

1576

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1876

EUGENE DIETZGEN CO.

DRAWING MATERIALS, MATHEMATICAL and
SURVEYING INSTRUMENTS

Chicago New York San Francisco New Orleans Pittsburg Toronto

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

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

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

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Preliminary Sewer Levels Block 34 Fairmount Addition				
B.M.	2.27	350.72		348.45
T.P.	0.77	341.12	10.37	340.35
0700	Going North on Road	Flow Line Not Available	75.3	333.59
0700	on Ground		10.4	330.7
0730			9.4	331.7
0765			3.7	337.4
T.P.	12.89	353.24	0.77	340.35
H00			10.3	342.9
H50			8.6	344.6
Going South				
0700		T 341.12	10.4	330.7
0714			9.0	332.1
0740			1.7	339.4
T.P.	12.89	353.24	0.77	340.35
0774			7.6	345.6
0792			7.4	345.8
H25			5.2	348.0
H50			4.4	348.8
2700			3.9	349.3
2750			4.5	348.7

Date	T	Elev.	Remarks
4/3/42	353.24		
		7.8	348.4
		5.7	347.5
		6.9	346.3
		7.9	345.3
		4.79	348.45

Preliminary Sewer Levels Block 35 City Heights				
	T			Elev.
	0.39	348.84		348.45
T.P.	0.31	337.02	12.13	336.71
0700	Going North on Road	Flow Line Not Available	10.37	326.65
0700	on Ground		13.0	324.0
0750			10.7	326.3
0775			3.5	333.5
T.P.	12.13	348.84	0.31	336.71
H00			8.2	340.6
H08			6.2	342.6
H50			3.7	345.1
2700			2.6	346.2
2750 North			1.8	347.0

4/3/42
check ✓ 2

SE BP
on ch...
Orange

Preliminary Server Levels
Block 35, City Heights (Cont from Page 2)

		337.02		
0700	Going South		13.0	324.0 ✓
0710			12.7	324.3 ✓
0725			9.4	327.6 ✓
0753			1.8	335.2 ✓
T.P.	12.13	348.89 ✓	0.31	336.71 ✓
0765			4.6	337.2 ✓
0792			5.2	343.6 ✓
1400	N Prop Line Orange		5.3	343.5 ✓
1407	on 1x1' Stb N 73 line Orange		6.14	342.7 ✓
1417			7.8	341.0 ✓
1490	Orange		6.2	342.6 ✓
1466	S Cb Line		6.5	342.3 ✓
1480	S Prop Line Orange		5.2	343.6 ✓
2400			3.3	345.5 ✓
2450			0.2	348.6 ✓
T.P.	490	353.59	0.15	348.69 ✓
Side Shot on Floor House 35, 1st & center Bath Room, on North Side of House				
	House is 100's of Orange on lots 516 & 38		5.90	347.7 ✓
Bottom of Cc/Ht approx 12' lower approx Rod as plumbing is under House				
			6.90	346.7 ✓

				T	353.59
2480	N Sd lots 516 Block 30		4.8	348.8 ✓	
3400			4.8	348.8 ✓	
3450			5.4	348.2 ✓	
4400			6.5	347.1 ✓	
T.P.	239	349.50	6.48	347.11 ✓	
check starting BM.					
			10.6	348.44 ✓	SE Church SITE Orange 12.13

Preliminary Senior Levels Block 38 Fairmount Addition			
			SE 8P.
BM	6.09	339.04	332.95 Orange & 49th
0+00	on rim of hole on N Flow line not available on 2 sides M.H. 0.6 West of Alley & M.H. 337 From S line of Comp on 2 sides	9.88	329.16 ✓ this Eas. of 41M 49' marker
0+00	for flow line See M.H. 337 Chollas Survey	9.8	329.2 ✓ this Eas. of 41.329.4 marker
0+30		10.4	328.6 ✓
0+39	0+11" line orange	9.39	329.65 ✓
0+46	M line Orange	9.3	329.7 ✓
0+55		12.3	326.7 ✓
0+84		8.3	330.7 ✓
1+00		6.3	334.7 ✓
1+50		2.1	336.9 ✓
T.P.	13.27	351.83	0.98 338.56 ✓
2+00		9.5	342.3 ✓
2+35		6.6	345.2 ✓
2+50		4.9	346.9 ✓
T.P.	12.96	364.29	0.50 351.33 ✓
3+00		11.7	352.6 ✓
3+50		6.5	357.79 ✓
3+96	1 - stub on D.F.	0.93	363.36 ✓

Preliminary Senior Levels Block 29 Fairmount Addition			
			NE Pin New M.H. 37 from S line Orange & 49th
BM	12.23	341.39	329.16
0+00	M.H. 337 from S line Orange on 2 sides 49th	9.8	329.4 331.6 ground
0+31	this flat was on graded in 1940	12.4	329.0 ✓ this Eas. of 41/40 marker
0+37	S line Orange	13.7	327.7 ✓
0+50		18.4	323.0 ✓
0+75		6.3	335.1 ✓
1+00		2.3	339.1 ✓
T.P.	12.74	353.92	0.21 341.18 ✓
1+45		10.6	343.3 ✓
1+75		7.3	346.6 ✓
2+05		5.0	348.9 ✓
2+50	POT Hub	3.00	350.92 ✓
3+00		2.6	351.3 ✓
3+50		3.5	350.42 ✓

12/28/39

Preliminary Sewer levels Blocks 28 + 37

INDEXED
ETB

Fairmount Addition			
BM	4.47	337.42	332.95
TP	0.62	325.85	12.19 325.23
TP	2.22	316.09	11.98 313.87
0400	on Riv. See Miller's Coast Notes Field Book		10.06 306.03
0400	on Ground		10.8 305.3
0414			9.7 306.4
0435			6.8 309.3
0460			4.4 311.7
0485			2.2 313.9
TP	11.88	327.47	0.50 315.59
1400			10.7 316.8
1400	25' East		16.5 311.0
1450			2.9 324.6
1450	25' East		8.0 319.5
1450	45 "		12.0 315.5
TP	12.87	339.70	0.64 326.83
2400			6.7 333.00
2400	25' East		12.5 327.1
TP	11.85	351.22	0.33 339.37

SE & P 49th
+ OrangeGoing South from No. 4
M.H.

0400 on Ground

0414

0435

0460

0485

TP

1400

1400

1450

1450

1450

TP

2400

2400

TP

2450

2450

3400

3400

3405

3450

3479

TP

Check P.O.T. Hub Block 29 to 2450

Going North

0400

0400 on Ground

0425

TP

0460

0466

0476

1400

1450

T
351.22

11.9

15.2

5.6

9.1

5.09

3.5

3.1

2.36

2.66

316.09

10.06

10.8

10.8

0.50

8.0

7.10

6.8

4.6

3.6

339.8

336.0

345.6

342.1

346.13

347.7

348.1

348.86

350.94

350.92

350.92

306.0

305.3

305.3

315.59

318.8

319.73

320.0

322.2

323.2

5 ✓

	T			
	326.83			
1795 ³² S Line Orange	2.1	324.7	✓	
2709 ³² S Cb "	2.8	324.0	✓	
2735 ³² " "	1.9	324.9	✓	
261 ³² N Cb "	2.2	324.6	✓	
1x1" stub N 72 Line Orange				
T.P. 12.88 338.11	1.60	325.23	✓	
2775 ³² N Prop Line Orange	12.1	326.0	✓	
2787	10.5	327.6	✓	
3700	9.8	328.3	✓	
3750	7.9	330.2	✓	
4100	5.8	332.3	✓	
4710	5.5	332.6	✓	
4750	1.2	336.9	✓	
T.P. 12.95 350.77	0.29	337.82	✓	
5700	7.9	342.87	✓	
5700 60 East	11.7	339.1	✓	
135" W.L. 50 th	16.2	334.6	✓	
5735	3.0	347.8	✓	
T.P. 12.85 363.08	0.54	350.23	✓	
5765	9.7	353.4	✓	
6700	3.6	357.5	✓	

	T			
	363.08			6
T.P. 11.20	373.20	1.08	362.00	
6725 ³² P		9.32	363.88	
25 East		12.4	360.8	
60 "		15.5	357.7	
135" W.L. 50 th		24.0	349.2	
1x1" stub				
Set 8 M. S. Line Orange. Block 38.		4.11	369.09	
Trough				

8/24/46

Set E.I. on N.E. Cor Meter Box New House on
Estrella St & Block 37 " in Alley E.I. 364.94

N.E. Cor
Meter Box
364.94

12/29/37

Preliminary Sewer Levels Blocks 27+38

INDEXED
EFB

Fairmount Addition

BM	280	328.03	325.23	
T.P.	316	318.41	12.78	315.25 ✓
T.P.	0.66	306.80	12.27	306.14 ✓
07.00			9.53	297.27 ✓
07.00			10.1	296.7 ✓
07.15			10.0	296.8 ✓
07.20			9.1	297.7 ✓
07.50			9.1	297.7 ✓
07.70			10.5	296.3 ✓
07.90	Wash from NE.		11.3	295.5 ✓
11.05			10.2	296.6 ✓
11.45			10.2	295.9 ✓
14.56			8.5	299.3 ✓
14.80			5.6	301.2 ✓
27.00	Note lots to East side in West		4.1	302.7 ✓
T.P.	12.48	318.62	0.66	302.19 ✓
27.50			12.3	306.3 ✓
37.00			8.5	310.1 ✓
37.35			4.8	313.8 ✓

1st stub sec
N of line 700
Orange Block 37
Black 27

318.62

7

37.50		4.1	314.52 ✓
37.50	House on East Side of & connects into main sewer	7.7	310.9 ✓
	90	16.3	302.3 ✓
37.85	207 A-b	1.59	302.7 ✓
47.00		1.4	317.2 ✓
47.25		5.5	313.1 ✓
47.25	35' East	14.0	304.6 ✓
47.50		8.4	310.2 ✓
47.50	8' East	12.4	306.2 ✓
57.00		10.9	307.7 ✓
57.00	10 East	12.3	306.3 ✓
57.60		9.7	308.9 ✓
57.74		2.8	315.8 ✓
57.75	S Line Orange	2.9	315.7 ✓
57.90	N Ch Line Concrete Gutter	3.3	315.3 ✓
67.15	S Orange concrete gutter	2.1	316.5 ✓
67.40	N Gutter line of Orange	2.5	316.1 ✓
67.45	47' line on stub	2.00	316.62 ✓
67.55	N Line Orange	1.8	316.8 ✓
67.62		3.0	315.62 ✓

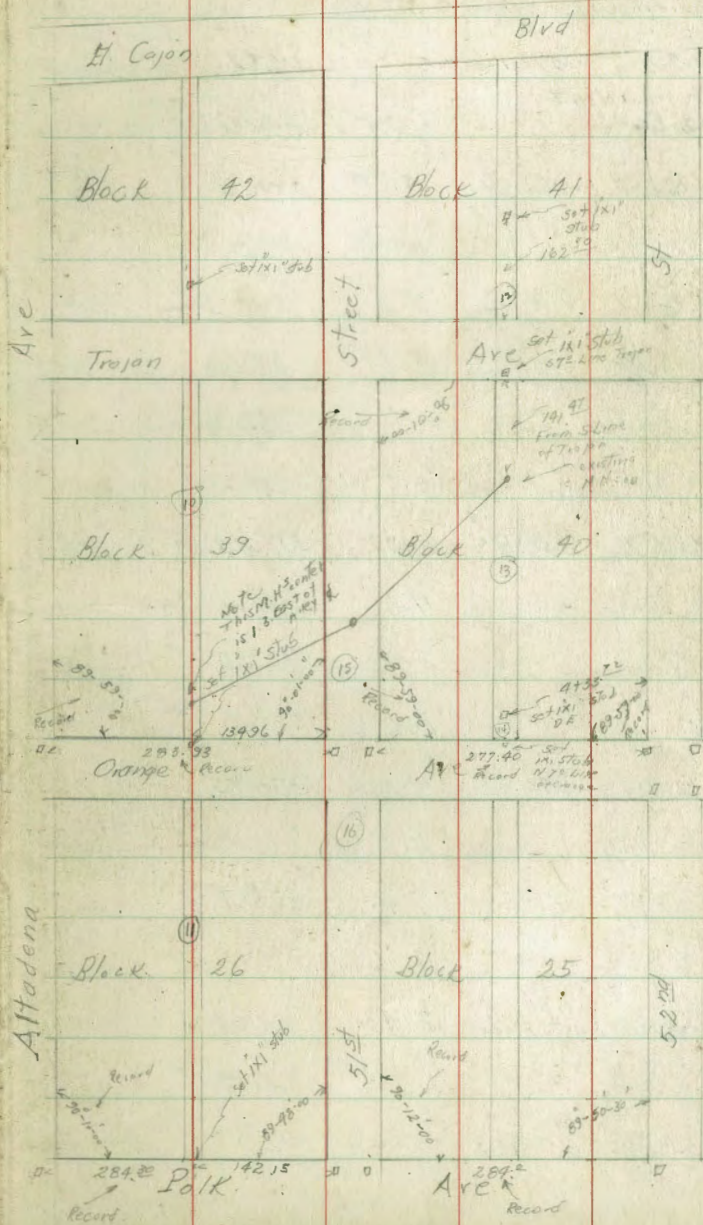
		T		
		318.62		
6+86			3.3	318.3
6+86	90 East		7.3	311.3
7+00			2.3	316.3
T.P.	12.76	338.22	0.16	318.46
7+25			12.6	318.6
7+62			12.8	318.4
7+62	15 East		14.9	316.3
7+62	40 "		14.8	316.4
7+62	NE Corner 70' " See P. 72		9.4	321.8
	on Floor of House			
8+00	in wash		13.6	317.6
8+00	15 East		14.1	317.1
8+50	in wash		11.8	319.4
8+70			10.7	320.5
8+85			7.9	323.3
8+85	18 East		10.4	320.8
9+00			6.8	324.4
9+00	15 East		9.4	321.8
9+25	in wash		6.3	324.9
9+50			3.0	328.2
9+70			1.0	330.2
T.P.	13.21	344.00	0.93	330.79
10+00			10.0	334.0

		T		
		344.00		
10+50			4.9	339.1
	10 West		7.0	337.0
T.P.	12.48	355.98	0.50	343.50
11+00			10.5	345.5
11+28	SEnd of House or Wash		7.3	348.7
11+28	25 West		8.5	347.5
" "	6.7 " in Wash		12.7	343.3
" "	81' " W Side Wash		12.7	343.3
" "	100' " SE Corner House		9.6	346.4
" "	100' " in basement Floor of House		9.3	346.7
" "	100' " Main floor		3.0	353.0
11+50			4.4	351.6
11+80			0.8	355.2
T.P.	12.62	368.03	0.57	355.41
12+00			8.7	359.3
	15 West		11.1	356.9
	48' " E Side wash		16.7	351.3
	62' " W "		16.4	351.6
	80' " "		13.6	354.4
12+30			3.2	364.8
T.P.	5.58	373.37	0.24	367.79

373.37

12740		5.6	367.8
12756+	S Lin - Trojan on stub	4.24	369.13
12756	15' West	5.6	367.8
	55' " Baltimore Wash	18.3	355.1
	70' "	13.6	359.8
12786 &	Trojan	3.6	369.8
13716 N	"	3.5	369.9
13723	SE Corner Residence on & Alley	2.1	371.3
	20' West	2.8	370.6
	40' "	5.3	368.1
	77' " SE Corner Residence	6.0	367.4
	" Main Floor	2.2	371.2
Check out	on 2 M. 181' stub South Line Trojan	4.24	369.13
			369.09
			0.04

Preliminary Sewers. Farm out Addition to City Heights



1-3/40
Blas
Isbell
Osborn

INDEXED
EFB

Preliminary Sewer Levels Blocks 26-39 1/2

Fairmount Addition to city Hts

BM.	1.52	318.14		316.62	Sub N ^o 1 st Line Orange Block 32. S. 100 ft. T
0700	Goring North Flow Line		15.77	302.37	
0700	Rim of Man Hole and Ground		8.74	309.40	
0750			8.4	309.7	
0775			7.3	310.8	
400			5.1	313.0	
450			2.1	316.0	
2400			0.1	318.0	
TP.	13.03	330.85	0.32	317.82	
2725			11.1	319.7	
2750			8.3	322.5	
3700			1.1	329.7	
TP.	12.96	343.71	0.10	330.75	
3725			10.5	333.2	
3750			7.8	335.9	
4700			4.6	339.1	
4706	N Side of 48' East of 1/2" 10" sewer pipe Residence on East Floor		7.43	336.28	
4750			1.8	341.9	
TP.	5.85	348.82	0.74	342.97	

Σ
348.82

10

4750	55' E		10.9	337.9	
4750	100' E		16.4	332.4	
4789	S. End Residence 84' East to Sewer Outlet Floor	Rdx of Floor	6.4	342.40	
5700			3.7	345.1	
TP.	13.27	357.22	4.87	343.95	
5740			8.4	348.8	
5761	S. Line Trench		5.8	351.4	
"	95' East		13.2	344.0	
"	90' East		8.8	348.4	
5791	φ. Trench		1.8	355.4	
6700			1.2	356.0	
6714			1.3	355.9	
TP.		357.22			
	1306	369.87	0.41	356.81	
6721			12.4	357.5	
6727			10.3	359.6	
6746			7.4	362.5	
6746	90' East		5.2	364.7	
"	90 "		9.3	360.6	
6771			1.3	368.6	

		369.87		
T.P.	1362	382.37	0.52	369.35 ✓
6+96			6.8	375.6 ✓
700 stub DE			6.69	375.68 ✓
Check stub			13.27	369.10 ✓
	1625 N. + N. Line			369.09 ✓
Set B.M. on stub	Trojan Block #1		6.91	375.46 ✓

Levels for Sewer Blk 26 bet. Orange & Park Ave.

	1.63	318.25		316.62
MH Page 10				B.M. on stub N 7' Line Orange Blk 26 P. 7
±0+00 = going south thru line			8.87	309.38 ✓
0+15			9.8	308.4 ✓
+17			11.8	306.4 ✓
+19			9.6	308.6 ✓
+39 = Nbr. Orange			5.0	313.2 ✓
0+46 = on N 7' Hub			4.47	313.78 ✓
+54			4.9	313.3 ✓
+79 = 1/2 Orange			4.4	313.8 ✓
1+04 = S.C.B. "			5.5	312.7 ✓
+19 = S.C.B. "			5.1	313.1 ✓
1+40			5.5	312.7 ✓
1+50			6.6	311.6 ✓
75' Rt.			9.7	308.5 ✓

		318.25		
1+70			7.1	311.1 ✓
2+00			5.6	312.6 ✓
+50			1.3	316.9 ✓
75' Rt.			6.1	312.1 ✓
2+90			1.1	317.1 ✓
75' Rt. = Floor House			6.2	312.0 ✓
" " on ground at house			7.7	310.5 ✓
3+50			0.5	317.7 ✓
T.P.	8.99	326.81	0.43	317.82 ✓
4+00			7.6	319.2 ✓
75' Rt. not in order but ok.			11.2	315.6 ✓
(3+50) 75' Rt.			14.0	312.8 ✓
4+50			5.4	321.4 ✓
75' Rt. Floor of House			6.8	320.0 NW edge ✓
" " Grd. at "			8.1	318.7 ✓
5+00			5.2	321.6 ✓
+60			3.7	323.1 ✓
65' Rt. Floor of House			4.1	322.7 ✓
" " Ground at "			5.2	321.6 ✓
6+00			2.9	323.9 ✓
+18			2.6	324.2 ✓
95' Rt. Floor House			4.8	322.0 ✓
6+50			1.3	325.5 ✓
7+02 on stub			0.05	326.75 ✓
For check out see levels from this stub P-25.				

Preliminary Sewer Levels Alley Blocks 40+41

BM	8.52	332.52	327.00	
	on flow	Comps North		
0700	line from eq. M.H.	21.90	310.62	
0700 on Rm		14.90	317.62	
0700	on Ground	17.3	315.2	
0750		14.7	317.8	
1400		9.1	323.4	
1725		2.5	330.0	
1725	75' East	11.5	321.0	
T.P.	12.72	344.95	0.29	332.23
1741 ⁴¹	S. line Trojan	13.8	331.1	
" " " " "	75' East	22.0	322.1	
1748 ⁴¹	st. 6 S. T. line Trojan Alley	12.45	332.50	
1760		10.1	334.8	
1771 ⁴¹	to Trojan	6.4	338.5	
1786		5.2	339.7	
1788		7.6	337.3	
1791		5.0	339.9	
2707 ⁴¹	N. line Trojan	3.0	341.9	
" " " " "	75' East	14.0	330.9	
T.P.	12.81	357.68	0.08	344.87
2736		8.0	348.9	

40+41
 Moors Line 52.24
 572 Line Trojan
 532.00
 Book 170-p.24
 Miller & Const 1742
 Charles Street

T
 357.68

2766		1.5	356.2	
" "	35' East	10.2	347.5	
2766	75 "	12.5	345.2	
T.P.	12.65	370.03	0.30	357.38
3700		10.0	360.0	
" "	50' East	19.8	355.2	
3700	75 "	19.0	351.0	
3730		3.8	366.2	
T.P.	9.07	378.76	0.34	369.69
3763 ⁹⁷	DE 566	3.15	375.61	
" "	50' East	7.4	371.4	
" "	75 "	12.8	366.0	

375.61
 375.61
 0.15
 0.11

Preliminary Sewer Levels Block 40 Going South

from existing M.H.

BM	14.88	332.50 ✓	317.62 ✓	Rim of New M.H. existing since Sept 1890 ✓
0400	Howline	21.88	310.62 ✓	
0400 on	Ground	17.3	315.2 ✓	
0450		16.3	316.2 ✓	
" "	4' West Top Bank	16.3	316.2 ✓	
" "	5' " Bottom Ditch	18.7	313.8 ✓	
1400		15.7	316.8 ✓	
1400	3' West	15.7	316.8 ✓	
1400	5 "	18.9	313.6 ✓	
1450		15.3	317.2 ✓	
" "	5 1/2' West Top Bank	15.8	316.7 ✓	
" "	7 " Bottom	20.1	312.4 ✓	
2400		13.2	319.3 ✓	
" "	4' West Top Bank	13.7	318.8 ✓	
" "	8 " Bottom Ditch	20.0	312.5 ✓	
TP	10.66	337.05 ✓	6.11	326.39 ✓
2435			15.2	321.8 ✓
" "	4' West Top Bank		16.3	320.7 ✓
			24.8	312.2 ✓

337.05

13 ✓

2450			12.0	325.0 ✓
" "	5' West Top Bank		12.9	324.1 ✓
2450	14' W Bottom Ditch		25.3	311.7 ✓
2465			10.7	326.3 ✓
" "	15' West		14.5	322.5 ✓
" "	19 " Bottom Ditch		26.5	310.5 ✓
Note Ditch curves west from here and will no longer be a factor. This Ditch takes drainage of chollas valley east to Hondo Mts.				
3400			9.1	332.9 ✓
" "	50' West		13.4	323.6 ✓
TP	13.06	350.01	0.10	336.95 ✓
3450			2.0	348.0 ✓
" "	20' West		6.3	343.7 ✓
" "	50 "		14.3	335.7 ✓
TP	12.95	361.97	0.99	349.02 ✓
4400			0.6	361.4 ✓
" "	50' West		12.8	349.2 ✓
TP	13.06	374.42	0.61	361.36 ✓
4410			11.4	363.0 ✓
4433 ²⁴	D.E. 5th		9.97	364.45 ✓
" "	50' West		20.0	354.4 ✓

✓
T
374.42 ✓

4159 10.6 363.8 ✓

4154 50 West 20.7 353.7 ✓

4165²⁶ N. line Orage 18.3 356.1 ✓

TP. 1158 385.90 ✓ 0.10 374.32 ✓

check 8M. 8.24 377.66 ✓

377.51

0.14 error

SW. 52.00
+ Orage

14

Walker
Bliss
Isbell
1-16-40

Preliminary Levels For Sewer
E. 51st. North & South of Orange Ave

Levels Rerun Page 59

Temporary B.M.	6.65	323.27	316.62	North 7' Stub, Orange 64438 Page 10
Existing MH = 0+00 going North	7.37	315.90	✓	Rim. MH
0+00	14.39	308.88	✓	Flow " 301' 5" Page 59
0+00 on Ground	7.5	315.8	✓	
0+50 = 50' North of MH	6.0	317.3	✓	
1+00	2.8	320.5	✓	
70' East of 1+00	7.2	316.1	✓	
Line South of Existing MH.				
Existing MH = 0+00 going South	7.5	315.8	✓	
+12	8.9	314.4	✓	
+40	9.0	314.3	✓	
+58 in ditch	12.2	311.1	✓	
+75	6.7	316.6	✓	
1+00	3.4	319.9	✓	
+20	0.0	323.3	✓	
TP	12.06	335.18	0.15	323.12
1+50	8.5	326.7	✓	
+82.24 = N line Orange	3.5	331.7	✓	
+89.24 = N 7' line "	3.33	331.85	✓	on stub

Cont. P-16

INDEXED
E.F.B.

4+20
Stub.
4+12.24

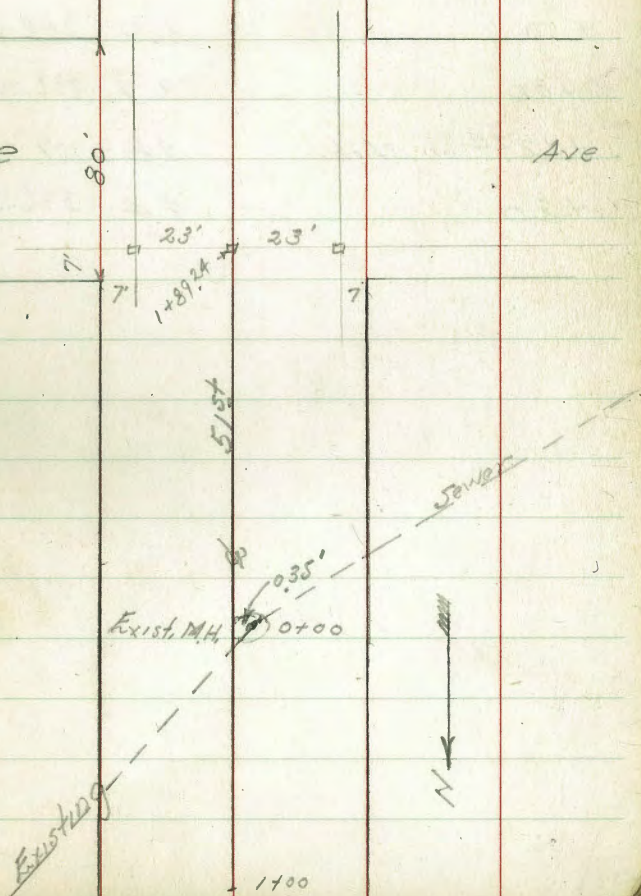
15

? this B.M.

due to this

Orange

Ave



		Cont. from p. 15		
		Σ		
335.18				
1+97.24 = Ncb. orange	3.81	331.37	in Conc.	Gutter,
2+22.24	2.6	332.6		✓
+47.24 on dirt	2.6	332.6		✓
+62.24 = sl Orange	1.5	333.7		✓
TP 6.28	341.12	0.34	334.84	✓
3+00	3.3	337.8		✓
+50	1.0	340.1		✓
4+00	2.9	338.2		✓
+12.34 on slab.	3.8	337.29		✓
+20	4.4	336.7		✓

Walker Bliss Fisbell 2-13-40	Preliminary levels Sewer Blk 25		
	Finnemert add., Blk. D. Oak Park		
	And in 51st St. to Existing Mth.		
	See sketch Page 18		
	See notation Page 26 in regard to levels		
	1.25	365.58	364.33
		365.70	364.45
27' + South of 51st Orange Ave = 0+00 on stub.		7.00	358.6 ✓
75' Rft.		14.5	351.1 ✓
0+50		12.5	353.1 ✓
80' Rft.		17.0	348.6 ✓
TP	0.97	353.99	353.02 ✓
		354.11	353.14 ✓
1+00		6.1	347.9 ✓
1+50		11.4	342.6 ✓
75' Rft.		13.8	340.2 ✓
TP	0.61	341.42	340.81 ✓
		341.54	340.93 ✓
2+00		3.4	338.0 ✓
+50		6.3	335.1 ✓
2+70 = Δ 0°57'20" Lt.		7.38	334.04 on stub.
75' Rft. parallel to Lot line		10.6	330.8 ✓
3+00		9.4	332.0 ✓
+50		12.6	328.8 ✓
75' Rft. parallel to Lot line		14.3	327.1 ✓
4+00		15.6	325.8 ✓

INDEXED E.P.B. TP	1.92	341.54 341.42 326.98 326.86 ✓	15.98	325.44 325.56	17 ✓ Nest. in Pole
4+50			2.6	324.3 ✓	
75' Rft.			3.9	323.0 ✓	
5+00			4.2	322.7 ✓	
75' Rft.			5.8	321.1 ✓	
5+50			6.4	320.5 ✓	
8' Polk St = 5+70 = Δ 0°58'45" Rft.			7.35	319.51 ✓ 319.63 on stub	
6+00			8.3	318.6 ✓	
+50			9.9	317.0 ✓	
7+00			12.0	314.9 ✓	
TP	0.02	314.11 314.23	13.77	314.09 ✓ 314.21	
7+50			1.4	312.7 ✓	
8+03.22 = Δ 42°12'30" Lt.			4.95	309.16 on stake	
+50			6.6	307.5 ✓	
8' Hill Place OTTILIE PL. 8+86.74 = Δ 61°28'30" Rft.			5.98	308.13 ✓ 308.25 on stake.	
9+00			7.2	306.9 ✓	
+50			12.1	302.0 ✓	
TP	1.32	302.27 ✓		300.83 ✓	
9+78.44 = Δ 39°42' Rft.		302.15	13.28	300.75 on stake	
10+00			2.5	299.6 ✓	
20' Rft. = bottom ditch.			6.2	295.9 ✓	
10+50			4.1	298.0 ✓	

Cont. Page 23

Street

54TH

Blk. 4

Blk. 4

Blk. 1

Blk. 1

Univ. Ave

REX

SHILOH

ROAD

ROAD

ROAD

5+09.25 Sub Set

25' 25'

3+49.00

C+42.25

1+89.00

C.T. in Pk.

49'

0+00

100'

10+16

20' 20'

73.75

C+42.41

5+09.25

C+42.33

5+09.25

C+42.25

1+89.00

C.T. in Pk.

49'

0+00

100'

Blk. 3

Blk. 3

Blk. 2

Blk. 2

+27.75 - 27.75

20

2+67.68

11+90.55

2+67.58 Sewer

10+29.33 ST.

8°54'

Proposed

2+42.56

Proposed

8°51'

90°02'

0+00 East

6+72.5

242.46

89°51'36"

52.00

90°02'00"

89°56'00"

8°56'07"

27.75'

90°03'

7+74

89°51'36"

0+00 going East ST.

0+00 going east Sewer

Proposed

Proposed

0+00 East

4+50

52.00

7+74

89°51'36"

90°08'30"

12.75

11+15.1

9+55.95

27.75'

90°03'

89°57'

90°08'30"

9.5'

90°08'30"

Levels to West, 17 Book 1569-10

35

3

3

3

3

35

35

2

35

2

35

35

35

35

35

35

35

35

35

35

35

35

35

35

35

12.75

11+15.1

9+55.95

27.75'

90°03'

89°57'

90°08'30"

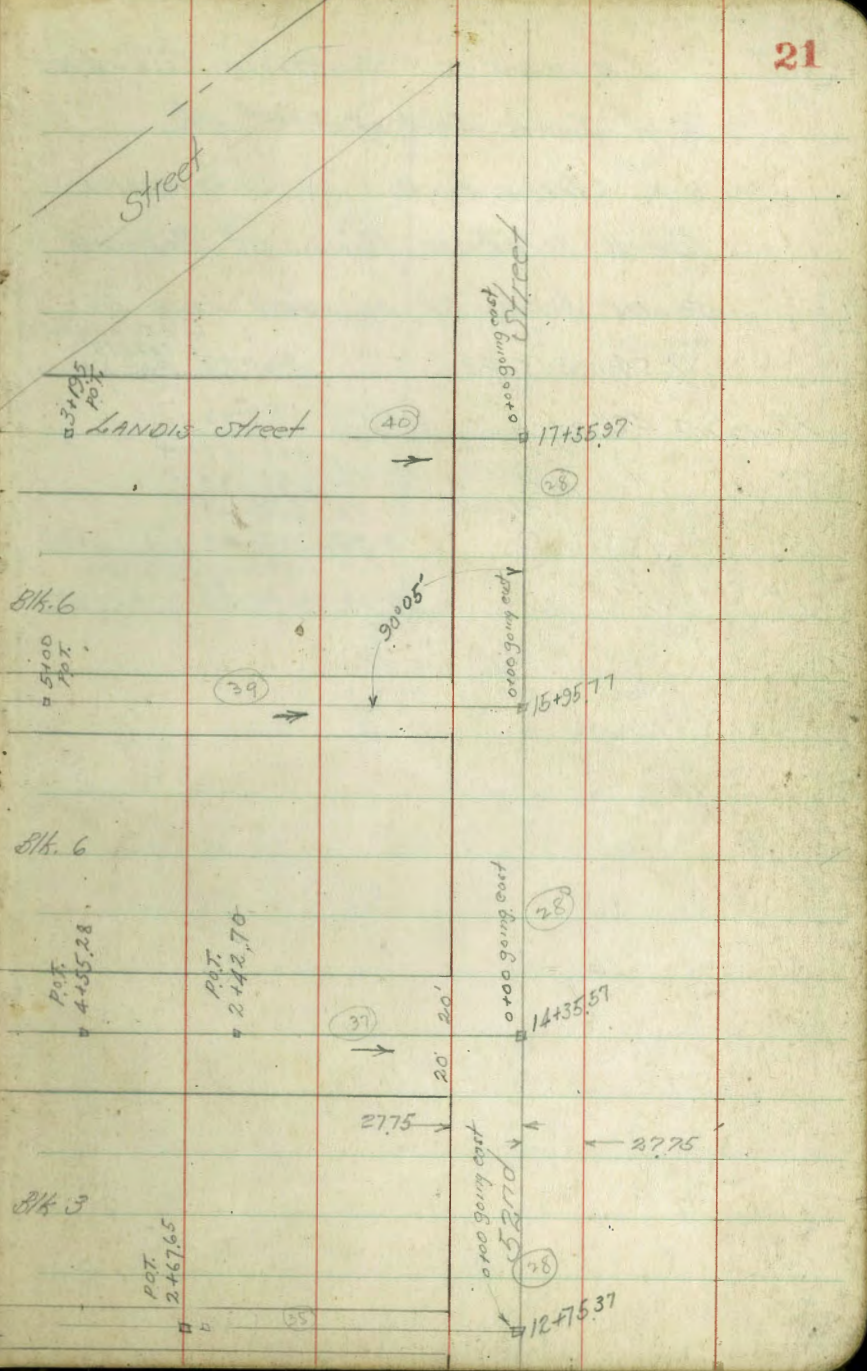
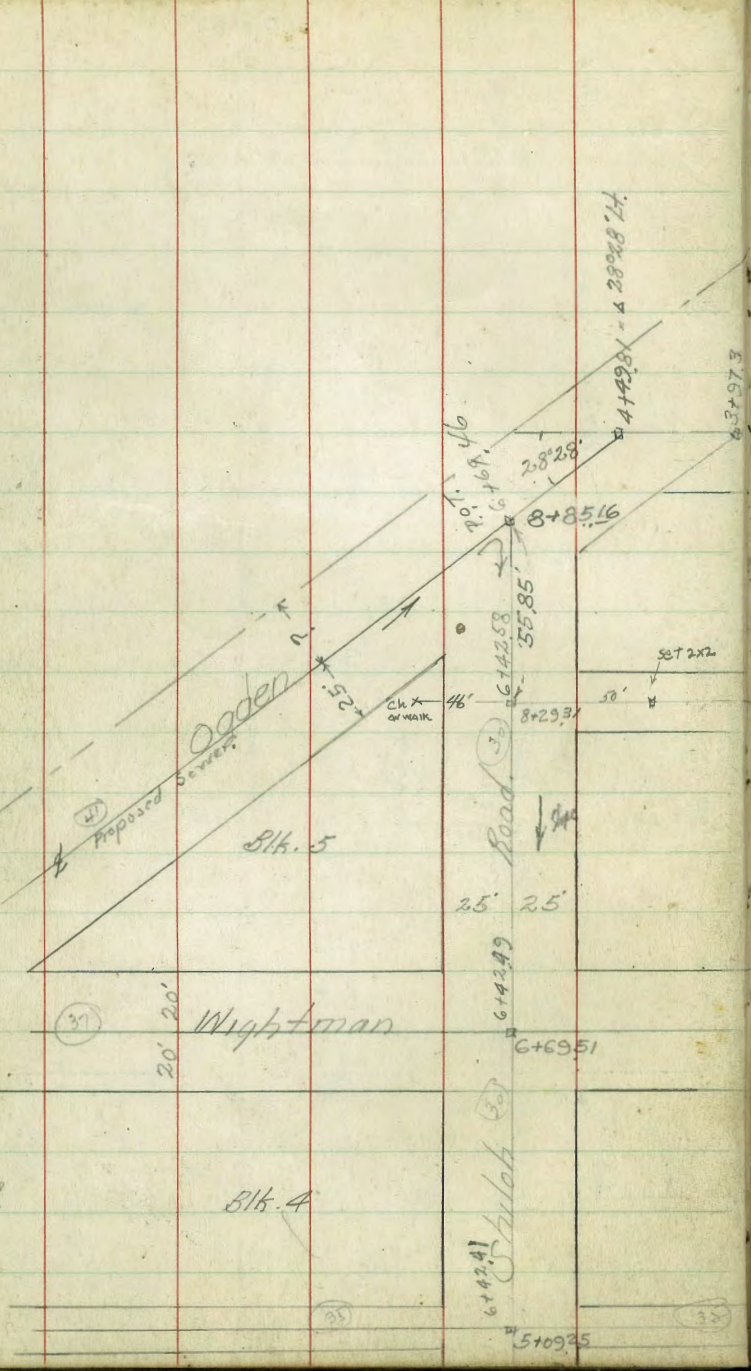
9.5'

90°08'30"

90°08'30"

11+22 = 9960.57 Stations
= Intersection Wightman, Apprx.

AQ
10/19/2



(37)

Wightman

20' 20'

Blk. 4

(35)

6+4241

Blk. 5

6+4249

25' 25'

Blk. 5

Ogden

Proposed Street

Chk X or mark

Set 2x2

6+4258

55.85'

8+85.16

28°28'

4+498

4 2828.14

83+97.3

Blk. 6

5100

167

(39)

90°05'

cross going east

15+95.77

Blk. 6

P.O.T. 4+335.28

P.O.T. 2+42.70

cross going east

14+35.57

(37)

20' 20'

27.75

27.75

Blk. 3

P.O.T. 2+467.65

cross going east

12+75.37

(35)

INDEXED
E.F.B.

LEVELS ON EXISTING CULVERT,
And Inlets East of 52nd St.
ON UNIV. AVE. To determine
their relative Elev. of Proposed
Jewell line as Located Page 19

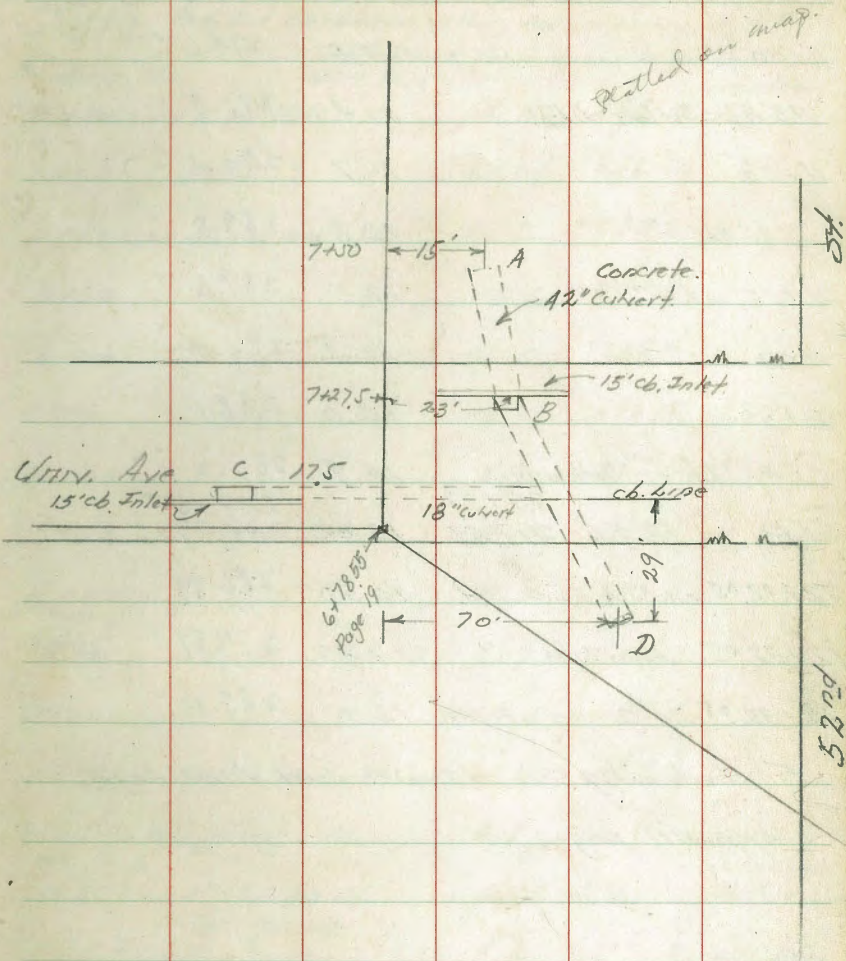
9.54 315.43

305.89

B.M. on stake
6+78.55
Page 24

Flow line 42" at A	15.51	299.92 ✓
" " " " top Grate =	7.32	308.11 ✓
" " " " at B.	16.08	299.35 ✓
" " " " top Grate.	9.96	305.47 ✓
" " " " 18" " C	13.38	302.05 ✓
" " " " 42" " D	19.72	295.71 ✓

22



INDEXED EPB	302.27 302.15	Pelvic Sewer Cont. from P. 17.	Levels
14' Rt. of 10+50 = Bottom ditch.	7.6	294.5	✓
11+00	7.5	294.6	✓
13' Rt. = Bottom ditch.	10.4	291.7	✓
11+30	11.7	290.4	✓
2' Rt. " "	12.3	289.8	✓
11+35 on d. = " "	12.5	289.6	✓
11+50	12.1	290.0	✓
11+80	14.0	288.1	✓
4' Lt. in Bottom ditch.	14.9	287.2	✓
T.P. 8.24	297.39	289.15	✓
	297.51	289.27	✓
12+32.05 on Rim Exist. MH.	10.50	286.89	✓
12+32.05 " Flow line "	17.82	279.57	✓
12+32.05 on ground at MH.	12.0	285.39	✓

For check out above H.I. see Cont Line Levels
opposite page.

279.51
Mx No 53

51st St. LEVELS for Proposed Sewer

Blk. E, Oak Park, Map # 1732
And Lot 24 - Larner Villa, And in Univ. Ave.

297.51 = T from opposite page.
297.39 =

Existing MH. = 0+00 on Rim MH. 12.27 285.12 Location Page 19

0+00 " Flow "	21.08	276.31	
0+00 on ground at MH.	14.2	283.2	Bottom Canyon
0+50	13.6	283.8	" "
1+00	12.0	285.4	" "
+50	10.9	286.5	" "
2+00	9.8	287.6	" "
+50	8.4	289.0	" "
3+00	5.3	292.1	" "
T.P. 3.55	304.85	296.30	
	304.97	296.42	
3+50	13.4	291.4	" "
17' Rt. on Flow 18" Wooden Culvert	15.8	289.0	✓
3+73 on Fill ground in Roadway	4.7	300.1	WLY edge
on stub. " " "			6+25 = stub.
3+98.39 = Δ 47° 55' 30" Rt.	4.93	299.92	52nd St. Line
on Fill ground.			
4+08 in Roadway	4.6	300.2	Ely Edge
+23 = Toe of Fill	12.3	292.5	
(4+30) 8' Hl. Flow line 18" culvert	12.9	291.9	Iron pipe on this end.
4+73	11.0	293.8	
5+08	8.0	296.8	

Cont. Page 24.

	304.97 ✓	Cont. from P-23	
	304.85		
5+31		5.7	299.1 ✓
6+00		3.6	301.2 ✓
+25		1.9	302.9 ✓
+60		1.5	303.3 ✓
	315.20		304.34 ✓
T.P.	10.86	315.32	0.51 304.46
6+78.55 = $\Delta 59^{\circ}49'30''$ Rt.		9.31	305.89 ✓ <i>Aug 12</i>
6+87.55 = N Top. cb. Univ. Ave		8.91	306.29 ✓
" = Guts on Pav.		9.60	305.60 ✓
7+07.55 = $\frac{1}{2}$ on Pav.		8.44	306.76 ✓
+27.55 = S. Guts on Pav.		8.64	306.56 ✓
7+27.55 = S Top. cb.		7.96	307.24 ✓
7+47		8.2	307.0 ✓
7+70		11.9	303.3 ✓
8+30 in Bottom of ditch		11.2	304.0 ✓
8+67.35 = $\Delta 8^{\circ}51'$ Lt. on stub		8.47	306.73 ✓ <i>2+42.56 - Sta from West in Alley.</i>
9+00		3.1	312.1 ✓
13' Rt. in Bottom of ditch		8.1	307.1 ✓
	325.31		312.65 ✓
T.P.	12.66	325.43	2.55 312.77
9+23		10.3	315.0 ✓
9+40		8.5	316.8 ✓
28' Rt. - Bottom ditch.		15.0	310.3 ✓

	325.43 ✓		24 ✓
10+00	325.31	7.6	317.7 ✓
14' Rt. in Bottom of ditch		10.8	314.5 ✓
10+18		8.7 ₀	317.1 ✓
+21		6.8	318.5 ✓
+29.33 = $\Delta 8^{\circ}54'$ Rt.		6.79	318.52 ✓ <i>2+47.58 = Sta. from 52nd St. on stub.</i>
10+35		6.9	318.4 ✓
+40		8.2	317.1 ✓
(10+35) 2' Rt. = 2' ^{diameter} Street Iron Culvert		9.22	316.09 ✓ <i>Flour Line</i>
10+75		5.3	320.0 ✓
11+05		3.1	322.2 ✓
70' Lt.		3.6	321.7 ✓
	335.58		323.84 ✓
T.P.	11.74	335.70	1.47 323.96
11+50		8.0	327.6 ✓
= $\frac{1}{2}$ Alley			329.24 ✓ <i>2+67.65 = Sta. from 52nd St.</i>
11+90.55 = end this line on stub		6.34	329.36
	333.44 ✓		332.84 ✓
T.P.	0.60	333.56	2.74 332.96
on stub 0+00 $\frac{1}{2}$ Alley 9.52nd		0.65	332.79 ✓ <i>2' Ret to East.</i>
" " 0+00 $\frac{1}{2}$ Alley Blk. 2		4.12	329.32 ✓ <i>9+55.05 = Sta. from 52nd St. here</i>
	322.05 ✓		320.64 ✓
T.P.	1.41	322.17	12.80 320.76
Chk. N.W. R.P. Univ. 1.52nd		6.96	315.59 ✓
			315.71
			315.57 ✓ <i>Book 1553 - B.P. B.M.</i>
			0.14 = diff.
			0.02 = error.

LEVELS For SEWER
ON POLK AVE. Bet. Alladene & 52nd St

5.11	331.86	326.75
260' West of E 51 st St. = 0+00	12.3	319.6
0+50 on P.O.T. stub	7.76	324.10
1+00	5.0	326.9
150	4.3	327.6
2+00	6.0	325.9
E 51 st St. = 2+60 on stub.	10.35	321.51
3+00	12.5	319.4
T.P.	9.05	327.87
3+50	9.4	318.5
4+00	8.6	319.3
430 = 5+70 page 17 (= 7+00, 19 00)	8.37	319.50
		319.51 = stub P-17 0.01 = Error

INDEXED
E.F.B.

Preliminary Levels Sewer.
IN 51st Street,
From Polk St, South.

25 ✓

E Polk. = 0+00	6.36	327.87	321.51	opp. Page. on stub 2+60
+50			4.5	323.4
40' Lt. Floor House.			7.9	320.5
1+00			2.6	325.3
60' Lt.			9.2	318.7
T.P.	6.19	334.06	0.00	327.87
1+50			5.3	328.8
+75 on stub = end line.			4.52	329.54

Levels For Sewer 13.64' South of N Line 51st St.

See sketch P-18
Intersection of East line 51st & Above.

= 0+00 on stub.	334.06	5.52	328.54	
75' Rt.		11.3	322.8	
0+10		6.0	328.1	
+50		12.5	321.6	
T.P.	0.70	321.99	12.77	321.29
1+00			9.0	313.00
50' Rt.			10.4	311.6
75' Rt.			11.9	310.1
1+44.86 = 1+28.5 = 8+03.22 page 17			12.82	309.17
				309.16 = stub P-17 0.01 = Error

Walker
Bliss
Isbell
2-13-40

Preliminary Levels for Sewer:
52nd Street from Orange to Polk,
and in Polk from 52nd St.
to Alley West of 52nd St.

S.M.B.P. Orange
& 52nd St.
Page 14

INDEXED
E.P.B.

363.77

26

0.31	377.82	377.51	
chk. stub. 4+3372-P-13	13.49	364.33	
Note: since levels did not check on lines started on page 15, it was decided the B.M. used on 52nd & Trojan 324.00 is not correct by 0.14 or .15 being too high. The Levels as run from page 17 will be corrected accordingly.			
T.P. 0.40	374.69	3.53	374.29
87' ± South South line Orange = 0+00 on stub.	2.32	372.37	
65' Lt.	4.3	370.4	
T.P. 0.25	363.77	11.17	363.52
0+60	1.1	362.7	
40' Rt.	4.8	359.0	
80' "	6.8	357.0	
1+00	6.6	357.2	
35' Lt.	6.8	357.0	
1+50	11.5	352.3	
2.5' Rt.	15.6	348.2	
80' "	19.6	344.2	

T.P.	0.96	351.75	12.98	350.79	
2+00			3.7	348.0	Front of house at NLY edge.
(2+06) 50' Rt. = Floor House			5.6	346.1	left side
2+50			7.8	343.9	Wall above & left side
3+00			12.0	339.7	Above &
40' Rt.			13.8	337.9	
80' "			17.0	334.7	
T.P.	0.21	338.97	12.99	338.76	
3+50			3.2	335.8	left side
4+00			7.6	331.4	Above &
50' Rt.			7.4	331.6	
70' Rt.			10.2	328.8	
4+50			12.0	327.0	
T.P.	0.40	326.62	12.75	326.22	
5+00			3.5	323.1	left side Above &
50' Rt. & Polk = 5+71 = A 90° 21' 30" Rt.			3.5	323.1	
7.64	318.98		7.64	318.98	on stub.
T.P.	3.90	322.88	7.64	318.98	" "
6+00			3.7	319.2	
6+50			3.1	319.8	
7+33.15 = 5+70, P-17 = 4+30, P-25			3.38	319.50	on stub.

Walker, Bliss, Isbell 2-14-40	Preliminary Levels For Sewer		From Polk Ave to Grand St.	
Location	Pages 18, 19, 20, 21	S. M. on stub	5+71 Page 26	
390	322.88	318.98	✓	
2982 East of station 5+71 Page 17 on Polk, and 2.25 West of 252nd = 0+00	3.85	319.03	✓	on stub
750	5.9	317.0	✓	
1+00	7.7	315.2	✓	
50' Lt.	8.4	314.5	✓	
1+50	9.0	313.9	✓	Rt. side Above E
55' Lt.	11.4	311.5	✓	
80' "	10.0	312.9	✓	
2+00	10.5	312.4	✓	Rt. = Above E
40' Lt.	11.5	311.4	✓	
70' " in Canyon or draw	15.0	307.9	✓	
2+50	11.8	311.1	✓	rather thick # 22 311.1
	7.8	315.1	✓	
3+00	13.3	309.6	✓	Rt. = Above E
TP	0.22	310.26	✓	
(3+00) 60' Lt. in Western Canyon	7.7	302.6	✓	
" 100' "	11.2	311.5	✓	
not taken in order, (2+94.85) on stub. & Hill Pt.	0.75	309.51	✓	
3+50	2.6	307.7	✓	
4+00	5.0	305.3	✓	
30' Lt.	10.3	300.0	✓	

INDEXED EFB	310.26	27		
(4+00) 70' Lt.	3.2	307.1	✓	Rt. Above E
4+50	7.4	302.9	✓	
5+00	8.2	302.1	✓	Rt. Above E
20' Lt.	14.5	295.8	✓	
50' "	8.0	302.3	✓	
5+50	10.2	300.1	✓	Rt. Above E
6+00 = beginning fill in str.	10.4	299.9	✓	
30' Lt.	17.0	293.3	✓	
70' Lt.	7.0	303.3	✓	
6+25 = 3+98.39 Page 23	10.34	299.92	✓	
6+50	9.3	301.0	✓	
7+00 = end fill in str.	3.4	306.9	✓	
TP	10.43	320.09	✓	
7+64.94 = N.H. Univ. Ave on Pav.	4.55	315.54	✓	Book 1553-3
Ch. NW. 8 P. Univ. & 52nd	4.53	315.56	✓	
		315.57 = BM.		
		0.01 = Error.		
7+65.94 = 1' South of N.H. Univ.	4.55	315.54	✓	
16' Lt. on paving at cb.	5.20	314.89	✓	gutter.
16' Lt. on top cb.	4.69	315.40	✓	
75' Lot	6.1	314.0	✓	
100' "	7.6	312.5	✓	

		320 09 ✓			
(7+65.94)	150' Lt.		10.8	309.3	✓
"	200"		13.3	306.8	✓
"	242.26 Lt. on stub.		14.22	305.87	✓ = 6+78.55 Page 24
7+94.94	= L. Univ. on Pav.		4.04	316.05	✓
8+24.94	= S. Line "		3.71	316.38	✓ side lines
8+50			1.7	318.4	✓ Above L
T.P.	12.94	332.64	0.39	319.70	✓ side lines
9+00			8.6	324.0	✓ Above L
9+55.05	= L. Alley to East.		3.34	329.30	✓ on stub
10+00			0.9	331.7	✓
T.P.	4.94	337.09	0.49	332.15	✓ side lines
10+50			4.3	332.8	✓ Above L
11+15.17	= 1/2 Rex. on East.		4.33	332.76	✓ on Hub.
11+50			4.3	332.8	✓
12+00			4.3	332.8	✓ Above L
75' Lt.			4.5	332.6	✓
12+50			4.5	332.6	✓
12+75.37	= 1/2 Alley Blk 3		4.72	332.37	✓ on stub.
13+00			5.0	332.1	✓
85' Rt.			7.3	329.8	✓
13+50			4.9	332.2	✓
14+00			4.0	333.1	✓

					337 09 ✓
(14+00)	100' Rt.		7.4	329.7	✓ 28
14+35.97	= 1/2 Highways on E.		2.90	334.19	✓ on Hub.
14+70			2.1	335.0	✓ side lots
15+00			1.9	335.2	✓ Above L
750			2.6	334.5	✓
15+95.77	= L. Alley Blk. 6		4.11	332.98	✓ on stub. side lots.
16+00			4.2	332.9	✓ Above L
750			7.1	330.0	✓
75' Rt.			10.5	326.6	✓
17+00			10.5	326.6	✓
60' Rt.			15.0	322.1	✓
45' Lt.			12.3	324.8	✓
75' "			8.4	328.7	✓
17+55.97	= 1/2 Lands on East		12.03	325.06	✓ on Hub. This Hub. Reproduced after M. P. R. Notes were taken. Hence does not check Book 1553

Walker Miss Isbell 2-1A-40	Levels For Sewer on Univ. Ave. Bet. 52nd & 54th Streets. From station 6+78.55 Page 19, East on Univ. Location 1' South of North line. see P-20			
6+78.55 Page 19				BM. on stake 6+78.55
=0+00	9.54	315.43	305.89	Page 24
T.P.	10.47	316.36	9.54 305.89	Caught in rain hence the turn.
0+50			9.8 306.6	lots Both sides Above E levels
1+00			8.5 307.9	" "
1+50			6.9 309.5	" "
2+00			5.4 311.0	" "
2+50			3.8 312.6	" "
3+00			2.0 314.4	" "
9' Rt. on cb.			2.24 314.12	" "
3+50			0.1 316.3	" "
T.P.	11.94	327.63	0.67 315.69	
3+99.62 = skid = 0+00			8.94 318.69	
4+50			6.1 321.5	75' Lt. 1.5' lower
5+00			2.6 325.0	
" 9' Rt. on cb.			3.12 324.51	
5+50			0.2 327.4	75' Lt. 1.5' lower
T.P.	5.20	332.06	0.77 326.86	
6+00			2.2 329.9	lots Above L, Both sides
9' Rt. on cb.			3.00 329.06	

INDEXED EFG	332.06	29
6+50	1.0	331.1
7+00 on skid.	2.42	329.64
9' Rt. on cb.	3.10	328.96
7+50	4.6	327.5
8+00 9' N of cb.	7.3	324.8
for check out Above H.E. see cont. books on P-30		

INDEXED
EFG

LEVELS FOR SEWER			
IN SHILOH ROAD, From 1 South			
of North line Univ. To Ogden St.			
Location P-20-21			
3+99.62 P.29	332.06	= π from P.29	
0+00 on stub.	13.39	318.67	✓
0+09 = N. cb. line Univ. on sb.	13.92	318.14	✓
" " " " on Gutter pav.	14.49	317.57	✓
0+29 = L. Univ. on "	13.66	318.40	✓
+49 = S. cb. on gutter.	14.20	317.86	✓
0+59 = S. L. Univ. on Pav.	13.80	318.26	✓
1+00	10.0	322.1	lots Above to both sides
+50	11.4	320.7	" "
1+89 = E. East & West Alley	5.25	326.81	6+42.25 from West on stub.
2+00	4.0	328.1	lots Above to both sides.
T.P.	12.50	344.09	0.47 331.59
+50		10.2	333.9
3+00		5.8	338.3
3+49 = E. Rex on Hub.	3.64	340.45	6+42.33 Station from West.
T.P.	11.91	355.75	0.25 343.84
4+00		10.0	345.7
+50		6.9	348.8
E. Alley 81/2s. 3, 4.			
5+09.25 on stub.	4.56	351.19	✓
5+50	4.1	351.6	✓

355.75

6+00	3.8	351.9	✓
+45	3.8	351.9	✓
6+69.51 = E. Nightman on Hub.	3.17	352.58	6+42.49 Sta. from West. Hub replaced after Moore's notes were taken
7+00	2.7	353.0	✓
+50	1.3	354.4	✓
8+00	1.3	354.4	✓
+29.31 = stub. E. Alley 81/2s	1.80	353.95	6+42.58 Sta. from West. N.Y. line Ogden, & Shiloh.
8+56.72 on Hub	0.77	354.98	✓
8+85.16 " " E. Ogden	1.79	353.96	✓

30

Walker Bliss Jobell 2-18-40		Levels For Sewer Alleys Blks. 1, 2 Berkeley Hts. Bet. Univ. + Rex. From 5229 St. East.			
0+00	7.37	336.69	329.32	314. on stub 9+55.05 Page 24	
0+11		7.6	329.1		
+18		2.7	334.0		
+56.07	POT on stake	3.22	333.47		
1+00		8.2	328.5	hot on Rt. Above L	
50' Lt.		15.0	321.7		
T.P.	0.83	324.42	13.10	323.59	
1+25		0.8	323.6		
1+50		6.3	318.1	hot on Rt. Above L	
60' Lt.		10.5	313.9		
1+75		10.9	313.5		
T.P.	3.75	315.60	12.57	311.85	
2+00		4.8	310.8	hot on Rt. Above L	
60' Lt.		7.4	308.2		
2+25		6.5	309.1		
2+35	Drainage channel	9.9	305.7		
2+42.56	= 8+6735 page 24	8.85	306.75		
2+65		4.9	310.7		
50' Lt.		8.6	307.0		

INDEXED EFG		315.60		3' B. 31	
T.P.	13.06	327.84	0.82	314.78	on both 2+97 hot on Rt.
3+00			12.1	315.7	Above L
50' Lt.			18.4	309.4	
3+50			8.3	319.5	lots on Rt. Above L
50' Lt.			14.7	313.1	
4+00			5.2	322.6	
+25			3.6	324.2	
4+50			1.4	326.4	
T.P.	8.20	334.69	13.5	326.49	
4+75			7.0	327.7	
50' Lt.			13.9	320.8	
5+10	= Bottom of draw		10.3	324.4	
+50			5.0	329.7	
50' Lt.			11.7	323.0	
5+80			4.8	329.9	
6+00			6.5	328.2	
6+42.25	= 8' Shiloh on Hub. P. 30	7.88		326.81	
+75			7.8	326.9	
7+00			5.2	329.5	
60' Lt.			7.1	327.6	
7+50			0.6	334.1	

TP	12.80	346.86	0.63	334.06	✓
7+50			11.2	335.7	'
8+00			5.2	341.7	✓
50' Lt.			6.0	340.9	✓
50' Lt.			7.9	339.5	'
TP	9.81	356.38	0.29	346.57	✓
8+50			9.5	346.9	✓
9+00			8.0	348.4	All Lots on Mt Above 2
60' Lt.			10.9	345.5	✓
9+00			8.1	348.3	✓
9+85 on Pot. Stub.			9.91	346.47	'
10+00			11.1	345.3	'
55' Lt.			16.0	340.4	Slope Continues
10+30			13.8	342.6	'
+50			18.1	338.3	✓
Slope Continues to 54th St.					
Chh. Stub 10+65 & Rex.			6.49	349.89	page 33

Preliminary Levels for Sewer		INDEXED	
178 Rex-street.		E.P.B.	
11+15.17 Page 20 = 0+00	0.41	333.17	332.76
0+50	0.5	332.7	
1+00	1.0	332.2	
+50	1.2	332.0	
25' Lt.	1.0	332.2	
65' Lt.	4.7	328.5	
1+91 ±	6.3	326.9	Floor of
1+91 = East side House on Lt.	12.7	320.5	Basement
" Main Floor Above House	5.35	327.82	65' Lt.
2+00	8.0	325.2	
+50	14.3	318.9	
+67.58 = 10+29.33 Page 24	14.66	318.51	on stub.
3+00	12.3	320.9	
+14 = East edge House on Rt.	9.7	323.5	Floor Elev.
3+50	6.2	327.0	
60' Rt.	8.8	324.4	
55' Lt. Main Floor of House	1.30	331.87	
4+00	2.3	330.9	
40' Rt.	3.3	329.9	
60' Lt.	1.3	331.9	
Uniform slope from Above 60' Lt. to Alley			

		333.17		333	
T.P.	12.81	345.82	0.16	333.01	
4+50			12.2	333.6	
5+00			9.7	336.1	
80' Lt.			13.8	332.0	Uniform slope to Alley from this point
5+50			8.4	337.4	All Lots on Rt. Above 4 to
85' Lt.			15.8	330.0	
6+00			8.2	337.6	
+42.33 = Shiloh Road = 3+49		5.42	340.40	page 30	
7+00			0.9	344.9	
T.P.	12.40	357.98	0.24	345.58	
7+50			10.1	347.9	
55' Lt.			19.3	338.7	
8+00			8.1	349.9	
+50			6.3	351.7	
70' Lt.			10.9	347.1	
9+00			5.8	352.2	
+50			4.9	353.1	
80' Lt.			6.6	351.4	Uniform slope to Alley from this point
10+00			5.4	352.6	
+30			6.0	352.0	
10+65 on stub. Page 32		8.13	349.85		
55' Lt.			10.4	347.6	

357.98 ✓

11700

11.1 346.9 ✓

40' Lt

15.2 342.8 ✓

± Alloy Bk 4

chk. on stub 11700 page 35

5.00 352.98 ✓ page 35

✓
34

Walker
Bliss
Isbell
2-17-40

Levels For Sewer in Alleys Blk 3-4.
Berkeley Heights From E 52nd St., East.

12+75.37 E 52nd = 0+00	Page 20 5.18	337.55	332.37	8 M. on stub. 12+75.37. Page 28
0+50		4.1	333.4	All Lots on Rt. in this Block Above E
1+00		4.4	333.1	
75' Lt.		5.6	331.9	
1+50		5.1	332.4	
2+00		5.0	332.5	
55' Lt.		8.1	329.4	
2+50		6.1	331.4	
+67.65 on stub. = 1+90.55 - P-24		8.33	329.22	page 24
2+95 = bottom draw		10.9	326.6	
3+50		4.2	333.3	
60' Lt.		8.9	328.6	
T.P. 13.07	350.09	0.53	337.02	
4+00		9.6	340.5	
50' Lt.		14.4	335.7	
4+55.28 = P.O.T. on stub.		3.17	346.92	
T.P. 9.23	356.96	2.36	347.93	
5+00		6.9	350.1	
60' Lt.		10.5	346.5	

INDEXED
E.F.B.

356.96

35

5+50		5.5	351.5	
6+00		5.0	352.0	
75' Lt.		10.0	347.0	
6+42.41 - Isbell Rd. = 5+09.25		5.82	351.14	P-30
7+00		4.7	352.3	
70' Lt.		5.7	351.3	
70' Rt.		5.0	352.0	
7+50		3.7	353.3	
8+00		2.8	354.2	
50' Lt.		3.4	353.6	
8+50		2.8	354.2	
70' Rt.		2.6	354.4	
T.P. 6.29	360.60	2.65	354.31	
9+00		5.3	355.3	
60' Lt.		6.2	354.4	
9+50		5.0	355.6	
9+90 = East side House		4.8	355.8	Alley
" " = Floor, Above House.		4.60	356.0	70' Lt.
10+50		5.9	354.7	
11+00 on stub.		7.62	352.98	page 34
70' Lt.		10.3	350.3	
11+50		13.0	347.6	
50' Lt.		16.9	343.7	
60' Rt.		11.0	349.6	

360.60

Cont. from P. 35

(10+50) 60' RT.

39

356.7 ✓

chk. on stub 11+35 p. 38

7.91

352.69 ✓

Notes: from station 11+50, East, slope continues to 54th

36 ✓

Wulker
8/55

Preliminary Levels, For Sewer.
17 1/2 Nightman Street

14+35.57 Page 21
= 2.52 rod

8. M. on Hub
14+35.57
Page 28

All lots on Rt.
in this block,
Above 2

12.80	346.99	334.19
0+00	12.80	334.19
0+50	9.7	337.3
1+00	4.6	342.4
+70 = W. edge House on Lt.	0.4	346.6
50' Lt. Floor, Above House.	4.5	342.5
50' " Grd. At "	5.7	341.3
T.P.	6.16	352.62
2+00	5.0	347.6
+50	5.0	347.6
70' Lt.	12.9	339.7
3+00	4.9	347.7
+50	5.6	347.0
60' Lt.	15.2	337.4
4+00	9.2	343.4
20' Lt.	10.3	342.3
70' Lt.	5.5	347.1
70' Rt.	1.5	351.1
4+50	6.4	346.2

INDEXED
EFB

352.62

37

5+00	2.9	349.7
+45 = East edge House on Lt.	1.6	351.0
45' Lt. - Floor, Above House	0.5	352.1
45' " Ground at " "	1.4	351.2
6+00	0.8	351.8
T.P.	6.42	358.83
6+12.49 = S. edge Road, 616.951	6.28	352.55
T.P.	7.81	360.36
7+00	6.3	354.1
+50	6.2	354.2
8+00	5.5	354.9
75' Lt.	6.9	354.1
75' Rt.	5.0	356.4
8+50	5.9	355.0
9+00	5.0	355.4
70' Lt.	5.2	355.2
100' Rt.	4.5	355.9
9+50	4.1	356.3
10+00	5.2	355.2
50' Lt.	4.7	355.7
10+50	4.8	355.6

on Hub.
P-30
Above Hub.
& Nightman

Cont. Page 38

Prelim. levels, Nightman St.

Cont. From P-37

11+00	360.36	6.1	354.3	✓
70' Ht.		5.3	355.1	✓
11+35 on stub, ^{see} page 36	7.66		352.70	✓
11+50		9.7	350.7	✓
40' Ht.		9.7	350.7	✓

38 ✓

Walker.	Preliminary levels for Jewer.		
Bliss	17 E. Alley Blk. G Berkeley Hts.		
Isbell 2-19-40	From E 52nd St. to E Shiloh Rd.		
15-9577 Page 21	11.82	344.80	332.98
0+00			333.3 ✓
0+32	11.5		336.7 ✓
+36	8.1		336.9 ✓
0+50	7.9		329.5 ✓
50' Rt.	15.3		337.8 ✓
1+00	7.0		340.7 ✓
+50	4.1		344.4 ✓
2+00	0.4		337.0 ✓
75' Rt.	7.8		344.33 ✓
T.P. 1209	356.42	0.47	345.9 ✓
2+50	10.5		341.3 ✓
50' Rt.	15.1		350.7 ✓
50' Lt.	5.7		348.1 ✓
3+00	8.3		351.1 ✓
+50	5.3		350.6 ✓
70' Rt.	5.8		352.4 ✓
4+00	4.0		352.9 ✓
70' Lt.	3.5		351.4 ✓
70' Rt.	5.0		

INDEXED EAB	356.42'		39
4+50	3.2	353.2 ✓	
60' Rt.	4.1	352.3 ✓	
60' Lt.	4.3	352.1 ✓	
5+00	2.80	353.62 ✓	
+50	2.9	353.5 ✓	
50' Rt.	2.7	353.7 ✓	
50' Lt.	3.0	353.4 ✓	
6+00	2.5	353.9 ✓	
6+42.58	2.49	353.93 ✓	
chk. Hub. Page 37-6+42.99	3.87	352.55 ✓	

Walker 2-20-40 Preliminary levels For Sewer
 Bliss IN & Landis St. Also Ogden St.
 Isbell Front of 52nd St, East.
 17+55.97 Page 21

= 0+00	12.90	337.96	325.06	B.M. on Hub 17+55.97 & Landis + 52nd page
0+15		14.6	323.4	✓
0+50		12.0	326.0	✓
20' Lt in draw		15.4	322.6	✓
70' Lt		11.7	326.3	✓
1+00		8.8	329.2	✓
70' Lt		5.5	332.5	✓
40' Rt		2.8	335.2	✓
1+50		5.3	332.7	✓
40' Lt in draw		7.3	330.7	✓
60' Lt		4.5	333.5	✓
2+00		0.4	337.6	✓
45' Lt in draw		1.6	336.4	✓
70' Lt		0.2	337.8	✓
TP	12.63	350.59	0.00	337.96
70' Rt		6.3	344.3	✓
2+50		9.3	341.3	✓
45' Lt		8.6	342.0	✓
70' Rt		8.6	342.0	✓
3+00		5.4	345.2	✓
60' Rt		9.0	341.6	✓

INDEXED
 EFG
 350.59

(3+00) 60' Lt.	8.0	342.6	✓	
3+19.5 on P.O.T. Stub	4.24	346.35	✓	
3+35	4.0	346.6	✓	
3+50	4.6	346.0	✓	
60' Rt	10.3	340.3	✓	
50' Lt	1.4	349.2	✓	
3+97.3 on Hub NLY line Ogden	7.07	343.52	✓	
3+97.3 on Nat. Ground	6.0	344.6	✓	
8' Rt	6.0	344.6	✓	
55' Rt	15.3	335.3	✓	
60' Lt	0.5	350.1	✓	
= 25' South of NLY line Ogden St.				
4+49.81 - Δ 28° 28' Lt see P. 21	6.56	344.03	✓	
50' Rt	17.5	333.1	✓	
13' Lt	4.3	346.3	✓	
60' Lt	0.9	349.7	✓	
Levels from Above Δ, Etc. etc., = OGDEN ST.				
5+00	0.9	349.7	✓	
70' Rt	6.2	344.4	✓	
40' Lt	7.0	351.6	✓	
TP	10.25	360.26	0.58	350.01
5+30	7.9	352.4	✓	

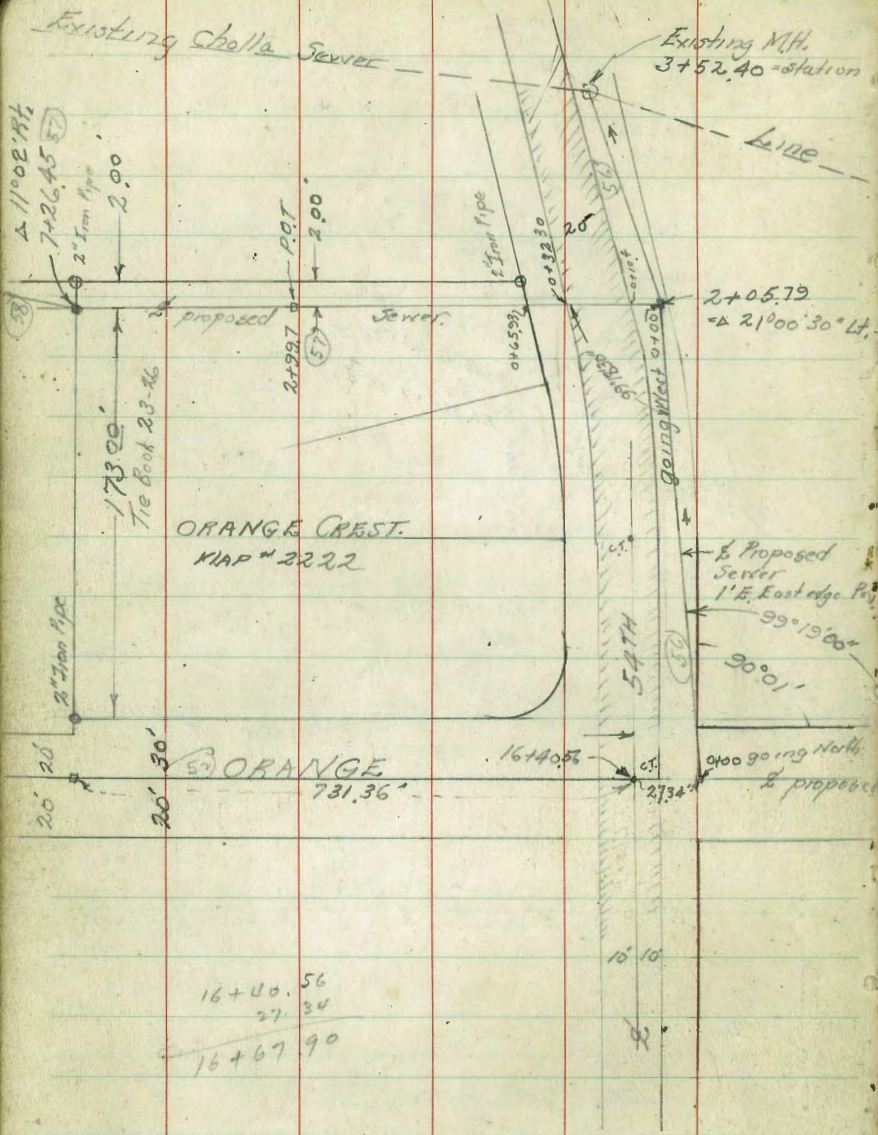
360.26 ✓

6+00	6.5	353.8	✓
70' Rt.	7.9	352.4	✓
70' Lt.	6.5	353.8	✓
6+69.46 = P.O.T. Sub & Shiloh	6.35	353.91	8+85.16 p-21
7+00	5.8	354.5	✓
80' Rt.	7.3	353.0	✓
7+50	5.3	355.0	✓
8+00	5.2	355.1	✓
80' Lt.	5.2	355.1	✓
80' Rt.	5.9	354.4	✓
8+50	5.2	355.1	✓
9+00	4.9	355.4	All Lots on Lt. Uniform Grade bet. this & road to Wagon
75' Rt.	5.4	354.9	✓
9+50	4.0	356.3	✓
10+00	4.6	355.7	✓
65' Rt.	5.2	355.1	✓
10+50	5.3	355.0	✓
11+00	5.0	355.3	✓
60' Rt.	5.3	355.0	✓
11+22 = Approx. Int. Wightman	4.1	356.2	✓
" " = " Station 10+40 of Wightman St. Ave.			

41 ✓

360.26

TR	4.66	360.19	4.73	355.53	✓
chk. on Sub 11+35	Page 38	7.50	352.69	✓	
			352.70		
			0.01 error		



Existing M.H. 3+52.40 = station from E Orange

Line

2+05.79 = Δ 21°00'30" Lt.

ORANGE CREST. MAP # 2222

ORANGE 731.36'

$$\begin{array}{r} 16+40.56 \\ 27.34 \\ \hline 16+67.90 \end{array}$$

Lot 11 L.V.

Lot 10 L.V.

Ave. Sewer

Cross Sections Book 1216-15

Cross Sections Book 1216-26

Lot 19 L.V.

Lot 20 L.V.

556

20+65.31

7+43.75

26+34.84

0+45.98

54TH

16+40.53

10' 10"

0+00 going North

2734'

Proposed Sewer

1' E. East edge P.C.

99°15'00"

90°01'

0+00

0+10

0+20

0+30

0+40

0+50

0+60

0+70

0+80

0+90

1+00

1+10

1+20

1+30

1+40

1+50

1+60

1+70

1+80

1+90

2+00

2+10

2+20

2+30

2+40

2+50

2+60

2+70

2+80

2+90

3+00

3+10

3+20

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26+90

27+00

27+10

27+20

27+30

27+40

27+50

27+60

27+70

27+80

27+90

28+00

28+10

28+20

28+30

28+40

Walker
Blas
Lohall
2-21-40

Preliminary levels for Sewer
In 52nd Street

INDEXED
E.P.S.

Bet. Orange And El Cajon Blvd.

	702	384.53		377.51	5th. B.P. Orange + 52nd
Orange on East. at 52nd st.					
= 0+00	on stub.	5.53	379.00		
+18		5.1	379.4		
+28		2.8	381.7		
+50		2.0	382.5		
30' Lt.		2.7	381.8		
75' Lt.		6.6	377.9		
1+06.50	P.O.T. on stub.	4.12	380.41		
25' Lt.		4.6	379.9		
55' Lt.		11.9	373.2		
30' Rt.		0.0	384.5		
75' Rt.		+1.1	385.6		
1+50		9.5	375.0		
25' Lt.		10.9	373.6		
T.P.	0.73	372.17	13.09	371.44	
50' Lt.	From this point Slope Uniform to Alley	8.0	364.2		
2+00		7.4	364.8		
T.P.	0.29	359.80	12.66	359.51	
2+50		5.0	354.8		
20' Lt.		5.3	354.5		

in this block
all lots on
Rt. Above L

359.80

44

50' Lt	From this point Slope Uniform to Alley.	15.4	344.4		
3700		12.2	347.6		
T.P.	0.51	347.38	12.93	346.87	
3+50		8.7	338.7		
20' Lt.		9.0	338.4		
60' Lt.		17.5	329.9		
T.P.	0.04	334.49	12.93	334.45	
4+00		3.5	331.0		
20' Lt.		3.8	330.7		
60' Lt.		11.8	322.7		
4+50		9.4	325.1		
4+85.3	existing MH.	11.8	322.7		on Ground.
" "	on Rim.	10.67	323.82		
" "	" Flow Line	21.50	312.99		
Levels Cont. From Trojan North					
Exist. MH. & Trojan					Ground
= 0+00	on Rim	8.66	325.83		Same El.
" "	" Flow Line	19.44	315.05		
chk. B.M. Con. Mon.		10.64	323.85		
	Corrected π	10.64	334.46		323.82 = Mon.
0+50		4.4	330.1		
T.P.		12.76	346.96	0.26	334.20

Cont. P-45

Jewer levels 52nd St. North of
Trojan Cont. from Page 44

346.96 ✓

1+00		9.3	337.7	✓
60' Rt		14.0	333.0	✓
1+50		1.2	345.8	✓
TP	12.54	359.30	0.20	346.76 ✓
2+00		5.5	353.8	✓
25' Rt		11.0	348.3	✓
60' Rt		16.7	342.6	✓
TP	11.04	369.57	0.77	358.53 ✓
2+50		8.3	361.3	✓
7' Rt	East edge Filled Roadway.	8.6	361.0	✓
26' Rt		14.8	354.8	✓
50' Rt		21.0	348.6	✓
3+00		5.8	363.8	✓
7' Rt	East edge Filled Roadway.	6.3	363.3	✓
50' Rt		19.5	350.1	✓
3+50		6.8	362.8	✓
4+00		7.8	361.8	✓
2' Rt	East edge Filled Roadway.	8.1	361.5	✓
22' Rt		15.8	353.8	✓
50' Rt		20.5	349.1	✓

All lots on
L.H. in this Blk.
are Above 9.

2+20
2' Rt. on Rock

369.57 ✓

45/

4+50	East edge Filled Roadway.	9.5	360.1	✓
5+00	" " "	10.5	359.1	✓
10' Rt	on Nat. Grid.	14.3	355.3	✓
50' "		17.5	352.1	✓
5+36.31	Δ 0°29'30" Lt.	11.15	358.42	on stub.
2' Lt.	East edge Filled Roadway	10.7	358.9	✓
6+00	East edge " "	8.6	361.0	✓
15' Rt		13.3	356.3	✓
75' Rt	= Bottom Canyon	24.5	345.1	✓
125' Rt	on Level Lots	3.5	366.1	✓
6+50		8.0	361.6	✓
2' Lt.	East edge Filled Roadway	7.8	361.8	✓
6+72		8.3	361.3	✓
2' Lt.	East edge " "	8.0	361.6	✓
7+00		4.8	364.8	✓
4' Lt.	East edge Filled " "	4.0	365.6	✓
7' Rt	Toe Fill	7.3	362.3	✓
TP	10.40	379.12	0.85	368.72 ✓
7+40	in Filled ground.	12.7	366.1	✓
6' Lt.	East edge Filled Roadway.	9.6	369.5	✓
17' Rt	= Toe slope	17.0	362.1	✓
50' Rt	= Bottom Canyon	25.3	353.8	✓
110' Rt	= Level Lot on E.	6.6	372.5	✓

7+80 10 Filled ground,	11.4	367.7	
10' Lt = East edge filled grd.	7.0	372.1	
8+00 in Filled ground	5.3	373.8	
13' Rt " " "	4.6	374.5	
8+23 = Sedge Paving	5.20	373.92	El Cajon Blvd.
8+35 on " "	5.31	373.81	851 Cajon on East.
8+ " " "	4.52	374.60	
	4.88	374.24	Beginning Exist.
9+09.49 = N. El Cajon on Paving	4.57	374.55	Sewer.

LEVELS For Sewer in Alley Blk. 2 Alhambra

	379.12	X Above	
Existing M.H. in 52nd St.			
= 0+00 on Rim M.H.	2.05	377.07	
0+00 " Floor "	14.24	364.88	
on Pav. over			
0+30 = end exist Sewer.	2.56	376.56	Construct New Sewer from This Point east.
T.P.	8.64	385.30	
0+75	9.5	375.8	
1+00	12.2	373.1	
35' Rt.	11.8	373.5	
1+25	13.3	372.0	
55' Rt.	9.7	375.6	

1+47	11.8	373.5	
30' Rt.	13.0	372.3	
55' Rt.	12.1	373.2	
1+65 = 2' North & South Alley	10.32	374.98	on stub.
2+00	7.3	378.0	
75' Rt.	7.6	377.7	
2+47 = House on South	2.9	382.4	
14' Rt. on Floor of House	1.63	383.67	
14' " " Grd. of House	3.0	382.3	
2+70 = end on stub.	1.11	384.19	

Pit Levels For Sewer in North & South Alley

Blk. 2 Alhambra Park				from E-W Alley North to existing Sewer
1+65 Above Sta.				
= 0+00 this line	385.30	10.32	374.98	
0+50		8.5	376.8	Lets on Rt. above L
90' Lt. on Floor of House		5.3	380.0	
90' Lt. " Grd. of House		7.5	377.8	
1+00		8.0	377.3	
+50		6.9	378.4	
2+15 = End Exist Sewer		1.4	383.9	L-shoot 1643 (?)
T.P.	7.22	391.41	1.11	384.19
				Book 599-21
Chk. B.M. C.T. South 1/2 line El Cajon		5.37	386.04	
on E.L. Dowson			386.07	
			0.03 Error.	

Wulker
Bliss
Isbell
2-23-40

Levels For Sewer in E. Dawson St,
From Trojan To El Cajon Blvd.

9.44 333.26
Existing MH @ Trojan + Dawson
= 0+00 on Rim

B.M. on Mort
Trojan + 52nd
Page 44

0+00 on Rim	5.83	327.43
0+00 + Flow Line	14.19	319.07
0+00 on ground	5.9	327.4
0+50	5.3	328.0
1+00	3.8	329.5
100' Lt.	5.0	328.3
100' Rt.	0.3	333.0
1+50	2.2	331.1
2+00	0.6	332.7
85' Lt.	1.4	331.9
T.P. 13.07	0.29	332.97
100' Rt.	10.5	335.5
2+50	10.2	335.8
3+00	7.3	338.7
30' Lt.	6.1	339.9
65' Lt.	6.0	340.0
110' Lt.	10.7	335.3
100' Rt.	7.4	338.6

INDEXED
EFB
346.04

47

All Leds on
Lts from this
Sta. N. Above
to Sta 7+00

3+50	3.5	342.5
4+00	0.3	345.7
30' Rt.	0.0	346.0
65' Rt.	2.0	344.0
100' Rt.	1.2	344.8
T.P. 12.85	0.49	345.55
4+50	8.7	349.7
5+00	5.4	353.0
30' Rt.	5.5	352.9
50' Rt.	7.8	350.6
100' Rt.	6.4	352.0
5+50	1.2	357.2
T.P. 11.82	0.37	358.03
6+00	8.7	361.1
50' Lt.	9.0	360.8
100' Lt.	6.6	363.2
6+50	4.7	365.1
7+00	0.4	369.4
T.P. 12.11	0.22	369.63
7+50	8.0	373.7
65' Lt. - lowest point	9.9	371.8

All Leds on Rt
from this Sta. N
7+00 Above &

Let goes
up from here.

381.74 ✓

8+00 3.8 377.9 ✓

65' Lt 6.5 375.2 ✓

T.P. 9.53 388.67 2.60 379.14 ✓

8+50 on stub. 6.64 382.03 ✓

chk. on B.M. C.T. South of 4 line 2.67 386.00 ✓

see p. 46

Dawson

El Cajon

386.07

0.07 Error.

386.04 As Run from
From 52nd

386.00

0.04 Error from that line

Floor Garage

160' Lt. of 8+20 13.6 375.1 ✓

48 ✓

Walker
Bliss
Isbell
2-23-40

LEVELS For SEWER IN 53rd St.
And on E line 53rd St. produced To Trojan
See sketch P-42
From Trojan To Col. Cajon Blvd.

			Temp. 3 M. Rim MH. & Dawson. & Trojan P.47
	11.20	338.63	327.43
± Trojan = Existing Sewer.			
= 0+00 on stake	5.24	333.39	
± MH.			
= 103.84 ft. on Rim MH.	3.78	334.85	
" " " Flow MH.	13.36	325.27	
0+19	5.6	333.0	
0+21	4.5	334.1	
0+30	4.4	334.2	
0+32	3.2	335.4	
0+50	3.0	335.6	
1+00	0.8	337.8	
T.P.	11.90	349.81	0.72 337.91
1+35	8.6	341.2	
+50	8.4	341.4	
2+00	5.4	344.4	
75' Lt.	5.8	344.0	
40' Lt.	5.7	344.1	
100' Lt.	8.8	341.0	
2+50	1.7	348.1	

INDEXED E.F.B.		349.81		49
T.P.	12.14	361.71	0.24	349.57
3+00			8.6	353.1
75' Lt.			8.4	353.3
50' Lt.			10.7	351.0
80' Lt.			13.4	348.3
3+41.37 = 20°13' Lt.			2.70	359.01 on stake.
T.P.	12.23	373.75	0.19	361.52
3+93			8.0	365.7
4+00			6.0	367.7
15' Lt. Parallel to Trojan			8.0	365.7
75' " " " "			15.1	358.6
75' Rt. " " "			6.2	367.5
T.P.	12.11	383.48	2.38	371.37 on Con Mon. P.C. on E. P-42
4+50			9.7	373.8
21' Lt.			9.7	373.8
50' Lt.			16.5	367.0
75' Lt.			20.6	362.9
5+00			5.3	378.2
5+50			1.0	382.5
2.8' Lt.			0.8	382.7
40' Lt.			6.3	377.2
75' Lt.			11.6	371.9

	383.48	531 st St.	
TP 13.07	396.41	0.14	383.34
6+00		7.0	389.4
Con. Man S.E. Meade & 531 st		6.56	389.85
6+20 = Δ 20° 13' Rt.		5.97	390.94 on stake.
16' Lt.		5.9	390.5
25' Lt.		11.2	385.2
75' Lt.		12.5	376.9
6+50		3.3	393.1
7+00		1.2	395.2
15' Lt.		1.3	395.1
60' Lt. = base of Hill		4.2	392.2
	400.77		395.94
TP 483	400.80	0.47	395.97
7+50		3.8	397.0
8+00		3.1	397.7
50' Lt.		3.0	397.8
8+50		3.0	397.8
9+00		4.9	395.9
50' Lt.		6.6	394.2
75' Lt.		7.3	393.5
		7.25	393.52
9+39.33 on c.t. 4' North of S.L. El Cajon Blvd.			
chk. 8M c.t.		14.77	386.08
Dawson & El Cajon.			386.07
			0.01 Error.

Walker Bliss 1st 11-24-40	INDEXED 53 50	LEVELS For SEWER MEADE AVE. From 531 st St. East.
opposite Page	See sketch. P-42	
E. Meade & 531 st	12.86	402.71
= 0+00 on stub.	11.76	389.85
	7.76	390.95
750	8.4	394.3
50' Rt.	10.7	392.0
1+00	5.9	396.8
+50	4.8	397.9
2+00	4.7	398.0
50' Rt.	5.7	397.0
80' Rt.	7.7	395.0
2+50	5.2	397.5
3+00	5.7	397.0
+21	6.7	396.0
50' Lt.	7.3	395.4
100' Lt.	8.4	394.3
15.25 Rt. on Con. Man	7.01	395.70
60' Rt.	8.2	394.5
100' Rt.	10.7	392.0
chk. TP opp. Page	6.77	395.94
		395.92
		0.03 Error.

B.M. Corn.
1901. S.E.
Meade & 531st
6+20 app. P
= 0+00 this line
All Lots on Lt.
to Sta 2+10
Are Above L

LEVELS FOR SEWER
IN ORANGE AVE From 52nd St East.

See sketch P-42

	13.10	392.10	379.00
52nd + Orange to East = 0+00			379.00 ✓
0+30	12.4		379.7 ✓
750	10.8		381.3 ✓
1+00	6.4		385.7 ✓
25' Rt.	4.3		387.8 ✓
60' Rt.	11.2		380.9 ✓
1+50	3.3		388.8 ✓
2+00	1.5		390.6 ✓
25' Rt.	0.2		391.9 ✓
60' Rt.	7.4		384.7 ✓
2+50	1.2		390.9 ✓
2+70.15 P.O.T. Iron Pin	1.91		390.69 ✓
3+00	1.6		390.5 ✓
25' Rt.	1.1		391.0 ✓
60' Rt.	2.1		390.0 ✓
3+50	2.3		389.8 ✓
4+00	4.0		388.1 ✓
4+50	6.7		385.4 ✓

B.M. on studs
E. 52nd + Orange
Page 44

Rt. not above
E. of this sk.

INDEXED E.P.S.	392.10		51
5+00	10.3	381.8	✓
25' Rt.	10.6	381.5	✓
100' Rt.	21.8	370.3	✓
T.P. 3.18	382.43	12.85	379.25 ✓
5+50	4.0	378.4	✓
6+00	7.7	374.7	✓
20' Rt.	7.7	374.7	✓
60' Rt.	15.2	366.8	✓
6+50	10.3	372.1	✓
7+00	11.5	370.9	✓
20' Rt.	12.2	370.2	✓
50' Rt.	18.5	363.9	✓
7+50	12.1	370.3	✓
7+75 12" Conc. Pipe 15' Lk on Floor Line	14.95	367.48	✓
" 15' Rt. " " "	15.90	366.53	✓
8+00	11.9	370.5	✓
20' Rt.	12.3	370.1	✓
50' Rt.	17.0	365.4	✓
8+50	11.3	371.1	✓
9+00	10.3	372.1	✓
(9+09.20) 30' Lk on Iron Pipe 9+09.20 on Hub	8.13	374.30	✓
	10.38	372.05	✓

SW. Cor.
Orange Crest
Subdivisor.
P.O.T.

		382.43 ✓		
(9+09.20)	20' Rt.		10.2	372.2 ✓
"	50' Rt.		15.5	366.9 ✓
9+50			8.8	373.6 ✓
10+00			7.0	375.4 ✓
20' Rt.			7.3	375.1 ✓
50' Rt.			14.0	368.4 ✓
10+50			4.4	378.0 ✓
11+00			1.3	381.1 ✓
30' Rt.			1.4	381.0 ✓
50' Rt.			11.2	371.2 ✓
T.P.	8.53	390.67	0.29	382.14 ✓
11+50			7.4	383.3 ✓
12+00			5.9	384.8 ✓
40' Rt.			6.6	384.1 ✓
50' "			14.0	376.7 ✓
12+50			4.9	385.8 ✓
13+00			3.8	386.9 ✓
55' Rt.			5.8	384.9 ✓
13+50			2.8	387.9 ✓
14+00			3.1	387.6 ✓
+50			5.7	388.0 ✓
15+00			11.0	379.7 ✓

All property on
Rt. from this sta
to 54th Above L.

		390.67 ✓			52 ✓
T.P.	0.29	378.29	12.67	378.00 ✓	
15+50			5.3	373.0 ✓	
16+00			12.4	365.9 ✓	
T.P.	1.81	367.86	12.24	366.05 ✓	orange +54th
Chk. S.W.B.P. in Hdl. Wall			4.13	363.73	
	4.13	367.88		363.75 = B.M.	
				0.02 = Error	
16+30.50	= N. edge Paving.		4.14	363.74 ✓	2' Paving,
16+40.56	= 1/2 54th on C.T. Hdl.		4.06	363.82 ✓	1/2 54th Above
T.P.	2.61	366.36	4.13	363.75	B.M.B.P.
16+50.56	= N. edge 20' W.P.P. Pav.		2.83	363.53 ✓	
17+00			4.1	362.3 ✓	Sta. 54th-55th All prop. on Rt. is Above 2' Elev.
75' Lt.			8.1	358.3 ✓	
17+50			4.5	361.9 ✓	
18+00			4.6	361.8 ✓	
20' Lt.			5.9	360.5 ✓	
75' "			8.0	358.4 ✓	
18+50			4.7	361.7 ✓	
19+00			4.4	362.0 ✓	
20' Lt.			5.1	361.3 ✓	
75' Lt.			7.8	358.6 ✓	

		366.36 ✓		
19+50		4.0	362.4 ✓	
20+00		3.1	363.3 ✓	
20' Lt.		4.1	362.3 ✓	
75' Lt.		6.3	360.1 ✓	
20+65.31 = P.O.T. & 55th		0.6	365.8 ✓	on Ground.
20+65.31 on Con. Mos.		0.92	365.44 ✓	on Con. Mos.
T.P. 13.08	378.52	0.92	365.44 ✓	Prop. on Rt. Above 1/2 to Sta 23+00
21+00		11.5	367.0 ✓	
75' Lt.		12.0	366.5 ✓	
21+29.31		10.0	368.5 ✓	
75' Lt.		9.7	368.8 ✓	
21+50		8.5	370.0 ✓	
22+00		4.6	373.9 ✓	
75' Lt.		4.6	373.9 ✓	
T.P. 12.50	390.37	0.65	377.87 ✓	
22+50		11.1	379.3 ✓	
23+00		5.0	385.4 ✓	
75' Lt.		6.0	384.4 ✓	
75' Lt.		5.0	385.4 ✓	
23+50		0.1	390.3 ✓	
T.P. 12.94	403.12	0.19	390.18 ✓	

		403.12 ✓		
24+00		8.4	394.7 ✓	Prop. of 2.1 Above 1/2 to 26+39.84
75' Rt.		10.3	392.8 ✓	
24+50		3.6	399.5 ✓	
T.P. 11.87	414.85	0.14	402.98 ✓	
25+00		9.2	405.6 ✓	
40' Rt.		12.7	402.1 ✓	
75' Rt.		17.0	397.8 ✓	
25+50		4.8	410.0 ✓	
26+00		6.5	408.3 ✓	
20' Rt.		9.9	404.9 ✓	
75' Rt.		16.1	398.7 ✓	
		11.13	403.72 ✓	Tie Book 23-24
26+39.84 = East line lot 19. Kansasville on Con. Mos.				
20' Rt.		12.9	401.9 ✓	
75' Rt.		18.0	396.8 ✓	
T.P. 0.26	402.53	12.58	402.27 ✓	
T.P. 0.24	389.71	13.06	389.47 ✓	
T.P. 0.35	377.20	12.86	376.85 ✓	
chk. Con. Mos 20+65.31		11.75	365.45 ✓	2.55' 10 ft.
			365.44 = Mos. Orange	
chk. SW BR 10 Helwell		13.46	363.74 ✓	+5.45
			363.75 = BM	
			0.01 = Error	

Walker
 Tobell 3-26-40
 Osborne
 LEVELS FOR SEWER IN E 55th St.
 From S ORANGE AVE. - South.

377.20 = π Page 53

20 + 65.31 Page 53
 = 85.5th + Orange
 = 0 + 00

	11.4	365.8	on Ground
+50	10.0	367.2	✓
1+00	8.7	368.5	✓
30' Lt.	9.5	367.7	✓
75' Lt.	10.2	367.0	✓
1+50	8.1	369.1	✓
2+00	7.1	370.1	✓
75' Lt.	8.1	369.1	✓
2+50	5.5	371.7	✓
3+00	3.1	374.1	Both Sides Above 2 of this station
T.P.	6.58	383.17	0.61 376.59 ✓
3+50	6.6	376.6	✓
4+00	5.2	378.0	All prop. on Kt. Above 2 of this sta. to end.
30' Lt.	7.0	376.2	✓
75' Lt.	7.8	375.4	✓
4+50	4.8	378.4	✓
5+00	5.3	377.9	✓
30' Lt.	7.2	376.0	✓
75' Lt.	10.7	372.5	✓

INDEXED

383.17 ✓

148 ✓
 54

E.F.B.	5+50	6.7	376.5	✓
	6+00	8.7	374.5	✓
	30' Lt.	10.8	372.4	✓
	75' Lt.	12.6	370.6	✓
	6+50	11.4	371.8	✓
	7+00	14.2	369.0	✓
	30' Lt.	14.8	368.4	✓
	75' Lt.	15.6	367.6	✓
	7+4	16.1	367.1	✓ Tie Book 33 Page 27
	35' Lt.	16.5	366.7	✓
	Apprx. (8+20)	7.5	375.7	✓ and 190' Lt. on Floor Bld.
	" " "	8.2	375.0	✓ " " " " End of "
	Apprx. (11+00)	13.2	370.0	✓ Lowest Bld. in Group
	" " "	14.8	368.4	✓ " " " " Ground "
	T.P.	3.17	374.35	11.99 371.18 ✓
	chk. Con. No. 12, 20+65.31 P. 53	8.89	365.46	✓

365.44 = B.M. Con. No. 12
 0.02 = Error

Walker
Bliss
Isbell
10-4-40

Preliminary Sewer Levels
on a line 3' North of
South line E. I. Cojon Blvd.
From a point 30' East of N. L. 5200.

Sketch P-42

Darwin
+ E. Cojon 0.78 386.45 386.07

B.M. C.T.
5' 4" Lim
E. I. Cojon P-46

T.P. 6.77 380.65 12.57 373.88

8+11.05 P-42

= 0+00 on Stub' in fill 5.85 374.80 ? Elev.

+10 6.2 374.4

+29.35 = W. End of c. on Pav. 7.18 373.41

+29.35 = on top W. c. b. 6.76 373.89

+29.45 = W. edge Side Walk 6.68 373.97

+50 6.3 374.3

3' Ft. on South edge Walk 6.32 374.33

4' Lt. = top fill 6.2 374.4

10' Lt. = toe " 7.8 374.8

50' Lt. 10.3 370.3

14.00 4.2 376.4

3' Ft. on Walk 4.24 376.41

3' Lt. = top fill 4.2 376.4

6' Lt. = toe " 5.2 375.4

30' Lt. 5.8 374.8

Lot is higher
South of
this point

17.31.94 2.5 378.1

3' Ft. 2.67 377.98

Lts. are Above 4

380.65

chk. rim MH. 0+00 P-46 3.55 377.10
377.07 = Rim.
003 = Error.

Walker
Isbell
Osborne
2-27-40

Prelim. Levels For Sewer in 54th St
From Orange Ave, to existing M.H.

See sketch P-43

27.34' East of 54th St on Orange Ave	0.90	364.65	✓	SW. B.P. in Hollow Orange + 54th
0+00 on stub.	1.69	362.96	✓	
+50 on edge Berm	3.0	361.6	✓	
5' Rft. Toe slope	4.7	359.9	✓	
1+00	6.4	358.2	✓	
10' Rft	8.3	356.3	✓	
1.7' Lt. on E. edge Pav.	6.34	358.31	✓	
1+50	9.5	355.1	✓	
1.3' Lt. on E. edge Pav.	9.46	355.19	✓	
2+05.79 = Δ 21°00' 30" Lt.	11.82	352.83	✓	
50' Rft parallel to Orange Crest	14.0	350.6	✓	
2+50	14.7	349.9	✓	
6.6' Lt. on E. edge Pav.	15.23	349.42	✓	
3+00	16.3	348.3	✓	
4.8' Lt. on Pav.	16.99	347.66	✓	
50' Rft	18.0	346.6	✓	
3+45 = Δ Dble. Corrugated Culvert 2' diameter	18.06	346.59	✓	
1.6' Rft. on top East face Hd. Wall	20.71	343.94	✓	
1.6' " on Floor 2' dia pipe	17.31	347.34	✓	
2.6' Lt. on E. edge Pav.				

INDEXED
E.F.B.

364.65

cholla line

3+52.40 = Δ Exist M.H.	17.52	347.13	✓	on Rim
" " on Floor line, M.H.	24.24	340.41	✓	6" line to South
" " " " "	24.43	340.22	✓	Trunk line E + West

For check Above & see cont. below

LEVELS FOR SEWER IN ORANGE CREST.

Subdivision And Across Private Prop. West of Orange Crest. From Sta. 2+05.79 P-43, West.

364.65 = Δ Above.

2+05.79 P-43				
= 0+00	11.82	352.83	✓	
+10.4 = E. edge Pav.	13.08	351.57	✓	
+32.3 = W " "	14.20	350.45	✓	
+45 = Toe cut Bank.	14.1	350.5	✓	
+50 on top Bank = Nat. Ground	9.5	355.1	✓	
1+00	4.9	359.7	✓	Prop on Lt. Above E. post 2+00
.50' Rft	12.8	351.8	✓	
T.P.	12.39	375.26	✓	
1+50 on Terrace	8.6	366.7	✓	
9' Rft toe "	11.0	364.3	✓	
2+00 on "	2.5	372.8	✓	
2.0' Rft. toe terrace	6.8	368.5	✓	

Cont. P. 57

	375.26 ✓	Orange Crest Sub. Cont. from P-56		
T.P.	12.79	387.65	0.40	374.86 ✓
2+06	on Terrace		13.6	374.0 ✓
+13	" "		13.6	374.0 ✓
+20	" "		11.4	376.2 ✓
+28	" "		11.4	376.2 ✓
+35	" "		9.5	378.1 ✓
+44	" "		9.6	378.0 ✓
+50	" "		7.1	380.5 ✓
4' RT	" "		10.1	377.5 ✓
12' RT	" "		11.4	376.2 ✓
2+65	" "		7.5	380.1 ✓
+75	" "		5.2	382.4 ✓
+88	" "		5.9	381.7 ✓
+96	" "		3.8	383.8 ✓
+99.7	on P.O.T. stub.		3.80	383.85 ✓
10' RT			7.6	380.0 ✓
T.P.	7.12	390.97	3.80	383.85 ✓
3+50			5.2	385.8 ✓
10' RT			8.5	382.5 ✓
4+00			3.8	387.2 ✓
10' RT			7.8	383.2 ✓

	390.97 ✓			
4+12	Pepper tree	3.4	387.6	1' RT to ledge 2' dia. 57
4+50		3.8	387.2	
10' RT		5.5	385.5	
5+00		3.8	387.2	
5' RT	^{E. West} Top Terrace	3.8	387.2	
10' "	tree of "	10.0	381.0	
+49.7	on P.O.T. stub	4.14	386.83	
T.P.	2.21	389.04	4.14	386.83 ✓
6+00		3.4	385.6	
15' RT		5.4	383.6	
6+00		2.8	386.2	
25' RT		4.5	384.5	
7+00		5.9	383.1	
75' Lt.		9.7	379.3	
7+26.45	= Δ 11°02' RT. on stub	7.62	381.42	
7+50		7.5	381.5	
75' Lt.	Parallel to bed here	10.4	378.6	
8+00		5.9	383.1	
8+50		3.8	385.2	
75' Lt.	Parallel to bed here	7.2	381.8	
9+00		3.1	385.9	
25' RT		4.0	385.0	

389.04 ✓

9+40		2.1	386.9 ✓
20' Lt = N edge House		0.2	388.8 ✓ on ground.
T.P.	5.58 392.91	1.71	387.33 ✓
9+60.87 = Δ 20°05' Lt.		5.58	387.33 ✓
10+00		4.1	388.8 ✓
15' Rt.		5.0	387.9 ✓
10+25 = X Back of house		3.2	389.7 ✓ Plumbing on back of House
24' Lt. at "		2.0	390.9 ✓ on ground
10+50		3.5	389.4 ✓
15' Rt.		4.3	388.6 ✓
10+65		4.0	388.9 ✓
11+00		5.5	387.4 ✓
50' Lt.		4.6	388.3 ✓
125' Lt. Rt. to Orange Ave		9.0	383.9 ✓
11+50		7.8	385.1 ✓
15' Rt.		9.4	383.5 ✓
11+75		8.3	384.6 ✓
10' Rt.		8.7	384.2 ✓
12+00 = end line on stake		7.69	385.22 ✓
15' Rt.		9.1	383.8 ✓
50' Lt. Rt. to Orange		3.4	389.5 ✓

392.91 ✓

58

13+75 line Produced.		2.7	390.2 ✓
T.P.	2.61 394.55	0.97	391.94 ✓
10' Rt.		3.0	391.5 ✓
10 Lt.		2.2	392.3 ✓
chk. Iron Pipe 2+70.15.		3.84	390.71 ✓ Page 1
			390.69
			0.02 = Error.

Walker
Bliss
Isbell
4-4-40

New Little Levels
for Preliminary Sewer

in & 51st. North And South
of Orange Ave from Existing M.H.

Sketch P-15

going north.	5.16	321.78	316.62
0+00 on Rim exists. MH	8.73	313.05	
0+00 " Flow line	15.75	306.03	
0+00 " Ground.	8.9	312.9	
0+50	7.3	314.5	
1+00 = 100' N of MH.	4.2	317.6	
70' East.	8.3	313.5	

Levels South of MH. in & 51st St.

Exist. MH.			
= 0+00	8.9	312.9	
+12	10.0	311.8	
+40	10.2	311.6	
+58 in ditch	13.3	308.5	
+75	7.9	313.9	
1+00	4.8	317.0	
+20	1.3	320.5	
T.P.	11.84	333.27	0.35 321.43
1+50		8.0	324.5

INDEXED
E.F.B.

333.27

59

1+82.24 = N.L. Orange	4.5	328.8	
+89.24 = N 7' Line on Hub.	4.29	328.98	
+97.24 = N.C.B. in Con. Gutter.	4.78	328.49	
2+22.24 = S Orange	3.5	329.8	
+47.24 = S.C.B. Con. Gutter.	3.74	329.53	
2+62.24 = S.C. Orange	2.3	331.0	
T.P.	5.91	339.05	0.13 333.14
3+00		4.1	334.9
+50		1.8	337.2
25' Rt.		2.9	336.1
65' Rt.		10.8	328.2
4+00		3.9	335.1
+12.24		4.65	334.40
4+20		5.3	333.7
T.P.	9.16	341.14	7.07 331.98
chk. on stub. 2+70 P-17		7.16	333.98

~~Street Gutter~~
See 1576
62

334.04 = stub.
0.06 = Error.

Walker
Hazard
Hordin
4-3-45

NEW LEVELS on 51st from S.L. Orange
(Because of recent Grading) To 300' South.
SW. 8 P.
ORANGE
522nd St

0.44	377.95	377.51
T.P.	00.59	365.68 12.86 365.09
T.P.	0.34	353.12 12.90 352.78

Cont. P-62

Walker
Bliss
Isbell
10-3-40

Preliminary Levels for JEWEL
2' East of West line of 52nd St.
from S. Ottillie Place to a point 230' South

UNIV

AVE.

60

10/7/40

B.M.

NW. B.P.
UNIV. 452nd
P-27

	1.77	317.34	315.57
0+00 on stub.	6.44	310.90	
+25	7.4	309.9	✓
+50	8.9	308.4	✓
50' Pt.	10.9	306.4	✓
+100	11.6	305.7	✓
75' Pt.	13.0	304.3	✓
+130	13.3	304.0	✓
+160	14.0	303.3	✓
2+00	15.3	302.0	✓
+30 = end proposed line	15.4	301.9	✓
2+75 = end cut section	16.9	300.4	✓

Note: This line is all in solid ground
to station 2+75, which is beginning
of fill section.

All of property West is above L unless
otherwise noted.

52ND STREET

2+30 →

Set stub

Lot 5

Lot 4

← 200'

Lot 3

West Line St.

Lot 2

Lot 1

Hub

Hub

0+00 stub
going South

← 25' → 25' →

(H.H. Pl.)?
108.65

OTTILLIE PL.

8+86.74
P-18

Hub

	295.52		
(2+30) 20' Rt.	12.5	282.0	at Ground Elev
65' Rt. on Plumbing	15.4	286.1	
2+37	9.9	285.6	
+62	4.8	290.7	
+70	3.0	292.5	
2+80	1.4	294.1	
TP 4.34	299.05	1.41	294.11
2+84 = 1+71.73	3.8	295.3	
2+87.07 = (1+71.30 - 1+71.03)	3.69	295.36	on stub
		295.37	Stub FB 1569 33
			49' = Error

51st Cont from P-59		353.12		62
TP	0.15	340.17	13.10	340.02
TP	4.38	335.38	9.17	331.00
2+47.24	P-59-S gutter	5.22	329.46	
2+62.24	SL Orange Ave	5.5	329.9	
3+00		5.5	329.9	
+50		5.8	330.1	
4+00		5.5	329.9	
+50		5.8	329.6	
5+00		7.0	328.4	100' Lt. 334.5
+50		8.8	326.6	
(5+50) 70' Lt.		4.8	330.6	
(5+50) 100' Lt.		8.5	331.9	

Walker
Bliss
Isbell
11-1-40

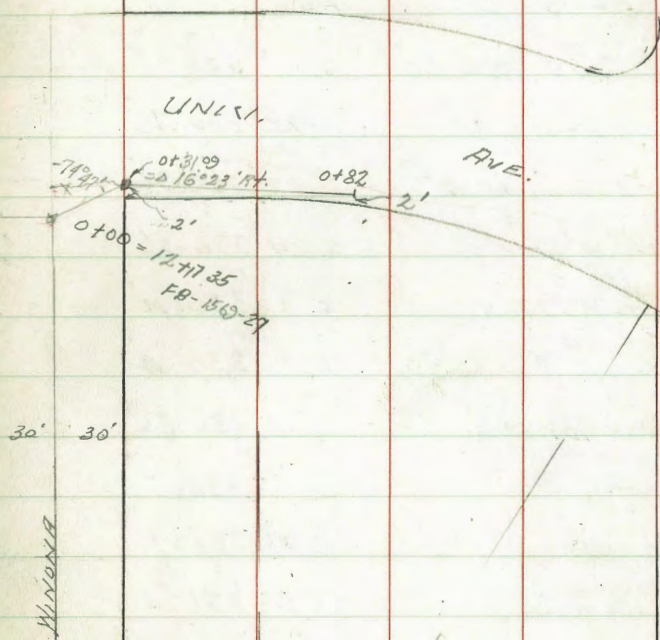
Preliminary Sewer Levels
on South Side Union Ave

East from E of Winona Ave

Temp 12+11735
B.M. stub 6.49 3³ 5.41 328.92 FB. 1569-31

0+00	6.5	328.9
+16	6.2	329.2
+19	5.6	329.8
+31.09 = Δ 16° 23' 14" on stub	5.35	330.06
+31.4 on West edge sidewalk	5.25	330.16
+71.5 on Walk	4.40	331.01
+82 = end. on Walk	4.08	331.33

All this line under 4" Cop. Walk
from 0+31.4 to 0+82



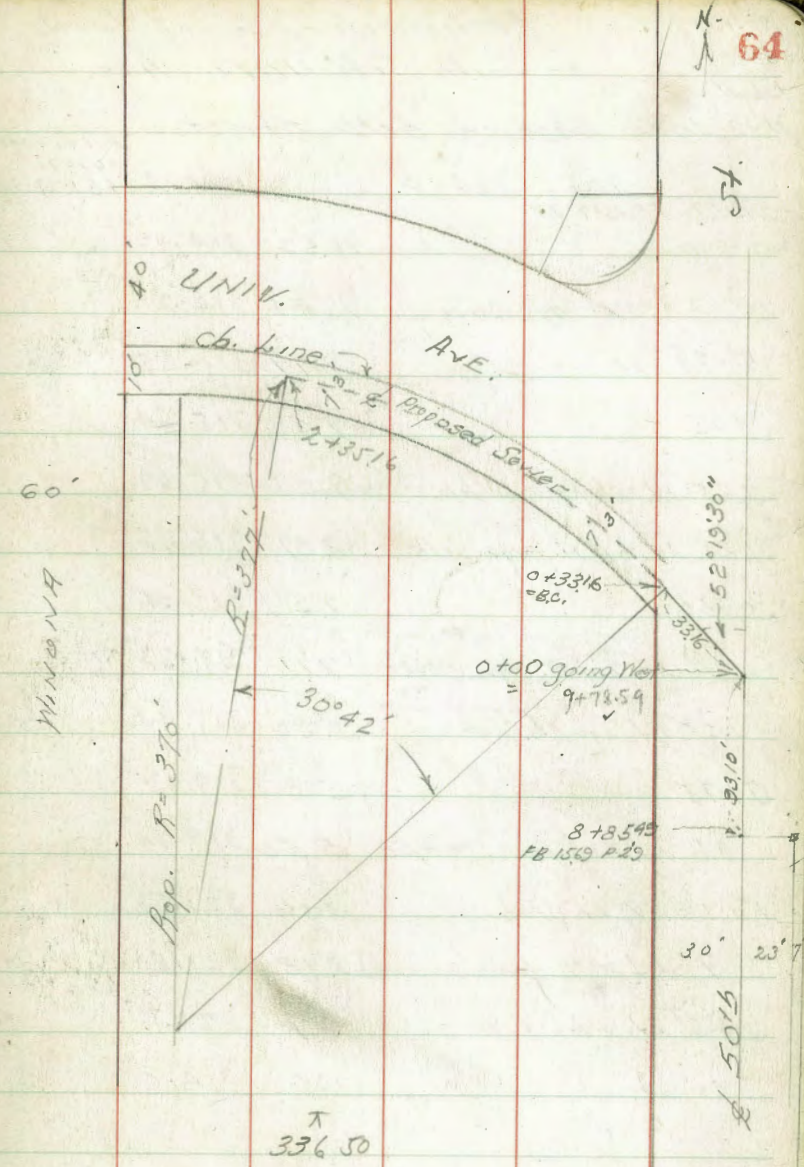
Walker
8/15/35
Isbell
11-2-40

Preliminary Sewer Levels.

on South Side Univ. Ave
from S. 50th to a point east
of Winona Ave.

7.58	336.50	328.92
0+00 on Paving.	6.74	329.76
+25 " Paving at cb.	6.92	329.58
+25 on W cb.	6.24	330.26
+33.16 B.C. 377' R.	6.1	330.4
0+50	6.1	330.4
3' Rt. on cb.	6.18	330.32
1+00	6.0	330.5
(was) 3' Rt. on cb.	5.79	330.71
1+50	5.4	331.1
3' Rt. on cb.	5.55	330.95
1+82	5.2	331.3
2' Lt. on North edge S' walk	5.16	331.34
1+99.3 on Cross Walk <small>East edge</small>	5.08	331.42
2+02 = W edge Cross Walk	5.06	331.44
2+12.2 = E " Drive Way	5.14	331.36
+23.5 = W " " "	5.14	331.36
2+35.16 = End of Line	5.2	331.3
2' Lt. on North edge Wk.	5.08	331.42

B.M. on Stub.
12+7.35
FB 1569-31



chk. SW. RR Univ. 50th	6.25	330.25
FB 1569 - P. 39		330.18 = B.M. P. 34
		0.07 FB 1569

54

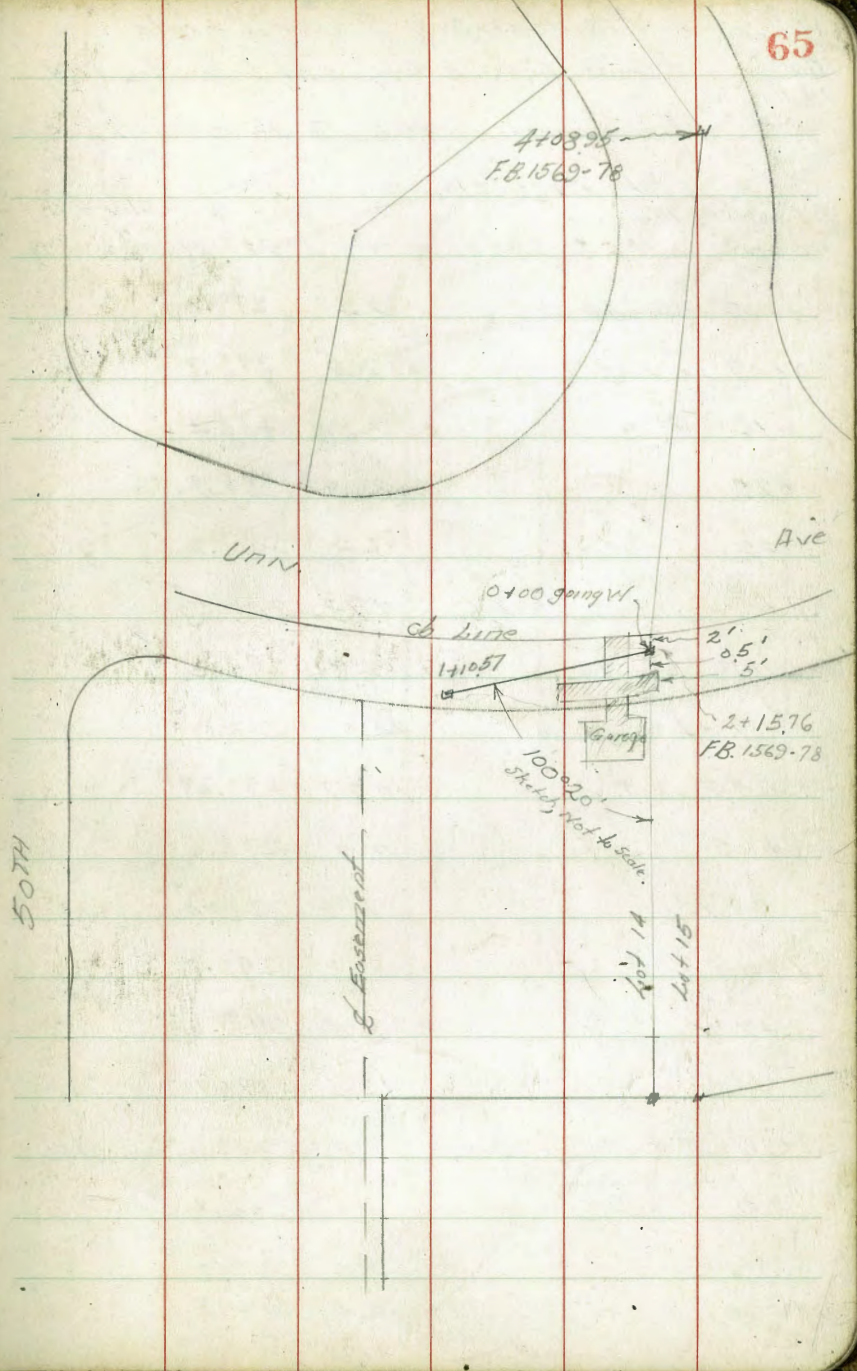
30° 23' 7"

5015

336.50

Walker
Bliss
Isbell
11-2-40
Preliminary Sewer Levels
on South Side Univ. Ave.
East of 50th Street.

			Elev Stake 2+1576 FB 1569-78
	10.62	324.64	314.02
2+1576 FB 1569-78			
= 0+00	10.62	314.02	
0+02.5 = east edge Drive	10.44	314.20	
+129 = W " "	9.79	314.85	
+25	9.0	315.64	
1.25' Ht. = cb face on top	9.01	315.63	
1.25' Lt. on N. edge Walk	8.89	315.75	
0+50	7.2	317.4	
0.8' Lt. on N. edge Walk	7.11	317.53	
1.65' Lt. on cb. (face cb)	7.20	317.44	
0+75	5.3	319.3	
3.8' Lt. = cb face (on top)	5.50	319.14	
1+10.57 on stub	3.06	321.58	
9' Lt. = cb face (on top)	3.13	321.51	
.25' Lt. = top fill	2.9	321.7	
40' Lt.	10.6	314.0	

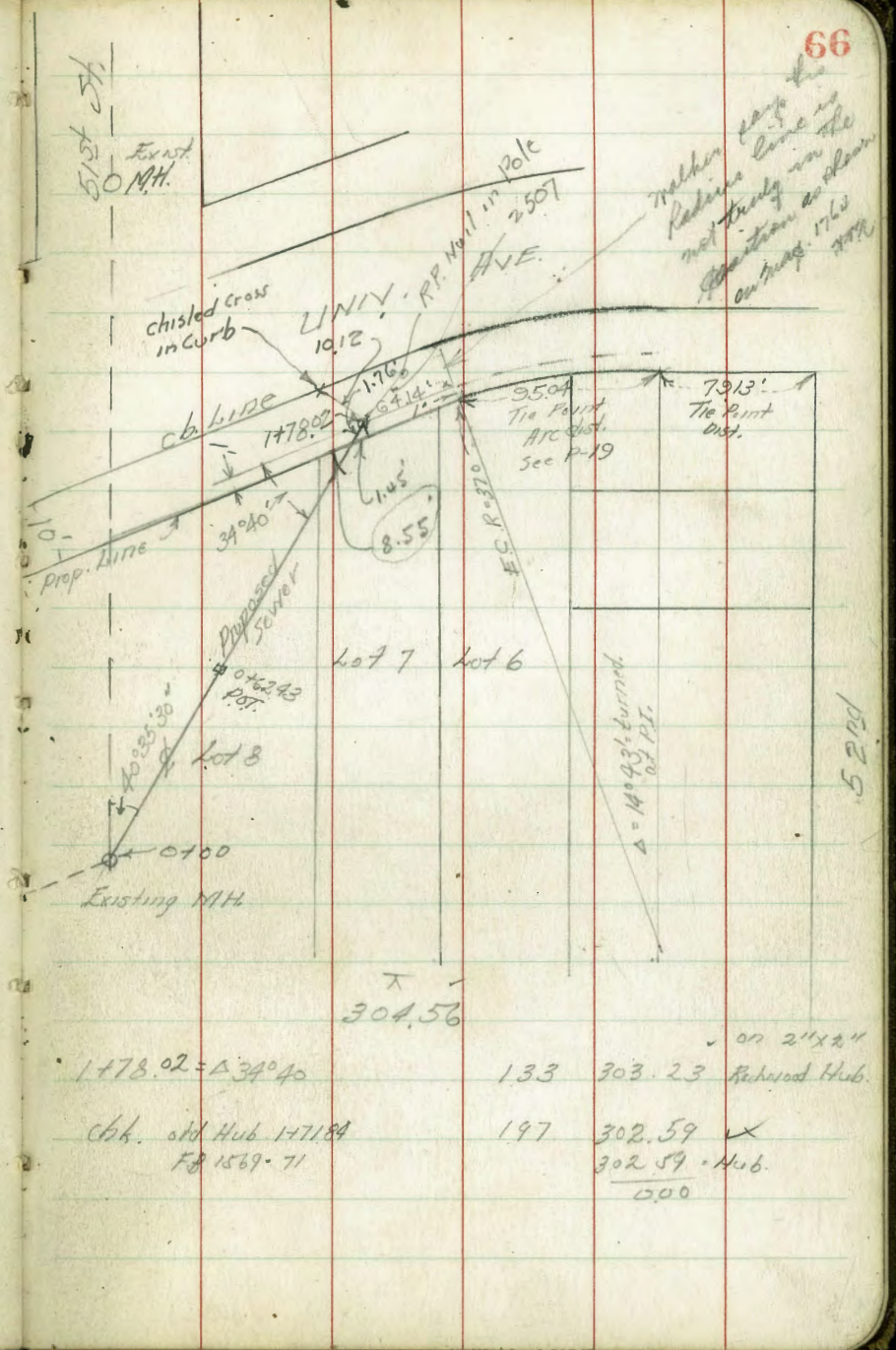


Preliminary Sewer Levels

Walker
Bliss
Isbell
11-4-40
From Existing M.H. South of Univ. Ave
at 51st St

Existing MH	Filev Rims MH FB. 1539-79	Prop. Line	Prop. Line
0+00	281.81	11.65	293.46
0+00 on Ground		14.4	279.1
0+09 in Wash		17.8	275.7
+16 " "		17.8	275.7
+22		12.4	281.1
+32		7.3	286.2
TP		13.03	304.56
0+50		12.8	291.8
19' Lt. to slope		21.6	283.0
0+62.43 = POT.		10.27	294.29
0+85		11.0	293.6
23' Lt.		17.2	287.9
1+00		9.3	295.3
1+20		8.0	296.6
19' Lt.		13.5	291.1
1+36		5.0	299.6
1+50		3.8	300.8
9' Lt.		5.4	299.2
1+60		2.1	302.5

Cont. on Pt Page



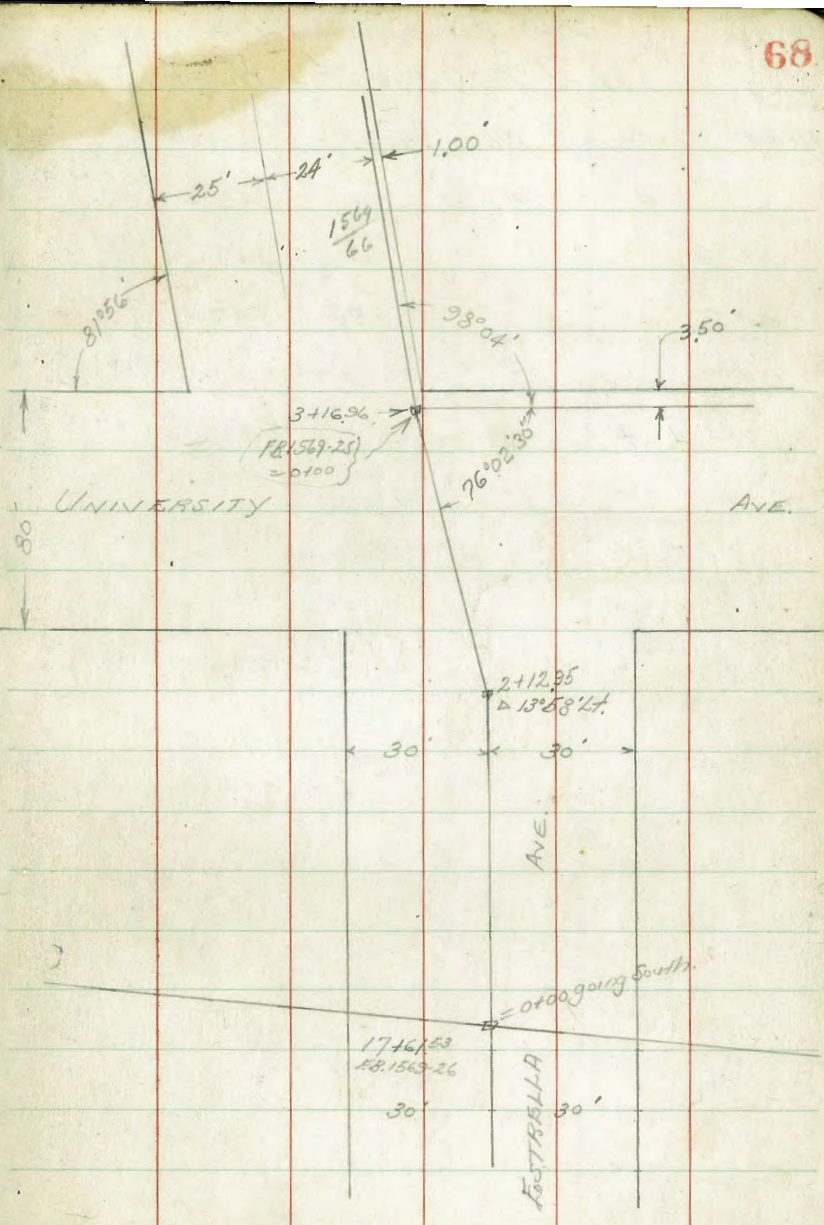
Walker says the
Reading line is
not truly in the
position as shown
on map 176
1940

Walker Preliminary Sewer Levels

Bliss on Estrella Ave.

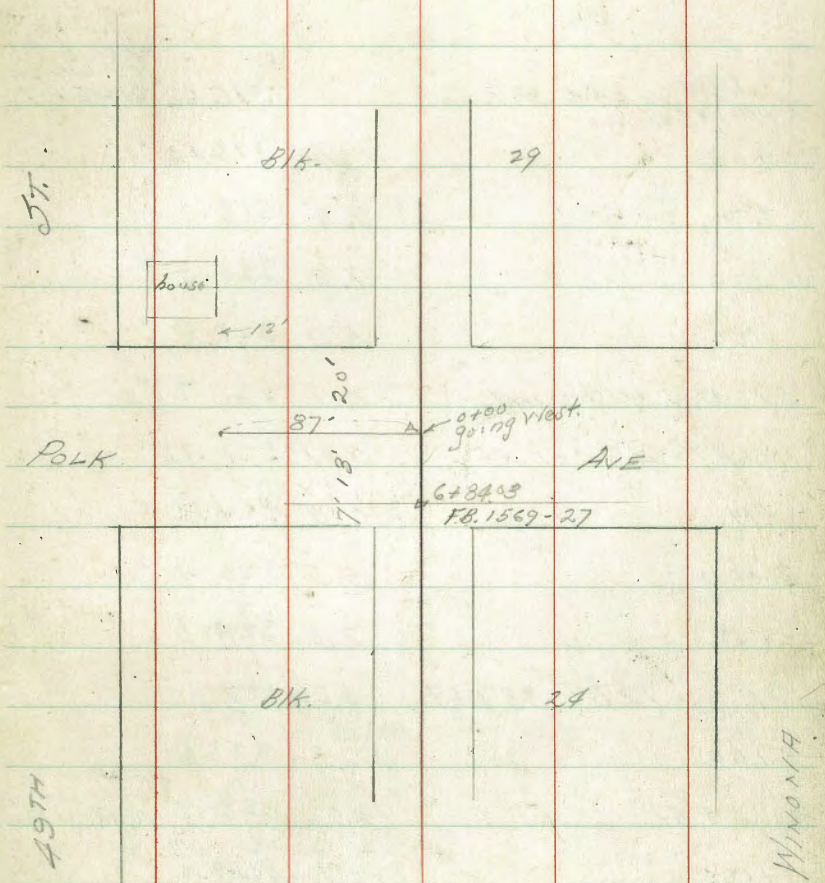
Isbell
11-4-40 As Per Sketch

17+61.53	12.40	326.91	313.91	5' on stub 17+61.53 FB 1589-48
= 0+00 on stub				
+50		8.9	317.4	
+100		4.2	322.1	
+50		0.5	325.8	
TR	6.46	332.62	0.15	326.16
2+00		4.8	327.8	
+12.95 = Δ 13° 58' Lt		4.58	328.04	on stub
2+38.2 = North edge Conc. Paving		4.41	328.21	
+50 on Conc. Paving		4.93	327.69	NGent.
+79.4 " " "		4.94	327.68	UNIV
3+05.15 " " "		6.60	326.02	
3+05.15 = South edge UNIV		5.91	326.71	
3+16.96 on ground		6.2	326.4	
3+16.96 on Stub - Int. line to West And South		6.36	326.26	326.27 FB 1587-66 = 0+01 E. 100'
chk. S.M.B.P. UNIV Est.		5.88	326.74	
		FB 1589-65	= 326.67 - 817'	
			0.07	
= Sta 0+00	15.69			
	66			



Walker. Preliminary Sewer Levels
 Bliss 17th & Polk Ave Bet Winona & 49th
 Isbell
 11-4-40 From S. Alley, West.

	4.88	347.92	343.04	Fl. Stub FB. 1569-54 6484 B
0+00	4.2	343.7		
0+50	5.9	342.0		
0+87 = opp. back of house.	7.7	340.2	opp N	
32' H. at house.	6.4	341.5		



Mulker
Bliss 11-4-40
Isbill

PRELIMINARY LEVELS
FOR SEWER

In E. Orange Ave
" " 50th St. from Orange, North.

Station	Offset	Level	Level	Notes
E. 450	10.94	327.56	316.62	St. Stub 17' from Orange 6485 P. 7
0+00			11.13	316.43 ✓
+50			9.3	318.3 ✓
1+00			7.3	320.3 ✓
+50			5.9	321.7 ✓
1+64.96 on Ground			5.7	321.9 ✓
1+64.96 = Δ 90° 01' RT			5.81	321.75 ✓ on stub
491			6.0	321.6 ✓
2+00			5.5	322.1 ✓
+50			2.8	324.8 ✓
7P	12.57	339.87	0.26	327.30 ✓
3+00			12.3	327.6 ✓
(3+00) 75' RT			16.0	323.9 ✓ All Property on Lt. from Orange North, is above L.
3+50			10.7	329.2 ✓
4+00			9.2	330.7 ✓
(4+00) 75' RT			13.7	326.2 ✓
4+55			5.3	334.6 ✓
18' RT			5.3	334.6 ✓

Cont P. 71

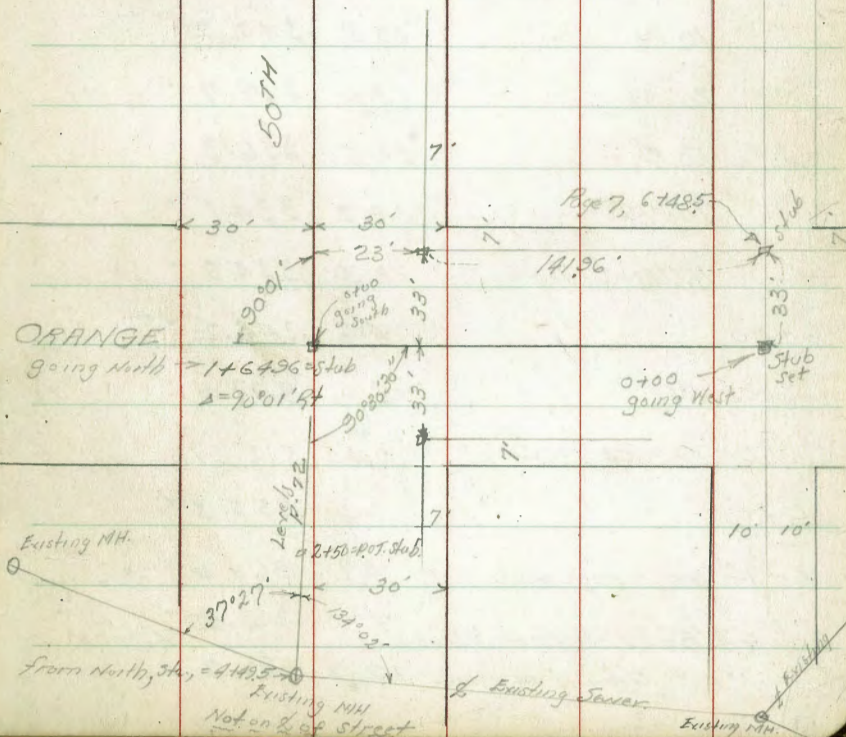
TRUJAN

AVE.

12+56-P.9
Stub

7+30
POT. Stub.

10' 10'



339.87

(4+55)	18 Rt	7.3	332.6	✓	
"	55' Rt	9.7	330.2	✓	
"	80' Rt	11.0	328.9	✓	
"	100' Rt	13.2	326.7	✓	
"	115' Rt	14.2	325.7	✓	
"	165' Rt = S Alley	15.0	324.9	✓	
5+00		2.5	337.4	✓	
TP	13.25	352.84	0.28	339.59	✓
5+55		9.7	343.1	✓	
"	10' Rt	10.3	342.5	✓	
"	20' Rt	13.1	339.7	✓	
"	50' Rt	16.5	336.3	✓	
"	100' Rt	18.7	334.1	✓	
	165' Rt = S Alley	18.3	334.5	✓	
6+00		4.6	348.2	✓	
	85' Rt	15.8	337.0	✓	
TP	12.54	364.93	0.45	352.39	✓
6+50		9.4	355.5	✓	
6+94	North edge House on E	4.9	360.0	✓	
144' Rt	West Front of House	11.28	353.65	Floor	
"	Ground at house	12.2	352.7	✓	

364.93

71

TP	9.25	373.86	0.32	364.61	✓
7+30	pot. stub.		6.92	366.94	✓
7+37	South edge House on W		5.7	368.2	✓
	50' Rt		14.9	359.0	✓
	113' Rt = low point		24.4	349.5	✓
7+65			2.0	371.9	✓
8+00			0.1	373.8	✓
chk. stub	12+56 P 9		4.73	369.13	✓

Preliminary Sewer Levels			
Wicket	In 50 th Street	Location P-70	
Bliss			
1st fl			
11-9-40	from ORANGE Ave, South		
	6.03	327.78	321.75 ^{21. Stub} P-70
1+64.96 P-70			
= 0+00 going South	6.03	321.75	
+25	7.0	320.8	
+50	6.3	321.5	
1+00	5.0	322.8	
+25	4.6	323.2	
+50	4.8	323.0	
2+00	6.0	321.8	
41' Ht. = House Ground	6.1	321.7	
41' Ht. Floor of House	4.65	323.13	
2+50 = POT. Stub	8.32	319.46	
35' Ht. = Top of slope	8.0	319.8	
50' Ht.	12.5	318.3	Slope Continues
2+75	9.3	318.5	
3+00	11.2	316.6	
25' Ht. = Top of Slope	11.2	316.6	
40' Ht.	15.3	312.5	
5+25	13.5	314.3	
T.P.	1.05	315.77	13.06 314.72

Preliminary Sewer Levels			
Wicket	In 50 th Street	Location P-70	
			315.77
3+50			5.1 310.7
6' Ht. Top of Slope			4.2 311.6
50' Ht.			11.5 304.3
3+75			8.1 307.7
4+00			10.2 305.6
15' Ht. = Top of Slope			10.1 305.7
25' Ht.			14.5 301.3
4+20			12.1 303.7
T.P.	1.29	304.34	12.72 303.05
4+31 in Channel			5.9 298.4
+38			6.2 298.1
+43			4.7 299.6
4+49.5 = ^{Easting} M.H. on Rim			4.42 299.92
4+49.5 = S.M.H. Floor line			10.49 293.85
Ch. Rim ^{Alley 216.29} N14 to +00 Page 7			7.07 297.30
Drawing 8960.7L			297.27
			0.03
Side Elevations Alley 216 38 North of Orange			
	8.08	324.70	316.62 ^{Bl. Stub} 6485 P-7
6+48.5 = 11' line orange			7+54 = 6.0
7+54 = opposite soil line at Back of House			318.7
15' Ht.			9.1 315.6
61' Ht. Basement of House			6.8 317.9

Revised
11/10/40
72

Checked
by
M. J. ...

Walker
Blair
Isbell
11-19-40

Preliminary Sewer Levels.

117 ORANGE AVE, bet 51st + Altadena
From Existing M.H. in Altadena to S. Alley
West of Altadena

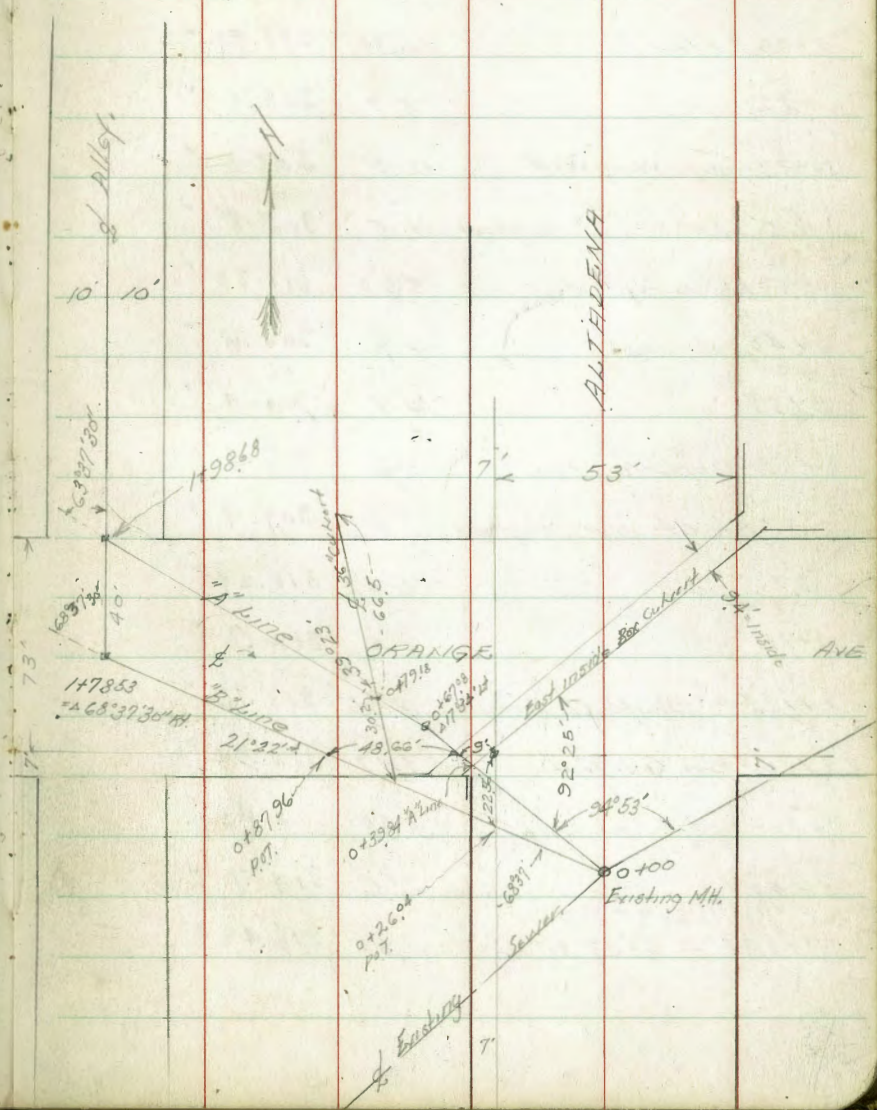
LEVELS on "A" line

0+88	317.31	316.43	on stub Garage 1 Alley 20100 P-70
0+00 = Existing M.H. Run	10.02	307.29	
0+00 on flow line M.H.	18.34	298.97	
+18	8.7	308.6	
+25	7.1	310.2	
+33.84 - POT.	6.2	311.1	
1' ht. on Cor. Top Wall	5.98	311.33	
2' ht. on Flow Box Culvert	13.75	303.56	
0+58 - South Top cb.	5.23	311.68	
0+58 on Conc. Guts	6.55	310.76	
+62.8 - N edge Cor. Guts	6.26	311.05	
0+67.08 - 17°34' ht.	6.08	311.23	on stub.
0+79.18 - 8" 36" Culvert	5.2	312.1	
30.2 ht. on diag. = Flow Culvert	13.28	304.03	
66.5 ht. = Flow 36" culvert	7.25	310.06	
+1+00	4.1	313.2	
+50	2.35	314.96	
+57.2 edge Cor. Guts	2.21	315.10	
+65.25 Guts at cb.	2.23	315.08	
	1.28	316.03	

317.31

73

1+88 - Top cb. Alley line 0.51 316.80 ✓
 = 6+555 P-7
 1+98.68 on stub. 2 63°37'30" 0.62 316.69 ✓
 Levels on "B" line P-74



LEVELS "B" Line

Location P-73

 π ✓
 317.31 from P-72

0+00 to Rim Mt	10.02	307.29	✓
0+00 " Flow "	18.34	298.97	✓
+22	8.7	308.6	✓
0+33 = opp. Wing Wall	12.0	305.3	✓
2.5' Ht. " " on ground	11.5	305.8	✓
2.5' Ht. on top "	5.98	311.33	✓
0+40 = channel	14.9	302.4	✓
0+53 "	14.9	302.4	✓
0+63.5 = opp. Wing Wall	3.7	313.6	✓
3.7' Ht. of Wall on ground	7.4	309.9	✓
3.7' " on "	6.02	311.29	✓
0+77	4.4	312.9	✓
1+10.20 = South cb. on top	3.55	313.76	✓
1+10.2 = on Cor. Guts	4.47	312.84	✓
1+20.4 = edge Cor. Guts	3.88	313.43	✓
1+40	2.6	314.7	✓
= 6+15.5 P-7			
+78.53 = Δ 68° 37' 30" Rt.	0.88	316.43	✓

Location Garage Catalina Blvd
North of Charles St.

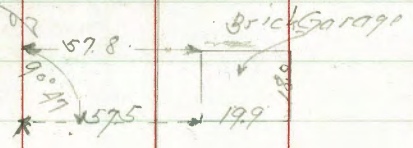
Indexed
2/11

April 14. 41
SUN
Northern
State House

75

Fo Spike
position

Catalina Blvd



135.25

Fo Spike
position

Charles St.

40 x 40

Cross Section West 178 of Alley Indexed
Block 9 Ocean Beach LM

BM	10.69	181.58	170.89	Top Cb 52 Alley E.L. Froude From 17 of 16
				0+0 = E.L. Froude
S Topcb	10.69		170.89	
S on Pav. 179	11.25		170.23	
L " "	12.78		169.10	
H " "	13.02		168.56	
H Topcb	12.92		168.66	
				0+01
-10	12.6		169.0	
H	12.5		169.1	
L	12.2		169.4	
+8	11.2		170.4	
S	10.3		171.3	
+1.1 = 11 1/2 Conc Wall Top	7.48		174.10 ✓	
				0+25
S	2.6		179.0	
+1 = Top Cut	2.6		179.0	
+3	11.3		170.3	
L	11.3		170.3	
+6	11.1		170.5	

Red Plot 8-22-1941

Aug 21-41 76
Sisson
Hortberry
H. Moore

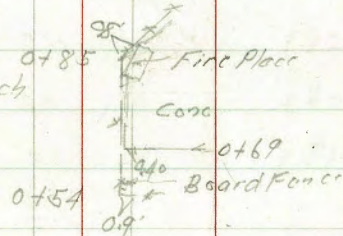
Guizot St.

Block 93
Point Loma
Heights

Santa Cruz Ave

10x10

Block 9
Ocean Beach



Coronado Ave

Froude St

for Grades for 100' on South Side
See Grid Book 210-78

181.58

+8	10.0	171.6
H	10.0	171.6
+4	9.9	171.7
+6	11.1	170.5
+10	11.2	170.4

0+40

-10	11.0	170.6
-6	10.7	170.9
-4	9.6	172.0
H	9.6	172.0
+2	9.6	172.0
+4	10.7	170.9
5	11.0	170.6
+5	10.9	170.7
+6	1.9	179.7
5	11.3	180.3

0+50

5	0.5	181.0
+0.8-1/4 Power Pole		✓
+5	2.3	179.3

181.58

77

+6	10.3	171.3
5	10.5	171.1
+7	10.5	171.1
H	9.2	172.4
+6	9.3	172.3
+10	10.8	170.8

0+60

-10	10.2	171.4
-7	9.0	172.6
H	9.2	172.4
+2	10.4	171.2
5	10.2	171.4
+6	9.3	172.3
+7	1.4	180.2
S = Board Feed	0.4	181.2

0+75

S on Conc	+0.2	181.8
+3.5	0.9	180.7
+5	8.9	172.7
5	9.6	172.0

181.58

+8		10.0	171.6
H		8.8	172.8
+8		8.1	173.5
+15		10.2	171.4
	0+85		
-15		9.8	171.8
-7		8.1	173.5
H		8.0	173.6
+2		9.5	172.1
$\frac{1}{2}$		9.3	172.3
+1		8.9	172.7
+6.5		0.2	181.4
5		+0.2	181.8
	1+0		
-10		4.0	177.6
5		4.2	177.3
+9		4.6	177.0
$\frac{1}{2}$		7.5	174.1
H		8.2	173.4
+5		6.6	175.0
+15		9.0	172.6

181.58

78

	5	11	
-10		7.1	174.5
H		7.1	174.5
$\frac{1}{2}$		6.8	174.8
5		6.7	174.9
+10		5.5	176.1
	1+85		
-10		5.0	176.6
5		5.4	176.2
$\frac{1}{2}$		6.0	175.6
H		6.0	175.6
+10		5.7	175.9
	1+55		
-10		3.8	177.8
H		4.2	177.4
$\frac{1}{2}$		4.2	177.4
5		4.2	177.4
+10		3.6	178.0
	1+73		
-10		2.3	179.3

181.58

S

2.2

178.3

Z

1.5

180.1

H = Base Cliff

0.3

181.6

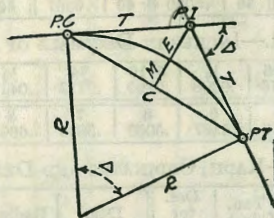
79

DELLIEN'S RAILROAD CURVE

REDUCTION TABLE

DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

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



CURVE FORMULAS

Radius= $R = \frac{50}{\sin. D/2}$ (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) $= R \div \cos. \frac{\Delta}{2} - R$ (8) $= R \text{exsec} \frac{\Delta}{2}$ (9)

Long Chord= $C = 2 R \sin. \frac{\Delta}{2}$ (10) $\Delta = \text{Central Angle}$

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 $\div 8\frac{1}{3} = 414.49$ ft. From Table V correction=.36 or $T = 414.85$ ft. P. C.=Sta. P.I.— $T = 157 + 45.50$. Also from (4) $L = 746.00$ and P. T.=Sta. P. C. + $L = 164 + 91.50$.

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

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

Externals.—May be found in similar manner to tangents. Thus E for curve above is 91.37. For from Table IV for 1° curve $E = 960.6$ for $8^\circ 20' = 960.6 \div 8\frac{1}{3} = 91.27$ 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.

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

TABLE II.—INCHES IN DECIMALS OF A FOOT.

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

TABLE III.—RADI, ORDINATES AND DEFLECTIONS.

Deg.	Radius	Mid. Ord.	Tan. Offset	Def. for 1 Foot	Deg.	Radius	Mid. Ord.	Tan. Offset	Def. for 1 Foot
0° 10'	34377.5	.036	.145	0.05'	7°	819.02	1.528	6.105	2.10'
20	17188.8	.073	.291	0.10	20'	781.84	1.600	6.395	2.20
30	11459.2	.109	.436	0.15	30	764.49	1.637	6.540	2.25
40	8594.42	.145	.582	0.20	40	747.89	1.673	6.685	2.30
50	6875.55	.182	.727	0.25					
1	5729.65	.218	.873	0.30	8	716.78	1.746	6.976	2.40
10	4911.15	.255	1.018	0.35	20	688.16	1.819	7.266	2.50
20	4297.28	.291	1.164	0.40	30	674.69	1.855	7.411	2.55
30	3819.83	.327	1.309	0.45	40	661.74	1.892	7.556	2.60
40	3437.87	.364	1.454	0.50	9	637.28	1.965	7.846	2.70
50	3125.36	.400	1.600	0.55	20	614.56	2.037	8.136	2.80
					30	603.80	2.074	8.281	2.85
					40	593.42	2.110	8.426	2.90
2	2864.93	.436	1.745	0.60	10	573.69	2.183	8.716	3.00
10	2644.58	.473	1.891	0.65	30	546.44	2.292	9.150	3.15
20	2455.70	.509	2.036	0.70	40	525.67	2.402	9.585	3.30
30	2292.01	.545	2.181	0.75	11	499.06	2.511	10.02	3.45
40	2148.79	.582	2.327	0.80	30	478.34	2.620	10.45	3.60
50	2022.41	.618	2.472	0.85	40	459.28	2.730	10.89	3.75
3	1910.08	.655	2.618	0.90	13	441.68	2.839	11.32	3.90
10	1809.57	.691	2.763	0.95	30	425.40	2.949	11.75	4.05
20	1719.12	.727	2.908	1.00	40	410.28	3.058	12.18	4.20
30	1637.28	.764	3.054	1.05	14	396.20	3.168	12.62	4.35
40	1562.88	.800	3.199	1.10	15	383.07	3.277	13.05	4.50
50	1494.95	.836	3.345	1.15	30	370.78	3.387	13.49	4.65
4	1432.69	.873	3.490	1.20	40	359.27	3.496	13.92	4.80
10	1375.40	.909	3.635	1.25	16	348.45	3.606	14.35	4.95
20	1322.53	.945	3.718	1.30	30	338.27	3.716	14.78	5.10
30	1273.57	.982	3.926	1.35	17	319.62	3.935	15.64	5.40
40	1228.11	1.018	4.071	1.40	18	302.94	4.155	16.51	5.70
50	1185.78	1.055	4.217	1.45	19				
5	1146.28	1.091	4.362	1.50	20	287.94	4.374	17.37	6.00
10	1109.33	1.127	4.507	1.55	21	274.37	4.594	18.22	6.30
20	1074.68	1.164	4.653	1.60	22	262.04	4.814	19.08	6.60
30	1042.14	1.200	4.798	1.65	23	250.79	5.035	19.94	6.90
40	1011.51	1.237	4.943	1.70	24	240.49	5.255	20.79	7.20
50	982.64	1.273	5.088	1.75					
6	955.37	1.309	5.234	1.80	25	231.01	5.476	21.64	7.50
10	929.57	1.346	5.379	1.85	26	222.27	5.697	22.50	7.80
20	905.13	1.382	5.524	1.90	27	214.18	5.918	23.35	8.10
30	881.95	1.418	5.669	1.95	28	206.68	6.139	24.19	8.40
40	859.92	1.455	5.814	2.00	29	199.70	6.360	25.04	8.70
					30	193.18	6.583	25.88	9.00

Note. Chord Deflection=2 times tangent deflection.

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

Central Angle	Tangent	External	Central Angle	Tangent	External	Central Angle	Tangent	External
1°	50.00	.22	11°	551.70	26.50	21°	1061.9	97.57
10'	53.34	.30	10'	560.11	27.31	10'	1070.6	99.16
20	66.67	.39	20	568.53	28.14	20	1079.2	100.75
30	75.01	.49	30	576.95	28.97	30	1087.8	102.35
40	83.34	.61	40	585.36	29.82	40	1096.4	103.97
50	91.68	.73	50	593.79	30.68	50	1105.1	105.60
2	100.01	.87	12	602.21	31.56	22	1113.7	107.24
10	108.35	1.02	10	610.64	32.45	10	1122.4	108.90
20	116.68	1.19	20	619.07	33.35	20	1131.0	110.57
30	125.02	1.36	30	627.50	34.26	30	1139.7	112.25
40	133.36	1.55	40	635.93	35.18	40	1148.4	113.95
50	141.70	1.75	50	644.37	36.12	50	1157.0	115.66
3	150.04	1.96	13	652.81	37.07	23	1165.7	117.38
10	158.38	2.19	10	661.25	38.03	10	1174.4	119.12
20	166.72	2.43	20	669.70	39.01	20	1183.1	120.87
30	175.06	2.67	30	678.15	39.99	30	1191.8	122.63
40	183.40	2.93	40	686.60	40.99	40	1200.5	124.41
50	191.74	3.21	50	695.06	42.00	50	1209.2	126.20
4	200.08	3.49	14	703.51	43.03	24	1217.9	128.00
10	208.43	3.79	10	711.97	44.07	10	1226.6	129.82
20	216.77	4.10	20	720.44	45.12	20	1235.3	131.65
30	225.12	4.42	30	728.90	46.18	30	1244.0	133.50
40	233.47	4.76	40	737.37	47.25	40	1252.8	135.35
50	241.81	5.10	50	745.85	48.34	50	1261.5	137.23
5	250.16	5.46	15	754.32	49.44	25	1270.2	139.11
10	258.51	5.83	10	762.80	50.55	10	1279.0	141.01
20	266.86	6.21	20	771.29	51.68	20	1287.7	142.93
30	275.21	6.61	30	779.77	52.89	30	1296.5	144.85
40	283.57	7.01	40	788.26	53.97	40	1305.3	146.79
50	291.92	7.43	50	796.75	55.13	50	1314.0	148.75
6	300.28	7.86	16	805.25	56.31	26	1322.8	150.71
10	308.64	8.31	10	813.75	57.50	10	1331.6	152.69
20	316.99	8.76	20	822.25	58.70	20	1340.4	154.69
30	325.35	9.23	30	830.76	59.91	30	1349.2	156.70
40	333.71	9.71	40	839.27	61.14	40	1358.0	158.72
50	342.08	10.20	50	847.78	62.38	50	1366.8	160.76
7	350.44	10.71	17	856.30	63.63	27	1375.6	162.81
10	358.81	11.22	10	864.82	64.90	10	1384.4	164.86
20	367.17	11.75	20	873.35	66.18	20	1393.2	166.95
30	375.54	12.29	30	881.88	67.47	30	1402.0	169.04
40	383.91	12.85	40	890.41	68.77	40	1410.9	171.15
50	392.28	13.41	50	898.95	70.09	50	1419.7	173.27
8	400.66	13.99	18	907.49	71.42	28	1428.6	175.41
10	409.03	14.58	10	916.03	72.76	10	1437.4	177.55
20	417.41	15.18	20	924.58	74.12	20	1446.3	179.72
30	425.79	15.80	30	933.13	75.49	30	1455.1	181.89
40	434.17	16.43	40	941.69	76.86	40	1464.0	184.08
50	442.55	17.07	50	950.25	78.26	50	1472.9	186.29
9	450.93	17.72	19	958.81	79.67	29	1481.8	188.51
10	459.32	18.38	10	967.38	81.09	10	1490.7	190.74
20	467.71	19.06	20	975.96	82.53	20	1499.6	192.99
30	476.10	19.75	30	984.53	83.97	30	1508.5	195.25
40	484.49	20.45	40	993.12	85.43	40	1517.4	197.53
50	492.88	21.16	50	1001.7	86.90	50	1526.3	199.82
10	501.28	21.89	20	1010.3	88.39	30	1535.3	202.12
10	509.68	22.62	10	1018.9	89.89	10	1544.2	204.44
20	518.08	23.38	20	1027.5	91.40	20	1553.1	206.77
30	526.48	24.14	30	1036.1	92.92	30	1562.1	209.12
40	534.89	24.91	40	1044.7	94.46	40	1571.0	211.48
50	543.29	25.70	50	1053.3	96.01	50	1580.0	213.86

TABLE VIII.—NATURAL TRIGONOMETRICAL FUNCTIONS.

Angle	Sine.	Tan.	Cotg.	Cosin.	Angle	Sine.	Tan.	Cotg.	Cosin.		
0	0	0	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	99985	89	10	.1564	.1584	6.314	.98769	
10	.0204	.0204	49.10	99979	90	10	.1593	.1614	6.197	.98723	
20	.0233	.0233	42.96	99973	20	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	40	40	.1679	.1703	5.871	.98580	
50	.0320	.0320	31.24	99949	50	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	90	10	.1765	.1793	5.576	.98430	
20	.0407	.0407	24.54	99917	20	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	40	40	.1851	.1883	5.309	.98272	
50	.0494	.0495	20.21	99878	50	50	.1880	.1914	5.226	.98218	
3	.0523	.0524	19.08	99863	87	10	.1908	.1944	5.145	.98163	
10	.0552	.0553	18.07	99847	90	10	.1937	.1974	5.066	.98107	
20	.0581	.0582	17.17	99831	20	20	.1965	.2004	4.989	.98050	
30	.0610	.0612	16.35	99813	30	30	.1994	.2035	4.915	.97992	
40	.0640	.0641	15.60	99795	40	40	.2022	.2065	4.843	.97934	
50	.0669	.0670	14.92	99776	50	50	.2051	.2095	4.773	.97875	
4	.0698	.0699	14.30	99756	86	10	.2079	.2126	4.705	.97815	
10	.0727	.0729	13.73	99736	90	10	.2108	.2156	4.638	.97754	
20	.0756	.0758	13.20	99714	20	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	40	40	.2193	.2247	4.449	.97566	
50	.0843	.0846	11.83	99644	50	50	.2221	.2278	4.390	.97502	
5	.0872	.0875	11.43	99619	85	10	.2250	.2309	4.331	.97437	
10	.0901	.0904	11.06	99594	90	10	.2278	.2339	4.275	.97371	
20	.0929	.0934	10.71	99567	20	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	40	40	.2363	.2432	4.113	.97169	
50	.1016	.1022	9.788	99482	50	50	.2391	.2462	4.061	.97100	
6	.1045	.1051	9.514	99452	84	10	.2419	.2493	4.011	.97030	
10	.1074	.1080	9.255	99421	90	10	.2447	.2524	3.962	.96959	
20	.1103	.1110	9.010	99390	20	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	40	40	.2532	.2617	3.821	.96742	
50	.1190	.1198	8.345	99290	50	50	.2560	.2648	3.776	.96667	
7	.1219	.1228	8.144	99255	83	10	.2588	.2679	3.732	.96593	
10	.1248	.1257	7.953	99219	90	10	.2616	.2711	3.689	.96517	
20	.1276	.1287	7.770	99182	20	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	40	40	.2700	.2805	3.566	.96285	
50	.1363	.1376	7.269	99067	50	50	.2728	.2836	3.526	.96206	
	Cosin.	Cotg.	Tan.	Sine.	Angle.		Cosin.	Cotg.	Tan.	Sine.	Angle.

TABLE VIII.—NATURAL TRIGONOMETRICAL FUNCTIONS.

Angle	Sine.	Tan.	Cotg.	Cosin.	Angle	Sine.	Tan.	Cotg.	Cosin.		
16	.2756	.2867	3.487	.96126	74	24	.4067	.4452	2.246		
10	.2784	.2899	3.450	.96046	50	10	.4094	.4487	2.229		
20	.2812	.2931	3.412	.95964	40	20	.4120	.4522	2.211		
30	.2840	.2962	3.376	.95882	30	30	.4147	.4557	2.194		
40	.2868	.2994	3.340	.95799	20	40	.4173	.4592	2.177		
50	.2896	.3026	3.305	.95715	10	50	.4200	.4628	2.161		
17	.2924	.3057	3.271	.95615	73	25	.4226	.4663	2.145		
10	.2952	.3089	3.237	.95545	50	10	.4253	.4699	2.128		
20	.2979	.3121	3.204	.95459	40	20	.4279	.4734	2.112		
30	.3007	.3153	3.172	.95372	30	30	.4305	.4770	2.097		
40	.3035	.3185	3.140	.95284	20	40	.4331	.4806	2.081		
50	.3062	.3217	3.108	.95195	10	50	.4358	.4841	2.066		
18	.3090	.3249	3.078	.95106	72	26	.4384	.4877	2.050		
10	.3118	.3281	3.048	.95015	50	10	.4410	.4913	2.035		
20	.3145	.3314	3.018	.94924	40	20	.4436	.4950	2.020		
30	.3173	.3346	2.989	.94832	30	30	.4462	.4986	2.006		
40	.3201	.3378	2.960	.94740	20	40	.4488	.5022	1.991		
50	.3228	.3411	2.932	.94646	10	50	.4514	.5059	1.977		
19	.3256	.3443	2.904	.94552	71	27	.4540	.5095	1.963		
10	.3283	.3476	2.877	.94457	50	10	.4566	.5132	1.949		
20	.3311	.3508	2.850	.94361	40	20	.4592	.5169	1.935		
30	.3338	.3541	2.824	.94264	30	30	.4617	.5206	1.921		
40	.3365	.3574	2.798	.94167	20	40	.4643	.5243	1.907		
50	.3393	.3607	2.773	.94068	10	50	.4669	.5280	1.894		
20	.3420	.3640	2.747	.93969	70	28	.4695	.5317	1.881		
10	.3448	.3673	2.723	.93869	50	10	.4720	.5354	1.868		
20	.3475	.3706	2.699	.93769	40	20	.4746	.5392	1.855		
30	.3502	.3739	2.675	.93667	30	30	.4772	.5430	1.842		
40	.3529	.3772	2.651	.93565	20	40	.4797	.5467	1.829		
50	.3557	.3805	2.628	.93462	10	50	.4823	.5505	1.816		
21	.3584	.3839	2.605	.93358	69	29	.4848	.5543	1.804		
10	.3611	.3872	2.583	.93253	50	10	.4874	.5581	1.792		
20	.3638	.3906	2.560	.93148	40	20	.4899	.5619	1.780		
30	.3665	.3939	2.539	.93042	30	30	.4924	.5658	1.767		
40	.3692	.3973	2.517	.92935	20	40	.4950	.5696	1.756		
50	.3719	.4006	2.496	.92827	10	50	.4975	.5735	1.744		
22	.3746	.4040	2.475	.92718	68	30	.5000	.5774	1.732		
10	.3773	.4074	2.455	.92609	50	10	.5025	.5812	1.720		
20	.3800	.4108	2.434	.92499	40	20	.5050	.5851	1.709		
30	.3827	.4142	2.414	.92388	30	30	.5075	.5890	1.698		
40	.3854	.4176	2.394	.92276	20	40	.5100	.5930	1.686		
50	.3881	.4210	2.375	.92164	10	50	.5125	.5969	1.675		
23	.3907	.4245	2.356	.92050	67	31	.5150	.6009	1.664		
10	.3934	.4279	2.337	.91936	50	10	.5175	.6048	1.653		
20	.3961	.4314	2.318	.91822	40	20	.5200	.6088	1.643		
30	.3987	.4348	2.300	.91706	30	30	.5225	.6128	1.632		
40	.4014	.4383	2.282	.91590	20	40	.5250	.6168	1.621		
50	.4041	.4417	2.264	.91472	10	50	.5275	.6208	1.611		
	Cosin.	Cotg.	Tan.	Sine.	Angle.		Cosin.	Cotg.	Tan.	Sine.	Angle.

0038
1166
942
71.08

5466
1377
12543

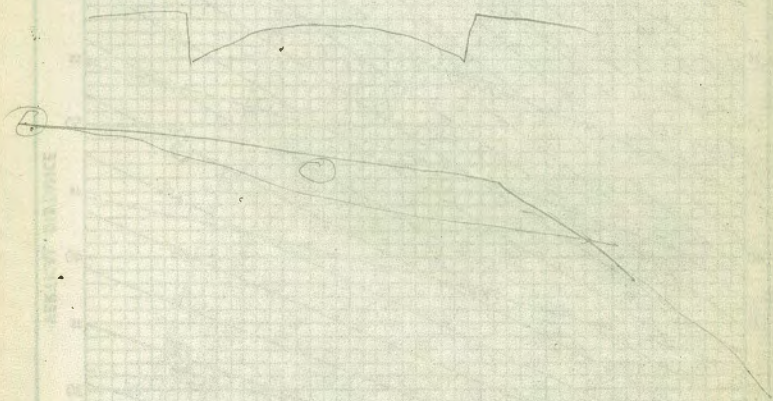
1216
473
16.99

35² 5
73
3145.0

265
1218
405
183
2071
265
18.06

1218
105
183
1806

1143
5.88
1731



744
745
75
876

397.3
77.8
3119.5
107°52'
21543
107°51'30"

25074
146.9
103.84
100858
536
514.8
2574
4290
459888

77444
95
66974

114 S20°N E1000 ft.
1219 below rim
672 Flow South
691 = Flow N Line

1250
998
1752
672
24.24
691
2493

893.0

103°58'
207.55
203°57'30"
223°54'00"
2602'30"

1236
600.5
600.5
160
165
525
40
713.0

17821
2871
2104
9853
395124
197063
23647
2369

68°37'

137°10' = 1478.53° S 68°37' 30"

1749
1846

DISTANCES FROM CENTER OF ROADWAY FOR
CROSS-SECTIONING.
Roadway 16 feet wide. Side Slopes 1 on 1½
For Single Track Embankment.

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

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 41.9. For some 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.

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