G-232

ENGINEERS

LEVEL BOOK

NAME

EUGENE DIETZGEN CO.

DRAWING MATERIALS, MATHEMATICAL and SURVEYING INSTRUMENTS

Chicago New York San Francisco New Orleans Pittsburg Toronto

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

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

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

130

G-232

B-3305
B-3691

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

Made in U. S. A.

Index

1

Water Grades Alley.

betw. 48th & Euclid from Pelk to Orange

BMBP	SE Cor 48th & Orange		342.96		
	6.60	349.56			
0+00			1.3	348.3	347.2
0+50			1.4	348.2	347.9
1+00			3.7	345.9	346.3
1+50			4.2	345.4	344.4
2+00			7.4	342.2	342.0
2+50			9.5	340.1	340.0
3+00			10.1	339.5	339.1
3+50			10.1	339.5	339.3
4+00			8.9	340.7	340.1
4+50			6.9	342.7	341.7
5+00			5.2	344.4	343.2
5+50			4.5	345.1	343.8
5783			5.0	344.6	344.3
BM BP 48th & Euclid			6.60	342.96	

July 29 1947

Rainer
King
Nieman
Baker

4.4	
3.8	0+00 = Prop line Pelk
3.1	
4.5	
3.7	
3.6	
3.9	
3.7	
4.1	
4.5	
4.7	
4.8	
3.8	

Water Grades (Alley)
between 45th. + Chamoune
from Orange to El Cajon

B.M. BP SW. Cor. El Cajon + 45th			357.29	
	5.43	362.72		
0+00			10.4	352.3	351.7
0+50			8.5	354.2	353.3
1+00			8.6	354.1	353.9
1+50			8.3	354.4	354.1
2+00			8.2	354.5	354.3
2+50			7.4	355.3	354.6
3+00			7.2	355.5	354.8
3+50			7.3	355.4	355.2
4+00			6.9	355.8	355.4
4+50			6.4	356.3	355.7
5+00			6.0	356.7	356.3
5+50			5.5	357.2	356.9
6+00			4.8	357.9	357.4
6+50			4.3	358.4	358.0
7+00			3.9	358.8	358.0
7+24.85			4.9	357.8	357.9

BL 4
EASTGATE

cuts

4.1	0+00	Propline on Orange
4.4		
3.7		
3.8		
3.7		
4.2		
4.2		
3.7		
3.9		
4.1		
3.9		
3.8		
4.0		
3.9		
4.3		
3.4		

Water Grades (Alley)
Between 36th & Wilson
From Dwight to Wightman

						cuts
B.M. B.P.	N.W. Cor 36th & Dwight			327.55		
	3.15	330.70				
0+00			4.2	326.5	325.3	4.7
0+50			3.0	327.7	326.8	4.4
1+00			1.9	328.8	328.2	4.1
1+50			0.4	330.3	329.6	4.2
T.P #1			0.13	330.57		
	5.54	336.11				
2+00			4.8	331.3	330.6	4.2
2+50			4.3	331.8	330.9	4.4
3+00			3.9	332.2	331.2	4.5
3+50			3.6	332.5	331.4	4.6
4+00			4.4	331.7	331.7	3.5
4+50			5.0	331.1	332.0	3.2
5+00			4.5	331.6	332.4	3.2
5+50			4.3	331.8	332.6	3.2
6+00			2.8	333.3	333.0	3.8
6+15	S Gutter	Landis	3.5	332.6	333.2	3.1
6+65	N Gutter	"	3.0	333.1	333.8	3.2
7+00			1.3	334.8	334.2	4.1

BL. 62
CITY HEIGHTS

Water Grades (Alley)
Between 36th + Wilson
from Dwight to Wightman

		336.11				
T.P. #2			1.30	334.81		
	11.51	346.32				
7+50			11.1	335.2	334.8	3.9
8+00			10.1	336.2	335.6	4.1
8+50			8.8	337.5	336.3	4.7
9+00			8.9	337.4	337.1	3.8
9+50			8.7	337.6	337.8	3.3
10+00			7.5	338.8	338.6	3.7
10+50			6.2	340.1	339.5	4.1
11+00			5.3	341.0	341.1	3.4
11+50			3.6	342.7	342.9	3.3
12+00			0.3	346.0	344.7	4.8
T.P. #3			1.03	345.29		
	7.05	352.34				
12+50			5.2	347.1	346.5	4.1
13+00	End		5.0	347.3	347.8	3.2
curb on N Side Wightman			3.90	348.44		

Law St. Water grades from Lamont to Academy

August 14, 1947

Rainey
Niemow
Baker

						cuts
B.M. L+T	SW cor Law + Lamont			142.36		
	1.54	143.90				
0-30			2.95	140.95		
0+00			3.8	140.1	140.5	3.1
0+35			4.3	139.6	139.4	3.7
		2'W	3.8	140.1		0.7
0+35	S Lateral	2'E	3.9	140.0	139.4	0.6
		2'W	3.7	140.2		0.0
0+35	N Lateral	2'E	3.5	140.4	140.2	0.2
0+80 25			5.8	138.1	138.1	3.5
1+27 50			7.1	136.8	136.8	3.5
		2'W	6.6	137.3		0.5
1+27 50	S Lateral	2'E	6.7	137.2	136.8	0.4
		2'W	6.1	137.8		0.3
1+27 50	N Lateral	2'E	6.3	137.6	137.5	0.1
1+82 50			8.8	135.1	135.4	← Change 3.2
		2'W	8.0	135.9		0.5
1+82 50	S Lateral	2'E	8.2	135.7	135.4	0.3
		2'W	7.7	136.2		0.2
1+82 50	N Lateral	2'E	7.9	136.0	136.0	0.0
2+37 50			10.5	133.4	133.7	3.2
		2'W	9.7	134.2		0.5
2+37 50	S Lateral	2'E	9.9	134.0	133.7	0.3
		2'W	9.0	134.9		0.4
2+37 50	N Lateral	2'E	9.1	134.8	134.5	0.3
T.P. #1			11.95	131.95		
	1.23	133.18				

Low St. Water grades from Lamont to Academy.

133.18

						cuts
2+92.50			1.2	132.0	132.1	3.4
		2'W	0.7	132.5		0.4
2+92.50	S Lateral	2'E	0.8	132.4	132.1	0.3
		2'W	0.2	133.0		0.4
3+02.50	N Lateral	2'E	0.3	132.9	132.6	0.3
3+47.50			2.9	130.3	130.6	3.2
		2'W	2.3	130.9		0.3
3+47.50	S Lateral	2'E	2.4	130.8	130.6	0.2
		2'W	1.6	131.6		0.3
3+52.50	N Lateral	2'E	1.7	131.5	131.3	0.2
4+02.50			4.3	128.9	129.1	3.3
		2'W	3.7	129.5		0.4
4+02.50	S Lateral	2'E	3.8	129.4	129.1	0.3
		2'W	2.7	130.5		0.6
4+02.50	N Lateral	2'E	2.9	130.3	129.9	0.4
4+55			5.7	127.5	127.6	3.4
		2'W	5.3	127.9		0.3
4+55	S Lateral	2'E	5.4	127.8	127.6	0.2
		2'W	4.6	128.6		0.2
4+57.50	N Lateral	2'E	4.9	128.3	128.4	f0.1
		2'W	6.4	126.8		0.5
5+05	S Lateral	2'E	6.5	126.7	126.3	0.4
5+12.50			7.0	126.2	126.1	3.6
		2'W	6.2	127.0		0.2
5+17.50	N Lateral	2.E	6.3	126.9	126.8	0.1
5+55			7.7	125.5	125.3	3.7
		2'W	7.1	126.1		0.8
5+55	S Lateral	2'E	7.2	126.0	125.3	0.7
5+67.50			7.8	125.4	126.0	2.9
		2'W	7.2	126.0		0.0
5+67.50	N Lateral	2'E	7.3	125.9	126.0	f0.1

Law St. Water Grades from Lamont to Academy

		133.18				
			2'W	7.9	125.3	
6+05	S Lateral		2'E	8.3	124.9	124.7
6+20				8.4	124.8	124.6
			2'W	7.8	125.4	
6+20	N Lateral		2'E	7.9	125.3	125.4
T.P.#2				8.40	124.78	
	A.T.S.	129.53				
			2'W	4.6	124.9	
6+55	S Lateral		2'E	4.7	124.8	124.2
6+70				5.3	124.2	124.0
			2'W	4.4	125.1	
6+70	N Lateral		2'E	4.4	125.1	124.9
			2'W	5.3	124.2	
7+05	S Lateral		2'E	5.3	124.2	123.7
7+20				5.6	123.9	123.6
			2'W	4.6	124.9	
7+20	N Lateral		2'E	4.4	125.1	124.2
			2'W	5.9	123.6	
7+55	S Lateral		2'E	5.9	123.6	
			2'W	4.8	124.7	
7+80±20	N Lateral		2'E	5.0	124.5	
T.P.#3				8.89	120.64	
	B.M.	129.12				
B.M. SE Cor Chalcedony + Lamont				3.14	125.98	

cuts

0.6
0.2
3.7
0.0
fo.1
0.7
0.6
3.7
0.2
0.2
0.5
0.5
3.8
0.7
0.9
0.5
0.5
0.6
0.6

8 Beyrl St. Water Grades From Lamont to Academy

August 15, 1947 Rainey Nierow Baker 8

B.M. N.E. Cor Beyrl + Lamont				162.13		
	1.40	163.53				
0-30			2.83	160.70		
0+00			3.3	160.2	160.65	3.0
0+50			4.2	159.3	159.9	2.9
1+00			5.1	158.4	159.3	2.6
1+50			5.8	157.7	158.7	2.5
1+77 50			6.1	157.4	158.4	2.5
		2'W	5.0	158.5		0.3
1+87 50	S Lateral	2'E	5.1	158.4	158.2	0.2
2+32 50			6.5	157.0	157.5	3.0
		2'W	5.6	157.9		0.4
2+32 50	S Lateral	2'E	5.8	157.8	157.5	0.3
2+87 50			7.4	156.1	156.7	2.9
		2'W	6.5	157.0		0.3
2+87 50	S Lateral	2'E	6.6	156.9	156.7	0.2
3+42 50			8.7	154.8	155.5	2.8
		2'W	7.7	155.8		0.3
3+42 50	S Lateral	2'E	7.9	155.6	155.5	0.1
3+97 50			10.4	153.1	154.0	2.6
		2'W	9.7	153.8		f 0.2
3+97 50	S Lateral	2'E	9.9	153.6	154.0	f 0.4
T.P. #1			10.40	153.13		
	0.11	153.24				

Int. w/ existing 6" Line

Beyrl St. Water Grades
from Lamont to Academy.

						Cuts
			153.24			
4+50			1.8	151.4	152.1	2.8
		2'W	1.1	152.1		0.0
4+50	S Lateral	2'E	1.3	151.9	152.1	f 0.2
5+00			3.7	149.5	150.2	2.8
		2'W	2.9	150.3		0.1
5+00	S Lateral	2'E	3.2	150.0	150.2	f 0.2
5+50			5.6	147.6	148.4	2.7
5+50		2'W	4.7	148.5		0.1
6+00	S Lateral	2'E	4.9	148.3	148.4	f 0.1
6+00			7.5	145.7	146.5	2.7
		2'W	6.6	146.6		0.1
6+00	S Lateral	2'E	6.7	146.5	146.5	0.0
6+50			9.2	144.0	144.6	2.9
		2'W	8.4	144.8		0.2
6+50	S Lateral	2'E	8.6	144.6	144.6	0.0
7+00			11.0	142.2	142.8	2.9
		2'W	10.4	142.8		0.0
7+00	S Lateral	2'E	10.6	142.6	142.8	f 0.2
T.P. #2			10.97	142.27		
	0.12	142.39				
7+50			2.3	140.1	141.0	2.6
		2'W	1.4	141.0		0.0
7+50	S Late	2'E	1.7	140.7	141.0	f 0.3
8+04.3			4.3	139.1	139.0	2.6
		2'W	3.4	139.0		0.0
8+04.3	S Lat	2'E	3.5	138.9	139.0	f 0.1

10 Beryl St. Water Grades
From Lamont to Academy

						Cuts
			142.39			
8+64 96			6.4	136.0	136.7	2.8
		2'W	5.5	136.9		0.2
8+64 98	S Lateral	2'E	5.5	136.9	136.7	0.2
9+00			7.7	134.7	135.4	2.8
9+50			9.5	132.9	133.5	2.9
9+79 41			10.2	132.2	132.6	3.1
9+79 44	Fire Hydrant		9.6	132.8	132.6	0.2
10+00			10.5	131.9	132.2	3.2
10+53 58			8.9	133.5	131.2	5.8 end of Line Academy St.
T.P. #3			0.12	142.27		
	12.22	154.49				
T.P. #4			0.22	154.27		
	10.21	164.98				
B.M. N.E. Cor. Beryl + Lamont			2.85	162.13	corr 162.13	

From Lamont to Academy

Chalcedony St. Water Grades.

August 18, 1947

Rainey
Nichols
Baker

cuts

BM S.E. cor Lamont & Chalcedony 126.03

3.21 129.24

0-30			3.40	125.84	125.9	Int. w/ existing line
0+00			3.7	125.5	125.9	3.1
0+35			3.6	125.6	125.8	3.3
		2'W	2.8	126.4		f 0.1
0+35	N Lateral	2'E	2.8	126.4	126.5	f 0.1
1+00			4.2	125.0	125.4	3.1
1+50			4.7	124.5	124.9	3.1
2+00			5.0	124.2	124.5	3.2
2+50			5.4	123.8	124.0	3.3
3+00			5.7	123.5	123.6	3.4
3+50			6.4	122.8	123.2	3.1
4+00			7.6	121.6	122.2	2.9
T.P.#1			7.56	121.68		
	0.07	121.75				
4+55.20			1.9	119.9	120.2	3.2
		2'W	0.9	120.9		c 0.3
4+55.20	N Lateral	2'E	1.2	120.6	120.6	0.0
5+02.20			4.2	117.6	117.7	3.4
		2'W	3.5	118.3		0.0
5+02.20	N Lateral	2'E	3.6	118.2	118.3	f 0.1

from Lamont to Academy

Chalcedony St. Water Grades.

						Cuts
			121.75			
5+55 20			6.6	115.2	115.3	3.4
		2'W	5.8	116.0		0.3
5+55 20	N Lateral	2'E	5.9	115.9	115.7	0.2
6+05 29			7.8	114.0	113.5	4.0
		2'W	7.3	114.5		0.5
6+05 29	N Lateral	2'E	7.4	114.4	114.0	0.4
6+55 20			8.8	113.0	112.4	4.1
		2'W	8.4	113.4		0.5
6+55 25	N Lateral	2'E	8.5	113.3	112.9	0.4
7+05 20			9.6	112.2	111.7	4.0
		2'W	9.4	112.4		0.3
7+05 20	N Lateral	2'E	9.4	112.4	112.1	0.3
7+55 20			11.1	110.7	111.3	4.1
		2'W	9.5	112.3		0.5
7+55 20	N Lateral	2'E	9.5	112.3	111.8	0.5
8+00			11.9	109.9	111.4	2.0
8+24 88	end Chalcedony		4.8	117.0	111.5	9.0
	Start Academy.					
0-75			3.5	118.3	111.5	10.3
T.P. #2			9.45	112.30		
	13.01	125.31				
0+00			13.00	112.3	113.0	2.8
0+05	Fire hydrant		12.8	112.5	113.0	+0.5
0+50			11.3	114.0	115.0	2.5

12

Academy Water Grades from Chacedony to Beyrl

						Cuts
		125.31				
1+00			9.6	115.7	116.8	2.4
1+50			8.00	117.3	118.7	2.1
2+00			6.1	119.2	120.6	2.1
2+24 28	B.C.		5.2	120.1	121.3	2.3
2+50			4.5	120.8	122.0	2.3
2+75			3.8	121.5	122.8	2.2
3+00			3.0	122.3	123.6	2.2
3+25			2.3	123.0	124.0	2.5
3+50			1.7	123.6	124.8	2.3
3+75			1.1	124.2	125.3	2.4
3+93 66	P.C.C.		0.6	124.7	125.9	2.3
T.P. #3			0.58	124.73		
		10.00 134.73				
			2'S 8.7	126.0		0.1
3+93 66	West lateral	2'N	8.6	126.1	125.9	0.2
4+00			9.9	124.8	126.0	2.3
4+25			9.2	125.5	126.6	2.4
4+50			8.6	126.1	127.2	2.4
4+75			8.1	126.6	127.8	2.3
			2'S 8.1	126.6		f1.0
4+70	West lateral	2'N	7.9	126.8	127.6	f0.8

		134.73				
5+00			7.4	127.3	128.4	2.4
5+25			6.9	127.8	129.1	2.2
5+50			6.3	128.4	129.6	2.3
5+60	West Interval	2'S	6.2	128.5		∅1.3
		2'N	6.1	128.6	129.8	∅1.2
5+75			5.7	129.0	130.2	2.3
6+00			5.3	129.4	130.8	2.1
6+29.29	L. pt.		2.5	132.2	131.2	4.5
6+70			2.0	132.7	131.2	5.0
T.P.#4			1.50	133.23		
	5.17	138.40				
T.P.#5			7.41	130.99		
	12.64	143.63				
BM Lvt	S.W. cor bow + Leonard		1.23	142.40		

14

Walker
Hendricks
Becker
Johnson
9-2-47

Ground Profile on ℄ Proposed Sewer on C-St. from ℄ 43rd St. to 300' East

Work Order 60168

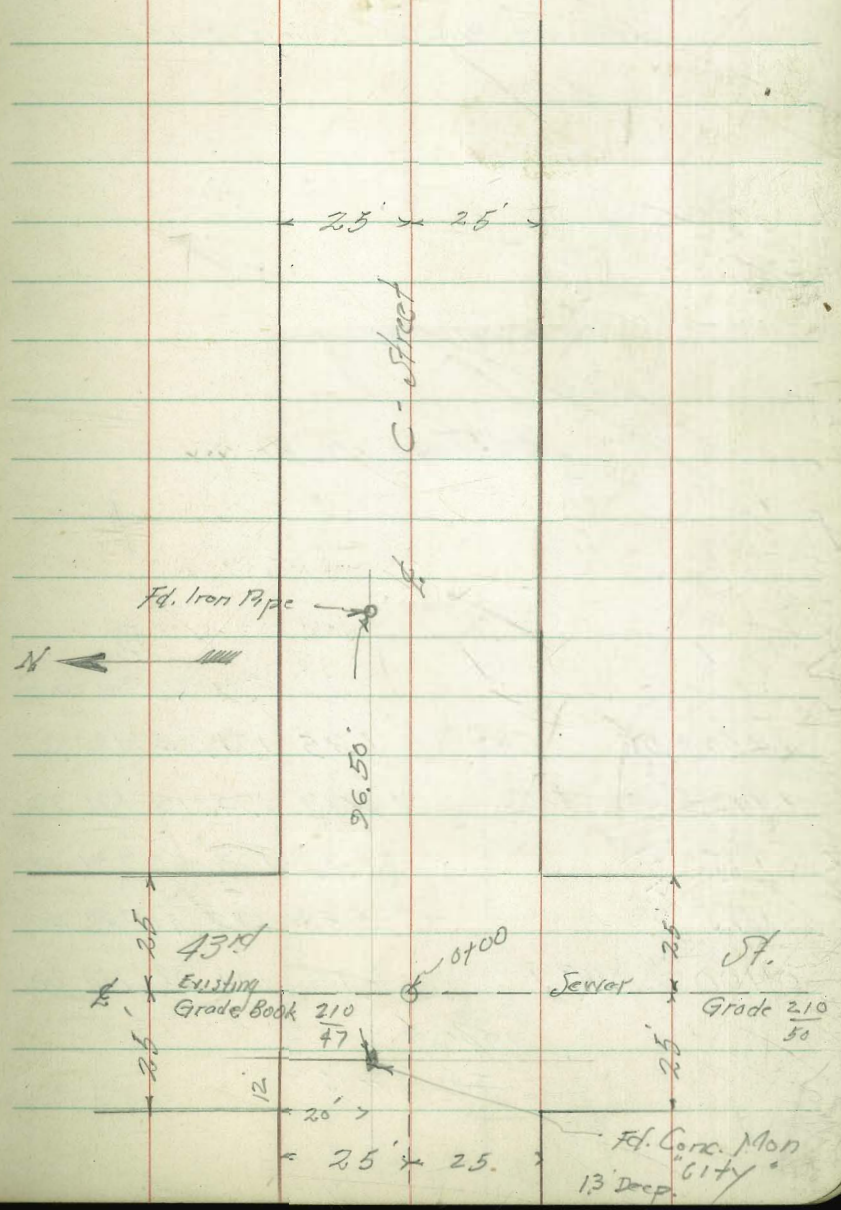
4+00		11.3	186.7
3+50		2.5	188.5
3+00		7.4	190.6
2+50		5.5	192.5
2+00		4.4	193.6
1+50		3.9	194.1
1+12.5		3.9	194.1
0+75		4.7	193.3
0+37.5		5.6	192.4
			181.15 = Grd. 210-47
0+00 on Flow MH #7		16.79	181.20
0+00 on Rim MH #7		6.46	191.53
offset Stk 4 Rt			
Chk 0+80 Grd 210-47		2.60	195.39
	4.57	197.99	193.42
Replaced B.M.		7.51	190.48

B.M. on Stk 0+40 Grd. 210-47

B.M. 5 Yr. Spike Pole 43rd & C- Grd 210/47

Set New Spike in New Pole to Old Elev. 190.48 as shown 210/47

indexed C.S.I.K.



Walker
Hendricks
Becker
Johnson
9-2-47
10-

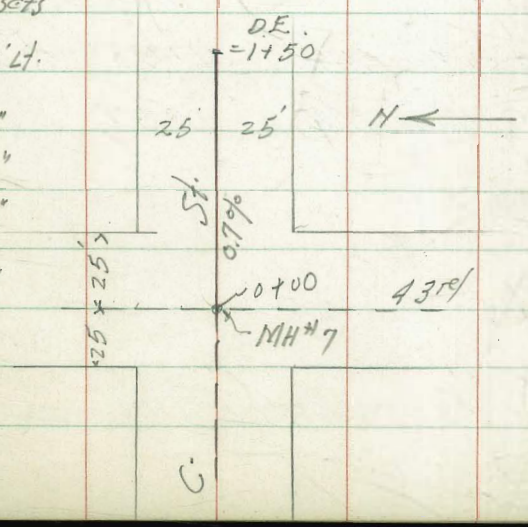
Grades for Proposed Sewer on C-St.
from ℄ MH #7 in ℄ 43rd
to a point 150' East.
Ground Profile Levels P-15

(These Grades Void)

See Page 19 for New Grades

		E.l. Flow Line		Cuts	offsets
1+50	P.E.	3.95	194.04	182.25	11.79	6' Lt.
1+12.5		3.89	194.10	181.99	12.11	"
0+75	0.7%	4.73	193.26	181.72	11.54	"
+37.5		5.58	192.41	181.46	10.95	"
0+00	℄ MH #7	6.13	191.86	181.20	10.66	"

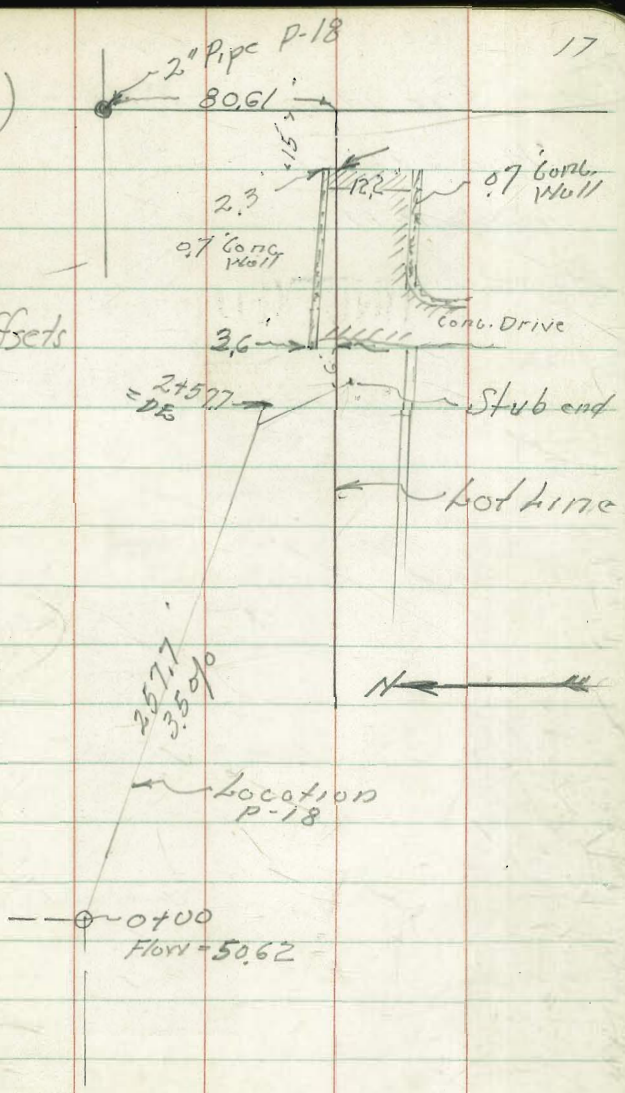
197.99
π from P-15



Walker Construction Grades
Hendricks for Proposed Sewer Extension
Backer
Johnson to Serve Lot 4 CARUTHERS ADD.
10
9-2-47 Plan #3355-B (Location P-18)

			El. Flow Line
Stub end	1.95	66.65	59.96
2+57.7	3.48	65.12	59.62
2+40	4.03	64.57	59.00
2+00	5.76	62.84	57.60
1+60	7.07	61.53	56.20
1+20	8.71	59.89	54.80
0+80	9.20	59.40	53.40
0+40	10.44	58.16	52.00
0+00	11.33	57.27	50.62
0+00 on Flow M.H.	17.98	50.62	50.60=Rec
0+00 " Rim M.H.	10.87		
	3.77	68.60	64.83

(WO = 60166)



Cuts	offsets
6.69	
5.50	
5.57	
5.24	
5.33	
5.09	
6.00	
6.16	
7.65 / 6.67	

BM 2"x2" Hub 2+58 FB 1672-48

Location Proposed Sewer Extension

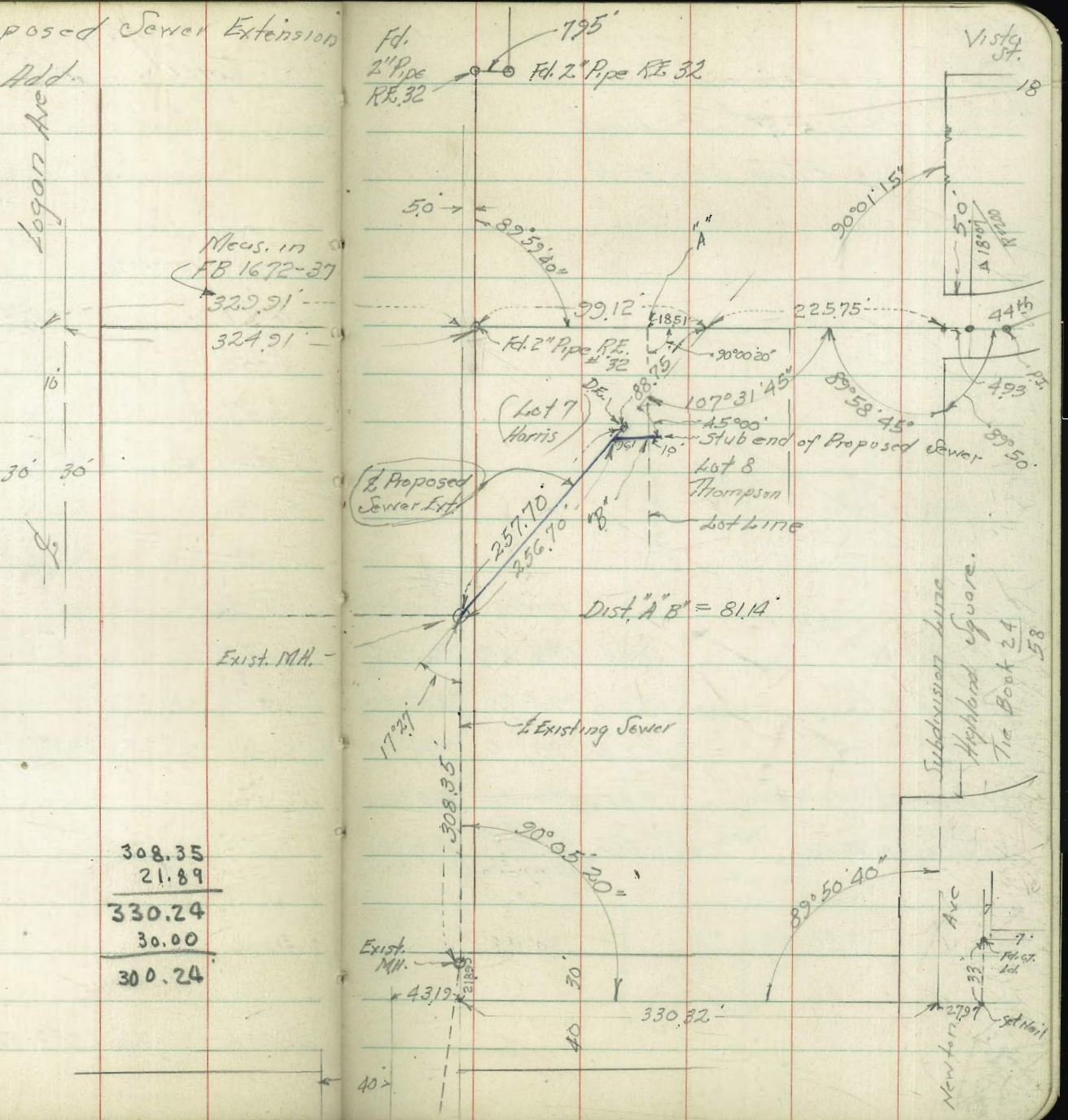
Caruthers Add.

Plan 3355-B.

Grades P. 17

Proposed Sewer = ——

(WO 60166)



Walker
Hendricks
Becker
Johnson
10-9-47

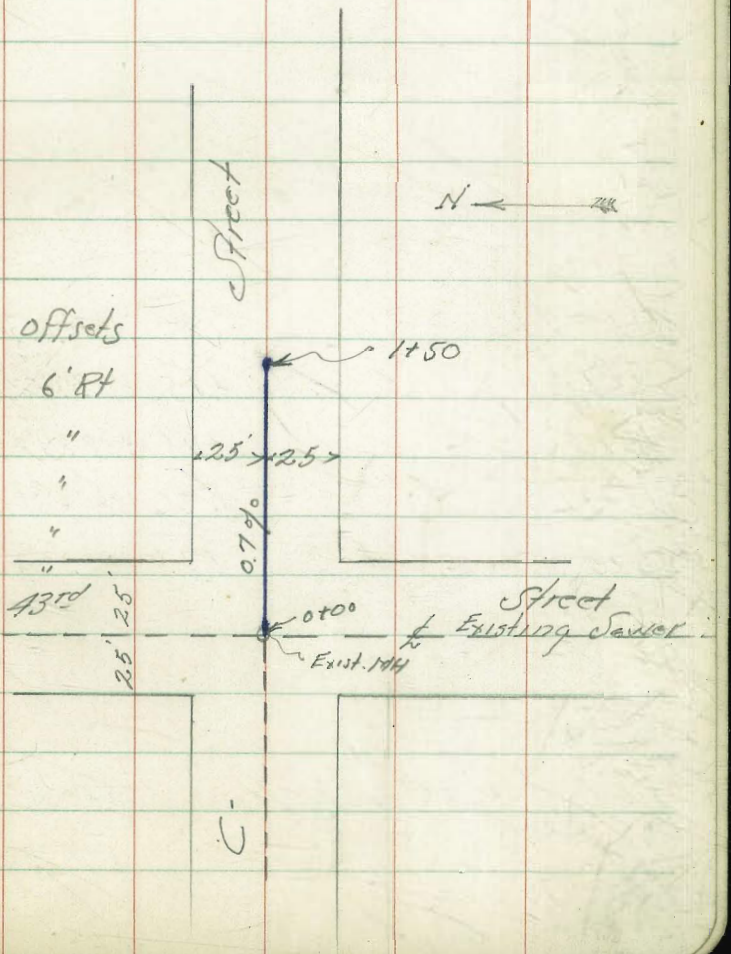
Revised Construction Grades for Proposed Sewer on C-St. from 43rd St. East.

Plan 3363-B

			Elev. Flow Line	Cuts	offsets
1+50 = OE.	3.84	193.94	186.05	7.89	6' Rt
1+12.5	3.98	193.80	185.79	8.01	"
0+75	4.68	193.10	185.53	7.57	"
0+37.5	5.80	191.98	185.26	6.72	"
0+00 ℄ MH.	6.55	191.23	185.00	6.23	"
		Existing Flow	181.20		
	7.30	197.78			

B.M. Spike in Pole S.W. C. 43rd — 190.48

P-15



16+50		1.80	385.87		
16+15		4.15	383.52		
15+80		3.75	383.92	376.82	7.10
15+37.5		6.36	381.31	377.45	3.66
14+97.10 = △ Rt 90°		5.73	381.94	376.25	4.69
	682.387.67		380.85		BM. on Hd. wall
			~~415.78~~		~~BM.~~

8" Water Main

Gibbs Airport

Location
FB 1754-46

7+00			10.61	387.65	380.3
6+50			2.92	388.34	381.5
6+00			8.43	389.83	382.8
+50			6.47	391.79	
5+00			4.11	394.15	
4+50			2.01	396.25	
TP	1.36	398.26	12.79	396.90	
4+00			11.33	398.56	
3+50			2.55	400.34	
3+00			8.97	400.92	
2+65			10.97	398.92	
2+38.01	Δ Lt		2.53	400.36	
2+00			7.50	402.39	
1+50			4.78	404.91	
1+10 = Δ Rt. 1°10			3.16	406.73	
T.P.	0.23	409.89	12.88	409.66	
0+55	0		12.88	409.66	
0+00			9.75	412.79	
	6.76	422.54		415.78	

7.3	
6.8	
7.0	
	State B.M.

					Elev. Bottom Pipe	Cuts
14+15			9.43	375.88	369.0	6.9
13+95			12.35	372.96	369.0	4.0
13+50			11.37	373.94	372.2	1.7
T.P.	0.48	385.31	3.57	384.83		
13+00			3.57	384.83	376.0	8.8
12+50			2.98	385.42	376.04	9.4
12+00			2.99	385.41	376.08	9.3
11+50			2.46	385.94	376.12	9.8
11+00			4.11	384.29	376.16	8.1
10+48.6	6' = Δ H. 1.92'		5.15	383.25	376.2	7.1
10+00			4.48	383.92	376.4	7.5
9+50			3.95	384.45	376.8	7.7
9+00			3.19	385.21	377.2	8.0
8+50			2.62	385.78	377.8	8.0
T.P.	2.09	388.40	11.95	386.31	~~377.8~~	
8+00			11.95	386.31	378.3	8.0
7+50			11.35	386.91	379.2	7.7
		378.26				

16+88.8 = Rt. Way Line		1.80	385.87		
16+53.8		4.15	383.52		
16+18.8		3.75	383.92	376.82	
15+76.3		6.36	381.31	377.65	
15+35.89 = POT.		5.73	381.94	378.25	
	6.82		380.85 w.c.a.		
			380.85		
ck BM on Hd wall	387.67	4.42	380.89		
14+98.93 = Δ Rt 94°42'30"		4.92	380.39	377.8	2.6
14+45		7.13	378.18	372.0	6.2
	385.31				

Construction Grades

Proposed Relocation 8" Water Main

Cont. P. 25

5+50			12.53	392.18	384.30	7.9 '
5+00			10.05	394.66	385.80	8.9 '
4+50			4.96	399.75	387.40	12.4 '
4+00			2.22	402.49	389.0	13.5 '
3+50			1.74	402.97	391.1	~~10.9~~ 11.9 '
T.P.	0.79	404.71	12.05	403.92		
3+00			12.05	403.92	394.0	9.9 '
2+65			10.80	405.17	396.0	9.2 '
2+38.9'	Δ Lt 2°47'30		9.22	406.05	397.7	8.4 '
~~0+50~~ 2+00			8.33	407.64	399.80	7.8 '
1+50			5.34	410.63	402.40	8.2 '
1+00			2.65	413.32	405.0	8.3 '
0+50			0.71	415.26	408.0	7.3 '
0+04.9					410.6 =	Bottom Existing "T"
~~0+50~~			~~0.71~~			
	3.18	415.97		412.79		BM on Stob 0+00 P21

					Fl. Bottom 8" Pipe	Cuts	offsets
				.03			
chk P.22				383.25			
10+48.65 = ΔH.			2.60	383.28	376.2	7.1	
10+00			8.35	384.53	376.40	8.1	✓
9+50			7.47	385.41	376.80	8.6	✓
9+00			6.95	385.93	377.20	8.7	✓
8+50			6.76	386.12	377.80	8.3	✓
8+00			6.20	386.68	378.30	8.4	✓
7+50			5.29	387.59	379.20	8.4	✓
7+00			4.84	388.04	380.30	7.7	✓
6+50			4.49	388.39	381.50	6.9	✓
6+00			2.22	390.66	382.8	7.9	✓
T.P	0.70	392.88	12.53	392.18			
		404.71					

11-3-47
Walker
Hendricks
Becker
Johnson

Check Levels for Gutter Grades
On 51st St Adams to Dick St.
On Dick from 51st St to Winona
Grades in FB-1796 P. 20-26

Sta.	+	H.I.	-	Elev.	B.M.
3+00			5.35	391.21	
2+80			5.46	391.10	
2+60			5.57	390.99	
2+40			6.10	390.46	
2+20			6.23	390.33	
2+00			5.93	390.63	
1+80			6.04	390.52	
1+60			6.19	390.37	
1+40			6.33	390.23	
1+20			6.29	~~390.17~~ 390.17	
1+00			6.58	389.98	
0+80			6.74	389.82	
0+60			6.92	389.63	
0+40			7.10	389.46	
0+20			7.36	389.20	
0+00			7.65	388.91	
	473	396.56			391.83

7+64 EC Ret.
on Collier 57st

Check Levels 51st. & Dick St. Contd.

Stg. Lt.	+	H.I	-	Elev	B.M.
6+70			4.24	392.32	
6+50			4.06	392.50	
6+33			3.93	392.63	
5+90					
5+80			3.74	392.82	
5+70			3.87	392.69	
5+60			4.02	392.54	
5+50			4.04	392.52	
5+40			3.97	392.59	
5+20			4.08	392.48	
5+00			4.19	392.37	
4+80			4.71	391.85	
4+60			4.41	392.15	
4+40			4.64	391.92	
4+20			4.65	391.91	
4+00			4.79	391.77	
3+80			4.92	391.64	
3+60			5.03	391.53	
3+40			5.50	391.06	
3+20			5.29	391.27	
		396.56			

Stg. Rt.	+	H.I	-	Elev.
6+40			5.50	392.06
6+25			5.37	392.19
6+10			5.25	392.31
5+95			5.17	392.39
5+80			5.12	392.44
TP.	5.32	397.56	4.32	392.24
5+60			3.96	392.60
5+40			3.96	392.60
5+20			3.97	392.59
5+00			4.05	392.51
4+82.5			4.07	392.49
		396.56		

Check Levels 51st St & Dick St Cont'd

Sta Lt.	+	HI	−	Elev.	BM
8+60			5.20	392.36	
8+40			5.27	392.29	
8+20			5.34	392.22	
8+05			5.39	392.17	
7+98.1			5.41	392.15	
7+91.2			5.44	392.12	
7+84.3			5.48	392.08	
7+77.4			5.54	392.02	
7+70.5			5.55	392.01	
7+64	HW Ret Collier		5.60	391.96	
TP	5.32	397.56	4.32	392.24	
7+64	On SW Ret Collier		4.73	391.83	
7+54			4.70	391.86	
7+44			4.70	391.86	
7+24			4.71	391.85	
7+24			4.64	391.92	70K
7+15			4.55	392.01	
7+00			4.47	392.09	
6+85			4.33	392.23	
		396.56			

Sta.	+	HI	−	Elev.	Elev.
9+55			4.53	393.03	
9+45			4.55	393.01	
9+35			4.58	392.98	
9+25			4.50	393.06	
9+15			4.53	393.03	393.05
9+10			4.56	393.00	
8+90			4.58	392.98	
8+70			4.75	392.81	
8+50			4.80	392.76	
8+30			4.78	392.78	
8+10			4.92	392.64	
7+90			4.99	392.57	
7+70			5.09	392.47	
7+50			5.22	392.34	
7+30			5.23	392.34	
7+10			5.32	392.24	
6+90			5.40	392.16	
6+70			5.50	392.06	
6+61	valley Gutter To West		5.52	392.04	
		397.56			

Check Levels on 51st and on Ockets Cont'd

Sta. Lt	+	H.I.	−	Elev	Elev
11+10			5.49	392.43	
11+00			5.44	392.48	
10+90					
TP	5.08	397.92	4.72	392.84	
10+80			5.03	392.53	
10+70			4.97	392.59	
10+60			4.95	392.61	
10+50			4.94	392.62	
10+40			4.87	392.69	
10+30			4.82	392.74	
10+20			4.79	392.77	
10+10			4.71	392.85	
10+00			4.70	392.86	392.87
9+80			4.82	392.74	
9+60			4.91	392.65	
9+40			4.99	392.57	
9+20			5.34	392.22	
9+00			5.11	392.45	
8+80			5.14	392.42	
		397.56			

Sta. Rt	+	H.I.	−	Elev.
11+35			5.14	392.78
11+25			5.14	392.78
11+15			5.13	392.79
11+05			5.10	392.82
10+95			5.11	392.81
10+85			5.11	392.81
10+75			5.06	392.86
TP	5.08	397.92	4.72	392.84
10+65			4.71	392.85
10+55			4.65	392.91
10+45			4.73	392.83
10+35			4.69	392.87
10+25			4.54	393.02
10+15			4.46	393.10
10+05			4.56	393.00
9+95			4.57	392.99
9+85			4.75	392.81
9+75			4.53	393.03
9+65			4.51	393.05
		397.51		

Check Levels on 51st & on Dicks Sts Cont'd

Sta.	+	H.I.	−	Elev.	B.M.
14+80			5.46	392.46	
14+60			5.48	392.44	
14+40			5.52	392.40	
14+20			5.58	392.34	
14+00			5.94	391.98	
13+80			5.70	392.22	
13+60			5.75	392.17	
13+44			5.78	392.14	
13+28			5.85	392.07	
12+37			5.85	392.07	392.08
12+20			5.79	392.13	
12+00			5.75	392.17	
11+80			5.67	392.25	
11+70			5.62	392.30	
11+60			5.61	392.31	
11+50			5.63	392.29	
11+40			5.63	392.29	
11+30			5.84	392.08	
11+20			5.56	392.36	
		397.92			

Sta	+	HI	-	Elev.	B.M.
14+60			5.07	392.85	
14+40			5.13	392.79	
14+20			5.09	392.83	
14+00			5.23	392.69	
13+80			5.28	392.64	
13+60			5.39	392.53	
13+40			5.42	392.50	
13+20			5.50	392.42	
13+07	Valley Gutter to So		5.48	392.44	392.45
13+00			5.53	392.39	
12+80			5.57	392.35	
12+60			5.53	392.39	
12+40			5.55	392.37	
12+20			5.53	392.39	
12+00			5.41	392.51	
11+81			5.22	392.70	
11+62			5.14	392.78	
11+55			5.14	392.78	
11+45			5.16	392.76	
		397.92			

Check Levels on 51st & on Dick Sts. Cont'd.

Sta.	+	H.I.	−	Elev	B.M.
17+97			4.49	393.43	
17+87			4.52	393.40	
17+77			4.44	393.48	
17+67			4.46	393.46	393.47
17+54			4.58	393.34	
17+39			4.66	393.26	
17+24			4.74	393.18	
17+09			4.72	393.20	
16+94			4.75	393.17	
16+80			5.03	392.89	
16+60			5.14	392.78	
16+40			4.88	393.04	
16+20			4.95	392.97	
16+00			4.97	392.95	
15+80			5.06	392.86	
15+60			5.38	392.54	
15+40			5.41	392.51	
15+20			5.29	392.63	
15+00			5.42	392.50	
		397.92			

(31)

Sta.	+	H.I.	−	Elev
17+85			4.33	393.59
17+75			4.28	393.64
17+65			4.29	393.63
17+55			4.21	393.71
17+40			4.21	393.71
17+25			4.24	393.68
17+10			4.27	393.65
16+95			4.35	393.57
16+80			4.34	393.58
16+60			4.36	393.56
16+40			4.43	393.49
16+20			4.62	393.30
16+00			4.62	393.30
15+80			4.68	393.24
15+60			4.82	393.10
15+40			4.85	393.07
15+20			4.93	392.99
15+00			5.02	392.90
14+80			5.02	392.90
		397.92		

Check Levels 51st & Dick Sts. Contd.

Sta	+	H.I	−	Elev	B.M.
			4.02	398.21	✓ 398.20 Top F Hydt Winona & Collier
18+17			4.92	393.31	
TP.	4.78	398.23	4.47	393.45	
18+07			4.54	393.38	
		397.92			

Sta.	+	H.I	−	Elev.	B.M.
18+62			6.95	391.28 ~~391.35~~	
18+55			6.91	391.32	
18+35			5.97	392.26	
18+15			5.41	392.82	
17+95			4.75	393.48	393.48
TP.	4.78	398.23	4.47	393.45	
		397.92			

Check Levels on No Side Collier 50th St. to Winona and on Winona Collier to Dick St. on East and Collier to Lucille Dr. on West. ✓

Sta.	+	H.I.	-	Elev.	B.M.
4+10			4.80	393.42	
4+00			4.87	393.35	
3+90			4.94	393.28	
3+80			5.00	393.22	
3+70			5.32	392.90	
3+60			5.14	393.08	
3+50			5.25	392.97	
3+40			5.36	392.86	
3+30			5.45	392.77	
3+20			5.72	392.50	
3+10			5.53	392.69	
3+00			5.62	392.60	
2+90			5.67	392.55	
2+79			5.76	392.46	
2+67			5.83	392.39	
2+55			5.86	392.36	
BM.	4.02	398.22			394.20

S.E. Top Fire Hyd. Winona & Collier

Sta.	+	H.I.	-	Elev.	B.M.
2+70			5.83	392.39	
2+60			5.87	392.35	? 392.39
2+50			5.92	392.30	
2+40			6.04	392.18	
2+20			6.16	392.06	
2+00			6.28	391.94	
1+80			6.43	391.79	
1+60			6.61	391.61	
1+40			6.72	391.50	
1+20			6.82	391.40	
1+00			6.98	391.24	
0+80			7.08	391.14	
0+60			7.19	391.03	
0+40			7.42	390.80	
0+20			7.40	390.82	
0+00			7.49	390.73	
10+70	50th & Collier NW Ref.				
		398.22			

Check Levels on Collier & Winona Sts Contd.

Sta.	+	H.I.	−	Elev.	B.M.
5+83			5.68	392.54	
5+77			5.77	392.45	
5+71			5.77	392.45	
5+65			5.70	392.50 ~~392.42~~	
5+59			5.49	392.73	
5+40			5.28	392.94	
5+30			4.97	393.25	
5+20			4.72	393.50	
5+10			4.65	393.57 ~~393.47~~	
5+00			4.83	393.39	
4+90			4.58	393.64	
4+80			4.55	393.67	
4+70			4.58	393.64	
4+60			4.63	393.59	
4+50			4.93	393.29	
4+40			4.73	393.49	
4+30			4.94	393.28	
4+20			4.77	393.45	
		398.22			

Sta.	+	H.I.	−	Elev.	B.M.
18+17 on So. Side Dick St					
4+07 =			4.92	393.30	393.31
3+93			5.00	393.22	
3+80			5.09	393.13	
3+60			5.24	392.98	
3+40			5.33	392.89	
3+30			5.63	392.59	
3+20			5.60	392.62	
3+10			5.66	392.56	
3+00			5.71	392.51	
2+90			5.73	392.49	? 392.49
2+80			5.78	392.44	
		398.22			

Check Levels on Collier 51st to 50th and on 50th St. Collier to Dick St. ✓

Sta Lt	+	H.I.	-	Elev	B.M.
10+88			5.37	390.35	
10+80			5.34	390.38	
10+60			5.25	390.47	
10+40			5.15	390.57	
10+20			5.34	390.38	
10+00			4.97	390.75	
9+80			4.89	390.83	
9+60					
9+40			4.72	391.00	
9+20			4.63	391.09	
9+00			4.54	391.18	
8+80			4.62	391.10	
8+60			4.34	391.38	
8+40			4.22	391.50	
8+20			4.01	391.71	
8+00			4.25	391.47	
7+82			3.95	391.77	
7+64			3.89	391.83	
	3.89	395.72			391.83

3 yrs Rel. EG Sta. 7+64 on 51st & Collier

Sta. Rt	+	H.I.	-	Elev	B.M.
10+80			5.11	390.61	
10+70			5.11	390.61	
10+60			5.06	390.66	
10+40			5.01	390.71	
10+20			4.89	390.83	
10+00			4.83	390.89	
9+80			4.88	390.84	
9+60			4.64	391.08	
9+40			4.56	391.16	
9+20			4.49	391.23	
9+00			4.67	391.05	
8+80			4.25	391.47	
8+60			4.21	391.51	
8+40			4.10	391.62	
8+20			4.30	391.42	
8+00			3.97	391.75	
7+82			3.87	391.85	
7+64			3.75	391.97	
		395.72			

Check Levels Collier St & 50th St Cont'd

Sta	+	H I	−	Elev	B.M.
12+10			4.56	391.16	
12+00			4.61	391.11	
11+90			4.85	390.87	
11+80			4.88	390.84	
11+70			4.72	391.00	
11+60			4.73	390.99	
11+50			4.73	390.99	
11+40			4.82	390.90	
11+30			4.91	390.81	
11+20			4.95	390.77	
11+10			4.93	390.79	
11+00			4.97	390.75	
10+90			4.93	390.79	
10+80			4.96	390.76	
0+00	Collier going West.				
10+70	NW Ret. 50th. & Collier		4.97	390.75	
11+07	EC SE. Ret. 50th. & Collier		5.51	390.21	
11+03			5.36	390.36	
10+98			5.38	390.34	
10+93			5.34	390.38	
		395.72			

Sta	+	H I	−	Elev.	B.M.
12+60			5.58	391.35	
12+50			5.57	391.36	
12+40			5.65	391.28	
12+30			5.71	391.22	
12+20			5.76	391.17	
12+10			5.78	391.15	
TP.	4.30	396.93	3.09	392.63	
12+00			4.60	391.12	
11+90			4.66	391.06	
11+80			4.71	391.01	
11+70			4.77	390.95	
11+60			4.99	390.73	
11+50			4.80	390.92	
11+40			4.84	390.88	
11+30			4.93	390.79	
11+20			4.99	390.73	
11+10			4.99	390.73	
11+00			5.02	390.70	
10+90					
		395.72			

Check Levels Collier St. & 50th St. Contd.

Sta.	+	H I	-	Elev.	B.M.
13+90			5.07	391.86	
13+80			5.10	391.83	
13+70			5.13	391.80	
13+60			~~5.13~~		
13+50			5.24	391.69	
13+40			5.25	391.68	
13+30			5.25	391.68	
13+20			5.27	391.66	
13+10			5.63	391.30	
13+00			5.65	391.28	
12+90			5.49	391.44	
12+80			5.50	391.43	
12+70			5.50	391.43	
12+60			5.80	391.13	
12+50			5.58	391.35	
TP.	4.30	396.93	3.09	392.63	
12+40			4.42	391.30	
12+30			4.46	391.26	
12+20			4.50	391.22	
		395.72			

Sta.	+	H I.	-	Elev.	B.M.
14+50			4.88	392.05	
14+40			4.94	391.98	
14+30			4.91	392.01	
14+20			4.93	391.99	
14+10			5.01	391.92	
14+00			5.05	391.88	
13+90			5.10	391.83	
13+80			5.28	391.65	
13+70			5.45	391.48	
13+60			5.25	391.68	
13+50			5.24	391.69	
13+40			5.28	391.65	
13+30			5.36	391.57	
13+20			5.40	391.53	
13+10			5.41	391.52	
13+00			5.76	391.17	
12+90			5.79	391.14	
12+80			5.79	391.14	
12+70			5.53	391.40	
		396.93			

Check Levels on 50th St ✓

Stg.	+	H.I	−	Elev.	B.M.
13+28 / 14+50 So. side Dick St.			4.84	392.09	✓
14+40			4.88	392.05	
14+30			4.86	392.07	
14+20			4.87	392.06	
14+10			4.88	392.05	
14+00			4.99	391.94	
		396.93			

Stg.	+	H.I	−	Elev.	B.M.
12+37 / 14+68 So side Dick St			4.84	392.09	
		396.93			

Check Levels on Adams 51st. St. to Altadena & on Altadena Adams to 51st. St. ✓

Sta.	+	H.I	−	Elev	B.M
1+78			4.81	390.31	
1+68			4.75	390.37	
1+58			4.83	390.29	
1+48			4.88	390.24	
0+00 Going West on Adams					
B.M	4.68	395.12			390.44

NE Return Adams & Altadena

Sta	+	H.I	−	Elev	B.M
1+78			4.59	390.53	
1+68			4.62	390.50	
1+58			4.73	390.39	
1+48			4.78	390.34	
1+40			4.87	390.25	
1+20			5.11	390.01	
1+00			5.25	389.87	
0+80			5.70	389.42	
0+60			5.68	389.44	
0+40			6.25	388.87	
0+20			6.08	389.04	
0+00			6.24	388.88	
0-07.07			6.26	388.86	
0-14.14			6.25	388.87	
0-21.21 B.C.			6.24	388.88	
0-26.3			6.27	388.85	
0-35.2			6.25	388.87	
0-43.5			6.20	388.92	
		395.12			

Check Levels on Altadena Cont'd

Sta.	+	H.I.	−	Elev.	B.M.
5+10			3.61	391.51	
4+90			3.66	391.46	
4+70			3.78	391.37	
4+50			3.79	391.33	
4+30			3.90	391.22	
4+10			4.33	390.79	
3+90			4.00	391.12	
3+70			4.07	391.05	
3+50			4.13	390.99	
3+30			4.23	390.89	
3+10			4.66	390.48	
2+90			4.67	390.45	
2+71			4.48	390.64	
2+53			4.49	390.63	
2+38			4.59	390.53	
2+23			4.62	390.50	
2+08			4.67	390.45	
1+98			4.72	390.40	
1+88			4.72	390.40	
		395.12			

Sta.	+	H.I.	−	Elev.	B.M.
4+80			3.61	391.51	
4+60			3.66	391.46	
4+40			3.72	391.40	
4+20			3.77	391.35	
4+00			4.21	390.91	
3+80			4.27	390.85	
3+60			3.97	391.15	
3+40			4.06	391.06	
3+20					
3+00			4.20	390.92	
2+78			4.27	390.85	
2+68			4.67	390.45	
2+58			4.28	390.83	
2+48			4.34	390.78	
2+38			4.38	390.74	
2+28			4.41	390.71	
2+18			4.54	~~390.~~ ~~390.58~~	? 390.69
1+98			4.55	390.57	
1+88			4.57	390.55	
		395.12			

Check Levels on Altadena Contd.

Sta.	+	H.I	−	Elev	B.M.
7+00			5.12	392.21	
6+90			5.17	392.16	
6+80			5.59	391.74	
6+70			5.24	392.09	
6+60			5.26	392.07	
6+50			5.25	392.08	
6+40			5.31	392.02	
6+30			5.67	391.66	
6+20			5.49	391.84	
6+10			5.78	391.55	
6+00			5.51	391.82	
5+90			5.54	391.79	
5+80			5.60	391.73	
5+70			5.63	391.70	
5+60			5.65	391.68	
5+50			5.69	391.64	
5+40			5.69	391.64	
T.P.	5.73	397.33	3.52	391.60	
5+30			3.91	391.21	
		395.12			

Sta.	+	H.I	−	Elev	B.M.
6+80			5.05	392.28	
6+70			5.00	392.33	
6+60			5.00	392.33	
6+50			5.03	392.30	
6+40			5.07	392.26	
6+30			5.10	392.23	
6+20			5.18	392.15	
6+10			5.21	392.12	
6+00			5.25	392.08	
5+90			5.29	392.04	
5+80			5.73	391.60	
5+70			5.36	391.97	
5+60			5.81	391.52	
5+50			5.47	391.86	
5+40			5.51	391.82	
5+30			5.54	391.79	
5+20			5.59	391.74	
T.P.	5.73	397.33	3.52	391.60	
5+00			3.55	391.57	
		395.12			

Check Levels on Altadena Cont'd ✓

Sta.	+	HI	−	Elev.	BM
8+60					
8+50			4.64	392.69	
8+40			4.63	392.70	
8+30			5.08	392.25	
8+20			5.07	392.26	
8+10			4.73	392.60	
8+00			4.73	392.60	
7+90			4.79	392.54	
7+80			4.78	392.55	
7+70			5.12	392.21	
7+60			5.08	392.25	
7+50			4.85	392.48	
7+40			4.94	392.39	
7+30			5.02	392.31	
7+20			5.04	392.29	
7+10			5.05	392.28	
		397.33			

42 ✓

Sta	+	H.I	−	Elev	BM
5+90 on 51st St.					
8+00 =			4.48	392.85	392.86
7+90			4.47	392.86	
7+80			4.49	392.84	
7+70			4.58	392.75	
7+60			4.66	392.67	
7+50			4.73	392.60	
7+40			4.78	392.55	
7+30			4.81	392.52	
7+20			5.21	392.12	
7+10			5.26	392.07	
7+00			4.95	392.38	
6+90			5.02	392.31	
		397.33			

Hendricks
Johnson
~~Becker~~
11-5-47

Grades for Valley Gutter Across 51st. on So Cb Line Collier

Sta	+	H I	−	Elev. Stakes	Gutter Grade	
7+64	End Ret. SW Cor 51st & Collier		5.15	391.83	391.19	C 0.64 on Cb
#2 (41.6)			5.71	391.27	391.27	C 0.00 Set Stake
#1 (20.8)			5.62	391.36	391.36	C 0.00 " "
6+61	Beg. Valley Gutter East Side 51st St. along So. Cb Collier		4.93	392.05	391.45	C 0.60 on Cb.
B.M.	5.15	396.98			391.83	Top of Cb. S.W. Ret. 51st & Collier Sta. 7+64

Hendricks Grades for Valley Gutter
Johnson Across Dick St at 50th St.
Becker
11-5-47

Sta.	+	H.I.	−	Elev Stakes	Gutter Elev.	
13+28	So. side Dick St. End Valley Gutter		5.15	392.07	391.57	C 0.50 on Cb.
	#2 ~ 24'		5.56	391.66	391.66	C 0.00 Set stake
	#1 ~ 12'		5.47	391.75	391.75	C 0.00 " "
13+07	Beg. Valley Gutter		4.77	392.45	391.84	C 0.61 on Cb.
BM		4.77	391.22		392.45	Top of No. Cb. Sta 13+07 on Rt of Dick St

Grades for French Drain Across Winona at Collier

			Elev.	Gutter Gr.	
CK 2+90		4.40	392.56	392.55 P-33	
2+62 on W. Side Winona		4.60	392.36	391.91	CO.45
	2.76	396.96		394.20	SE Top Hydt. Winona & Collier

12-15-47 Valley Gutter Across Winona St
Hendricks at Collier Ave
Becker
Johnson

Sta.	+	H.I.	−	Elev.	Gutter Gr	C 3' Rt.
				391.94	P-33	
CK 2+00 on Collier			4.97	391.94		
2+40 on Collier		BC Ret. HE				
0+63 =			4.71	392.20	391.69	CO 51
0+42			4.73	392.18	391.77	CO 41
0+21			4.70	392.21	391.84	CO 37
0+00						
2+62 =	W Side	Winona	4.55	392.36	391.91	CO 45
BM	2.71	396.91		394.20		SE Top Hyd. Winona & Collier

1-29-47
Hendricks
Becker
Waddel
Nelson
WO #60138

State Water Services
Dalbergia St Una to Woden

Sta	+	H.I	−	Lt. Elevs. Stakes	Elev Grade
7+82			6.17	15.36	15.10
7+78			5.90	15.63	15.11
6+60			5.99	15.54	15.50
TP	5.27	21.53	7.02	16.26	
6+00	W Line Vesta				16.00
5+72			7.00	16.28	16.14
5+68			7.04	16.24	16.16
4+82			6.31	16.97	16.59
4+78			6.24	17.04	16.61
4+32			5.50	17.78	16.84
4+28			5.50	17.78	16.86
1+82			3.60	19.68	18.09
1+78			3.54	19.74	18.11
0+00	E line Una				19.00
BM	4.17	23.28		1911	NE Tack Una & Dalbergia

Cor F Lt.	Sta	−	Elev. Stake	Elev. Gr.	Cor F Rt
CO 2.6	8+42	6.82	14.71	14.74	FO 0.3
CO 5.2	8+38	7.05	14.48	14.75	FO 2.7
Ex Co	6+60	5.92		15.50	
	6+00			16.00	
CO 1.4	4+82	5.90	17.38	16.40	CO 9.8
CO 0.8	4+78	5.73	17.55	16.41	C1 1.4
CO 3.8	4+32	5.34	17.94	16.57	C1 3.7
CO 4.3	4+28	5.34	17.94	16.58	C1 3.6
CO 9.4	3+82	5.21	18.07	16.73	C1 3.4
CO 9.2	3+78	5.17	18.11	16.75	C1 3.6
C1 5.9	2+82	4.61	18.67	17.07	C1 6.0
C1 6.3	2+78	4.53	18.75	17.08	C1 6.7
	0+00			18.00	

Sta	+	H.I	−	Elev Stake Lt	Elev Gr	Cor F Lt
12+60			7.94	13.56	13.50	Ex C6.
12+32			7.62	13.91	13.60	CO 3.1
12+28			7.62	13.91	13.62	CO 2.9
11+32			6.51	15.02	13.94	C1 0.8
11+28			6.00	15.53	13.95	C1 5.8
9+57			6.75	14.78	14.52	CO 2.6
9+53			6.53	15.00	14.54	CO 4.6
8+82			6.26	15.27	14.78	CO 4.9
8+78			6.36	15.17	14.79	CO 3.8
8+17			6.49	15.04	14.99	CO 0.5
8+13			6.21	15.22	15.00	CO 2.2
		21.53				

Sta	−	Elev. Stake Rt.	Elev. Gr. Rt	Cor F. Rt
12+60	8.42	13.11	13.00	Ex C6
11+92	7.67	13.86	13.30	CO 5.6
11+88	7.57	13.96	13.31	CO 6.5
11+67	7.35	14.18	13.40	CO 7.8
11+63	7.17	14.36	13.41	CO 9.5
10+05	7.02	14.51	14.08	CO 4.3
10+01	7.21	14.32	14.09	CO 2.3
9+57	6.86	14.67	14.27	CO 4.0
9+53	6.96	14.57	14.28	CO 2.9
9+17	6.25	15.28	14.43	CO 8.8
9+13	5.80	15.73	14.44	C1 2.9

2-5-18
Hendricks
Becker
Nelson
W060138

Stake Existing Water Services Dalbergia St. Una to Woden

Sta.	+	14.1	−	Stake Lt Elev	Gr. Lt Elev
6+00					16.00
5+09			8.53	16.61	16.46
5+05			8.41	16.73	16.48
3+79			6.67	18.47	17.11
3+75			6.77	18.37	17.13
3+29			6.13	19.01	17.36
3+25			6.28	18.86	17.38
2+78			5.75	19.39	17.61
2+74			5.73	19.41	17.63
2+26			5.27	19.87	17.87
2+22			5.35	19.79	17.89
1+44			5.16	19.98	18.28
1+40			5.30	19.84	18.30
0+49			5.32	19.82	18.76
0+45			5.25	19.89	18.78
0+00					19.00
	6.03	25.14			19.11

Cut or Fill	Sta.	−	Elev. Stake Lt	Elev. Gr. Rt	Cut or Fill
	6+00			16.00	
C0.15	5+05	5.01	17.40	16.32	C1.08
C0.25 TP+4.43	5+01	4.99 22.41	17.42	16.33	C1.09
C1.36	4+05	7.16	17.98	16.65	C1.32
C1.24	4+01	7.07	18.07	16.67	C1.40
C1.65	3+31	6.75	18.39	16.90	C1.49
C1.48	3+27	6.55	18.59	16.91	C1.68
C1.78	2+34	6.18	18.96	17.22	C1.74
C1.78	2+30	6.17	18.97	17.23	C1.74
C2.00	2+03	6.11	19.03	17.32	C1.71
C1.90	1+99	6.13	19.01	17.34	C1.67
C1.70	1+08	6.27	18.87	17.64	C1.23
C1.54	1+04	6.32	18.82	17.65	C1.17
C1.06	0+76	6.44	18.70	17.75	C0.95
C1.11	0+72	6.41	18.73	17.76	C0.97
	0+00			18.00	

N Ely Tack Una & Dalbergia

Cont'd.

Sta.	+	H.I.	−	Elev. Stake Lt	Elev. Gr. Lt.	Cor F Lt.	Sta	−	Elev. Stake Rt	Elev. Gr. Rt	C or F Rt.
CL 9+18	(R.W.)			(15.28)							
12+60			5.82		13.50						
11+80			6.51	14.59	13.77	C 0.82					
11+76			6.17	14.93	13.78	C 1.15					
10+96			5.17	15.93	14.05	C 1.88					
10+92			5.31	15.79	14.06	C 1.73					
10+28			4.93	16.17	14.27	C 1.90	12+60			13.00	
10+24			4.93	16.17	14.29	C 1.82					
9+88			5.95	15.15	14.41	C 0.71	11+23	6.14	14.96	13.57	C 1.39
9+84			6.08	15.02	14.42	C 0.60	11+19	6.01	15.09	13.59	C 1.50
8+89			5.26	15.84	14.74	C 1.10	10+59	6.15	14.95	13.84	C 1.11
8+85			5.60	15.50	14.75	C 0.75	10+55	6.01	15.09	13.85	C 1.24
8+61			6.05	15.05	14.83	C 0.22	8+90	6.26	14.84	14.54	C 0.30
8+57			6.04	15.06	14.84	C 0.22	8+86	6.07	15.03	14.56	C 0.47
7+40			5.15	15.95	15.23	C 0.72	7+88	5.85	15.25	14.97	C 0.28
7+36			5.99	15.11	15.25	F 0.14	7+84	5.33	15.77	14.98	C 0.79
7+09			5.54	15.56	15.34	C 0.22	7+32	5.87	15.23	15.20	C 0.03
7+05			5.65	15.45	15.35	C 0.10	7+28	6.38	14.72	15.22	F 0.50
6+60					15.50		6+60			15.50	
									↑ 21.10		
	484.	21.10		16.26	TP on	S.W. Sidewalk	Vesta &	Dalbergia	(P-47)		

Walker
Hendricks
Becker
Williams
2-1848

Grades ~ Sewer Construction

In Alley Block 87 E.W. Morse Sub.

Between Broadway & C St.

From Exist. MH East of 29th to

2' West of E. line 30th St.

Misc. Drawing No 488 WO=80079

Station			Elev. Flow line		Cuts	offsets
2+70			9.23	186.58	175.99	10.59
TP	10.57	195.81	0.90	185.24		
2+30 = Bk E.V.C.			3.14	183.00	174.11	8.89
2+10 Bk			7.17	178.97	172.15	6.82
T.P #1	12.53	186.14	1.48	173.61		
1+90 = P.V.C			1.48	173.61	168.17	5.44
1+50			11.46	163.63	158.17	5.46
TP	12.13	175.09	0.43	162.96		
1+10 = Σ MH #1			7.87	155.52	148.17 148.07	7.35 7.45
0+75			12.52	150.87	147.54	3.33
+47.5			14.86	148.53	147.13	1.40
0+20 = Beg. Conc. Encasement			13.45	149.94	146.72	3.22
0+00			10.51	152.88	146.42	6.46
B.M.	10.21	163.39		152.48		

B.M. = Rim Existing M.H. 0+00 FB 18 1/4 3

Sewer Const. in Alley
Block 87.
Cont from P-51

Station					
			Record = 194.96	0.02	
check BM SYLBD E-<C.St			0.83	194.98	
5+08.8			1.54	194.27	187.21	7.06
4+72.4			1.82	193.99	185.83	8.16
4+50			2.41	193.40	184.45	8.95
4+00			4.09	191.72	182.10	9.62
3+50			12.57	183.24	179.75	3.49
3+10			11.78	184.03	177.87	6.16
		195.81				

Walker
Hendricks
Becker
Williams
2-24-48

Check Elevations on Univ.
Between Florida & Alabama
to Determine Settlement of Fill

No 3		1.027 271,022	
No 2	Tack in walk	0.857 271.192	
No 1	Stake	2.616269.433	
	6.089272.049	265.960	

B.M.
N.W. B.P. Univ. & Alabama

Walker
Becker
Williams
3-10-48

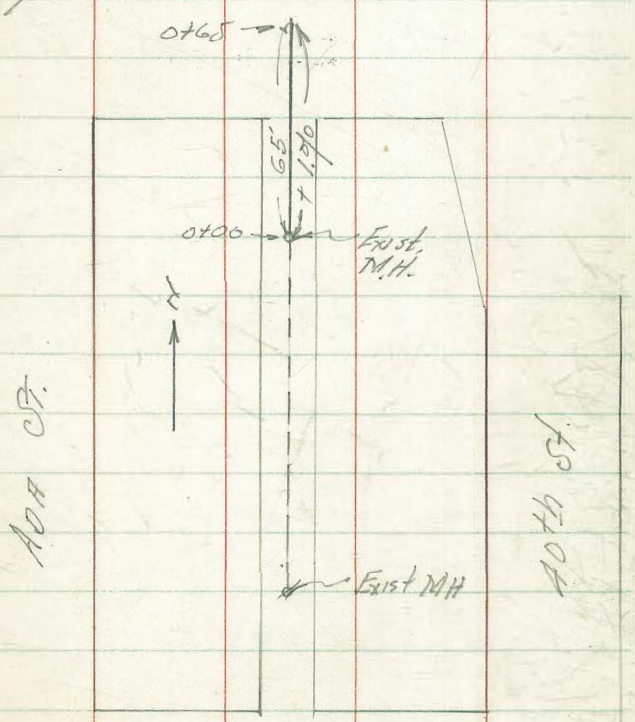
Grades - Sewer Const. in Alley
Between Ada St & 40th
at Imp Ave

WO 60248

(offsets = 3' West)

Block V
F.H. Zschokke
Sale

				Flow line Elev.	Cuts
			402 118.38		
Chk. Starting B.M.			2.72 118.40		
T.P.	3.73	128.12	011 124.39		
0+65 = End			4.95 119.55	115.75	3.80
0+50			5.25 119.25	115.60	3.65
0+37			4.77 119.73	115.47	4.26
0+18.5			4.40 120.10	115.28	4.82
0+00			4.31 120.19	115.10	5.09
0+00	on Exist. MH	Flow line	2.47 115.03	115.03	
T.P.	5.19	124.50	2.91 119.31		
	10.84	129.22	118.38		



B.M. S.E.B.P. Imp. Ave & 39th

Alley Paving

Blk 9 Reed & Hubbell's Add.

Moore
Begg
Green
Roberts

W.O. 31107

3-23-48.

					N.L.	&	S.L.	55
0+50					57.75 6.17 4.17 C 2.0		57.45 6.47 5.02 C 1.45	
T.P.	5.19	63.92	3.73.	58.73				
0+25					57.67 4.79 2.79 C 2.00		57.87 5.09 3.09 C 2.0	
	7' Q Hub Tiedout		20 NW 20 SW	Root nails on Pav.				
0+00	E.L. 29th				57.66 4.86 4.60 C 0.26	57.18	57.30 5.16	= curb cut
0+00	Curb grade on N.L. alley		57.86 4.60 4.60 0.0					
0-10	E cl of 29th St				57.00 5.46	56.80	56.60 5.86	
NW BP 29th & Nointon	8.54	62.46		53.92				

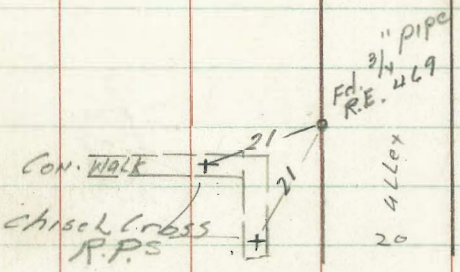
					N.L.	℄	S.L.
							56
+75					58.12 4.76 3.98 C 0.78		57.82 5.06 4.42 C 0.64
T.P.	4.10	62.88	5.14	58.78			
+50					58.05 5.87 4.86 C 1.01		57.75 6.17 4.17 2.0
+25					57.97 5.95 3.95 C 2.0		57.67 6.25 5.23 C 1.02
					57.90 6.02 4.34 C 1.68		57.60 6.32 5.32 C 1.0
0+75					57.87 6.10 4.41 C 1.69		57.57 6.40 4.40 C 2.0
		63.97					

					N.L	&	S.L
3					5850		5820
					5.32		5.67
					4.65		4.62
					C 0.67		C 1.0
+75					5842		5812
					5.40		5.70
					5.38		C.07
					C 0.02		F 0.37
+50					5835		5805
					5.47		5.77
					5.83		C.03
					F 0.36		F 0.26
T.P.	5.64	63.82	4.70	5818			
+25					5827		5797
					4.61		4.91
					4.56		4.83
					C 0.05		C 0.08
2 +00					5820		5790
					4.68		4.98
					4.29		4.44
					C 0.39		C 0.54
		64.88					

					N.G.	℄	S.G.
130					58.89		58.59
					5.58		5.88
					3.75		4.88
					C 1.83		C 1.0
4					58.80		58.50
					5.67		5.97
					3.67		5.59
					C 2.0		C 0.38
175					58.72		58.47
					5.75		6.05
					4.70		5.54
					C 1.05		C 0.51
150					58.65		58.35
					5.82		6.12
					4.86		5.78
					C 0.96		C 0.34
T.P.	5.19	64.47	11.54	59.28			
		2					
3 125					58.57		58.27
					5.25		5.55
					3.30		5.50
					C 1.95		C 0.05
		63.87					
		2					

	N.G.	E	S.L.
5+40 E.V.C.	59.71 5.00 4.23 C 0.71	59.26	59.41 5.30 6.11 F 0.81
+20	59.44 5.27 4.60 C 0.67	58.99	59.14 5.57 5.75 F 0.18
5	59.23 5.48 3.95 C 1.53	58.78	58.93 5.78 5.63 C 0.15
T.P.	5.05	64.71	4.81 59.66
+80	59.07 5.40 3.22 C 2.18	58.67	58.77 5.70 6.15 F 0.45
4+60 P.V.C.	58.98 5.49 2.93 C 2.56	58.53	58.68 5.79 6.07 F 0.28

64.47



F.L.

64.71 = H.I.

Sewer Lat. #1

54.79
9.92
4.58
C 5.34 ✓

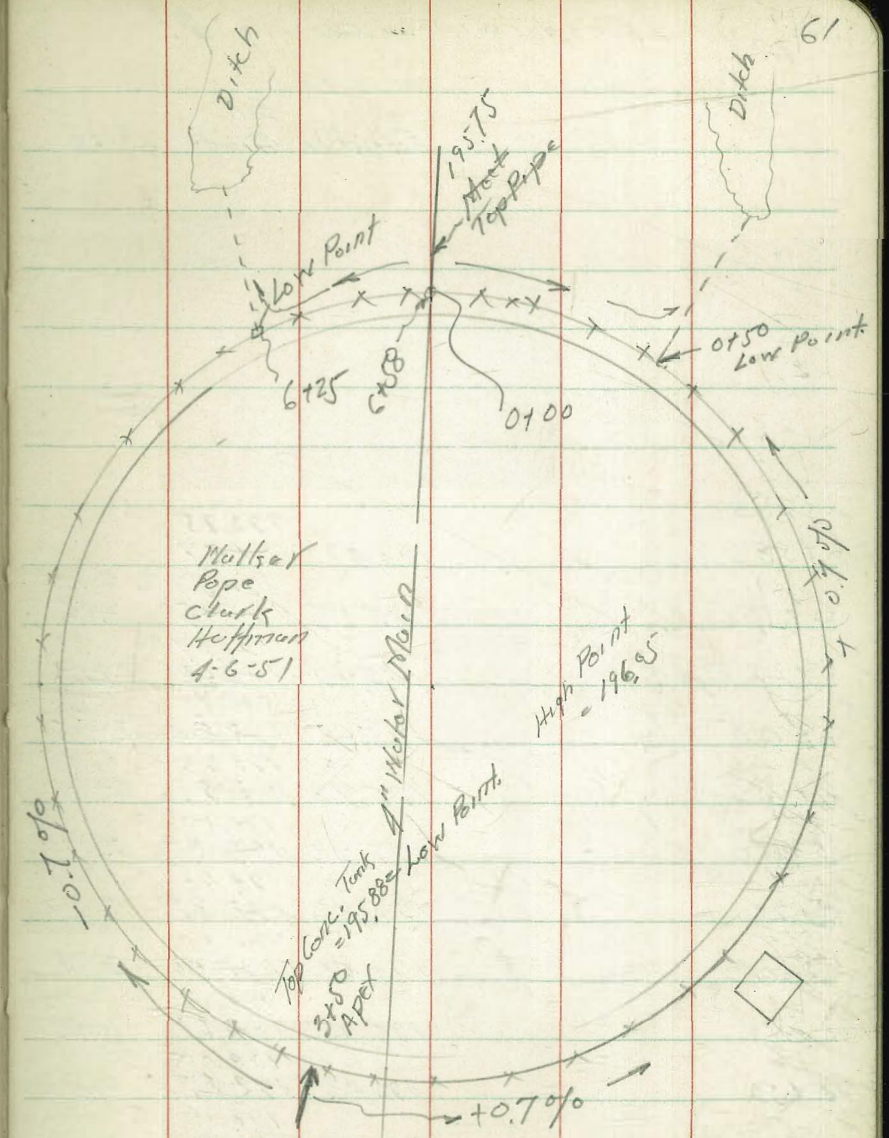
		N.L.	E	S.L.
		Pav.	Pav.	Pav
5+99	W.L. 30"h	60.51	60.14	60.33
		4.20	4.57	4.38
		4.20	4.57	4.39
		0.0 ✓	0.0 ✓	0.01 ✓
5+80	Break	60.37	59.87	60.07
		4.39		4.69
		4.00		4.60
		C 0.39		C 0.09
5+60		60.01		59.71
		4.70		5.00
		3.84		5.46
		C 0.86		F 0.46

64.71

Grades — To Drain Area Around LORING ST. WATER Reservoir

Cont. P. 62

		El. Stakes	Elev. Grade	
			195.15	C 0.52
4+00	-0.70%	195.67	~~194.20~~	~~1.47~~
			195.32	C 0.24
3+75		195.56	~~194.37~~	~~1.19~~
			195.50	F 0.45
3+50 = Apex		195.05	~~194.55~~	C 0.50
			195.32	F 0.12
3+25		195.20	~~194.37~~	~~C 0.83~~
			195.15	C 0.18
3+00		195.33	~~194.20~~	~~C 1.13~~
			194.98	C 0.78
2+75		195.76	~~194.02~~	~~1.74~~
			194.80	C 1.01
2+50		195.81	~~193.85~~	~~1.96~~
			194.63	C 1.17
2+25		195.80	~~193.67~~	~~2.13~~
			194.45	C 1.63
2+00		196.08	~~193.50~~	~~2.58~~
			194.28	1.61
1+75		195.89	~~193.32~~	~~2.57~~
			194.10	C 1.62
1+50		195.72	~~193.15~~	~~2.57~~
			193.93	C 1.66
1+25		195.59	~~192.97~~	~~2.62~~
			193.75	C 1.86
1+00		195.61	~~192.80~~	~~2.81~~
			193.58	2.25
0+75		195.83	~~192.62~~	~~3.21~~
			193.40	C 2.11
0+50 = Lowr Point		195.51	~~192.45~~	~~3.06~~
			194.57	C 0.88
0+25		195.45	~~194.41~~	~~1.01~~
	High Point.		195.75	
0+00 on Pipe		196.37	~~196.37~~	0.00
			200.00	



Assumed Elev.
B.M. Top Conc. Valve Box.

Reservoir - Loring St.

	El. Sta.	El. Grade	Cuts
=0+00		195.75	
6+58	196.37	~~196.37~~	
		194.57	C 0.98
6+50	195.55	~~194.49~~	~~1.06~~
		193.57	C 1.92
6+25 Low Point	195.49	~~193.62~~	~~2.87~~
		193.75	C 1.90
6+00	195.65	~~193.80~~	~~2.85~~
		193.93	C 1.85
5+75	195.78	~~193.97~~	~~2.81~~
		194.10	C 1.82
5+50	195.92	~~194.15~~	~~2.77~~
		194.28	C 1.61
5+25	195.89	~~194.32~~	~~2.57~~
		194.45	C 1.17
5+00	195.62	~~193.50~~	~~2.12~~
		194.63	C 0.99
4+75	195.62	~~193.67~~	~~1.95~~
		194.80	C 0.63
4+50	195.43	~~193.85~~	~~1.58~~
		194.98	C 0.62
4+25	195.60	~~194.82~~	~~1.58~~

Grades - DRAPER ST. PAVING

from Bon Air to Westbourne

Walker
Pope
Clark
Huffman
4-6-51

Plan 8047-L WO 31745

		Cb. Gut.	¼	℄	½	Cb. Gut
1+00						
	Completed 4-18-51	105.41		105.25		106.30
0+75		105.24		106.06		106.09
0+50		105.10		105.89		105.88
				0.3' Crown this Sta. only		
0+25		104.93		105.60 ~~105.70~~		105.67
0+20		104.89		~~105.49~~		105.63
M.L. Bon Air						
0+00		104.75		105.30		105.45
0-05		104.70	105.00	105.25	105.40	105.55
T.P.	106.69					
	103.05	BM S.W. B.P. Draper & Westbourne				

Draper St. Prov. Cont

	℄ Cut.	¼	℄	¼	℄ Cut.
2+25 = Nw Alley	10660 10612				Prop. 10712 108.00
	106.22 2'R				107.26 2'R
2+15 = ℄ Alley					
2+05 = Sw. Alley	10660 10611				Prop. 10718 107.80
	106.21 2'R				107.30 2'R
2+03 = Sc. 2' Alley R	106.10		107.03		107.16
1+75	105.92		106.82		106.93
1+50	105.75		106.63		106.72
1+25	105.57		106.44		106.51

Draper St. - Pond.

	Cb Gut.	¼	℄	¼	Cb Gut.
3+75	105.46		106.30		106.34
3+50	105.57		106.42		106.47
3+25	105.68		106.54		106.60
3+00	105.79		106.66		106.73
2+75	105.90		106.78		106.86
2+50	106.01		106.90		106.99
2+27 = E.C. 2' Alley Radius	106.11		107.01		107.11

Draper St - Paving.

	℄ Gut.	¼	℄	¼	℄ Gut
0+50	105.14		105.81		105.68
0+25	105.38		106.00		105.85
0+20 = Bit on ℄ only	105.42		106.01		105.88
0+00 = NL. Nautilus	105.60		106.20		106.02
T.P.	105.64		3 Yl. BP Nautilus & Draper		
0-05 = End Pav.	105.65 = East. ~~105.55~~		106.12 ~~105.94~~		106.06 East. ~~105.97~~
4+35 = End Pav.	105.18	105.44	105.78	105.91	106.02 ~~105.90~~
4+30 = Shine Nautilus	105.22		105.87		106.05
4+00	105.35		This Sec. only 034 Cor 117 106.12		106.21

Draper St. - Paving

	CL Gut.	¼	℄	¾	CL Gut.
1+83.45 = NL Alley on Lt.	Prop. 104.55 ✓ 104.01 ✓ C 2'R	103.88			104.75 out.
1+75		103.96	104.78 ✓		104.81 ✓
1+63.45 = SL Alley	Prop. 104.55 ✓ 104.17 ✓ C 2'R	104.08 ✓			104.89 out.
1+61.45 = B.C. 2' Alley R		104.10 ✓	104.60	104.90	105.00	104.90
1+50		104.21 ✓	104.70	105.00 ✓	105.09	104.98 ✓
1+25		104.44 ✓	104.91	105.19 ✓	105.27	105.15 ✓
1+00		104.68 ✓	105.14	105.41 ✓	105.47	105.33 ✓
0+75		104.91 ✓	105.36	105.61 ✓	105.66	105.50 ✓

	cb Gut.	℄		℄	cb Gut.
3+25	102.83	103.36	103.69	103.83	103.76
~~3+16.90 = Brk. W. Gut~~	~~102.91~~				
3+00 = Brk. West Gutter	102.96	103.50	103.84	103.99	103.93
2+75	103.16	103.69	104.03	104.17	104.11
2+50	103.35	103.88	104.21	104.35	104.28
2+25	103.55	104.07	104.40	104.53	104.46
2+00	103.74	104.26	104.59	104.71	104.63
1+85.65 = E.C. 21R = Mt. Alley on Lt.	104.55	103.86	104.38	104.70	104.82	104.74 out.

Draper St - Paving

	Gut.	℄	℄	℄	Gut.
3+51.90 End Project.	102.68		103.33		103.51
3+46.90 = ℄ Line Westbourne	102.73		103.45		103.61
~~3+26.9 Brk. on ℄~~			~~103.62~~		

Levels - East Paving - DRAPER St.
For Purpose checking And possible
Altering Paving Grades P-63-69

	W.L.	Gut.	1/4	℄	1/4	Gut.
℄ Nautilus		105.83	106.01	106.16	106.33	106.52
5 1/4 Nautilus		105.63	105.85	105.99	106.10	106.19
5. Cb Nautilus	104.94	105.11	105.29	105.43	105.57	105.80
5'N		105.17	105.44	105.78	105.91	106.01
5L. Nautilus		105.19	105.59	106.02	106.13	106.05
0+00 - N.L. Bon Air						
0 - 12 - N Cb.	104.57 Gut.	104.81	105.14	105.32	105.44	105.55
0 - 21		105.08	105.33	105.59	105.81	106.02
0 - 30 = ℄ Bon Air		105.23	105.54	105.82	106.09	106.39

Draper Exist. Pav. Levels

	W. Line	Gut.	¼	½	¼	Gut.
℄ Westbourne		102.93	103.08	103.25	103.42	103.65
S ¼		102.92	102.95	103.20	103.42	103.61
South Curb.	102.45	102.55	102.76	102.94	103.08	103.33
5' N of SL		102.68	103.04	103.32	103.45	103.51
SL. Westbourne		102.79	103.28	103.60	103.63	103.61
0+00 = NL Nautilus		105.72	106.08	106.33	106.27	106.06
0-05		105.63	105.90	106.12	106.17	106.06
N. Gut.	105.30	105.51	105.66	105.80	105.92	105.98
N ¼ Nautilus		105.79	105.89	106.02	106.14	106.28

103.05

BM SW℄ Westbourne × Draper

Grades For Sewer

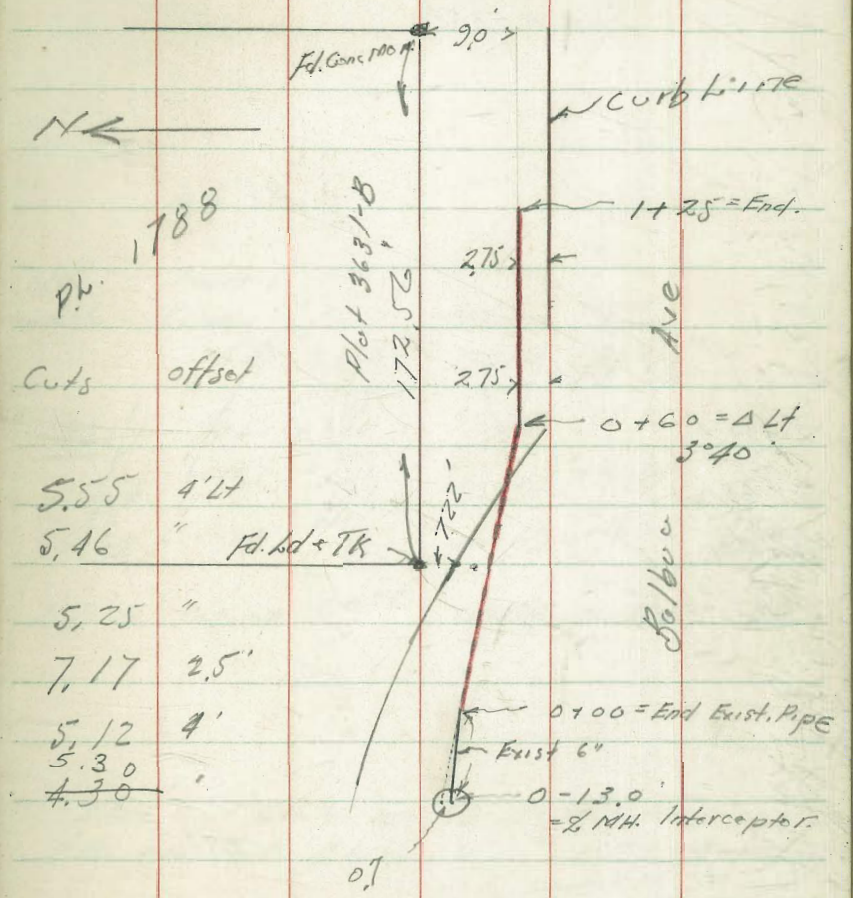
Balboa Ave - West of Pacific

Staked for city Sewer Dept.

WO 20009

Walker
Pope
Clark
Huffman
4-23-51

	El. Invert	Cuts	offset
1+25	15.19	5.55	4' Lt
1+10	14.98	5.46	" Fd. Ld + Tk
0+85	14.60	5.25	"
0+60 = Δ Lt. 3°40'	16.34	7.17	2.5'
0+50	14.22	5.12	4'
0+25	~~13.02~~ 14.22	5.30	
0+00	8.75	~~4.30~~	
	649 BM.		
	18.28		



Interceptor.
Invert MH. Plan 3305-B

~~Intercept~~

~~BM Bolt SE Cor Pump Island Conc. Pad~~
~~NW Pacific & Balboa~~ =

Grade Change in Alley Paving
Block 317 - Reeds ~~Hoe~~ Doleys
Near 29th

See P-74

95.06

6+00 = W.L. 29th
5+80
5+60
5+40
5+20 = P.C.

102.11

0+00 = Elm. 28th

Lt. Rt

Old Grade	New Grade		Old Grade	New Grade	
	96.19	C 1.78	96.16	96.19	
98.57	99.55	C 3.72 / .98 = C 2.74	98.57	99.55	C 2.47 / .98 = C 1.49
100.54	101.27	C 2.70 / .73 = C 1.97	100.54	101.27	C 1.49 / .73 = C 0.76
101.69	101.92	C 1.34 / .23 = C 1.11	101.69	101.92	C 0.27 / .23 = C 0.04
102.00	102.00	C 0.88	102.00	102.00	C 0.11

Elev. cut Stake on Rt 5+20 = Hendricks
B.M. on Cut Stake
102.00 = 5+00 Grade
C 0.11
102.11 = Elev. Stake

Alley BK 317
Rock & Dikes

Lt. Rt.

6+08 B

96.11
95.05 F 1.03 = Rt
F 1.06 on Alley
2' R

6+00.13 = WL 29 Rt

96.19
97.97
C 1.78
96.19

5+80

99.55
102.30
C 2.75
99.55
101.02
C 1.47

5+60

101.62
102.62
C 1.00
101.62
101.97
C 0.35

5+40

102.10
103.02
C 0.92
102.10
101.96
F 0.14

5+20

102.00 No change
102.00

102.11

B.M. Elev. Cut Stub 5+05 on Rt

0+00 = EL 28 Rt

Alley Block 317 (Restake Portion)

	Elev Stakes	Ht. Grade	Cuts
1+55 cb stake on Rt		3.69	
1+40			
1+20		98.90	
1+00		97.95	
0+80		96.75	
0+60	95.31	95.31	
			99.06
0+00 = Ft. 25th			

	Elev Stake	Ht	Cuts
	100.58	99.61	C 0.97
	100.18	98.90	C 1.28
	99.58	97.95	C 1.63
	96.76	96.75	0.00
		95.81	

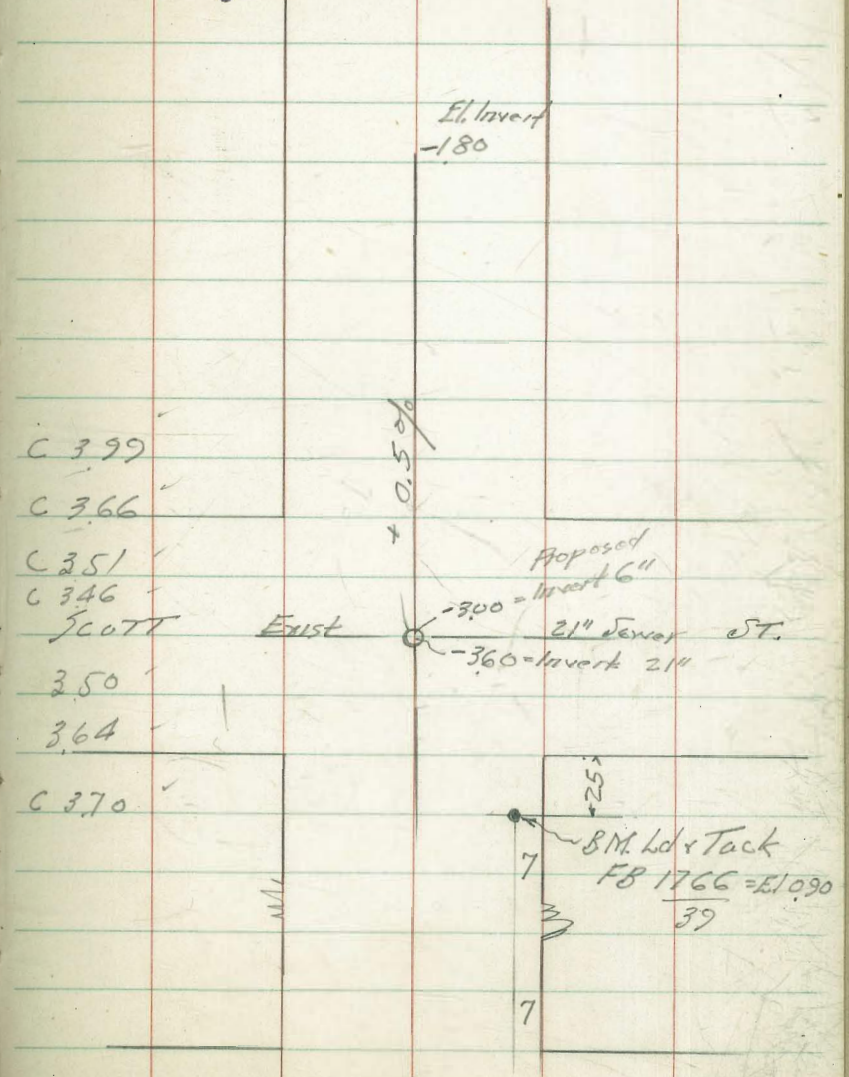
S.M. Elev Stake 1+00 on Ht. = 97.95 (Grade)
C 1.11
99.06

Sewer Const. in Jarvis St.
from E. Scott St. East

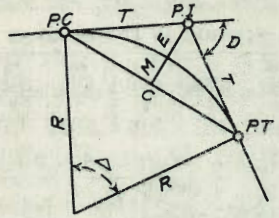
Walker
Pope
Clark
Huffman
5-15-51

W.O. 20009

2+35		2.81	2.38 +1.15 = 1.23 -.32 cb	Future Pav. 0.91	
1+35		3.69	1.50 +0.60 = cb 0.90		
2+40		3.00	2.19	-1.80	C 3.99
2+00		3.53	1.66	-2.00	C 3.66
1+60		3.88	1.31	-2.20	C 3.51
1+20		4.13	1.06	-2.40	C 3.46
0+80		4.29	0.90	-2.60	Scott
0+40		4.35	0.84	-2.80	3.50
0+00		4.49	0.70	-3.00	3.64
0+00	Existing on Invert	8.79		-3.60	C 3.70
0+00 on Rim MH		4.62	0.57		
				B.M.	
	4.29	5.19	0.90		



DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES



CURVE FORMULAS

Radius=R=$\frac{50}{\text{sin. } D/2}$ (1) Degree of Curve=D and sin. $\frac{D}{2}=\frac{50}{R}$ (2)

Tangent=T=R tan $\frac{\triangle}{2}$ (3) Length of Curve=L=100$\frac{\triangle}{D}$ (4)

Middle ordinate=M=R(1—cos. $\frac{\triangle}{2}$) (5)=R vers $\frac{\triangle}{2}$ (6)

External=E=T tan $\frac{\triangle}{4}$ (7)=R ÷ cos. $\frac{\triangle}{2}$—R (8)=R exsec $\frac{\triangle}{2}$ (9)

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

EXPLANATION AND USE OF TABLES

Stations.—Given P. I.=Sta. 161+60.35 to find Sta. of P. C. and P. T. $\triangle$=62° 10′ D=8° 20′. From Table IV for 1° curve T=3454.1 and ÷8⅓=414.49 ft. From Table V correction=.36 or T=414.85 ft. P. C.=Sta. P.I.—T=157 +45.50. Also from (4) L=746.00 and P. T.=Sta. P. C.+L=164+91.50.

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

Deflections.—Deflection angle=½ D for 100 ft., ¼ D for 50 ft., etc. For c ft.=(in minutes) .3 x C x D° or=defl. for 1 ft. from Table III x C. For Sta. 158 of above curve=.3 x 54.5 x 8⅓=136.2′ or 2° 16.2′, or=2.50 x 54.5=136.2′ from Table III. For Sta. 159 deflection angle=2° 16.2′ +8° 20′ ÷2=6° 26.2′, etc.

Externals.—May be found in similar manner to tangents. Thus E for curve above is 115.37. For from Table IV for 1° curve E=960.6 for 8° 20′=960.6 ÷8⅓=115.27 and from Table V correction=.10 or E=115.37 ft. Or suppose $\triangle$=32° and E is measured and found to be 42 ft. What is D? From Table IV E=230.9 and ÷42=5.5 or D=5° 30′.

2°47'30"

0+05.45 = city

0+09.1 = End Exist. Pipe

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

Roadway 16 feet wide. Side Slopes 1 on 1½

For Single Track Embankment.

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

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