

1723

ENGINEERS  
FIELD BOOK  
No. 404F



# EUGENE DIETZGEN CO.

DRAWING MATERIALS, MATHEMATICAL and  
SURVEYING INSTRUMENTS

Chicago New York San Francisco New Orleans Pittsburg Toronto

Distances from Center of Roadway for Cross-Sectioning  
Roadway 16 feet wide. Side Slopes 1 on 1.  
For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	0
1	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	1
2	10.0	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	2
3	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	3
4	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	4
5	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	5
6	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	6
7	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	7
8	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	8
9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	9
10	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	10
11	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	11
12	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	12
13	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	13
14	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	14
15	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	15
16	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	16
17	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8	25.9	17
18	26.0	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8	26.9	18
19	27.0	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8	27.9	19
20	28.0	28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8	28.9	20
21	29.0	29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8	29.9	21
22	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8	30.9	22
23	31.0	31.1	31.2	31.3	31.4	31.5	31.6	31.7	31.8	31.9	23
24	32.0	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8	32.9	24
25	33.0	33.1	33.2	33.3	33.4	33.5	33.6	33.7	33.8	33.9	25
26	34.0	34.1	34.2	34.3	34.4	34.5	34.6	34.7	34.8	34.9	26
27	35.0	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8	35.9	27
28	36.0	36.1	36.2	36.3	36.4	36.5	36.6	36.7	36.8	36.9	28
29	37.0	37.1	37.2	37.3	37.4	37.5	37.6	37.7	37.8	37.9	29
30	38.0	38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8	38.9	30
31	39.0	39.1	39.2	39.3	39.4	39.5	39.6	39.7	39.8	39.9	31
32	40.0	40.1	40.2	40.3	40.4	40.5	40.6	40.7	40.8	40.9	32
33	41.0	41.1	41.2	41.3	41.4	41.5	41.6	41.7	41.8	41.9	33
34	42.0	42.1	42.2	42.3	42.4	42.5	42.6	42.7	42.8	42.9	34
35	43.0	43.1	43.2	43.3	43.4	43.5	43.6	43.7	43.8	43.9	35
36	44.0	44.1	44.2	44.3	44.4	44.5	44.6	44.7	44.8	44.9	36
37	45.0	45.1	45.2	45.3	45.4	45.5	45.6	45.7	45.8	45.9	37
38	46.0	46.1	46.2	46.3	46.4	46.5	46.6	46.7	46.8	46.9	38
39	47.0	47.1	47.2	47.3	47.4	47.5	47.6	47.7	47.8	47.9	39
40	48.0	48.1	48.2	48.3	48.4	48.5	48.6	48.7	48.8	48.9	40

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 30.6. For same slopes but other widths of roadbed, correct above figures by one-half difference in width of roadbed; thus in example above, for 20 ft. roadbed distance will be 30.6 + (20-16) ÷ 2 or 2 ft. added to 30.6 = 32.6. For slopes of 1 on 1½ see inside of back cover.  
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# 1723

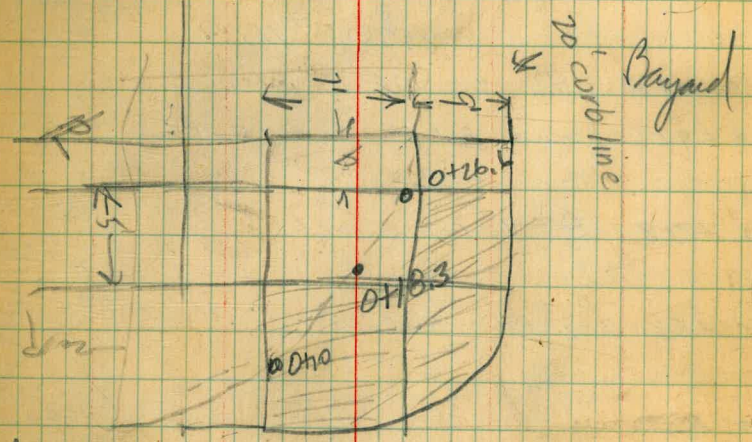
## CITY ENGINEER'S OFFICE

This Field Book is manufactured of a High Grade 50% Rag Paper having a WATER RESISTING SURFACE, and is sewed with Bing Special Enamel Waterproof thread.

Made in U. S. A.



Bayard & Chakelony  
NW



Chakelony

H.I. = 57.90

		elev.
0+00	5.45	52.45
0+10	5.35	52.55
0+18.3	5.20	52.70
0+26.6	5.15	52.75



index of  
c.s.Ki

x sec alley, 20' wide

BLK 120 Pacific Beach

Between Dames + Cass

and Missouri + Chalcedony

See other Book 1729-36

V.V.O. #1189

o + 98 9 12" R.P. 1.1 RT

o + 96. end Bd fence 9.5 RT

o + 78 E 5' con. walk

o + 53 Beg. Bd. 9.5 RT

o + 50.

o + 39 end pick. fence 10.5 LT

o + 00 = W.L. DAMES ST. Beg. picket fence 10.5 LT.

00-73 = R.P. chisel cross on walk 15' RT.

BM  
spike P.P.  
N.E. Cor.  
Missouri  
and  
Dames

5.42

67.60

62.18

Moore  
Santee Meter  
Beg  
Allen

7-10-46.

See T.B. #20

2

ht = South

Alley Blk 120 Pacific Beach  
500 sketch in 1729/36

63.49  
4.11  
9.9  
rock

63.50

4.1  
10

63.40

4.7

63.90  
3.7  
10

64.20

3.4  
10

64.20

3.3

64.80  
2.8  
10

67.60



1400

1476 Beg. Lath fence 10' L RT

1489 \$ 20.2 wide Con apron + 900,

1477 \$ 2' Con. walk

1450

1449 end wire 10' RT

1431 Beg. wire fence 10' RT

1410 \$ 15.8 wide Con apron + 900,

1400

67.60

LT

E

RT

3

60.30  
7.3  
10

60.40  
7.2

60.80  
6.8  
10

60.45

7.15

14

\$ 900

60.70

7.22

12.8

apron

60.50

7.10

9.6

walk

60.90  
6.7  
10

61.10  
6.5

61.50  
6.1  
10

62.69

4.91

11.8

apron

62.36

4.74

15.8

900  
con.

62.10  
7.5  
10

62.30  
5.3

62.60  
5.0  
10

67.60



4 + 00

3 + 99 8.5 Rt \$ 12" P.P. + end lath fence 10.1 Rt

3 + 74 end Picket fence 10.8 Lt

3 + 50

3 + 24 end Bd. fence + Beg. Picket fence 10.3 Lt

3 + 00

2 + 99 Beg. Picket fence 9.8 Rt

2 + 74 Beg. Bd. fence 10.3 Lt

T.P. 2.72 63.36 7.96 59.64

2 + 50

2 + 49 8 12" P.P. 8.5 Rt. + end lath fence 10 Rt

67.60

Lt

Rt

Rt

4

58.16  
5.7  
10

✓  
58.06  
5.3  
10

58.56  
4.8  
10

58.66  
4.7  
10

✓  
58.56  
4.8  
10

58.96  
4.4  
10

59.46  
3.9  
10

✓  
59.26  
4.1  
10

59.56  
3.8  
10

59.80  
2.8  
10

✓  
63.36  
6.00  
7.6  
10

60.60  
7.0  
10

67.60



Chalcodony  
 Check to SW 7' C.S. of Cass. 383 59.53 59.55  
 0.02

5 + 12.7 = E. C. Line Cass. St.

4 + 98.7 = E. L. Cass St. = far edge

4 + 75

4 + 50

63.36

Lt

E

R

5

56.43 6.93 11 06	55.78 7.58 10 97	56.02 7.24 10 97	56.29 7.27 10 97	56.96 6.40 11 06 = Mid. Pt.
---------------------------	---------------------------	---------------------------	---------------------------	--------------------------------------

56.26 7.00 10.2 06	56.27 7.09 10.2 97	56.25 7.11 10 97	56.44 6.72 9.85 97	56.90 6.40 9.85 06
-----------------------------	-----------------------------	---------------------------	-----------------------------	-----------------------------

57.46 5.79 10	57.56 5.8 10	57.66 5.7 10
---------------------	--------------------	--------------------

57.66 5.7 10	57.86 5.5 10	57.96 5.4 10
--------------------	--------------------	--------------------

63.36



Ysec Chalcedony  
 Events to Mission Blvd.  
 #  
 W.O. 1189

1 + 15 E 3' Con walk

1 + 00

0 + 87.3 Beg. Picket fence 40' ft  
 Par. edge ↓ end sdw. ↓ cbs

0 + 10 = c6. EC.

0 + 00 = Y/L Events

SW. T.C.T. 3.66 80.40 0.74 76.74 Chalcedony  
 T.P. Events

BM.  
 S.W. T.C.T. 10.47 77.48 67.01  
 Missouri  
 and  
 Events

LT. = South

€

Rt

6

Made  
 SOMMERS  
 8-97  
 026-11  
 7-11-86

77.14

3.20  
 30.5

77.29

3.01  
 40

75.60

4.8  
 40

75.80

4.0  
 21

75.10

5.3  
 18

75.70

4.7

76.30

4.1  
 20

77.20

3.1  
 40

75.70

4.7  
 40

75.58

4.8  
 20  
 c6

76.95

5.45  
 20  
 95

75.56

4.84  
 10

75.97

4.43

76.09

4.31  
 10

75.55

4.45  
 20  
 95

76.62

3.78  
 20  
 c6

76.80

3.6  
 36

77.20

2.7  
 40

76.72

3.68  
 20  
 c6

76.77

4.23  
 20  
 95

76.99

3.61  
 10

77.19

3.21

77.26

3.04  
 10

77.18

3.27  
 20  
 95

77.81

2.59  
 20  
 c6

SET  
 B.M.

80.40



3+00 Beg. Lath " 40 LT  
End wire fence 40 LT

T.P. 226 75.99 6.7 73.73

2+50 Beg. wire fence 40 LT  
End Lath fence 36 LT  
" Hedge — 37 LT

2+39 E 3' Coni walk

2+12 Beg. Lath fence 36 LT  
" Hedge — 37 LT

2+07 E Singan Con FL

2+00

1+50 End pick fence 40.2 RT

80.40

LT 15

8

R=N

7

72.79	72.69	72.89	72.29	72.69	77.69	72.29	74.39	74.79
3.2	2.3	3.1	2.7	2.3	2.3	2.0	1.0	1.2
40	19	14	7	3	12	20	22	40
				75.99				
73.60	74.30	73.80	74.40	74.50	74.20	75.00	25.50	
6.8	6.1	6.6	6.0	5.9	6.2	5.4	4.9	
40	17	16	10	11	20	22	40	
72.28	72.81							
6.6	6.9							
40	37							
	73.78							
	6.6							
	47							
74.20	74.60	74.40	74.90	75.10	74.80	75.90	74.20	
6.2	5.8	6.0	5.5	4.3	5.0	4.5	4.2	
40	10	13	5	12	19	25	40	
74.70	75.40	74.20	75.50	75.60	74.60	77.00		
5.7	5.0	5.7	4.9	4.8	3.8	3.4		
40	19	14	4	19	22	40		
			80.40					







0 + 50 39.8 Pt = S. end Con. wall

$\frac{0+00}{0+80} = \text{W.L. Davies}$

0 + 62

0 + 56

0 + 40  $\neq$  Davies

0 + 23

75.99

LT

RT

RT

9

67.39	67.39	67.49	68.19	68.39	68.69	69.29	70.09
8.5	8.0	8.5	7.8	7.6	7.3	6.6	5.90
40	22	17	16	20	40	40	39.8
							TOP
							WALL

67.79	68.09	68.59	68.89	69.19	69.79	70.09
8.2	7.9	7.5	7.1	6.8	6.2	5.9
40	22	20	16	16	19	40

68.69	69.19	69.39	69.79	69.19	69.89	70.39
7.3	6.8	7.0	7.2	6.8	6.1	5.6
40	22	18	16	16	21	40

67.09	67.89	68.69	68.99	69.19
8.7	8.1	7.3	7.0	6.8
40	20	23	20	40

68.19	69.39	70.19
7.8	6.7	5.8
40	16	40

67.79	68.59	69.19	69.59
8.2	7.5	6.8	6.4
40	17	16	20
			40

75.99



2+19 Beg. picket fence also 4" Con. wall 39.8 ft

2+00

1+75 end wide fence 39.5 ft

1+50

1+49 end hedge 37.2 LT

1+19 2' Con. walk

1+00 Beg. hedge 37' LT,  
Beg. wide fence 39.5 RT.

0+64 2' Con. walk

0+54 8' con. drive

T.P. 1.37 71.46 5.90 70.09  
75.99

LT=5

R

R=N

10

65.06  
6.10  
40

65.16  
6.13  
23

64.96  
6.05  
19

65.26  
6.15  
15

65.46  
6.15  
18

65.97  
5.89  
39  
65.96  
5.88  
18  
65.26  
5.81  
0  
TOP WALL

65.26  
6.12  
40

64.46  
6.13  
22

65.96  
6.17  
20

65.26  
6.15  
15

64.46  
6.10  
19

67.06  
6.15  
20  
67.86  
6.10  
20

68.47  
2.99  
39

66.26  
6.12  
40

66.86  
6.15  
23

66.26  
6.17  
22

67.16  
6.15  
15

67.26  
6.12  
10

68.16  
6.13  
21  
68.66  
6.10  
40

67.04  
6.15  
40

67.17  
6.17  
29  
35.6

69.51  
1.95  
39.5

71.46



3+24 E 3' Con. walk

3+00 End picket fence 39.8 Rt

T.P. 2.28 67.05 6.69 64.77

2+81 E 3' Loose tile walk

2+75 E 3' Con walk

2+69 <sup>Boq.</sup> " " 39.6 Rt  
End picket fence 40 ft.

2+59 E 2' Con walk, <sup>end of con. wall</sup>  
on E. b. walk

2+50

2+40 E do. 2' con. Rib. do. + gar.

71.46

L+5

E

R+ = N

11

	61.75					
	5.0	3				
	39.9					
4.5	62.25					
40	22					
	3.7	4.0				
	22	19				
			3.1			
			63.45			
				62.45		
				2.0		
				16		
					3.0	
					23	
						2.7
						4.0

67.05

	63.85
	7.81
	39

	64.25
	2.71
	40

	63.86					
	7.6	7.2	6.4			
	40	22	16			
				7.0		
				64.46		
					3.64	
					15	
						6.7
						18
						6.516
						40

	64.26
7.2	
62	
gar.	
	64.9
	7.27
	39.7

71.46



B.M.  
 Check to S.W. 7' C.T. 7.50 59.55 59.55  
 Chalcedony + Cass St

E. Cb Line Cass St

4 + 98.6 = E.L. Cass St. Edge pav.

SE Return Cass, Chalcedony  
 S.L. Chalc. & E. Cb line Cass

4 + 50	0 + 00	64.62	4.7	59.92
	0 + 6.5		4.6	60.02
	0 + 13.0		4.55	60.07
	0 + 19.5		4.50	60.12
4 + 00	0 + 26.0		4.32	60.30

3 + 74 L 3' Con. walk

NL Chalc. & E Curb Cass

NE Return Cass, Chalcedony

	0 + 00	65.85	4.30	61.55
	0 + 6.75		4.40	61.45
3 + 50	0 + 13.50		4.51	61.34
	0 + 20.25		4.60	61.25
	0 + 27.00	67.05	4.65	61.20

L

R

R

12

59.55	59.55	59.55	59.55	59.94	60.11	60.35	60.74	60.75
7.13	7.8x	7.48	7.32	7.11	6.9x	6.76	6.31	5.58
40	50	20	10	10	20	40	40	40
60.99	60.22	59.85	60.14	60.34	60.52	60.56	60.45	60.25
6.7	6.73	7.20	6.91	6.71	6.57	6.49	5.97	5.33
40	20.9	20.9	10	10	20.9	20.9	20.9	40
	66	91			91	66		
60.55	60.55	61.25	60.25	61.45	61.25	62.05	62.25	62.25
6.5	5.7	6.3	6.3	5.7	6.125	5.6205	6.1	5.1
40	22	18	18	17	21	40		
60.65	61.05	61.85	61.45	63.15	61.85	62.65	62.25	62.25
6.4	6.0	5.2	5.2	4.9	5.2	4.6	3.7	3.7
40	25	21	18	16	21	40		
		60.97						
		59.8						
61.25	61.45	62.45	62.05	63.75	62.55	63.05	63.25	63.25
5.8	5.6	4.6	5.0	4.3	4.5	4.0	3.7	3.7
40	27	21	18	16	20	40		
				67.05				



1 sec Chalcedony  
Cass to Mission Blvd.

1+00 Beg picket fence 38.6 Lt.

0+54  $\Phi$  2.5 Con. walk

0+50

0+29  $\Phi$  14' oak drive + gas.

0+00 W.L. Cass St. edge Pav.

0-14 W. cb. line Cass St.

B.M. Sw. 7' cr.  
Chalcedony  
Cass St

343

12.98

59.55

LT (1)

$\Phi$

R-IN

13

57.24 40	57.98 20	57.98 10	✓ 59.08 4.3	59.78 20	59.18 32	59.28 40
58.87 40	59.08 21		✓ 59.38 3.6	59.48 20	60.08 30	60.18 40
58.35 40	58.68 17	59.48 14	✓ 59.88 3.6	59.98 20	60.58 30	61.18 40
59.18 40	59.59 20	59.12 20	✓ 59.88 3.12	59.98 10	60.42 20	60.59 20
59.42 40	59.97 40	59.55 20	✓ 60.12 2.80	60.32 10	60.18 20	60.60 40
			<u>12.98</u>			



2400

1+91 £ do. 2' con. rib. do. 7' wide

1+50

1+43 £ 8' con. drive

1+41 £ do. 2' con. rib. drive, 7' wide

1+37 end picket fence 38.3 LT

1+22 £ 3' con. walk

6298

LT-N

R+ = N 14

$\begin{array}{r} 56.28 \\ 6.7 \\ \hline 40 \end{array}$

$\begin{array}{r} 56.78 \\ 6.2 \\ \hline 21 \end{array}$

$\begin{array}{r} 56.58 \\ 6.4 \\ \hline 17 \end{array}$

$\begin{array}{r} 57.28 \\ 5.7 \\ \hline 15 \end{array}$

$\begin{array}{r} 57.38 \\ 5.2 \\ \hline 17 \end{array}$

$\begin{array}{r} 57.58 \\ 5.4 \\ \hline 30 \end{array}$

$\begin{array}{r} 58.08 \\ 4.9 \\ \hline 33 \end{array}$

$\begin{array}{r} 58.28 \\ 4.7 \\ \hline 40 \end{array}$

$\begin{array}{r} 56.53 \\ 5.4 \\ \hline 40 \end{array}$

$\begin{array}{r} 56.98 \\ 6.0 \\ \hline 40 \end{array}$

$\begin{array}{r} 57.28 \\ 5.7 \\ \hline 19 \end{array}$

$\begin{array}{r} 57.98 \\ 6.0 \\ \hline 17 \end{array}$

$\begin{array}{r} 57.88 \\ 5.1 \\ \hline 15 \end{array}$

$\begin{array}{r} 58.08 \\ 4.9 \\ \hline 20 \end{array}$

$\begin{array}{r} 57.98 \\ 5.0 \\ \hline 29 \end{array}$

$\begin{array}{r} 58.58 \\ 5.4 \\ \hline 32 \end{array}$

$\begin{array}{r} 58.58 \\ 4.8 \\ \hline 40 \end{array}$

$\begin{array}{r} 58.81 \\ 4.1 \\ \hline 31 \end{array}$

$\begin{array}{r} 58.99 \\ 3.9 \\ \hline 40 \end{array}$

$\begin{array}{r} 57.13 \\ 5.85 \\ \hline 39.8 \end{array}$

$\begin{array}{r} 59.02 \\ 3.96 \\ \hline 29.9 \end{array}$

$\begin{array}{r} 59.21 \\ 3.73 \\ \hline 40 \end{array}$

6298



2 + 92 E do. con. rib do. 7' wide

2 + 71 E 3' Con. walk

2 + 50

2 + 41 E do. 2' con. rib do. 7' wide

2 + 31 E do. 2' con. rib do. 7' wide

2 + 20 E 3' Con. walk

62.98

L

R

R

15

55.37  
7.71  
40

55.84  
7.53  
40

88.95  
7.1  
40

80.95  
6.9  
22

88.58  
7.55  
19

✓  
89.95  
6.3

85.95  
6.2  
11

86.78  
6.2  
29

85.38  
5.5  
40

64.59  
7.19  
40

57.80  
5.58  
30.2

57.65  
5.33  
32

57.86  
5.2  
30

56.18  
5.80  
40

62.98



4+00

3+91 E do 2 con. sid. doi. 7' wide

3+71 E 3' Con. walk

3+50

T.P. 3.18 58.33 7.83 55.15

3+42 E do 2 con. sid. doi. 7' wide

3+00

62.98

L+

4.5  
40

4.7  
21

4.5  
19

3.9  
20

3.6  
20

3.9  
30

3.3  
35

3.6  
40

4.57  
40

4.31  
40

4.0  
40

3.6  
20

4.0  
17

3.1  
20

3.1  
20

3.3  
30

2.4  
33

2.1  
40

8.37  
39.8

8.0  
40

7.6  
21

7.9  
16

6.9  
16

6.9  
16

6.6  
30

5.9  
34

5.1  
40

62.98

R+

16

5.373

54.03

55.83

54.43

54.73

54.43

55.03

54.93

55.276

54.02

54.33

54.73

54.33

55.23

55.23

55.03

55.83

55.23

54.61

54.98

55.38

55.08

56.08

56.08

56.38

57.08

56.88



0 + 21

0 + 00  
5 + 01 = E. L. Bayard ST.

4 + 70 E 3' cur. walk

4 + 50

4 + 41 E do. 2' cur. r. b. dr. 7' wide

4 + 21 E 3' cur. walk

58.33

Lt

R

Pt

17

6.7  
40  
52.63

6.0  
18  
52.33

7.7  
18  
52.63

5.6  
18  
52.73

4.6  
40  
53.23

5.8  
40  
52.53

5.5  
23  
52.83

5.8  
17  
52.53

5.5  
13  
52.13

5.6  
20  
53.33

5.6  
30  
53.33

4.6  
35  
54.03

4.4  
40  
53.93

5.7  
110.5  
53.12

5.4  
40  
52.93

5.4  
16  
53.13

4.4  
40  
53.93

4.3  
20  
54.03

4.6  
30  
53.93

3.6  
33  
54.23

3.7  
40  
54.63

5.2  
40.4  
53.11

4.95  
40.4  
53.38

58.33



0+33 = 3' Con. walk

0+80 = W.L. Bayard ST

0+60 Rebuild Reten on RT

0+55

0+40 E Bayard

0+28

5833

L+13

R+13

18

50.99  
7.3  
397

51.03  
7.3  
40

51.43  
7.9  
20

52.03  
7.5  
20

52.33  
7.5  
20

52.50  
7.8  
20

51.23  
7.0  
40

51.73  
7.6  
19

51.43  
7.9  
16

51.63  
7.5  
17

52.43  
7.5  
20

52.73  
7.8  
40 ground

52.71  
7.8  
40 Top curb

51.83  
7.5  
40

51.33  
7.0  
20

51.13  
7.5  
17

52.43  
7.5  
20

52.23  
7.5  
18

51.03  
7.3  
40

51.43  
7.9  
20

52.53  
7.5  
17

52.33  
7.5  
20

52.13  
7.5  
18

51.53  
7.1  
40

51.53  
7.8  
20

52.53  
7.5  
17

52.53  
7.5  
20

52.13  
7.5  
18

5833



1+43  $\Phi$  3' CON. WALK

T.P. 3.89 54.55 7.57 50.56

1+21  $\Phi$  3' CON. WALK

1+05  $\Phi$  2' CON. WALK

1+00

0+91  $\Phi$  do. 2' CON. curb, 2' 7" wide

0+50

58.33

LT

$\Phi$

RT

19

49.97  
4.58  
40.8

50.72  
8.01  
41

50.91  
7.42  
41.5

50.63  
7.7  
40

50.73  
7.5  
19

✓  
7.2  
41.5

51.43  
6.9  
14

51.43  
6.9  
20

51.72  
6.61  
20  
TOP CB.

50.65  
7.68  
39.8

↑  
Curb + 5' walk in O.K.  
Bet. Bayard and  
Mission Blvd.

50.83  
7.5  
40

51.03  
7.3  
18

✓  
5.963  
67

52.13  
6.3  
14

51.83  
6.5  
20

52.08  
6.254  
20  
TOP CURB

58.33



2 + 06 E 8' Con. drive

2 + 00

1 + 95 E 2' Con walk

1 + 77 E 3' Con walk

1 + 55 E 7' wide Con. dr, or walk

1 + 50

54.55

L7

R7

20

59.23  
53.37  
39.8

57 49.25  
30

57 49.30  
18

✓  
4.1 50.15

50.45  
4.1  
10

50.15  
4.1  
20

50.71  
3.84  
20 Top  
20

57 49.52  
30

57 49.45  
30

4.6 49.91  
40.5

4.7 49.85  
30

50.15  
4.1  
23

49.91  
4.6  
17

✓  
4.1 50.45

50.55  
4.0  
20

51.16  
3.39  
20 Top  
20

54.55



3+50 N end 4" Con. Brick Wall 39.9 LT

3+00 N. end 6" Con. Brick Wall 39.3 LT

2+81 9 3' Con Walk

2+58 9 8' Con. dr.

2+50

2+30 9 3' Con Walk

54.55

LT

ST

RT

21

508.50  
5.0  
40

508.55  
5.0  
22

508.15  
5.0  
17

508.05  
5.0  
5

509.25  
5.0  
10

508.95  
5.0  
20

509.65  
4.90  
20  
TOP CB

508.55  
5.0  
40

508.95  
5.0  
21

508.65  
5.0  
17

509.45  
5.0  
1

509.05  
5.0  
10

509.55  
5.0  
20

509.05  
4.50  
20  
TOP CB

508.80  
5.0  
38

509.98  
5.0  
39

508.85  
5.0  
40

509.25  
5.0  
22

509.15  
5.0  
18

509.05  
5.0  
11

509.25  
5.0  
10

509.75  
5.0  
20

509.39  
4.10  
20  
TOP CB

509.10  
5.0  
39

54.55











T.P. 8.33 53.59 0.79 45.26

2+77 E 12" P.P. 28.5 LT

2+70 = S.L. Missouri

2+17 E 9" Tol. Pole 26.5 RT

2+35

2+00

1+82 E 2.7 Con. Walk

1+75

1+35

1+25 E 14" P.P. 27 RT

1+23 E 14" P.P. 28 LT

46.05

L<sub>T</sub> = W

E

R<sub>T</sub> = E 24

$\frac{2.2}{40}$	$\frac{2.1}{20}$	$\frac{2.0}{20}$	$\frac{2.1}{12}$	$\frac{2.5}{12}$	$\frac{2.5}{12}$	$\frac{1.9}{15}$	$\frac{1.0}{40}$
43.05	43.95	43.05	43.15	43.45	43.55	44.15	44.45
$\frac{2.6}{40}$	$\frac{2.9}{27}$	$\frac{2.7}{21}$	$\frac{3.0}{13}$	$\frac{3.0}{12}$	$\frac{3.0}{12}$	$\frac{2.0}{16}$	$\frac{2.5}{40}$
42.75	43.15	42.75	42.45	42.65	42.65	43.45	43.55
$\frac{4.2}{40}$	$\frac{3.0}{20}$	$\frac{4.1}{18}$	$\frac{4.1}{18}$	$\frac{4.3}{12}$	$\frac{4.3}{12}$	$\frac{3.0}{13}$	$\frac{3.0}{50}$
41.85	42.25	41.35	41.85	41.75	41.75	42.45	42.85
$\frac{5.1}{40}$	$\frac{4.6}{20}$	$\frac{5.6}{20}$	$\frac{4.7}{13}$	$\frac{4.8}{11}$	$\frac{4.7}{11}$	$\frac{4.7}{20}$	$\frac{3.9}{40}$
40.95	41.45	40.45	40.95	41.25	41.25	42.65	42.15
$\frac{5.7}{40}$	$\frac{5.8}{27}$	$\frac{5.7}{21}$	$\frac{5.4}{9}$	$\frac{5.7}{11}$	$\frac{5.7}{11}$	$\frac{5.7}{21}$	$\frac{4.5}{40}$
40.35	40.25	39.85	40.65	40.65	40.35	41.15	41.55

46.05



1+45 E 10" Tel Pole 27 Rt

1+35

1+27 E 12" P.P. 40.9 LT.

1+11 E 2.5 Cor Walk

1+00 E 10" Guy Pole 37.8 LT

0+95 end lat fence 39.7 LT

0+59 E do. 2' Cor Rib. do. 7 wide + 6 in.

0+53 E 9" T.L.P. 26.6 Rt.

0+50

beg. lat fence 39.7 LT  
0+00 = N.L. Missouri St

53.59

LT=W

E

Rt=E 25

$\frac{5.3}{40}$	$\frac{5.2}{28}$	$\frac{5.7}{19}$	$\frac{5.1}{13}$	$\frac{5.7}{21}$	$\frac{5.2}{3}$	$\frac{4.1}{20}$	$\frac{4.1}{40}$
48.29	48.39	47.69	48.19	48.39	48.29	49.19	49.49

$\frac{5.4}{53.5}$   
48.12

$\frac{5.8}{40}$	$\frac{5.7}{22}$	$\frac{5.7}{20}$	$\frac{5.3}{13}$	$\frac{5.0}{14}$	$\frac{5.9}{14}$	$\frac{5.3}{10}$	$\frac{5.0}{40}$
47.79	47.99	46.89	47.29	47.59	47.69	48.29	48.59

$\frac{5.95}{27.1}$   
47.64

$\frac{5.70}{20}$   
47.89

$\frac{5.25}{20.5}$   
48.15

$\frac{6.9}{40}$	$\frac{6.8}{21}$	$\frac{7.9}{20}$	$\frac{7.5}{14}$	$\frac{7.1}{21}$	$\frac{7.1}{13}$	$\frac{6.3}{10}$	$\frac{6.2}{40}$
46.69	46.79	45.69	45.99	46.89	46.49	47.29	47.39

$\frac{7.8}{40}$	$\frac{7.9}{22}$	$\frac{8.8}{20}$	$\frac{8.5}{13}$	$\frac{8.2}{12}$	$\frac{8.2}{17}$	$\frac{7.2}{40}$
45.79	45.69	44.79	44.99	45.79	45.39	45.99
						46.39

53.59







1+24 E 12" P.P. 288 Lt

1+19 E 7' Con do. + 900

1+00

0+95 E 3.5 Con walk

0+50 E 8" Tol. P. 27.2 Rt

0+00 = N.L. Chalcedony

T.P. 9.50 41.53 1.56 520.3

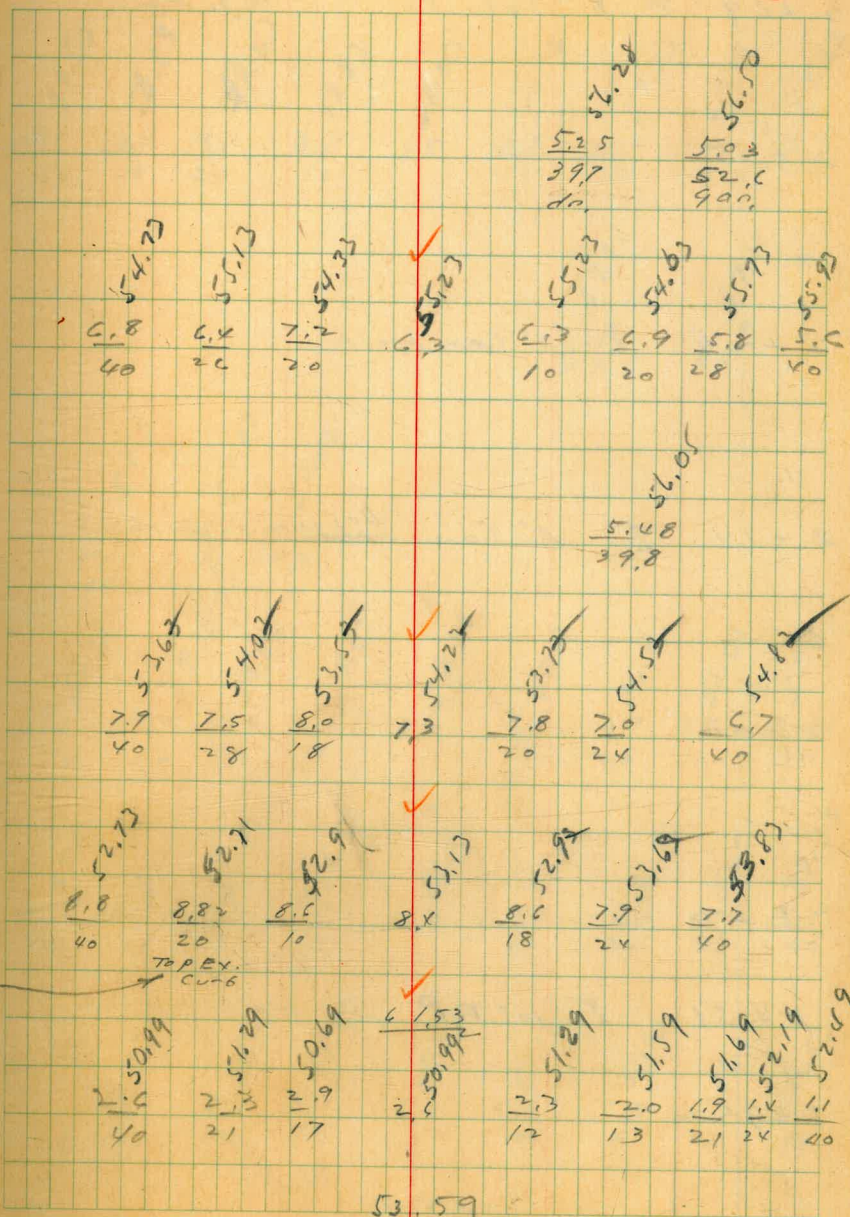
2+70.2 = S.L. Chalcedony E 11" P.P. 26.9 Lt  
E 10" Tol. P. 27 Rt

53.59

LT=W

E

Rt=E 27





2+19 ± 8" Tol. P. 27' RT

2+35

2+25 P 3' Con. Walk

2+14 ± 8' Con. <sup>Drive</sup> ~~apex~~ + 997

2+00

1+70

1+51 P 10" Tol. P. 27' RT

1+35

(1.53)

LT = W

RT = E 28

30	30	40	30	35	30	40	20	28	40
54.53	58.13	59.23	57.83	58.03	57.73	57.33	58.63	59.33	

2.2	2.1
5	9
57	40

273	366	411
526	40	343
997	drive	

40	40	40	40	40	40	40	40	40
57.03	57.23	57.63	57.03	57.23	57.13	57.83	58.03	58.53

40	40	40	40	40	40	40	40
57.03	57.63	57.93	57.53	57.63	57.23	57.33	57.33

40	40	40	40	40	40	40	40
57.83	57.73	57.53	57.23	57.13	57.63	57.33	57.53

(1.53)



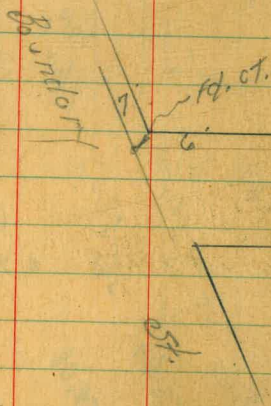




Walker  
Hendricks  
Corral  
Allen  
7-24-46

LOCATION AND LEVELS - PROPOSED DRAIN  
BRANSON PLACE

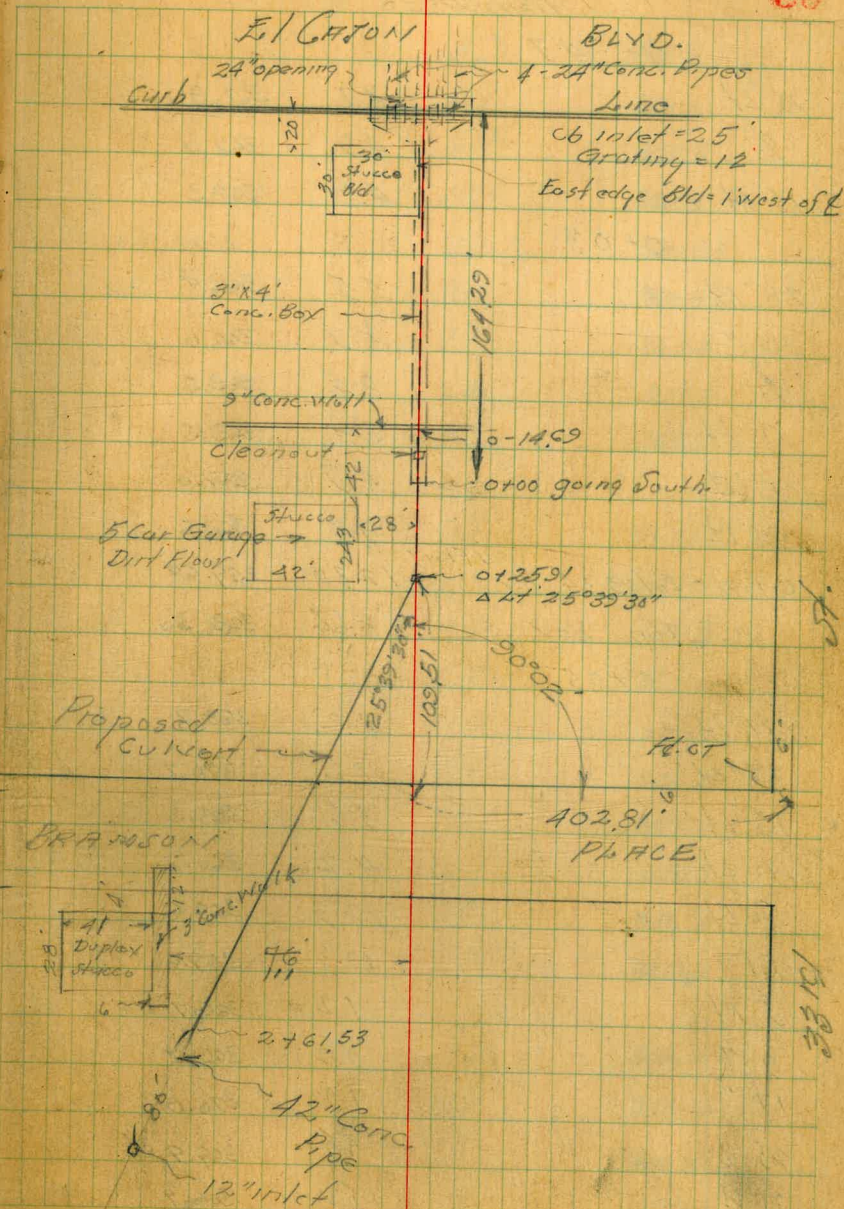
	Station	Level	Notes
	3.74	378.19	5th & 3rd E/Copen
TP	5.89	377.13	6.25 371.24
16429			
0-175.38			South cb line E/Copen
"	on Curb	5.89	371.29
"	" flow	1363	363.50
0-128	on Conc. Paving	5.38	371.75
0-76	" " "	4.25	372.18
0-1544	" " "	4.56	372.57
"	" Top 9" Well	2.57	374.56
0-147		10.1	367.0
0-27	= 2' cleanout	10.37	366.76



TP	517	371.24	10.36	366.77
				Cont. P. 31

Indexed  
as is.

30





W  
Co  
Rt

371.94 ✓

Cont. from P-30

0-14.7

15' Lt.	4.1	367.8
6	4.9	367.0
15' Rt	4.6	367.3
0-03		
28' Rt	5.5	366.4
10 "	5.9	366.0
6	8.4	363.5
7 Lt	8.4	363.5
15' Lt	4.9	367.0
25' Lt	3.3	368.6
0+00 - End 3' x 4' Box	12.30	359.62
" Top Box	8.64	363.30
0+05		
31' Lt	2.2	368.7
27' Lt	1.2	370.7
18' Lt	3.6	368.3
10' Lt	11.2	360.7
6' Lt	12.3	359.6
6	12.3	359.6
5' Rt	11.2	360.7
9 "	9.2	362.7
17 "	1.9	370.0
25 "	2.5	369.4
31' Rt	5.2	366.7

on Flow

371.94 ✓

0+25.91 = Δ Rt 25° 39' 30"

Sec. Rt Δ  
to Back Turn.

31

28' Rt	5.2	366.7
18' Rt	0.7	371.2
9 "	6.1	365.8
8 "	10.6	361.3
6 on stake	11.61	360.33
12' Lt	11.0	360.9
15 "	4.1	367.8
25 "	0.2	371.7
35 "	3.6	368.3
0+50		
36' Lt	4.3	367.6
27' Lt	0.0	371.9
25' Lt	0.0	371.9
18' Lt	4.7	367.2
15' Lt	11.9	360.0
6	12.1	359.8
5' Rt	12.1	359.8
12' Rt	3.7	368.2
15 "	3.7	368.2
20' Rt	6.0	365.9
1+00		
6	13.7	358.2
6' Rt	13.7	358.2
18' Rt	5.1	366.8
22' Rt	0.7	371.2
25' Rt	0.7	371.2



	1400	371.94 ✓	
32' Lt		5.6	366.3
4' Lt		17.3	358.6
14' "		6.5	365.9
22' "		2.2	369.7
24' "		2.2	369.7
34' "		5.8	366.1
40' "		5.8	366.1

	1450		
35' Lt		5.6	366.3
27' Lt		5.6	366.3
22' Lt		3.2	368.7
16' Lt		3.2	368.7
11' Lt		6.1	365.8
5' Lt		13.5	358.9
♀		14.2	357.7
7' Rt		14.0	357.9
11' Rt		10.8	361.1
13' Rt		7.2	369.7
18' "		4.5	367.2
20' "		4.5	367.2
26' R		7.2	369.7

	1475		
35' Rt		6.9	365.0
28' Rt		3.8	368.1
24' "		3.8	"
16' "		8.8	363.1

	371.94 ✓	
11' Rt	13.8	358.1
6' Rt - 2 Ditch	14.6	357.3
♀	14.1	357.8
4' Lt	11.9	360.0
13' Lt	5.2	366.7
26' Lt	6.9	365.0

	2100	
25' Lt	6.3	365.6
13' Lt	6.6	365.3
5' Lt	12.0	359.9
♀	14.0	357.9
8' Rt	15.0	356.9
14' Rt	12.9	359.0
28' Rt	6.4	365.5
32' R	6.8	365.1

	2136	
17' Rt on walk	7.5	369.79
15' R	7.4	369.5
12' R	10.3	361.6
10' R	13.5	358.9
5' Rt	15.1	356.8
♀	15.1	"
4' Lt	15.1	"
11' Lt	10.4	361.5
15' Lt	7.1	369.8
22' Lt	6.9	365.0



371.2A

2+61.53 = Beginning Existing 42" Conc. Pipe

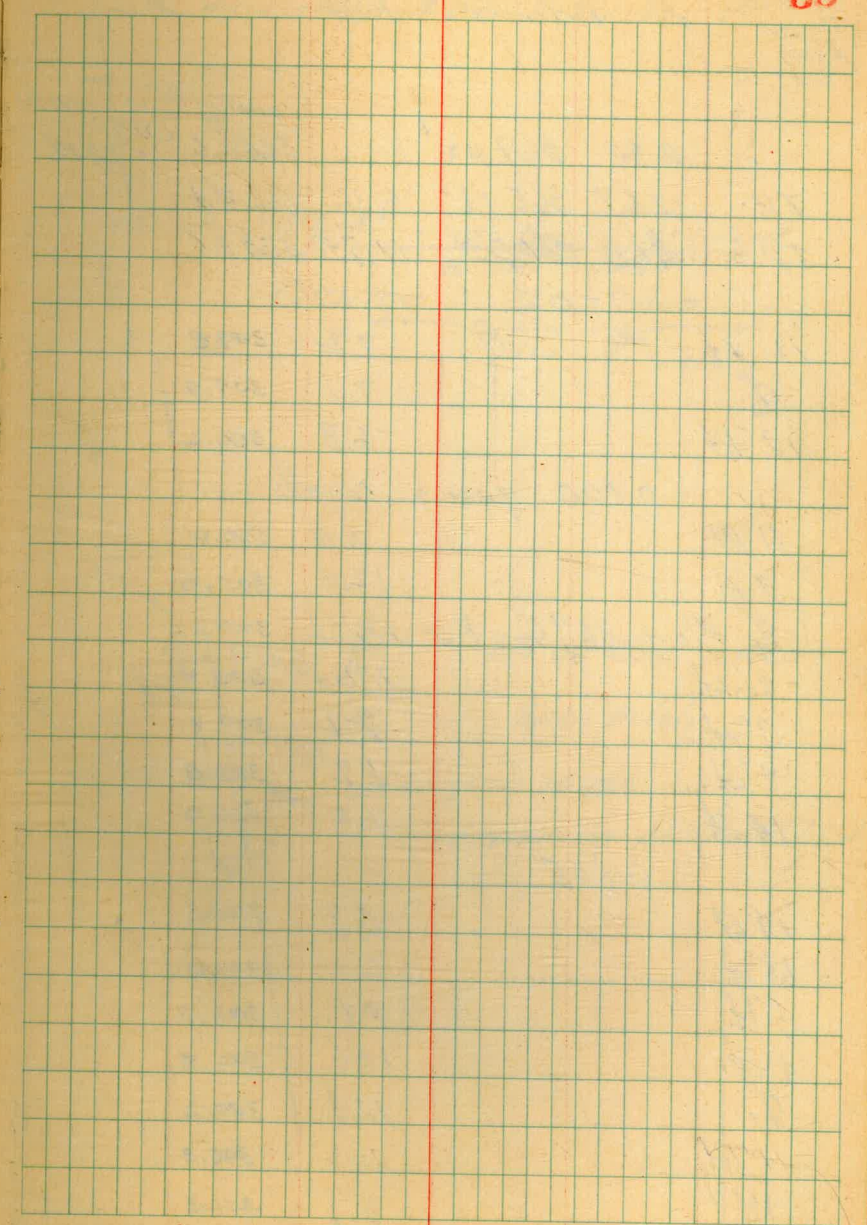
25'H	7.4	369.5
18'H	7.2	369.7
3'H	16.0	355.9
2' Top 42" Conc. Pipe	12.80	359.14
2' Floor " "	16.61	355.53
2' RH	16.3	355.6
7' RH	12.6	359.3
13' RH	7.4	369.5
20' RH	7.4	"

Conc. Pipe  
Notes Reduced. 7-29-86

2+72

13' RH	7.4	"
2	8.0	363.9
20'H	8.2	363.7
TR 625	375.93	2.26 369.68
chk. starting BM	1.68	374.25 ✓
		374.25 ✓
		0.00

Additional Data on P. 34



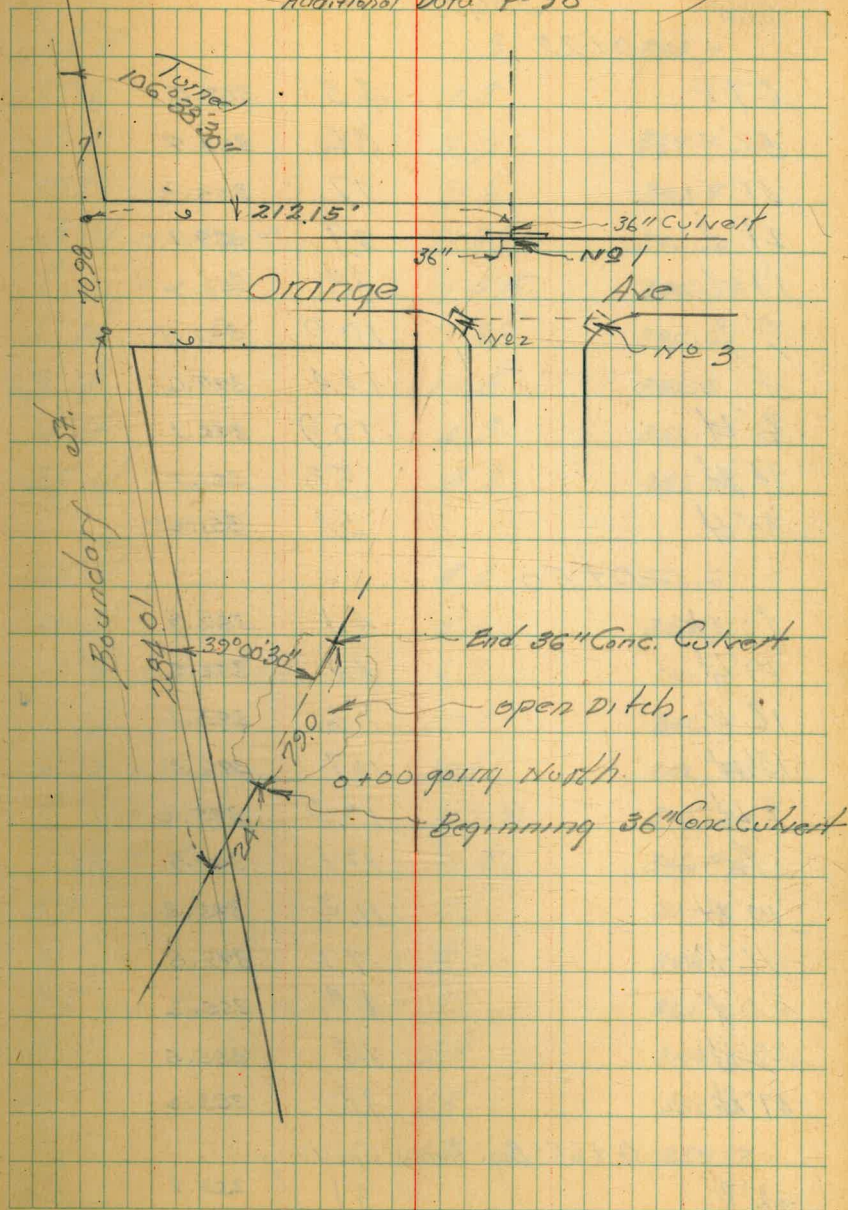


Walker  
Handbooks  
Carter  
Allen  
8-1-46

Levels - Existing Culvert  
Boundary @ Orange Ave.

				STATIONED Orange 3314
	2.34	369.00		366.66
T.P.	2.67	365.11	6.86	362.44
T.P.	3.63	356.99	11.75	353.36
0+02				
12' Lt			7.2	349.8
℄			7.1	349.9
12' Rt			6.8	350.2
0+00 going North				
11' Rt			7.0	350.0
3' R			12.0	345.0
℄ Flow 36" Conc. Pipe	12.72			349.27
2' Lt			11.6	345.9
3' Lt			7.9	349.1
7' Lt			8.2	348.8
14' Lt			7.0	350.0
0+05				
19' Lt			6.7	350.3
13' Lt			6.0	351.0
5' Lt			8.1	348.9
4' Lt			10.6	346.8
℄			12.8	342.2
11' Rt			10.2	346.8
18' "			5.7	351.3
4' "			1.5	354.5
5' R			4.1	352.9

(for Culverts - Brumson Place) 34  
Additional Data P 30





356.29

0+22

67'R	4.5	352.5
52'"	3.6	353.9
41'"	1.7	355.3
27'"	2.9	359.1
17'"	3.8	353.2
9'"	10.0	347.0
ℓ	12.4	349.6
6' Lt.	10.9	346.1
14' Lt.	5.3	351.7
30' Lt.	5.8	351.2

0+50

30' Lt.	4.1	352.9
19' Lt.	4.4	352.6
16' Lt.	8.6	348.2
13' Lt.	10.7	346.3
8' Lt.	12.0	345.0
ℓ	12.1	342.9
10' Rt.	11.2	345.8
16' R	7.2	349.8
20' R	1.8	355.2
29' Rt.	1.5	355.5
47' Rt.	3.8	353.2

0+65 = Reg. Corr. Spillway

42' R	3.1	352.9
-------	-----	-------

356.29

35

27' R	1.3	355.7
21' R	1.3	"
17' R	2.9	354.1
10' R	9.6	347.4
5' Rt on Conc.	11.29	345.70
ℓ " "	11.45	345.54
4' Lt " "	11.38	345.61
9' Lt	10.5	346.5
14' Lt	4.3	352.7
25' Lt.	4.2	352.8

0+74

20' Lt	4.4	352.6
10' Lt	5.1	351.9
7' Lt. on Rubble Wing <sup>Wall</sup>	6.3	350.7
6' Lt	10.1	346.9
5' Lt on Conc.	10.56	346.43
ℓ " "	11.22	345.77
3' Rt " "	10.56	346.43
5' R	9.6	347.4
7' "	8.9	348.1
8' R on Rubble Wing Wall	5.8	351.2
15' R	2.8	354.2
22' R	1.5	355.5
36' R	2.3	354.7



356.99 ✓

0+79

37'R	2.5	354.5
31'R	1.8	355.2
20'R	1.8	"
9'R	4.1	352.9
3'R	6.3	350.7
2'R	10.3	346.7
Flow 36" Conc. Pipe	10.99	346.00
2' Lt	10.2	346.8
3' Lt	6.2	350.8
7' Lt	5.6	351.4
13' Lt	4.6	352.9

0+81

11' Lt	4.8	352.2
4' Lt	5.8	351.2
Flow	5.6	351.9
10'R	3.6	353.9
18'R	2.8	354.2
23'R	3.0	354.0
TP	9.06	362.34
	3.71	353.28

Inlet No 1 Sketch P-34

Top cb	4.27	358.07
Grating	5.29	357.05
Flow 36"	10.95	351.39

Notes Reduced 8-2-26

362.34 ✓

36

Inlet No 2 SW. Bancroft &amp; Orange

Top	4.75	357.59
Grating	5.72	356.62
Flow 18"	9.62	352.72

Inlet No 3

Top cb	4.61	357.73
Grating	5.54	356.80
Flow 18" Conc. Pipe	9.55	352.79

TP 6.77 368.66 0.45 361.89

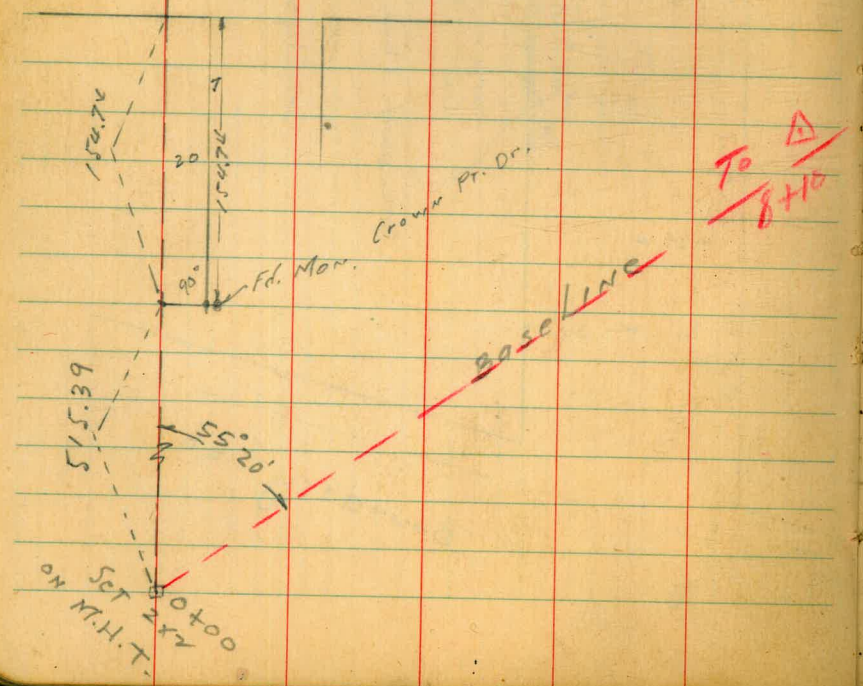
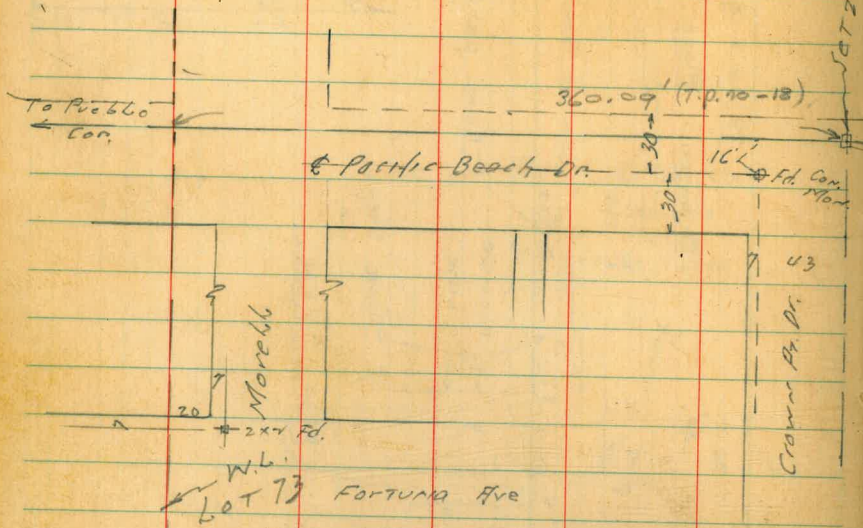
chk. Starting B.M.	1.99	366.67 ✓
		366.66 ✓
		0.01 ✓







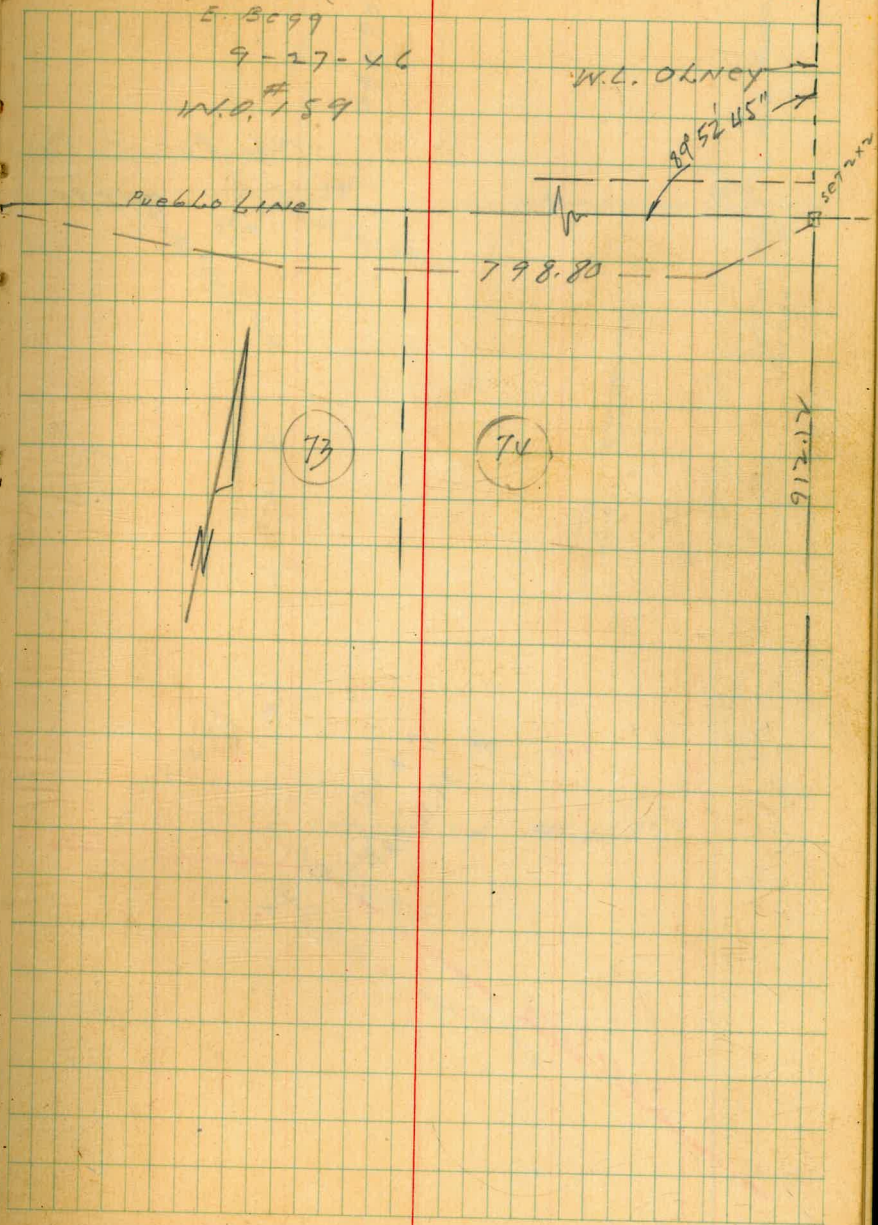
Survey M.H.T. Line  
lots 73 and 74 Pacific Beach



To  $\Delta$   
8+10

C. Moore  
S. Moore  
W. Moore  
E. Moore  
9-27-46  
W.O. 159

Indexed  
C.S.K. 38





N. Co. Pac. B. Co.

798.80

8 x 10  
31° 11' 30" RT. 2 x 2

Baseline

OXNEY ST

181.5

39

Fd. Cons. Map of  
Pac. Co. Car.

(74)

912.17

93° 21'

SET 2x2 OR M.H.T.

13 x 02.94

S.E. Cor. Lot 74



2 + 50

2 + 00

1 + 00

0 + 00 = SW. Cor. LOT 73 Pac. Beach

T.P.	2.80	9.52	11.85	6.72	
T.P.	2.33	18.57	12.33	16.24	
	0.70	28.57		27.87	= U.S.G. + G.

9.01

B.M. Hub 2x3 + 0316 A PT. = 18.86 City DAT.

OK Sewer Trunk Line

97 Crown Pt. Dr. + Morell

F.B. 1247-47

LT

B.L.

RT

40

$$\begin{array}{r} 4.91 \\ 4.61 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 4.91 \\ 4.61 \\ \hline 4 \end{array}$$

$$\begin{array}{r} 4.91 \\ 4.61 \\ \hline \end{array}$$

$$\begin{array}{r} 4.91 \\ 4.61 \\ \hline \end{array}$$

9.54



7.400

6.400

T.P. 3.07 8.89 3.70 5.82

5 + 61 = E. edge slough

4 + 93 = W. edge slough

4.400

3.300

9.52

L

B.L.

R7

41

16.4  
3.98  
27

16.4  
4.9  
3.98

8.89

16.4  
4.9  
4.61

16.4  
4.9  
4.61

16.4  
4.9  
4.61  
76

16.4  
4.9  
4.61  
9

9.52



FB. 1647

Pacific Beach on

03C+G.

check to M.H. Rint + Noyes 0.70 9.16 - 9.01 =

7.P. 3.83 9.86 2.86 6.03

13+07.94 = 2 x 7 on SE Cor. Lot 74

12+00

11+00

10+00

9+00

8+10 - Δ 31° 11' 30" RT.

8.89

LT <sup>BM</sup> City Blk. Rt

0.15 0.16  
0.31

4.91  
3.98

4.91  
3.98  
8

4.91  
3.98  
8

4.91  
3.98

4.91  
3.98  
21

4.91  
3.98  
17 on split

8.89



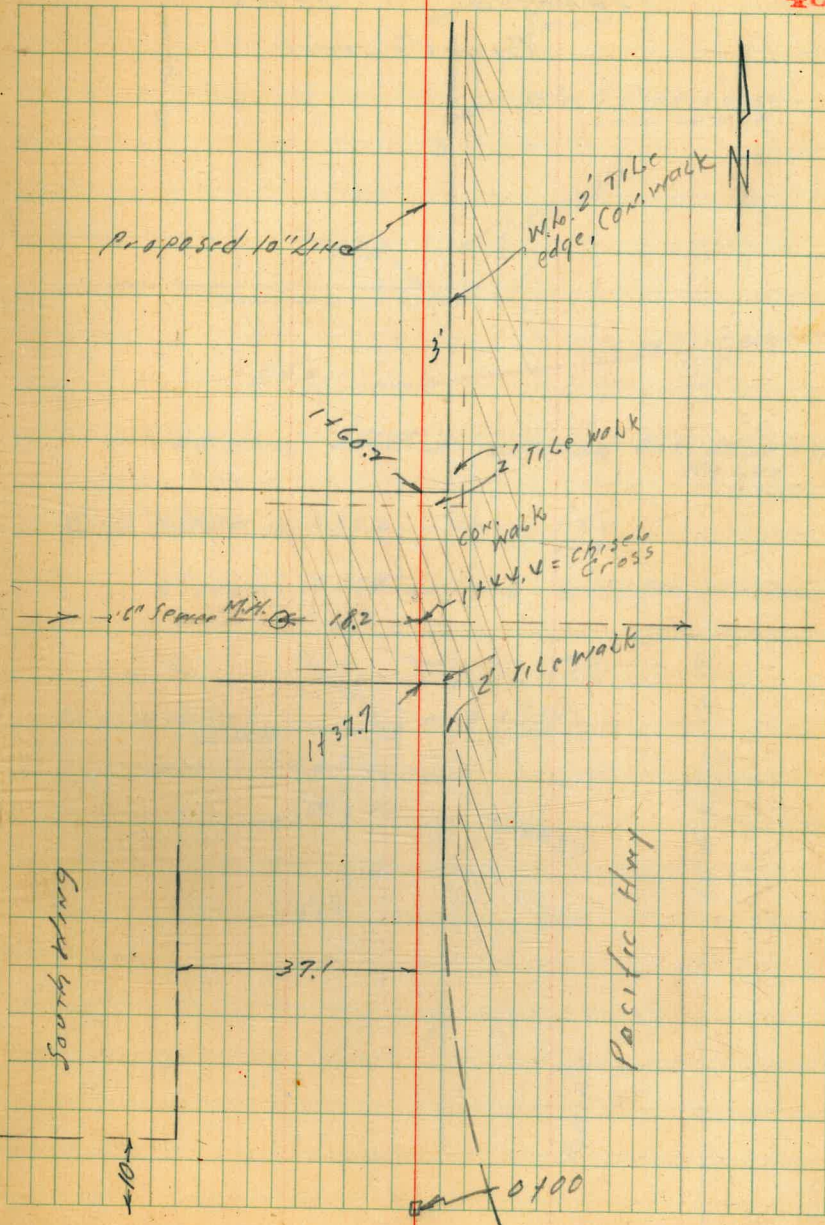
Proposed 10" Sewer

C. Moore  
South Meyer  
W. Moore  
B. 99  
10-7-46

Civic Center

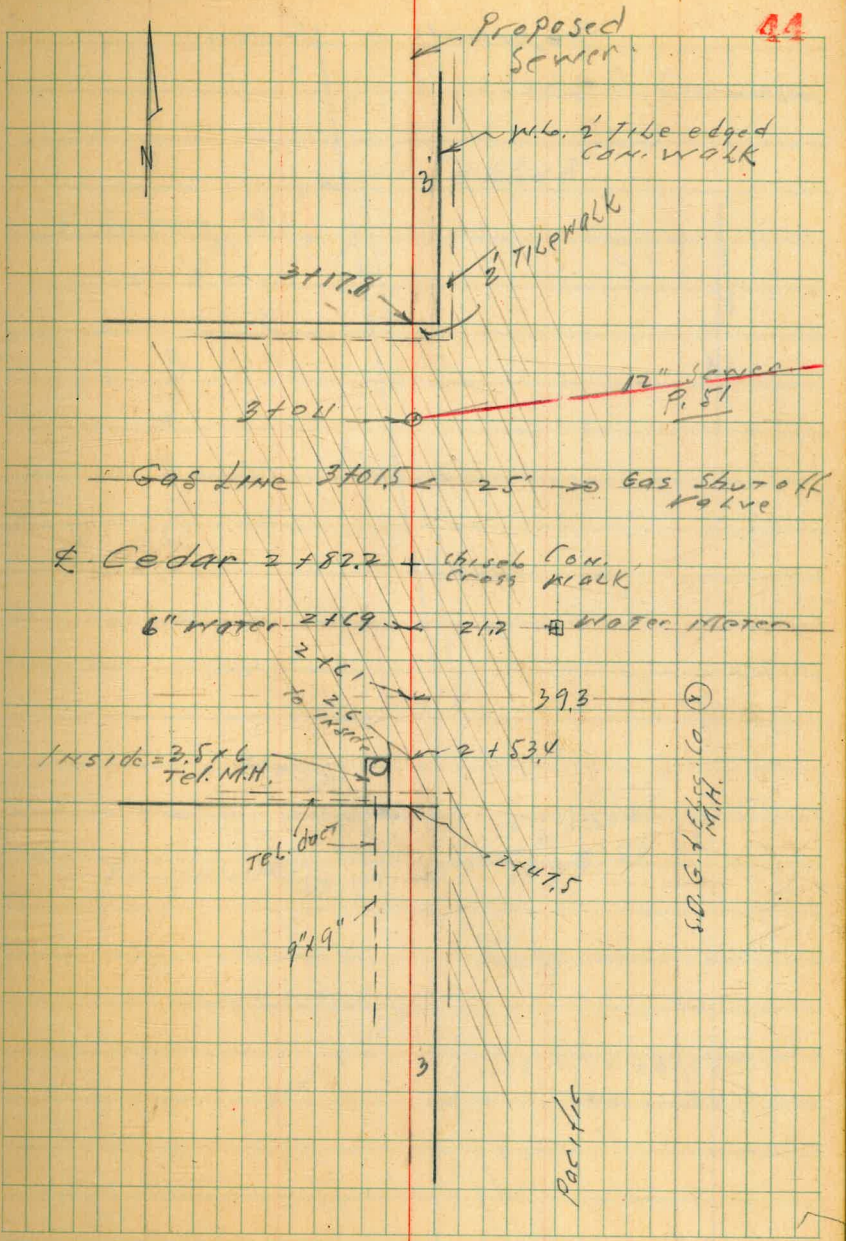
W.O. #182

indexed  
C.S.K.





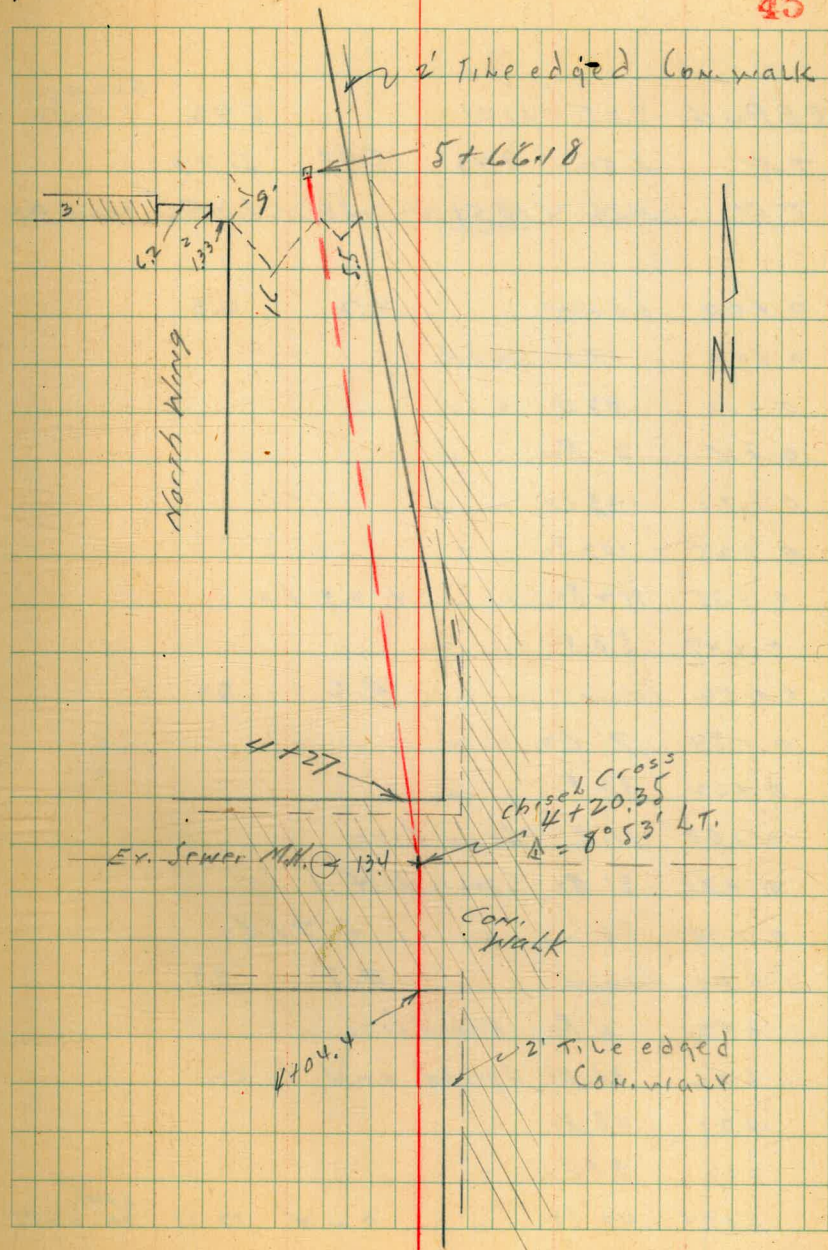
Proposed 10" Sewer  
Civic Center





Proposed 10" Sewer

45





Levels for 10" Sewer

46

SEB Pouch	5.25	11.21		5.96	Grape + Bolt
T.P.	3.50	9.23	5.48	5.73	
T.P.	4.14	<u>10.51</u>	2.88	6.35	Iron pin

N. end of W. Island Pacific + Cedar St.

0 + 00	Lawn		4.7	6.3	
0 + 01	1.7 Rt. spr. hd.				
0 + 10	9.3 Lt " "				
0 + 16	2 Rt " "				
0 + 21	12.3 Lt " "				
0 + 25	10.3 Rt " "				
0 + 35	11.2 Rt " "			+ 2.9 Lt	
0 + 49	5.8 Rt " "				
0 + 50	Lawn		4.6	5.9	
0 + 54	7' Lt " "				
0 + 62	3.3 Rt " "				
0 + 63	11.8 Flood Lite				
0 + 70	9.1 Rt Spr. hd + 3' Lt				
0 + 91	5.6 " " " "			+ 7.1 Lt	
1 + 00	Lawn		4.8	5.7	
+ 02	2 Rt Flood Lite				
+ 06	3.6 Rt Spr. hd and 8' Lt.				
+ 21	2.8 Rt " "				
+ 23	9.1 Lt " "				
+ 37.4	4.2 Lt " "			and 12 Lt	Sp. shut off.



10.51

1 + 37.7	Sedge walk	5.00	5.51	
+ 44.4	walk	5.01	5.50	
"	18.2 LT.	4.81	5.70	M.H. P.M.
"	" "	9.93	0.58	INVERT
1 + 60.7	" edge walk	5.03	5.48	
+ 60.5	2.8 Rt spr. hd and	11.4	LT.	
+ 64	2 Rt Spr. Shut off			
+ 68	10.2 Lt $\frac{3}{4}$ " Hyd.			
+ 72.7	2.8 Rt spr. hd.			
+ 77	11 Lt " "			
+ 85	2.8 Rt " "			
+ 91	11 Lt " "			
2 + 00 lawn		5.1	5.4	
+ 00.4	2.8 Rt spr. hd.			
+ 06	10.8 Lt " "			
+ 15	2.8 Rt " "			
+ 21.5	10.8 Lt " "			
+ 29	16.5 Lt $\frac{3}{4}$ " Hyd.			
+ 31	2.8 Rt spr. hd.			
+ 35	10.7 Lt " "			
+ 47	2.8 Rt " " and 11 Lt - spr. hd			and 14.7 Lt Spr. Shut off
2 + 47.5	Sedge walk	5.35	5.16	
2 + 53.4	walk	5.37	5.14	
"	2.6 Lt. Tel <sup>MH</sup> P.M.	5.34	5.17	
"	" " " "	12.24	- 1.73	Bot. M.H.

47



10.51.

2+61	walk over	5.41	5.10	gas. to. Elect	duct
+69	" "	5.45	5.06	Water	line
2+82.7	" & Cedar	5.44	5.07		
3+01.5	" over	5.53	4.98	gas line	
3+04	walk	5.57	4.94	= M.H. #1	
+17.8	N edge walk	5.56	4.95		
+18.2	2.8 Rt Spr. hd and		10.6 Lt Spr. hd		
+19	12 Lt Spr. Shut off				
+23	16 Lt 3/4" Hyd				
+32	2.8 Rt Spr. hd and		10.4 Lt Spr. hd		
+48	" " " " " "		" " " "		
3+50	Law	5.6	4.9		
+62	2.8 Rt spr. hd and		10.5 Lt		
+77	2.6 Rt " " " "		10.4 " "		
+93	2.7 Rt " " " "		10.6 " "		
+97	16.6 Lt 3/4" Hyd				
+99.2	2' Rt spr. Spr. Shut off				
4+00	Law	5.7	4.8		
104	2.7 Rt spr. hd and		10.1 Lt		
4+04.4	S. edge walk	5.81	4.70		
T.P.	5.19	<u>9.97</u>	5.73	4.78	Stub 4100
4+20.35	1 8' 53' Lt	5.33	4.64	on walk	
"	13' Lt M.H. #1	5.17	4.80		
"	" " " Fl.	9.42	0.55		
	on INVERT				



9.97

49

4127 on walk 5.32 4.65 and

+28 4.2 Lt spr. hd.

+30 12.3 Lt spr. shut off

+36 5.2 Rt spr. hd.

+41 8.7 Lt " "

4450 lawn 4.2 5.8

+51 7.4 Rt spr. hd.

+52 9.2 Lt 10" di. acacia tree

+59 7.7 Lt spr. hd.

+60 5.2 Rt Flood Lite

+66 7.3 Rt spr. hd.

+71 9.3 Lt " "

+81 7.1 Rt " "

+87 9.8 Lt " "

+97 6.8 Rt " "

+99 4.6 Rt Flood Lite

5100 lawn 4.4 5.6

+01 9.8 Lt spr. hd.

+11 6.4 Rt " "

+17 8.8 Lt " "

+25 14.4 Lt " "

+26 5.9 Rt " "

+31 7.1 Lt " "

+36.5 3.7 Rt Flood Lite

+41 7.5 Lt spr. hd.

3.8 Rt to Spr. hd



5+42	5.8	Rt. Spr. h d			
5+50	Lawn	4.5	5.5		
+55	9.3	Lt. to Cir. 18" di. Palm			
+57	5.5	Rt. Spr. h d.			
5+54.18	END	4.6	5.4	Lawn	
"	5.5	Rt. edge whisk	5.80	5.17	
T.P.	7.14	11.23	5.88	4.09	
T.P.	5.09		5.26	5.97	
check to orig. BM			5.10	5.96	5.96

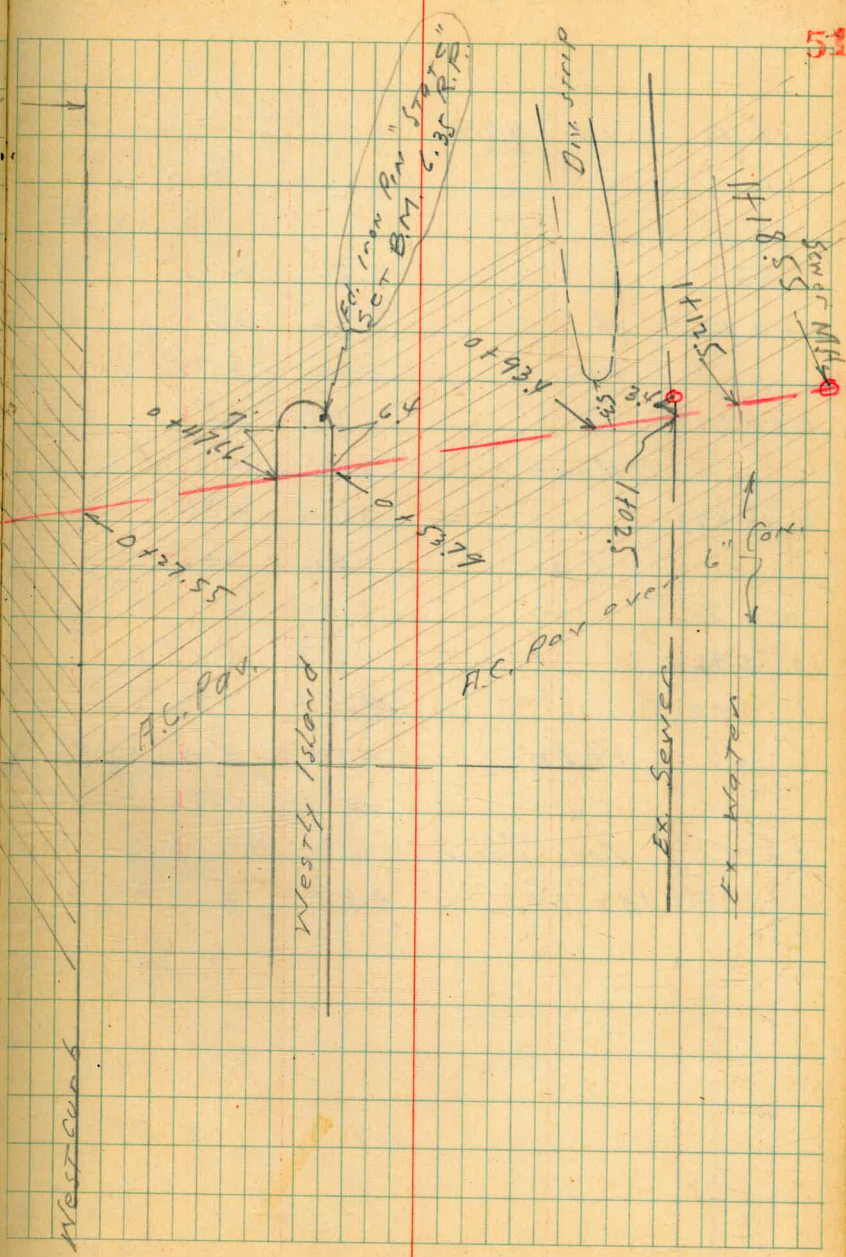
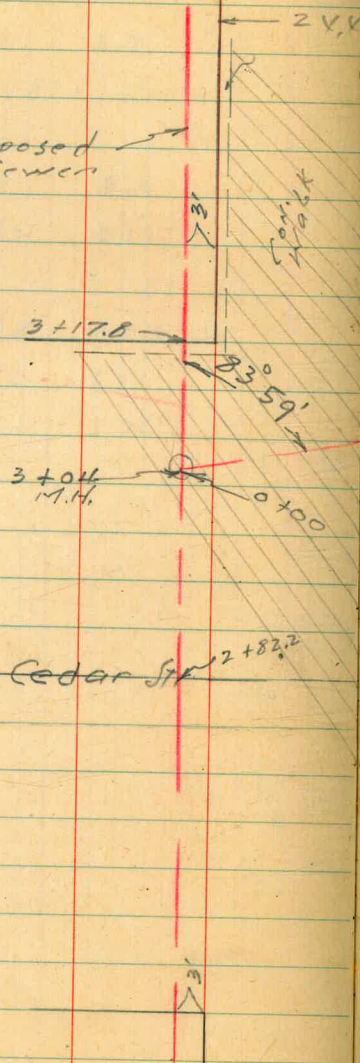


Proposed 10" Sewer  
Pacific & Cedar  
Civic Center

Proposed  
10" Sewer



± Cedar Str 2+82.2





Levels for .12" Line

BM. P. 46	3.44	<u>9.79</u>		6.35	
<u>3704</u>					
0+00			4.84	4.95	M.H. #1
0+27.55	cb		5.20	4.59	
"	Par		5.26	4.53	
0+47.66	"		5.51	4.28	
"	Island curb		5.12	4.67	
0+53.79	"	"	5.00	4.79	
"	Par		5.34	4.45	
0+70	"		4.92	4.87	
0+93.4	"		4.47	5.32	
1+02.5	"		4.54	5.25	
"	34 Lt.		4.54	5.25	M.H. R.M.
"	"		10.57	-0.76	Fiber
1+12.5	Par. <sup>over</sup> water		4.66	5.13	
1+18.55	Ex. M.H.		4.67	5.12	R.M.



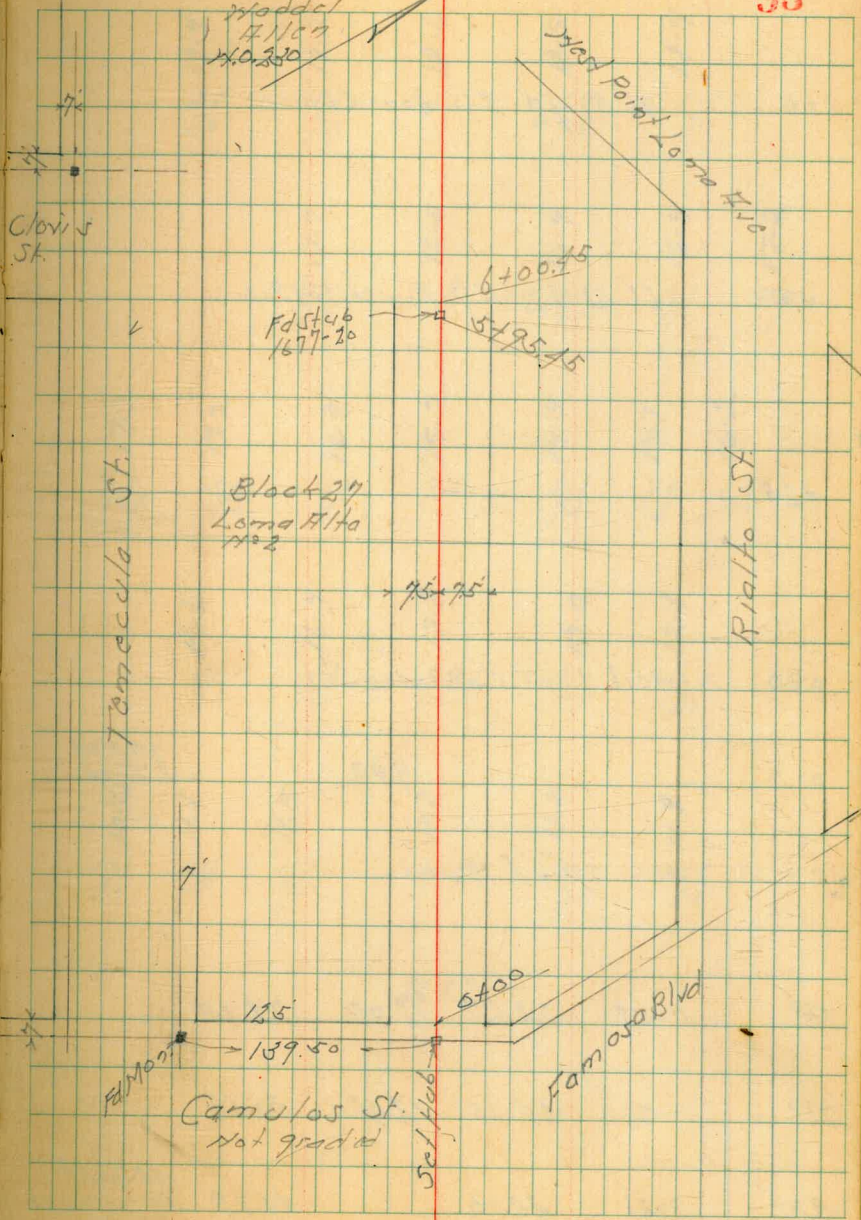
Cross Section Alley Block 27 Loma Alta #2

Levels next page

Nov. 18-46  
S. 5500  
McCoy  
Maddal  
H. 1157  
No. 330

Indexed  
c.s.R.

53



246



140. 96 ft of  $\frac{1}{2}$  Ply Board Fence

150 66 ft of  $\frac{1}{2}$  Ply Porcelain Pipe

125

0+0 West Line Campus St

0-7 999

on Hub  
to Fly

0-15 = Wly Dirt Road

TP 0.52 22.67 12.00 22.15

TP 0.51 34.15 12.46 33.64

BM 2.31 46.10 43.79

SE Spk PP  
Temcalat  
Clay w  
1877-5

U.S

R

R=N

54

~~19.4~~  
19.4

~~19.2~~  
19.2

~~18.6~~  
18.6

~~18.5~~  
18.5

~~18.4~~  
18.4

~~17.7~~  
17.7

~~16.5~~  
16.5

~~16.4~~  
16.4

~~16.4~~  
16.4

~~17.2~~  
17.2

~~17.7~~  
17.7

~~17.2~~  
17.2

~~16.9~~  
16.9

~~15.2~~  
15.2

~~14.5~~  
14.5

~~14.7~~  
14.7

~~16.2~~  
16.2

~~16.6~~  
16.6

~~16.4~~  
16.4

~~13.8~~  
13.8

~~13.0~~  
13.0

~~12.1~~  
12.1

~~10.6~~  
10.6

~~11.1~~  
11.1

~~11.5~~  
11.5

~~11.8~~  
11.8

~~12.0~~  
12.0

~~11.9~~  
11.9

22.67



+133

+16

TP 7.50 31.43 1.81 23.93

2+0 72 Lt of 2 = Wk Wire Fence  
79 Rt of 2 = Wk Picket

+85 71 Lt of 2 = Wk Conc Hall

+72

+67 82 Rt of 2 = Wk Picket Fence

+65 71 Lt of 2 = Wk Conc Hall & Wire Fence

+59

TP 5.39 23.74 2.32 20.35

1+50 81 Lt of 2 = Wk Power & Tel Pole  
96 Rt of 2 = Wk Board Fence

2267

Lt

Rt

Rt

55

23.39

8.04  
9.34  
Wk Conc  
Apron

23.26

8.07  
9.17  
Wk Conc  
Apron

21.9

8.08  
9.58

21.6

8.14  
9.40

23.43

8.00  
9.21  
Wk Do.  
Garage Floor

23.38

8.05  
9.15  
Wk Do.  
Garage Floor

31.43

21.9

8.08  
9.58

22.9

8.08  
9.00

22.5

8.08  
9.58

22.36

8.08  
9.00

21.79

8.08  
9.00

21.91

8.08  
9.00

21.28

8.08  
9.00

21.79

8.08  
9.00

20.8

8.08  
9.00

20.3

8.08  
9.00

20.4

8.08  
9.00

2267



+50

72 lb of  $\frac{1}{2}$  = 5/4 Power + Tel Pole  
77 lb of  $\frac{1}{2}$  = Pictet Fence

+21

+21

+02

+0

+50

69 lb of  $\frac{1}{2}$  = 5/4 Power + Tel Pole

21-43

Lt.

St

Py

56

27.0  
25

26.2  
25

25.9  
25

25.68  
25

25.51  
25

25.57  
25

25.3  
25

23.8  
25

26.3  
25

25.4  
25

25.2  
25

24.6  
25

23.9  
25

24.9  
25

25.64  
25

25.65  
25

25.65  
25

77 lb of  $\frac{1}{2}$  = 5/4 Power + Tel Pole  
77 lb of  $\frac{1}{2}$  = Pictet Fence  
77 lb of  $\frac{1}{2}$  = 5/4 Power + Tel Pole  
77 lb of  $\frac{1}{2}$  = Pictet Fence  
77 lb of  $\frac{1}{2}$  = 5/4 Power + Tel Pole  
77 lb of  $\frac{1}{2}$  = Pictet Fence

21-43







703 = Fly Frame House

6400.45 = West Line Lot 47

795.95

4.74

26.69

02 Slab  
7 Alley  
1657-26

750

570

6.9 Lt of 7 = Sky Postcard Tel. Pole  
6.5 Rt of 7 = Fly Slab Fence

31.43

Lt.

Rt.

Rt.

73

29.1

100  
340

28.0

100  
354

26.7

47

25.2

100  
Floor of House

26.3

100  
375

25.0

100  
400

29.0

100  
344

27.8

80  
286

27.3

100  
375

29.6

100  
330

28.9

100  
354

27.9

80  
286

27.5

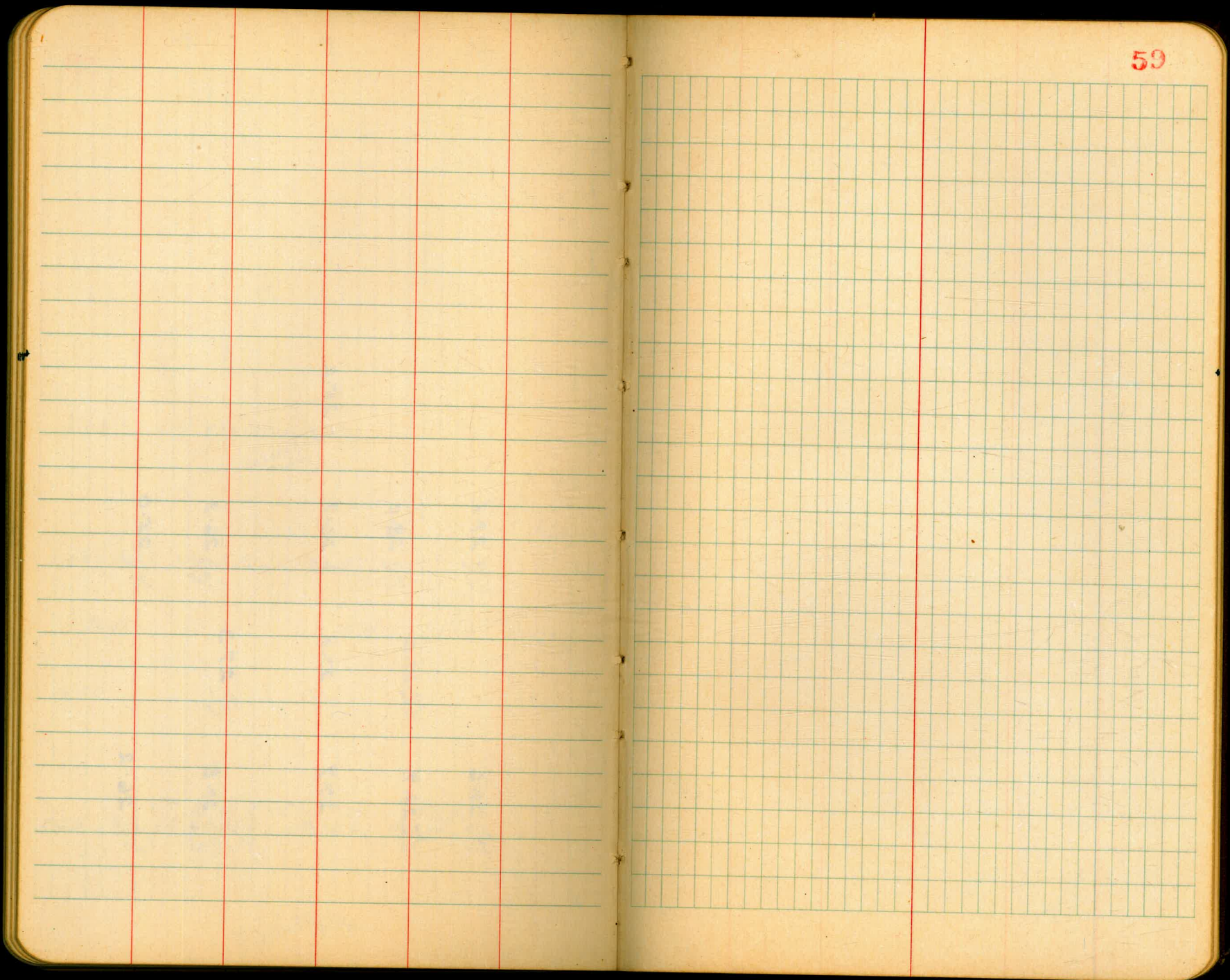
100  
375

26.2

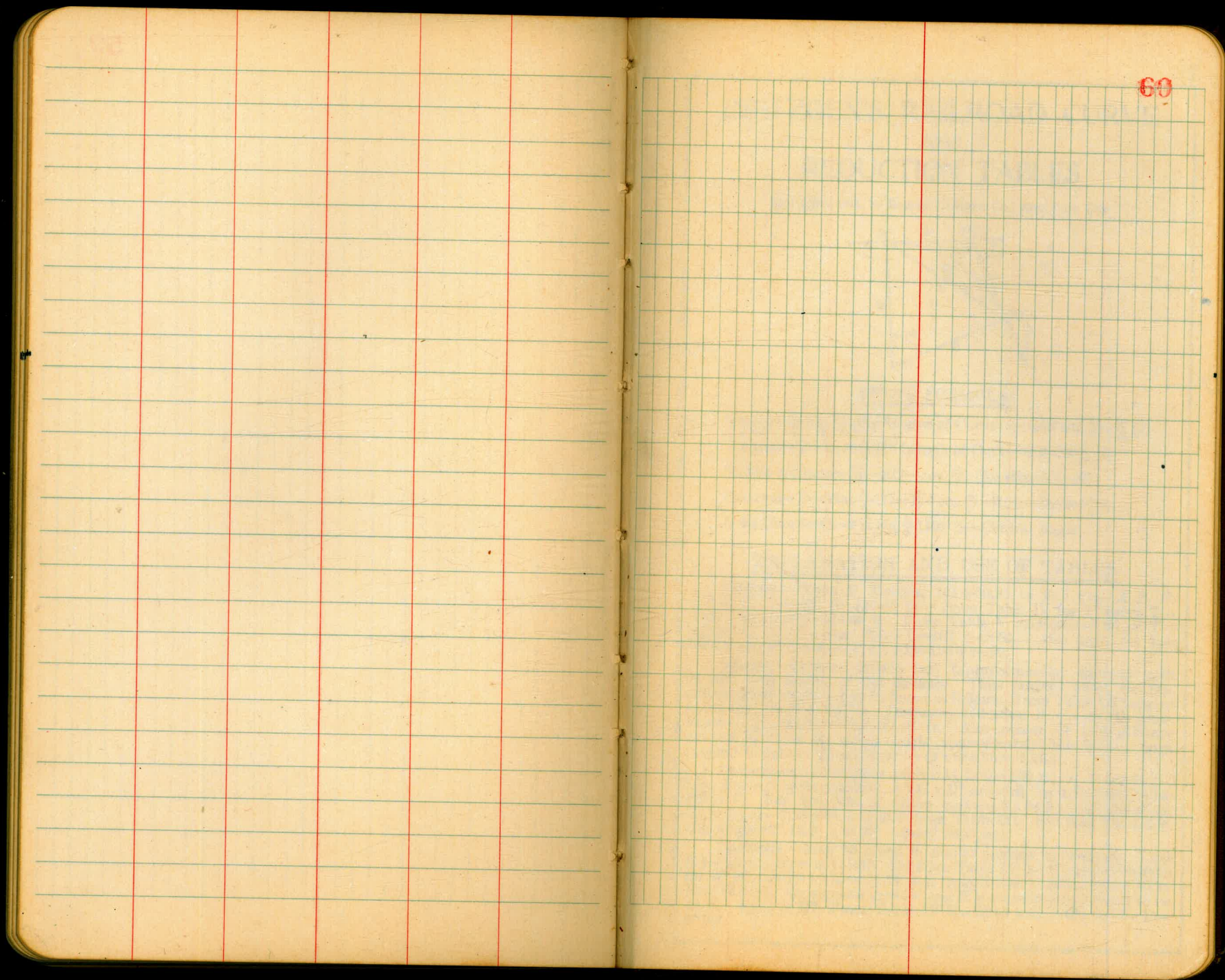
100  
400

31.43







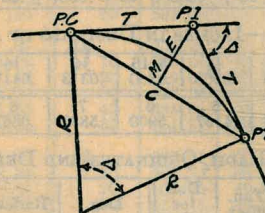


60



# DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

Copyright, 1914, by Eugene Dietzgen Co., New York City



### CURVE FORMULAS

- Radius= $R = \frac{50}{\sin \frac{D}{2}}$  (1) Degree of Curve= $D$  and  $\sin \frac{D}{2} = \frac{50}{R}$  (2)
- Tangent= $T = R \tan \frac{\Delta}{2}$  (3) Length of Curve= $L = 100 \frac{\Delta}{D}$  (4)
- Middle ordinate= $M = R(1 - \cos \frac{\Delta}{2}) = R \text{vers} \frac{\Delta}{2}$  (6)
- External= $E = T \tan \frac{\Delta}{4} = R \div \cos \frac{\Delta}{2} - R$  (8) =  $R \text{exsec} \frac{\Delta}{2}$  (9)
- Long Chord= $C = 2 R \sin \frac{\Delta}{2}$  (10)  $\Delta$  = Central Angle

### EXPLANATION AND USE OF TABLES

**Stations.**—Given P. I.—Sta. 161+60.35 to find Sta. of P. C. and P. T.  $\Delta = 62^\circ 10'$   $D = 8^\circ 20'$ . From Table IV for  $1^\circ$  curve  $T = 3454.1$  and  $\div 8 \frac{1}{3} = 414.49$  ft. From Table V correction = .36 or  $T = 414.85$  ft. P. C. = Sta. P. I. —  $T = 157 + 45.50$ . Also from (4)  $L = 746.00$  and P. T. = Sta. P. C. +  $L = 164 + 91.50$ .

**Offsets.**—Tangent offsets vary (approximately) directly with  $D$  and with square of the distance. Thus tangent offset for Sta. 158 on above curve is 2.16 ft. found as follows. From Table III tangent offset for 100 ft. = 7.27 ft. Distance = 158 — Sta. P. C. = 54.50, hence offset =  $7.27 (54.50 \div 100)^2 = 2.16$  ft. Also square of any distance divided by twice the radius equals (approximately) the distance from tangent to curve. Thus  $(54.50)^2 \div (2 \times 688.26) = 2.16$  ft.

**Deflections.**—Deflection angle =  $\frac{1}{2} D$  for 100 ft.,  $\frac{1}{4} D$  for 50 ft., etc. For  $c$  ft. = (in minutes)  $.3 \times C \times D^\circ$  or = defl. for 1 ft. from Table III  $\times C$ . For Sta. 158 of above curve =  $.3 \times 54.5 \times 8 \frac{1}{3} = 136.2'$  or  $2^\circ 16.2'$ , or =  $2.50 \times 54.5 = 136.2'$  from Table III. For Sta. 159 deflection angle =  $2^\circ 16.2' + 8^\circ 20' \div 2 = 6^\circ 26.2'$ , etc.

**Externals.**—May be found in similar manner to tangents. Thus  $E$  for curve above is 115.37. For from Table IV for  $1^\circ$  curve  $E = 960.6$  for  $8^\circ 20' = 960.6 \div 8 \frac{1}{3} = 115.27$  and from Table V correction = .10 or  $E = 115.37$  ft. Or suppose  $\Delta = 32^\circ$  and  $E$  is measured and found to be 42 ft. What is  $D$ ? From Table IV  $E = 230.9$  and  $\div 42 = 5.5$  or  $D = 5^\circ 30'$ .



TABLE I.—MINUTES IN DECIMALS OF A DEGREE.

1'	.0167	11'	.1833	21'	.3500	31'	.5167	41'	.6833	51'	.8500
2	.0333	12	.2000	22	.3667	32	.5333	42	.7000	52	.8667
3	.0500	13	.2167	23	.3833	33	.5500	43	.7167	53	.8833
4	.0667	14	.2333	24	.4000	34	.5667	44	.7333	54	.9000
5	.0833	15	.2500	25	.4167	35	.5833	45	.7500	55	.9167
6	.1000	16	.2667	26	.4333	36	.6000	46	.7667	56	.9333
7	.1167	17	.2833	27	.4500	37	.6167	47	.7833	57	.9500
8	.1333	18	.3000	28	.4667	38	.6333	48	.8000	58	.9667
9	.1500	19	.3167	29	.4833	39	.6500	49	.8167	59	.9833
10	.1667	20	.3333	30	.5000	40	.6667	50	.8333	60	1.0000

TABLE II.—INCHES IN DECIMALS OF A FOOT.

1-16	3-32	1/4	3-16	1/2	5-16	3/8	1/2	5/8	3/4	7/8
.0052	.0078	.0104	.0156	.0208	.0260	.0313	.0417	.0521	.0625	.0729
1	2	3	4	5	6	7	8	9	10	11
.0833	.1667	.2500	.3333	.4167	.5000	.5833	.6667	.7500	.8333	.9167

TABLE III.—RADI, ORDINATES AND DEFLECTIONS.

Deg.	Radius	Mid. Ord.	Tan. Offset	Def. for 1 Foot	Deg.	Radius	Mid. Ord.	Tan. Offset	Def. for 1 Foot
0° 10'	34377.5	.036	.145	0.05'	7° 20'	819.02	1.528	6.105	2.10'
20	17188.8	.073	.291	0.10	30	781.84	1.600	6.395	2.20
30	11459.2	.109	.436	0.15	40	764.49	1.637	6.540	2.25
40	8594.42	.145	.582	0.20	50	747.89	1.673	6.685	2.30
50	6875.55	.182	.727	0.25	8	716.78	1.746	6.976	2.40
1 10	5729.65	.218	.873	0.30	20	688.16	1.819	7.266	2.50
20	4911.15	.255	1.018	0.35	30	674.69	1.855	7.411	2.55
30	4297.28	.291	1.164	0.40	40	661.74	1.892	7.556	2.60
40	3819.83	.327	1.309	0.45	9	637.28	1.965	7.846	2.70
50	3437.87	.364	1.454	0.50	20	614.58	2.037	8.136	2.80
2 10	3125.36	.400	1.600	0.55	30	603.80	2.074	8.281	2.85
20	2864.93	.436	1.745	0.60	40	593.42	2.110	8.426	2.90
30	2644.58	.473	1.891	0.65	10	573.69	2.183	8.716	3.00
40	2455.70	.509	2.036	0.70	30	546.44	2.292	9.150	3.15
50	2292.01	.545	2.181	0.75	40	521.67	2.402	9.585	3.30
3 10	2148.79	.582	2.327	0.80	30	499.06	2.511	10.02	3.45
20	2022.41	.618	2.472	0.85	40	478.34	2.620	10.45	3.60
30	1910.08	.655	2.618	0.90	12	459.28	2.730	10.89	3.75
40	1809.57	.691	2.763	0.95	30	441.68	2.839	11.32	3.90
50	1719.12	.727	2.908	1.00	40	425.40	2.949	11.75	4.05
4 10	1637.28	.764	3.054	1.05	13	410.28	3.058	12.18	4.20
20	1562.88	.800	3.199	1.10	30	396.20	3.168	12.62	4.35
30	1494.95	.836	3.345	1.15	40	383.07	3.277	13.05	4.50
40	1432.69	.873	3.490	1.20	16	370.78	3.387	13.49	4.65
50	1375.40	.909	3.635	1.25	30	359.27	3.496	13.92	4.80
5 10	1322.53	.945	3.718	1.30	40	348.45	3.606	14.35	4.95
20	1273.57	.982	3.926	1.35	17	338.27	3.716	14.78	5.10
30	1228.11	1.018	4.071	1.40	18	319.62	3.935	15.64	5.40
40	1185.78	1.055	4.217	1.45	19	302.94	4.155	16.51	5.70
50	1146.28	1.091	4.362	1.50	20	287.94	4.374	17.37	6.00
6 10	1109.33	1.127	4.507	1.55	21	274.37	4.594	18.22	6.30
20	1074.68	1.164	4.653	1.60	22	262.04	4.814	19.08	6.60
30	1042.14	1.200	4.798	1.65	23	250.79	5.035	19.94	6.90
40	1011.51	1.237	4.943	1.70	24	240.49	5.255	20.79	7.20
50	982.64	1.273	5.088	1.75	25	231.01	5.476	21.64	7.50
7 10	955.37	1.309	5.234	1.80	26	222.27	5.697	22.50	7.80
20	929.57	1.346	5.379	1.85	27	214.18	5.918	23.35	8.10
30	905.13	1.382	5.524	1.90	28	206.68	6.139	24.19	8.40
40	881.95	1.418	5.669	1.95	29	199.70	6.360	25.04	8.70
50	859.92	1.455	5.814	2.00	30	193.18	6.583	25.88	9.00

Note. Chord Deflection=2 times tangent deflection.

TABLE IV.—TANGENTS AND EXTERNALS TO A 1° CURVE.

Central Angle	Tangent	External	Central Angle	Tangent	External	Central Angle	Tangent	External
1° 10'	50.00	.22	11° 10'	551.70	26.50	21° 10'	1061.9	97.57
20	58.34	.30	20	560.11	27.31	20	1070.6	99.16
30	66.67	.39	30	568.53	28.14	20	1079.2	100.75
40	75.01	.49	40	576.95	28.97	30	1087.8	102.35
50	83.34	.61	50	585.36	29.82	40	1096.4	103.97
	91.68	.73		593.79	30.63	50	1105.1	105.60
2 10	100.01	.87	12 10	602.21	31.56	22 10	1113.7	107.24
20	108.35	1.02	20	610.64	32.45	20	1122.4	108.90
30	116.68	1.19	30	619.07	33.35	20	1131.0	110.57
40	125.02	1.36	40	627.50	34.26	30	1139.7	112.25
50	133.36	1.55	50	635.93	35.18	40	1148.4	113.95
	141.70	1.75		644.37	36.12	50	1157.0	115.66
3 10	150.04	1.96	13 10	652.81	37.07	23 10	1165.7	117.38
20	158.38	2.19	20	661.25	38.03	20	1174.4	119.12
30	166.72	2.43	30	669.70	39.01	20	1183.1	120.87
40	175.06	2.67	40	678.15	39.99	30	1191.8	122.63
50	183.40	2.93	50	686.60	40.99	40	1200.5	124.41
	191.74	3.21		695.06	42.00	50	1209.2	126.20
4 10	200.08	3.49	14 10	703.51	43.03	24 10	1217.9	128.00
20	208.43	3.79	20	711.97	44.07	20	1226.6	129.82
30	216.77	4.10	30	720.44	45.12	20	1235.3	131.65
40	225.12	4.42	40	728.90	46.18	30	1244.0	133.50
50	233.47	4.76	50	737.37	47.25	40	1252.8	135.35
	241.81	5.10		745.85	48.34	50	1261.5	137.23
5 10	250.16	5.46	15 10	754.32	49.44	25 10	1270.2	139.11
20	258.51	5.83	20	762.80	50.55	20	1279.0	141.01
30	266.86	6.21	30	771.29	51.68	20	1287.7	142.93
40	275.21	6.61	40	779.77	52.89	30	1296.5	144.85
50	283.57	7.01	50	788.26	53.97	40	1305.3	146.79
	291.92	7.43		796.75	55.13	50	1314.0	148.75
6 10	300.28	7.86	16 10	805.25	56.31	26 10	1322.8	150.71
20	308.64	8.31	20	813.75	57.50	20	1331.6	152.69
30	316.99	8.76	30	822.25	58.70	20	1340.4	154.69
40	325.35	9.23	40	830.76	59.91	30	1349.2	156.70
50	333.71	9.71	50	839.27	61.14	40	1358.0	158.72
	342.08	10.20		847.78	62.38	50	1366.8	160.76
7 10	350.44	10.71	17 10	856.30	63.63	27 10	1375.6	162.81
20	358.81	11.22	20	864.82	64.90	20	1384.4	164.86
30	367.17	11.75	30	873.35	66.18	20	1393.2	166.95
40	375.54	12.29	40	881.88	67.47	30	1402.0	169.04
50	383.91	12.85	50	890.41	68.77	40	1410.9	171.15
	392.28	13.41		898.95	70.09	50	1419.7	173.27
8 10	400.66	13.99	18 10	907.49	71.42	28 10	1428.6	175.41
20	409.03	14.58	20	916.03	72.76	20	1437.4	177.55
30	417.41	15.18	30	924.58	74.12	20	1446.3	179.72
40	425.79	15.80	40	933.13	75.49	30	1455.1	181.89
50	434.17	16.43	50	941.69	76.86	40	1464.0	184.08
	442.55	17.07		950.25	78.26	50	1472.9	186.29
9 10	450.93	17.72	19 10	958.81	79.67	29 10	1481.8	188.51
20	459.32	18.38	20	967.38	81.09	20	1490.7	190.74
30	467.71	19.06	30	975.96	82.53	20	1499.6	192.99
40	476.10	19.75	40	984.53	83.97	30	1508.5	195.25
50	484.49	20.45	50	993.12	85.43	40	1517.4	197.53
	492.88	21.16		1001.7	86.90	50	1526.3	199.82
10 10	501.28	21.89	20 10	1010.3	88.39	30 10	1535.3	202.12
20	509.68	22.62	20	1018.9	89.89	20	1544.2	204.44
30	518.08	23.38	30	1027.5	91.40	20	1553.1	206.77
40	526.48	24.14	40	1036.1	92.92	30	1562.1	209.12
50	534.89	24.91	50	1044.7	94.46	40	1571.0	211.48
	543.29	25.70		1053.3	96.01	50	1580.0	213.86



TABLE IV.—TANGENTS AND EXTERNALS TO A 1° CURVE.

Central Angle	Tangent	External	Central Angle	Tangent	External	Central Angle	Tangent	External
31°	1589.0	216.3	41°	2142.2	387.4	51°	2732.9	618.4
10'	1598.0	218.7	10'	2151.7	390.7	10'	2743.1	622.8
20	1606.9	221.1	20	2161.2	394.1	20	2753.4	627.2
30	1615.9	223.5	30	2170.8	397.4	30	2763.7	631.7
40	1624.9	226.0	40	2180.3	400.8	40	2773.9	636.2
50	1633.9	228.4	50	2189.9	404.2	50	2784.2	640.7
32°	1643.0	230.9	42°	2199.4	407.6	52°	2794.5	645.2
10	1652.0	233.4	10	2209.0	411.1	10	2804.9	649.7
20	1661.0	235.9	20	2218.6	414.5	20	2815.2	654.3
30	1670.0	238.4	30	2228.1	418.0	30	2825.6	658.8
40	1679.1	241.0	40	2237.7	421.4	40	2835.9	663.4
50	1688.1	243.5	50	2247.3	425.0	50	2846.3	668.0
33°	1697.2	246.1	43°	2257.0	428.5	53°	2856.7	672.7
10	1706.3	248.7	10	2266.6	432.0	10	2867.1	677.3
20	1715.3	251.3	20	2276.2	435.6	20	2877.5	682.0
30	1724.4	253.9	30	2285.9	439.2	30	2888.0	686.7
40	1733.5	256.5	40	2295.6	442.8	40	2898.4	691.4
50	1742.6	259.1	50	2305.2	446.4	50	2908.9	696.1
34°	1751.7	261.8	44°	2314.9	450.0	54°	2919.4	700.9
10	1760.8	264.5	10	2324.6	453.6	10	2929.9	705.7
20	1770.0	267.2	20	2334.3	457.3	20	2940.4	710.5
30	1779.1	269.9	30	2344.1	461.0	30	2951.0	715.3
40	1788.2	272.6	40	2353.8	464.6	40	2961.5	720.1
50	1797.4	275.3	50	2363.5	468.4	50	2972.1	725.0
35°	1806.6	278.1	45°	2373.3	472.1	55°	2982.7	729.9
10	1815.7	280.8	10	2383.1	475.8	10	2993.3	734.8
20	1824.9	283.6	20	2392.8	479.6	20	3003.9	739.7
30	1834.1	286.4	30	2402.6	483.3	30	3014.5	744.6
40	1843.3	289.2	40	2412.4	487.2	40	3025.2	749.6
50	1852.5	292.0	50	2422.3	491.0	50	3035.8	754.6
36°	1861.7	294.9	46°	2432.1	494.8	56°	3046.5	759.6
10	1870.9	297.7	10	2441.9	498.7	10	3057.2	764.6
20	1880.1	300.6	20	2451.8	502.5	20	3067.9	769.7
30	1889.4	303.5	30	2461.7	506.4	30	3078.7	774.7
40	1898.6	306.4	40	2471.5	510.3	40	3089.4	779.8
50	1907.9	309.3	50	2481.4	514.3	50	3100.2	784.9
37°	1917.1	312.2	47°	2491.3	518.2	57°	3110.9	790.1
10	1926.4	315.2	10	2501.2	522.2	10	3121.7	795.2
20	1935.7	318.1	20	2511.2	526.1	20	3132.6	800.4
30	1945.0	321.1	30	2521.1	530.1	30	3143.4	805.6
40	1954.3	324.1	40	2531.1	534.2	40	3154.2	810.9
50	1963.6	327.1	50	2541.0	538.2	50	3165.1	816.1
38°	1972.9	330.2	48°	2551.0	542.2	58°	3176.0	821.4
10	1982.2	333.2	10	2561.0	546.3	10	3186.9	826.7
20	1991.5	336.3	20	2571.0	550.4	20	3197.8	832.0
30	2000.9	339.3	30	2581.0	554.5	30	3208.8	837.3
40	2010.2	342.4	40	2591.0	558.6	40	3219.7	842.7
50	2019.6	345.5	50	2601.1	562.8	50	3230.7	848.1
39°	2029.0	348.6	49°	2611.2	566.9	59°	3241.7	853.5
10	2038.4	351.8	10	2621.2	571.1	10	3252.7	858.9
20	2047.8	354.9	20	2631.3	575.3	20	3263.7	864.3
30	2057.2	358.1	30	2641.4	579.5	30	3274.8	869.8
40	2066.6	361.3	40	2651.5	583.8	40	3285.8	875.3
50	2076.0	364.5	50	2661.6	588.0	50	3296.9	880.8
40°	2085.4	367.7	50°	2671.8	592.3	60°	3308.0	886.4
10	2094.9	371.0	10	2681.9	596.6	10	3319.1	892.0
20	2104.3	374.2	20	2692.1	600.9	20	3330.3	897.5
30	2113.8	377.5	30	2702.3	605.3	30	3341.4	903.3
40	2123.3	380.8	40	2712.5	609.6	40	3352.6	908.8
50	2132.7	384.1	50	2722.7	614.0	50	3363.8	914.5

TABLE IV.—TANGENTS AND EXTERNALS TO A 1° CURVE.

Central Angle	Tangent	External	Central Angle	Tangent	External	Central Angle	Tangent	External
61°	3375.0	920.2	71°	4086.9	1308.2	81°	4893.6	1805.3
10'	3386.3	925.9	10'	4099.5	1315.0	10'	4908.0	1814.7
20	3397.5	931.6	20	4112.1	1322.9	20	4922.5	1824.1
30	3408.8	937.3	30	4124.8	1330.3	30	4937.0	1833.6
40	3420.1	943.1	40	4137.4	1337.7	40	4951.5	1843.1
50	3431.4	948.9	50	4150.1	1345.1	50	4966.1	1852.6
62°	3442.7	954.8	72°	4162.8	1352.6	82°	4980.7	1862.2
10	3454.1	960.6	10	4175.6	1360.1	10	4995.4	1871.8
20	3465.4	966.5	20	4188.5	1367.6	20	5010.0	1881.5
30	3476.8	972.4	30	4201.2	1375.2	30	5024.8	1891.2
40	3488.3	978.3	40	4214.0	1382.8	40	5039.5	1900.9
50	3499.7	984.3	50	4226.8	1390.4	50	5054.3	1910.7
63°	3511.1	990.2	73°	4239.7	1398.0	83°	5069.2	1920.5
10	3522.6	996.2	10	4252.6	1405.7	10	5084.0	1930.4
20	3534.1	1002.3	20	4265.6	1413.5	20	5099.0	1940.3
30	3545.6	1008.3	30	4278.5	1421.2	30	5113.9	1950.3
40	3557.2	1014.4	40	4291.5	1429.0	40	5128.9	1960.2
50	3568.7	1020.5	50	4304.6	1436.8	50	5143.9	1970.3
64°	3580.3	1026.6	74°	4317.6	1444.6	84°	5159.0	1980.4
10	3591.9	1032.8	10	4330.7	1452.5	10	5174.1	1990.5
20	3603.5	1039.0	20	4343.8	1460.4	20	5189.3	2000.6
30	3615.1	1045.2	30	4356.9	1468.4	30	5204.4	2010.8
40	3626.8	1051.4	40	4370.1	1476.4	40	5219.7	2021.1
50	3638.5	1057.7	50	4383.3	1484.4	50	5234.9	2031.4
65°	3650.2	1063.9	75°	4396.5	1492.4	85°	5250.3	2041.7
10	3661.9	1070.2	10	4409.8	1500.5	10	5265.6	2052.1
20	3673.7	1076.6	20	4423.1	1508.6	20	5281.0	2062.5
30	3685.4	1082.9	30	4436.4	1516.7	30	5296.4	2073.0
40	3697.2	1089.3	40	4449.7	1524.9	40	5311.9	2083.5
50	3709.0	1095.7	50	4463.1	1533.1	50	5327.4	2094.1
66°	3720.9	1102.2	76°	4476.5	1541.4	86°	5343.0	2104.7
10	3732.7	1108.6	10	4489.9	1549.7	10	5358.6	2115.3
20	3744.6	1115.1	20	4503.4	1558.0	20	5374.2	2126.0
30	3756.5	1121.7	30	4516.9	1566.3	30	5389.9	2136.7
40	3768.5	1128.2	40	4530.4	1574.7	40	5405.6	2147.5
50	3780.4	1134.8	50	4544.0	1583.1	50	5421.4	2158.4
67°	3792.4	1141.4	77°	4557.6	1591.6	87°	5437.2	2169.2
10	3804.4	1148.0	10	4571.2	1600.1	10	5453.1	2180.2
20	3816.4	1154.7	20	4584.8	1608.6	20	5469.0	2191.1
30	3828.4	1161.3	30	4598.5	1617.1	30	5484.9	2202.2
40	3840.5	1168.1	40	4612.2	1625.7	40	5500.9	2213.2
50	3852.6	1174.8	50	4626.0	1634.4	50	5517.0	2224.3
68°	3864.7	1181.6	78°	4639.8	1643.0	88°	5533.1	2235.5
10	3876.8	1188.4	10	4653.0	1651.7	10	5549.2	2246.7
20	3889.0	1195.2	20	4667.4	1660.5	20	5565.4	2258.0
30	3901.2	1202.0	30	4681.3	1669.2	30	5581.6	2269.3
40	3913.4	1208.9	40	4695.2	1678.1	40	5597.8	2280.6
50	3925.6	1215.8	50	4709.2	1686.9	50	5614.2	2292.0
69°	3937.9	1222.7	79°	4723.2	1695.8	89°	5630.5	2303.5
10	3950.2	1229.7	10	4737.2	1704.7	10	5646.9	2315.0
20	3962.5	1236.7	20	4751.2	1713.7	20	5663.4	2326.6
30	3974.8	1243.7	30	4765.3	1722.7	30	5679.9	2338.2
40	3987.2	1250.8	40	4779.4	1731.7	40	5696.4	2349.8
50	3999.5	1257.9	50	4793.6	1740.8	50	5713.0	2361.5
70°	4011.9	1265.0	80°	4807.7	1749.9	90°	5729.7	2373.3
10	4024.4	1272.1	10	4822.0	1759.0	10	5746.3	2385.1
20	4036.8	1279.3	20	4836.2	1768.2	20	5763.1	2397.0
30	4049.3	1286.5	3					



DL  
HOR

FR

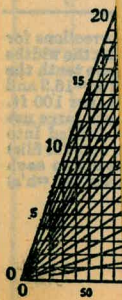
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6.48  

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10.95





**DISTANCES FROM CENTER OF ROADWAY FOR  
CROSS-SECTIONING.**

Roadway 16 feet wide. Side Slopes 1 on 1½  
For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.2	8.3	8.5	8.6	8.8	8.9	9.1	9.2	9.4	0
1	9.5	9.7	9.8	10.0	10.1	10.3	10.4	10.6	10.7	10.9	1
2	11.0	11.2	11.3	11.5	11.6	11.8	11.9	12.1	12.2	12.4	2
3	12.5	12.7	12.8	13.0	13.1	13.3	13.4	13.6	13.7	13.9	3
4	14.0	14.2	14.3	14.5	14.6	14.8	14.9	15.1	15.2	15.4	4
5	15.5	15.7	15.8	16.0	16.1	16.3	16.4	16.6	16.7	16.9	5
6	17.0	17.2	17.3	17.5	17.6	17.8	17.9	18.1	18.2	18.4	6
7	18.5	18.7	18.8	19.0	19.1	19.3	19.4	19.6	19.7	19.9	7
8	20.0	20.2	20.3	20.5	20.6	20.8	20.9	21.1	21.2	21.4	8
9	21.5	21.7	21.8	22.0	22.1	22.3	22.4	22.6	22.7	22.9	9
10	23.0	23.2	23.3	23.5	23.6	23.8	23.9	24.1	24.2	24.4	10
11	24.5	24.7	24.8	25.0	25.1	25.3	25.4	25.6	25.7	25.9	11
12	26.0	26.2	26.3	26.5	26.6	26.8	26.9	27.1	27.2	27.4	12
13	27.5	27.7	27.8	28.0	28.1	28.3	28.4	28.6	28.7	28.9	13
14	29.0	29.2	29.3	29.5	29.6	29.8	29.9	30.1	30.2	30.4	14
15	30.5	30.7	30.8	31.0	31.1	31.3	31.4	31.6	31.7	31.9	15
16	32.0	32.2	32.3	32.5	32.6	32.8	32.9	33.1	33.2	33.4	16
17	33.5	33.7	33.8	34.0	34.1	34.3	34.4	34.6	34.7	34.9	17
18	35.0	35.2	35.3	35.5	35.6	35.8	35.9	36.1	36.2	36.4	18
19	36.5	36.7	36.8	37.0	37.1	37.3	37.4	37.6	37.7	37.9	19
20	38.0	38.2	38.3	38.5	38.6	38.8	38.9	39.1	39.2	39.4	20
21	39.5	39.7	39.8	40.0	40.1	40.3	40.4	40.6	40.7	40.9	21
22	41.0	41.2	41.3	41.5	41.6	41.8	41.9	42.1	42.2	42.4	22
23	42.5	42.7	42.8	43.0	43.1	43.3	43.4	43.6	43.7	43.9	23
24	44.0	44.2	44.3	44.5	44.6	44.8	44.9	45.1	45.2	45.4	24
25	45.5	45.7	45.8	46.0	46.1	46.3	46.4	46.6	46.7	46.9	25
26	47.0	47.2	47.3	47.5	47.6	47.8	47.9	48.1	48.2	48.4	26
27	48.5	48.7	48.8	49.0	49.1	49.3	49.4	49.6	49.7	49.9	27
28	50.0	50.2	50.3	50.5	50.6	50.8	50.9	51.1	51.2	51.4	28
29	51.5	51.7	51.8	52.0	52.1	52.3	52.4	52.6	52.7	52.9	29
30	53.0	53.2	53.3	53.5	53.6	53.8	53.9	54.1	54.2	54.4	30
31	54.5	54.7	54.8	55.0	55.1	55.3	55.4	55.6	55.7	55.9	31
32	56.0	56.2	56.3	56.5	56.6	56.8	56.9	57.1	57.2	57.4	32
33	57.5	57.7	57.8	58.0	58.1	58.3	58.4	58.6	58.7	58.9	33
34	59.0	59.2	59.3	59.5	59.6	59.8	59.9	60.1	60.2	60.4	34
35	60.5	60.7	60.8	61.0	61.1	61.3	61.4	61.6	61.7	61.9	35
36	62.0	62.2	62.3	62.5	62.6	62.8	62.9	63.1	63.2	63.4	36
37	63.5	63.7	63.8	64.0	64.1	64.3	64.4	64.6	64.7	64.9	37
38	65.0	65.2	65.3	65.5	65.6	65.8	65.9	66.1	66.2	66.4	38
39	66.5	66.7	66.8	67.0	67.1	67.3	67.4	67.6	67.7	67.9	39
40	68.0	68.2	68.3	68.5	68.6	68.8	68.9	69.1	69.2	69.4	40

**Example**—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 41.9. For same slopes but other widths of roadbed correct above figures by one-half difference in width of roadbed; thus in example above for 20 ft. roadbed distance will be  $41.9 + (20 - 16) \div 2$  or 2 ft. added to 41.9 = 43.9. For slopes of 1 on 1 see inside of front cover.

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