

1974



DIARY
1974
NOVEMBER

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 $30.6 + (20 - 16) \div 2$ or 2 ft. added to 30.6 = 32.6. For slopes of 1 on $1\frac{1}{2}$ see inside of back cover.
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Return:

to CITY ENGINEER

CIVIC CENTER

SAN DIEGO

ENGINEERING DEPARTMENT,
CITY OF SAN DIEGO,
CALIFORNIA.

The paper stock of this book is made 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.

8/14/39
Miller
Walker
Bliss

Trunkline Sewer from Ex M.H.
Una + Fisher to Wabash + Univ. Ave.

Indexed
C.S.K.

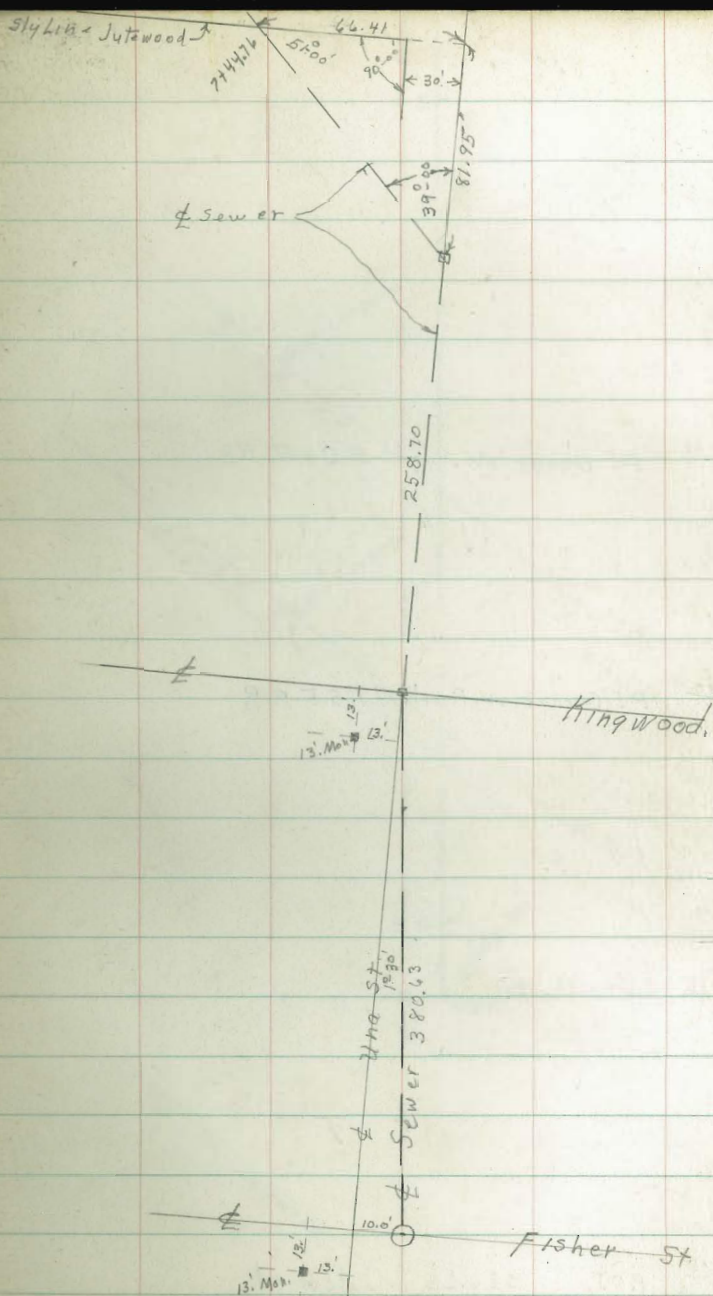
6+39³³

$\Delta 39^{\circ}00' \text{ Lt.}$ { ϕ Una St.
5. Wpt ϕ P.L. 1167

3+80⁶³

$\Delta 1^{\circ}30' \text{ Rt.}$ ϕ Una + Kingwood.

0+00 Ex M.H. { ϕ Fisher St.
100 s.e. of ϕ Una St.

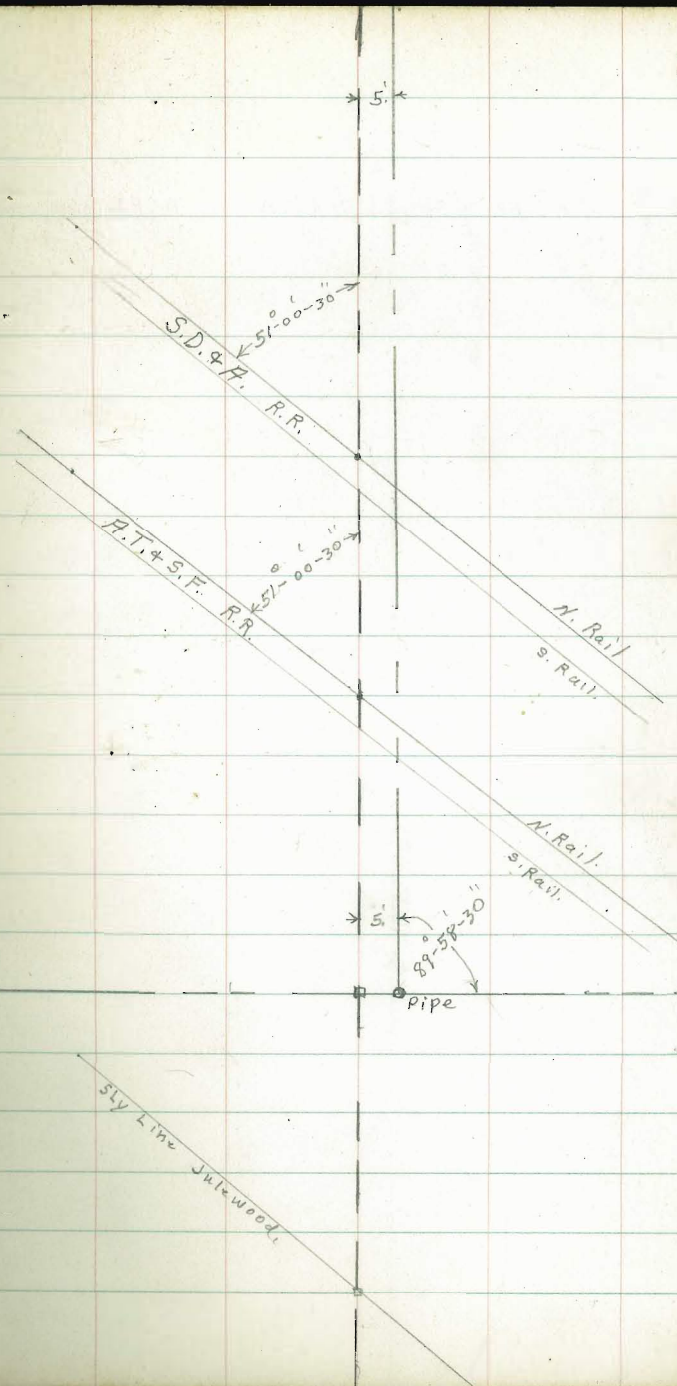


10+95 ⁴¹ P.I. Gauge N. Rail S.D. & H. RR

9+66 ⁷⁰ P.I. Gauge N. Rail A.T. S.F. RR

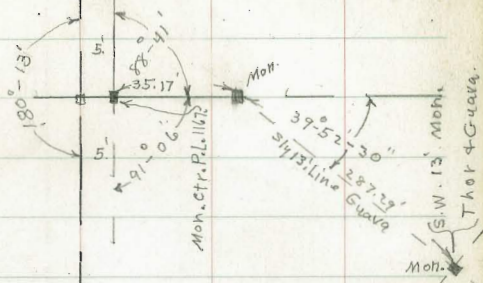
8+93.16 S. Line P.L. 1167

7+44 ⁷⁶ P.O.T. Sly Line Jutewood



22+12¹⁴ stub 5' W. of ctr. P.L. 11.67 Δ 0°-13 RT.

4 P.L. 1167.



4 P.L. 1167.

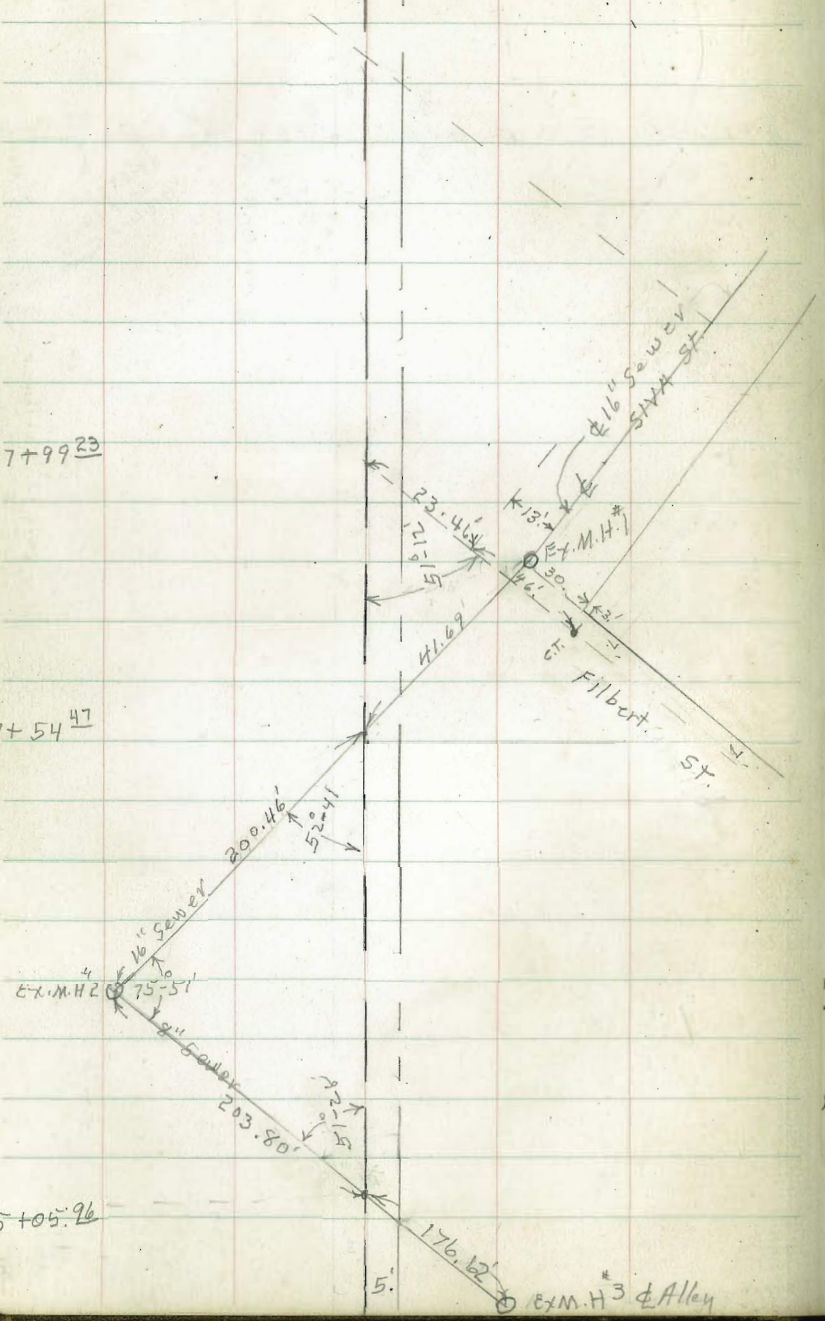
27+99²³

27+54⁴⁷

25+05⁹⁶

5.

5.



EX.M.H.3 ϕ Alley

Walker
Bliss = π
Isbell

Stations are from Federal Blvd. = 0+00 = Grid. Book 192

Check Levels: Cholla Valley Sewer Ocean View to Bay

π
15.13

Levels are over
cut stakes.

5

View Blvd.	to						
8M	0.41	22.59	22.18	SE TOPHY 3421 Ocean View Blvd.	61+00	4.81	10.32
					+34 ⁴ = M.H.	4.72	10.41
					+50	5.09	10.04
53+23 ⁶¹ = M.H.			3.35		62+00	5.23	9.90
+64			3.51		+50	5.31	9.82
54+00			5.08		63+00	5.20	9.93
+50			6.28		+50	4.95	10.18
+939 = M.H.			6.59		64+00	4.32	10.81
T.P.					+50	3.31	11.82
55+50	2.55	18.39	6.75		T.P. 65+00	5.95	17.96
56+00			3.09		+50	8.08	9.88
+50			4.03		66+00	7.67	10.29
57+00			4.58		+55 ⁵⁸ = M.H.	1.30	16.66
+50			5.61		67+00	4.03	13.93
58+00			6.29		+42 ⁴⁷ = M.H.	8.91	9.05
+14			6.72		68+00	7.31	10.65
+50			6.89		+50	10.44	7.52
59+00			7.38		69+00	10.03	7.93
+50			7.80		+50	11.08	6.88
T.P.	4.69	15.13	7.95		70+00	11.03	6.93
60+00			4.45				
+50			4.58				

T
1796

T.P.				
70+50	348	10.25	11.19	6.77
+64 ² = M.H.			3.51	6.74
71+00			3.57	6.68
+50			3.69	6.56
72+00			3.78	6.47
+50			4.01	6.24
73+00			4.35	5.90
Check BM SE 34 th National		3.46		6.79
+50			4.33	5.92
74+00			6.90	3.35
+99 ² = M.H.			7.94	2.31
75+00			8.52	1.73
+50			6.96	3.29
76+00			8.49	1.76
+50			8.39	1.86
T.P.				
77+00	3.17	5.60	7.82	2.43
+50			5.16	0.44
78+00			3.65	1.95
+50			3.64	1.96
79+00			6.62	-1.02

T
5.60

6

79+50			6.74	-1.14
+81.8 = M.H.			6.71	-1.11
on 4x4 13' pt			5.28	0.32
				Boston + 34 th
T.P.	5.35	6.65	4.30	1.30
T.P.	2.84	5.93	4.56	2.09
chk. Hub 12+98.55	Book 1503-41	5.00		0.93
T.P.	1.32	6.90	0.35	5.58
check. Hub NW 7 th Line Fillcut	^{F 8 1503} P. 42	6.90		00 = 10.05
T.P.	7.84	13.92	0.82	6.08
T.P.	8.24	20.76	1.40	12.52
check on 6 ⁵	^{261315 F 8 1503}		4.86	15.90
	^{P. 42} ^{F 8 1503}			Not Recorded in Book 1503
chk. Hub 26+31 ⁵			5.13	15.63
T.P.	1.97	14.19	8.54	12.22
T.P. ^{Nail in post}	8.43	13.48	9.12	5.05
39+90.31	Book 1503-38		10.20	3.28 on stub.
13' Mon. Tutewood & Una			11.11	2.37
44+62.69 = 2 stub Una & Kingwood			5.14	8.34
T.P.	3.09	11.27		
13' Mon. Una & Kingwood			5.30	8.18
13' Mon. Una & Fisher			5.51	5.76
" " " "				Book 1503
				5.84 Page 43
				0.08 = diff.

1348

Rim M.H. Una + Fisher 5.44

21.08 - 7.60

π
11.27

Flow M.H. Una + Fisher = 21.08 - 9.81

Rim " " " 5.44 5.83

Isbell = π Recheck line levels
Bliss

From Boston & 34th to Una + Fisher Sts.

Boston + 34th

Page 6 5.61 5.93 0.32 4"x4" R.Wood Hub.

T.P. 9.08 9.24 5.77 0.16

Chk. 1249 B. 55
Book 1503

T.P. 9.81 10.76 8.29 0.95

Hub. N7 line
Hilbert
P-6

T.P. 11.46 11.48 10.74 0.02

T.P. 9.82 20.68 0.62 10.86

chk d. stub 26+31.5 5.05 15.63 P-6

P-6

" Non 6' R. 26+31.5 4.77 15.91

T.P. 1.50 14.43 7.75 12.93

T.P. 3.52 10.74 7.21 7.22

13' Men Tute wood + Una 8.31 2.43 P-6

4.21 12.70 2.25 8.49

13' Men Una + Kingwood 4.46 8.24 P-6

π
12.70

13' Men Una + Fisher 6.87 5.83 P-6

Rim M.H. " " 6.81 5.89

Flow " " " 22.36 - 9.66

Note: Previous shots on Flow line were measured with various sticks nailed together. The above measurement to Flow from Rim of M.H. measured with steel Rod and is probably the most reliable. so the Grades of the proposed sewer should be laid to the above Flow line.

E.I. - 9.66

Levels on 47th St. 1' East of East
 edge Walk = 1' West of E Line 47th
 From 375' N.N.L. Ocean View to Imp. Ave.

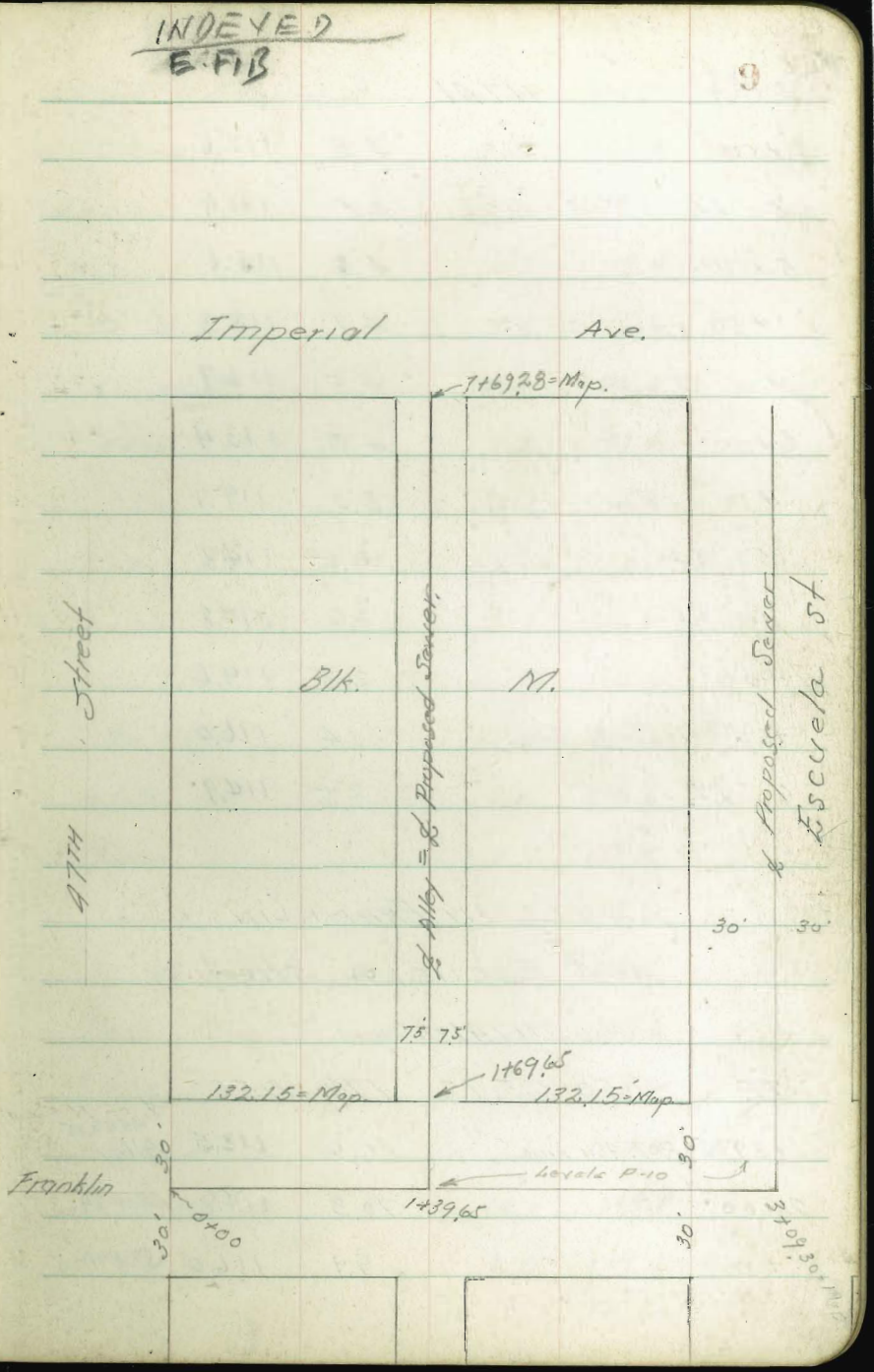
SW.B.P. 47th Ocean View Bld	1.18	117.67	116.49
375' N.N.L. Ocean View = 0+00 going North = DE. Next Sewer?	8.0	109.7	
1+00 1' Lt. on Walk	8.11	109.56	
70' Rt.	7.8	109.9	
TP	8.13	117.08	8.72 108.95
2+00 1' Lt. on Walk	8.07	109.01	
30' Rt.	6.6	110.5	
2+49 on cb. Franklin Ave	8.13	108.95	
+88 " " cb. " "	7.50	109.58	
3+00 1' Lt. on Walk	7.43	109.65	
30' Rt.	6.0	111.1	
4+00 1' Lt. " "	6.70	110.38	
30' Rt.	6.6	110.5	
5+00 1' Lt. " "	5.74	111.34	
20' Rt. = low point in lot	7.5	109.6	
50' Rt. " " " "	7.2	109.9	
1' Lt. on Walk			Cess pool being dug here.
5+80 = N edge House	5.04	112.04	
20' Rt. = Floor House	4.10	112.98	Front Porch.
20' Rt. on ground	5.1	112.0	
7+00 1' Lt. on Walk	3.97	113.11	
25' Rt.	3.7	113.4	

117.08

8+00 1' Lt. on Walk	4.20	112.88	8
20' Rt.	3.7	113.4	
8+98 1' Lt. " "	4.70	112.38	Sta = Same Imp. Ave Approx.
20' Rt.	3.0	114.1	
47th + Ocean View Ck. Starting BM	0.60	116.48	
		116.49	
		0.01 = Error	

Walker, Preliminary levels for Sewer.
Bliss 1-31-00 14 FRANKLIN AVE And Blk. M. Map 10 29
Tobell Bet. 47th And Escuela El. TP. Page 8

5.71	114.66	108.95	
chk. sta 2+49 P. 8 each.	5.73	108.93	2+69.5
0+00 = E.L. 47th	5.60	109.06	on Facing.
+50	3.2	111.5	3+19.5
1+00	2.3	112.4	3+69.5
+39.65 = Δ & Alley	1.2	113.5	4+09.15
TP 401	117.41	126	113.40
1+69.65 = N.E. Franklin.	2.6	114.8	
2+00	2.2	115.2	
70' Lt.	4.2	113.2	
2+50	2.3	115.1	
2+80	2.8	114.6	
9' Lt. = House of Alley	3.5	113.9	on Floor.
3+00	3.6	113.8	
+35	6.1	111.3	
7.5' Lt. = House of Alley	5.3	112.1	on Floor.
3+70	6.1	111.3	
50' Lt. in lot	7.4	110.0	This lot is the lowest Point in Blk.
4+00	5.1	112.3	
50' Lt.	5.3	112.1	



117.41			
4+50	4.8	112.6	
50' Lt	5.5	111.9	
5+00	4.3	113.1	
+50	4.1	113.3	
60' Rt	4.5	112.9	
6+00	4.0	113.4	
+50	3.3	114.1	
50' Lt	2.6	114.8	
50' Rt	2.6	114.8	
7+00	2.8	114.6	
+69.28 = M _{sp} = S _h . Imp.	1.4	116.0	
60' Lt	2.5	114.9	

LEVELS IN FRANKLIN
And ESCUELA Streets.

117.41 = π Above

T.P.	9.50	125.12	179	115.62	
1+39.65 = P.O.T. this size			11.6	113.5	$\frac{1}{2}$ of N + South Alley.
2+00			10.3	114.8	4+69.5
+50			9.1	116.0	5+19.5

125.12			
3+09.3 = Δ Escuela st.	7.4	117.7	10+78.8
+39.3 = N.L. " "	7.1	118.0	
4+00	6.0	119.1	
+50	6.7	118.4	
50' Lt	8.5	116.6	
50' Rt	4.8	120.3	
5+00	7.7	117.4	
+20	8.2	116.9	
70' Lt	12.0	113.1	Lowest lot on West
6+00	8.9	116.2	
60' Lt	10.9	114.2	
70' Rt	7.5	117.6	
6+50	8.5	116.6	
7+00	7.7	117.4	
50' Lt	9.6	115.5	
75' Rt	7.6	117.5	
7+50	7.5	117.6	
8+00	6.9	118.2	
60' Lt	9.1	116.0	
75' Rt	5.3	119.8	
8+50	6.0	119.1	

9+00 4.2 120.9

+39.3 = S.L. Temp Ave. 2.1 123.0

60' Rt. +2.3 127.4

120' Lt. 8.2 116.9

TP	5.94	118.22	12.84	112.28	
375' N.N.W. Ocean View					Grid Book 195-2

chk. on Walk 0+00	8.51	109.71	109.69	0.02 Error	
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chk. SW. BP 47th, Ocean View	= 1.72	116.50	Page 8		
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116.49 = 8M.

0.01 = Error.

Walker
Bliss
Isbell 2-15-40

Check levels on Grade stakes (as staked in Grade Book 192)
Cholla Valley Sewer Construction
From Imperial Ave to Ocean View Blvd.

	9.71	24.25	14.54	
Sta. in end. Book 192			44+83.56 Book 1573	
33+50		4.82	19.43	
34+00		4.20	20.05	
+50		4.30	19.95	
35+00		4.33	19.92	
+50		4.45	19.80	
36+12.96 MH#11		4.73	19.52	
36+50		6.27	17.98	
37+00		7.88	16.37	
+30		8.03	16.22	
38+00		8.65	15.60	
+50		8.54	15.71	
39+00		8.33	15.92	
+68.33 = MH#12		9.18	15.07	
40+00		9.01	15.24	
+50		8.48	15.77	
41+00		8.56	15.69	
+55.47 MH#13 = 54.86 } equation		8.41	15.84	
42+00		9.44	14.81	

42+50		10.06	14.19	
43+00		9.21	15.04	
+50		8.49	15.76	
44+00		9.21	15.04	
+50		8.71	15.54	
+83.56 = Δ 0°01'30" Rt.		9.32	14.93	
T.P.	2.96	17.50	9.71	14.54
45+00		2.84	14.66	
+50		4.98	12.52	
46+00		5.40	12.10	
+50		5.59	11.91	
+73.68 = MH#14		5.13	12.37	
47+00		5.97	11.53	
+50		3.76	13.74	
48+00		3.36	14.14	
+50		4.28	13.22	
+69.88 = Δ 0°39'30" Lt.		4.93	12.57	
49+00		7.07	10.43	
+50		3.47	14.03	
T.P.	7.09	22.85	1.74	15.76

2 stake
#1183.56

π
 22.85

50+00 7.16 15.69

+50 6.66 16.19

51+00 6.79 16.06

+50 6.86 15.99

52+00 6.01 16.84

+50 4.30 18.55

53+00 3.72 19.13

+2361 = MH #15 3.65 19.20

cht. SE B.M. top H/dt. 0.71 22.14

22.18

0.04 = Error

M.H. Ker.
Bliss

Isbell 2-23-40

CROSS SECTION

ELIZABETH STREET

60' Wide
10' cbs.
10' 1/4s.

From OCEAN VIEW BLVD.

To ~~URBAN ST~~ ^{T ST}

0.16 85.60 85.44
4.07 76.87 12.80 72.80

chk. on MH # 8 cutstake. 6.59 70.28

Elev. Above Stake OS per Grid Book 195-3 = 70.27 0.01 = Error.

" Flow Line of Above M.H. To be Const. = 63.03

0 - 30 = E. Exist. Paving.

W - 50' on paving. 11.17 65.70'

W.L. Elizabeth on Pav. 8.13 68.74' op. C.T. in Pav.

E " " " 6.65 70.22'

E.L. " " " 5.30 71.57'

+80 " " " 1.66 75.21'

0 - 20' = South edge Existing Paving.

E.L. - 80 on Pav. 1.66 75.21'

Elev. " " " 5.41 71.46'

E " " " 6.74 70.13'

W.L. " " " 8.13 68.69'

+50 " " " 11.29 65.58'

0 + 00 = S.L. Ocean View Blvd.

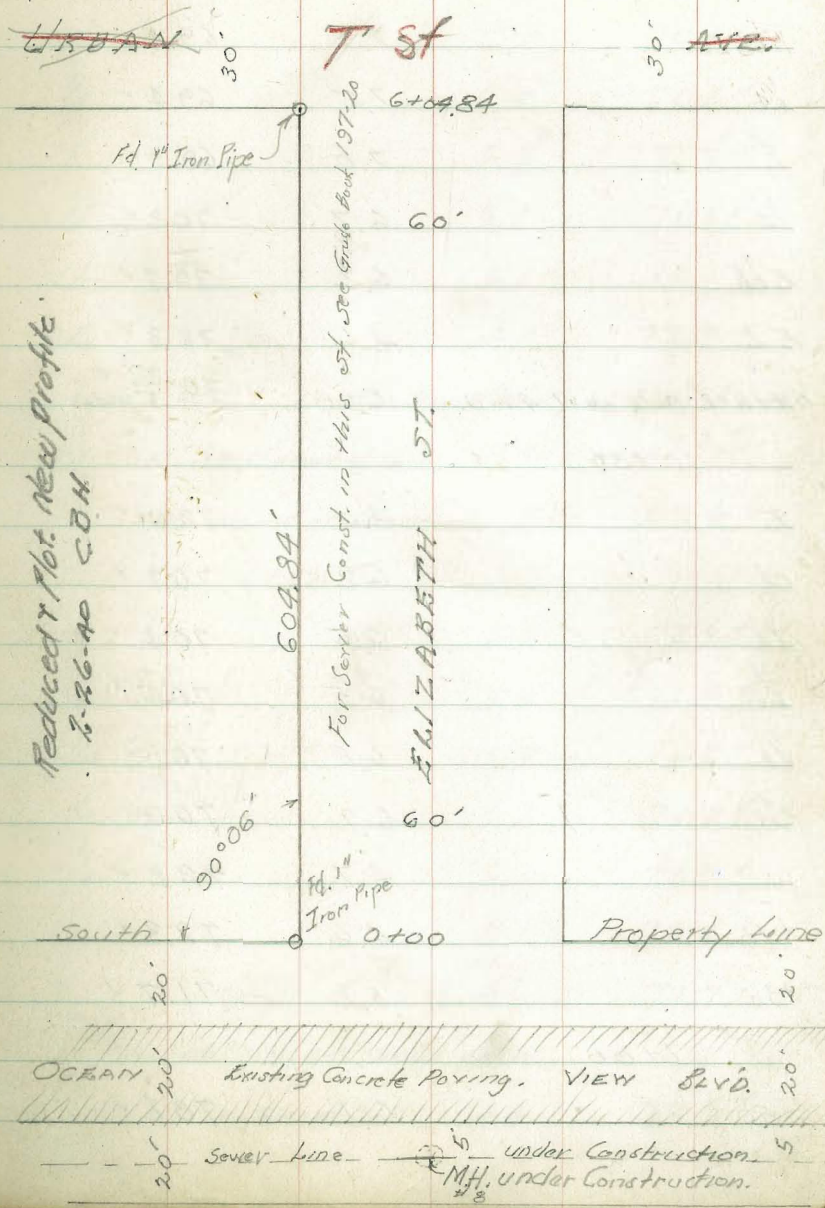
W - 50 10.0 66.9

75.9

INDEXED

E.F.B.

14



Reduced to New Profile
2-26-40 C.D.H.

For Sewer Const. in this st. see Grid Book 197-20

South

1 1/2" Iron Pipe

OCEAN

Existing Concrete Paving. VIEW BLVD.

Sewer Line

M.H. under Construction.

76.87

Wks. on Ground at base Cobble	7.6	69.3 ✓
" ^{-0.35'} on Top cble. Wall	5.0	71.9 ✓
Wcb.	7.5	69.4 ✓
1/4	7.5	69.4 ✓
ℓ	7.0	69.9 ✓
1/4	6.7	70.2 ✓
Ecb.	6.2	70.7 ✓
E.L.	4.6	72.3 ✓
0+18 = ℓ Walk on W 4 in. 3" wide.	6.60	70.27 ✓
0+50		
E	4.0	72.9 ✓
cb.	6.2	70.7 ✓
1/4	6.5	70.4 ✓
ℓ	6.5	70.4 ✓
1/4	6.8	70.1 ✓
cb.	6.9	70.0 ✓
W	4.7	72.2 ✓
+10	4.6	72.3 ✓
+30	5.2	71.7 ✓
1+00		
-50	6.1	70.8 ✓

76.87

-4 "	4.4	72.5 ✓ 15
W	5.0	71.9 ✓
cb.	6.5	70.4 ✓
1/4	6.5	70.4 ✓
ℓ	6.2	70.7 ✓
1/4	6.1	70.8 ✓
cb.	5.8	71.1 ✓
E.	4.7	72.2 ✓
1+29 = N. edge House on W, on Rear of Lot.		
100' W W.L. = east front of House	9.5	67.4 ✓ Floor Elev.
" on Ground at House	10.5	66.4 ✓
1+50		
E	4.6	72.3 ✓
cb.	5.5	71.4 ✓
1/4	5.7	71.2 ✓
ℓ	5.7	71.2 ✓
1/4	6.0	70.9 ✓
cb.	6.1	70.8 ✓
W	5.2	71.7 ✓
1+67 = N. side House on W. 19' Back		
on Floor "	4.4	72.5 ✓

76.87

2+00

-20	6.1	70.8 ✓
W	5.5	71.4 ✓
cb.	5.7	71.2 ✓
1/4	5.7	71.2 ✓
2	5.3	71.6 ✓
1/4	5.3	71.6 ✓
cb.	4.8	72.1 ✓
E	3.8	73.1 ✓

2+50

E	3.5	73.4 ✓
cb.	4.7	72.2 ✓
1/4	4.7	72.2 ✓
2	5.0	71.9 ✓
1/4	5.5	71.4 ✓
cb.	5.6	71.3 ✓
W	5.4	71.5 ✓
+40	6.6	70.3 ✓

3+00

-50	7.3	69.6 ✓
W	5.3	71.6 ✓

76.87

1/6

5.5	71.4 ✓	
5.6	71.9 ✓	
4.9	72.0 ✓	
4.4	72.5 ✓	
E cb.	4.6	72.3 ✓
E	3.4	73.5 ✓
T.P.	14.18	86.49 ✓
	3+50	

E	12.1	74.4 ✓
cb.	14.0	72.5 ✓
1/4	13.7	72.8 ✓
2	14.3	72.2 ✓
1/4	14.5	72.0 ✓
cb.	14.7	71.8 ✓
W	14.8	71.7 ✓
+100	19.5	67.0 ✓

4+00

-20	16.5	70.0 ✓
W	14.4	72.1 ✓
cb.	14.3	72.2 ✓
1/4	14.0	72.5 ✓

86.49

Elizabeth St. X-Sections.

d	13.5	73.0 ✓
1/4	13.3	73.2 ✓
cb.	13.9	73.1 ✓
E.	11.6	74.9 ✓

4+50

E.	11.2	75.3 ✓
cb.	12.8	73.7 ✓
1/4	12.4	74.1 ✓
L	12.7	73.8 ✓
1/4	13.3	73.2 ✓
+5	13.2	73.3 ✓
cb.	13.7	72.8 ✓
W	13.7	72.8 ✓
+10	15.6	70.9 ✓
+100'	20.7	65.8 ✓

5+00

-15	14.8	71.7 ✓
W	12.6	73.9 ✓
cb.	12.4	74.1 ✓
1/4	12.2	74.3 ✓
L	11.8	74.7 ✓

86.49

1/4	11.3	75.2 ✓
cb.	11.8	74.7 ✓
E.	10.5	76.0 ✓

5+50

E.	9.5	77.0 ✓
cb.	10.5	76.0 ✓
1/4	10.5	76.0 ✓
L	10.5	76.0 ✓
1/4	10.8	75.7 ✓
+6	11.1	74.4 75.4
cb.	10.7	75.8 ✓
+6	10.8	75.7 ✓
W	11.4	75.1 ✓
+6	7.1	79.4 ✓
+15	7.7	78.8 ✓
+122 on ground	16.1	70.4 ^{5' N.W. edge} House on Rear
" 5' South on Floor	14.7	71.8 ✓
6+04.84 = N.W. Urban A/c		
W	9.1	77.4 ✓
cb.	8.8	77.7 ✓
1/4	8.8	77.7 ✓

8649 Elizabeth

L	8.5	78.0 ✓
E 1/4	8.4	78.1 ✓
cb.	8.5	78.0 ✓
E	6.5	80.0 ✓

CROSS SECTION ^{T St} URBAN AVE.

From West Line Jobs Add To 45th St

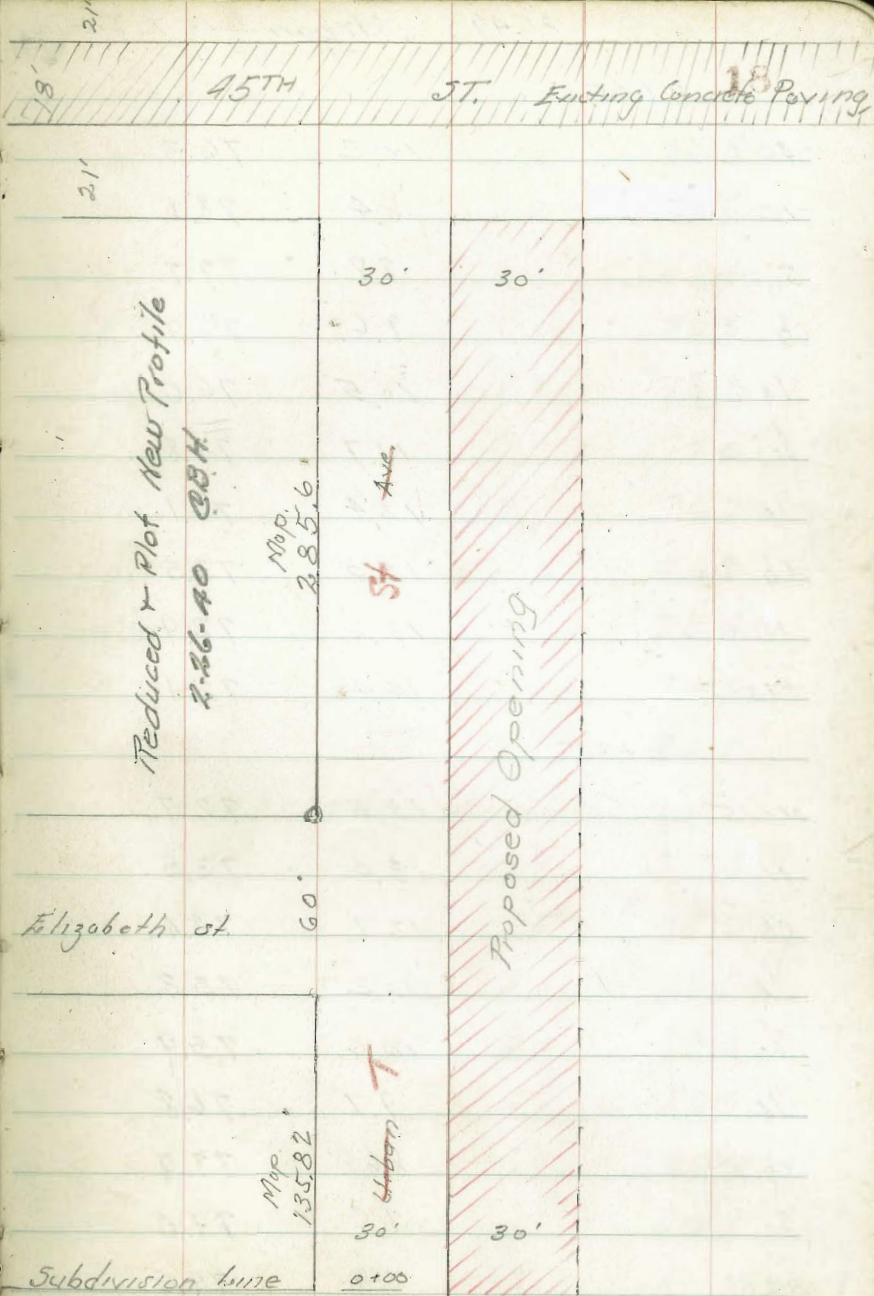
Note, Urban Ave = 30' Wide But Cross Sections

Were extended to include 30' opening South

of present E. 50 Sections are for 60' st
10' cbs.
10' 1/4s

Above T
8649 ✓

0+00		
N-15	16.5	70.0
N	15.5	71.0
cb.	14.7	71.8
1/4	14.7	71.8
L = present south line	14.8	71.7
1/4	13.8	72.7
cb.	14.0	72.5
S = Proposed share	14.0	72.5
+20	13.8	72.7



8649

~~Urban Ave X. Section.~~
T St

0+45		
-40'	10.2	76.3
-10'	8.4	78.1
S	8.8	77.7
cb.	9.6	76.9
1/4	10.5	76.0
1/2	11.7	74.8
3/4	12.4	74.1
cb.	13.0	73.5
N	13.6	72.9
+15	14.4	72.1

0+65

N-15	13.8	72.7
N	13.0	73.5
cb.	12.1	74.4
1/4	11.2	75.3
1/2	10.4	75.9
3/4	9.7	76.8
cb.	8.6	77.9
S	7.5	79.0
+20	6.9	79.6

8649

1+00

19

-40	5.7	80.8
-20'	4.9	81.6
S	6.1	80.4
cb.	7.0	79.5
1/4	8.2	78.3
1/2	9.5	77.0
3/4	9.8	76.7
cb.	10.2	76.3
N	11.1	75.4
+5	12.0	74.5
+15	12.3	74.2

1+35.82 - W.L. Elizabeth

N	9.1	77.4
cb.	8.5	78.0
1/4	8.0	78.5
1/2	7.5	79.0
+6	6.0	80.5
1/4	6.0	80.5
cb.	5.6	80.9
S	5.2	81.3
+20	5.1	81.4

8649

1+65.82 = E. Elizabeth St. on N.

-20	4.6	81.9
S	4.3	82.2
cb.	5.0	81.5
1/4	5.5	81.0
L	6.4	80.1
1/4	7.2	79.3
cb.	8.0	78.5
N	8.5	78.0

1+85.82 = E. cb. Elizabeth on N.

N	8.5	78.0
cb.	7.8	78.7
1/4	7.0	79.5
L	5.6	80.9
1/4	5.1	81.4
cb.	4.5	82.0
S	3.8	82.7
+20	4.2	82.3

1+95.82 = E.L. Elizabeth on N.

-20	3.7	82.8
S	3.5	83.0

8649

~~4000~~ AVE X-Section.

T 31

cb.	4.3	82.2 ²⁰
1/4	4.2	82.3
L	4.0	82.5
1/4	4.9	81.6
cb.	5.1	81.4
N	6.5	80.0

2+50

N	2.4	84.1
cb.	2.3	84.2
1/4	2.3	84.2
L	2.0	84.5
1/4	1.8	84.7
cb.	2.3	84.2
S	1.7	84.8
+20	2.2	84.3

3+00

-20	2.2	84.3
S	0.7	85.8
cb.	1.5	85.0
1/4	1.2	85.3
L	0.7	85.8

86.49

T.P.	4.13	89.98 ✓	0.64	85.85
1/4			4.3	85.7
cb.			4.4	85.6
N			4.5	85.5
3+50				
N			3.6	86.4
cb.			3.6	86.4
1/4			3.8	86.2
L			3.6	86.4
1/4			3.6	86.4
+5			5.1	84.9
cb.			5.3	84.7
+5			4.9	85.1
S			5.5	84.5
+40'			8.8	81.2
+100'			8.0	82.0
4+00				
-100			5.0	85.0
-30'			8.4	81.6
S			6.9	83.1
cb.			6.5	83.5

89.98

+4			5.6	84.4 ²¹
1/4			5.9	84.6'
L			4.6	85.4
1/4			4.5	85.5
cb.			4.6	85.4
N			2.6	85.4
4+50				
N-10			6.0	84.0
N			6.0	84.0
cb.			6.0	84.0
1/4			6.0	84.0
L			5.2	84.8
1/4			5.3	84.7
cb.			6.9	83.1
S			6.3	83.7
+20			5.9	84.1
+100			5.9	84.1
4+81.4 = W.L. 45th				
-20'			5.8	84.2
S			5.6	84.4
cb.			5.4	84.6

89.98

Urban St. X-Section.

T St

+4	7.1	82.9
1/4	5.0	85.0
d.	5.0	85.0
1/2	5.0	85.0
cb.	5.8	84.2
N	6.7	83.9
+10	6.1	83.9

45th St.

5+02.4 = Wedge Exist. 18' Strip Paving

N-50' on Pav.	4.23	85.75
N " "	4.40	85.58
cb. " "	4.45	85.53
1/4 " "	4.45	85.53
R " "	4.40	85.58
1/4 " "	4.37	85.61
cb. " "	4.40	85.58
S " "	4.36	85.62
+50' " "	4.31	85.67

chk. starting B.M. Page 14

4.55 85.43

C.T. in Pav

45th

+ Clear View

85.44 = B.M.

0.01 = Error.

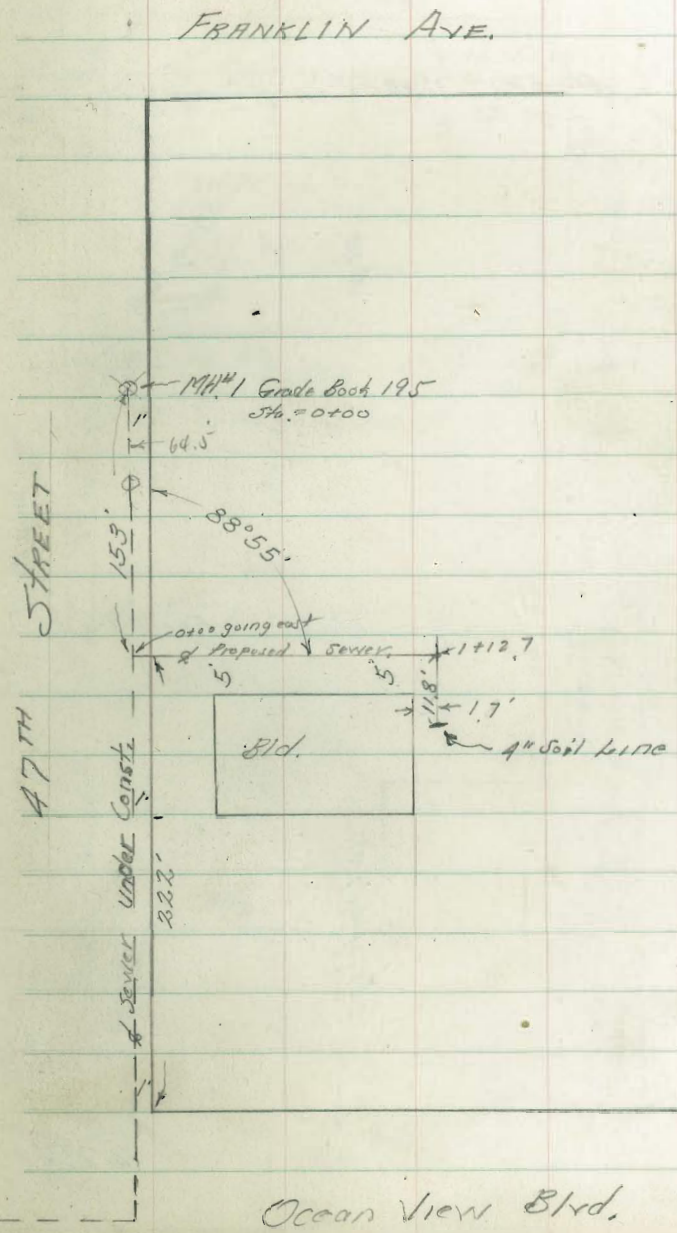
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Walker
Bliss
Isbell
3-9-10

Preliminary Location
And Levels For Proposed Sewer
In Grounds of Ocean View School
North of Ocean View Blvd, East of 47th

5.20	116.82	111.62	El. Cut on cross 1+50 Grid Book 195
0-2' = 3' West of Prop. on side walk			
0+00 = Intersection Sewer Under Const. 101.79			
0+01 = east edge ditch.	5.2	111.6	Flow line of sewer Under Const.
+50	5.3	111.5	
5' Rt. of Blvd	5.0	111.8	
1+00	3.4	113.4	
5' Rt. of Blvd.	3.1	113.7	
1+12.7	2.0	114.8	
6 ⁸ South. N.E. Cor. Blvd.	5.25	111.57	Flow line 4" Soil pipe
chk. cut Mark. in Walk 0+00	7.11	109.71	Grid Book 195
		109.69	El. Cross-195-2
		0.02	Factor

INDEXED
E.F.B.



PRELIMINARY SEWERS
 ALTA VISTA SUBURB MAP #1029

INDEXED
 EPB

Mulkey
 8/155
 1st wall
 3-7-40

B.M. Elev 137.85
 Page 32

Cont. P. 25

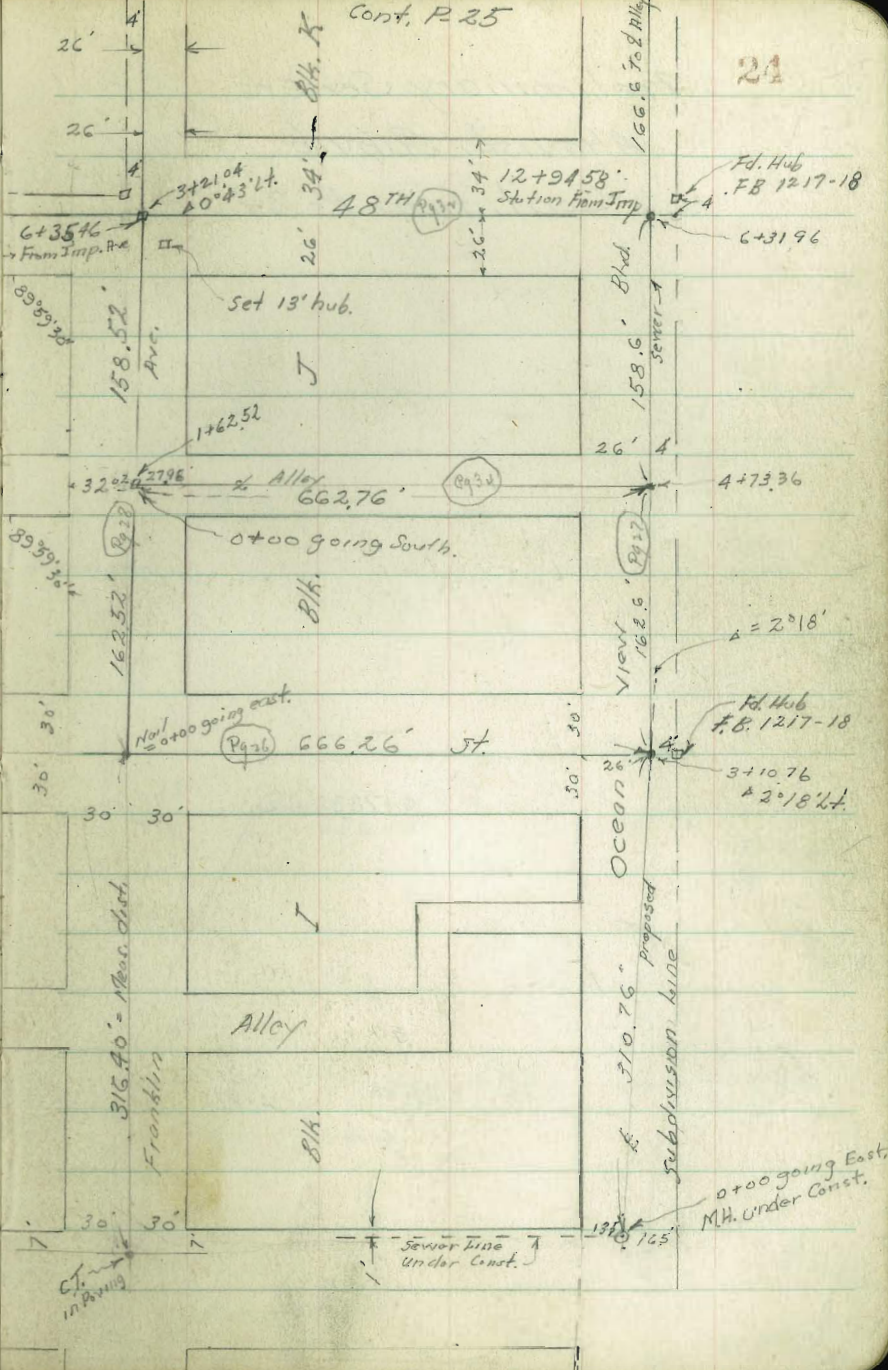
24

Ave

Imperial

Escuela

47TH



Abandoned

proposed subdivision line

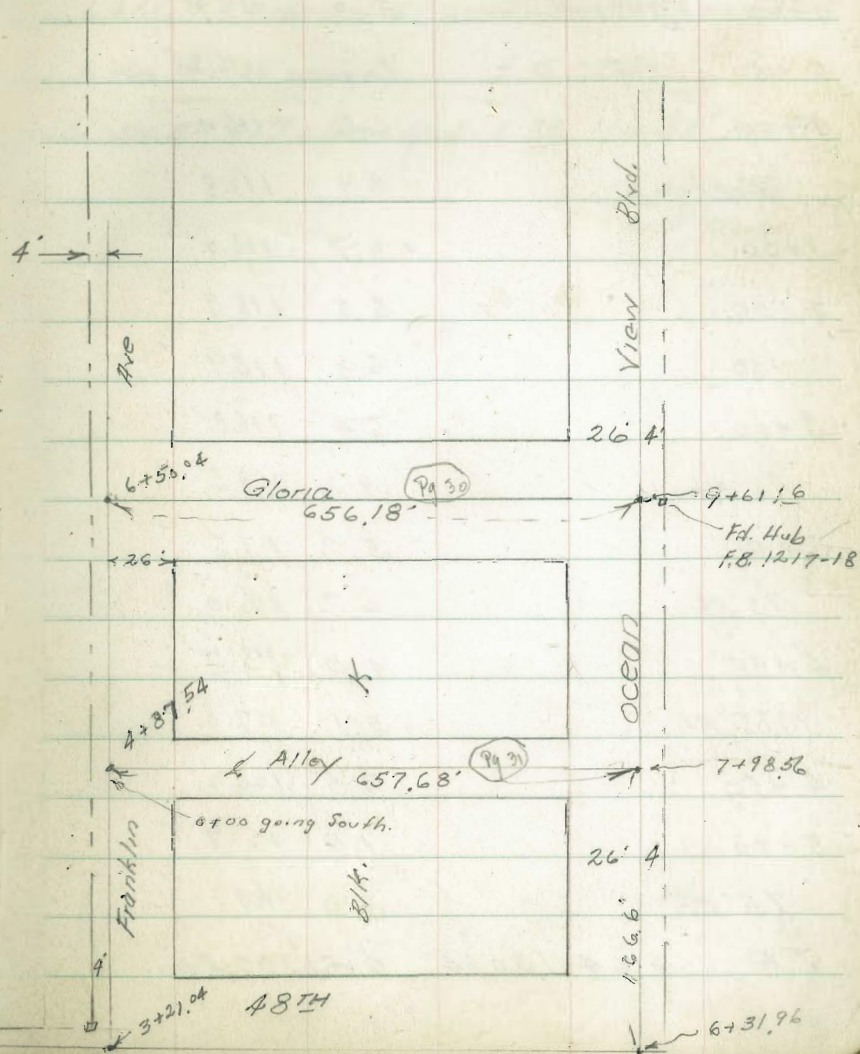
0+00 going East
 M.H. Under Const.

Preliminary Sewers
 Altavista Suburb
 Cont. from P-24

6+78.98

$\Delta 31^{\circ}55' \text{ L.H.}$
 4+87.54

Abandoned



Walker
Bliss
Isbell
3-9-40

Preliminary levels for Sewer

IN $\frac{1}{2}$ Escuela St. From $\frac{1}{2}$ Franklin
to Ocean View Blvd. Sketch

P-24
ST. CUT 17th 1900
Ord. 8-195-2
P-11-This Book

	13.02	122.71	109.69
$\frac{1}{2}$ Escuela St.			
=0+00 on nail	5.81	116.90	
0+00 on ground	5.3	117.4	
0+50	6.2	116.5	
1+00	6.6	116.1	
75' Rt.	8.9	113.8	
1+50	6.7	116.0	
2+00	6.8	115.9	
2+50	6.8	115.9	
3+00	6.4	116.3	
75' Rt.	9.2	113.5	
3+50	5.2	117.5	
75' Rt.	6.7	116.0	
4+00	4.0	118.7	
75' Rt.	5.1	117.6	
4+50	2.5	120.2	
5+00	1.0	121.7	
75' Rt.	3.0	119.7	
T.P.	8.64	130.84	0.51 122.20

130.84

5+50	7.6	123.2	26
6+00	6.1	124.7	
55' Rt. = East end School Bld.	9.2	121.6	ground
" " " " " "	6.3	124.5	Floor
6+66.26 = 4' North of $\frac{1}{2}$ Ocean View	4.83	126.01	on Hub
6+66.26 on ground	4.5	126.3	
chk. SW. B.P. 47th & Ocean View	14.36	116.48	
		116.49	= B.M.
		0.01	= Error

Preliminary levels for Sewer
 1N Ocean View Blvd.

From 47th to Gloria St.

14.36	130.85	116.49	SVL B.P. 47th Ocean View
3+90 Grid Book 195-2	14.96	115.89	42 M.H. Under Construction
1/2 M.H. #2 Ocean View line = 0+00 on paving	15.70	115.15	= Flow line
0+00	15.0	115.8	
0+50	9.8	121.0	Property on Rt. Above E
1+00	7.8	123.0	this str. and to str. 4+00
1+50	8.6	122.2	
2+00	8.0	122.8	
+50	6.6	124.2	
+80	5.2	125.6	
3+10.76 = A 2° 18' Lt.	4.3	126.5	
4' Rth on Hub.	4.83	126.02	
3+50	3.8	127.0	
4+00	2.0	128.8	
+50	1.6	129.2	
75' Rth	4.4	126.4	
4+73.36 = 1/2 Alley on North	1.33	129.52	on Nail
5+00	0.9	129.9	

130.85

TP	9.93	140.50	0.28	130.57	27
5+50			9.3	131.2	
75' Rth			12.7	127.8	
6+00			7.4	133.1	
6+31.96 = POT, 4' W. of L 48th			5.74	134.76	on Nail
(6+35.96) 4' Rth on Hub.			5.82	134.68	
6+60			3.9	136.6	
7+00			1.9	138.6	
75' Rth			6.9	133.6	
7+50			2.0	138.5	
+98.56 = 1/2 Alley Rth. K. on N			2.00	138.50	on Nail
75' Rth			5.4	135.1	
8+50			1.5	139.0	
9+00			1.8	138.7	
30' Rth			0.8	139.7	
80' Rth			5.1	135.4	
9+61.16 = stub of Gloria St.			3.35	137.15	

Mulkey
Bliss
Isbell
3-8-40

Preliminary Levels For Sewer.

IN FRANKLIN Ave

From E Escudela, to 49+5

	12.86	129.76	116.90	El. Nail 0+00 p-26
E Escudela				
-0+00 on nail	12.86	129.76	116.90	5+78.8
0+00 on ground	12.4	117.4	117.4	All lots on Rt. in this block Above E
0+50	11.3	118.5	118.5	6+28.8
1+00	9.6	120.2	120.2	6+78.8
60' Lt.	10.6	119.2	119.2	
1+62.52 = E Alley Bk. J.	7.22	122.54	122.54	Stub 2' North of E 7+41.32
2+00	4.9	124.9	124.9	
60' Lt.	6.1	123.7	123.7	
2+50	2.0	127.8	127.8	
T.P.	12.67	142.06	129.39	0.37
3+00	9.9	132.2	132.2	
721.04 = N 0°43' Lt.	7.5	134.6	134.6	
(3+25.04) 4' Lt. on Hub.	7.63	134.43	134.43	
3+50	4.5	137.6	137.6	
4+00	1.0	141.1	141.1	
50' Lt.	6.1	136.0	136.0	
T.P.	9.50	151.17	141.67	0.39
4+50	8.7	142.5	142.5	

151.17

	6.9	144.3	23
4+87.54 = E Alley Bk. K.	6.9	144.3	
4' North on Stub.	6.57	144.60	All Lots on Rt. in this Block Above E Elev.
5+00	6.7	144.5	
50' Lt.	9.9	141.3	
5+50	5.5	145.7	
6+00	5.2	146.0	
70' Lt.	8.0	143.2	
6+50.04 = E Gloria St.	5.51	145.66	on Nail
7+00	6.4	144.8	
40' Lt.	7.0	144.2	
7+50	6.5	144.7	
8+00	6.0	145.2	
65' Rt.	7.3	143.9	
8+30	4.5	146.7	
+75	3.4	147.8	
9+00	3.9	147.3	
45' Rt.	3.6	147.6	
75' Rt.	7.8	143.4	
75' Lt.	3.9	147.3	
9+25	3.7	147.5	
9+60	4.7	146.5	
60' Lt.	6.2	145.0	

Cont. p. 29

Franklin Ave Cont. from P-28

151.17 ✓

10+00	5.2	
9+89.4 check This		
10+08.2 = S. Roadway 49th	5.3	145.9 ✓
	2.96	148.21 ✓

SE. Top Hydt. 49th & Franklin.

151.17 Bot. obs.
Prelim levels to Roadway 49th St
going North from Franklin

0+00 = 26' North of St. "	5.3	145.9 ✓
0+50	4.2	147.0 ✓
1+00	3.3	147.9 ✓
15' Lt. on cb.	2.87	148.30 ✓
1+50	2.1	149.1 ✓
2+00	0.8	150.4 ✓
2+50	0.2	151.0 ✓
3+00	0.3	150.9 ✓
750	1.0	150.2 ✓
4+00	1.5	149.7 ✓
75' Lt.	6.4	144.8 ✓
4+50	1.8	149.4 ✓
5+00	2.3	148.9 ✓
75' Lt.	10.0	141.2 ✓
5+50	2.7	148.5 ✓

All Lots on Rth in this Block Above & Elev.

151.17

6+00	3.3	147.9 ✓
75' Lt.	8.3	142.9 ✓
6+38.5 ± SL Imp.	3.5	147.7 ✓
6+58 ± Sedge Bed Imperial Ave.	3.32	147.85 ✓

Levels for Section 49th in S. Roadway. bot. obs.

From 26' North of S.H. Franklin, South.

26' N. of St. Franklin	151.17	5.3	145.9 ✓
0+00 going South.			
750		5.8	145.4 ✓
1+00		6.1	145.1 ✓
50' Rth		5.1	146.1 ✓
1+50		6.2	145.0 ✓
2+00		6.6	144.6 ✓

chk. Above HZ, See Cont. Levels P-30

Walker
Bliss
Isbell
3-8-40

Preliminary levels for Sewer.
1N E Gloria St Bet Franklin & Ocean View Blvd

145.35 ✓
30

26' North of South line Franklin			16+17.34	5+00	6.2	139.1	11+17.34
=0+00	151.17 = T.P. 29		All Lobs. on Rt. in this block. Above E	30' Lt.	7.5	137.8	
0+50	5.7	145.5	15+67.34	60' Lt.	11.2	134.1	
1+00	6.1	145.1	15+17.34	5+50	6.6	138.7	10+67.34
45' Lt. Floor of House	6.3	144.9		6+00	7.5	137.8	10+17.34
" " Gnd. at. "	7.3	143.9		30' Lt.	8.8	136.5	
1+50	5.6	145.6	14+67.34	60' Lt.	12.2	133.1	
50' Lt.	7.2	144.0		6+35	6.8	138.5	9+82.34
1+91 = House on Lt.	5.4	145.8	on Floor. 45' Lt.	+42	8.9	136.4	9+75.34
" " " Ground.	7.0	144.2	14+26.34	+56.18 = 9+61.16 ocean view	8.21	137.14	p-27 9+61.16 on stub.
2+00	5.4	145.8	14+17.34			137.15	0.01 = Error
+50	6.2	145.0	13+67.34				
3+00	7.3	143.9	13+17.34				
60' Lt.	10.3	140.9					
T.P.	2.52	145.35	8.34	142.83			
3+50	3.0	142.3	12+67.34				
4+00	4.5	140.8	12+17.34				
30' Lt.	6.0	139.3					
60' Lt.	12.0	133.3					
4+50	5.8	139.5	11+67.34				

Mulker
Bliss
Isbell
3-9-40

Preliminary levels for Sewer Blk. K.
From Franklin To Ocean View Blvd.
Between Glacia + 48th

15186

31

Sketch P-25

Elev. stub.
4' North of 48752
Page 28

7.2.6	151.86	144.60	
26' North of St. Franklin Ave			
= 0+00		7.6	144.3
+50		5.0	146.9
85' Rt.		7.7	144.2
1+00		3.5	148.4
75' Lt.		2.4	149.5
1+30		3.2	148.7
on Rear of lot.			
12' Rt.	Floor House	3.3	148.6
1+50		3.0	148.9
2+00		4.1	147.8
75' Rt.		7.3	144.6
75' Lt.		4.7	147.2
2+50		4.9	147.0
3+00		7.0	144.9
+20		7.7	144.2
16' Rt.	Rear of House, Floor	7.2	144.7
16' "	" " " " Ground	7.9	144.0
75' Lt.		7.6	144.3
3+50		8.0	143.9

4+00		8.4	143.5
35' Rt.		9.6	142.3
75' Rt.		12.2	139.7
75' Lt.		8.5	143.4
4+50		9.2	142.7
+75		10.4	141.5
5+00		10.2	141.7
5+10		10.3	141.6
75' Rt.	Rear of House, Floor	9.2	142.7
75' Rt.	" " " " Ground	10.6	141.3
75' Lt.		10.5	141.4
5+50		11.3	140.6
6+00		12.5	139.4
75' Lt.		12.2	139.7
T.P.	4.02 145.68	10.20	141.66
chk. Nail	7+98.56 P-27	7.18	138.50

Walker Preliminary Levels for Sewer.
 Bliss 26' East, of West line 48th Street,
 Isbell From Imperial Ave. to Ocean View Blvd.
 3-8-40

	1.33	135.76	134.43	El. Hub. 4' W. of 312504 P-28
T.P.	11.06	139.87	6.95	128.81
0-21' = S edge Paving Imp. Ave	2.18	137.69		
S.W. Imp. Ave				All Lots on Lt. Imp. Ave. to Ocean View Blvd. Above 8' Elev.
0+00	3.6	136.13		
75' Rt.	5.8	134.1		
{ Elev. c.T. to Imp. Ave. 48th	2.02	137.85		
0+50	5.6	134.3		
1+00	7.4	132.5		
no 2' Rod.				on Ground at House 120' Rt.
1+08 = North edge House on Rt.	11.7	128.2		
" " " " " "	11.00	128.97		Floor
1+50	9.1	130.8		
2+00	11.2	128.7		
75' Rt.	14.0	125.9		
2+50	13.1	126.8		
3+00	14.2	125.7		
75' Rt.	18.5	121.4		
3+50	14.8	125.1		
4+00	14.5	125.4		
75' Rt.	14.5	125.4		

139.87 ← 48th St.

4+50	13.5	126.4	32
5+00	12.3	127.6	
75' Rt.	15.5	124.4	
5+50	10.2	129.7	
6+00	7.3	132.6	
T.P.	6.84	141.28	5.43 134.44
6+50	5.7	135.6	
7+00	4.5	136.8	
75' Rt.	10.2	131.1	
7+50	4.2	137.1	
8+00	4.6	136.7	
75' Rt.	9.4	131.9	
8+50	4.4	136.9	
9+00	4.8	136.5	
75' Rt.	9.5	131.8	
9+50	5.4	135.9	
10+00	6.2	135.1	
75' Rt.	11.3	130.0	
10+50	6.5	134.8	
40' Rt. 9' House on ground	8.3	133.0	
40' " " " " Floor	6.94	134.34	

Cont. P-33

4810 St.
Cont from P. 32

141.28 ✓

10+90	6.6	134.7 ✓
40' Rt. at House on ground	7.4	133.9 ✓
40' " " " " Floor	5.80	135.48 ✓
11+00	6.4	134.9 ✓
11+35'	6.0	135.3 ✓
40' Rt. at House on ground	5.4	135.9 ✓
" " " " " Floor	3.74	137.54 ✓
11+90	5.4	135.9 ✓
40' Rt. at House " ground	4.6	136.7 ✓
" " " " " Floor	3.65	137.63 ✓
12+00	5.0	136.3 ✓
12+50	5.2	136.1 ✓
45' Rt.	6.4	134.9 ✓
12+94.58	6.5	134.8 ✓
chk. Hub. 4' Rt. sta. 6+35.96 p-27	6.61	134.67 ✓

134.68 - Hub.

0.01 Error.

33

Mulker
Bliss
Johell
3-9-40

Preliminary Levels for Sewer
in E. Alley Blk J - Alto Vista Suburb #2
Bet. Escuela + 48th

From Franklin to Ocean View

32.02 South of N.6.	8.35	130.89	122.54
0+50	7.1	123.8	
1+00	5.8	125.1	
75' Rt	9.7	121.2	
1+50	5.4	125.5	
2+00	5.3	125.6	
75' Rt	10.2	120.7	
2+50	4.9	126.0	
3+00	6.1	124.8	
75' Rt	10.7	120.2	
3+50	6.3	124.6	
+90	5.5	125.4	
80' Rt. at House on ground	8.4	122.5	
" " " " " Floor	6.60	124.29	
4+00	5.3	125.6	
+50	2.4	128.5	
+65	1.8	129.1	
80' Rt. at house on ground	6.2	124.7	
" " " " " Floor	5.30	125.59	

Sketch
P-24
El. stub.
146252
P-28

130.89

34

5+00	0.4	130.5	
75' Rt	4.8	126.1	
TP	8.74	138.28	1.35 129.54
5+50	5.9	132.4	
6+00	6.4	131.9	
45' Rt. at N. edge House on gnd	8.2	130.1	
" " " " " Floor	6.85	131.43	
6+15	6.8	131.5	
6+6276-4+7336 P-27	8.78	129.50	
4+7336 P-27		129.52	Nail
		0.02 = Error	

Walker
Bliss
Isbell
3-9-40

~ BENCH MARKS ~

- CHECK LEVELS -

SIERRA VISTA TRACT.

B.M. c.t. 7' line
Ocean View
+ 40' to

12.41 94.59 82.18

T.P. 10.94 104.91 0.62 93.97

2.28 95.18 12.01 92.90

N.E. B.P. Franklin + Guayama 9.04 86.14

T.P. 12.41 106.68 0.91 94.27

T.P. 8.01 112.18 2.51 104.17

T.P. 12.14 123.50 0.82 111.36

T.P. 4.92 127.89 0.54 122.96

Chk. S.E. B.P. Imp Ave + 39' to 9.34 118.54

Bench Book
118.38 = Millers B.M.
Bench Book
119.09 = Walkers B.M.

Sewers 225-D out
Grading Plan
Realt to S 2d 5673-L
Rough Grades
Realt to lint 197-1
191-14
X-section Cabells to point
Part 1574-46
Alvete St
Realt to 2109-3
1745
8' curb
4 crown

Walker
Isbell
H. Moore
7-15-40

CHECK LEVELS
CHOLLA VALLEY TRUNK LINE JEWEL
FOR CONSTRUCTION

From 0+40 to 48+43.22 Gnd. Book 195-32-37

	2.46	9.27	6.81		
TP	4.88 on stub of 40	6.19	7.96	1.31	
1+00			4.56	1.63	
+50			4.63	1.56	
2+00			4.71	1.48	
+50			4.70	1.49	
3+00			4.82	1.37	
+50			5.02	1.17	
4+00			4.80	1.39	
+50			4.70	1.49	
5+00			4.83	1.36	
+50			4.95	1.24	
6+00			5.21	0.98	
+50			4.82	1.37	
7+00			5.04	1.15	
T.P.	7.87 on 700	9.02	5.04	1.15	
7+50			7.42	1.60	
8+00			6.92	2.10	

S.F.B.P.
Not. + 34+10
Gnd. 192-53

9.02

36

8+50			6.88	2.14	
9+00			7.34	1.68	
+50			6.99	2.03	
10+00			7.01	2.01	
+50			9.41	-0.39	
11+00			10.98	-1.96	
+50			7.35.74-Δ MH#27	6.73	2.29
12+00			8.61	0.41	
+50			8.32	0.70	
T.P.					
13+00	6.02	7.17	7.87	1.15	
+50			4.64	2.53	
14+00			4.64	2.53	
+50			4.96	2.21	
15+00			4.64	2.53	
+50			4.92	2.25	
16+00			4.48	2.69	
+50			4.23	2.94	
17+00			4.40	2.77	
+50			4.57-Δ MH#28	4.53	2.64
18+00			4.57	2.60	
+50			4.80	2.37	

Cont p. 37

7.17

Check Levels - Cholla Sawe
Cont. from P. 36

19+00			4.66	2.51
+17.45 = +22.18	Equation MH # 29		5.06	2.11
19+50			5.11	2.06
20+00			5.41	1.76
+50			6.12	1.05
21+00			2.33	4.84
+50			2.42	4.75
22+00			6.43	0.74
T.P.	5.06	5.80	6.43	0.74
22+50			5.57	0.23
23+02.28 = MH # 30			5.54	0.26
+50			5.25	0.55
24+00			4.86	0.94
+50			4.49	1.31
25+00			4.49	1.31
+16.5 = 21+18.04	Equation MH # 31		4.75	1.05
21+50			5.85	-0.05
T.P.	11.82	17.22	0.40	5.40
22+00			9.87	7.35
+50			8.41	8.81
23+00			8.21	9.01

17.22

23+43 = MH # 32			8.16	9.06	37
24+00			8.38	8.84	
+50			7.80	9.42	
25+00			6.66	10.56	
+50			4.98	12.24	
			4.88	12.34	
26+00			3.37	13.85	
+31.5 = Δ 0°13'24"			2.31	14.91	
Chk. Mon. S'E. 26+31.5 P-7.			1.315	15.905	✓
26+50			2.07	15.15	
			1.37	15.85	
27+00			1.17	16.05	
+50			0.88	16.34	
28+00			1.10	16.12	
T.P.	1.87	17.99	1.10	16.12	
+50			2.15	15.84	
29+00			3.04	14.95	
+50			2.76	15.23	
30+00			3.10	14.89	
+50			4.24	13.75	
31+00			5.12	12.87	
+50			5.77	12.22	
32+00			5.80	12.19	

		17.99	Check Levels Cholla Savers Cont. from P-37	
32+50			6.75	11.24
33+00			7.24	10.75
+18 = NPH 33			7.44	10.55
+50			8.13	9.86
TP	187	11.73	8.13	9.86
34+00			2.27	9.46
+50			2.93	8.80
35+00			3.36	8.37
+50			4.37	7.36
36+00			3.94	7.79
+50			8.23	3.50
37+00			8.56	3.17
+50			7.43	4.30
38+00			7.51	4.22
TP				
+50	6.97	12.36	6.34	5.39
39+00			8.14	4.22
+50			8.43	3.93
40+00			8.80	3.56
+50			8.72	3.64
41+00			8.10	4.26

		12.36		
41+50			7.24	5.12
42+05	58-NPH #34		6.42	5.94
+50			4.70	7.66
43+00			4.00	8.36
TP				
+50	2.98	12.52	2.82	9.54
44+00			3.79	8.73
+50			4.21	8.31
45+00			4.14	8.38
+50			4.61	7.91
46+00			4.87	7.65
+50			5.05	7.47
47+00			5.42	7.10
+50			5.72	6.80
48+00			5.83	6.69
+4332			6.28	6.24
chk Kim MM			6.67	5.85
TP	4.75	11.06	6.21	6.31
chk 13' Mon. Uza + Fisher			5.29	5.77

Walker: To check levels - Cholla Tower.
 Isbell 7-15-40 As run on Page 36 this book.

M. Moore
 SF-8P.

39

Notes	λ	π	-	Elev.	Previous Elev.	Mean Elev.
Nov. 24th	2.37	9.18		6.81		
TP	4.21	6.28	7.11	2.07		
0+40 P-36			4.96	1.32	1.31	1.315
1+00			4.64	1.64	1.63	1.635
+50			4.71	1.57	1.56	1.565
2+00			4.78	1.50	1.48	1.49
TP						
+50	4.81	6.33	4.76	1.52	1.49	1.505
3+00			4.94	1.39	1.37	1.38
+50			5.14	1.19	1.17	1.18
4+00			4.92	1.41	1.39	1.40
+50			4.82	1.51	1.49	1.50
5+00			4.95	1.38	1.36	1.37
+50			5.07	1.26	1.24	1.25
6+00			5.33	1.00	0.98	0.99
+50			4.95	1.38	1.37	1.375
TP						
7+00	5.93	7.09	5.17	1.16	1.15	1.155
+50			5.48	1.61	1.60	1.605
8+00			4.97	2.12	2.10	2.11
+50			4.93	2.16	2.14	2.15
9+00			5.39	1.70	1.68	1.69 1.68

Re-check levels Cholla Survey

Cont from P-39

x
7.09

Previous Elev.

MEAN
Elev.

9+50			5.04	2.05	2.03	2.04
10+00			5.07	2.02	2.01	2.015
+50			7.46	-0.37	-0.39	-0.38
11+00			9.03	-1.94	-1.96	-1.95
TP	5.39	7.19	5.29	1.80		
11+5579 = MH#27			4.88	2.31	2.29	2.30
12+00			6.76	0.43	0.41	0.42
+50			6.47	0.72	0.70	0.71
13+00			6.03	1.16	1.15	1.155
+50			4.66	2.53	2.53	2.53
14+00			4.67	2.52	2.53	2.525
+50			4.98	2.21	2.21	2.21
15+00			4.65	2.54	2.53	2.535
+50			4.93	2.26	2.25	2.255
16+00						
TP	4.33	7.02	4.50	2.69	2.69	2.69
+50			4.08	2.94	2.94	2.94
17+00			4.24	2.78	2.77	2.775
+50 = MH#28			4.38	2.64	2.64	
18+00			4.42	2.60	2.60	
+50			4.66	2.36	2.37	

702

Previous Elev.

Mean Elev.

41

19+00			4.51	2.51	2.51	2.51
+1745 -19+22.18	Equation		4.91	2.11	2.11	2.11
19+50			4.96	2.06	2.06	2.06
20+00			5.26	1.76	1.76	1.76
+50			5.96	1.06	1.05	1.055
21+00			2.16	4.86	4.84	4.85
+50						
TP	1.08	5.84	2.26	4.76	4.75	4.755
22+00			5.09	0.75	0.74	0.745
+50			5.60	0.24	0.23	0.235
23+02.28 = MH.			5.57	0.27	0.26	0.265
+50			5.26	0.58	0.55	0.565
24+00			4.89	0.95	0.94	0.945
+50			4.52	1.32	1.31	1.315
25+00			4.51	1.33	1.31	1.32
+11.5 -21+18.04			4.77	1.07	1.05	1.06
21+50			5.88	-0.04	-0.05	-0.045
TP	8.24	13.65	0.43	5.41		
22+00			6.28	7.37	7.35	7.36
+50			4.81	8.84	8.81	
23+00			4.62	9.03	9.01	

	π 13.65	Elev. Stake	Previous Elev.	
23+43=MH		4.56	9.09	9.06
24+00		4.79	8.86	8.84
+50		4.21	9.44	9.42
25+00		3.06	10.59	10.56
T.P.				
+50	8.95	21.22	1.38	12.27
			12.24	12.25
26+00		7.34	13.88	13.85
+31.5 = Δ 0°13'24"		6.29	14.93	14.91
chk. Xbn 6'E 26+31.5		5.30	15.92	
26+50		6.06	15.16	15.15
27+00		5.35	15.87	15.85
+50		4.87	16.35	16.34
28+00		5.07	16.15	16.12
+50		5.34	15.88	15.84
29+00		6.24	14.98	14.95
+50		5.95	15.27	15.23
T.P.				
30+00	1.68	16.61	6.29	14.93
+50			14.89	14.91
		2.82	13.77	13.75
31+00		3.71	12.90	12.87
+50		4.36	12.25	12.22
32+00		4.40	12.21	12.19

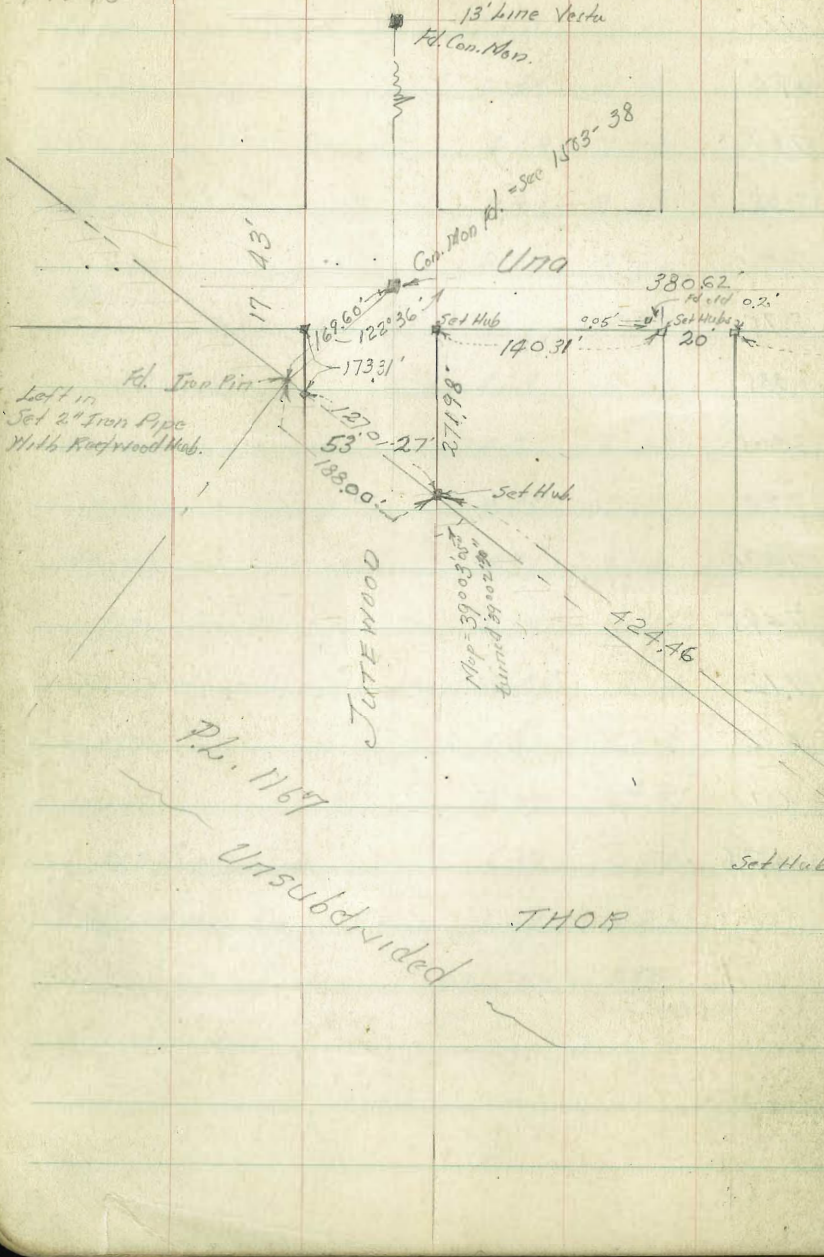
Note: Instead of taking mean Elev. between station 26+31.5 + 28+43.32 the Elev. of stakes as run this line of Levels were used, since the line of levels checked the 13' Xbn & Ura & Fisher by 0.02 P-7

	16.61		Previous Elev		Mean Elev	
32+50			5.35	11.26	11.24	11.25
33+00			5.82	10.79	10.75	10.77
+1.8=MH.			6.02	10.59	10.55	10.57
+50			6.71	9.90	9.86	9.88
34+00			7.11	9.50	9.46	9.48
TP						
+50	2.01	10.85	7.77	8.89	8.80	8.82
35+00			2.44	8.41	8.37	8.39
+50			3.45	7.40	7.36	7.38
36+00			3.02	7.83	7.79	7.81
+50			7.32	3.53	3.50	3.515
37+00			7.65	3.20	3.17	3.185
+50			6.51	4.34	4.30	4.32
38+00			6.58	4.27	4.22	4.245
+50			5.42	5.43	5.39	5.41
TP						
39+00	8.11	12.38	6.58	4.27	4.22	4.245
+50			8.40	3.98	3.93	3.955
40+00			8.78	3.60	3.56	3.58
+50			8.70	3.68	3.64	3.66
41+00			8.09	4.29	4.26	4.275

	π 12.38		Previous Elev	Mean Elev	41
41+50		7.22	5.16	5.12	5.14
42+05 ⁵⁸ = 11/14		6.40	5.98	5.94	5.96
+50		4.68	7.70	7.66	7.68
43+00		3.98	8.40	8.36	8.38
+50		2.79	9.59	9.54	9.565
44+00					
T.P.	3.88 12.65	3.61	8.77	8.73	8.75
+50		4.29	8.36	8.31	8.335
45+00		4.22	8.43	8.38	8.405
+50		4.70	7.95	7.91	7.93
46+00		4.95	7.70	7.65	7.675
+50		5.13	7.52	7.47	7.495
47+00		5.51	7.14	7.10	7.12
+50		5.81	6.84	6.80	6.82
48+00		5.92	6.73	6.69	6.71
+43 ³² = End line		6.37	6.28	6.24	6.26
chk. 13' Mon Uro + Fisher		6.84	5.81		
		Mon P-7 =	5.83		
		0.02 Error			

Walker
Isbell
H. Moore
7-16-40

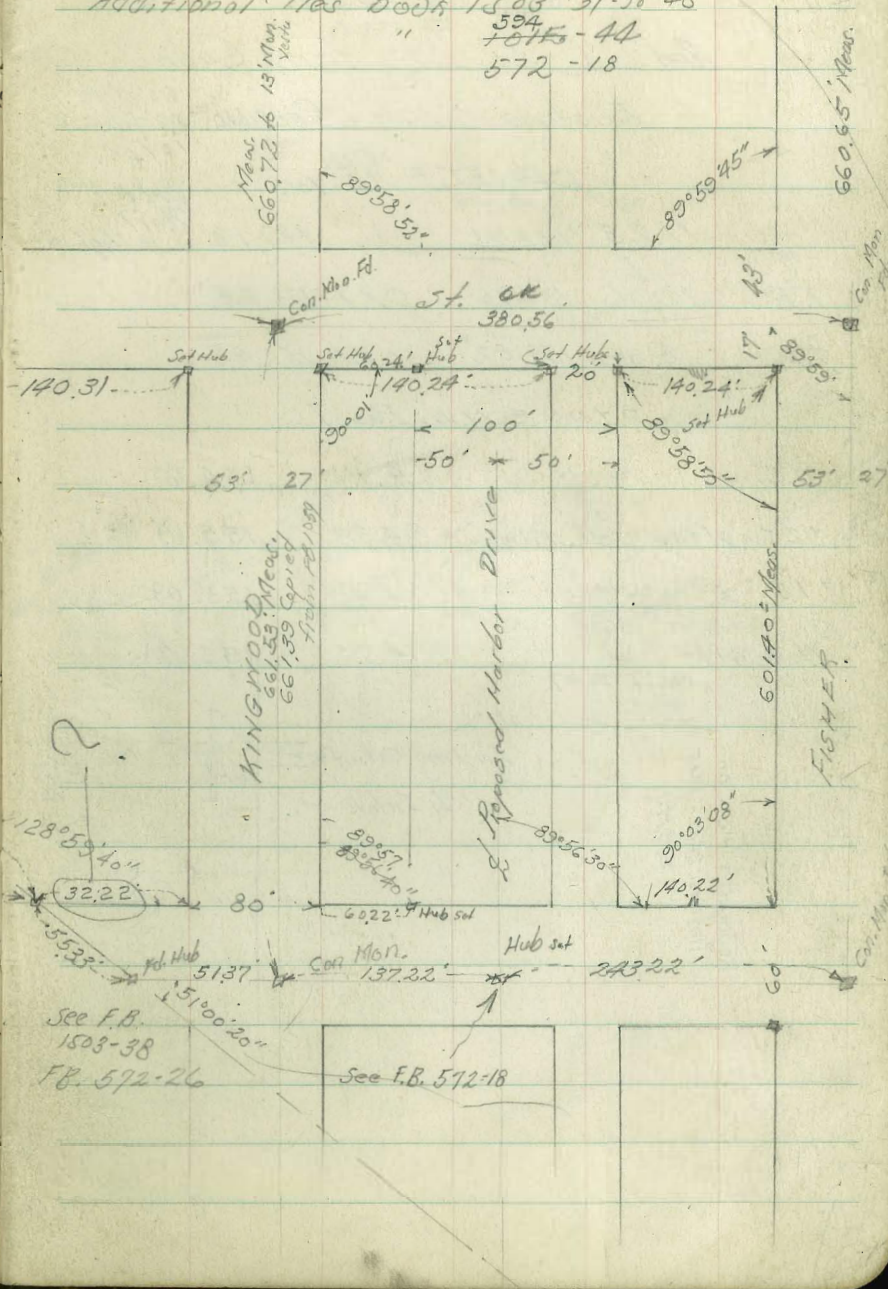
SURVEY BLOCK 109 Nov 8th '68
Along the line of Una St.
From Tutewood to Fisher.



INDEXED
EFB

Additional Ties Book 1503-39-38-46
" 594
" 572-44
" 572-18

45



159.52 ✓

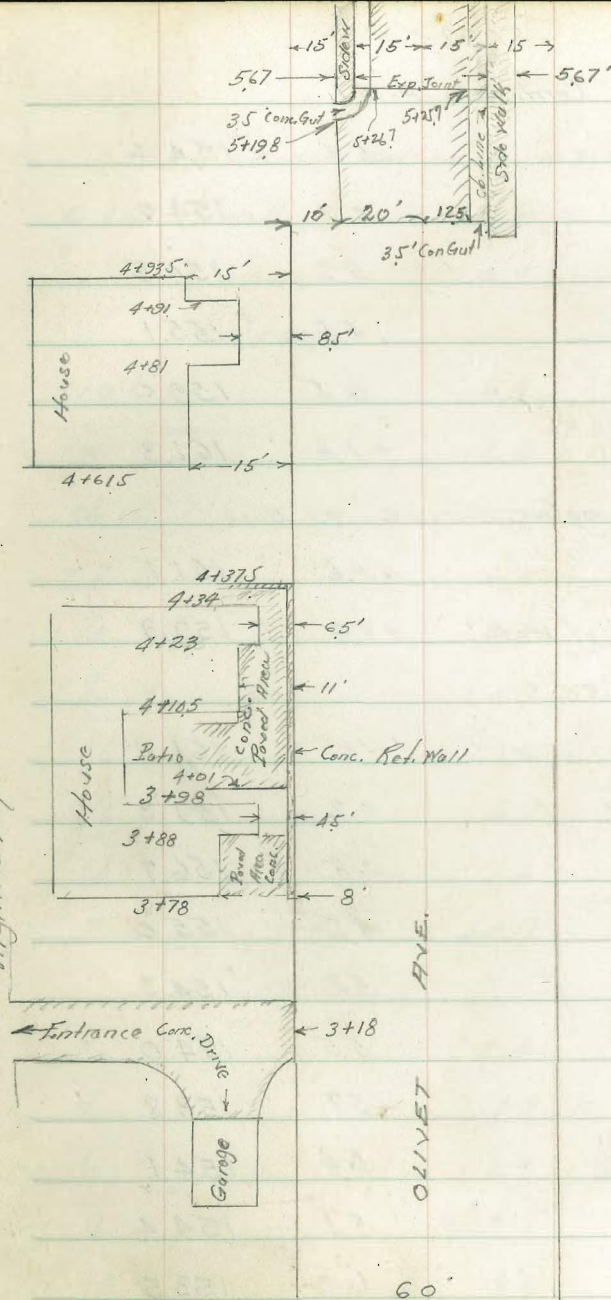
Cont. from P-46

W Gut.	5.1	154.4
1/4	5.0	154.5
2	4.9	154.6
1/4	4.6	154.9
Eo Gut.	3.8	155.7
Eo top cb.	3.49	156.03
+25 = Wedge side walk.	3.41	156.11
+75 = Eo " " "	3.30	156.22
E on Brick Steps	2.1	157.4
0+06		
E	+ 1.9	161.4
cb.	0.8	158.7
1/4	4.2	155.3
2	5.0	154.5
1/4	5.1	154.4
+8	5.2	154.3
cb.	4.7	154.8
W	5.0	154.5

0+22

W 5.9 153.6

Cont. - P. 48



60'

Cont. from p. 47

cb.	51	154.4
1/4	5.3	154.2
1/2	5.2	154.3
3/4	4.4	155.1
cb.	0.5	159.0
E.	+1.8	161.3
0+24 = Beginning Cox Wall on E. 0.1 Back		
E on Wall	+1.6	161.1
" " Ground at Wall	+0.4	159.9
0+30		
E on Wall	+1.6	161.1
E " Ground	0.2	159.3
cb.	2.8	156.7
1/4	4.5	155.0
1/2	5.2	154.3
3/4	5.5	154.0
1/4	5.7	153.8
cb.	5.4	154.1
+2	5.1	154.4
1/4	6.0	153.5

W+5

6.5

153.0 ⁴⁸

0+38.5 = End of Wall on E 0.3 in st. this end.		
E +0.3 on Wall	+1.6	161.1
" " Ground	0.0	159.5
0+40		
-10	6.8	152.7
W	6.4	153.1
cb.	5.0	154.5
+2	6.0	153.5
1/4	6.0	153.5
1/2	5.7	153.8
+6	5.6	153.9
1/4	4.7	154.8
cb.	1.8	157.7
E.	+0.9	160.4
0+75		
E.	2.4	157.1
cb.	3.2	156.3
+3	2.9	156.6
1/2	6.8	152.7
+4	8.1	151.4

159.52 ✓

2	8.0	151.5
1/4	7.9	151.6
cb.	8.2	151.3
W	8.4	151.1
+15 on Conc. Floor Garage	7.78	151.74
1+00		
-10	12.0	147.5
W	11.2	148.3
cb.	10.9	148.6
1/4	10.6	148.9
2	10.3	149.2
+7	9.9	149.6
1/4	9.2	150.3
+5	7.3	152.2
cb.	6.4	153.1
E	5.3	154.2
1+19		
E	7.6	151.9
cb.	8.7	150.8
+8	10.6	148.9
1/4	11.7	147.8

159.52 ✓

1/4+2	12.6	146.9 ⁴⁹
2	12.7	146.8
7.P 0.70	147.75	12.97 147.05 ✓
1/10	0.9	146.9
cb.	1.3	146.5
W	1.7	146.1
+5	2.3	145.5
1+27		
-5	2.9	144.9
W	2.9	144.9
cb.	1.9	145.9
1/10	1.8	146.0
2	1.6	146.2
1/4	1.6	146.2
cb.	1.4	146.4
E	1.4	146.4
1732 = Garage on E 2' Back	1.44	146.31 CONC FLOOR.
1+50		
E	0.9	146.9
+5	2.4	145.4
cb.	3.1	144.7

14775 ✓

cb +7'	3.6	144.2
1/4	4.2	143.6
L	4.6	143.2
1/4	4.6	143.2
cb.	5.1	142.7
W	5.3	142.5
+10	6.3	141.5

1+70

-10	8.8	139.0
W	8.2	139.6
cb.	7.7	140.1
1/4	6.7	141.1
L	6.8	141.0
1/10	6.5	141.3
+4	6.6	141.2
+6	5.9	141.9
cb.	5.6	142.2
E.	3.7	144.1

2+100

E.	5.3	142.5
----	-----	-------

14775 ✓

E+4'	7.6	140.250
cb.	8.5	139.3
+2	8.8	139.0
1/4	9.2	138.6
L	9.2	138.6
1/4	9.5	138.3
cb.	10.6	137.2
W	11.2	136.6
+10	12.0	135.8

TP.	197	138.95	10.77	136.98
	2+50			

-10	7.1	131.9
W	6.5	132.5
cb.	5.9	133.7
1/4	3.3	135.7
L	2.5	136.5
1/4	2.2	136.8
cb.	1.7	137.3
+3	1.0	138.0
+8	0.5	138.5
E	+0.1	139.0

138.95 ✓

3+00

E	0.8	138.2
+2	1.6	137.4
+4	1.6	137.4
+5	2.1	136.9
cb	2.4	136.6
1/4	3.1	135.9
2	3.5	135.5
1/4	4.6	134.4
cb	5.9	133.1
W	7.6	131.4
+10	8.5	130.5

3+50

-10	8.3	130.7
W	7.2	131.8
cb	6.4	132.6
1/4	5.5	133.5
2	4.4	134.6
1/4	3.5	135.5
cb	3.1	135.9
+7	2.8	136.2
E	1.9	137.1

138.95 ✓

3+94.95 = Conc Drive on E 0.85 Back

51

on Conc Drive = 1.88	137.07	
4+00		
E	2.1	136.9
+5	2.8	136.2
cb	3.0	136.0
1/4	3.4	135.6
2	4.4	134.6
1/4	4.9	134.1
cb	5.5	133.5
W	6.4	132.6
+10	7.3	131.7
Bottom step = 1.49	137.46	
4+35.1 = Conc, Walk on E on Line		

4+50

-10	6.6	132.4
W	6.0	133.0
cb	5.0	134.0
1/4	4.3	134.7
2	3.0	136.0
1/4	2.8	136.2
cb	2.3	136.7

cb+7'	1.9	137.1
E	1.2	137.8
4+90.10 = Sub Line		
-137.0	+2.3	141.3
-4.0	+1.8	140.8
E on Iron Pin	0.09	138.1
+2	0.6	138.4
cb.	1.0	138.0
1/4	1.3	137.7
+5	1.3	137.7
1/2	1.8	137.2
1/4	2.9	136.1
cb.	3.8	135.2
W	4.5	134.5
+10	5.7	133.3
+37.06	7.6	131.4

Olivet St. X Sections 7.5' 1/4" 15' cbs. 60' wide

Sec A

W	3.1	135.9
cb.	4.3	134.7
+ = Prop Cor to South	4.5	134.5

Sec B.

= 1/2 LABRILLO 1.8 137.2

1/2 Olivet.	2.1	136.952
1/4	2.5	136.5
cb.	2.2	136.8
+7	2.3	136.7
W	2.0	137.0
T.P.	11.97	150.83
	0.09	138.86 ✓

Above Sections Cont. P. 53

LEVELS For Proposed Culvert sketch P-46

138.95 = Above of
2.15' W of 2 at 390.10 N of N Line Pearl
= 0 + 00 on spike. 5.85

+50	9.8
T.P.	1.59
127.59	12.95
126.00	3.2
+100	6.0
+40	8.2
1+54 = 1/2 Pole Anchor	9.6
+65	11.7
2+00	12.9
+45	13.6
+71	15.5
+72	16.20
2+80.25 = beginning East. 24" Conc. pipe	

Culvert Levels cont. from P-52

127.59 ✓

T.P.	11.71	127.37	11.93	115.66	on E cb. High st. & Catch Basin
chk. Starting BM			0.17	127.20	5th B.P. Post High.
				127.18 = BM	
				0.02 = Error.	

Olivet street
Cross Sections Cont. from P-52

150.83 ✓

0+00

W		11.6	139.2
+10		11.4	139.4
cb.		11.0	139.8
1/4		11.2	139.6
1/2		11.2	139.6
3/4		11.2	139.6
cb.		10.7	140.7
+5		9.4	141.4
E.		9.6	141.2
	0+40		
E.		5.6	145.2
+10		6.6	144.2
cb.		6.6	144.2
+6		6.7	144.1

Red. - Plot. 8-2-46 C.B. Hought

OLIVET X-Sections

150.83 ✓

1/4	7.3	143.5
1/2	7.1	143.7
3/4	7.1	143.7
1/2	7.1	143.7
+6	6.7	144.1
W at Board fence on ground.	7.4	143.4
	0+67	
W +0.2 = Board fence.	5.5	145.3
+12	4.6	146.2
cb.	4.1	146.7
+2	4.7	146.1
1/4	4.3	146.5
1/2	4.4	146.4
3/4	4.7	146.1
+1	3.2	147.6
cb.	2.6	148.2
E.	2.8	148.0
	0+73	
E.	2.1	148.7
cb.	2.1	148.7

15083

OLIVET
X-Sections

cb+7	2.2	148.6
1/4	3.9	146.9
L	3.7	147.1
1/4	3.8	147.0
+6	4.3	146.5
cb.	3.7	147.1
+2	3.1	147.7
W	3.7	147.1

0+93

W	2.6	148.2
+10	1.1	149.7
+13	1.0	149.8
cb.	1.4	149.4
+2	2.3	148.5
1/4	2.1	148.7
L	1.9	148.9
1/4	2.0	148.8
+1	1.0	149.8
cb.	0.9	149.9

TP 12.81 163.43 ✓ 0.21 150.62 ✓

163.43 ✓

E.	12.6	150.84
1+13 = Garage on W	13.80	149.63
1+20		3.4' Beck.
E	9.4	154.0
cb.	10.9	152.5
+6	11.2	152.2
1/4	12.1	151.3
L	11.7	151.7
1/4	11.8	151.6
+4	12.2	151.2
cb.	11.6	151.8
+2	11.5	151.9
+9	13.0	150.4
W	13.4	150.0
+5 in yard	14.0	149.4
1+25		
-5 in yard	11.5	151.9
W	11.1	152.3
cb.	11.3	152.1
+4	11.7	151.7
1/4	11.3	152.1

16343 ✓

Olivet St
X-Sections.

L	11.2	152.2
1/4	11.6	151.8
+1	11.6	151.8
cb.	10.5	152.9
E.	9.1	154.3

1+60

E	4.8	158.6
+5	5.2	158.2
cb.	6.6	156.8
+5	7.1	156.3
+6	8.1	155.3
1/4	8.0	155.4
L	7.7	155.7
1/4	7.9	155.5
+3	8.2	155.2
+5	7.9	155.5
cb.	7.8	155.6
W	8.9	154.5

1+66 = Garage on W 0.3' conc. floor.

1+75

16343 ✓

55

W	8.1	155.3
+11	6.6	156.8
cb.	6.4	157.0
+4	6.0	157.4
+6	6.7	156.7
1/4	6.6	156.8
L	6.1	157.3
1/4	6.6	156.8
+3	6.7	156.7
+4	5.6	157.8
cb.	5.3	158.1
E	3.6	159.8

2+100 = 2' Conc. Walk on W 0.2' Back 3.1' wide

2+65

E	6.5	162.9
+10	1.0	163.4
cb.	2.3	161.1
+4	2.8	160.6
+5	3.8	159.6
1/4	3.5	159.9
L	3.3	160.1

16343 ✓

1/4		3.8	159.6
+3		3.2	160.2
cb		3.4	160.0
W		5.9	157.5
+0.3 at Tile Wall		5.9	157.5
2+40			
W-1' at Old Garage		2.6	160.8 ^{College St Ent.}
W		2.6	160.8
+5		2.4	161.0
+10		0.7	162.7
cb		0.4	163.0
T.P.	12.45	175.86 ✓	0.02 163.41
+6		12.2	163.7
1/4		12.7	163.2
Z		12.1	163.8
1/4		12.1	163.8
+4'		12.2	163.7
+5		11.3	164.6
cb		11.0	164.9
E		9.3	166.6

2+65

17586 ✓

E		6.5	169.4 ⁵⁶
cb		7.0	168.9
+2		7.7	168.2
+3		9.0	166.9
1/4		9.0	166.9
Z		9.0	166.9
1/4		9.8	166.1
+1		9.2	166.7
+5'		9.6	166.3
cb		10.6	165.3
W		13.3	162.6
+3' on Conc. Wall		13.8	162.1
+3.5 on ground		16.2	159.7
2+85			
-5		11.8	164.1
W		11.5	164.4
+11		9.9	166.0
cb		7.9	168.0
+2'		7.1	168.8
+6		6.5	169.4
1/4		6.7	169.2
+1		7.3	168.6

175.86 ✓

2		6.4	169.5	
1/4		6.5	169.4	
+5		6.6	169.3	
+6		5.7	170.2	
cb.		5.4	170.5	
+3		4.7	171.2	
E		3.9	172.0	
		7.51	168.35	
	8+18 = 2 Cong. Drive	College St. Ent. see sketch.		
TP	12.82	188.49	0.19	175.67
	3+35			
E		10.2	178.3	
cb.		11.8	176.7	
+1		11.8	176.7	
+2		13.0	175.5	
1/2		12.6	175.9	
2		12.6	175.9	
+6		13.3	175.2	
1/4		12.5	176.0	
+5		12.4	176.1	
cb.		12.9	175.6	
+6		16.2	172.3	

188.49 ✓

57

W		18.1	170.4
+10 in Improved fence,		20.3	168.2
	3+75 = Beginning Ret. Wall on W.		
W-0.5 at wall on ground		15.6	172.9
W		13.79	174.70
+0.1' " " " "		15.6	172.9
W		13.0	175.5
cb.		11.3	177.2
1/4		7.3	181.2
+3		8.0	180.5
2		7.6	180.9
1/4		7.5	181.0
+5		8.0	180.5
cb.		7.1	181.4
E.		4.8	183.7
	4+25		
E		+0.7	189.2
cb.		0.9	187.6
+3		3.0	185.5
1/4		2.5	186.0
2		2.5	186.0

18849 ✓

1/2 + 5	2.7	185.8
1/4	2.3	186.2
cb.	6.0	182.5
+ 4	8.7	179.8
W on ground	10.8	177.7
W on Ret. Wall	10.82	177.67
	3.25	
+ 0.5 Side Walk at Wall	14.47	174.02
4 + 37.5 = End Ret. Wall on West		
W - 6.0 at House on Walk	14.47	174.02
W - 0.5 on side Walk at Wall	14.47	174.02
W	10.37	178.12
T.P. <i>Nail in pole</i> 9.35	194.99	2.85 185.64
4 + 65		
- 15' on ground at house	17.0	178.0
- 5'	17.0	178.0
W	15.8	179.2
+ 5'	14.3	180.7
cb.	7.8	187.2
+ 6	5.9	189.1
1/4	6.4	188.6
1/2	6.4	188.6
1/4	6.5	188.5
+ 5.5	6.9	188.1

19499 ✓

58

1/4 + 6.5	5.4	189.6
cb.	5.3	189.7
+ 10	2.4	192.6
E.	1.2	193.8
4 + 98		
E	+ 2.0	197.0
+ 8	2.3	192.7
+ 14	3.8	191.2
cb.	4.7	190.3
1/4	4.7	190.3
1/2	4.7	190.3
1/4	4.7	190.3
cb.	4.8	190.2
+ 3	5.2	189.8
W	12.8	182.2
+ 7	16.5	178.5
+ 15	17.1	177.9
5 + 03.6 = South end Existing Paving.		
- 15	13.6	181.4
W	10.5	184.5

19499 ✓

W +10 on ground at paving.	5.7	189.3
+10 " Existing "	5.02	189.97
cb. on " "	4.80	190.19
1/4 " " "	4.60	190.39
d. " " "	4.40	190.59
1/4 " " "	4.37	190.62
+4' on " " " con. Gut.	4.42	190.57
cb. " " "	4.65	190.34
cb. on top cb.	4.89	190.10
+5.67 = End Walk East edge.	4.87	190.12
E	+3.0	198.0

5+13

E top cb.	3.66	191.33
" Gut. on Conc. Gutter.	4.45	190.54
+3.5 on " "	4.20	190.79
1/4 " Pav.	4.11	190.88
2 on Rim Sarrer MH	4.25	190.74
1/4 " Pav.	4.45	190.54
cb " "	4.78	190.21
+5.6 = W edge Pav.	5.03	189.96
	4.62	190.37
5+07 = 1/2 Gas MH. 11' W of 4 st.		

19499 ✓

5+19.8 = South edge Conc. Gut. on West ⁵⁹

W +8.9 on Paving.	5.07	189.92
cb. " "	4.89	190.10
1/4 " "	4.40	190.59
2 " "	4.06	190.93
1/4 " "	3.95	191.04
+4' on Con Gut	4.00	190.99
E cb. " " "	4.23	190.76
E cb. on top cb.	3.51	191.48

5+23.4 = E.C. cb. Rd. on West.

E top cb.	3.38	191.61
E Gut. Conc.	4.07	190.92
+3.5 = W edge Conc. Gut.	3.85	191.14
1/4 on Pav.	3.85	191.14
2 " "	4.00	190.99
1/4 " "	4.39	190.60

+4.8 on E edge Conc Gut. 4.78 190.21 ^{Gutter on Curve.}

W cb. intersection cb line	5.06	189.93
+6.1 = W end paving.	5.37	189.62
+6.1 = " " cb. on top.	4.62	190.37

194.99 ✓

This section taken along the expansion joint
which is not at rt Δ to st line. In case
it is desired to remove paving to lay a
better grade South it would be better to start here.

5+26.7 on W diag to 5+25.7 on E

W top cb. 4.39 190.60

" Gut. on Conc. Gut. 5.62 189.97

+35' " " " 4.65 190.34

1/4 " Paving 4.36 190.69

Δ " " 3.90 191.09

1/4 " " 3.68 191.31

+4' " W edge Con Gut. 3.69 191.30

E cb. on Conc. Gut. 3.93 191.06

E top cb. 3.21 191.78

T.P. 12.84 207.31 ✓ 0.52 194.47

6+06

E top cb. 9.55 197.76

Gut. on Conc. Gut. 10.25 197.06

+35' = W edge " " 10.00 197.31

1/4 on Pav. 10.09 197.22

207.31

60

Δ on Paving 10.31 197.00

1/4 " " 10.66 196.65

+4' " E. edge Conc. Gut. 10.88 196.43

Gut. on Conc. Gut. 11.24 196.07

W top cb. 10.67 196.64

T.P. 13.03 220.36 +0.02 207.33

chk. N.Y. B.P. Exchange & Mut. 0.73 219.63

219.62 = B.M.

0.01 = Error.

Cross Section Kurtz Jr
Pacific Blvd. to Rosecrans

0+33.5

Red. Y. P. 16 ft 9-10-1940
C.B. Hough

0+40 = W by Pacific Blvd on 2.

0-33.5

0-5016 = W by Edge Paving Pacific Blvd Taken on 1929

B.M. 4.78 5.63 5.53 0.85

on 2 Mason
Kurtz
Mason

TP 3.50 6.38 5.49 2.88

TP 3.18 8.37 4.80 5.19

B.M. 5.37 9.99 4.62

J.E.B.P. 2000
Sag 2012 offer
+ Protection

Lt. 5

5

Rt. 11

62

- 0.1	0.4	0.5	1.5	0.1	2.1
5.7 50	5.7 25	5.1	4.1 9	5.5 25	5.5 50

0.4	0.6	1.2	1.3	2.9	2.8	2.2
5.2 50	5.0 25	4.4	4.3 3	2.7 6	2.8 20	3.1 25

0.8	1.4	2.3
4.8 50	4.2 25	3.3

3.06	2.80	2.68	2.56	2.45	2.29	
2.16 141.8 on Pav	2.57 91.8 on Pav	2.83 241.8 on Pav	2.95	3.07 41.8 Pav	3.18 91.8 Pav	3.34 141.8 Pav

5.63

2+0

Lt.	Z	Rt.	63
0.1	0.3	0.7	1.0
5.5	5.3	4.9	4.6
50.	25.	20.	25.

1+92 = 36" Conc. Culvert

0.68	0.65	-2.60	-1.3	-2.2
4.95	4.98	8.28	6.9	7.8
Top of	Top	13.7	25.	50.

1+80

-0.3	-0.3	0.8	1.1	0.9	0.2
5.9	5.7	4.8	4.5	4.7	5.4
50.	25.	12.	25.	50.	

1+23.23 = M.L. Mason

-0.3	0.2	0.8	0.8	1.3	-1.4	-1.0
5.9	5.4	4.8	4.8	4.3	7.0	6.6
50.	25.	10.	12.	23.	50.	

0+98.23 = M.L. Mason

-0.1	0.1	0.8	1.0	1.5	-1.0	-0.7
5.7	5.5	4.8	4.6	4.1	6.6	6.2
50.	25.	10.	10.	26.	50.	

0+73.23 = F.L. Mason

-0.1	0.1	0.9	0.8	1.3	-0.7	-0.7	-0.7	0.1
5.7	5.5	4.7	4.8	4.3	6.3	6.3	6.2	5.5
50.	25.	9.	10.	20.	25.	37.	50.	

563

563

4+4846. 2

LT	Z	PI	64
1.7	1.7	1.8 2.0	0.7 -0.4 12 0.9
5.1 5.0	5.1 2.5	5.0 4.8 9 16	6.1 7.2 2.5 3.6

4+2346. E.L. Smith

1.5	1.7	1.7	1.9	-0.5 -0.2	12 1.2
5.3 5.0	5.1 2.5	5.1	4.9	7.3 18	7.0 5.6 2.5 3.0

4+0

1.5	1.7	1.5	1.6	1.9	0.4 1.6	1.6
5.3 5.0	5.1 2.5	5.3 1.0	5.2	4.9 18	6.4 18	5.2 2.5

3+50

1.5	1.6	1.7	1.7	1.0	1.6 1.9	2.98
5.3 5.0	5.3 2.5	5.1	5.1	5.8 20	5.2 2.5	4.9 3.8 2.5 3.8

TP 5.18 6.78 4.03 1.60

6.78

3+0

1.0	1.2	1.5	1.1	1.9	1.9
4.6 5.0	4.4 2.5	4.1	4.5 1.5	3.7 2.5	3.7 4.2

2+50

0.3	0.5	1.2	1.3	1.4	0.9
5.3 5.0	5.1 2.5	4.4	4.3 1.3	4.4 2.5	4.7 5.0

5.63

5.63

TP 3.60 7.02 2.36 2.42

7+0'

6+50

6+0

5+50

5+0

4+73.46 = H. L. Smith

6.78

Lt.

L

R1

65

2.8	2.6	2.5	1.9	2.0	2.0	2.8	3.1	3.1
4.0	4.2	4.3	4.9	4.8	4.8	4.0	3.7	3.7
5.0	2.5	1.2	1.0	9	9	11	2.5	5.0

2.8	2.6	2.7	1.6	1.7	1.9	2.8	2.9	3.1
4.0	4.2	4.1	5.2	5.1	4.9	4.0	3.9	3.7
5.0	2.5	1.3	1.1	9	9	11	2.5	5.0

2.7	2.6	2.6	1.9	1.7	1.7	2.8	3.0	3.2
4.1	4.2	4.2	4.9	5.1	5.1	4.0	3.8	3.6
5.0	2.5	1.3	1.1	8	8	10	2.5	5.0

2.7	2.8	2.8	1.8	1.7	1.9	3.2	2.7	1.9
4.1	4.0	4.0	5.0	5.1	4.9	3.6	4.1	4.9
5.0	2.5	1.3	1.0	8	11	11	2.5	5.0

2.3	2.1	1.8	2.2	0.0	1.3	0.9		
4.5	4.7	5.0	4.6	6.8	5.5	5.9		
5.0	2.5		1.2	2.5	3.0	3.5		

2.1	2.0	1.8	2.0	0.5	0.5	1.3	1.0	
4.7	4.8	5.0	4.8	6.3	6.3	5.5	5.8	
5.0	2.5		1.2	2.1	2.5	3.1	5.0	

6.78

Lt. L Rt.

10+0

1.8	0.7	2.2	3.1	2.2	2.4	2.2	0.7	1.2	2.1
5.2	6.3	4.8	3.9	4.8	4.6	4.8	6.3	5.8	4.9
38	32=Tram	25	22	8		10	17	25	50

9+50

1.8	0.5	3.2	3.6	2.3	2.2	2.3	1.9	2.8	2.3
5.2	6.5	3.8	3.4	4.7	4.8	4.7	5.1	4.2	4.7
38	32=Tram	25	12	8		10	15	25	50

9+0

2.2	0.6	3.2	2.9	2.3	2.2	2.2	2.9	2.1	2.6
4.8	6.4	3.8	4.1	4.7	4.8	4.8	4.1	4.9	4.4
38	32=Tram	25	10	7		9	12	25	50

8+50

2.7	0.5	3.0	2.7	2.1	2.0	2.1	2.2	2.7	2.8	2.2
4.3	6.5	4.0	4.3	4.9	5.0	4.9	4.8	4.3	4.7	4.8
50	40=Tram	34	25	20	8		10	12	25	30

8+0

2.4	2.4	2.3	1.8	1.8	1.9	2.9	3.3	3.2
4.6	4.6	4.7	5.2	5.2	5.1	4.1	5.7	3.8
50	25	12	9		10	12	25	30

7+50

2.5	2.7	2.7	1.8	1.9	1.9	2.8	3.2	2.8
4.5	4.3	4.3	5.7	5.1	5.1	4.7	3.8	4.2
50	25	13	10		9	12	25	50

7.02

7.02

13+0

Lt.								
1.3	0.2	1.7	2.3	2.5	2.0	2.1	2.1	
6.0	7.1	5.6	5.0	4.8	5.3	5.2	5.2	
38	32	25	10		16	25	50	

Fed
Tram

12+50

1.3	0.7	2.2	2.3	2.4	2.0	2.3	2.4
6.0	6.6	5.0	5.0	4.9	5.3	5.0	4.9
38	32	25	11		10	25	50

Tram

7.26

TP 4.69 7.26 9.45 2.57

12+0

1.4	0.8	0.9	2.3	2.6	2.0	2.1	2.0
5.6	6.2	6.1	4.7	4.4	5.0	4.9	5.0
38	32	25	12		10	25	50

Tram

11+50

1.9	0.5	2.7	2.1	1.7	2.2	2.0	2.0
5.1	6.5	4.3	4.9	5.3	4.8	5.0	5.0
38	32	25	13	10		25	50

Tram

11+0

1.8	0.6	2.6	2.5	1.9	2.1	1.6	1.9	1.7
5.2	6.4	4.4	4.5	5.1	4.9	5.4	5.1	5.3
38	32	25	12	9		15	25	50

Tram

10+50

2.0	0.5	2.0	3.2	2.6	1.9	2.1	2.2	1.2	1.1	2.2	2.3
5.0	6.5	5.8	2.8	4.4	5.1	4.9	4.8	5.8	5.9	4.8	4.7
38	32	25	18	15	8		10	15	25	30	50

Tram

7.02

7.02

15710 = E Edge Paving

1570

14737 = E.L. Projection

14750

1470

13750

7.26

Lt.

Z

Rt.

68

2.64	2.71	2.77	2.72	2.75
4.62	4.55	4.49	4.54	4.51
5.0	2.5		2.5	5.0

2.2	2.1	2.4	2.3	2.3
5.1	5.2	4.9	5.0	5.0
5.0	2.5		2.5	5.0

2.8	2.8	3.1	2.0	2.1	1.9	2.1	2.1
4.5	4.5	4.2	5.3	5.2	5.4	5.2	5.2
5.0	2.5	1.3	1.1		1.0	2.5	5.0

2.4	2.3	3.5	2.2	2.4	2.0	2.3	2.0
4.9	5.0	3.8	5.1	4.9	5.3	5.0	5.3
5.0	2.5	1.2	8		1.0	2.5	5.0

0.6	0.7	1.5	2.6	2.7	2.2	2.2	2.1
6.7	6.6	5.8	4.7	4.6	5.1	5.1	5.2
5.0	2.5	1.5	9		1.0	2.5	5.0

1.0	1.3	2.5	2.6	2.2	2.0	1.7
6.3	6.0	4.8	4.7	5.1	5.3	5.6
5.0	2.5	1.0		1.0	2.5	5.0

7.26

BM 5.25 0.61 SW BP
Rosacran
+ 199.84 m
0.56

IP 3.83 5.86 5.77 2.03

IP 5.51 7.80 4.97 2.29

BM 3.34 3.93 NE Nail Pile
Rosacran
+ Kurtz

15436 - W Edge Paving

7.26

41

2

R1

69

2.53 2.55 2.77 2.74 2.53
4.73 4.91 4.49 4.57 4.73
1.50 2.5 2.5 2.5 1.50

7.26

Levels Rosecrans
Pacific Blvd. to San Diego Electric RR

J.F.B. Rosecrans
San Diego
+ Pacific RR

BM	5.75	10.37	4.62	
TP	4.90	9.25	6.02	4.35
0+0 = 1/2 Congress St	4.62		4.63	
+25 = 5/4 " "	4.45		4.80	
+50		4.34	4.91	
1+0		4.10	5.15	
+50		3.98	5.27	
2+0		4.03	5.22	
+50		4.10	5.15	
3+0		4.14	5.11	
+25 = 1/2 Jefferson	4.15		5.10	
+50 = 1/2 " "	4.13		5.12	
+75 = 5/4 " "	4.09		5.16	
4+0		4.07	5.18	
+50		4.09	5.16	
TP	3.98	8.41	4.82	4.43
5+0			3.34	5.07
+50			3.46	4.95
6+0			3.63	4.78
+50			3.78	4.63

INDEXED

EFB 8.41

SEPT 13 40
S. W. 02
W. Moore 70

6+75 = 1/2 Moore	3.82	4.59
7+0 = 1/2 " "	3.86	4.55
7+25 = 5/4 " "	3.95	4.46
+50	4.05	4.36
8+0	4.21	4.20
+50	4.40	4.01
9+0	4.51	3.90
+50	4.67	3.74
10+0	4.81	3.60
TP	4.11	7.30
10+25 = 1/2 Hancock	3.76	3.54
10+50 = 1/2 " "	3.84	3.46
10+75 = 5/4 " "	3.89	3.41
11+0	3.95	3.35
+50	4.16	3.14
12+0	4.22	3.08
+50	4.60	3.00
13+0	4.40	2.90
+50	4.52	2.78
13+75 = 1/2 Kurtz	4.52	2.78

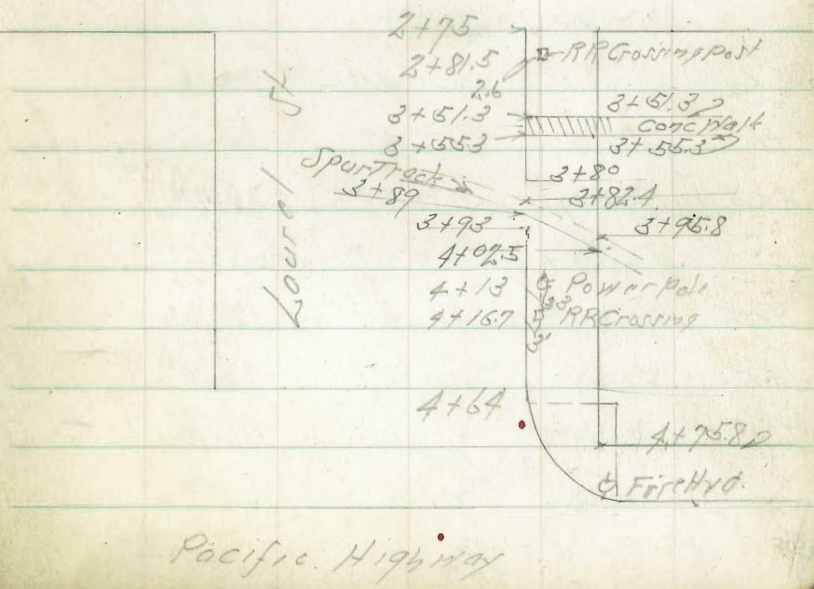
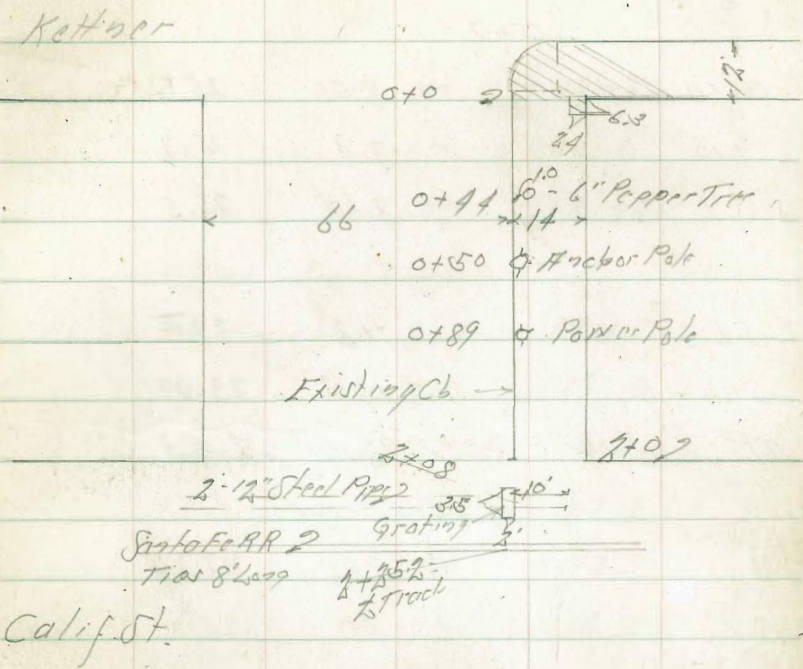
W. Moore old notes

Cross Section Laurel St. Kettner to Pacific Highway
 50' to 14' For Side Walks

BM	113	34.10	32.97	SEBP Laurel St Kettner
	0+0	= H.L. Kettner		
SCb Top	2.50	31.6		
+11.6	= 4 1/2" Conc Walk	1.96	32.14	
SL	on " "	1.92	32.18	
	0+63			
SL	on Conc Walk	1.88	32.22	
+2.4	4 1/4" " "	1.86	32.24	
+4		2.4	31.7	
+10		2.6	31.5	
SCb Top	2.85	31.25		
	0+25			
SCb Top	3.99	30.11		
+10		4.1	30.0	
SL		4.3	29.8	
	0+50			
SL		6.4	27.7	
+4		6.0	28.1	
SCb	5.93	28.17		

INDEXED
 E.C.B.

Oct 31-40
 Surveyed
 Northward
 W. Moore



34.10

0+75

Jcb Top	8.50	25.60
+10	8.4	25.7
JL	8.6	25.5

1+0

JL	11.2	22.9
SCB	11.01	23.09
TP 339	25.32	21.93

1+19 Fly Drive

SCB	3.96	21.36
JL	4.0	21.3

1+30

JL	4.7	20.6
+6	4.7	20.6
SCB in Drive	5.28	20.04

1+40 = Wly Drive

SCB	5.36	19.96
+5	5.3	20.0
JL	5.3	20.0

25.32

73

1+75

JL	7.0	18.3
+3	6.7	18.6
SCB	6.97	18.35

2+0 = FL Calif

SCB = Wly Existing Cb	8.17	17.15
JL	8.3	17.0

2+03

-5	8.2	17.1
JL	8.3	17.0
+8	8.7	16.6
SCB on Paving	8.83	16.50

2+06

SCB on Grating	9.37	15.95
+2	9.0	16.3
+10 Ground	8.8	16.5
+10 FL Calif 12"	11.65	13.67
FL W 12"	11.65	13.67
JL	11.5	13.8
+10	11.5	13.8

Laurel St

25.32

2+10

-5 9.9 15.4

SL 9.4 15.9

+1 8.9 16.4

+11 9.1 16.2

SCB on Grating 9.42 15.90

2+19

SCB on Paving 9.40 15.92

+8 9.45 15.87

+10 9.8 15.5

SL 9.9 15.4

+10 10.1 15.2

2+22.85 - E Rail South of Fe

SL Ground 10.1 15.2

SL Top Rail 9.60 15.72

+6 10.0 15.3

+7 9.6 15.7

SCB Top Rail 9.57 15.75

2+27.55 - W Rail

SCB Top Rail 9.58 15.74

74

25.32

+6 9.7 15.6

+7 9.9 15.4

SL 10.3 15.1

SL Top Rail 9.60 15.72

2+33

-10 10.6 14.7

SL 9.6 15.7

+1 9.4 15.9

+9 9.8 15.5

SCB on Paving 9.65 15.67

2+50

SCB on Paving 10.10 15.22

+9 10.0 15.3

SL 10.6 14.7

+10 11.2 14.1

2+75 - W. Collif

SCB - Fly End 10.68 14.64

+8 11.2 14.1

SL 11.5 13.7

2+0

SL 12.0 13.3

25.32

+5	12.2	13.1
+10	12.0	13.3
SCb Top	11.74	13.58
TP 1.51	14.75	12.08
	13.24	

3+25

SCb Top	2.46	12.29
+2	2.4	12.4
SL	2.8	12.0

3+51.3 = Fly Conc Walk

SL on Walk	3.21	11.54
SCb Top	3.40	11.35

3+55.3 = Wly Conc Walk

SCb Top	3.52	11.23
SL on Walk	3.28	11.47
SL Ground	3.9	10.9

3+74

SL	4.3	10.5
+6	4.0	10.8
SCb Top	4.09	10.66

14.25

75

3+80

SCb = F	4.71	10.04
+9	4.6	10.2
SL	4.5	10.3

3+82.4

SL	4.6	10.2
+4	4.7	10.1
SCb on E Rail	4.81	9.94

3+89

SCb on W Rail	4.97	9.78
---------------	------	------

3+92

SCb = End Cb	5.05	9.70
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3+95.8

SCb end Cb	4.96	9.79
+7.2 on W Rail	5.15	9.60
SL on E Rail	5.15	9.60
SL Ground	5.3	9.5

4+02.5

SL	5.5	9.3
SL on W Rail	5.32	9.43

1475

+5	5.4	9.2
+8	5.1	9.7
SCB Top	5.06	9.69

4+25

SCB	5.68	9.07
+5	5.6	9.2
SL	5.7	9.1

4+50

SL	6.1	8.7
+10	6.0	8.8
SCB Top	6.37	8.38

4+64 = CB BC

SCB Top	6.71	8.04
+4	6.4	8.4
SL	6.4	8.4

4+75.8 = FL Pacific High 1400

SL	6.5	8.3
+8.5 = CB Top	6.74	8.01

TP	11.47	25.46	0.76	12.99
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TP	10.70	35.73	0.43	25.03
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BM		2.76	32.97	
----	--	------	-------	--

SFBP
Lournt +
Kotvor

X sec SMITH ST. 50' wide
Kurtz to Pacific

2 + 00

1 + 50

1 + 00

0 + 50

0 + 05

0 + 0 nly Kurtz drainage ditch

B.M. on
E. Merc. 5.80 6.65

Kurtz
0.85 mason

Red v. Plot 7-17-41 G.B.H.

2.7	2.2	1.9	2.0	2.2	2.6	2.3
$\frac{4.0}{30}$	$\frac{4.5}{25}$	$\frac{4.8}{15}$	4.7	$\frac{4.5}{15}$	$\frac{4.1}{25}$	$\frac{4.4}{30}$
1.7	1.9	2.0	2.3	2.2	2.5	2.2
$\frac{5.0}{30}$	$\frac{4.8}{25}$	$\frac{4.7}{15}$	X	$\frac{4.5}{15}$	$\frac{4.7}{25}$	$\frac{4.5}{30}$
1.0	1.0	1.2	1.7	2.0	2.3	2.1
$\frac{5.7}{30}$	$\frac{5.7}{25}$	$\frac{5.5}{15}$	5.0	$\frac{4.7}{15}$	$\frac{4.4}{25}$	$\frac{4.4}{30}$
1.0	1.0	0.9	1.0	1.8	1.9	1.8
$\frac{5.7}{30}$	$\frac{5.7}{25}$	$\frac{5.8}{15}$	5.7	$\frac{4.9}{15}$	$\frac{4.8}{25}$	$\frac{4.9}{30}$
1.3	1.4	1.4	1.4	1.2	1.3	1.5
$\frac{5.0}{30}$	$\frac{5.2}{25}$	$\frac{5.3}{15}$	5.3	$\frac{5.5}{15}$	$\frac{5.4}{25}$	$\frac{5.7}{30}$
0.4	0.5	0.3	-0.3	-0.4	-0.5	-0.1
$\frac{6.3}{30}$	$\frac{6.4}{25}$	$\frac{6.4}{15}$	7.0	$\frac{7.1}{15}$	$\frac{7.1}{25}$	$\frac{6.8}{30}$

6.65
?

6 Rods taken Rod.
with Pacific
opposite sta.

3 + 39.07 int wly of Smith & wly of Pacific

2.3 2.4 3.32 2.12

$\frac{4.4}{30}$ $\frac{4.3}{25}$ 3.37 4.57

Wedge Pav. Edge Pav.

3 + 24.87 E Hancock

2.1 2.1 1.8 2.3 3.36 1.97

$\frac{4.6}{30}$ $\frac{4.6}{25}$ $\frac{4.9}{15}$ 4.4 3.33 4.72

Wedge Pav. Edge Pav.

4 + 99.87 sly Hancock ST.

1.9 1.9 1.7 2.1

$\frac{4.8}{30}$ $\frac{4.8}{25}$ $\frac{5.0}{15}$ 4.6

4 + 94.68 int. Ely of Smith & wly of Pacific

1.9 1.5 2.6 3.35 1.82

4.8 $\frac{5.2}{15}$ $\frac{4.1}{25}$ 3.34 4.87

Wedge Pav. Edge Pav.

4 + 50

1.8 2.1 1.8 1.9 2.6 2.7 2.3

$\frac{4.9}{30}$ $\frac{4.6}{25}$ $\frac{4.9}{15}$ 4.8 $\frac{4.1}{15}$ $\frac{4.9}{25}$ $\frac{4.4}{30}$

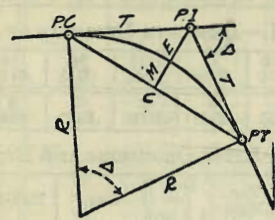
T.P. 4.56 6.69 4.52 2.13

6.65

6.69

DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

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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 = $M = R(1 - \cos \frac{\Delta}{2})$ (5) = $R \text{vers} \frac{\Delta}{2}$ (6)
- External = $E = T \tan \frac{\Delta}{4}$ (7) = $R + \cos \frac{\Delta}{2} - R$ (8) = $R \text{exsec} \frac{\Delta}{2}$ (9)
- Long Chord = $C = 2 R \sin \frac{\Delta}{2}$ (10) Δ = 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° curve $T = 3454.1$ and $+8\frac{1}{2} = 414.49$ 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) $.3 \times C \times D^2$ or = defl. for 1 ft. from Table III $\times C$. For Sta. 158 of above curve = $.3 \times 54.5 \times 8\frac{1}{2} = 136.2'$ 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 91.37. For from Table IV for 1° curve $E = 960.6$ for $8^\circ 20' = 960.6 \div 8\frac{1}{2} = 91.27$ and from Table V correction = .10 or $E = 91.37$ 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.

Table with 12 columns and 12 rows of numerical data representing minutes in decimals of a degree.

TABLE II.—INCHES IN DECIMALS OF A FOOT.

Table with 12 columns and 2 rows of numerical data representing inches in decimals of a foot.

TABLE III.—RADII, ORDINATES AND DEFLECTIONS.

Large table with 10 columns and multiple rows of numerical data for radii, ordinates, and deflections.

Note. Chord Deflection=2 times tangent deflection.

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

Table with 9 columns and multiple rows of numerical data for tangents and externals to a 1-degree curve.

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

Central Angle	Tangent	External	Central Angle	Tangent	External	Central Angle	Tangent	External
91°	5830.5	2444.9	101°	6950.6	3278.1	111°	8336.7	4386.1
10'	5847.5	2457.1	10'	6971.3	3294.1	10'	8362.7	4407.6
20	5864.6	2469.3	20	6992.0	3310.1	20	8388.9	4429.2
30	5881.7	2481.5	30	7012.7	3326.1	30	8415.1	4450.9
40	5898.8	2493.8	40	7033.6	3342.3	40	8441.5	4472.7
50	5916.0	2506.1	50	7054.5	3358.5	50	8468.0	4494.6
92	5933.2	2518.5	102	7075.5	3374.9	112	8494.6	4516.6
10	5950.5	2531.0	10	7096.6	3391.2	10	8521.3	4538.8
20	5967.9	2543.5	20	7117.8	3407.7	20	8548.1	4561.1
30	5985.3	2556.0	30	7139.0	3424.3	30	8575.0	4583.4
40	6002.7	2568.6	40	7160.3	3440.9	40	8602.1	4606.0
50	6020.2	2581.3	50	7181.7	3457.6	50	8629.3	4628.6
93	6037.8	2594.0	103	7203.2	3474.4	113	8656.6	4651.3
10	6055.4	2606.8	10	7224.7	3491.3	10	8684.0	4674.2
20	6073.1	2619.7	20	7246.3	3508.2	20	8711.5	4697.2
30	6090.8	2632.6	30	7268.0	3525.2	30	8739.2	4720.3
40	6108.6	2645.5	40	7289.8	3542.4	40	8767.0	4743.6
50	6126.4	2658.5	50	7311.7	3559.6	50	8794.9	4766.9
94	6144.3	2671.6	104	7333.6	3576.8	114	8822.9	4790.4
10	6162.6	2684.7	10	7355.6	3594.2	10	8851.0	4814.1
20	6180.2	2697.9	20	7377.8	3611.7	20	8879.3	4837.8
30	6198.3	2711.2	30	7399.9	3629.2	30	8907.7	4861.7
40	6216.4	2724.5	40	7422.2	3646.8	40	8936.3	4885.7
50	6234.6	2737.9	50	7444.6	3664.5	50	8965.0	4909.9
95	6252.8	2751.3	105	7467.0	3682.3	115	8993.8	4934.1
10	6271.1	2764.8	10	7489.6	3700.2	10	9022.7	4958.6
20	6289.4	2778.3	20	7512.2	3718.2	20	9051.7	4983.1
30	6307.9	2792.0	30	7534.9	3736.2	30	9080.9	5007.8
40	6326.3	2805.6	40	7557.7	3754.4	40	9110.3	5032.6
50	6344.8	2819.4	50	7580.5	3772.6	50	9139.8	5057.6
96	6363.4	2833.2	106	7603.5	3791.0	116	9169.4	5082.7
10	6382.1	2847.0	10	7626.6	3809.4	10	9199.1	5107.9
20	6400.8	2861.0	20	7649.7	3827.9	20	9229.0	5133.3
30	6419.5	2875.0	30	7672.9	3846.5	30	9259.0	5158.8
40	6438.4	2889.0	40	7696.3	3865.2	40	9289.2	5184.5
50	6457.3	2903.1	50	7719.7	3884.0	50	9319.5	5210.3
97	6476.2	2917.3	107	7743.2	3902.9	117	9349.9	5236.2
10	6495.2	2931.6	10	7766.8	3921.9	10	9380.5	5262.3
20	6514.3	2945.9	20	7790.5	3940.9	20	9411.3	5288.6
30	6533.4	2960.3	30	7814.3	3960.1	30	9442.2	5315.0
40	6552.6	2974.7	40	7838.1	3979.4	40	9473.2	5341.5
50	6571.9	2989.2	50	7862.1	3998.7	50	9504.2	5368.2
98	6591.2	3003.8	108	7886.2	4018.2	118	9535.7	5395.1
10	6610.6	3018.4	10	7910.4	4037.8	10	9567.2	5422.1
20	6630.1	3033.1	20	7934.6	4057.4	20	9598.9	5449.2
30	6649.6	3047.9	30	7959.0	4077.2	30	9630.7	5476.5
40	6669.2	3062.8	40	7983.5	4097.1	40	9662.6	5504.0
50	6688.8	3077.7	50	8008.0	4117.0	50	9694.7	5531.7
99	6708.6	3092.7	109	8032.7	4137.1	119	9727.0	5559.4
10	6728.4	3107.7	10	8057.4	4157.3	10	9759.4	5587.4
20	6748.2	3122.9	20	8082.3	4177.5	20	9792.0	5615.5
30	6768.1	3138.1	30	8107.3	4197.9	30	9824.8	5643.8
40	6788.1	3153.3	40	8132.3	4218.4	40	9857.7	5672.3
50	6808.2	3168.7	50	8157.5	4239.0	50	9890.8	5700.9
100	6828.3	3184.1	110	8182.8	4259.7	120	9924.0	5729.7
10	6848.5	3199.6	10	8208.2	4280.5	10	9957.5	5758.6
20	6868.8	3215.1	20	8233.7	4301.4	20	9991.0	5787.7
30	6889.2	3230.8	30	8259.3	4322.4	30	10025.0	5817.0
40	6909.6	3246.5	40	8285.0	4343.6	40	10059.0	5846.5
50	6930.1	3262.3	50	8310.8	4364.8	50	10093.0	5876.1

1900
336
15.64
13587
60
2856
18142

TABLE V.—CORRECTIONS FOR TANGENTS AND EXTERNALS.

These corrections are to be added to the approximate values, found by dividing the tangent, or external, for a 1° curve (Table IV) by the degree of curve, in order to obtain the true tangents, or externals. Intermediate values may be obtained by interpolation.

FOR TANGENTS ADD

Central Angle	DEGREE OF CURVE													
	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°
10°	.03	.06	.09	.13	.16	.19	.22	.25	.28	.31	.34	.38	.42	.46
15°	.04	.10	.14	.19	.24	.29	.34	.39	.45	.51	.53	.58	.63	.68
20°	.06	.13	.19	.26	.32	.39	.45	.51	.58	.65	.72	.79	.84	.90
25°	.08	.16	.24	.33	.40	.49	.58	.67	.75	.83	.90	.99	1.06	1.14
30°	.10	.19	.29	.39	.49	.59	.69	.79	.89	.99	1.09	1.20	1.29	1.39
35°	.11	.22	.34	.47	.58	.69	.79	.81	.92	1.04	1.20	1.42	1.54	1.66
40°	.13	.26	.40	.53	.67	.80	.93	1.06	1.20	1.34	1.49	1.64	1.79	1.94
45°	.15	.30	.44	.60	.76	.91	1.06	1.21	1.37	1.52	1.70	1.87	2.04	2.21
50°	.17	.34	.51	.68	.85	1.02	1.19	1.36	1.54	1.72	1.91	2.10	2.29	2.48
55°	.19	.38	.57	.76	.95	1.14	1.32	1.52	1.72	1.92	2.14	2.35	2.56	2.77
60°	.21	.42	.63	.84	1.05	1.27	1.49	1.71	1.94	2.17	2.38	2.60	2.83	3.07
65°	.23	.46	.69	.93	1.16	1.40	1.64	1.88	2.13	2.38	2.63	2.88	3.13	3.39
70°	.25	.51	.76	1.02	1.28	1.54	1.80	2.06	2.33	2.60	2.88	3.16	3.44	3.72
75°	.27	.56	.83	1.12	1.40	1.69	1.98	2.27	2.57	2.87	3.16	3.47	3.78	4.09
80°	.30	.61	.91	1.22	1.53	1.84	2.15	2.46	2.78	3.10	3.44	3.78	4.12	4.46
85°	.33	.66	1.00	1.33	1.68	2.02	2.36	2.70	3.05	3.40	3.77	4.14	4.55	4.89
90°	.36	.72	1.09	1.45	1.83	2.20	2.57	2.94	3.32	3.70	4.10	4.50	4.91	5.32
95°	.39	.79	1.19	1.55	2.00	2.40	2.80	3.20	3.61	4.02	4.40	4.88	5.38	5.83
100°	.43	.86	1.30	1.74	2.18	2.62	3.06	3.50	3.95	4.40	4.88	5.37	5.85	6.34
110°	.51	1.03	1.56	2.08	2.61	3.14	3.67	4.21	4.76	5.31	5.86	6.43	7.01	7.60
120°	.62	1.25	1.93	2.52	3.16	3.81	4.45	5.11	5.77	6.44	7.12	7.80	8.50	9.22

FOR EXTERNALS ADD

Central Angle	DEGREE OF CURVE													
	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°
10°	.001	.003	.004	.006	.007	.008	.009	.011	.012	.014	.015	.017	.018	.020
15°	.003	.007	.010	.014	.018	.023	.027	.029	.032	.035	.039	.043	.047	.051
20°	.006	.011	.017	.022	.028	.034	.038	.045	.051	.057	.063	.070	.076	.083
25°	.009	.018	.027	.036	.046	.056	.065	.074	.083	.093	.106	.120	.127	.135
30°	.013	.025	.038	.051	.065	.078	.090	.103	.116	.129	.149	.170	.179	.188
35°	.018	.035	.054	.072	.086	.109	.131	.153	.175	.197	.213	.230	.247	.264
40°	.023	.046	.070	.093	.117	.141	.172	.203	.234	.265	.277	.290	.315	.341
45°	.030	.060	.093	.119	.153	.184	.216	.254	.289	.325	.351	.378	.411	.445
50°	.037	.075	.116	.151	.189	.227	.266	.305	.345	.384	.425	.467	.508	.550
55°	.046	.093	.142	.188	.236	.283	.332	.381	.420	.479	.530	.582	.641	.700
60°	.059	.112	.168	.225	.283	.340	.398	.457	.516	.575	.636	.697	.774	.851
65°	.067	.135	.204	.273	.343	.412	.483	.554	.625	.697	.771	.845	.922	1.01
70°	.080	.159	.240	.321	.403	.485	.568	.652	.735	.819	.906	.994	1.08	1.17
75°	.095	.182	.266	.353	.440	.528	.617	.707	.797	.877	.977	1.07	1.18	1.29
80°	.110	.220	.332	.445	.558	.671	.787	.903	1.02	1.13	1.25	1.38	1.50	1.62
85°	.12													

TABLE VIII.—NATURAL TRIGONOMETRICAL FUNCTIONS.

Angle	Sine.	Tan.	Cotg.	Cosin.	Angle	Sine.	Tan.	Cotg.	Cosin.		
0°	0	00	1	90	8°	.1392	.1405	7.115	.99027		
10	.0029	.0029	343.8	50	10	.1421	.1435	6.968	.98986		
20	.0058	.0058	171.9	40	20	.1449	.1465	6.827	.98944		
30	.0087	.0087	114.6	30	30	.1478	.1495	6.691	.98902		
40	.0116	.0116	85.94	20	40	.1507	.1524	6.561	.98858		
50	.0145	.0145	68.75	10	50	.1536	.1554	6.435	.98814		
1	.0175	.0175	57.29	99885	89	.1564	.1584	6.314	.98769		
10	.0204	.0204	49.10	99979	50	10	.1593	.1614	6.197	.98723	
20	.0233	.0233	42.96	99973	40	20	.1622	.1644	6.084	.98676	
30	.0262	.0262	38.19	99966	30	30	.1650	.1673	5.976	.98629	
40	.0291	.0291	34.37	99958	20	40	.1679	.1703	5.871	.98580	
50	.0320	.0320	31.24	99949	10	50	.1708	.1733	5.769	.98531	
2	.0349	.0349	28.64	99939	88	10	.1736	.1763	5.671	.98481	
10	.0378	.0378	26.43	99929	50	10	.1765	.1793	5.576	.98430	
20	.0407	.0407	24.54	99917	40	20	.1794	.1823	5.485	.98378	
30	.0436	.0437	22.90	99905	30	30	.1822	.1853	5.396	.98325	
40	.0465	.0466	21.47	99892	20	40	.1851	.1883	5.309	.98272	
50	.0494	.0495	20.21	99878	10	50	.1880	.1914	5.226	.98218	
3	.0523	.0524	19.08	99863	87	11	.1908	.1944	5.145	.98163	
10	.0552	.0553	18.07	99847	50	10	.1937	.1974	5.066	.98107	
20	.0581	.0582	17.17	99831	40	20	.1965	.2004	4.989	.98050	
30	.0610	.0612	16.35	99813	30	30	.1994	.2035	4.915	.97993	
40	.0640	.0641	15.60	99795	20	40	.2022	.2065	4.843	.97934	
50	.0669	.0670	14.92	99776	10	50	.2051	.2095	4.773	.97875	
4	.0698	.0699	14.30	99756	86	12	.2079	.2126	4.705	.97815	
10	.0727	.0729	13.73	99736	50	10	.2108	.2156	4.638	.97754	
20	.0756	.0758	13.20	99714	40	20	.2136	.2186	4.574	.97692	
30	.0785	.0787	12.71	99692	30	30	.2164	.2217	4.511	.97630	
40	.0814	.0816	12.25	99668	20	40	.2193	.2247	4.449	.97566	
50	.0843	.0846	11.83	99644	10	50	.2221	.2278	4.390	.97502	
5	.0872	.0875	11.43	99619	85	13	.2250	.2309	4.331	.97437	
10	.0901	.0904	11.06	99594	50	10	.2278	.2339	4.275	.97371	
20	.0929	.0934	10.71	99567	40	20	.2306	.2370	4.219	.97304	
30	.0958	.0963	10.39	99540	30	30	.2334	.2401	4.165	.97237	
40	.0987	.0992	10.08	99511	20	40	.2363	.2432	4.113	.97169	
50	.1016	.1022	9.788	99482	10	50	.2391	.2462	4.061	.97100	
6	.1045	.1051	9.514	99452	84	14	.2419	.2493	4.011	.97030	
10	.1074	.1080	9.255	99421	50	10	.2447	.2524	3.962	.96959	
20	.1103	.1110	9.010	99390	40	20	.2476	.2555	3.914	.96887	
30	.1132	.1139	8.777	99357	30	30	.2504	.2586	3.867	.96815	
40	.1161	.1169	8.556	99324	20	40	.2532	.2617	3.821	.96742	
50	.1190	.1198	8.345	99290	10	50	.2560	.2648	3.776	.96667	
7	.1219	.1228	8.144	99255	83	15	.2588	.2679	3.732	.96593	
10	.1248	.1257	7.953	99219	50	10	.2616	.2711	3.689	.96517	
20	.1276	.1287	7.770	99182	40	20	.2644	.2742	3.647	.96440	
30	.1305	.1317	7.596	99144	30	30	.2672	.2773	3.606	.96363	
40	.1334	.1346	7.429	99106	20	40	.2700	.2805	3.566	.96285	
50	.1363	.1376	7.269	99067	10	50	.2728	.2836	3.526	.96206	
					82						
	Cosin.	Cotg.	Tan.	Sine.	Angle.		Cosin.	Cotg.	Tan.	Sine.	Angle.

132 15
137 15
139 65 = 2 11/16
134 25

TABLE VIII.—NATURAL TRIGONOMETRICAL FUNCTIONS.

Angle	Sine.	Tan.	Cotg.	Cosin.	Angle	Sine.	Tan.	Cotg.	Cosin.		
16°	.2756	.2867	3.487	.96126	74	16	.4067	.4452	2.246	.91355	
10	.2784	.2899	3.450	.96046	50	10	.4094	.4487	2.229	.91236	
20	.2812	.2931	3.412	.95964	40	20	.4120	.4522	2.211	.91116	
30	.2840	.2962	3.376	.95882	30	30	.4147	.4557	2.194	.90996	
40	.2868	.2994	3.340	.95799	20	40	.4173	.4592	2.177	.90875	
50	.2896	.3026	3.305	.95715	10	50	.4200	.4628	2.161	.90753	
17	.2924	.3057	3.271	.95615	73	25	.4226	.4663	2.145	.90631	
10	.2952	.3089	3.237	.95545	50	10	.4253	.4699	2.128	.90507	
20	.2979	.3121	3.204	.95459	40	20	.4279	.4734	2.112	.90383	
30	.3007	.3153	3.172	.95372	30	30	.4305	.4770	2.097	.90259	
40	.3035	.3185	3.140	.95284	20	40	.4331	.4806	2.081	.90133	
50	.3062	.3217	3.108	.95195	10	50	.4358	.4841	2.066	.90007	
18	.3090	.3249	3.073	.95106	72	26	.4384	.4877	2.050	.89879	
10	.3118	.3281	3.048	.95015	50	10	.4410	.4913	2.035	.89752	
20	.3145	.3314	3.018	.94924	40	20	.4436	.4950	2.020	.89623	
30	.3173	.3346	2.989	.94832	30	30	.4462	.4986	2.006	.89493	
40	.3201	.3378	2.960	.94740	20	40	.4488	.5022	1.991	.89363	
50	.3228	.3411	2.932	.94646	10	50	.4514	.5059	1.977	.89232	
19	.3256	.3443	2.904	.94552	71	27	.4540	.5095	1.963	.89101	
10	.3283	.3476	2.877	.94457	50	10	.4566	.5132	1.949	.88968	
20	.3311	.3508	2.850	.94361	40	20	.4592	.5169	1.935	.88835	
30	.3338	.3541	2.824	.94264	30	30	.4617	.5206	1.921	.88701	
40	.3365	.3574	2.798	.94167	20	40	.4643	.5243	1.907	.88566	
50	.3393	.3607	2.773	.94068	10	50	.4669	.5280	1.894	.88431	
20	.3420	.3640	2.747	.93969	70	28	.4695	.5317	1.881	.88295	
10	.3448	.3673	2.723	.93869	50	10	.4720	.5354	1.868	.88158	
20	.3475	.3706	2.699	.93769	40	20	.4746	.5392	1.855	.88020	
30	.3502	.3739	2.675	.93667	30	30	.4772	.5430	1.842	.87882	
40	.3529	.3772	2.651	.93565	20	40	.4797	.5467	1.829	.87743	
50	.3557	.3805	2.628	.93462	10	50	.4823	.5505	1.816	.87603	
21	.3584	.3839	2.605	.93358	69	29	.4848	.5543	1.804	.87462	
10	.3611	.3872	2.583	.93253	50	10	.4874	.5581	1.792	.87321	
20	.3638	.3906	2.560	.93148	40	20	.4899	.5619	1.780	.87178	
30	.3665	.3939	2.539	.93042	30	30	.4924	.5658	1.767	.87036	
40	.3692	.3973	2.517	.92935	20	40	.4950	.5696	1.756	.86892	
50	.3719	.4006	2.496	.92827	10	50	.4975	.5735	1.744	.86748	
22	.3746	.4040	2.475	.92718	68	30	.5000	.5774	1.732	.86603	
10	.3773	.4074	2.455	.92609	50	10	.5025	.5812	1.720	.86457	
20	.3800	.4108	2.434	.92499	40	20	.5050	.5851	1.709	.86310	
30	.3827	.4142	2.414	.92388	30	30	.5075	.5890	1.698	.86163	
40	.3854	.4176	2.394	.92276	20	40	.5100	.5930	1.686	.86015	
50	.3881	.4210	2.375	.92164	10	50	.5125	.5969	1.675	.85866	
23	.3907	.4245	2.356	.92050	67	31	.5150	.6009	1.664	.85717	
10	.3934	.4279	2.337	.91936	50	10	.5175	.6048	1.653	.85567	
20	.3961	.4314	2.318	.91822	40	20	.5200	.6088	1.643	.85416	
30	.3987	.4348	2.300	.91706	30	30	.5225	.6128	1.632	.85264	
40	.4014	.4383	2.282	.91590	20	40	.5250	.6168	1.621	.85112	
50	.4041	.4417	2.264	.91472	10	50	.5275	.6208	1.611	.84959	
					66						
	Cosin.	Cotg.	Tan.	Sine.	Angle.		Cosin.	Cotg.	Tan.	Sine.	Angle.

1153
457
1620

149.65
599.63
749.28

279.6

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139.65
 7.5
 132.15
 30
 309.30

375
 153
 222

1247
 189
 1436

1658

162.5
 325.0
 487.5

4681
 1551
 2236

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

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

+025
525

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) * 2 or 2 ft. added to 41.9 = 43.9. For slopes of 1 on 1 see inside of front cover.