " "
N String
C "
S "
S End Cap
" " "
S. String.
C "
N "
N End Cap
" " "
N String
C "
S "
S End Cap

	102.20		
Bent #5	6.82	95.38	S End Cap
	5.69	96.51	S String
	5.57	96.63	C "
	5.64	96.56	N "
	6.92	95.28	N End Cap
Bent #6	6.96	95.24	" " "
	5.68	96.52	N String
	5.66	96.54	C "
	5.74	96.46	S "
	6.83	95.37	S End Cap
Bent #7	6.95	95.25	S " "
	5.82	96.38	S String
	5.76	96.44	C "
	5.78	96.42	N "
	7.04	95.16	N End Cap
Bent #8	7.18	95.02	" " "
	5.92	96.28	N String
	5.92	96.28	C "
	6.04	96.16	S "
	7.15	95.05	S End Cap
Bent #9	7.33	94.87	" " "
	6.20	96.00	S String
	6.08	96.12	C "
	6.03	96.17	N "
	7.29	94.91	N End Cap

	102.20		
Bent #10		7.56	94.64
		6.27	95.93
		6.29	95.91
		6.42	95.78
		7.54	94.66
Bent #11		7.78	94.42
		6.65	95.55
		6.56	95.64
		6.57	95.63
		7.88	94.32
Bent #12		7.88	94.32
		6.63	95.57
		6.65	95.55
		6.77	95.43
		7.97	94.28
Bent #13		8.03	94.17
		6.96	95.24
		6.85	95.35
		6.83	95.37
		8.00	94.20
Bent #14		8.45	93.75
		7.17	95.03
		7.12	95.08
		7.28	94.92
		8.41	93.79

N End Cap
N String
C "
S "
S End Cap
" " "
S String
C "
N "
N End Cap
" " "
N String
C "
S "
S End Cap
" " "
S String
C "
N "
N End Cap
" " "
N String
C "
S "
S End Cap

Bent 12 Cap is dapped

Bent 13 Cap is dapped

		102.2		
West Abutment			8.62	93.58
			7.29	94.91
			7.44	94.76
			7.55	94.65
			8.83	93.37
			6.75	95.45

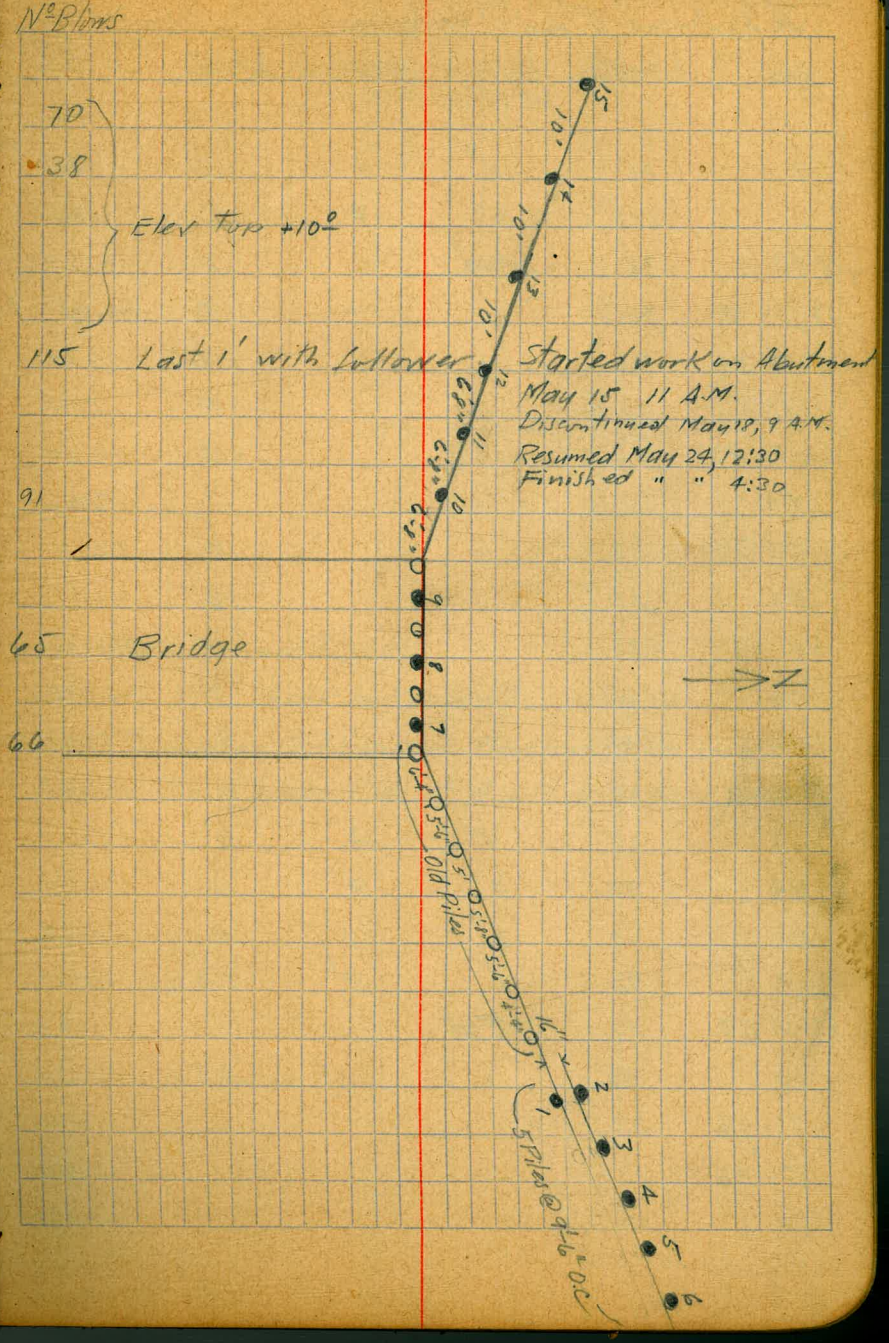
S End Cap
S String
G "
N "
N End Cap
Top of Rail (South)

100
95.45
4.55
300 = 1.517
80
1.21360
98.79 -

Old Town Bridge

Pile Protection, North End

Pile Nº	length	Butt	Tip	Last 5 blows Av. Penet. 10' Fall	Cut-off	Elev Bottom
1	30	12"	8"		0	-20.0
2	31	12	8	1½"	0	-21.0
3	30	12	8	2"	0	-20.0
4	30	12	8	2½"	0	-20.0
5	30	12	8	2½"	0	-20.0
6	30	12	8	2"	0	-20.0
7	30	12	8	1½"	1.8	-17.2
8	36	16	13	Jetted	4.9	-20.1
9	30.5	12	8	"	2.9	-16.6
10	30	12	8	1"	0	-17.5
11	30	12	8	1"	0	-18.5
12	30	12	8	1"	0	-19.5
13	30	12	8	1½"	0	-19.5
14	35½	12	8	2"	2.5	-23.0
15	30	12	8	2"	0	-20.0



Sheet Piles

Numbered from end of East wing West through N. Abutment to end of W. Wing.

No	Length	Av Penet last 5 blows	Fall of Hammer, ft.	cut off	Elev. Bot. of Pile
1	26½	2"	4	3'	-13.5
2	28½	2"	4	0	-18.5
3 to 11	32'	Jetted	—	0	-22.0
12, 13, 14	30½	"	—	0	-20.3 -20.2 -20.5
15 to 24	32'	"		0	-22.0
25	30½	"		0	20.5
26 to 43	32	"		0	-22.0
44	30½	"		0	-22.0
45 to 52	32	"		0	-22.0
53	30½	"		0	-20.5
54, 55	32	"		0	-22.0 -21.6
56	30	"		5'	-15.0
57	32	"		0	-22.0
58 - 62	32	"		0	-22.0
63	32	1"	4'	0	-22.0
64	32	1"	4'	0	-22.0
65	32	1"	10'	0	-22.0
66	32	1"	4'	1.6	-20.4
67 - 69	32	Jetted	—		-21.7
70	32	"		0.5	-21.2
71 - 74	32				-21.2
75 - 76	32				-21.0
77	32				-20.8

All piles 4×12 T & G - about 10½" face

except 27 = -21.6

Struck rocks hard driving. net length 25'. Struck rocks - split cut off 5'.
May 5 Fetched up solid on rocks. New connection made for additional pressure on jet & pile driven down May 11.

Pile split.

broke 10' below top.

10.8
11.0
11.2

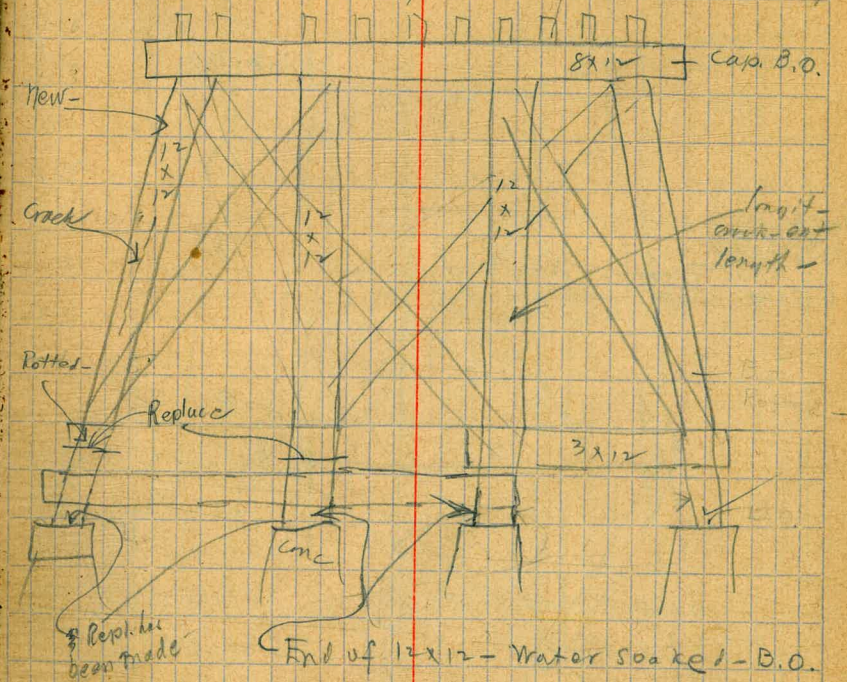
No	length	Av. Penet. Last 5 blows	Fall of Hammer	Cut off	Elev. Bot. of Pile
78	32	Jetted		0	-20.6
79-80	"	"		0	-20.4
81	"	"		0	-20.2
82	"	"		0	-20.0
83	"	"		0	-19.8
84	"	"		0	-19.4
85	"	"		0	-18.8
86	"	"		0	-18.5
87	"	"		0	-18.1
88	"	"		0	-17.9
89	"	"		0	-17.6
90-91	"	"		0	-17.6
92-108	"	"		0	-18.0
109	"	"		1.2	-16.8
110	"	"		0.7	-17.3
111	"	"		1.3	-16.7
112	"	"		0	-18.0
113	"	"		0	-18.0
114	"	"		0	-18.2
115	28	"		0	-14.2
116	32	"		1.2	-17.3
117	28	"		0	-14.9
118	"	"		0	-15.3
119	"	"		0	-15.6
120	"	"		0	-16.0

No	length	Av. Penet lasts blows		Cut off	Elev. Bot. of Pile
121	28	Jetted		0	-16.2
122	"	"		0	-16.4
123	"	"		0	-16.7
124	"	"		0	-16.9
125	"	"		0	-17.0
126	"	"		0	-17.1
127	"	"		0	-17.2
128	"	"		0	-17.3
129	"	"		0	-17.5
130	"	"		0	-17.6
131	"	"		0	-17.7
132	"	"		0	-17.9
133	"	"		0	-18.0
134-163	"	"		0	-18.0
164	26	"		0	-16.0

Adams Ave. Bridge D.L. Brosell

Texas St. 4/20/28

Bent #1 - W. End - Looking East -



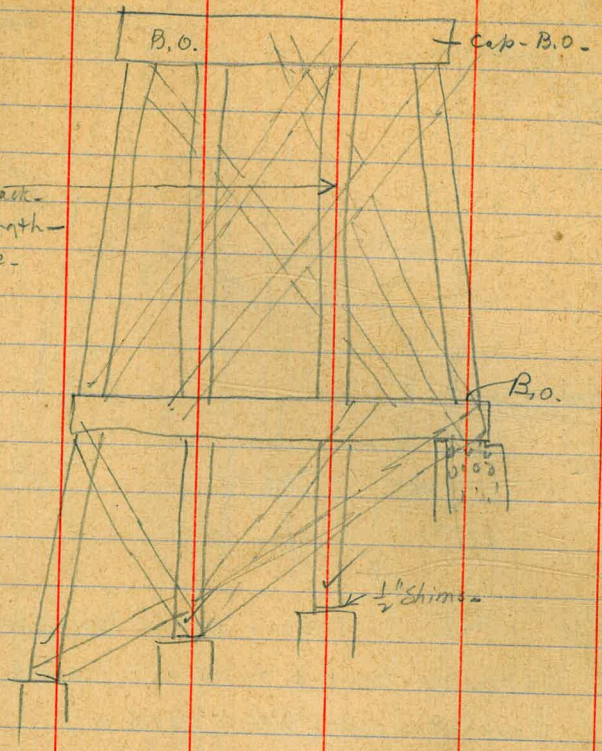
A ditch bet. bent & Ret. Wall - would drain water away from posts -

No long bracing from abut. to 1st bent -
✓ ✓ ✓ ✓ 1st bent to 2d ✓ except at bottom - shld have sways -

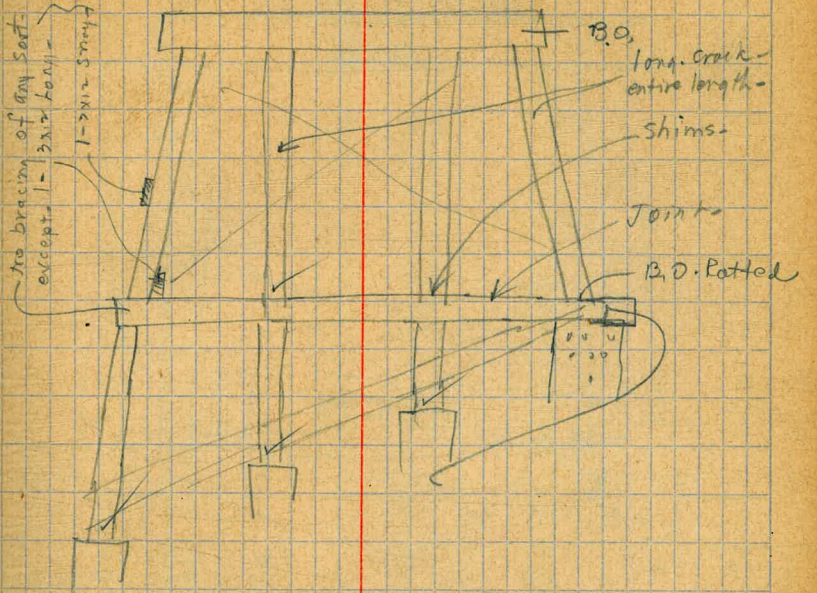
Cap - on W. Ret wall - B.O. - Ret. wall can be carried up to bot of stringers - do away with cap entirely -
at S.W. Cor. rotted cap -

Bent No 2 -

Looking East -



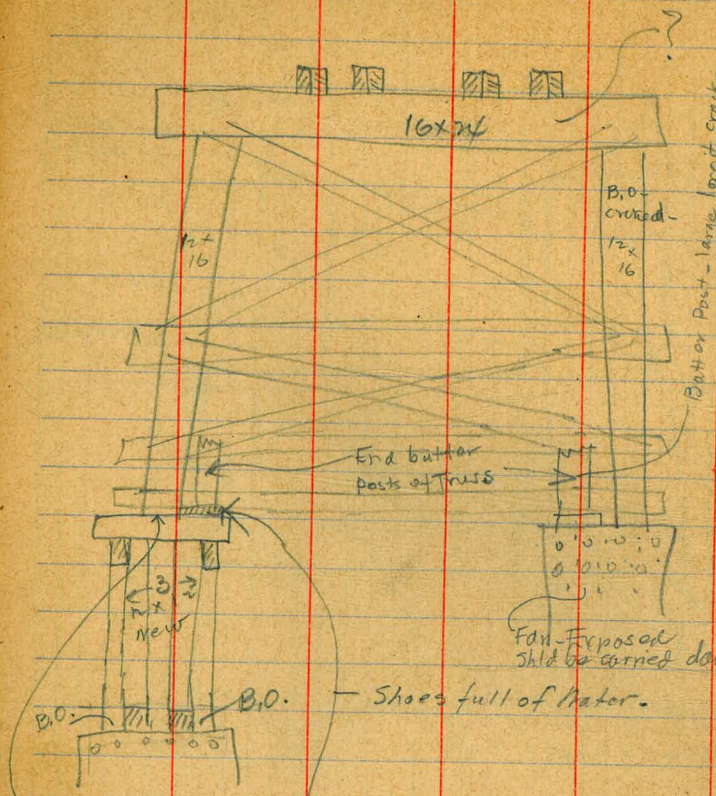
Bent No 3



from bent No 3 - Stray bruces outside only -
4 long - at bot - 3x12

No bracing of any sort - long or stray
bet bents 3 & 4.

Bent No 4 -



Load of 60000# on 12x16 = 192 □" = 312# □"

On side gr'n of lower 12x12 + under side of 16x24 Cap -

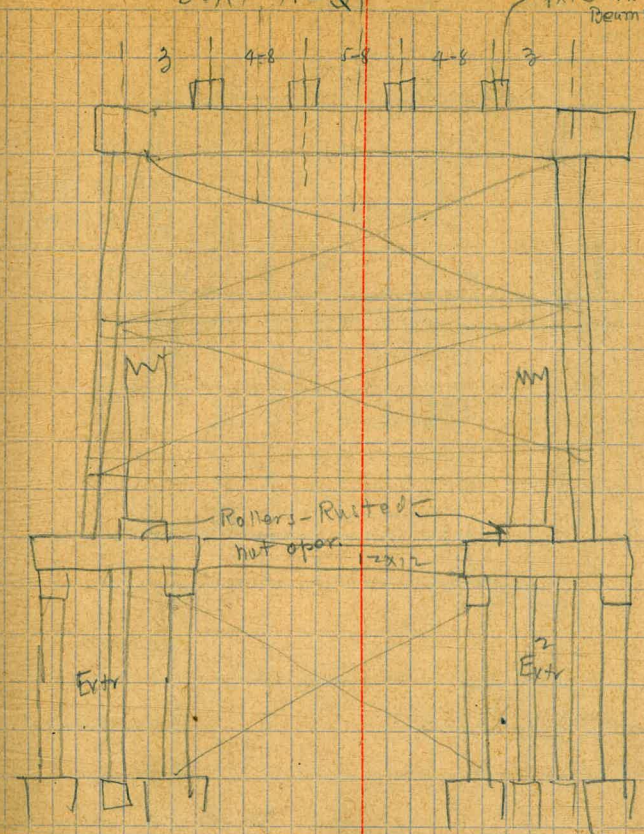
G.I. Shoe - 2'x2' = 4□' = 576 □"

$\frac{160000}{576} = 280$ #□"

S. Side - bent # 4.

cracked thru -

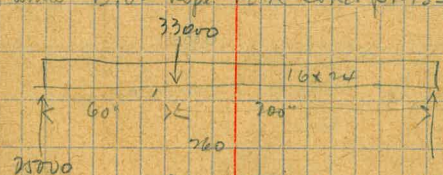
Bent No 5 11



14-16
15-4
21-12
5-8

Both Tanks - B.O. Repl with Conc. piers -

22
12
264



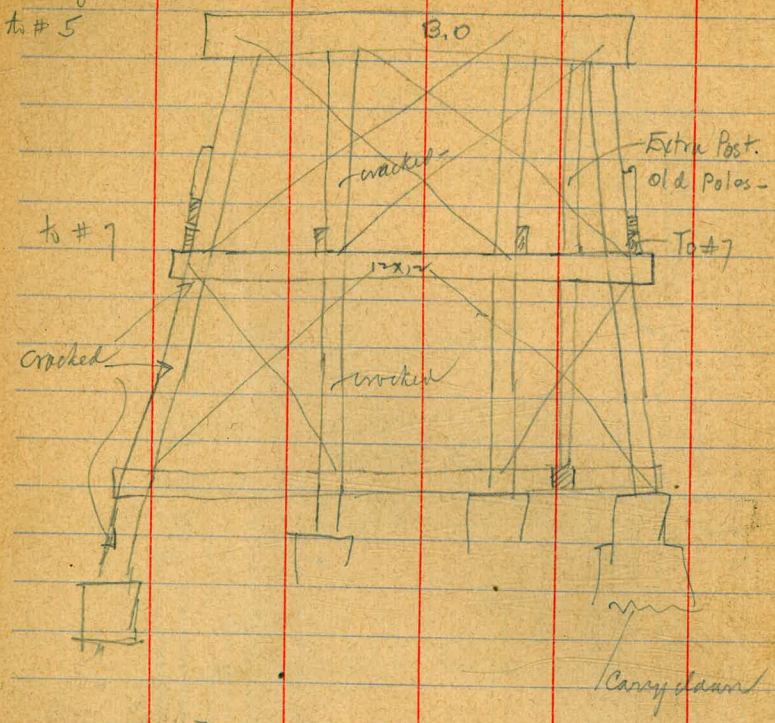
M = 25000 x 60 = 1,500,000

S of 16x24 = $\frac{1}{6}$ x 16 x $\frac{96}{576}$ = 1500 = 1000# □"

1 Car on Bridge

Bent No ~~6~~ 12 Looking West

no longit. or sways to # 5



3500000

180

33000 20000

60" 120"

180"

R = 35000

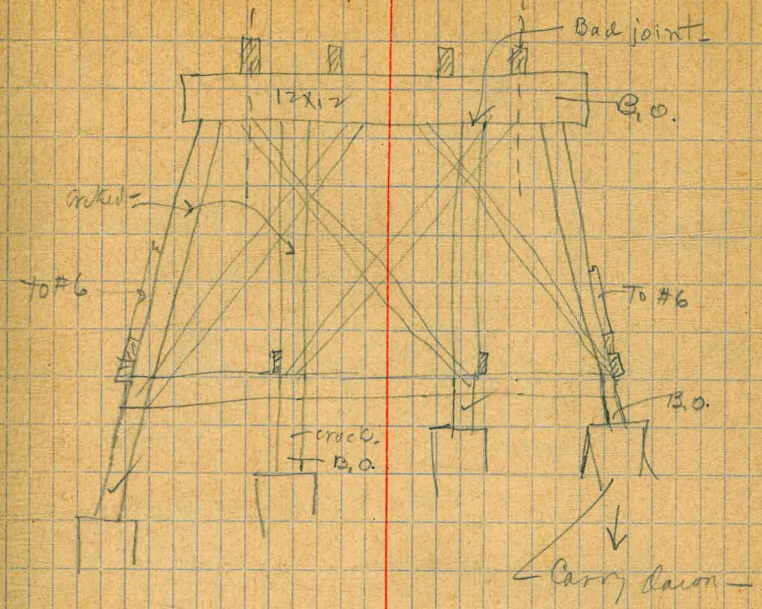
$m = 35000 \times 180 - 33000 \times 120 =$

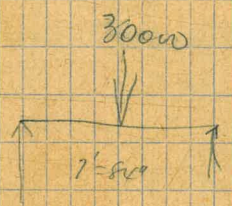
6300, 4000

$\frac{2,300,000}{1540} = 1500 \# \square''$

Say 16x24

Bent No ~~4~~ 13 Looking West





Cu = 22 Tons - 44000

150@150 = 22

66

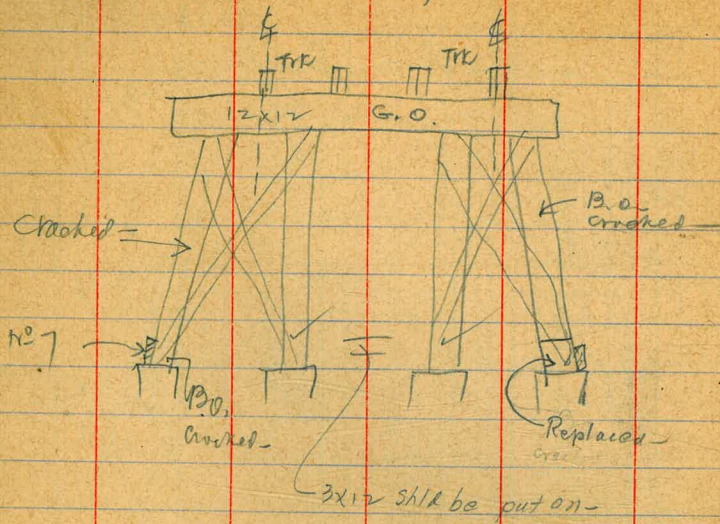
16500

$m = \frac{1}{4} \times 30000 \times \cancel{84}^{21} = 630,000''\#$

S of 12x12 = 288 = 2180 # □"

" " 12x16 = 512 = 1230 # □"

Bent No 8 (14) - Looking West -

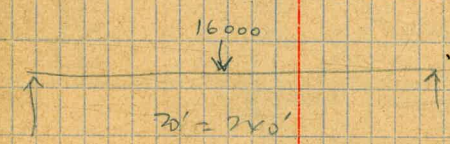


Main Truss -

Lower chord - memb & pin jts - rusted -
Diag Tens - rusted -
Vert + shld be painted -
Up chd ✓ ✓ ✓ -
Entire Truss shld be gone over thoroly -
cleaned - painted -

Timbers in upper chd - look - old - rotten -

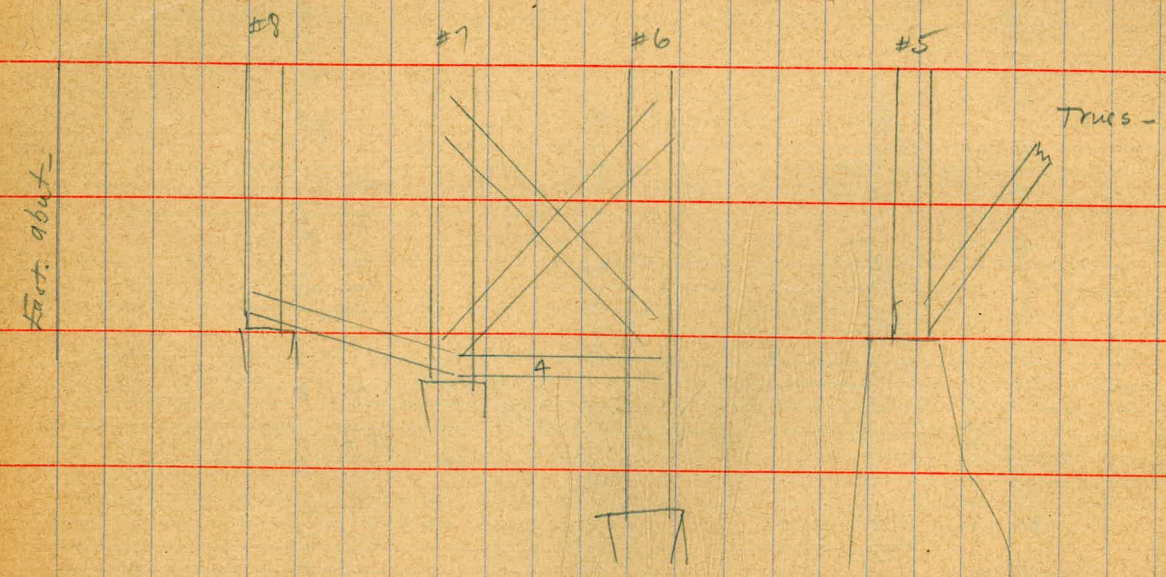
Track Beams - 2-7x16 = 14x16

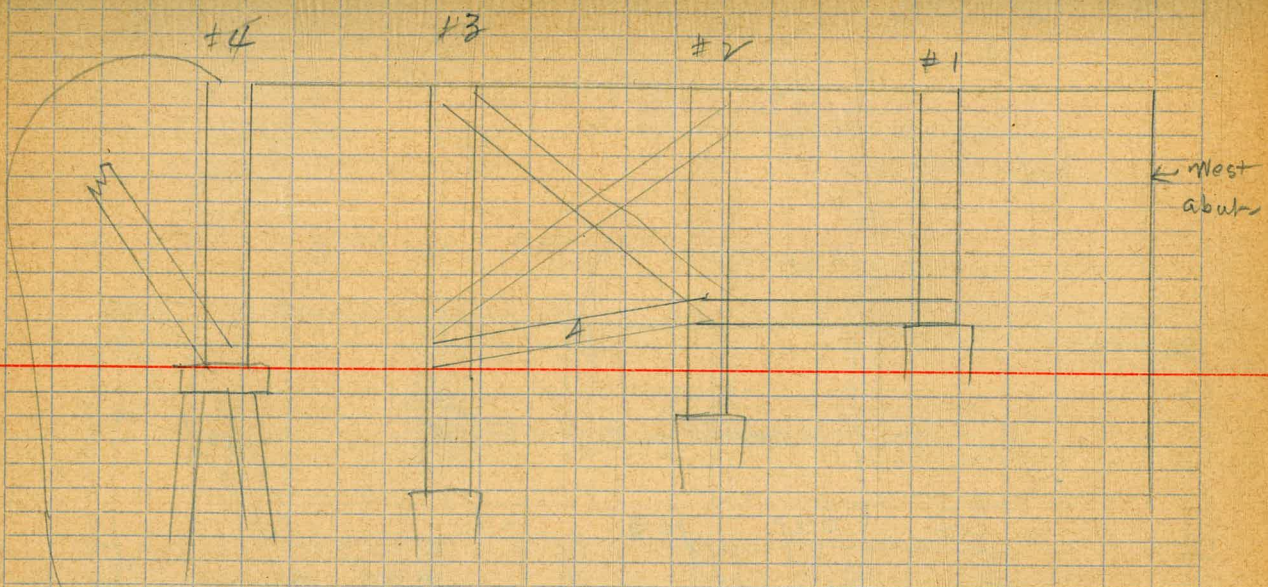


$M = \frac{1}{4} \times 16000 \times \cancel{240}^{60} = 960000''\#$

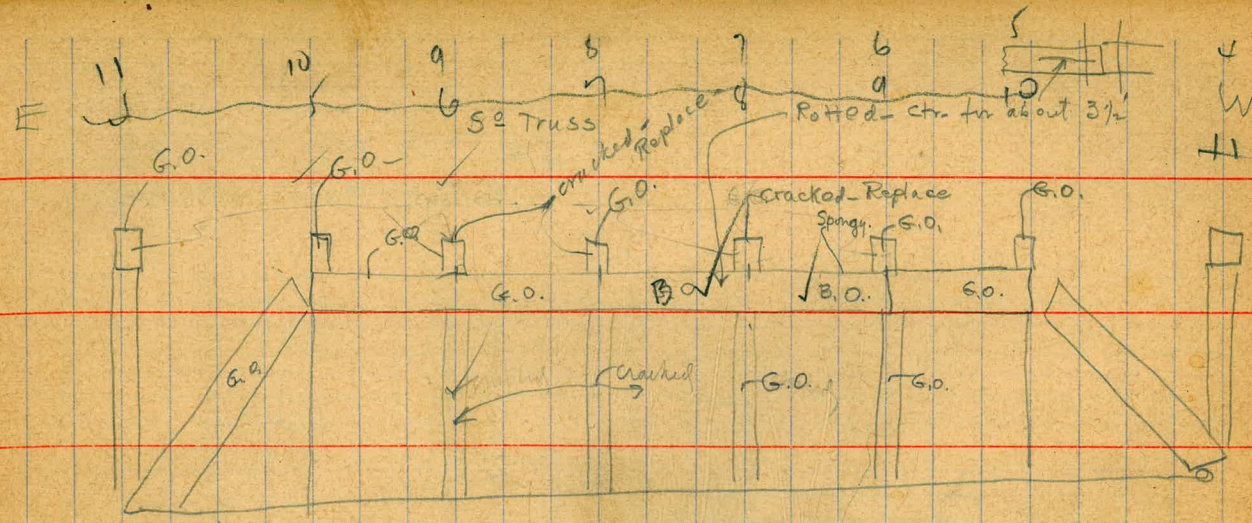
S of 14x16 = 600 = 1600 #□" - Too large -

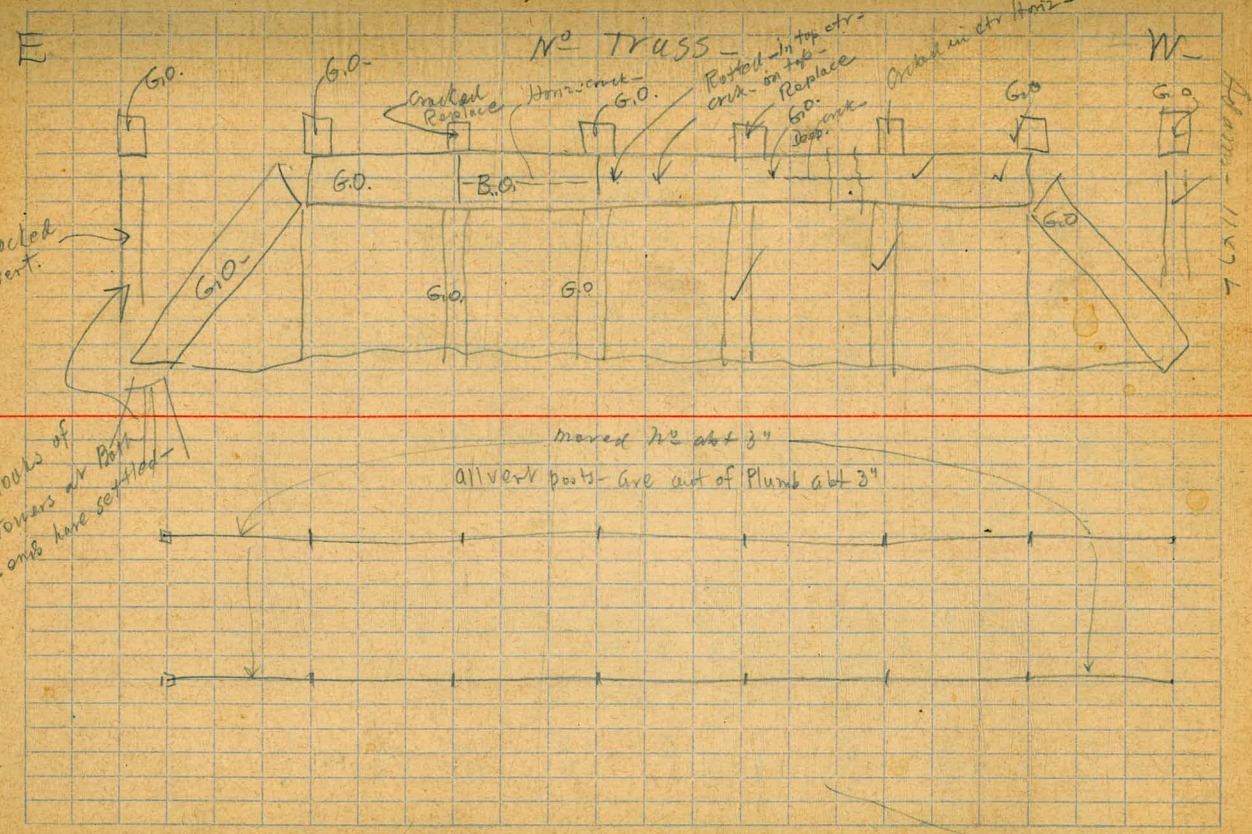
Longit & Strays-





From looks at Floor + Rails-
has settled- low. also- #5


E
11
10
9
8
7
6
5
W
So Truss
Rotted- ctr. for about 3½'
G.O.
Cracked- Replace
Spongy
B.O.
Cracked
Hand Rails on both sides- B.O.


E.
No Truss-
W.
G.O.
Cracked Replace
Horizontal-
Rotted- in top ctr-
crack- on top-
Replace
Cracked in ctr Horiz-
B.O.
cracked vert.
From looks of
Back Towers all Both
Ctr.- ends have settled-
moved N° abt 3"
all vert posts- are out of Plumb abt 3"

69

N.E. Cor. Bridge Spk Pole				355	41
La. S.W. cor. Br. Pl. Conc. Mon.				351	07
Griz. S.W. RR Spk Pole grd				366	80
	(+)	H.I.	(−)		
	3.44	354.51		351	07
N. End. Bridge	S. Rl.		4.41	350.10	
	N ✓		4.40	350.11	
Bent #1	S ✓		4.32	350.19	
	N ✓		4.34	350.17	
✓ #2	S ✓		4.23	350.28	
	N ✓		4.26	350.25	
✓ #3	S ✓		4.13	350.38	
	N ✓		4.16	350.35	
#4	S ✓		4.14	350.37	−4" = 346.3
	N ✓		4.19	350.32	
#5	S ✓		3.90	350.61	
	N ✓		3.91	350.60	
#6	S ✓		3.69	350.82	
	N ✓		3.68	350.83	
#7	S ✓		3.53	350.98	
	N ✓		3.55	350.96	

	+	354.51 H.I.	−	E.I.	
# 8	S. Rl.		3.33	351.18	
	N ✓		3.41	351.10	
#9	S ✓		3.25	351.26	
	N ✓		3.33	351.18	
#10	S ✓		3.17	351.34	
	N ✓		3.25	351.26	
#11	S ✓		3.14	351.37	H' = 354.37
	N ✓		3.17	351.34	
#12	S ✓		2.87	351.70	
	N ✓		2.89	351.67	
#13	S ✓		2.30	352.21	
	N ✓		2.38	352.13	
#14	S ✓		1.46	353.05	
	N ✓		1.54	352.97	
E-End	S ✓		0.73	353.78	
	N ✓		0.70	353.81	
			10.43	344.08	T.P.
	1.07 ✓	345.10			
			12.69	332.41	T.P.
	+ 2.27 ✓	334.63			

	+		−		
		334.63			
			12.21	322.42	T.P.
	8.22	330.64			
Top. conc. S.W. Pier.			11.35	319.29	
N.W. Top. Tower.	140' Span		11.32	319.32	
S.E. Tower			10.68	319.96	
N.E ✓			10.74	319.90	
	11.04	330.33		319.29	S.W. Pier
			5.28	325.05	S. Pier Bent #3
329.24			1.09	329.24	T.P.
+8.67			2.25	328.08	
337.91 = H.I.			2.65	327.68	
− 5.05					

Bent #1

332.86	329.24	328.08	327.68
□	□	□	□

+	H.I.	−	
11.54	337.54		326.00
		11.50	
		13.05	
			326.04
	324.49 #7	326.00	
□	□	□	□

3.66	333.88
2.51	335.03
2.00	335.54
1.13	336.41

Bent #8

333.88	335.03	335.54	336.41
□	□	□	□

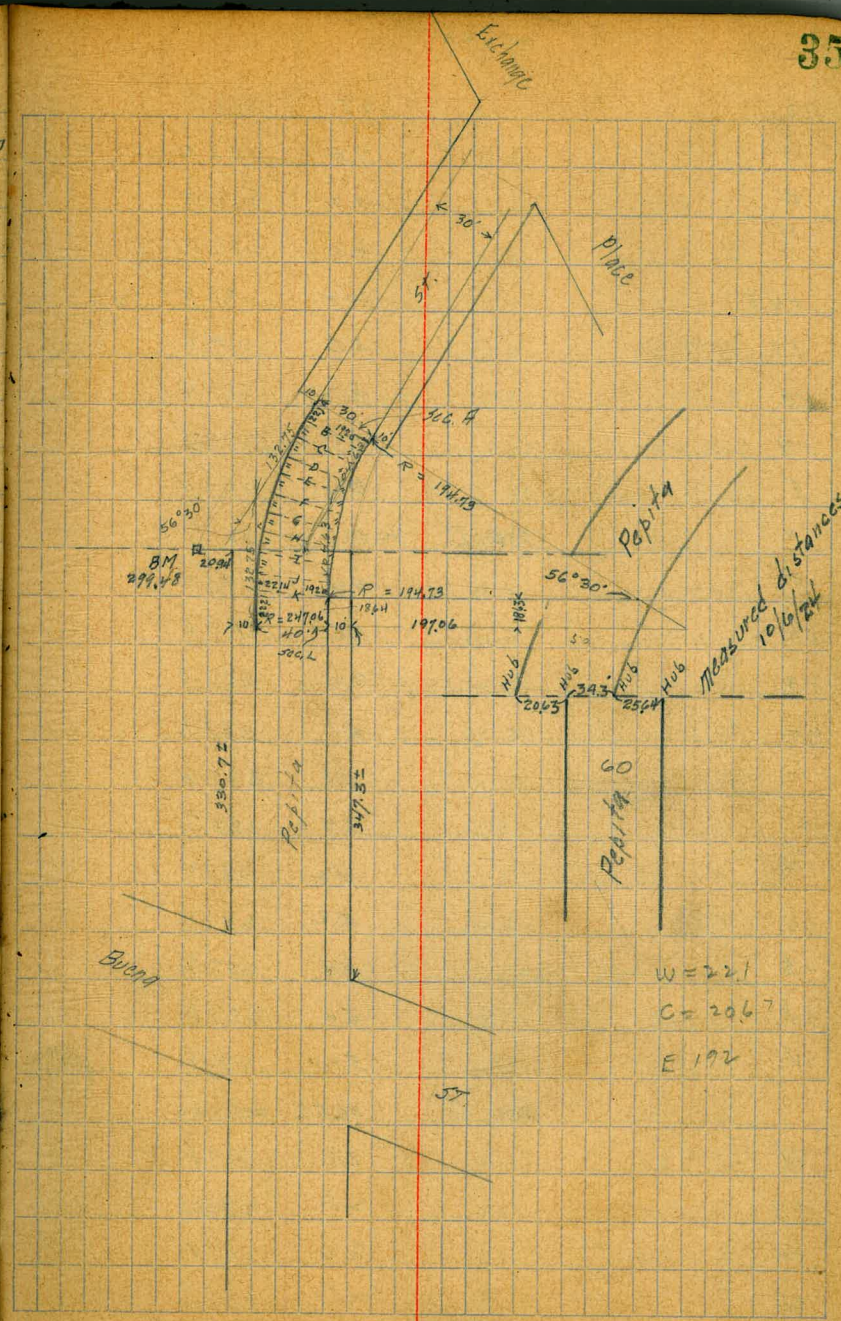
D.B. 4/28/28
by himself.

4/5/24 Gregory RE CROSS SECTION OF A PORTION OF PEPITA ST LA JOLLA

E and W are always 10' from cb	1.13	300.61		299.48
	4.66	292.63	12.64	287.97
For sections from here to Exchange see book 1097.		Sec. A	regular 50' St 10' cbs	
W.			12.6	280.0
+9			11.9	280.7
cb			12.3	280.3
1/4			11.9	280.7
C			11.2	281.4
1/4			10.7	281.9
+6.5			11.0	281.6
cb			9.8	282.8
E			9.1	283.5
22.14' S on W } measured on cb lines 19.20' - E }		Sec. B	30' bet cbs	
E			5.9	286.9
+1			6.9	285.7
cb			7.5	285.1
+2			8.6	284.0
1/4			8.4	284.2
C			8.8	283.8
1/4			9.2	283.4
cb			9.9	282.7
W			10.1	282.5
		Sec. C	30.32' bet cbs	
W			7.7	284.9
+8			7.4	285.2

Hub sec book 1097-47

Platted Oct 1924 HBB Sec 1437



297.63

cb		7.7	284.9
1/4		7.0	285.6
c		6.2	286.4
1/4		6.0	286.6
+4.5		6.2	286.4
+6		5.3	287.3
cb		5.2	287.4
+9		4.8	287.8
E		3.2	289.4
	Sec. D.	30.80' bet cbs	
E		2.4	290.2
cb		3.0	289.6
+3		3.2	289.4
+4		4.0	288.6
1/4		4.0	288.6
c		3.9	288.7
1/4		4.2	288.4
cb		5.2	287.4
+3		5.1	287.2
+4		5.0	287.6
W		5.1	287.5
	Sec E	31.52' bet cbs	
W		2.8	289.8
+3		2.8	289.8
+4		3.2	289.4
cb		2.8	289.8

297.63

1/4		2.1	2905
C		1.8	2908
1/4		2.0	2906
+2.5		1.2	2914
cb		0.9	2917
E		0.3	2923
T.P.	11.74	304.26	0.11	292.52
	Sec. F	32.37' bet. curbs	
E		9.4	2949
cb		10.3	2940
1/4		10.3	2940
+2		10.5	2938
+3		11.3	2930
c		11.2	2931
1/4		11.4	2929
cb		11.8	2925
W		12.3	2920
	Sec. G	33.39' bet. curbs	
W		9.8	2945
cb		8.9	2954
1/4		8.7	2956
C		9.1	2952
+3		8.0	2963
1/4		8.0	2963
cb +4		8.0	2963

304.26

+6.5			6.1	298.2
cb			6.1	298.2
E			6.5	297.8
		Sec N.	34.60	bet curbs
E			4.4	299.9
cb			4.8	299.5
1/4			5.4	298.9
C			5.6	298.7
+2			5.7	298.6
+4			6.5	297.8
1/4			6.4	297.9
cb			6.4	297.9
W			7.1	297.2
		Sec. I	36.02'	bet. curbs
W			4.3	300.0
cb			4.1	300.2
1/4			3.9	300.4
C			3.4	300.9
1/4			2.4	301.9
cb			1.8	302.5
E			1.6	302.7
		Sec. J.	37.51	bet. curbs
TP	4.97	308.77	0.46	303.80
E			3.9	304.9
cb			4.4	304.4
1/4			4.6	304.2

308.77

C		5.0	3038
1/4		5.5	3033
cb		5.8	3030
W		6.5	3023
	Sec K. = E.C on E	39.18'	bet cbs
W		4.8	3040
cb		3.7	3051
+6		3.5	3053
+7		4.0	3048
1/4		4.0	3048
C		3.8	3050
1/4		3.7	3051
cb		3.2	3056
E		2.1	3067
1st Section on regular 60's Sec L	E.C on W	40'	bet curbs
E		1.1	3077
cb		2.2	3066
+9		2.5	3063
1/4		3.0	3058
C		3.1	3057
1/4		3.6	3052
cb		4.2	3046
W		5.0	3038
+5		5.3	3035

308.77

E 4+50 64

15' S

C = 4+77 12
W = 4+83 61

-5			5.4	303.4
W			5.1	303.7
cb			4.2	304.6
+8			2.4	306.4
1/4			2.9	305.9
c			2.6	306.2
1/4			2.2	306.6
+2			1.5	307.3
cb			1.8	307.0
E			1.5	307.3

E 4+75 64

40' S

C 5+02 12
W = 5+08 61

E			1.9	306.9
cb			2.1	306.8
1/4			2.5	306.3
c			2.6	306.2
1/4			3.2	305.6
cb			3.1	305.8
W			3.4	305.4

E 5+00 64
C 5+27 12
W = 5+33 61

65' S

W			4.6	304.2
cb			3.7	305.0
1/4			3.0	305.8
c			2.4	306.4
1/4			2.5	306.3
cb			2.2	306.6
E			2.0	306.8

308.77

E 5+35 64
C 5+62 12
W = 5+68 61

100' S

E			2.2	306.6
cb			1.8	307.0
1/4			1.7	307.1
+1			2.4	306.4
c			2.3	306.5
+8			2.7	306.1
1/4			3.1	305.6
cb			3.5	305.3
W			4.1	304.7

E 5+75 64
C 6+02 12
W = 6+08 61

140' S

W			4.1	304.7
cb			3.8	305.0
1/4			3.4	305.0
c			3.0	305.8
1/4			3.0	305.8
cb			2.9	305.9
E			2.7	306.1

E 5+90 64
C = 6+17 12
W = 6+23 61

155' S

E			3.1	305.7
cb			2.6	306.2
+9			2.2	306.6
1/4			3.1	305.7
c			3.2	305.6
1/4			4.0	304.8
cb			4.3	304.5
W			4.4	304.4

	E 6+15 64 C 6+42 17 W 6+48 61	308.77 180'S		
W			4.7	304.1
cb			4.7	304.1
1/4			4.4	304.4
C			3.8	305.0
1/4			3.5	305.3
cb			3.6	305.2
E			3.5	305.3
	E 6+65 64 C 6+92 17 W 6+98 61	230'S		
E			4.8	304.0
cb			5.1	303.7
1/4			5.3	303.5
C			5.3	303.5
1/4			6.0	302.8
cb			6.0	302.8
W			6.3	302.5
	E 7+15 64 C 7+42 17 W 7+48 61	280'S		
W			7.7	301.1
cb			7.0	301.8
1/4			7.3	301.5
C			6.8	302.0
1/4			7.0	301.8
cb			7.0	301.8
E			6.4	302.4

✓

E 7+82 94 C = 8+01 12 W 7+99 31 — 308.77

330.7' S on W
347.3 " " E
} = NL Bueng

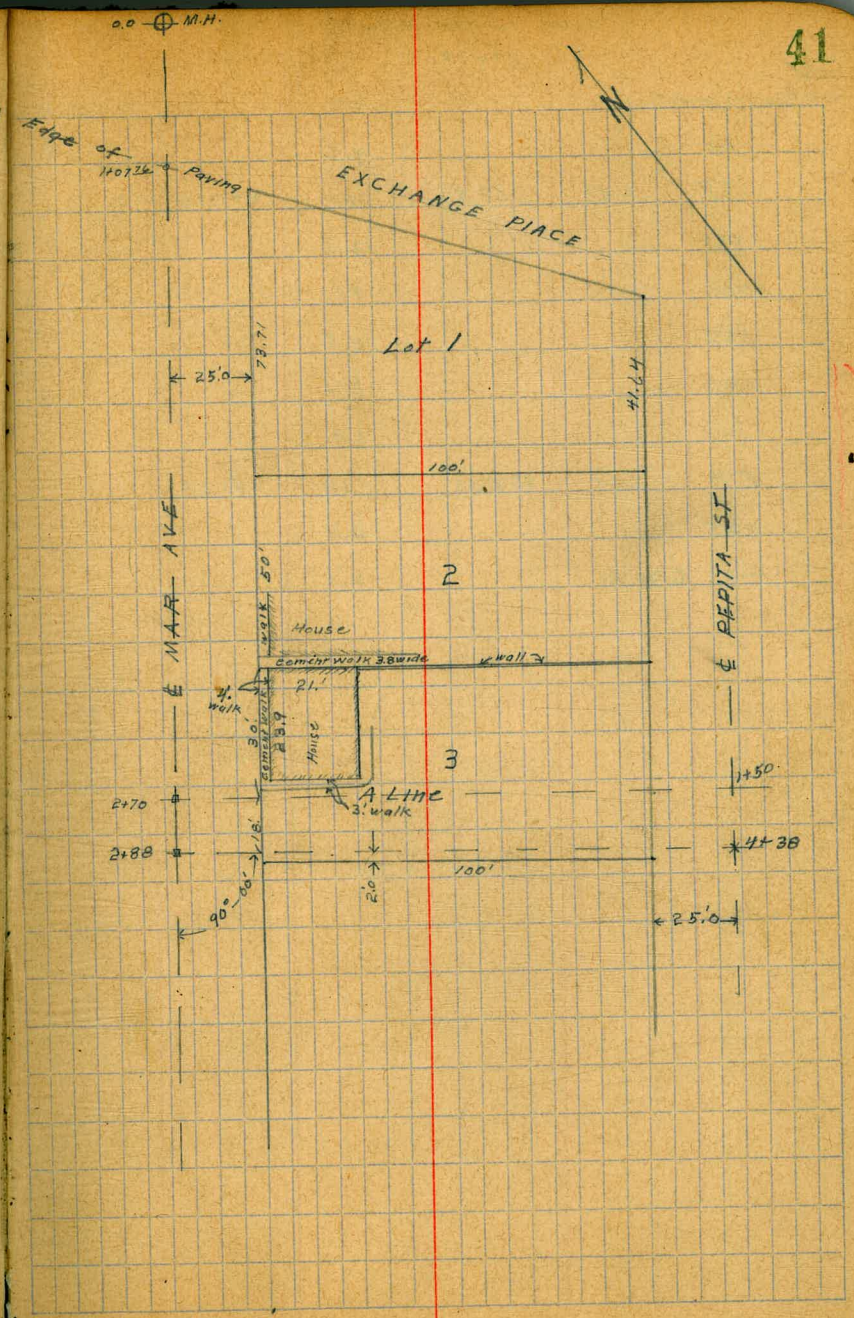
E	Make grade @ this corner 299.5 if possible RMG	8.6	300.1	on hub
cb		9.2	299.6	
1/4		9.1	299.7	
+1		9.5	299.3	
C		9.6	299.2	
1/4		10.0	298.8	
cb		10.4	298.4	
W		10.2	298.6	
	10' 5.0 x N.L. on W	10.9	297.9	
	" " " " " E	8.9	299.9	

✓

10/21/24 Sewer Levels on ℄ MAR Ave and through Lot 3 to ℄ PEPITA St.

B.M.	11.80	234.67		222.87	Mulliv Shaw Wall Hydrant Exchange & Soledad
1+07.76			12.83		on edge paving
1+50			7.4		
2+00			0.9		
T.P.	12.71	247.18	0.20	234.47	
+25			10.4		
+50			7.0		
2+70			4.16		on stub
2+88			1.85		" "
3+04			2.0		
T.P.	12.83	259.97	0.04	247.14	
3+12			10.6		
+22			9.2		
+36			5.0		
+60			4.2		
+85			0.5		
T.P.	6.25	265.03	1.19	258.78	
4+00			3.4		
+15			1.9		
+30			0.4		
4+38 ℄ Pepita			+ 0.6		

See Page 42 for Levels on A Line



A Line See Plat Page 41

274.18

2+70 Page 41 = 00 A Line			4.16		on Stub
+16			4.2		
T.P.	12.83	259.97	0.04	247.14	
+30			12.6		
+55			9.1		
+82			4.5		
1+00			3.4		
+05			1.9		
T.P.	6.25	265.03	1.19	258.78	
+25			4.5		
1+50 ℄ Pepite			2.5		

10/21/24 Sewer Levels from M.H. @ Center Bet Eads & Fay to a Line 15' E. of ℄ Fay Thence S. to N. Line Westbourne

B.M.	9.29	141.89 ✓	141.9	132.60	Top Wall S.E. Cor Eads & Center
00 = M.H Bet Eads & Fay			10.04	131.85 ✓	on Flow Line
00			3.1	138.8 ✓	on ground
+50			1.2	140.7 ✓	
T.P.	8.62	150.40 ✓	0.11	141.78 ✓	
1+00			7.8	142.6 ✓	
1+50			6.1	144.3 ✓	
+65			6.4	144.0 ✓	
+80			5.4	145.0 ✓	
2+05 = 15' E. of ℄ of Fay			5.1	145.3 ✓	5.9 E. of E. Rail
+50			4.9	145.5 ✓	
3+00			4.7	145.7 ✓	
+50			4.5	145.9 ✓	
4+00			4.0	146.4 ✓	
+50			3.7	146.7 ✓	
5+00			3.5	146.9 ✓	
+50			3.2	147.2 ✓	
6+00			3.1	147.3 ✓	
+50			2.5	147.9 ✓	
7+00			2.3	148.1 ✓	
+50			1.7	148.7 ✓	
7+94 ℄ 5'x5' cement Bar iron cover Lies 1' E. of Wedge					
8+00			1.0	149.4 ✓	
T.P.	5.25	154.8 154.77 ✓	0.88	149.52 ✓	
+50			4.3	150.5 ✓	
9+00			3.5	151.3 ✓	
+56			2.6	154.1 ✓	beginning of Side track from Here N.

154.77 154.8

9+90		2.0	154.8 ✓
10+00		2.3	154.5 ✓
+10		3.5	151.3 ✓
+50	3' West	2.5	154.3 ✓
	3' West	4.0	150.8 ✓
11+00		3.0	151.8 ✓
+50		3.9	150.9 ✓
12+00		2.3	154.5 ✓
+20		2.4	154.4 ✓
+50		2.8	154.0 ✓
13+00		4.8	150.0 ✓
+14		5.0	149.8 ✓
+40		5.1	149.7 ✓
+50		7.2	147.6 ✓
13+68.04 = N. Line Westbourne		8.8	146.0 ✓
		8.8	146.0 ✓

30th St Bridge

South Abutment

3 S.W. Stringers on West to be replaced and Supported.

S W Bridging along West side not nailed (entire bridge)

Diagonals are loose. Need tightning and clamping where they cross.

Whole bridge needs painting.

Gregory
Hayler

4-1-25

Check Levels on
Linda Vista Sewer outfall
Beg. at S.Fe RR & Tecolote Creek
STA. 99+50 To 74+84.0

Index of C.S.K.

C. Moore
G. Farrow
8-1-41

45

B.M.B.P.				USC&G
				15.845
				9.01
	4.675	11.51		6.835 = City
T.P.	4.08	11.64	3.95	7.56
T.P.	6.43	12.21	5.66	5.98
T.P.	1.985	8.075	6.1x	6.09
T.P.	3.05	5.895	5.x3	x.845
check to	B.M. #6	Pacific Highway Stones	6.09	− 0.195 − 0.20
T.P.	5.15	6.58	4.465	1.43
T.P.	4.76	7.50	3.83	2.7x
T.P.	2.18	8.68	1.00	6.50
on Top E Rail			1.71	6.97
F.L. 24" Pipe			5.7x	2.96
on ground at	M.H.		2.7	6.0
" sand in	Creek		5.6	3.1
			9.1x	−0.44
			9.x4	−0.58
T.P.	6.x0	9.85	5.x3	3.45
F.L.			10.70	−0.35
"		24" Syphon under Marena Blvd	11.7x	−1.87
"			11.46	− 1.61
"			10.17	−0.32
T.P.	4.13	9.57	4.x1	5.44

Top W. hd. wall S.Fe RR Culv. # 17-263
approx. 900' N of Kennedy Road House

Sec. R.R. Rail (Top of Rail Ball) 150' Rt. 122+60 about 1' above ground

of S.Fe RR. 12' N of N. end of RR Trestle
99+55 Inlet to M.H.
"
20' S of M.H. 99+55 Center of Tecolote Creek
F.L. Inlet to M.H. 95+32.80
" outlet " " " "

outlet to M.H. 9x+91
Inlet " " " " See 1670-76
outlet " " 9x+26
Inlet " " " "

		9.57			
			9.63	-0.06	
T.P.	7.61	13.08	4.10	5.47	
			12.88	0.20	
			12.37	0.71	
			10.99	2.09	
T.P.	6.35	14.36	5.07	8.01	
	M.H. cover		sealed up.		
T.P.	5.80	16.85	3.31	11.05	
			7.50	9.35	
			7.45	9.40	
T.P.	3.13	14.18	5.80	11.05	
T.P.	7.77	11.61	5.34	8.84	
T.P.	4.57	11.43	4.75	6.86	
check to BM	Tecolote Bridge & Moreno Blvd		1.39	10.04	10.04

F.L. 90+65.47 △ M.H.

F.L. 88+55 M.H. POT end 24" Pipe

F.L. " " " beg. 18" "

F.L. M.H. △ 86+10.14 ahead
86+39.80 Back = Eq. 18" "

F.L. M.H. △ 78+28.40

F.L. outlet to M.H. 74+84 end 18" Pipe

" Inlet " " " beg. 24" "

H.I.
9.85
3.77
6.13
6.20
12.33
2.28
10.05
BM B.P.
Tecolote
Bridge
& Moreno
Blvd.
El. 10.04

Walker & Party
1-4-46

30th St. Bridge
Ground Profile of Wash
N.W. Cor Bridge

Indexed
C.S.K.

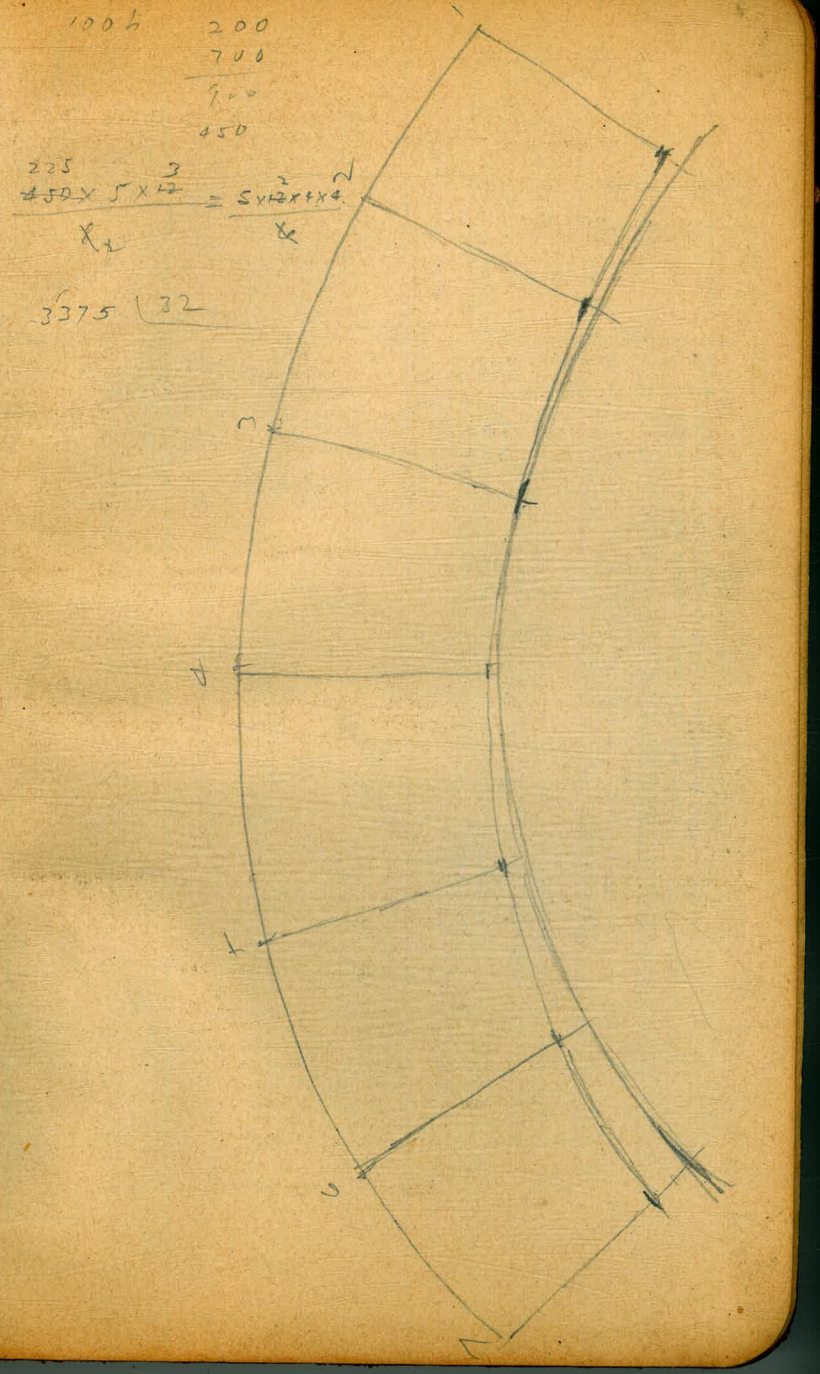
		* Hand Level			B.M. Top Conc. N.W. Cor Bridge
N.W. Cor Conc.	-9.0	271.0		280.0	
=0+00			-2.0	269.0	
+03			1.0	270.0	
+13			7.6	263.4	
+23			13.3	257.7	
T.P.	0.3	258.0	13.3	257.7	
+35			6.0	252.0	
+47			11.8	246.2	
T.P.	1.0	247.0	11.8	246.0	
0+60			10.1	236.9	
+65			12.1	234.9	
+80 = Bank creek			13.6	233.4	
+82 = Creek			16.6	229.4	

Natural Tangents

deg.	0′	10′	20′	30′	40′	50′	deg.
0	0000	0029	0058	0087	0116	0145	89
1	0175	0204	0233	0262	0291	0320	88
2	0349	0378	0407	0437	0466	0495	87
3	0524	0553	0582	0612	0641	0670	86
4	0699	0729	0758	0787	0816	0846	85
5	0875	0904	0934	0963	0992	1022	84
6	1051	1080	1110	1139	1169	1198	83
7	1228	1257	1287	1317	1346	1376	82
8	1405	1435	1465	1495	1524	1554	81
9	1584	1614	1644	1673	1703	1733	80
10	1763	1793	1823	1853	1883	1914	79
11	1944	1974	2004	2035	2065	2095	78
12	2126	2156	2186	2217	2247	2278	77
13	2309	2339	2370	2401	2432	2462	76
14	2493	2524	2555	2586	2617	2648	75
15	2679	2711	2742	2773	2805	2836	74
16	2867	2899	2931	2962	2994	3026	73
17	3057	3089	3121	3153	3185	3217	72
18	3249	3281	3314	3346	3378	3411	71
19	3443	3476	3508	3541	3574	3607	70
20	3640	3673	3706	3739	3772	3805	69
21	3839	3872	3906	3939	3973	4006	68
22	4040	4074	4108	4142	4176	4210	67
23	4245	4279	4314	4348	4383	4417	66
24	4452	4487	4522	4557	4592	4628	65
25	4663	4699	4734	4770	4806	4841	64
26	4877	4913	4950	4986	5022	5059	63
27	5095	5132	5169	5206	5243	5280	62
28	5317	5354	5392	5430	5467	5505	61
29	5543	5581	5619	5658	5696	5735	60
30	5774	5812	5851	5890	5930	5969	59
31	6009	6048	6088	6128	6168	6208	58
32	6249	6289	6330	6371	6412	6453	57
33	6494	6536	6577	6619	6661	6703	56
34	6745	6787	6830	6873	6916	6959	55
35	7002	7046	7089	7133	7177	7221	54
36	7265	7310	7355	7400	7445	7490	53
37	7536	7581	7627	7673	7720	7766	52
38	7813	7860	7907	7954	8002	8050	51
39	8098	8146	8195	8243	8292	8342	50
40	8391	8441	8491	8541	8591	8642	49
41	8693	8744	8796	8847	8899	8952	48
42	9004	9057	9110	9163	9217	9271	47
43	9325	9380	9435	9490	9545	9601	46
44	9657	9713	9770	9827	9884	9942	45
45	1.0000	1.0058	1.0117	1.0176	1.0235	1.0295	44
46	1.0355	1.0416	1.0477	1.0533	1.0599	1.0661	43
47	1.0724	1.0786	1.0850	1.0913	1.0977	1 1041	42
48	1.1106	1.1171	1.1237	1.1303	1.1369	1.1436	41
49	1.1504	1.1571	1.1640	1.1708	1.1778	1.1847	40
50	1.1918	1 1988	1.2059	1.2131	1.2203	1.2276	39
51	1.2349	1.2423	1.2497	1.2572	1.2647	1.2723	38
52	1.2799	1.2876	1.2954	1.3032	1.3111	1.3190	37
53	1.3270	1.3351	1.3452	1.3514	1.3597	1 3680	36
54	1.3764	1.3848	1.3934	1.4019	1.4106	1.4193	35
55	1.4281	1.4370	1.4460	1.4550	1.4641	1.4733	34
56	1.4826	1.4919	1.5013	1.5108	1.5204	1.5301	33
57	1.5399	1.5497	1.5597	1.5697	1 5798	1.5900	32
58	1.6003	1.6107	1.6212	1.6319	1.6426	1.6534	31
59	1.6643	1 6753	1.6864	1.6977	1.7090	1 7205	30
60	1.7321	1.7437	1.7556	1.7675	1.7797	1.7917	29
61	1.8040	1.8165	1.8291	1.8418	1.8546	1.8676	28
62	1.8807	1.8940	1.9074	1.9210	1.9347	1.9486	27
63	1.9626	1.9768	1.9912	2.0057	2.0204	2.0353	26
64	2.0503	2.0655	2.0809	2.0965	2.1123	2.1283	25
65	2.1445	2.1609	2.1775	2.1943	2.2113	2.2286	24
66	2.2460	2.2637	2.2817	2.2998	2.3183	2.3369	23
67	2.3559	2.3750	2.3945	2.4142	2.4342	2.4545	22
68	2.4751	2.4960	2.5172	2.5386	2.5605	2.5826	21
69	2.6051	2 6279	2.6511	2.6746	2.6985	2.7228	20
70	2.7475	2.7725	2.7980	2.8239	2.8502	2.8770	19
71	2.9042	2.9319	2.9600	2.9887	3.0178	3.0475	18
72	3.0777	3 1084	3.1397	3.1716	3.2041	3.2371	17
73	3.2709	3.3052	3.3402	3.3759	3.4124	3.4495	16
74	3.4874	3.5261	3.5656	3.6059	3.6470	3.6891	15
75	3.7321	3.7760	3.8208	3.8657	3.9136	3.9617	14
76	4.0108	4.0611	4.1126	4.1653	4.2193	4.2747	13
77	4 3315	4.3897	4.4494	4.5107	4.5736	4.6382	12
78	4.7046	4.7729	4.8430	4.9152	4.9894	5.0658	11
79	5.1446	5.2257	5.3093	5.3955	5.4845	5.5764	10
deg.	60′	50′	40′	30	20′	10′	deg.

deg.	0′	10′	20′	30′	40′	50′	deg.
80	5.6713	5 7694	5.8708	5 9758	6.0844	6.1970	9
81	6.3138	6.4348	6.5606	6.6912	6.8269	6.9682	8
82	7.1154	7.2687	7.4287	7.5958	7.7704	7.9530	7
83	8.1443	8.3450	8.5555	8.7769	9.0098	9.2553	6
84	9.5144	9.7882	10.078	10.385	10.711	11.059	5
85	11.430	11.826	12.250	12.706	13.197	13.727	4
86	14.300	14.924	15.605	16.350	17.169	18.075	3
87	19.081	20.206	21.470	22.903	24.542	26.432	2
88	28.636	31.242	34.368	38.189	42.964	49.104	1
89	57.290	68.750	85.940	114.588	171.885	343.770	0
deg.	60′	50′	40′	30′	20′	10′	deg.

Natural Cotangents



35
40
1400 Waste
3600 Used

Trestle 10³ above water.

800
5
4000.

10.3
7.5
2.8
.9

4750.

1800

— 3"x16" Stringers —

10.3
.9
9.4 ①
9
8.5 ② 360
9
7.6

35 x 40	=	1400.	Lin. Ft. Waste.
5 x 720	=	3600.	Used as Floor
20 x 34	=	680.	Bridging.
38x2x21	=	1596	Stringers
		7276.	

7200.

76
21
76
152
1596

80'
32' - 4"
47' 8"

9 @ 5'4"

32"
45
48

270
150
0

288
150
438

2 - 4x4 - 12
3 - 2x6 - 16 545.
4 - 1½"x10" Bolts.

105 | 6.0 | 9 | 2.35
5.9

RETURN TO CITY ENGINEER'S OFFICE
CITY HALL, SAN DIEGO, CAL.

2650
13.25
263.75
020
251.95
6.11
245.84

39
03
33

Mrs. Gearing
7655-Mesa
(Direct)

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

ROADWAY 14 FEET WIDE. SIDE SLOPES 1½ TO 1.

FOR SINGLE TRACK EMBANKMENT.

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	7.0	7.2	7.3	7.5	7.6	7.8	7.9	8.1	8.2	8.4	0
1	8.5	8.7	8.8	9.0	9.1	9.3	9.4	9.6	9.7	9.9	1
2	10.0	10.2	10.3	10.5	10.6	10.8	10.9	11.1	11.2	11.4	2
3	11.5	11.7	11.8	12.0	12.1	12.3	12.4	12.6	12.7	12.9	3
4	13.0	13.2	13.3	13.5	13.6	13.8	13.9	14.1	14.2	14.4	4
5	14.5	14.7	14.8	15.0	15.1	15.3	15.4	15.6	15.7	15.9	5
6	16.0	16.2	16.3	16.5	16.6	16.8	16.9	17.1	17.2	17.4	6
7	17.5	17.7	17.8	18.0	18.1	18.3	18.4	18.6	18.7	18.9	7
8	19.0	19.2	19.3	19.5	19.6	19.8	19.9	20.1	20.2	20.4	8
9	20.5	20.7	20.8	21.0	21.1	21.3	21.4	21.6	21.7	21.9	9
10	22.0	22.2	22.3	22.5	22.6	22.8	22.9	23.1	23.2	23.4	10
11	23.5	23.7	23.8	24.0	24.1	24.3	24.4	24.6	24.7	24.9	11
12	25.0	25.2	25.3	25.5	25.6	25.8	25.9	26.1	26.2	26.4	12
13	26.5	26.7	26.8	27.0	27.1	27.3	27.4	27.6	27.7	27.9	13
14	28.0	28.2	28.3	28.5	28.6	28.8	28.9	29.1	29.2	29.4	14
15	29.5	29.7	29.8	30.0	30.1	30.3	30.4	30.6	30.7	30.9	15
16	31.0	31.2	31.3	31.5	31.6	31.8	31.9	32.1	32.2	32.4	16
17	32.5	32.7	32.8	33.0	33.1	33.3	33.4	33.6	33.7	33.9	17
18	34.0	34.2	34.3	34.5	34.6	34.8	34.9	35.1	35.2	35.4	18
19	35.5	35.7	35.8	36.0	36.1	36.3	36.4	36.6	36.7	36.9	19
20	37.0	37.2	37.3	37.5	37.6	37.8	37.9	38.1	38.2	38.4	20
21	38.5	38.7	38.8	39.0	39.1	39.3	39.4	39.6	39.7	39.9	21
22	40.0	40.2	40.3	40.5	40.6	40.8	40.9	41.1	41.2	41.4	22
23	41.5	41.7	41.8	42.0	42.1	42.3	42.4	42.6	42.7	42.9	23
24	43.0	43.2	43.3	43.5	43.6	43.8	43.9	44.1	44 2	44.4	24
25	44.5	44.7	44.8	45.0	45.1	45.3	45.4	45.6	45.7	45.9	25
26	46.0	46.2	46.3	46.5	46.6	46.8	46.9	47.1	47.2	47.4	26
27	47.5	47.7	47.8	48.0	48.1	48.3	48.4	48.6	48.7	48.9	27
28	49.0	49.2	49.3	49.5	49.6	49.8	49.9	50.1	50.2	50.4	28
29	50.5	50.7	50.8	51.0	51.1	51.3	51.4	51.6	51.7	51.9	29
30	52.0	52.2	52.3	52.5	52.6	52.8	52.9	53.1	53.2	53.4	30
31	53.5	53.7	53.8	54.0	54.1	54.3	54.4	54.6	54.7	54.9	31
32	55.0	55.2	55.3	55.5	55.6	55.8	55.9	56.1	56.2	56.4	32
33	56.5	56.7	56.8	57.0	57.1	57.3	57.4	57.6	57.7	57.9	33
34	58.0	58.2	58.3	58.5	58.6	58.8	58.9	59.1	59.2	59.4	34
35	59.5	59.7	59.8	60.0	60.1	60.3	60.4	60.6	60.7	60.9	35
36	61.0	61.2	61.3	61.5	61.6	61.8	61.9	62.1	62.2	62.4	36

Calculated by Julien A. Hall, M. Am. Soc. C. E.

MADE IN GERMANY.