G-208

HETZ

LEVEL BOOK

No. 772

TRAVERSE TABLE FOR TRANSIT BOOK.

From 1° to 90° for a distance of 100.

Degrees.	DEGREES.		¼ DEGREE.		½ DEGREE.		¾ DEGREE.		Degrees.
	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	
0			100 00	0 44	100.00	0.87	99.99	1.31	89
1	99.98	1 75	99 98	2 18	99 97	2.62	99 95	3.05	88
2	99.94	3.49	99 92	3.93	99 91	4 36	99.88	4.80	87
3	99.86	5.23	99 84	5 67	99 81	6.10	99.79	6.54	86
4	99 76	6.98	99 73	7.41	99.69	7.85	99.66	8.28	85
5	99 62	8.72	99.58	9.15	99 54	9.58	99.50	10 02	84
6	99.45	10.45	99.41	10 89	99.36	11.32	99.31	11.75	83
7	99 25	12.19	99 20	12.62	99.14	13.05	99.09	13.49	82
8	99.03	13.92	98.97	14.35	98.90	14.78	98.84	15.21	81
9	98.77	15.64	98.70	16.07	98.63	16 50	98 56	16.93	80
10	98 48	17.36	98.40	17.79	98.33	18.22	98.25	18.65	79
11	98 16	19.08	98 08	19 51	97.99	19 94	97.90	20.36	78
12	97.81	20.79	97.72	21.22	97.63	21 64	97.53	22.07	77
13	97.44	22.50	97.34	22.92	97.24	23.34	97.13	23.77	76
14	97.03	24.19	96.92	24 62	96.81	25 04	96 70	25.46	75
15	96.59	25 88	96.48	26.30	96.36	26.72	96.25	27.14	74
16	96.13	27.56	96.00	27 98	95.88	28 40	95 76	28.82	73
17	95.63	29.24	95.50	29.65	95.37	30 07	95.24	30.49	72
18	95.11	30 90	94.97	31.32	94.83	31.73	94.69	32.14	71
19	94.55	32.56	94.41	32.97	94.26	33.38	94.12	33.79	70
20	93.97	34.20	93.82	34.61	93.67	35.02	93.51	35 43	69
21	93.36	35.84	93.20	36.24	93.04	36.65	92.88	37.06	68
22	92.72	37.46	92.55	37.86	92.39	38.27	92.22	38 67	67
23	92.05	39.07	91.88	39 47	91.71	39.87	91.53	40.27	66
24	91.35	40.67	91.18	41.07	91.00	41.47	90.81	41.87	65
25	90.63	42.26	90.45	42.66	90.26	43.05	90.07	43.44	64
26	89.88	43.84	89 69	44.23	89.49	44.62	89.30	45.01	63
27	89.10	45.40	88.90	45.79	88.70	46.17	88.50	46.56	62
28	88.29	46.95	88.09	47.33	87.88	47.72	87 67	48.10	61
29	87.46	48.48	87.25	48 86	87.04	49.24	86.82	49.62	60
30	86.60	50.00	86.38	50.38	86.16	50.75	85.94	51.13	59
31	85.72	51.50	85.49	51.88	85.26	52.25	85.04	52.62	58
32	84.80	52 99	84.57	53.36	84.34	53.73	84.10	54.10	57
33	83.87	54.46	83.63	54.83	83.39	55.19	83.15	55.56	56
34	82.90	55.92	82.66	56.28	82.41	56.64	82.16	57.00	55
35	81.92	57.36	81.66	57.71	81.41	58.07	81.16	58.42	54
36	80.90	58.78	80.64	59.13	80.39	59.48	80.13	59.83	53
37	79.86	60.18	79.60	60 53	79.34	60.88	79.07	61 22	52
38	78.80	61.57	78.53	61.91	78.26	62.25	77.99	62.59	51
39	77.71	62.93	77.44	63.27	77.16	63.61	76.88	63.94	50
40	76.60	64.28	76.32	64.61	76.04	64.94	75.76	65.28	49
41	75.47	65.61	75.18	65.93	74.90	66.26	74.61	66.59	48
42	74.31	66.91	74.02	67.24	73.73	67.56	73.43	67.88	47
43	73.14	68.20	72.84	68.52	72.54	68.84	72.24	69.15	46
44	71.93	69.47	71.63	69.78	71.33	70.09	71.02	70.40	45
45	70.71	70.71							
Degrees.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Degrees.
	DEGREES.		¾ DEGREE.		½ DEGREE.		¼ DEGREE.		

Published by the A. LIETZ Co., San Francisco, Cal.

MADE IN
U. S. A.

Quality Evidenced Since 1882.

Standard Tripod Connection

LIETZ STANDARD ENGINEERS' TRANSIT
With U Shaped Standards

No. 5E with 6¼″ limb. No. 11E with 5″ limb.

Furnished with either Internal or External Focusing Telescope.

MICROFILMED

APR 12 1965

CITY ENGINEER

G-208

TABLE OF STADIA REDUCTIONS

For a Constant of 100.

ROD VERTICAL.

Min.	0°		1°		2°		3°	
	Hor. Dist.	Diff. Elev.	Hor. Dist.	Diff. Elev.	Hor. Dist.	Diff Elev.	Hor Dist.	Diff. Elev.
0'	100.00	.00	99.97	1.74	99.88	3.49	99.73	5.23
2	100.00	.06	99.97	1.80	99.87	3 55	99.72	5.28
4	100.00	.12	99.97	1.86	99.87	3.60	99.71	5.34
6	100.00	.17	99.96	1.92	99.87	3.66	99.71	5.40
8	100.00	.23	99.96	1.98	99.86	3.72	99.70	5.46
10	100.00	.29	99.96	2.04	99.86	3.78	99.69	5.52
12	100.00	35	99.96	2.09	99.85	3.84	99.69	5.57
14	100.00	.41	99.95	2.15	99.85	3.90	99.68	5.63
16	100.00	.47	99.95	2.21	99.84	3.95	99.68	5.69
18	100.00	.52	99.95	2.27	99.84	4.01	99.67	5.75
20	100.00	.58	99.95	2.33	99.83	4.07	99.66	5.80
22	100.00	.64	99.94	2.38	99.83	4.13	99.66	5.86
24	100.00	.70	99.94	2.44	99.82	4.18	99.65	5.92
26	99.99	.76	99.94	2.50	99.82	4.24	99.64	5.98
28	99.99	.81	99.93	2.56	99.81	4.30	99.63	6.04
30	99.99	.87	99.93	2.62	99.81	4.36	99.63	6.09
32	99.99	.93	99.93	2.67	99.80	4.42	99.62	6.15
34	99.99	.99	99.93	2.73	99.80	4.48	99.62	6.21
36	99.99	1.05	99.92	2.79	99.79	4.53	99.61	6.27
38	99.99	1.11	99.92	2.85	99.79	4 59	99.60	6.33
40	99.99	1.16	99.92	2.91	99.78	4.65	99.59	6.38
42	99.99	1.22	99.91	2.97	99.78	4.71	99.59	6.44
44	99.98	1.28	99.91	3.02	99.77	4.76	99.58	6.50
46	99.98	1.34	99.90	3.08	99.77	4.82	99.57	6.56
48	99.98	1.40	99.90	3.14	99.76	4.88	99.56	6.61
50	99.98	1.45	99.90	3.20	99.76	4.94	99.56	6.67
52	99.98	1.51	99.89	3.26	99.75	4.99	99.55	6.73
54	99.98	1.57	99.89	3.31	99.74	5.05	99.54	6.78
56	99.97	1.63	99.89	3.37	99.74	5.11	99.53	6.84
58	99.97	1.69	99.88	3.43	99.73	5.17	99.52	6.90
60	99.97	1.74	99.88	3.49	99.73	5.23	99.51	6.96
c= .75	.75	.01	.75	.02	.75	.03	.75	.05
c=1.15	1.15	.01	1.15	.03	1.15	.05	1.15	.07
c=1.90	1.90	.02	1.90	.05	1.90	.08	1.90	.12

Min.	4°		5°		6°		7°	
	Hor. Dist.	Diff. Elev.	Hor. Dist.	Diff. Elev.	Hor. Dist	Diff. Elev.	Hor Dist.	Diff. Elev.
0'	99.51	6.96	99.24	8.68	98.91	10.40	98.51	12.10
2	99.51	7.02	99.23	8.74	98.90	10.45	98.50	12.15
4	99.50	7.07	99.22	8.80	98.88	10.51	98.48	12.21
6	99.49	7.13	99.21	8.85	98.87	10.57	98.47	12.26
8	99.48	7.19	99.20	8.91	98.86	10.62	98.46	12.32
10	99.47	7.25	99.19	8.97	98.85	10.68	98.44	12.38
12	99.46	7.30	99.18	9.03	98.83	10.74	98.43	12.43
14	99.46	7.36	99.17	9.08	98.82	10.79	98.41	12.49
16	99.45	7.42	99.16	9.14	98.81	10.85	98.40	12.55
18	99.44	7.48	99.15	9.20	98.80	10.91	98.39	12.60
20	99.43	7.53	99.14	9.25	98.78	10.96	98.37	12.66
22	99.42	7.59	99.13	9.31	98.77	11.02	98.36	12.72
24	99.41	7.65	99.11	9.37	98.76	11.08	98.34	12.77
26	99.40	7.71	99.10	9.43	98.74	11.13	98.33	12.83
28	99.39	7.76	99.09	9.48	98.73	11.19	98.31	12.88
30	99.38	7.82	99.08	9.54	98.72	11.25	98.29	12.94
32	99.38	7.88	99.07	9.60	98.71	11.30	98.28	13.00
34	99.37	7.94	99.06	9.65	98.69	11.36	98.27	13.05
36	99.36	7.99	99.05	9.71	98.68	11.42	98.25	13.11
38	99.35	8.05	99.04	9.77	98.67	11.47	98.24	13.17
40	99.34	8.11	99.03	9.83	98.65	11.53	98.22	13.22
42	99.33	8.17	99.01	9.88	98.64	11.59	98.20	13.28
44	99.32	8.22	99.00	9.94	98.63	11.64	98.19	13.33
46	99.31	8.28	98.99	10.00	98.61	11.70	98.17	13.39
48	99.30	8.34	98.98	10.05	98.60	11.76	98.16	13.45
50	99.29	8.40	98.97	10.11	98.58	11.81	98.14	13.50
52	99.28	8.45	98.96	10.17	98.57	11.87	98.13	13.56
54	99.27	8.51	98.94	10.22	98.56	11.93	98.11	13.61
56	99.26	8.57	98.93	10.28	98.54	11.98	98.10	13.67
58	99.25	8.63	98.92	10.34	98.53	12.04	98.08	13.73
60	99.24	8.68	98.91	10.40	98.51	12.10	98.06	13.78
c= .75	.75	.06	.75	.07	.75	.08	.74	.10
c=1.15	1.15	.09	1.14	.11	1.14	.13	1.14	.15
c=1.90	1.89	.15	1.89	.18	1.89	.21	1.88	.25

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Index. Pac Ave Sewer Grades

Page 2-10 - Grades from 11+00 S. of Elm to 74+49.84 ℄ Vine

Page 7 Grades from 98+82.94 Grades on Pac East along Broadway To Tunnel Portal 96+00

Page 20 Grades from 111+00 N. of A. to 11+00 S. of Elm. Check Levels Page 60

Page 22. Grades from 0+00 43' N. of S. Line of Broadway to 12+32.12

Page 24-26 East San Diego Sewer 0+00 Wabash + Redwood to M.H. #9 32+13.72

Page 27-29 Check Levels on above Grades

" 30-33 32+13.72 M.H. #9. to 70+01 End of Job N. of Ellejon

Page 37-40 Check Levels on above Grades

Page 34 Grade change from 41+50 to 42+57. Necessitated by Elec Conduit N. Side of Univ

Page 41. Grades from M.H. #16 Orange + 38th. 190.2 East to ex. M.H. ℄ of Orange + alley East of 38th

Bliss
Sommermyer
Begg
4/9/42

Grades Pacific Ave. Sewer
from Sta 11+00 S. of Elm to
~~74+49~~ 84 M.H. ℄ of Vine St

Ties See FB 1604 Alignment Notes

INDEXED
W.K.
OCT 25 1948

				Elev Stake	Elev Grade	Cuts	
B.M.	4.95	9.97		5.02 ~~4.95~~	S.E. B.P. Beech + Pac	See FB 1604 P 25 - also FB 1317 P 41 (check Levels)	check Levels used on const
T.P. State Hiway BM NW Cedar + Pac	3.82	8.83	4.96	5.01		State Hiway B.M. NE Cedar + Pac Iron Bolt in cb.	
11+00			4.91	3.92	-10.19	14.11	20.5 Rt x in cb
T.P.	5.08	9.11	4.80	4.03			
11+50			5.40	3.71	-10.15	13.86	24' Rt x in walk
12+00			6.37	2.74	-10.11	12.85	20 Rt stake
+50			5.48	3.63	-10.07	13.70	24' " x in cb Ret NE Elm + Pac
13+00			5.20	3.91	-10.03	13.94	24' " x in walk
+50			4.88	4.23	-9.99	14.22	24' " " " "
14+00			4.51	4.60	-9.95	14.55	24' " " " "
+50			4.29	4.82	-9.91	14.73	20.5 Rt x in cb
15+00			3.98	5.13	-9.87	15.00	20.5 " " " "
T.P.	5.97	11.12	3.96	5.15		14.98	
+50			5.72	5.40	check 9.83	15.23	20' Rt x in cb
16+00			5.88	5.24	-9.79	15.03	" " " " "
+50			5.16	5.96	-9.75	15.71	20.5 Rt " " "
+73.74	L.Lt MH #41		4.79	6.33	-9.73	16.06	25' Rt x in walk See FB 1604 Page
Hole Check S.E. Grape + Pacific	used to be a brass plug		4.51	6.61			
17+00			4.90	6.22	-9.71	15.93	25 Rt R. Head Spike in Paving
+50			4.58	6.54	-9.67	16.21	" " x in walk
Check BM State Iron Pin NE Grape + Pacific			4.68	6.44			
18+00			4.22	6.90	-9.63	16.53	25' Rt x in walk

		11/12				cuts					
18+50			3.78	7.34	-9.59	16.93		25' Rt X in Cb			
19+00			3.40	7.72	-9.55	17.27		" " RH Spike in A.C. Walk			
TP.	6.96	14.64	3.44	7.68	-						
+50	# Note This Grade pt is under heavy Truck Traffic		6.62	8.02	-9.51	17.53		25' Rt RH Spike in A.C Walk or Paving			
20+00			5.96	8.68	-9.47	18.15		" " " " " " "			
+50			5.33	9.31	-9.43	18.74		" " "			
21+00			5.17	9.47	-9.39	18.86		" " " " " " " 8' + N ℄ Hawthorn			
+50			5.25	9.39	-9.35	18.74		" " " " " AC Walk			
22+00			5.17	9.47	-9.31	18.78		25' Rt RH Spike " " " "			
+50			4.76	9.88	-9.27	19.15		" " " " " " " "			
23+00			5.24	9.40	-9.23	18.63		" " " " "			
+50			4.42	10.22	-9.19	19.41		" " " " " " " "			
24+00			4.80	9.84	-9.15	18.99		" " RH Nail " " "			
+50			4.63	10.01	-9.11	19.12		RH Nail 25' Rt in A.C Walk			
+70	5.61	15.69	~~5~~4.56	10.08	-9.09	19.17		" " Spike 25' Rt M H # ℄ of Ivy			
25+00			5.~~40~~ 38	10.31	-9.07	19.38					
+50			5.~~37~~ 34	10.35	-9.03	19.38					
26+00			5.~~35~~ 32	10.37	-8.99	19.36					
+50			5.~~64~~ 60	10.09	-8.95	19.04					
27+00			5.~~41~~ 38	10.31	-8.91	19.22					
+50			5.~~42~~ 39	10.30	-8.87	19.17					
28+00	4.23	14.36	5.~~56~~ 54	10.15	-8.83	18.98					
+50			4.~~90~~ 89	9.47	-8.79	18.26					
29+00			4.~~20~~ 19	10.17	-8.75	18.92					
State Check Hiway BM			4.50	9.86							

		14.36								
Check BM. NW BP.			5.52	8.84	Juniper Rd					
29+50			4.98 ~~5.01~~	9.38	-8.71	18.09				
30+00			31 ~~4.94~~	9.45	-8.67	18.12				
+50			5.10	9.26	-8.63	17.89				
31+00			38 ~~5.41~~	8.98	-8.59	17.57				
+50			66 ~~5.69~~	8.70	-8.55	17.25				
32+00	4.29	12.66	5.99	8.39	-8.51	16.90				
+50			41 ~~4.44~~	8.25	-8.47	16.72				
33+00			61 ~~4.64~~	8.05	-8.43	16.48				
+49.61 L. Rt 8.33					-8.39					
Check BM S. Hwy			4.57	8.09	SE Pac & Laurel	0.01 low				
" " Cty St. Hwy			4.72	7.94	NW Pac + Laurel	0.03 "				
BM SE Pacific + Laurel	5.16	13.28		8.12						
33+50			5.72	7.56	-8.39	15.95	25' Rt			
MH #43 34+02.65			6.14	7.14	-8.35	15.49	20' Lt x in paving			
+50			6.00	7.28	-8.31	15.59	" " " "			
35			5.68	7.60	-8.27	15.87	" " " "			
12°-11.00 LH +59.1°			5.24	8.04	-8.23	16.27	14.7' Lt x in cb			
36+00			5.60	7.68	-8.19	15.87	" " in paving			
+50			5.07	8.21	-8.15	16.36	" x in paving			
37	6.35	15.50	4.13	9.15	-8.11	17.26	" x in cb			
+50			6.04	9.46	-8.07	17.53	" " " "			
38			5.23	10.27	-8.03	18.30	" " " "			
+50			4.71	10.79	-7.99	18.78	" " " "			
39			4.79	10.71	-7.95	18.66	" " " "			
+50			3.66	11.84	-7.91	19.75	" " " "			

0.08% Grade

		15.50			
39+97 32 MH #44			3.13	12.37	-7.87
+50	6.49	19.40	2.59	12.91	-7.83
41			6.00	13.40	-7.79
+50			5.51	13.89	-7.75
42			5.00	14.40	-7.71
+50			4.51	14.89	-7.67
43			4.07	15.33	-7.63
Top F.H. 150+ - not 83 to Set B.M. Nine Notches	2.36	20.74	1.02	18.38	
T.P.	3.96	18.22	6.48	14.26	
Check B.M. 8 P. inch Adamins Front of Ryans Sta. 88+ Bldg. Southeast Corner			6.05	12.17 r 12.175	
Sept 18, 92	1.71	20.09		18.38	BM To #44
+50			5.15	14.94	-7.59
44			4.42	15.67	-7.55
+50			4.25	15.84	-7.51
45			4.13	15.96	-7.47
+50			3.97	16.12	-7.43
46			4.10	15.99	-7.39
M.H. & drive #45 +14.30	2.68	18.58	4.19	15.90	-7.37
+50 25	Note Due to error in picking sta. off plan for pipe under Consolidated office Bldg. Grade had to be changed from 0.10 To 0.07. Grades under Consolidated Bldg are low		2.90	15.68	-7.35
47			3.78	14.80	-7.31
+50			3.61	14.97	-7.26
48			3.91	14.67	-7.22
+50			4.87	13.71	-7.18
49			4.78	13.80	-7.15
+50			5.20	13.38	-7.13

20.24	X in cb 14.7 Lt of ℄
20.74	" " " " " "
21.19	" " " " " "
21.64	" " " " " "
22.11	" " " " " "
22.56	" " " " " "
22.96	" " " " " "
	X in cb 10.5 Lt of ℄
22.53	" " " "
23.22	" " " "
23.35	" " " " "
23.43	" " " " "
23.55	" " " " "
23.38	" " " " "
18.62 To old Outfall	
23.28	" " " " "
23.03	" " " " "
22.11	" " " " "
22.23	" " " " "
21.89	" " " " "
20.89	X in Paving 10.5 Lt of ℄
20.95	" " cb " " "
20.51	" " " " " "

		π 1858								58+80 218	π 14.64 257 – 12.07 F.H.
						cols	offsets 10.5 Lt				
50 +00			6.26	12.32	– 7.10	+ 19.42	"				
+50			6.13	12.45	– 7.07	+ 19.52	"				
51			6.56	12.02	– 7.03	+ 19.05	"				
+50	3.08	14.64	7.02	11.56	– 6.99	+ 18.55	"				
52.			3.53	11.11	– 6.95	+ 18.06	"				
℄ Quince +33 15 MH #46			3.72	10.92	– 6.93	+ 17.85	"				
+50			3.76	10.88	– 6.92	+ 17.80	"				
53			4.74	9.90	– 6.89	+ 16.79	"				
+50			4.87	9.77	– 6.85	+ 16.62	"				
54			4.57	10.07	– 6.82	+ 16.89	"				
+50			4.83	9.81	– 6.79	+ 16.60	"				
55			5.14	9.50	– 6.75	+ 16.25	"				
+50			5.34	9.30	– 6.71	+ 16.01	"				
56.	4.22	13.25	5.61	9.03	– 6.68	+ 15.71	"				
+50			4.29	8.96	– 6.65	+ 15.61	x start here " Nail				
57			5.00	8.25	– 6.61	+ 14.86	" x in paring				
+50			5.11	8.14	– 6.58	+ 14.72					
58			4.79	8.46	– 6.54	+ 15.00					
+50	3.88	12.19	4.94	8.31	– 6.51	+ 14.82					
+80			3.97	8.22	– 6.49						
59+11. Pipe in place											
MH ℄ Spruce #47 +95 30			Check with ? Phelps on final placing of this M.H.								
60+63. Pipe in place See page 76											
+98 Pipe was staked to Here			3.97	8.22	– 6.28						

0.07%

0.10%

Continued page 9

97+12

Grades. Pac. Ave Sewer From

98+82.94 East Along Broadway

BM NW Broadway & Pac	5.24	9.92		4.68							
98+82.94			5.61	4.31	-12.53	+16.84					
98+50			5.87	4.05	-12.56	+16.61					
98			5.36	4.56	-12.60	+17.16					
+50			4.20	5.72	-12.64	+18.36					
Tunnel Portal +12	6.96	12.85	4.03	5.89	-12.65	+18.54					
97 out											
+50 out											
East Tunnel Portal 96			5.28	7.57	-12.75	+20.32					
BM	4.50	8.81		4.31							
			9.78	-0.97	-12.53						
			5.96	+2.85							
				7.99							
98+50 BM	5.57	11.29	5.72								
			5.05	6.24	-12.65	+18.89					
10/2/42 Tunnel Portal Cut W Side											
98+12	5.23	11.12		5.89							
98+12			4.77	6.35	-12.65	+19.00					
98+82.94	4.88	9.19		4.31							
			12.06	-2.87	-12.53						

5.14

23.3 Lt.

-12.53
-5.14
+7.39
5.00

7.99
2.85
-5.14
5.14
5.00
-0.14 ⊼
7.08
7.22

1101
236
-8.65*

1251
865
3.86
112
4.98

1854

11.12

-12.53
2.87
9.66
4.67
4.99

2.94
45
3.39

12.53
7.22
5.31

1087
-14
1101
1253
+1.52 -1251

152
236
-3.88

5.41

11.12
5.40
5.72

Grade at 1+15.5 *
M.H. N. Line of Broadway

	4.40	9.08		4.68				9.70 L. of Timber			
								7.15 Rod			
							Top of Pipe	16.85 Rod to Top of Pipe			
			16.85	-7.77	-12.44	+4.67					

Continued from page 6 | π 12-19

						cuts					
61+50			3.76	8.43	-6.20	+14.63					
62+00			3.66	8.53	-6.12	+14.65					
+50	4.82	13.51	3.50	8.69	-6.04	+14.73					
63			4.68	8.83	-5.96	+14.79					
+50			4.81	8.70	-5.88	+14.58					
64			4.81	8.70	-5.80	+14.50					
+50			5.21	8.30	-5.72	+14.02					
65			4.89	8.62	-5.64	+14.26					
+50			5.01	8.50	-5.56	+14.06					
66	4.56	12.42	5.65	7.86	-5.48	+13.34					
+50			4.12	8.30	-5.40	+13.70					
67			4.82	7.60	-5.32	+12.92					
M.H. & Thorn #48 +55.30			4.98	7.44	-5.24	+12.68					
68			4.34	8.08	-5.19	+13.27					
x in cb 45.74 Prop BC	5.54	13.73	4.23	8.19	-5.15	+13.34					
69			5.34	8.39	-5.10	+13.49		11' Lt	x in cb		
+50			5.77	7.96	-5.05	+13.01		11' "	x in Driveway		
70			4.96	8.77	-5.00	+13.77		11' Lt	x " walk		
+26 55 BC Lt			4.91	8.82	-4.97	+13.79		11' Lt	x " "		
+50			4.85	8.88	-4.95	+13.83		11' Lt	x " "		
71			4.67	9.06	-4.90	+13.96		12' "	x " "		
+50			4.53	9.20	-4.85	+14.05		13' Lt	x " "		
72	5.88	15.19	4.42	9.31	-4.80	+14.11		14' "	x " "		
+50			5.93	9.26	-4.75	+14.01		12' Lt	Tack in Paving		
73			5.70	9.49	-4.70	+14.19		" "	" " "		

Grade 0.16%

0.10%

		π 15.19				cuts					
+48.04 EC			5.43	9.76	-4.65	+14.41		12' Lt. TK. in Paving			
74 S. on Pac. +49.84	see FB 1625 p.26		5.45	9.74	-4.60	+14.34		" " " " "			
74+43.81 N. on Pac.	M.H. & Vine See Grade Book 207 Page 16				-4.54						
Set BM TK. in cb. N. Side of Vine	ECB Near of Pac Lamp Post		5.18	10.01							
Check BM. & Tack 77+48.04 EC			5.08	10.11							

See Grade Book 207 Page 16 for Continuation of Grades North to Bean.

65th St Sewer Grades
Akins Ave to Broadway

offset 6' Lt of ℄ #1664-68 For Location

+40.63 = Δ 60°12'R = M.H. #34 R.P. 90° 6' + 6' Lt.		223.00
3+0		219.67
+50		215.57
2+0	.082	211.47
+50		207.37
1+0 = Break		203.27
+50	.0328	201.63
0+0 = Exiting MH ℄ Akins		199.99

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OCT 25 1948

Transfered G 218-2

+50		254.44
7+0		251.29
+50	.0629	248.15
6+0 = M.H. #36		245.00
+50		241.05
5+0		237.10
+50	.079	233.15
4+0		229.20
3+76.43 = Δ 60°00'L = M.H. #35		227.34 225.94
Ties 10' + 10 on Split	.082	

65th St Sewer Grades

		.0382
7+85.00 = M.H. # 38		270.51
7+50		269.01
10+0		266.87
7+50		264.73
		.0428
9+0		262.59
7+50		260.45
7+36.83 = ℄ Brooklyn MH # 37		259.89
8+0		257.58
		.0638

7+50		286.62
11+0		283.79
		.0567
7+50		280.95
7+32.89 = ℄ Wunderlin MH # 39		279.98
12+0		278.72
7+50		276.81
		.0382
12+0		274.90
7+50		272.99
11+0		271.08

65th St. Sewer Grades

17+77.76					304.00						
3-37.76											
17+40.0	= Break				303.00						
17+0					300.75						
16+60				0.563	298.49						
16+20					296.24						
15+80.00	= Δ 1°03' Rt = MH # 40				293.99						
+50					292.29	18+53.28 = M.H. # 41 = 5' South of W.L. of Broadway R.P. 10+10.8 to L.+T				305.99	
15+0				0.567	289.46	18+15.52				304.99	

64th St Sewer Grades
Akins Ave to Wunderlin

Offset 6' Rt of ℄ 1660'-64 Location

INDEXED
W.K.
OCT 25 1948

3+0		201.41
	1940	
2+87.50 Δ 1°44'30" Rt = M.H. #32 R.P. 6+6' Rt on Split Δ		198.99
+50		198.44
2+0		197.71
+50		196.98
	0146	
1+0		196.25
+50		195.52
0+0 = Existing M.H. ℄ Akins		194.79

Transfered G 218-5

7+0 = Δ 22°50' Rt M.H. #31 R.P. 10 + 10 Rt on Split		225.81
+50		225.61
6+0		225.41
+50		225.21
	004	
5+0		225.01
+50		224.81
4+20 = M.H. #31 "A"		224.69
4+0		220.81
	1940	
3+50		211.12

64th St. Sewer Grades

+50				231.16	
10+0				0220 230.06	
+50				228.96	
+06.54	Δ 14°46' Lt. M.H. # 30 = ℄ Brooklyn RP 10' + 10' Rt on split Δ			228.00 ↓ 226.64 ↓	
9+0				226.61	
+50				226.41	
8+0				004 226.21	
7+50				226.01	

14+08.97 = ℄ Wunderlin M.H. # 28 RP 10 + 10 N 90° off Wunderlin				240.00	
13+12.64				238.67	
13+16.32				0288 237.33	
12+46.32					
12+70 = Δ 21°42' Lt RP 10-10-10 on Rt Split Δ				236.00	
+50				235.56	
12+0				234.46	
+50				0220 233.36	
11+0				232.26	

Grades Pacific Are Sewer

	from Sta	111+00	N. of A. to	11+00	South of Elm	Cuts	
SE BP BM Pac + Beech	4.47	9.49		5.02			
TP	4.55	8.81	5.23	4.26			
111+00			5.83	2.98	-11.34	14.32	X in walk 19' Rt of ℄ N of 'A'
+50			5.53	3.28	-11.30	14.58	" " " " " "
112+00			5.26	3.55	-11.26	14.81	" " " " " "
+50			5.04	3.77	-11.22	14.99	" " " " " "
113+00			4.84	3.97	-11.18	15.15	" " " " " "
+50			4.58	4.23	-11.14	15.37	X in walk 19 Rt of ℄
114+00.34	M.H. L. Lt	1°-11'-00"	4.93	3.88	-11.10	14.98	Roofing Tack 20' + 80'+ ℄ Ash Rt of ℄
+50			4.30	4.51	-11.06	15.57	X in walk 20' Rt of ℄
115	5.53	10.09	4.25	4.56	-11.02	15.58	" " " " " "
+50			5.52	4.57	-10.98	15.55	" " " " " "
116+00			5.85	4.24	-10.94	15.18	" " " " " "
+50			5.72	4.37	-10.90	15.27	" " " " " "
117+00			5.19	4.90	-10.86	15.76	" " " " " "
check BM Starting			5.07	5.02			
+50			5.94	4.15	-10.82	14.97	" " " " " "
+80.09	M.H. L. Rt	1°-11'-00	5.64	4.45	10.80	15.25	20' + 100' Rt Roofing Tacks in Pavement
118+00			5.58	4.51	-10.78	15.29	20' Rt of ℄ Roofing Tack
+50			4.95	5.14	-10.74	15.88	X in cb 20' Rt of ℄
equation 118+79.62 = 4+39.23			4.65	5.44	-10.72	16.16	30' Rt of ℄ Roofing Tack
5+00			4.82	5.27	-10.67	15.94	X in cb 20' Rt of ℄
+50	4.83	10.34	4.58	5.51	-10.63	16.14	X in walk 24' Rt of ℄
6+00			5.44	4.90	-10.59	15.49 ok	X in cb 20.5 Rt of ℄
+50			5.71	4.63	-10.55	15.18	X in Driveway 20.5 Rt of ℄
7+00			5.65	4.69	-10.51	15.20 ok	X in Paving of Cedar 20.5 Rt of ℄

		T				Cots
		10:34				
+57.31	MH #		5.27	5.07	-10.47	15.54 ok
8+00			5.~~48~~ 50	4.84	-10.43	15.27
+50			6.1~~4~~ 6	4.18	-10.39	14.57
9+00			5.7~~4~~ 6	4.58	-10.35	14.93
+50			5.9~~4~~ 8	4.36	-10.31	14.67
10+00			6.1~~3~~ 5	4.19	-10.27	14.46
+50			6.~~28~~ 30	4.04	-10.23	14.27
11+00			6.4~~0~~ 2	3.92	-10.19	14.11 ✓

Grades Pac Ave Sewer from 0+00
93' N of So Line of Broadway to 12+32 12 N of 4 Newsto
= 12.3320 ft

Note Grades were equated because it's had been cut on original line
see page 63 Check Levels

BM NW Broadway Pac	4.10	8.78		4.68		cuts		
0+00			4.45	4.33	-12.53		℄	
0+25			4.55	4.23	-12.51	+16.74	℄	
0+50			4.6	4.16	-12.49	16.65	℄	
0+75			4.72	4.06	-12.47	16.53	℄	
1+15 50 L. pt.			4.74	4.04	-12.44	16.48	x 16.9	
1+61.95 = 1+62 95 original line			4.25	4.53	-12.40	16.93	x 16.4	
2+00			4.30	4.48	-12.37	16.85	x 16.4	
2+50			4.59	4.19	-12.34	16.53	x 10.75	
3+00	4.21	8.27	~~4.58~~ 4.72	4.06	-12.30	16.36	x 10.55	
3+50			4.25	4.02	-12.26	16.28	x 10.25	
4+00			4.33	3.94	-12.22	16.16	x 11.0	
+50			4.37	3.90	-12.18	16.08	x 10.7	
5+00			4.40	3.87	-12.14	16.01	x 10.5	
+50			4.41	3.86	-12.10	15.96	x 10.2	
6+00			4.24	4.03	-12.06	16.09	x 9.95	
LA +50 = 6+62 4.64 L		8.89	4.02	4.25	-12.02	16.27	x 10.7	
7+00			4.35	4.54	-11.98	16.52	x 11.95	
+50			4.13	4.76	-11.94	16.70	x 12.25	
+78 60 = 7+70 82 P.O.T.			4.07	4.82	-11.92	16.74		
8+12 = 8+04 2 M.H			4.06	4.83	-11.89	16.72		
+50			4.12	4.77	-11.87	16.64		
9+00			4.43	4.46	-11.83	16.29		
+50			4.68	4.21	-11.79	16.00		

Grade 0.04 Grade 0.05

9.05
4.99
405

		$\bar{\lambda}$ 8.89				
10+04.23 = 10+12.01 (New)	3.53 (old)	7.45	4.97	3.92	-11.74	15.65
+50			3.69	3.76	-11.70	15.46
11+00			3.90	3.55	-11.66	15.21
+50			4.16	3.29	-11.62	14.91
+57.59 (New) = 11+65.46 (old)			4.20	3.25	-11.61	14.86
12+00						
+32.03 (New) = 12+39.90 (old)				no	-11.54	Piper place
Check 11+00 N of A			4.46	2.99		
				2.98		
				0.01		
	4.37	9.05		4.68		
0+00			4.24	4.81	-12.53	+17.34
1+15			4.54	4.51	-12.44	+16.95

INDEXED
W.K.
OCT 25 1948

Bliss Notes
Sommermyer *
Begg Rod.
9/15/42
Fair + warm

East San Diego Sewer Wabash

+ Redwood to M.H #9

					Grade Elev	+ cuts		
BM #1	6.40	206.74		200.34	Con Mon & Redwood + Wabash			
0+00			6.00	200.74	192.12	8.62	From Rim	
+50			6.93	199.81	193.37	6.44		
1			5.05	201.69	194.62	7.07		
+50			4.31	202.43	195.87	6.56		
2			2.52	204.22	197.12	7.10		
+50	10.76	216.55	0.95	205.79	198.37	7.42		
3			9.67	206.88	199.62	7.26		
+50			9.12	207.43	200.87	6.56		
4			7.61	208.94	202.12	6.82		
+50			5.43	211.12	203.37	7.75		
M.H #1 + 74.07			4.63	211.92	204.00	7.92		6.1 Rt
Check BM #2			5.87	210.68				
5			4.88	211.67	204.65	7.02		
+50			4.77	211.78	205.90	5.88		
6			2.52	214.03	207.15	6.88		
+50	10.26	224.71	2.10	214.45	208.40	6.05		
7			7.85	216.86	209.65	7.21		
+50			7.67	217.04	210.90	6.14		
8			6.64	218.07	212.15	5.92		6.07
M.H #2 +37.04			4.83	219.88	213.07	6.81		
+50			5.38	219.33	213.40	5.93		
9			4.12	220.59	214.65	5.94		
+50	9.47	232.68	1.50	223.21	215.90	7.31		
10			7.47	225.21	217.15	8.06		
Check BM #3			6.65	226.03				

		π 232.68					
+50			6.53	226.15	218.40	7.75	
11			5.39	227.29	219.65	7.64	
+50			4.46	228.22	220.90	7.32	
M.H #3 12 14			4.62	228.06	222.14	5.92	
+50	11.82	243.30	1.20	231.48	223.39	8.09	
13			10.03	233.27	224.64	8.63	
+50			8.92	234.38	225.89	8.49	
14			7.70	235.60	227.14	8.46	
+50			5.92	237.38	228.39	8.99	stake was low on recheck 0.06
15			3.83	239.47	229.64	9.83	" " " " "
+50			4.46	238.84	230.89	7.95	
16			2.39	240.91	232.14	8.77	
(eq) +38 88 MH #4 = +36 76	6.00	248.31	0.99	242.31	233.12	9.19	stake was 0.04 low
check BM #4 +50			3.48 5.37	244.83 242.94	233.56	9.38	Origrona! Stake Destroyed - Reset
17			3.82	244.49	235.25	9.24	"
+50			2.04	246.27	236.93	9.34	
18	12.54	258.83	2.02	246.29	238.61	7.68	
+55			10.79	248.04	240.29	7.75	stake 0.02 low
19			9.33	249.50	241.98	7.52	
+50			7.42	251.41	243.66	7.75	
M.H #5 +84 18			6.62	252.21	244.81	7.40	
20 +50			4.32	254.51	247.00	7.51	
21		260.64	3.57	255.26	248.69	6.57	
21 +50			4.19 ~~2.28~~	256.~~55~~ 45	250.37	6.08	
22 +00	10.28	268.90	2.08 0.21	258.~~62~~ 56	252.06	6.54	stake 0.06 low on recheck

		↑ 268.90					all stakes 6' Rt of ℄ except Where noted
		266.77		Elev Stake	Elev Grade	Cuts	
22 +50			591 ~~7.91~~	260.~~99~~ .86	3.365% 253.75	+7.~~24~~ 11	
23			467 ~~6.76~~	262.~~14~~ 10	255.44	+6.~~70~~ 66	
MH #6 +31.52			3.79 5.90	262.38 263.00	256.50	+6.50	6.43 Rt
Check BM #6 +50			4.32 5.54	264.58 263.36	257.12	+6.24	
24			5.71	263.19	258.80	+4.39	
+50			3.06	265.84	3.365% 260.48	+5.36	
25	9.81	277.02	1.69	267.21	262.17	+5.04	
+50			7.95	269.07	263.85	+5.22	
26			6.0~~6~~ 9	270.9~~6~~ 3	265.53	+5.40	
MH #7 +48.13			4.06	272.96	267.15	+5.81	
27		276.75	2.90	274.12	3.365% 267.89	+6.23	
+50	12.83	288.13	1.72	275.~~30~~ .04	269.56	+5.~~74~~ 5.48	← Recheck
28		287.74	10.29	277.84	272.23	+5.61	
MH #8 +59.47	12.79	296.75	3.75 ~~4.17~~	283.9~~6~~ 9	274.23	+9.7~~3~~ 6	10.75 Rt
29			5.11	291.64	277.92	+13.72	
+50	12.10	308.72	0.13	296.62	282.48	+14.14	
30			9.90	298.82	287.04	+11.78	
+50			7.04	301.68	9.11% 291.60	10.~~68~~ 00	
31	13.11	319.15	2.68	306.04	296.16	9.~~88~~ 85	
+50			8.75	310.40	300.72	9.~~68~~ 64	7' Rt
32			5.09	314.06	305.28	8.~~78~~ 72	
M.H #9 +13.72			4.26	314.89	306.53	8.~~36~~ 29	0.07 op in Grade

Bliss Notes
Beg 4 π
Sommer Myer Rod.

Check Levels for Grades. 0+00 Wabash Redwood & M#89

BM #1	6.17	206.51		200.34	Mon & Redwood [illegible]
0+00			5.76	200.75	192.12
+50			6.68	199.83	
1			4.81	201.70	
+50			4.07	202.44	
2			2.28	204.23	
TP	11.75	217.44	0.82	205.69	
+50			11.67	205.77	
3			10.55	206.89	
+50			10.00	207.44	
4			8.48	208.96	
+50			6.31	211.13	
MH #1 +			5.50	211.94	204.00
5			5.75	211.69	
+50			5.65	211.79	
6			3.40	214.04	
+50	10.73	225.18	2.99	214.45	
7			8.32	216.86	
+50			8.14	217.04	
8			7.11	218.07	
M.H #2 +37.04			5.29	219.89	213.07
+50			5.85	219.33	
9			4.58	220.60	
+50	12.47	235.69	1.96	223.22	
10+00			10.48	223.21	

		235.69		
10+50			9.55	226.14
11			8.39	227.30
+50			7.45	228.24
MH #3 12			7.61	228.08
+50			4.20	231.49
13			2.90	233.29
+50			1.28	234.41
14	10.69	246.31	0.07	235.62
+50			8.93	237.38
15			6.84	239.47
+50			7.47	238.84
16			5.40	240.91
9" + MH 25			4.01	242.30
+50			3.37	242.94
17	10.18	254.66	1.83	244.48
+50			8.40	246.26
18			8.38	246.28
+50			6.34	248.32
19			5.18	249.48
+50			3.28	251.38
MH #6 +84 18			2.48	252.18
20- out				
+50	12.91	266.90	0.17	254.49
21			11.66	255.24
+50			10.37	256.53

		266.90		
22			8.31	258.59
+50			5.93	260.97
23			4.78	262.12
+31 52			3.92	262.98
Check BM #			2.39	264.56
+50			3.56	263.34
24			3.73	263.17
+50	11.25	277.07	1.08	265.82
25			9.88	267.19
+50			8.02	269.05
26 MH #7			6.12	270.95
+48 13			4.13	272.94
27			2.96	274.11
+50	12.03	287.30	1.80	275.27
28			9.49	277.81
MH #8 +39 47			3.36	283.94
T.P.	11.96	298.49	0.77	286.53
29			6.87	291.62
+50			1.89	296.60
TP	11.33	308.74	1.08	297.41
30			9.94	298.80
+50			7.09	301.65
31	11.52	317.54	2.72	306.02
+50			7.15	310.39
32			3.49	314.05
MH #9 +132 2			2.66	314.88

Sewer Grades. East San Diego

Sewer from M.H. #9 Sta 32+12.72 to End of Sewer 7.2 Tee

B.M.	3.87	322.22		318.35	S.E. Hub Wing Bitman + 38		
32+12.72 M.H. #9			7.40	314.82	306.53	+8.29	
+50			6.05	316.17	306.89	+9.28	
33			5.20	317.02	307.39	+9.63	
+50			4.58	317.64	307.89	+9.75	
34			4.23	317.99	308.39	+9.60	
+50			3.90	318.32	308.89	+9.43	
35			3.76	318.46	309.39	+9.07	
M.H. #10 +60.64	11.42	330.68	2.96	319.26	310.00	+9.26	
36			10.45	320.23	312.70	+7.53	
+50			6.57	324.11	316.12	+7.99	
37		343.11	2.64	328.04	317.55	+8.49	
+50			11.86	331.25	322.97	+8.28	
38			9.35	333.76	326.40	+7.36	
+50			7.04	336.07	329.81	+6.26	
M.H. #11 +67.64			6.41	336.70	331.02	+5.68	
39			5.36	337.75	331.86	+5.89	
+50			3.82	339.28	333.16	+6.12	
40			2.61	340.50	334.46	+6.04	
+50		350.35	1.36	341.75	335.76	+5.99	
41			7.27	343.08	337.06	+6.02	
+50			5.95	344.40	338.36	+6.04	
M.H. #12 +79.64			5.18	345.17	339.00	+6.17	

B.M.

318.35
3.87 +
322.22 ✗
2.96 −
319.26
11.42 +
330.68 ✗
0.16 −
330.52 TP
12.59 +
343.11 ✗
1.36 −
341.75 TP
8.60 +
350.35

		350.35					
42+00			4.56	345.79	339.44	+6.35	
+50		353.39	4.13	346.22	340.31	+5.31	
43			6.90	346.49	341.19	+5.30	
+50			6.01	347.38	342.06	+5.32	
44			5.01	348.38	342.94	+5.44	
+50			4.09	349.30	343.81	+5.49	
45			3.10	350.29	344.69	+5.60	
+50			2.18	351.21	345.56	+5.65	
MH #13 +75 47	TP Set Pk	359.41	1.59	351.80	346.00	+5.80	
46			7.19	352.22	346.24	+5.98	
+50			6.16	353.25	346.72	+6.53	
47			5.05	354.36	347.21	+7.15	
+50			4.19	355.22	347.69	+7.53	
48+00			3.24	356.17	348.18	+7.99	
+50			2.26	357.15	348.66	+8.49	
M.H #14 49+09 15	Pk Set +38 M	364.92	1.54	357.87	349.19	+8.68	
+50			6.33	358.59	349.63	+8.96	
50			5.40	359.52	350.11	+9.41	
+50			4.69	360.23	350.59	+9.64	
51			3.98	360.94	351.08	+9.86	
+50			3.23	361.69	351.57	+10.12	
52			2.54	362.38	352.06	+10.32	
MH #15 +15 15			2.25	362.67	352.24	+10.43	

#10 BM N W BP = 345.60
38 ft univ

350.35
4.75
345.60
7.79 +
353.39
1.59 -
351.80 TP
7.63 +
359.43
1.69
357.74
7.20
364.94
2.25
362.69
7.11
369.80

		369.78					
52 +50			6.62	363.16	352.53	+10.63 ✓	
53			5.78	364.00	353.01	+10.99 ✓	
+50			4.99	364.79	353.50	+11.29 ✓	
54			4.16	365.62	353.98	+11.64 ✓	
+50			3.45	366.33	354.47	+11.86 ✓	
55			2.70	367.08	354.95	+12.03 ✓	
MH #16 +35.15			2.29	367.49	355.29	+12.20 ✓	
+50		372.13	2.16	367.62	355.58	+12.04 ✓	
56			4.26	367.87	356.49	+11.38 ✓	
+50			4.19	367.94	357.40	+10.54 ✓	
57			4.00	368.13	358.31	+9.82 ✓	
+50			3.91	368.22	359.22	+9.00 ✓	
58			3.77	368.36	360.13	+8.23 ✓	
+12.95 MH #17 ?			3.68	368.45	360.37	+8.08 ✓	
+50			3.56	368.57	360.63	+7.94 ✓	
59		373.41	3.41	368.72	360.98	+7.74 ✓	
+50			4.99	368.92	361.33	+7.09	
60			4.41	369.00	361.68	+7.32 ✓	
+50			4.12	369.29	362.03	+7.26 ✓	
+9.75 MH #18 ?			3.72	369.68	362.32	+7.36 ✓	
61		374.80	3.39	369.42	362.38	+7.04 ✓	
+50			4.85	369.95	362.73	+7.22 ✓	
62			4.73	370.07	363.08	+6.99 ✓	
+50			4.41	370.39	363.43	+6.96 ✓	
63			4.23	370.57	363.78	+6.79 ✓	
+50	? . Check this		3.95	370.85	364.13	6.72 ✓	
MH #19 +9.83		377.08	3.64	371.16	364.44	6.72 ✓	

369.80
1.69 −
368.11 TP
4.04 +
372.15 ×
3.41
368.74 TP
4.69 +
373.43 ×
3.40 −
370.03 TP
4.79 +
374.82 ×
3.64 −
TP 371.18
5.92
377.10

		π 377.08				Cuts					
64+50			5.98	371.60	364.83	+6.77					377.08
65			5.15	371.93	365.18	+6.75					3.58
+50			4.91	372.17	365.53	+6.64					373.52 BM1
66			4.58	372.50	365.88	+6.62					373.50
+50			4.18	372.90	366.23	+6.67					7.98
M.H. #20 91 +97			3.95	373.13	366.56	+6.57					380.48
67+50		380.48	3.20	373.88	366.91	+6.97					
67+80			5.81	374.67	367.12	+7.55					
68+00			5.45	375.03	367.26	+7.77					
PVC											
BK +40			5.14	375.34	367.55	+7.79					
BK +60			4.93	375.55	367.73	+7.82					
BK +80			4.90	375.58	368.01	+7.57					
BK 69			4.78	375.70	368.37	+7.33					
+20			4.62	375.86	368.82	+7.04					
+40			4.42	376.06	369.35	+6.71					
EVC +60			4.20	376.28	369.98	+6.30					
70+01			3.66	376.82	371.36	+5.46					

Grade Change from 41+50 to
42+57. Necessitated by Elec Conduit
N. Side of Univ.

		Elev Stake	Elev Grade	cuts
41+50	350.42	344.90	338.36	+ 6.04
M.H. #12 +74 64	Elevs of cut stakes copied from original Notes page 30	345.17	338.65	+ 6.52
42+00		345.79	338.95	+ 6.84
+57. ch. conduit	423	346.19	339.63	+ 6.56

BM
N.W. Univ. 38
34560
4824
35042

Check Levels on Grade Stakes East San Diego Sewer

BM.	4.45	322.80		318.35	S.E. 7º Hub Nightman + 38"
32+73.72 MH#9			7.98	314.82	
+50			6.63	316.17	
33			5.78	317.02	
+50			5.17	317.63	
34			4.81	317.99	
+50			4.49	318.31	
35			4.33	318.47	
M.H. #10 +60.64	11.03	330.29	3.54	319.26	
36			10.05	320.24	
+50			6.17	324.12	
37			2.25	328.04	
T.P.	12.01	341.86	0.44	329.85	
+50			10.61	331.25	
38			8.10	333.76	
+50			5.79	336.07	
MH #11 +67.64			5.16	336.70	
39			4.11	337.75	
+50			2.57	339.29	
40+00			1.36	340.50	
T.P.	8.11	349.70	0.27	341.59	
+50			7.95	341.75	
41			6.62	343.08	
+50			5.31	344.39	
M.H. #12 +74.64			4.54	345.16	

		⊼ 349.70		
42+00			3.92	345.78
+50			3.48	346.22
Check BM #10 N.W. BP univ 38#	8.24	353.84	4.10	345.60
43			7.35	346.49
+50			6.46	347.36
44			5.47	348.37
+50			4.54	349.30
45			3.55	350.29
+50			2.62	351.22
+75 47 MH#			2.05	351.79
46	7.63	359.86	1.61	352.23
+50			6.61	353.25
47			5.49	354.37
+50			4.64	355.22
48			3.69	356.17
+50			2.70	357.16
MH# 49+04.15			1.99	357.87
BM#11 SW 7° TK Polk +38°	7.60	365.32	2.14	357.72
+50			6.72	358.60
50			5.80	359.52
+50			5.08	360.24
51			4.36	360.96
50			3.62	361.70
52			2.94	362.38
MH. #12 +19.15			2.65	362.67

		365.32			
52+50			2.17	363.15	
53	7.78	371.76	1.34	363.98	
+50			6.99	364.77	
54			6.16	365.60	
+50			5.45	366.31	
55			4.70	367.06	
M.H 10' Diagonally N.E +34.15			4.29	367.47	
+50			4.16	367.60	
56			3.90	367.86	
BM.			3.68	368.08	N.W. BP Orange 38"
+50			3.85	367.91	
57			3.65	368.11	
+50			3.57	368.19	
58			3.42	368.34	
M.H # +12.95	5.68	374.10	3.34	368.42	
+50			5.55	368.55	
59			5.39	368.71	
+50			5.69	368.41	
60			5.11	368.99	
+50			4.82	369.28	
+91.75	10' Diagonally SW		4.45	369.65	
61			4.68	369.42	
BM.			4.10	370.00	N.W. 7 [illegible] 37" + Orange
+50			4.16	369.94	
62			4.05	370.05	

		37410			
+50			3.73	370.37	
63			3.56	370.54	
+50	5.98	376.80	3.28	370.82	
M.H +94.83			5.66	371.14	
64+50			5.22	371.58	
65			4.89	371.91	
+50			4.66	372.14	
66			4.34	372.46	
+50			3.93	372.87	
M.H # +97.91			3.70	373.10	
67+50			2.94	373.86	
check BM	6.97	380.47	3.33	373.50 373.47	SWBP HCg at 32°
+80			5.80	374.67	
68			5.45	375.02	
P.V.C. +40			5.14	375.33	
+60			4.92	375.55	
+80			4.90	375.57	
69			4.78	375.69	
+20			4.62	375.85	
+40			4.41	376.06	
P.V.C. +60			4.20	376.27	
70+01			3.65	376.82	

East San Diego Sewer Grades from
M.H # 16 Orange + 38th 190.2' East to
Existing M.H ℄ of Orange + Alley East
of 38th 8" Sewer

	3.76	371.84		368.08		Cut
0+00			4.36	367.48	355.29	+12.19
0+50			4.41	367.43	355.77	+11.66
1+00			4.84	367.00	356.26	+10.74
1+50			5.02	366.82	356.74	+10.08
1+90.2 EXMH	Cut is on Rim of MH		5.22	366.62	357.13	+9.49
NVGP BM 38th + Orange M.H #	3.76	371.84		368.08		
0+00			4.36	367.48		
+50			4.41	367.43		
1			4.84	367.00		
+50			5.02	366.82		
+90.2. EXMH			5.22	366.62		

Lindbergh Field Sewer Grades
Lateral No 3 14+50 M.H. #9 North East

BM	4.44	6.81		2.37	Top Conc Base Fence Post S.E. Coast Guard
B.M.	3.30	6.75	3.36	3.45	S.E. Top Conc Head Wall 20' Lt 22+50
	5.05	7.86	3.94	2.81	Lt T & N+S Run Way 75' Lt 19+18.59
	5.20	8.46	4.60	3.26	on ℄ Stub 14+50
B.M. For Grades	5.49	8.78		3.29	℄ Stub 14+50 1675-1 (O.K. 3.26)
0+0 = MH #9 Trunk			14.63 out	-5.85	
+50			14.53 5.30 c9.23	-5.75	
1+0			14.43 5.37 c9.06	-5.65	
+50			14.33 5.34 c8.99	-5.55	
2+0			14.23 5.19 c9.04	-5.45	
+50			14.13 4.99 c9.14	-5.35	
3+0 = MH.			14.03 4.92 c9.11	-5.25	
+50			13.93 4.85 c9.08	-5.15	
4+0			13.83 4.73 c9.10	-5.05	

Alig. #1675-1
Harbor #126-79 For B.M. 8.46 ⊼ For Levels
stakes offset 25' Rt 8.78 ⊼ For Grades

Sept. 25-44
Sisson
Bliss
Osborne

INDEXED
W.K.
OCT 25 1948

4+50			13.73 4.66 c9.07	-4.95	
5+0			13.63 4.61 c9.02	-4.85	
+50			13.53 4.48 c9.05	-4.75	
6+0			13.43 4.18 c9.25	-4.65	
		13.35 4.24 c9.11 on Rim		-4.57	Flow Line New
+38.8 = Exist MH			3.95	4.51	on Rim
"	" " "		15.43	-6.97	Flow Line
TP	6.23	9.49		3.26	on ℄ Stub 14+50
BM	3.43	8.72	4.20	5.29	N.W. Bolt Found. Plate S.W. Cor West Hanger 5.30
	4.47	10.70	2.49	6.23	
BM	3.72	11.93	2.49	8.21	Top F. Hyd. N.E. Cor. Westgate Cannery + Laurel 8.155
BM			1.16	10.77	Top F. Hyd S.E. Laurel + Pacific Hwy 10.725
BM			3.94	7.99	N.W. B.P. Laurel + Pacific Hwy 7.97

Lindbergh Field Check Levels
Pacific Hwy & Laurel St to

Sept 27-44
Sisson
Bliss &
Osborn

BM	3.50	11.44		7.94	H.W.B.P. Laurel St & Pacific #1317-42
BM	2.91	11.08	3.27	8.17	Top Fire Hyd. N.E. Westgate Connect Laurel
	4.70	8.46	7.32	3.76	
BM	2.88	8.15	3.19	5.27	H.W. Bolt Four Plate S.W. Cor West Hanger
	5.04	7.40	5.79	2.36	
	3.18	7.21	3.37	4.03	
	3.915	6.265	4.86	2.35	
BM			2.82	3.445	S.E. Cor Top Head Wall 20' Lt 22+50 Harbor 3.45

Brooklyn Ave. Water Line Grades
Otay St to 66th St.

INDEXED
W.K.
OCT 25 1948

1+14.07			256.~~51~~ 11	16.9 / 14.6 / C ~~2.3~~ 2.7	
+74.07	= P.V.C.		258.~~44~~ 04	15.0 / 12.7 / C ~~2.3~~ 2.7	
+37.03			260.~~88~~ 48	12.6 / 10.5 / C ~~2.1~~ 2.5	
0+0 = 10' E of E L 65th St North			262.93 ~~263.33~~	10.1 / 9.0 / C ~~1.1~~ 1.5	
1+93.73	= W.L. 65th St		263.98 ~~264.38~~	9.1 / 5.5 / C ~~3.6~~ 4.0	
1+57.80			265.~~80~~ 40	7.6 / 3.9 / C 3.7	
1+17.80			266.~~74~~ 34	6.7 / 3.0 / C ~~3.9~~ 4.1	
+77.80			266.60 ~~267.00~~	6.4 / 3.0 / C ~~3.4~~ 3.8	
+37.80			266.~~57~~ 17	6.9 / 3.0 / C ~~3.9~~ 4.3	
0+0 = E.V.C.			264.~~80~~ 40	8.6 / 3.4 / C ~~5.2~~ 5.6	
BM	635	273.44		267.09	L+T ℄ Brooklyn 65th St 1603.55

Stakes offset 15' South of ℄ St
Grades ~~267~~ 3.07 Below South Curb

Nov. 17-44
Sisson
Bliss
Osborne
Hazard

44

6+30.53			229.83 ~~230.23~~	7.8 / 5.0 / C ~~2.8~~ 3.2	
BM			5.30	232.68	Mon ℄ Brooklyn + W.L. 66th St 232.60
6+00.53	= P.V.C.		231.63 ~~232.03~~	6.0 / 5.2 / C ~~0.8~~ 1.2	
TP	1.95	237.98	12.63	236.03	
5+57.30			241.~~54~~ 14	7.1 / 6.4 / C ~~0.7~~ 1.1	
TP	0.54	248.66	12.96	248.12	
5+14.07	= E.V.C.		250.63 ~~251.03~~	10.1 / 4.8 / C ~~5.3~~ 5.7	
TP	0.68	261.08	13.04	260.40	
4+74.07			257.97 ~~258.37~~	15.1 / 11.5 / C ~~3.6~~ 4.0	
4+34.07			262.~~80~~ 40	10.6 / 8.2 / C ~~2.4~~ 2.8	
3+94.07			263.88 ~~264.28~~	9.2 / 7.3 / C ~~1.9~~ 2.3	
3+54.07	= P.V.C.		262.~~86~~ 46	10.6 / 9.3 / C ~~1.3~~ 1.7	
3+14.07	= E.V.C.		259.60 ~~260.00~~	13.4 / 11.4 / C ~~2.0~~ 2.4	
2+74.07			257.~~53~~ 13	15.9 / 12.8 / C ~~3.1~~ 3.5	
2+34.07			255.~~96~~ 56	17.5 / 14.2 / C ~~3.3~~ 3.7	
1+94.07			254.87 ~~255.27~~	18.2 / 15.3 / C ~~2.9~~ 3.3	
1+54.07			255.~~45~~ 05	18.0 / 15.0 / C ~~3.0~~ 3.4	
		273.44			

Brooklyn Ave. Water Line Grades
68th St to 69th St

3+57.25 = E.V.C.				277.~~93~~ 53	8.4 / 7.0 / C ~~1.4~~ 1.8
3+17.25				278.~~79~~ 39	7.6 / 6.4 / C ~~1.2~~ 1.6
2+77.25 = P.V.C.				278.~~63~~ 23	7.7 / 5.9 / C ~~1.8~~ 2.2
2+21.80				277.77 / ~~278.17~~	8.2 / 6.3 / C ~~1.9~~ 2.3
1+66.35				277.~~71~~ 31	8.7 / 6.8 / C ~~1.9~~ 2.3
1+10.90				276.85 / ~~277.25~~	9.1 / 7.0 / C ~~2.1~~ 2.5
0+55.45				276.~~99~~ 39	9.6 / 7.6 / C ~~2.0~~ 2.4
0+0 = E.L. 68th St.				275.93 / ~~276.33~~	10.0 / 8.0 / C ~~2.0~~ 2.4
BM	6.96	286.37		279.41	S.W. 7' Hub Brooklyn + 68th St

Stakes offset 15' So. of ℄ St.
Grades ~~2.67~~ 3.07 Below South Curb

Nov. 17-44
Sisson
Bliss
Osborne
Hazard

45

BM			12.65	262.03	Wly Conc Wall Brooklyn + 69th
6+05.22 = W.L. 69th St.				257.13 / ~~257.53~~	out
5+90.22				258.93 / ~~259.33~~	15.3 / 10.2 / C ~~5.1~~ 5.5
5+37.25				265.91 / ~~266.31~~	8.4 / 4.2 / C ~~4.2~~ 4.6
TP	1.21	274.68	12.90	273.47	
4+97.25				270.~~56~~ 16	15.8 / 13.0 / C ~~2.8~~ 3.2
4+57.25				273.~~69~~ 29	12.7 / 11.1 / C ~~1.6~~ 2.0
4+17.25 = P.V.C.				275.~~83~~ 43	10.5 / 9.2 / C ~~1.3~~ 1.7
3+87.25				276.~~88~~ 48	9.5 / 7.9 / C ~~1.6~~ 2.0
		286.37			

69th St. Water Line Grades
Brooklyn Ave to Imperial
Stakes offset 15' East of ℄ Grades 3.5 Below E.Cb.

INDEXED
W.K.
OCT 25 1948

2+60				251.27 ~~252.06~~	10.7 8.5 ~~c2.2~~ c3.0
2+0				251.67 ~~252.30~~	10.4 9.4 c1.0 1.6
1+50 = E.V.C.				252.00 ~~252.50~~	10.2 7.9 ~~c2.3~~ 2.8
1+10				252.33 ~~252.83~~	9.9 7.1 ~~c2.8~~ c3.3
0+70				252.93 ~~253.43~~	9.3 6.3 ~~c3.0~~ c3.5
0+30				254.06 ~~254.56~~	8.2 6.9 ~~c1.3~~ 1.8
0+0 = S.L. Brooklyn				255.26 ~~255.76~~	7.0 5.3 ~~c1.7~~ 2.2
BM	0.72	262.75		262.03	Wtly Conc Wall Brooklyn & 69th St. Page 45

Nov. 18 '44

46

BM			4.65	253.45	2" Pipe S.W. Culvert Imperial x 69 253.44
TP	4.92	258.10	9.57	253.18	
3+75	Paving on Imperial			250.50 ~~251.60~~	11.1 9.4 ~~c1.7~~ 2.8
3+50				250.68 ~~251.70~~	11.0 10.7 ~~c0.3~~ 1.3
3+0				251.01 ~~251.90~~	10.8 8.8 ~~c2.0~~ 2.9
		262.75			

Sewer Grades From Garbage Hopper "P" Line to Existing Man Hole Under Bridge on Harbor Dr.

INDEXED
W.K.
OCT 26 1948

BM	4.11	7.43		3.32	on ℄ Stub 0+0 "P"
0+0			1.30	6.13	= Flow Line Exist. 4" Cl.
+50			0.80	6.63 2.58 c 4.05	
1+0			0.30	7.13 4.56 c 2.57	
+50			-0.20	7.63 5.03 c 2.60	
2+0			-0.70	8.13 5.41 c 2.72	
+50			-1.20	8.63 5.60 c 3.03	
3+0			-1.70	9.13 5.43 c 3.70	
+50			-2.20	9.63 5.94 c 3.69	

-1.00%

1664-66		7.43		Nov. 24-44 Sisson Bliss Osborne Hazard	
4+0				-2.70	10.13 6.88 c 3.25
+50				-3.20	10.63 6.60 c 4.03
5+0				-3.70	11.13 7.76 c 3.37
+50				-4.20	11.63 6.85 c 4.78
+68.3	= Exist. M.H.			-4.38	11.81 6.10 c 5.71

Andrew Jackson School Sly Portion
Grades For Drainage Ditch
Ditch 375 N of Sly School Prop.
Stakes 25' N " " " " : 2' Sec of Sly Ditch

BM	5.64	378.93		373.29	Chiseled Cross 0-2.5 Brass Cap Set in Concrete G 202-33
0+0 =	El. 5th St = Top Wall		16.71	362.22	
" =	Conc. Gutter		18.25	360.68	
+15' =	Brk. 954 372.0	369.4 372.0	371.2	370.80	8.1 9.5 F0.4
		Void See Page 53			
+40	374.6	374.5	374.9	371.0	7.9 8.0 F0.1
1+0	372.5	372.4	371.9	371.87	7.6 7.5 C0.1
+50	372.4	372.3	371.8	371.70	7.4 7.0 C0.2
2+0	372.5	372.4	372.4	372.01	6.9 6.4 C0.9
+50	373.2	373.0	372.9	372.87	6.6 6.3 C0.3
3+0	373.2	373.0	372.9	372.71	6.22 5.5 C0.7

Grade of Ditch = 0.0066

Grades for E of Ditch

G 202-33 Finish Grade
1443-9 Cross Sec
Ro Stake Page 53

		373.93			
3+50	373.0	372.9	373.0	373.04	5.9 4.9 C1.0
4+0	373.3	373.2	373.2	373.38	5.6 4.4 C1.2
+50	4.4 374.1	374.5 374.1	373.9	373.71	5.3 4.7 C0.5
5+0	374.6	374.4	374.1	374.05	4.9 4.4 C0.5
+50	374.4	374.3	374.4	374.38	4.6 3.5 C1.1
6+0	374.7	374.5	374.6	374.72	4.2 3.4 C0.8
+50	376.0	375.9	375.8	375.05	3.9 4.0 F0.1
7+0	376.4	376.3	376.2	375.39	3.5 3.9 F0.4
+50	376.1	376.0	375.8	375.72	3.3 3.3 C0.1

Sam. 5-45
S. I. Sec.
Bliss
Osborne

48

INDEXED
W.K.
OCT 26 1948

	N.		S line		
		378.93			
8+0	376.7	376.7	376.7	376.06	2.9 / 4.9 / 0.0
+50	376.5	376.5	376.5	376.39	2.5 / 2.6 / F0.1
+88	376.7			376.64	2.2 / 2.1 / C0.2
9+0				376.70	

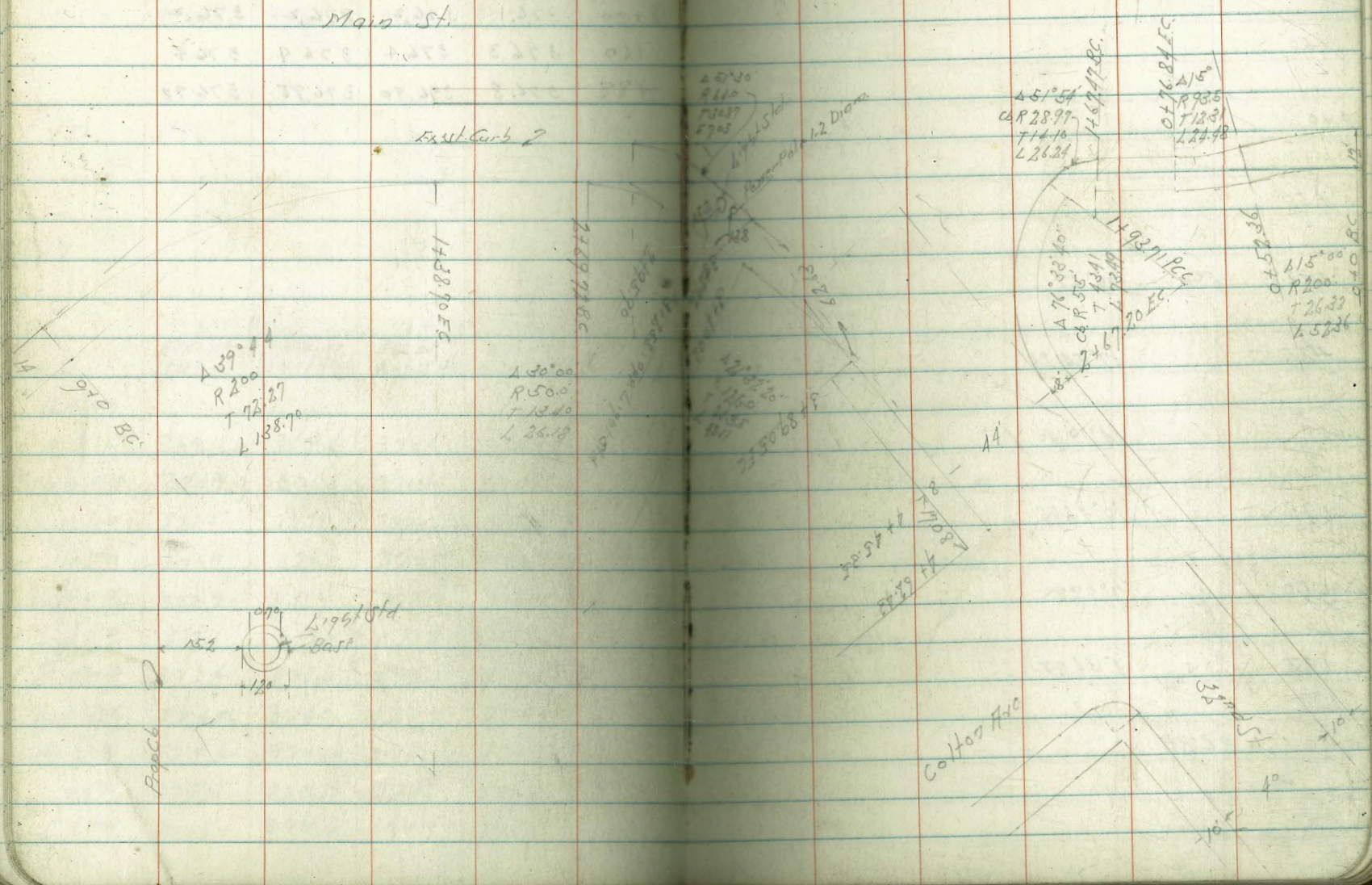
X Sections of Ditch

	Ele. at Stake.	Ele. at SL of Ditch	Ele. at ℄ of 15' Ditch	Ele. at NL of Ditch
0+00				
0+15	369.4	369.8	370.6	370.6
0+40	370.9	371.8	371.4	371.5
1+00	371.5	372.0	372.5	372.6
+50	371.9	372.0	372.5	372.9
2+00	372.7	373.1	373.1	373.2
+50	372.7	373.2	373.3	373.5
3+00	373.4	373.6	373.7	373.9
+50	374.0	374.0	373.9	374.0
4+00	374.6	374.4	374.4	374.5
+50	374.2	374.4	374.7	374.7
5+00	374.5	374.6	374.9	375.1
5+50	375.5	375.5	375.4	375.5
6+00	375.5	375.4	375.3	375.5
+50	374.9	375.7	375.8	375.9
7+00	375.0	375.8	375.9	376.0
+50	375.8	375.9	376.1	376.2
8+00	376.1	376.2	376.2	376.2
+50	376.3	376.4	376.4	376.4
+88	376.8	376.90	376.95	376.99

Main + 32nd Sts.
Re-Design of Intersection

INDEXED
W.R.
OCT 26 1948

March 22-45
Sisson
Bliss
Osborne
Begg



Main St. Grades South Curb
West of 33rd St.
Sketch Page 50

2+69.72	B.C. Rt	
+50		
2+0		
+50		
+38.70	= F.C.	19°52'
+25		17°54.25'
1+0		14°19.40'
+75		10°44.55'
+50		7°09.70'
+25		3°34.85'
0+0	= B.C. Rt	

1+12.43	= N.L. Collar	
+50		
1+0		
2+89.05	F.C.	10°46'10"
+73.02		7°10'46"
+56.98		3°35'23"
1+01		
3+10.94	B.C. Rt	
2+95.90	= F.C.	15°00
2+82.81	= ℄ Curve	7°30'

Main St. Curb Grades
East of 32nd St.
Sketch Page 50

2+08.41		7°39.37'
5-14.70		
1+93.71	= P.C.C.	
+ 80.59	= ½ Curve	
1+67.47	B.C.Lt.	
+50.88		
1+00.88		
+76.84	= P.C.	7°30'
c=12.33		
+64.60	= ½ Curve	3°45
c=12.33		
+52.36	= P.R.C.	7°30'
c.26.16		
+26.18	= ½ Curve	3°45'
c=26.16		
0+0	= B.C.Lt.	

2+67.20	F.C.	38°16.83'
+52.51		30°37.46'
+37.81		22°58.10'
2+23.11		15°18.73'

Andrew Jackson School Sly Portion
Grades For Drainage Ditch
℄ Ditch 37.5 N of Sly School Prop. Stakes 46 N of Sly School Prop
or 1.0 North of N.L. Ditch Old Grades Page 48

BM	4.70	377.99		373.29	Chisel Cross 0-25 Bos Line ℄ 54th St G 202-33
0+0 = E.L. 54th St. out Connect Conc Gutter					
+25 = Brk				370.87	7.12 7.20 F0.08
+40				370.97	7.02 7.49 F0.47
1+0				371.37	6.62 5.69 C0.93
+50			S = .00666	371.70	6.29 5.18 C1.11
2+0				372.04	5.95 4.79 C1.16
+50				372.37	5.62 4.50 C1.07
3+0				372.70	5.29 4.23 C1.06

B Sheet 2904
Location + Grades

June 21-45
Sisson
Bliss
Osborne
B1.99

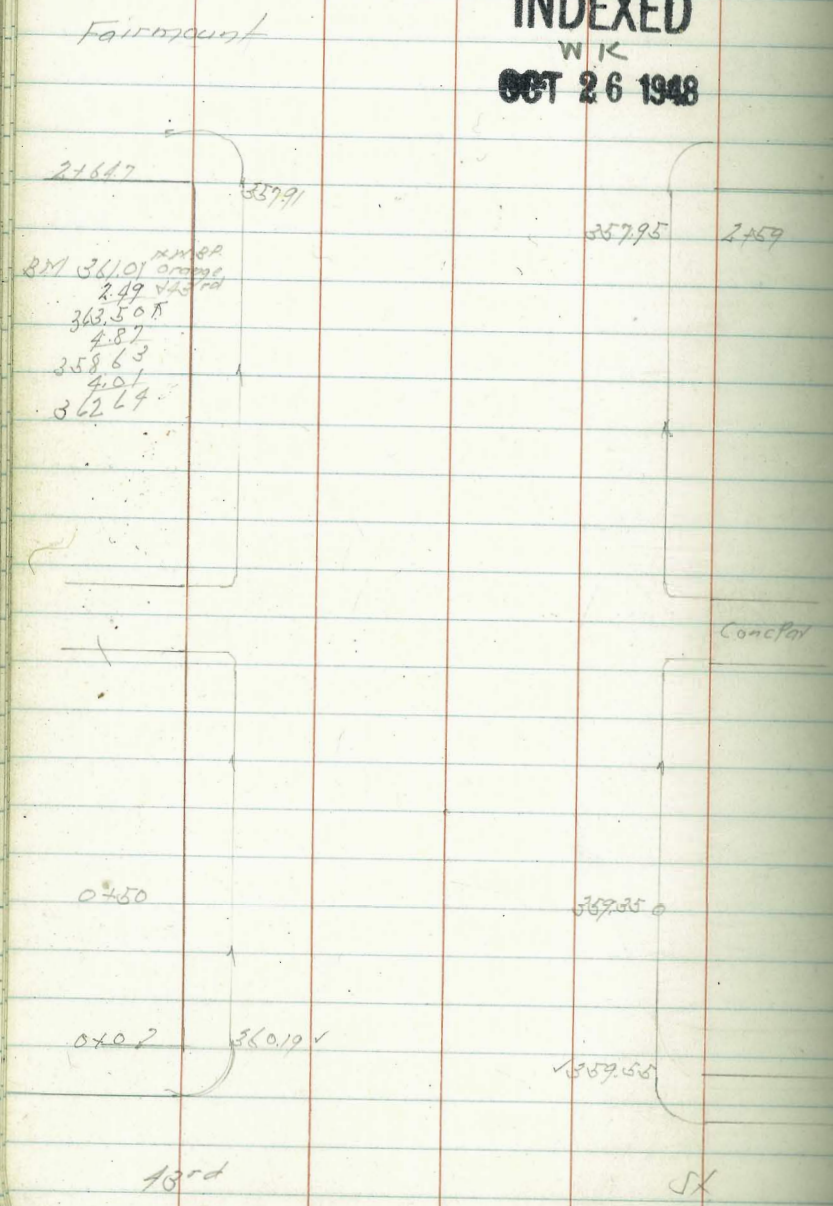
53

		377.99			
3+50				373.04	4.95 4.11 C0.84
4+0				373.37	4.62 3.61 C1.01
+50				373.70	4.29 3.30 C0.99
5+0				374.03	3.96 2.98 C0.98
TP	5.78	380.79	2.98	375.01	
+50			S = .00666	374.37	6.42 5.42 C1.00
6+0				374.70	6.09 5.29 C0.80
+50				375.03	5.76 4.84 0.92
7+0				375.37	5.42 4.75 C0.67

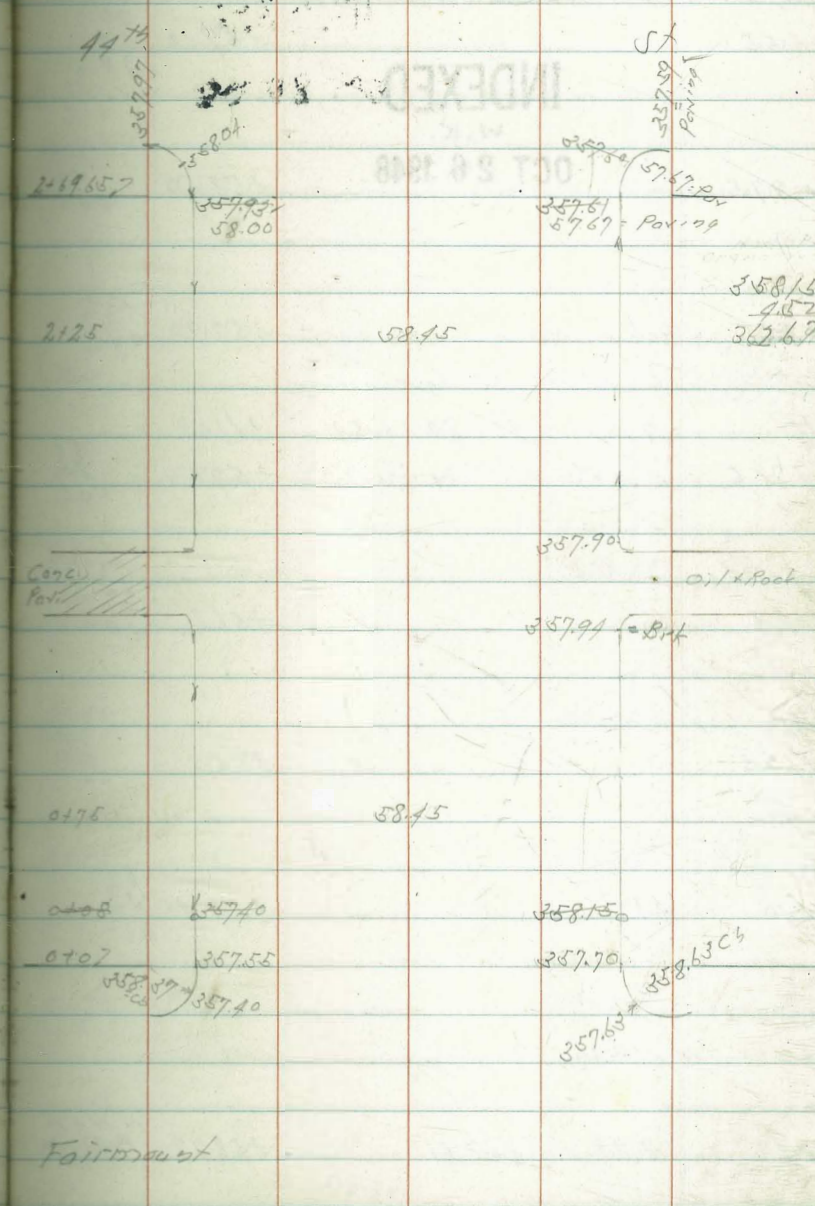
		380.79			
7+50				375.70	5.09 / 4.85 / c0.11
8+0				376.03	4.76 / 4.65 / c0.11
+50			S = 0.0066	376.37	4.42 / 4.32 / c0.10
+88	= Conc Wall			376.62	4.17 / 3.83 / c0.34

Orange Ave. Paving Grades
43rd to 44th St.

INDEXED
W K
OCT 26 1948



June 23-45
Sisson
Bliss
Osborne
BC99



Grades Water Main Alley Blk. 14 Teralta
From Polk to Orange Between 40th & Central
Stakes offset 4' East of ℄ Ditch. Grades 3.5 Below East Line

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W.K.
OCT 26 1948

3+55				359.10	9.7 / 5.8 / c3.9
+97.5				358.50	10.3 / 5.8 / c4.5
2+40	= Brk			357.90	10.9 / 6.7 / c4.2
TP	7.76	368.84	1.53	361.08	
+82.5				357.0	5.6 / 2.0 / c3.6
1+25				356.2	6.4 / 3.1 / c3.3
+67.5				355.3	7.3 / 3.3 / c4.0
+10	= Brk			354.45	8.2 / 4.2 / c4.0
0+0	= N.L. Polk			Out	
BM	3.84	362.61		358.77	N.W.B.P. Polk & 40th

July 13-45
Sisson
Bliss
Osborne
Begg

56

BM			4.15	364.60	N.W.B.P. Orange & 40th 364.62
TP	5.39	368.75	5.48	363.36	
5+75 = S.L. Orange				360.15	8.7 / 5.0 / c3.7
5+50				360.30	8.5 / 4.1 / c4.4
5+10				360.40	8.4 / 3.9 / c4.5
4+70 = PVC				360.30	8.5 / 4.2 / c4.3
4+125				359.70	9.1 / 4.9 / c4.2
		368.84			

Paving Grades Alley Block 14 Teralta
From Polk to Orange Between 40th & Central

		W		E	
+86		362.08	3.86 / 2.83 / c1.03	361.88	4.06 / 2.64 / c1.42
2+40	= Brk	361.60	4.34 / 3.34 / c1.00	361.40	4.54 / 3.54 / c1.00
+94		360.89	5.05 / 4.53 / c0.52 97 Conc Horizon	360.69	5.25 / 4.25 / c1.00
+48		360.18	5.76 / 4.76 / c1.00	359.98	5.96 / 4.96 / c1.00
1+02		359.47	6.47 / 5.47 / c1.00	359.27	6.67 / 5.67 / c1.00
TP	6.39	365.94	3.19	359.55	
+56		358.76	3.98 / 3.19 / c0.79	358.56	4.18 / 3.99 / c0.19
+10	= Brk	358.05	4.69 / 4.44 / c0.25	357.85	4.89 / 4.06 / c0.83
0+0	= NL Polk	357.80	4.94 / 4.97 on Pav	357.80	4.94 / 4.97 on Pav
BM	3.97	362.74		357.77	N.W. BP Polk & 40th

Soil: 28.45
5.550
0.60 ne
Be.99

57

		W		E	
+75 = SL Orange					
+50		363.90		363.80	
5+10		364.10	5.15 / 4.92 / c0.23	363.90	5.35 / 3.40 old Nail / c2.00
+70 = BLC		364.00	5.25 / 4.25 / c1.00	363.80	5.45 / 4.62 / c0.83
4+24		363.52	5.73 / 5.34 / c0.39	363.32	5.93 / 3.93 / c2.00
+78		363.04	6.21 / 5.33 / c0.88	362.84	6.41 / 5.43 / c0.98
TP	5.66	369.25	2.35	362.59	
3+32		362.56	3.38 / 2.58 / c0.80	362.36	3.58 / 2.70 / c0.88
		365.94 ft			

Fairmount Ave Storm Drain Grades
El Cajon Blvd to Polk Ave

Staked 16' East of W.L. Fairmount Curb on West Curb

TP	6.93	363.00	2.88	356.07	
+50				348.09	13.81 / 2.89 / c7.97
3+0				347.69	10.76 / 3.07 / c7.95
+50				347.29	11.16 / 3.63 / c7.53
2+0				346.89	11.56 / 4.20 / c7.36
+50			S=.008	346.49	11.96 / 4.79 / c7.17
1+0				346.09	12.36 / 6.00 / c6.37
+40 = △				345.61	12.84 / 6.75 / c6.09
0+0 = Existing Curb Inlet At El Cajon + Fairmount				345.29	13.16 / 13.31 ovr El
BM	6.42	358.45		352.03	SWBP El Cajon + Fairmount

INDEXED
W.K.
OCT 26 1948

Aug 14.45
S=.007
Bl.S
08.60 ove

Cont Page 67

7+0				350.82	12.18 / 4.50 / c7.68
+83 : Clean Out #2			11.7 / 3.85 / c7.86 / 07 NW / 10 Tie	350.75	12.25 / 4.42 / c7.83 / 10.5 E
+42 = Clean Out #1	358.52 00 10.5 E / 3.94 / 363.46		12.04 / 3.99 / c8.05 / 07 NW / 10 Tie	350.42	10.5 E / 12.58 / 4.48 / c8.10
6+0				350.09	12.91 / 4.83 / c8.08
+60				349.69	13.31 / 5.12 / c8.19
5+0			S=.008	349.29	13.71 / 5.19 / c8.52
+50				348.89	14.11 / 5.28 / c8.83
4+0				348.49	14.51 / 6.43 / c8.08
		363.00			

Bliss Begg ⊼ Sommermyer Rod 4/9/42

Check Levels from Sta 11+00 to 24+70 Pacific Ave. Sewer ℄ of Ivy

BM. N.E. Iron Pin State.	3.70	8.64		4.94 ←	Cedar & Pacific BM actually 5.02 See paper
11+00			4.79	3.85	
TP.	4.92	8.88	4.68	3.96	
+50			5.23	3.65	
12+00			6.20	2.68	
+50			5.31	3.57	
13+00			5.04	3.84	
+50			4.71	4.17	
14+00			4.34	4.54	
TP.	4.71	9.55	4.04	4.84	
+50			4.80	4.75	
15+00			4.49	5.06	
+50			4.21	5.34	
16+00			4.37	5.18	
+50			3.65	5.90	
+	L. Lt		3.28	6.27	
17+00			3.40	6.15	
+50			3.07	6.48	
18+00			2.71	6.84	
+50			2.28	7.27	
19+00			1.89	7.66	
TP.	7.47	15.09	1.93	7.62	
+50			7.13	7.96	
20+00			6.48	8.61	
+50			5.84	9.25	

INDEXED
W.K.
OCT 26 1948

⊼ 15.09

* Note. Raise all elevation 0.07 ← BM Elev was 0.07 low

21+00			5.68	9.41	
+50			5.76	9.33	
22+00			5.68	9.41	
+50			5.28	9.81	
23+00			5.75	9.34	
+50			4.95	10.14	
24+00			5.31	9.78	
TP +50	5.11	15.29	4.91	10.18	
+50			5.36	9.93	
+70			5.29	10.00	M H ℄ Ivy
Set BM	2.56	15.94	1.91	13.38	S.E. Top Hy. Ivy & Pac.
Check BM			7.18	8.76	N.W. BP Pac. & Juniper
	5.58	15.66		10.08	M H ℄ Ivy
25+00			5.36	10.30	
+50			5.32	10.34	
26+00			5.29	10.37	
+50			5.57	10.09	
27+00			5.35	10.31	
+50			5.36	10.30	
28+00	3.93	14.07	5.52	10.14	
+50			4.60	9.47	
29+00			3.89	10.18	
Check BM			4.19	9.88	State Hiway
+50			4.69	9.38	
30+00			4.62	9.45	

Bliss Notes
Begg II
Sommer Wyer Rod

Check Levels Pacific Ave Sewer from 111+00

	N of A to 11+00 South of Elm			
	6.71	9.17		2.46
111+00			6.20	2.97
+50			5.89	3.28
112+00			5.62	3.55
+50			5.40	3.77
113+00			5.21	3.96
+50			4.95	4.22
114+00 34	L.M.H & Ash		5.30	3.87
+50			4.68	4.49
115+00	5.47	10.02	4.62	4.55
+50			5.45	4.57
116+00			5.79	4.23
+50			5.65	4.37
117+00			5.13	4.89
BM			5.02	
+50			5.07	4.15
+80 09	M.H.L. & Beech		5.58	4.44
118+00			5.52	4.50
+50			4.89	5.13
118+79.62 = 4+39.23			4.58	5.44
5+00			4.75	5.27
+50	4.97	10.48	4.51	5.51
6+00			5.58	4.90
+50			5.84	4.64
7+00			5.80	4.68

Triple check

BM	4.93	9.95		5.02	SEBP Beech + Pac
5+00			4.69	5.26	
+50			4.46	5.49	
6+00			5.06	4.89	
+50			5.32	4.63	
7+00			5.26	4.69	
+					
Check BM	3.83	8.84	4.94	5.01	Iron Pin NE Cedar + Pac
+50	MH		3.78	5.06	
8+00			4.00	4.84	
+50			4.66	4.18	
9+00			4.26	4.58	
+50			4.48	4.36	
10+00			4.65	4.19	
10+50			4.80	4.04	
11+00			4.92	3.92	
BM	4.93	9.95		5.02	
eq. pt			4.52	5.43	
118+50			4.82	5.13	

		$\bar{X}$ 10.48		
+57 31	L.M.H Nol Cedar		5.42	5.06
8+00			562	4.86
+50			628	4.20
9+00			589	4.59
+50			6.10	4.38
10+00			6.26	4.22
+50			642	4.06
11+00			653	3.95

Check Levels on Grade Pts

Sec page 4 Original

		14.07			
30+50			4.82	9.25	
31+00			5.10	8.97	
+50			5.38	8.69	
32+00	3.88	12.26	5.69	8.38	
+50			4.03	8.23	
33+00			4.22	8.04	
Check BM			4.17	8.09	SE Laurel + Pac
		Triple check			
BM	2.31	15.77		13.46	
			5.69	10.08	
25+00			5.46	10.31	
+50			5.42	10.35	
26+00			5.40	10.37	
+50			5.68	10.09	
27+00			5.46	10.31	
+50			5.47	10.30	
28+00			5.62	10.15	
+50			6.30	9.47	
29+00			5.60	10.17	
TP.	3.68	13.55	5.90	9.87	
+50			4.17	9.38	
30+00			4.10	9.45	
+56			4.29	9.26	
31+00			4.57	8.98	
+50			4.85	8.70	

		13.55			
32+00			5.16	8.39	
+50			5.30	8.25	
33+00			5.50	8.05	
	4.48	12.60		8.12	SE Laurel + Pac. S Hiway
33+50			5.05	7.55	
34+02			5.47	7.13	
+50			5.32	7.28	
35+00			5.00	7.60	
+50			4.55	8.05	
36			4.92	7.68	
+50	6.69	14.90	4.39	8.21	
37			5.75	9.15	
+50			5.43	9.47	
38+00			4.63	10.27	? Recheck of 7+62 on 10/41
+50			4.11	10.79	
39+00			4.19	10.71	
+50			3.05	11.85	
+37.32			2.52	12.38	
40+50	5.93	18.84	1.99	12.91	
41+00			5.45	13.39	
+50			4.95	13.89	
42+00			4.45	14.39	
+50			3.95	14.89	
43+00			2.51	15.33	130+ - Not 43+00 on East of P.C.
Top Hr Hatney			0.46	18.38	
Check BM					

Check Levels Interceptor Sewer
from 0+00 43' N of S Line Broadway to 11+00
N of A

	4.19	8.87		4.68				
TP on 0+00 &	4.20	8.53	4.54	4.33				
0+00 15			4.52	4.01	-12.53	16.34	15'Rt	
+25			4.30	4.23	-12.51	16.74		
+50			4.37	4.16	-12.49	16.65		
+75			4.47	4.06	-12.47	16.53		
1+15 5 L			4.49	4.04	-12.44	16.48		
1+61 45 = 1+69 45			4.00	4.53	-12.40	16.93		
2+00			4.04	4.49	-12.37	16.86		
+50			4.34	4.19	-12.34	16.53		
3+00	4.14	8.20	4.47	4.06	-12.30	16.36		
+50			4.18	4.02	-12.26	16.28		
4+00			4.26	3.94	-12.22	16.16		
+50			4.30	3.90	-12.18	16.08		
5+00			4.33	3.87	-12.14	16.01		
+50			4.35	3.85	-12.10	15.95		
6+00			4.17	4.03	-12.06	16.09		
+50 L			3.95	4.25	-12.02	16.27		
7+00			3.66	4.54	-11.98	16.52		
+50	3.88	8.63	3.45	4.75	-11.94	16.69		
+78 60 = 7+70 82 P.O.T.			3.82	4.81	-11.92	16.73		
8+12 M.H. = 8+07			3.81	4.82	-11.89	16.71		
+50			3.86	4.77	-11.87	16.64		

		π 8.63				
9+00			4.18	4.45	-11.83	1628
+50			4.42	4.21	-11.73	1600
10+12.01	= 10+09.33		4.71	3.92	-11.74	1566
+50			4.87	3.76	-11.70	1546
11+00			5 4.08	3.55	-11.66	1521
+50			5.34	3.29	-11.62	1491
+65.46	= 11+57.59		5.38	3.25	-11.61	1486

Pac Arc Sewer

Check Levels on Grade Pts 43+00 to 56+00

	2.04	20.42		18.38
43+50			5.48	14.94
44			4.74	15.68
+50			4.58	15.84
45			4.46	15.96
+50			4.29	16.13
46			4.41	16.01
MH #45 +15.75			4.50	15.92
+50			4.72	15.70
47	3.48	18.29	5.61	14.81
+50			3.31	14.98
48			3.61	14.68
+50			4.53	13.76
49			4.47	13.82
+50			4.89	13.40
50			5.95	12.34
+50			5.82	12.47
51			6.26	12.03
+50	3.32	14.90	6.71	11.58
52			3.77	11.13
M.H #46 +33.15			3.96	10.94
+50			4.01	10.89
53			4.98	9.92
+50			5.12	9.78
54			4.81	10.09

		14.90		
54+50			5.07	9.83
55+00			5.38	9.52
+50			5.58	9.32
56+00			5.85	9.05
F.H. Check B.M.	2.35	14.42	2.82	12.08
56+00			5.38	9.04
56+50	Void		5.44	8.98
57	Level out		6.14	8.27
+50	of Adjustment		6.26	8.16
58			5.93	8.49
+50			6.09	8.33
+80			6.16	8.26
			6.20	8.22
F.H. B.M.	0.68	12.76		12.08
56+00			3.71	9.05
+50			3.79	8.97
57+00			4.50	8.26
+50			4.62	8.14
58			4.30	8.46
+50			4.45	8.31
+80			4.54	8.22
61+08			4.55	8.21
+50			4.33	8.43
62+00	4.85	13.38	4.23	8.53

Pac. Ave. Check Levels
62+50 to

62+50		13.38	4.68	8.70
63			4.55	8.83
+50			4.68	8.70
64+00			4.68	8.70
+50			5.08	8.30
65			4.75	8.63
+50			4.88	8.50
66			5.50	7.88
+50	4.42	12.73	5.07	8.31
67			5.12	7.61
+55.30			5.28	7.45
68			4.64	8.09
B.C. +45.74	5.55	13.74	4.53	8.20
69			5.34	8.40
+50			5.78	7.96
70			4.98	8.76
+26 B.C.			4.92	8.82
+50			4.86	8.88
71			4.69	9.05
+50			4.53	9.21
72	5.73	15.04	4.43	9.31
+50			5.78	9.26
73			5.54	9.50
+48.04 E.C.			5.28	9.76
74			5.30	9.74
check BM. cp tk in East Cb Pac 24' N of N cb Vine			5.05	9.99 [illegible]

Fairmount Ave. Storm Drain Grades
El Cajon Blvd. to Polk Ave
Cont From Page 58

11+0				352.42		11.5 4.64 c6.51
+50				352.22	11.35 4.75 c6.60	
10+0				352.02		11.55 4.84 c6.71
+50				351.82	11.75 4.91 c6.84	
TP	4.94	363.57	4.37	358.63		
9+0			S=.004	351.62		11.38 4.95 c6.43
+50				351.42	11.58 4.94 c6.64	
8+0				351.22		11.78 5.20 c6.58
7+45				351.00	12.00 4.48 c7.52	
		363.00				

Cont From Page 58

BM			4.57	359.00	H.W. B.P. Polk & Fairmount 359.10
+91.7 = Clean Out #6				353.18	10.39
+50				353.02	10.55 4.61 c5.94
12+0			S .004	352.82	10.75 4.62 c6.13
11+50				352.62	10.95 4.69 c6.26
		363.57			

Polk Ave Storm Drain Grader
Fairmount to 43rd St.
Staked 10.5' South of North Line Polk

	Curb Inlet #12			355.02	8.84 4.37 c4.47
3+03.2	= Clean Out #7			354.75	9.11 4.92 c4.19 Hal North
	Curb Inlet #11	355.00	8.86 4.48 c4.38		
+50				354.47	9.39 4.53 c4.86
2+0				354.21	9.65 4.65 c5.00
+50			S=0.0517	353.95	9.91 5.12 c4.79
1+0				353.70	10.13 4.78 c5.35
+50				353.44	10.4[illegible] 4.87 c5.61
0+0	= Clean Out #6 Fairmount			353.18	10.68 4.89 c5.79
BM	4.86	363.86		359.00	N.W. BP Polk & Fairmount

Fairmount & Polk Curb Inlets & Storm Drains

BM	5.43	364.43		359.00	N.W. BP Polk & Fairmt. Page 67
N.W. Cor Fairmount & Polk					
Curb Inlet #9				354.00	10.43 5.19 c5.24 on 10.6 R
Clean Out #6				353.70 Drop to	
				353.18	
S.W. Cor. Fairmount &					
Curb Inlet #10				355.80	8.63 5.13 c3.50 on 10.6 R
Clean Out #6				355.50 Drop to	
				353.18	

Orange Ave. Storm Drain Grades
Fairmount to Copeland

Staked 21' North of South Line Orange Stakes 6' N of ℄ Dr

Cb Inlet #5 SW 43rd			355.50	9.89 / 5.01 / c4.88	
+43.4	= Clean Out #3			352.46	12.93 / 5.21 / c7.72
TP	5.35	365.39	2.99	360.04	
3+0				352.25	10.78 / 2.98 / c7.80
+50				352.00	11.03 / 3.37 / c7.66
2+0				351.75	11.28 / 3.78 / c7.50
+50			S .005	351.50	11.53 / 4.06 / c7.47
1+0				351.25	11.78 / 4.42 / c7.36
+50				351.00	12.03 / 4.80 / c7.23
0+0	= Clean out #2 Fairmount			350.75	
B.M	4.45	363.03		358.58	on SE Pt Clean out #2 Page

Aug. 17-45
Sisson
Bliss
Osborne

+50				354.50	10.89 / 4.04 / c6.85
7+0				354.25	11.14 / 4.37 / c6.77
	HW VanDyke Curb Inlet #6	355.50	9.89 / 4.47 / c5.42		
+48.8	= Clean Out #4 (16' E of E.L. VanDyke So.)			354.00	11.39 / 4.70 / c6.69
	SE VanDyke Curb Inlet #7	355.80	9.59 / 4.57 / c5.02 on Cb		
6+0				353.75	11.64 / 4.48 / c7.16
+50				353.50	11.89 / 4.73 / c7.16
5+0			S .005	353.25	12.14 / 4.92 / c7.22
+50				353.00	12.39 / 4.88 / c7.51
4+0				352.75	12.64 / 5.00 / c7.64
		365.39			

Orange Ave Storm Drain

BM.			3.60	361.79	N.W. BP Orange + Copeland 361.90
+	N.E. of Copeland = Curb Inlet #8			355.54	9.85 3.75 c 6.10 c 6.05
9+06.8	= Clean out #5			355.29	10.10 3.80 c 6.30
+50				355.00	10.39 3.97 c 6.42
8+0			S=.005	354.75	10.64 4.11 c 6.53
		365.39			

Fairmount + Orange Curb Inlets And Storm Drains

BM	4.45	363.03		358.58	on SE 10 T Clean out #2
N.W. Cor Orange + Fairmount					
Curb Inlet #1				353.20 Drop	9.83 4.64 c 5.19 on 10.6 Rad
Clean out #1				353.20 Storm Drain	
S.W. Cor Orange + Fairmount					
Curb Inlet #3				353.50	9.53 4.40 c 5.13 on 10.6 Rad
Clean out #2				353.00 Drop	
S.E. Cor Orange + Fairmount					
Curb Inlet #4				353.50	9.53 4.49 c 5.04 on 10.6 Rad
Clean out #2				352.00 Drop	
N.E. Cor Orange + Fairmount					
Curb Inlet #2				353.20	9.83 4.83 c 5.00
Clean out #1				352.00 Drop	
				350.92 Storm Drain	

Grades Saranac St South Curb
70th St to 300' West

Stakes Set 5' N of SL

Aug. 28-45
S1 5309
B1 55
Osborne
B199

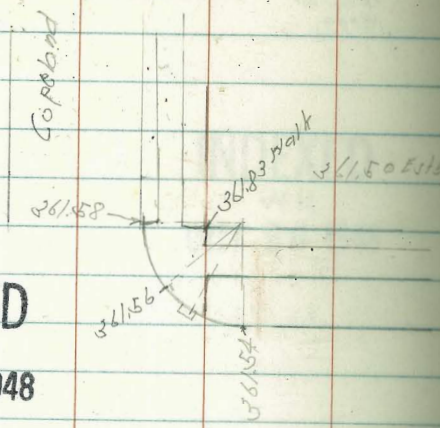
71

		South Cb		N Cb	
3+0		471.00	7.1 6.6 c0.5		
+50		471.28	6.8 5.8 c1.0		
2+0	= E.V.C.	471.55	6.5 5.0 c1.5	471.47	4.0 2.6 c1.4
+60		471.30	6.8 4.5 c2.3		471.25 6.8 4.2 c2.6 check stake
1+20		470.15	7.9 4.3 c3.6		
+80		468.05	10.0 5.2 c4.8	467.90	7.5 3.2 c4.3
TP	7.06	478.06	1.17	471.00	
+60				4664	4.6 0.8 c3.8
+40	= P.V.C.	465.09	#2 6.0 7.1 3.4 c3.7	464.80	6.2 2.0 c4.2
0+0	= W.L. 70th	461.64	10.5 10.38 on cb top c0.12		
B.M.	11.83	472.17		460.34	℄ L&T Saranac St 1678-65
#2	10.70	471.04		460.34	

INDEXED
WK
OCT 26 1948

Orange Ave Curb Inlet Grades

Sept 1945
Sissan
Bliss
Begg



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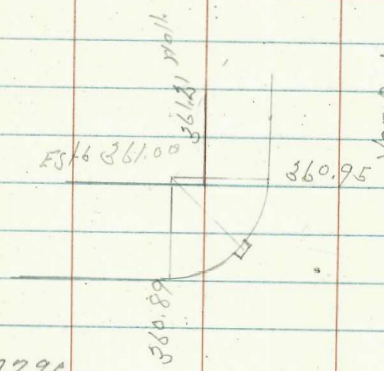
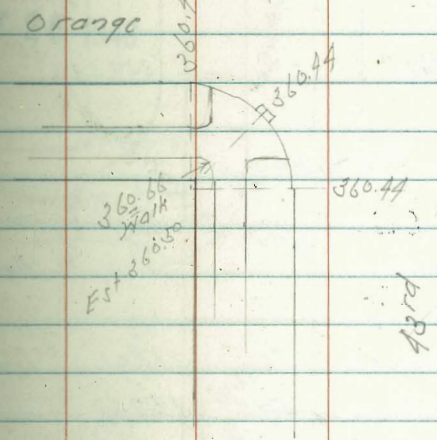
W.K
OCT 26 1948

Orange					
BM	5.70	367.60		361.90	N.W. BP Orange & Copeland
℄ Return				361.56	6.04 5.16 C 0.88 on Rad



Orange					
BM	4.37	366.27		361.90	N.W. BP Orange & Copeland
℄ Return			5.35 4.68 C 0.67 on Rad.	360.92	



BM	4.73	365.74		361.01	N.W. BP Orange & 43rd
℄ Return				360.44	5.30 4.36 C 0.94 on Rad

Polk Ave. Curb Inlet Grades

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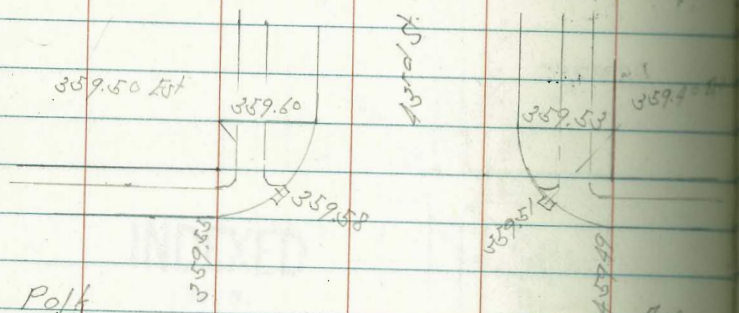
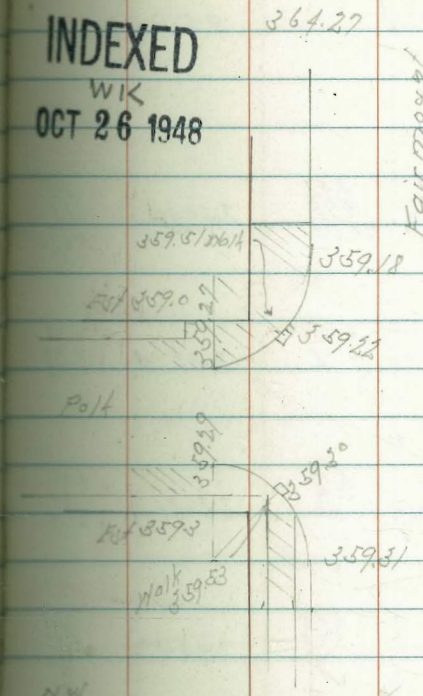
OCT 26 1948





BM	3.82	364.83		361.01	NW 8th Orange 43rd
TP	4.37	364.25	4.95	359.88	
NW				359.58	4.67 4.45 c 0.22 on Rod
NE				359.51	4.74 4.33 c 0.41 on Rod
		364.25 X			
TP	5.09	364.27	5.07	359.18	

NW	359.22	5.05 4.56 c 0.49 on Rod
SW	359.30	4.97 4.33 c 0.64 Nail Fence Post

Federal Blvd. Gutter Grades South Part
East of 47th St

Sept 22-45
Sisson
Bliss
Begg

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W.K.
OCT 26 1948

		42 So ft		85 So ft	
3+0					
+50		230.50	4.42 3.79 C 0.63	230.95	3.97 4.20 F 0.23
2+0		230.20	4.72 4.72	231.14	3.78 3.78 0.0
+50		229.75	5.17 5.17 0.0	230.86	4.06 4.23 F 0.17
1+0		229.27	5.65 5.65 0.0	230.37	4.55 4.60 F 0.05
+50		228.80	6.12 6.12 0.0	229.58	out
+25		228.56	6.36 6.36 0.0	229.47	out
0+0	= E.L. 47th South	228.33	6.59 5.88 C 0.71	228.85	
BM	6.87	234.92		228.05	℄ L&T Federal & 47th St

Curb Grades For Grading
Laurel St. 33rd St. to Felton

		H		S	
1+40	14.4 / 7.4 / c7.0 on Fence	269.54		269.04	3.4 / 9.7 / F6.3
+20	12.4 / 5.4 / c7.0 on Fence	271.51		271.01	1.4 / 6.9 / F5.5
1+0	10.6 / 4.9 / c5.7	273.30		272.80	-0.4 / 5.7 / F6.1
TP	1.23	272.40 For S	1274	271.17	
+80	9.1 / 3.8 / c5.3	274.81		274.31	9.6 / 15.7 / F6.1
+60	7.8 / 3.4 / c4.4	276.09		275.59	8.3 / 11.9 / F3.6
+40	6.8 / 3.2 / c3.6	277.13		276.63	7.3 / 7.9 / F0.6
+20	6.0 / 2.6 / c3.4	277.95		277.45	6.5 / 6.7 / F0.2 on Walk
0+0 =	FL 33rd St. 5.06 / 5.09 on Cb	278.85		277.90	6.01 / 6.05 on Cb
BM	4.93	283.91		278.98	S.W. 7' Lft Laurel + 33rd 1383-62

H Staked 5' H of HL
S " on S.L.

Oct. 22-45
Sisson
Bliss
Osborne

75

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W.K.
OCT 26 1948

		H		S	
2+10	11.4 / 6.9 / c4.5	261.00		260.50	11.9 / 17.2 / F5.3
+80	7.6 / 0.6 / c7.0	264.85		264.35	8.1 / 13.8 / F5.7
1+60	16.6 / 8.6 / c8.0 on Fence	267.33		266.83	6.6 / 12.3 / F5.7
		283.91 For H	372.40 For S		

5/29/42

Grades: Pac Ave Sewer Between

Spruce + Sassafras ~~55+00~~ 58+80 to ~~57+18~~ 60+98

Note error in picking Sta off plan - Grade changed from ℄ of dive to conform with Bus

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W. K.
OCT 26 1948

Pipe in place						Pipe in place	Seepage 6
		⊼ 13.88					
58+80			5.64	8.24	-6.495	14.73	
+33.95			13.46	0.42	-6.462	6.88	
+73.71			13.28	0.60	-6.42	7.02	
56+14.84			13.56	0.38	-6.38	6.76	
+54.03			13.47	0.41	-6.34	6.75	
+74.18			13.31	0.57	-6.32	6.89	
57+18			5.66	8.22	-6.28	14.50	
		⊼ 12.94					
55+00			4.70	8.24			
+33.95			12.52	0.42			
+73.71			12.34	0.60			
56+14.84			12.56	0.38			
+54.03			12.53	0.41			
+74.18			12.37	0.57			
57+18			4.72	8.22			

BP Front of Adm. Bldg Ryan Lindbergh field

12.175
3.69 +
15.86 ⊼
3.79 -
12.07 TP
1.81 +
13.88 ⊼
3.79 -
10.09 BM
10.15
13.88 ⊼
5.66 -
8.22 TP
4.72
12.94 ⊼
3.74 -
9.20 TP
6.65 +
15.85
3.68
12.17

Grades For Curb Returns
Commercial + Evans

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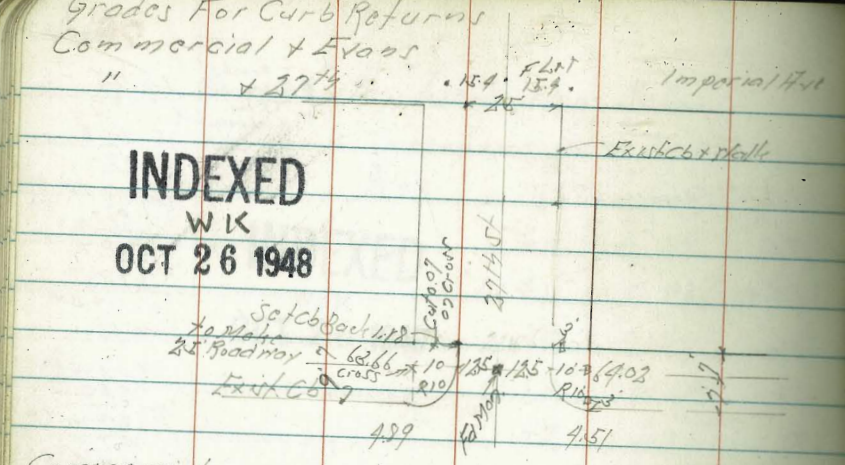
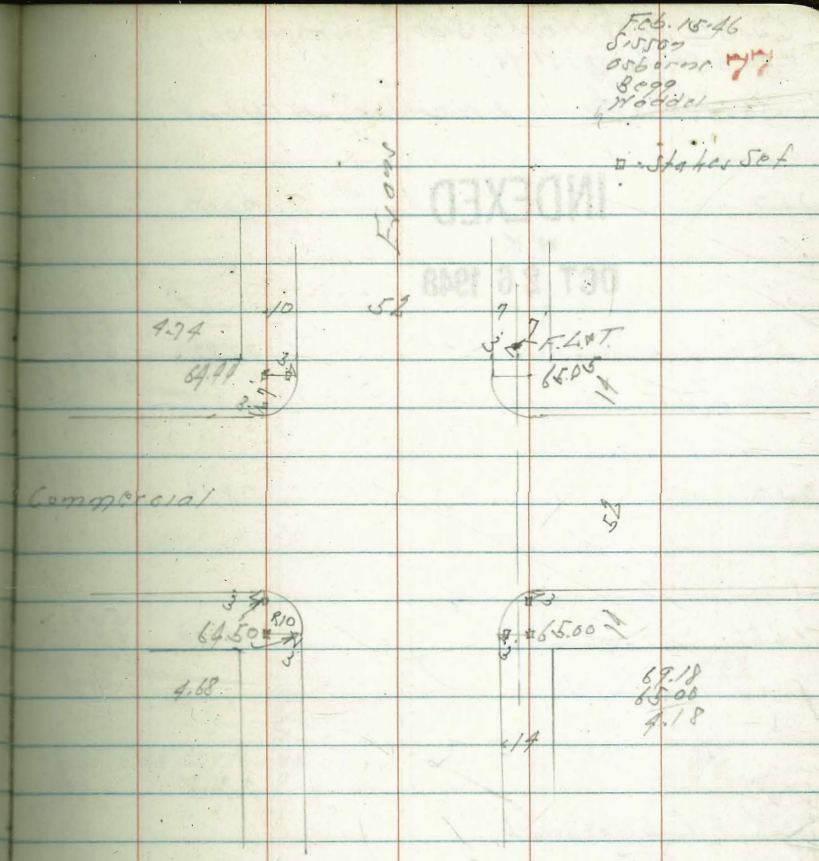
WK
OCT 26 1948



BM	0.25	77.71		77.46	N.E.B.P. ∠ St + 27th P.
TP	3.48	69.50	11.69	66.02	
TP	5.51	69.18	5.83	63.67	H.H. Exist Comm + 27th
BM			3.98	65.20	N.F.L.T. 3' Tie Back of Commercial + Evans
BM	4.86	68.53		63.67	



Curb Grades North Side Commercial
30th St to 31st St.
Stakes offset 2' North of N Cb Line

INDEXED
W K
OCT 26 1948

Feb. 20-46
Sisson
Osborne
Haddel

3+0				73.00	4.87 4.87 0.0 Stub
+50	= Fly Cb + Walk			72.82	5.04 5.02 C0.02 on Cb End
2+0				72.66	5.20 5.17 C0.03 on Cb
+50				72.49	5.37 5.30 C0.07 on Cb
1+10			.00333	72.36	5.50 5.45 C0.05 on Cb
1+0	= Wly Cb + Walk				
+50				72.16	5.70 5.70 0.0
0+0	= FL 30th St			72.00	5.86 5.84 on Cb
TP	5.36	77.86	6.25	72.50	
BM	3.78	78.75		74.97	NW BP Imperial +30th St

BM			3.76	74.10	NW BP Commercial +31st St
6+0	= W.L. 31st St			74.00	3.86 3.80 C0.06 on Cb
+50				73.82	4.04 3.88 C0.16 on Cb
+25	= Wly Cb + Paving			73.75	4.11 4.00 C0.11 on Cb
5+0				73.66	4.20 4.20 0.0 Stub
+50			.00333	73.49	4.38 4.38 0.0 Stub
4+0				73.33	4.54 4.40 C0.14 on Cb
3+50		77.86		73.16	4.71 4.71 0.0 Stub

Lots 11 & 12 Alley, Blk. 22, Resub. Blks. K & L, Terrace

Sommermeyer & Begg Fox

Set Grades west side Alley

Bet Van Dyke & 43 Orange & El Cajon

indexed C.S.R.

N.W.B.R. Orange & Van Dyke B.M.	5.86	366.89		361.03	F.B. 1256 Page 58				
	5.70	369.84	2.75	364.14					
N. Line orange = 0+00									
3+00			3.70	366.14	364.14	C-2.00	Nail in P. Pole #	P.A. 4249	
3+25			4.54	365.30	364.30	C-1.00	1x1 stake		
3+50			4.41	365.43	364.43	C-1.00	✓ ✓		
T.P.			5.44	364.40					
ck. B.M.	2.34	366.74	5.71	361.03	ok				

Levels to check flow line of Pipe in place N. of "A"

B.M. 19 Tie out for 11+00	9.96	7.94		2.98
Flow Line			19.48	−11.54

Levels To Establish Elev of Pipe in Place 37th & El Cajon

	4.94	378.46		373.52
67+88 Pipe in place Brk			3.50 + 7.57 = 11.07	367.39
68+40 PVC			3.12 + 7.79 = 10.91	367.55

IMPROVED TABLES AND INFORMATION

HORIZONTAL STADIA CORRECTIONS

2°—00′	0.1	21°—00′	12.8	33°—00′	29.7
3°—00′	0.3	21°—30′	13.4	33°—15′	30.1
4°—00′	0.5	22°—00′	14.0	33°—30′	30.5
5°—00′	0.8	22°—30′	14.7	33°—45′	30.9
6°—00′	1.1	23°—00′	15.3	34°—00′	31.3
7°—00′	1.5	23°—30′	15.9	34°—15′	31.7
8°—00′	1.9	24°—00′	16.5	34°—30′	32.1
9°—00′	2.5	24°—30′	17.2	34°—45′	32.5
10°—00′	3.0	25°—00′	17.9	35°—00′	32.9
10°—30′	3.3	25°—30′	18.6	35°—15′	33.3
11°—00′	3.6	26°—00′	19.2	35°—30′	33.7
11°—30′	4.0	26°—30′	19.9	35°—45′	34.1
12°—00′	4.3	27°—00′	20.6	36°—00′	34.6
12°—30′	4.7	27°—30′	21.3	36°—15′	35.0
13°—00′	5.1	28°—00′	22.0	36°—30′	35.4
13°—30′	5.5	28°—30′	22.8	36°—45′	35.8
14°—00′	5.9	29°—00′	23.5	37°—00′	36.2
14°—30′	6.3	29°—30′	24.3	37°—15′	36.6
15°—00′	6.7	30°—00′	25.0	37°—30′	37.1
15°—30′	7.2	30°—15′	25.4	37°—45′	37.5
16°—00′	7.6	30°—30′	25.8	38°—00′	37.9
16°—30′	8.1	30°—45′	26.2	38°—15′	38.3
17°—00′	8.5	31°—00′	26.5	38°—30′	38.7
17°—30′	9.0	31°—15′	26.9	38°—45′	39.1
18°—00′	9.5	31°—30′	27.3	39°—00′	39.6
18°—30′	10.1	31°—45′	27.7	39°—15′	40.0
19°—00′	10.6	32°—00′	28.1	39°—30′	40.5
19°—30′	11.2	32°—15′	28.5		
20°—00′	11.7	32°—30′	28.9		
20°—30′	12.3	32°—45′	29.3		

Chains to Feet	
1	66
2	132
3	198
4	264
5	330
6	396
7	462
8	528
9	594
10	660

Feet to Chains	
100	1.515
200	3.030
300	4.545
400	6.060
500	7.575
600	9.090
700	10.606
800	12.121
900	13.636
1,000	15.151

Table II—Continued

TRIGONOMETRIC FORMULAE (continued)

In any triangle:

Given a, b, C; to find c, B, A.

Use Law of Lines.

Given A, B, c; to find a, b, C.

Use Law of Lines.

Given a, b, c; to find A, B, C.

$$\text{Let } \frac{a+b+c}{2} = s, \quad \sqrt{\frac{(s-a)\ (s-b)\ (s-c)}{s}} = r$$

$$\cos \tfrac{1}{2} A = \sqrt{\frac{s(s-a)}{bc}}$$

$$\tan \tfrac{1}{2} A = \frac{r}{s-a}$$

$$\tan \tfrac{1}{2} B = \frac{r}{s-b}$$

$$\tan \tfrac{1}{2} C = \frac{r}{s-c}$$

Area of a triangle:

$$\text{Area} = \tfrac{1}{2}\, ab \sin C$$

$$\text{Area} = \sqrt{s\,(s-a)\,(s-b)\,(s-c)}$$

PRISMOIDAL FORMULA.

$$\text{Vol.} = \frac{h}{6}\,(B+b+4M)$$

h = altitude; b, B = bases; M = midsection

Table III

INCHES AND FRACTIONS OF AN INCH IN DECIMALS OF A FOOT

	0	1	2	3	4	5	6	7	8	9	10	11	
1/16	.0052	.0885	.1719	.2552	.3385	.4219	.5052	.5885	.6719	.7552	.8385	.9219	1/16
1/8	.0104	.0938	.1771	.2604	.3438	.4271	.5104	.5938	.6771	.7604	.8438	.9271	1/8
3/16	.0156	.0990	.1823	.2656	.3490	.4323	.5156	.5990	.6823	.7656	.8490	.9323	3/16
1/4	.0208	.1042	.1875	.2708	.3542	.4375	.5208	.6042	.6875	.7708	.8542	.9375	1/4
5/16	.0260	.1094	.1927	.2760	.3594	.4427	.5260	.6094	.6927	.7760	.8594	.9427	5/16
3/8	.0313	.1146	.1979	.2813	.3646	.4479	.5313	.6146	.6979	.7813	.8646	.9479	3/8
7/16	.0365	.1198	.2031	.2865	.3698	.4531	.5365	.6198	.7031	.7865	.8698	.9531	7/16
1/2	.0417	.1250	.2083	.2917	.3750	.4583	.5417	.6250	.7083	.7917	.8750	.9583	1/2
9/16	.0469	.1302	.2135	.2969	.3803	.4635	.5469	.6302	.7135	.7969	.8802	.9635	9/16
5/8	.0521	.1354	.2188	.3021	.3854	.4688	.5521	.6354	.7188	.8021	.8854	.9688	5/8
11/16	.0573	.1406	.2240	.3073	.3906	.4740	.5573	.6406	.7240	.8073	.8906	.9740	11/16
3/4	.0625	.1458	.2292	.3125	.3958	.4792	.5625	.6458	.7292	.8125	.8958	.9792	3/4
13/16	.0677	.1510	.2344	.3177	.4010	.4844	.5677	.6510	.7344	.8177	.9010	.9844	13/16
7/8	.0729	.1563	.2396	.3229	.4063	.4896	.5729	.6563	.7396	.8229	.9063	.9896	7/8
15/16	.0781	.1615	.2448	.3281	.4115	.4948	.5781	.6615	.7448	.8281	.9115	.9948	15/16
1	.0833	.1667	.2500	.3333	.4167	.5000	.5833	.6667	.7500	.8333	.9167	1.000	1
	0	1	2	3	4	5	6	7	8	9	10	11	

Table IV

USEFUL RELATIONS.

Lineal feet	×.00019	= miles
Lineal yards	×.0006	= miles
Square inches	×.007	= square feet
Square feet	×.111	= square yards
Square yards	×.0002067	= acres
Acres	×4840	= square yards
Cubic inches	×.00058	= cubic feet
Cubic feet	×.03704	= cubic yards
Links	×.22	= yards
Links	×.66	= feet
Feet	×1.5	= links

$360° = 21600' = 1296000''$

Radius = arc of 57.2957790°

Arc of 1° (radius = 1) = .017453292

Arc of 1′ (radius = 1) = .000290888

Arc of 1″ (radius = 1) = .000004848

$\pi = 3.141592654$ $\qquad \sqrt{\frac{1}{\pi}} = 0.564190$

$\frac{\pi}{4} = 0.785398163$ $\qquad \sqrt[3]{\frac{6}{\pi}} = 1.240700982$

$\frac{\pi}{6} = 0.523598776$ $\qquad \pi^2 = 9.869604401$

$\sqrt{\frac{4}{\pi}} = 1.128379167$ $\qquad \frac{1}{\pi^2} = 0.101321184$

$\frac{\pi}{6} = 0.523598776$ $\qquad \sqrt{\pi} = 1.772453851$

$\frac{4.\pi}{3} = 4.188790205$ $\qquad \frac{1}{\pi} = 0.3183099$

Curvature of Earth's surface = about 0.7 feet in 1 mile

Curvature in feet = 0.667 (Dist. in miles)²

Difference between arc and chord length, 0.05 feet in 11½ miles

$$\text{Probable error of a single observation} = 0.6754\sqrt{\frac{M v^2}{n-1}}$$

Error in chaining of 0.01 feet in 100 feet:

Due to—

1. Length of tape error of 0.01 feet
2. Alignment. One end 1.4 feet out of line
3. Sag of tape at centre of 0.61 feet.
4. Temperature difference of 15°
5. Difference of pull of 15 lbs.

STADIA REDUCTION FORMULÆ.

Horizontal Distance = R — R $\sin^2$ a+C cos a

Vertical Distance = R ½ sin 2 a+C sin a

$$R = \text{Reading} \times \frac{\text{distance from Object glass to cross hairs}}{\text{distance between cross hairs}}$$

C = distance from Object glass to cross hairs + distance from Object glass to center of instrument.

a = angle of elevation for mid Reading

Table X.

MIDDLE ORDINATES OF RAILS

Length of Rail (feet)

C ° ′	R Feet	30 Inch	28 Inch	26 Inch	24 Inch	22 Inch	20 Inch	C °	R Feet	30 Inch	28 Inch	26 Inch	24 Inch	22 Inch	20 Inch
0–20	17189	.08	.07	.06	.05	.04	.03	8	716.8	1.88	1.64	1.42	1.20	1.01	.84
0–40	8594	.16	.14	.12	.10	.08	.07	9	637.3	2.12	1.84	1.60	1.35	1.14	.94
1–0	5730	.24	.20	.18	.15	.13	.10	10	573.7	2.36	2.05	1.78	1.50	1.27	1.04
1–20	4297	.31	.27	.23	.20	.17	.13	11	521.7	2.59	2.26	1.95	1.65	1.39	1.15
1–40	3438	.39	.34	.29	.25	.21	.17	12	478.3	3.83	2.47	2.15	1.81	1.54	1.26
2–0	2865	.47	.41	.35	.30	.25	.20	13	441.7	3.05	2.66	2.30	1.96	1.66	1.36
2–20	2456	.55	.48	.41	.35	.29	.23	14	410.3	3.30	2.87	2.48	2.10	1.78	1.46
2–40	2149	.63	.55	.47	.40	.33	.27	15	383.1	3.54	3.08	2.68	2.26	1.91	1.57
3–0	1910	.71	.62	.53	.45	.38	.31	16	359.3	3.76	3.28	2.83	2.40	2.04	1.67
3–20	1719	.78	.68	.59	.50	.42	.35	17	338.3	4.00	3.48	3.02	2.57	2.16	1.78
3–40	1563	.86	.75	.65	.55	.46	.38	18	319.6	4.21	3.67	3.18	2.70	2.28	1.87
4–0	1433	.94	.82	.71	.60	.50	.42	19	302.9	4.45	3.89	3.36	2.86	2.41	1.98
4–20	1323	1.02	.89	.77	.65	.55	.45	20	287.9	4.70	4.09	3.55	3.00	2.54	2.09
4–40	1228	1.10	.96	.83	.70	.59	.48	22	262.0	5.16	4.44	3.84	3.30	2.80	2.29
5	1146	1.18	1.03	.89	.75	.63	.52	24	240.5	5.64	4.92	4.20	3.59	3.04	2.50
6	955.3	1.41	1.23	1.06	.90	.76	.62	26	222.3	6.07	5.29	4.58	3.88	3.29	2.70
7	819.0	1.65	1.44	1.24	1.05	.89	.73								

Table XI.

SHORT RADIUS CURVES

Radius Feet	Chord Feet	Central Angle	Deflection Angle	Deflection for 1 Foot
35	10	16-26	8-13	49.3
45	10	12-46	6-23	38.3
50	15	17-16	8-38	34.5
60	15	14-22	7-11	28.8
75	15	11-30	5-45	23.0
100	20	11-30	5-45	17.3
120	20	9-34	4-47	14.3
150	20	7-39	3-49	11.5
190	25	7-32	3-46	9.15
200	25	7-10	3-35	8.6
225	25	6-25	3-12	7.7
240	25	5-58	2-59	7.2
250	25	5-44	2-52	6.9
275	25	5-12	2-36	6.2
288	50	9-58	4-59	6.0
300	50	9-32	4-46	5.7
350	50	8-12	4-06	4.9
376	50	7-40	3-50	4.6
400	50	7-10	3-35	4.3
410	50	7-00	3-30	4.2

To find length of curve divide angle from P. C. to P. T. by central angle of chord, and multiply by length of chord.

Table XII.

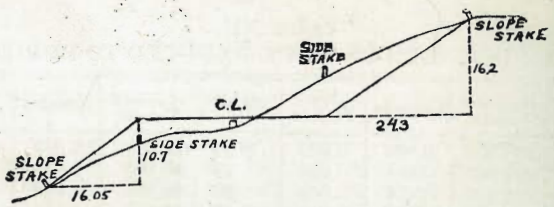
INCLINED DISTANCE OF 100 FT. REDUCED TO HORIZONTAL

Slope	Horizontal Distance	Correction	Rise Per Foot	Slope	Horizontal Distance	Correction	Rise Per Foot
0°00′	100.000	0.000	0.000	8°00′	99.027	0.973	0.139
15′	99.999	0.001	0.004	15′	98.965	1.035	0.143
30′	99.996	0.004	0.009	30′	98.902	1.098	0.148
45′	99.991	0.009	0.013	45′	98.836	1.164	0.152
1 00	99.985	0.015	0.017	9 00	98.769	1.231	0.156
15	99.976	0.024	0.022	15	98.700	1.300	0.161
30	99.966	0.034	0.026	30	98.629	1.371	0.165
45	99.953	0.047	0.031	45	98.556	1.444	0.169
2 00	99.939	0.061	0.035	10 00	98.481	1.519	0.174
15	99.923	0.077	0.039	15	98.404	1.596	0.178
30	99.905	0.095	0.044	30	98.325	1.675	0.182
45	99.885	0.115	0.048	45	98.245	1.755	0.187
3 00	99.863	0.137	0.052	11 00	98.163	1.837	0.191
15	99.839	0.161	0.057	15	98.079	1.921	0.195
30	99.813	0.187	0.061	30	97.992	2.008	0.199
45	99.786	0.214	0.065	45	97.905	2.095	0.204
4 00	99.756	0.244	0.070	12 00	97.815	2.185	0.208
15	99.725	0.275	0.074	15	97.723	2.277	0.212
30	99.692	0.308	0.078	30	97.630	2.370	0.216
45	99.657	0.343	0.083	45	97.534	2.466	0.221
5 00	99.619	0.381	0.087	13 00	97.437	2.563	0.225
15	99.580	0.420	0.092	15	97.338	2.662	0.229
30	99.540	0.460	0.096	30	97.237	2.763	0.233
45	99.497	0.503	0.100	45	97.134	2.866	0.238
6 00	99.452	0.548	0.105	14 00	97.030	2.970	0.242
15	99.406	0.594	0.109	15	96.923	3.077	0.246
30	99.357	0.643	0.113	30	96.815	3.185	0.250
45	99.307	0.693	0.118	45	96.705	3.295	0.255
7 00	99.255	0.745	0.122	15 00	96.593	3.407	0.259
15	99.200	0.800	0.126	15	96.479	3.521	0.263
30	99.144	0.856	0.131	30	96.363	3.637	0.267
45	99.087	0.913	0.135	45	96.246	3.754	0.271

Table XIII.

MINUTES IN DECIMALS OF A DEGREE.

0 30″	.00833	10′ 30″	.17500	20′ 30″	.34167	30′ 30″	.50833	40′ 30″	.67500	50′ 30″	.84167
1 00	.01667	11 00	.18333	21 00	.35000	31 00	.51667	41 00	.68333	51 00	.85000
30	.02500	30	.19167	30	.35833	30	.52500	30	.69167	30	.85833
2 00	.03333	12 00	.20000	22 00	.36667	32 00	.53333	42 00	.70000	52 00	.86667
30	.04167	30	.20833	30	.37500	30	.54167	30	.70833	30	.87500
3 00	.05000	13 00	.21667	23 00	.38333	33 00	.55000	43 00	.71667	53 00	.88333
30	.05833	30	.22500	30	.39167	30	.55833	30	.72500	30	.89167
4 00	.06667	14 00	.23333	24 00	.40000	34 00	.56667	44 00	.73333	54 00	.90000
30	.07500	30	.24167	30	.40833	30	.57500	30	.74167	30	.90833
5 00	.08333	15 00	.25000	25 00	.41667	35 00	.58333	45 00	.75000	55 00	.91667
30	.09167	30	.25833	30	.42500	30	.59167	30	.75833	30	.92500
6 00	.10000	16 00	.26667	26 00	.43333	36 00	.60000	46 00	.76667	56 00	.93333
30	.10833	30	.27500	30	.44167	30	.60833	30	.77500	30	.94167
7 00	.11667	17 00	.28333	27 00	.45000	37 00	.61667	47 00	.78333	57 00	.95000
30	.12500	30	.29167	30	.45833	30	.62500	30	.79167	30	.95833
8 00	.13333	18 00	.30000	28 00	.46667	38 00	.63333	48 00	.80000	58 00	.96667
30	.14167	30	.30833	30	.47500	30	.64167	30	.80833	30	.97500
9 00	.15000	19 00	.31667	29 00	.48333	39 00	.65000	49 00	.81667	59 00	.98333
30	.15833	30	.32500	30	.49167	30	.65833	30	.82500	30	.99167
10 00	.16667	20 00	.33333	30 00	.50000	40 00	.66667	50 00	.83333	60 00	1.00000



DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING.

SLOPE 1½ TO 1. ROADWAY OF ANY WIDTH.

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	0.00	0.15	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35	0
1	1.50	1.65	1.80	1.95	2.10	2.25	2.40	2.55	2.70	2.85	1
2	3.00	3.15	3.30	3.45	3.60	3.75	3.90	4.05	4.20	4.35	2
3	4.50	4.65	4.80	4.95	5.10	5.25	5.40	5.55	5.70	5.85	3
4	6.00	6.15	6.30	6.45	6.60	6.75	6.90	7.05	7.20	7.35	4
5	7.50	7.65	7.80	7.95	8.10	8.25	8.40	8.55	8.70	8.85	5
6	9.00	9.15	9.30	9.45	9.60	9.75	9.90	10.05	10.20	10.35	6
7	10.50	10.65	10.80	10.95	11.10	11.25	11.40	11.55	11.70	11.85	7
8	12.00	12.15	12.30	12.45	12.60	12.75	12.90	13.05	13.20	13.35	8
9	13.50	13.65	13.80	13.95	14.10	14.25	14.40	14.55	14.70	14.85	9
10	15.00	15.15	15.30	15.45	15.60	15.75	15.90	16.05	16.20	16.35	10
11	16.50	16.65	16.80	16.95	17.10	17.25	17.40	17.55	17.70	17.85	11
12	18.00	18.15	18.30	18.45	18.60	18.75	18.90	19.05	19.20	19.35	12
13	19.50	19.65	19.80	19.95	20.10	20.25	20.40	20.55	20.70	20.85	13
14	21.00	21.15	21.30	21.45	21.60	21.75	21.90	22.05	22.20	22.35	14
15	22.50	22.65	22.80	22.95	23.10	23.25	23.40	23.55	23.70	23.85	15
16	24.00	24.15	24.30	24.45	24.60	24.75	24.90	25.05	25.20	25.35	16
17	25.50	25.65	25.80	25.95	26.10	26.25	26.40	26.55	26.70	26.85	17
18	27.00	27.15	27.30	27.45	27.60	27.75	27.90	28.05	28.20	28.35	18
19	28.50	28.65	28.80	28.95	29.10	29.25	29.40	29.55	29.70	29.85	19
20	30.00	30.15	30.30	30.45	30.60	30.75	30.90	31.05	31.20	31.35	20
21	31.50	31.65	31.80	31.95	32.10	32.25	32.40	32.55	32.70	32.85	21
22	33.00	33.15	33.30	33.45	33.60	33.75	33.90	34.05	34.20	34.35	22
23	34.50	34.65	34.80	34.95	35.10	35.25	35.40	35.55	35.70	35.85	23
24	36.00	36.15	36.30	36.45	36.60	36.75	36.90	37.05	37.20	37.35	24
25	37.50	37.65	37.80	37.95	38.10	38.25	38.40	38.55	38.70	38.85	25
26	39.00	39.15	39.30	39.45	39.60	39.75	39.90	40.05	40.20	40.35	26
27	40.50	40.65	40.80	40.95	41.10	41.25	41.40	41.55	41.70	41.85	27
28	42.00	42.15	42.30	42.45	42.60	42.75	42.90	43.05	43.20	43.35	28
29	43.50	43.65	43.80	43.95	44.10	44.25	44.40	44.55	44.70	44.85	29
30	45.00	45.15	45.30	45.45	45.60	45.75	45.90	46.05	46.20	46.35	30
31	46.50	46.65	46.80	46.95	47.10	47.25	47.40	47.55	47.70	47.85	31
32	48.00	48.15	48.30	48.45	48.60	48.75	48.90	49.05	49.20	49.35	32
33	49.50	49.65	49.80	49.95	50.10	50.25	50.40	50.55	50.70	50.85	33
34	51.00	51.15	51.30	51.45	51.60	51.75	51.90	52.05	52.20	52.35	34
35	52.50	52.65	52.80	52.95	53.10	53.25	53.40	53.55	53.70	53.85	35
36	54.00	54.15	54.30	54.45	54.60	54.75	54.90	55.05	55.20	55.35	36
37	55.50	55.65	55.80	55.95	56.10	56.25	56.40	56.55	56.70	56.85	37
38	57.00	57.15	57.30	57.45	57.60	57.75	57.90	58.05	58.20	58.35	38
39	58.50	58.65	58.80	58.95	59.10	59.25	59.40	59.55	59.70	59.85	39
40	60.00	60.15	60.30	60.45	60.60	60.75	60.90	61.05	61.20	61.35	40
41	61.50	61.65	61.80	61.95	62.10	62.25	62.40	62.55	62.70	62.85	41
42	63.00	63.15	63.30	63.45	63.60	63.75	63.90	64.05	64.20	64.35	42
43	64.50	64.65	64.80	64.95	65.10	65.25	65.40	65.55	65.70	65.85	43
44	66.00	66.15	66.30	66.45	66.60	66.75	66.90	67.05	67.20	67.35	44
45	67.50	67.65	67.80	67.95	68.10	68.25	68.40	68.55	68.70	68.85	45
46	69.00	69.15	69.30	69.45	69.60	69.75	69.90	70.05	70.20	70.35	46
47	70.50	70.65	70.80	70.95	71.10	71.25	71.40	71.55	71.70	71.85	47
48	72.00	72.15	72.30	72.45	72.60	72.75	72.90	73.05	73.20	73.35	48
49	73.50	73.65	73.80	73.95	74.10	74.25	74.40	74.55	74.70	74.85	49
50	75.00	75.15	75.30	75.45	75.60	75.75	75.90	76.05	76.20	76.35	50

Computed by L. Leland Locke.

52+36.05
29
52.33.15

36808

2.90

11+00
78
10+922

12.66
457
8.09 Stato

12.75

12.66
473
7.93

12.75

774
78
696

16.95
1275
4.20

5880

4.905
3
4.875

Cut 7.46 S of ℄ El Cajon
TO Flow.

-6.78

44.4

2.00
55
52+3060
2+65.40

1294
822
4.72

117+80.09
100.12
59

2067
005
.49

45
09
.54
3

2+65.40 - 11.51
1.10
265400

2.82

100.12
59
99.53

5.16

1325
522
8.03

58+80
218
60.48

114+

61+50

117+80.09
99.53
118+79.62

63+75.62 ℄ Sassafras.

-6.760
265
-6.495
033
-6462
040
-6422

33.95

118+79.62 = 4+39.23

118+79.62
111
7 79.62
6 60.67
14 40.29
08
115 22.32

11+00
4 39.23
6 60.77

73.71
33.95
39.76

10.148

56+14.84

145+

500

11+55.50
4.95
161.45

5+00
4 39.23
60.77
08
0486.16

29.6
0.08
.02368

876
223
10.53

3.39
876
12.15
563
7.52

13.38
223
15.61
562
.99

13.38
07
13.45
223
15.68
562
10.06

13.46

10.08
561
15.69

M.H #1 22°54 Rt
M.H #3 12°02'40 Lt
M.H #4 12°24'10" Lt
" #6 42°00'00 Lt
M.H #7 25°15 Lt
M.H #8 50°25'45"