961

Preliminary Sewers

F.B. 961

LEVEL BOOK

373

IND

KEUFFEL & ESSER CO.

DRAWING MATERIALS
AND
SURVEYING INSTRUMENTS.

NEW YORK.

CHICAGO. SAN FRANCISCO. ST. LOUIS.

TABLES FOR EXCAVATIONS AND EMBANKMENTS.

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.
ROADWAY 18 FEET WIDE. SIDE SLOPES 1 TO 1.
FOR SINGLE TRACK EXCAVATION

"Copyright, 1895, by Keuffel & Esser Co."

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

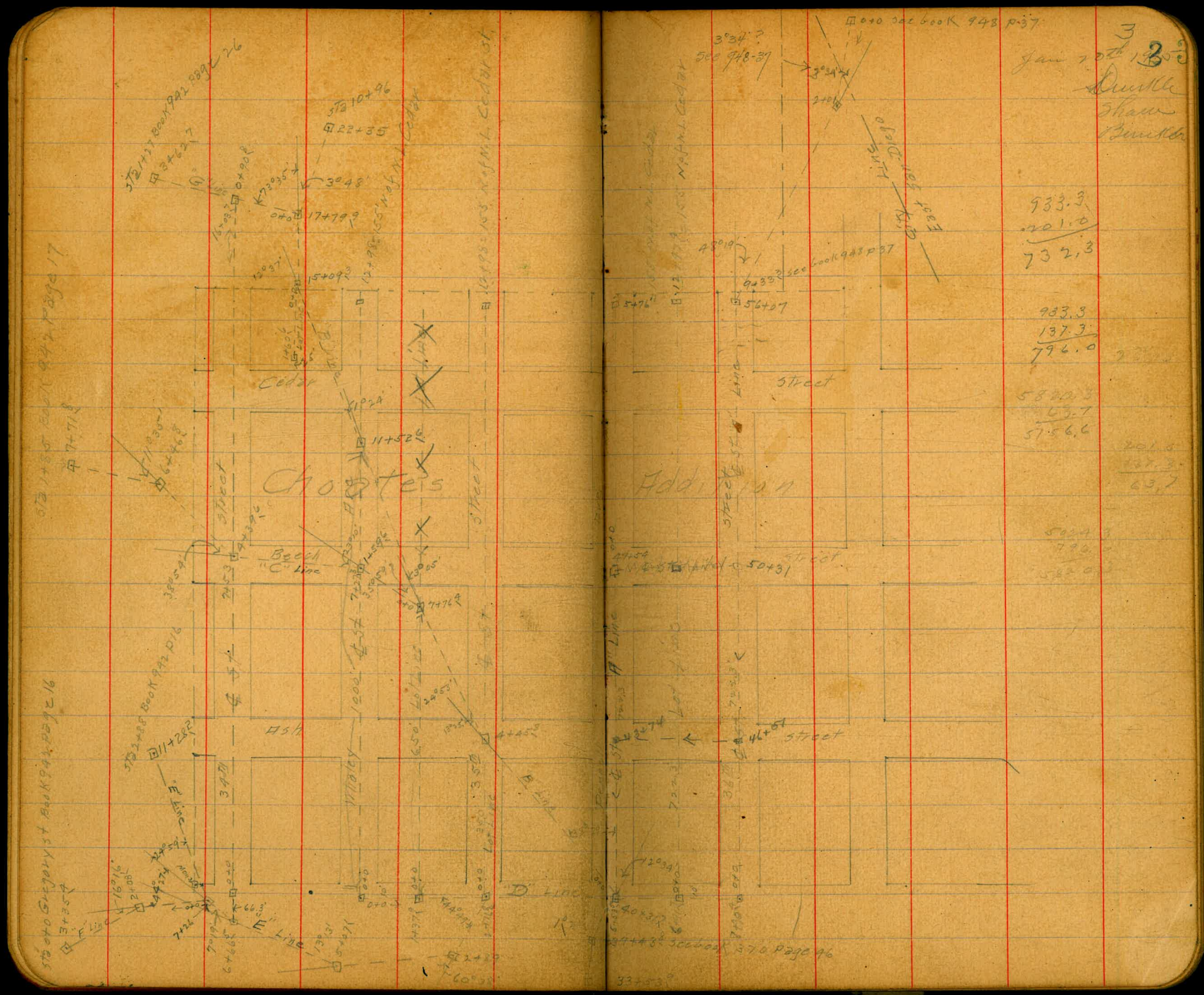
Calculated by Julien A. Hall, M. Am. Soc. C. E.

MICROFILMED
DEC 21 1964

S.E. 37.09 spike pole
S.W. 39.5
N.E. 41.0
N.W. 40.5

1

I



Jan 10th 1955
Durkee
Shaw
Burkhart
933.3
201.0
732.3
933.3
137.3
796.0
5820.3
63.7
5756.6
Cedar
Street
Chortes
Addition
Beech
"C" Line
Ash
Street
"D" Line
"E" Line
"F" Line
"A" Line
See book 948 p-37
See book 370 Page 96

Levels for "A" Line Page 3

B.M. = hol sta 33+53				63.23
	10.73	73.96		
37+43 8			4.8	69.2
+50			4.6	69.4
+83			4.8	69.2
38			6.8	67.2
+20			8.4	65.6
+50			6.3	67.7
+60			3.8	70.2
39			2.5	71.5
T.P.	8.14	79.75	2.35	71.61
+50			7.8	72.0
40			6.3	73.5
+31 7			6.50	73.25
+45			6.5	73.3
+46			8.7	71.1
+50			8.8	71.0
+82			9.8	70.0
41+21			10.0	69.8
+28			7.1	72.7

Sheet 30

5

41+32			8.9	70.9
+37			9.5	70.3
+77			8.1	71.7
+79			5.3	74.5
+82			5.3	74.5
+98			5.4	74.4
42+0			7.8	72.0
+32			8.9	70.9
+37			8.8	71.0
+42			4.5	75.3
+52			4.9	74.9
+54			7.6	72.2
+67			6.5	73.3
+82			5.8	74.0
T.P.	7.49	84.69	2.55	77.20
43+02			10.3	74.4
+05			7.3	77.4
+32			6.9	77.8
+82			6.3	78.4
44+11			5.0	79.7

		84.69		
44+32			6.6	78.1
+82			5.7	79.0
45+32			5.2	79.5
+82			3.6	81.1
46+32			4.1	80.6
T.P.	7.74	88.87	3.56	81.13
+52			6.7	82.2
+72			6.2	82.7
+77			9.9	79.0
+82			9.2	79.7
47+0			9.2	79.7
+02			7.3	81.6
+32			5.6	83.3
+44			5.9	83.0
+54	angle		7.08	81.79
+69			6.7	82.2
+71		See pages 3 & 29	8.6	80.3
+79			8.8	80.1
+87			4.9	84.0
48+0			4.8	84.1

		88.87		
+50			4.7	84.2
49			5.0	83.9
+50			5.5	83.4
50+0			3.0	85.9
+31	angle		0.66	88.21
+59			0.3	88.6
51+09			1.3	87.6
+59			1.9	87.0
52+09			0.9	88.0
T.P.	8.41	96.34	0.94	87.93
+59			7.4	88.9
53.09			6.4	89.9
+59			5.6	90.7
54+09			4.8	91.5
+29			5.0	91.3
+34			7.1	89.2
+39			10.8	85.5
+52			10.2	86.1
+59			7.4	88.9
+78			6.9	89.4

	96.34		
54+83		9.7	86.6
55+09		9.7	86.6
+26		8.2	88.1
+32		6.1	90.7
+59		4.4	91.9
56+07		3.19	93.15

Levels for "B" Line see page 3

B.M. Hub 5½ 40+31?				73.25
B.M.	11.53	84.78		
0+0 = 5½ 40+31? "A" Line			11.5	73.3
+15			12.3	72.5
+20			15.7	69.1
+45			15.1	69.7
+50			13.9	70.9
+75			15.0	69.8
+85			11.5	73.3
1			10.9	73.9
+50			9.9	74.9
2			8.1	76.7
+50			5.9	78.9
3			5.0	79.8
+40			4.0	80.8
+50			5.3	79.5
+55			6.0	78.8
+60			4.6	80.2
4			2.8	82.0
+45.8	10.69	94.54	0.93	83.85

Sheet 30

94.54

+50			10.8	83.7
5			10.1	84.4
+05			10.0	84.5
+10			12.0	82.5
+15			10.7	83.8
+50			9.9	84.6
6			7.9	86.6
+30			8.5	86.0
+50			6.9	87.6
+62			5.4	89.1
7			4.1	90.4
+50			2.6	91.9
+76.4	13.00	105.19	2.35	92.19
8			12.6	92.6
+20			12.8	92.4
+25			15.4	89.8
+30			14.1	91.1
+40			12.6	92.6
+50			12.1	93.1

		105.19				115.15			
9+0			8.6	96.6	13+15			2.0	113.2
+50			5.4	99.8	+50			3.0	112.2
+58			6.0	99.2	14			4.3	110.9
+65			10.0	95.2	+10			4.6	110.6
+70			8.9	96.3	+17			6.6	108.6
10+0			7.2	98.0	+20			5.0	110.2
+50			5.4	99.8	+50			3.5	111.7
+80			5.2	100.0	T.P.	12.43	12.447	3.11	112.04
+90			7.6	97.6	+70			12.0	112.5
11			6.2	99.0	+90			13.6	110.9
+15			4.6	100.6	15			12.7	111.8
+50			2.7	102.5	+09 3			12.15	112.32
+52 6	12.68	115.15	2.72	102.47	+50			10.3	114.2
+60			13.4	101.8	+74			10.2	114.3
+70			15.5	99.7	+76			11.5	113.0
+80			12.7	102.5	+78			10.5	114.0
12			11.0	104.2	16			10.2	114.3
+50			8.3	106.9	+30			9.6	114.9
13			2.9	112.3	+50			8.1	116.4
					+70			7.3	117.2

		124.47			
16+85			4.0	120.5	
17			3.2	121.3	
+43			3.9	120.6	
+50			6.2	118.3	
+60			5.1	119.4	
+79?			4.51	119.96	
18			3.8	120.7	√
+50			1.2	123.3	
T.P.	12.01	135.25	1.23	123.24	
19+0			9.8	125.5	
+50			9.3	126.0	
+65			11.1	124.2	
+90			10.3	125.0	
20+0			12.3	123.0	
+10			9.8	125.5	
+35			8.8	126.5	
+45			10.6	124.7	
+50			9.9	125.4	
+80			7.6	127.7	

		135.25			
21+0			6.9	128.4	
+50			5.1	130.2	
+80			4.8	130.5	
+90			7.5	127.8	
22+0			5.0	130.3	
+35 = Sta 10+96 Childs Line			3.62	131.63	

Levels for 6" line see Page 3

B.M. = 5½	17+79.9			118.96		3+50		3.9	136.3
B.M.	12.11	132.07				+62		2.92	137.24
0+10 = 5½	17+79.9	"B" Line	12.1	120.0					
+35			10.5	121.6					
+50			8.0	124.1					
+90.8			7.11	124.96					
1			7.5	124.6					
+25			10.1	122.0					
+50			8.9	123.2					
2			7.0	125.1					
+15			4.1	128.0					
T.P.	8.19	140.16	0.10	132.97					
+40			7.6	132.6					
+50			8.6	131.6					
+75			11.4	128.8					
+93			11.3	128.9					
3			8.7	131.5					
+10			8.3	131.9					
+15			10.1	130.1					
+20			8.3	131.9					

Sheet 30

Levels for "C" Line Page 3

B.M. Hub 7+76				92.19
B.M.	12.50	104.69		
040=5Tr 7+76 "B" Line			12.5	92.2
+50			10.3	94.4
1			8.4	96.3
+50			6.7	98.0
+59			6.68	98.01
2			4.1	100.6
+32			1.5	103.2
+35			3.6	101.1
+37			1.2	103.5
T.P.	13.06	117.57	0.18	104.51
+50			12.9	104.7
+75			6.3	111.2
3			9.3	108.3
+50			4.2	113.4
T.P.	13.05	130.20	0.42	117.15
4			13.1	117.1
+23			13.7	116.5
+33			13.8	116.4

Sheet 30

130.20

12

4+39			12.21	117.99
+47			13.7	116.5
+50			11.9	118.3
+85			6.9	123.3
5			5.8	124.4
+30			4.8	125.4
+40			6.4	123.8
+50			5.9	124.3
T.P.	11.07	140.46	0.81	129.39
6			10.7	129.8
+46			6.6	133.9
+50			6.0	134.5
+90			5.0	135.5
+91			3.4	137.1
7			2.5	138.0
T.P.	11.16	150.05	1.57	138.89
+20			11.1	139.0
+40			5.4	144.7
+50			5.4	144.7
+71			4.35	145.70

Levels for "E" Line see page 3

B.M. Hob sta 40+31?				73.25
B.M.	8.46	81.71		
0+0=sta 2+76.8 "D" Line			4.70	77.01
+50			3.9	77.8
1			2.0	79.7
T.P.	13.03	94.55	0.19	81.52
+50			12.6	82.0
2			7.3	87.3
+25			5.3	89.3
+50			5.2	89.4
+89			4.43	90.12
3			3.7	90.9
+50			0.7	93.9
T.P.	12.82	107.33	0.04	94.51
4			10.8	96.5
+50			7.2	100.1
5			4.8	102.5
+07			4.4	102.9
+50			2.9	104.4
T.P.	12.01	117.74	1.60	105.73
6			10.1	107.6

Sheet 31

		117.74		
6+50			7.8	109.9
+66.5			6.75	110.99
7			5.0	112.7
+26			3.71	114.03
+50			2.5	115.2
T.P.	11.23	127.71	1.26	116.48
+85			9.9	117.8
8			8.2	119.5
+50			3.9	123.8
T.P.	12.90	138.70	1.91	125.80
9			10.3	128.4
+50			6.9	131.8
10			4.3	134.4
T.P.	10.00	147.91	0.79	137.91
+50			8.6	139.3
11			4.8	143.1
-28.2			2.29	145.62

Levels for "E" Line see page 3

B.M. = Hub 372+26 "D" Line				114.03
	11.50	125.53		
0+00 = 372+26 "D" Line			11.5	114.0
+50			6.4	119.1
+75			0.9	124.6
T.P.	12.95	137.98	0.50	125.03
1			6.7	131.3
+25			3.7	134.3
T.P.	12.71	150.67	0.02	137.96
+50			11.5	139.2
+75			7.4	143.3
2			6.2	144.5
+08			4.9	145.8
+23			6.0	144.7
+29			3.1	147.6
+50			0.9	149.8
T.P.	11.41	161.63	0.45	150.22
+57			11.6	150.0
+68			7.1	154.5
+75			6.4	155.2
		161.63		
2+89			5.0	156.6
3			1.2	160.4
T.P.	10.87	172.07	0.43	161.20
+08			7.5	164.6
+25			3.9	168.2
+35.4			2.04	170.03

Sheet 31

Levels for sewer line from Sta 6+66.5 "E" Line to Sta 0+0 @ 34th St thence from 0+0 34th North to Sta 16+03.7 "G" Line.

B.M.				110.99
	11.55	122.54		
0+0 = 6+66.5 "E" Line			11.5	111.0
+25			4.4	118.1
T.P.	11.75	134.11	0.18	122.36
+50			8.1	126.0
0+66.3 = 0+0 34th St			2.58	131.53
0+0 = 0+66.3	12.04	143.57	12.0	131.6
+25			3.8	139.8
T.P.	12.20	155.66	0.11	143.46
+50			11.1	144.6
+75			4.8	150.9
T.P.	12.17	167.36	0.47	155.19
1			10.1	157.3
+25			0.5	166.9
T.P.	12.57	179.70	0.23	167.13
+50			6.6	173.1
+75			1.3	178.4
T.P.	12.32	191.84	0.18	179.52

191.84

2+0	cut 7'		9.3	182.5
+25			6.3	185.5
+50			3.0	188.8
T.P.	12.30	203.70	0.44	191.40
+75			11.4	192.3
3	cut 8'		8.4	195.3
+25			4.4	199.3
+50			1.4	202.3
T.P.	9.41	211.77	1.34	202.36
4	cut 8'		5.0	206.8
+50			4.6	207.2
+75	cut 7'		7.2	204.6
5	cut 6'		9.8	202.0
T.P.	0.40	199.47	12.70	199.07
+25			2.5	197.0
+50			8.8	190.7
T.P.	0.11	186.68	12.90	186.57
+75			2.6	184.1
6			9.6	177.1
T.P.	0.40	174.34	12.74	173.94

Sheet 31

		174.34		
6+25			4.9	169.4
T.P.	0.31	161.88	12.77	161.57
+50			1.5	160.4
+75			13.2	148.7
T.P.	0.17	149.38	12.67	149.21
7			12.7	136.7
T.P.	0.00	136.71	12.67	136.71
+25			10.2	126.5
T.P.	3.49	127.44	12.76	123.95
+50			8.9	118.5
+53 = 3/2 4+39.6 "C" Line			9.45	118.0
+55			9.8	117.6
+56			11.0	116.4
+57			9.7	117.7
+75			2.5	124.9
T.P.	11.61	138.86	0.19	127.25
8			2.7	136.2
T.P.	12.10	150.96	0.00	138.86
+25			3.1	147.9
T.P.	12.62	163.19	0.39	150.57
+50			4.4	158.8
T.P.	12.64	175.48	0.35	162.84
+75			6.6	168.9
T.P.	12.08	187.44	0.12	175.36
9			10.9	176.5
+25			3.8	183.6
T.P.	12.38	199.46	0.36	187.08
+50			11.8	187.7
+75			7.5	192.0

		199.46		
10+0			1.0	198.5
T.P.	10.73	210.03	0.16	199.30
+25			5.6	204.4
+50			3.3	206.7
+75			3.8	206.2
11			6.0	204.0
+08			7.2	202.8
T.P.	0.76	197.71	13.08	196.95
+25			2.3	195.4
+50			9.6	188.1
+75			12.5	185.2
T.P.	1.04	186.11	12.64	185.07
12			7.3	178.8
T.P.	0.99	174.76	12.34	173.77
+25			2.3	172.5
+50			7.5	167.3
+75			13.0	161.8
T.P.	0.18	161.92	13.02	161.74
13			6.2	155.7
T.P.	0.36	149.30	12.98	148.94
+25			1.1	148.2

		149.20		
13+50			5.3	144.0
+75			9.5	139.8
T.P.	1.19	137.88	12.61	136.69
14			1.9	136.0
+25			2.9	135.0
+50			3.7	134.2
+75			4.5	133.4
15			7.0	130.9
+25			7.7	130.2
+50			9.3	128.6
T.P.	3.41	129.55	11.74	126.14
+70			3.3	126.3
+75			5.2	124.4
+82			7.8	121.8
+85			8.0	121.6
+86			9.7	119.9
+88			8.0	121.6
16+03.7 = 5+90.38 "G" Line			4.59	124.96

Levels for "D" Line see Page 3

B.M. Hole & Whaley St				149.86
B.M.	1.48	151.34		
0+0 = ℄ Whaley St			1.5	149.8
+25			4.8	146.5
+50			10.5	140.8
T.P.	0.17	138.65	12.86	138.48
+75			6.6	132.1
T.P.	0.64	126.67	12.62	126.03
1			5.5	121.2
T.P.	0.51	114.32	12.86	113.81
+25			6.0	108.3
+37.9			11.67	102.65
T.P.	0.25	101.55	13.02	101.30
+50			4.0	97.6
+75			11.9	89.7
T.P.	0.20	89.01	12.74	88.81
2			5.5	83.5
+25			9.2	79.8
+50			10.5	78.5
+76.8			12.00	77.01

Sheet 32

		89.01		
3+0			11.9	77.1
+30			12.2	76.8
4			12.9	76.1
T.P.	11.07	87.29	12.79	76.22
+50			13.3	74.0
+67			13.8	73.5
+75			17.0	70.8
5			19.2	68.1
+35			17.2	70.1
+37			15.3	72.0
+50			14.1	73.2
+53.5 ℄ Pennell Ave or 40+31.7 "M" Line			14.0	73.3
+76			13.9	73.4
+88			15.9	71.4
6			15.6	71.7
+25			13.4	73.9
+38			11.2	76.1
+50			7.0	80.3
T.P.	12.02	99.25	0.06	87.23

		99.25		
6+75			2.1	97.2
T.P.	12.58	111.66	0.17	99.08
+91.7	Lot Line		4.07	107.59
T.P.	12.46	123.51	0.61	111.05
7			10.7	112.8
T.P.	12.35	135.34	0.52	122.99
+25			8.8	126.8
T.P.	12.25	147.52	0.07	135.27
+50			10.0	137.5
T.P.	11.32	158.58	0.26	147.26
+75			10.9	147.7
8			5.6	153.0
+25			1.4	157.2
+30.4 ℄	36.4 St		0.42	158.16

Levels for Sewer ℄ 36th St from Sta 8+30 "D" Line North for 722.3 to ℄ Beech on Old 50+31 "A" Line

B.M. but St. 9+30 ℄				158.16
B.M.	1.87	160.03		
0+0 = St 9+30 ℄ "D" Line			1.9	158.1
+50			3.4	156.6
1			7.4	152.6
+25			9.3	150.7
T.P.	0.93	148.20	12.76	147.27
+50			3.1	145.1
+75			6.5	141.7
T.P.	0.47	136.01	12.66	135.54
2			1.9	134.1
+25			8.9	127.1
T.P.	0.43	123.87	12.57	123.44
+50			3.0	120.9
+75			9.1	114.8
T.P.	0.30	111.74	12.48	111.44
3+0			4.5	107.2
T.P.	0.68	99.93	12.49	99.25
+25			2.8	97.1
+50			9.5	90.4
T.P.	2.45	90.22	12.16	87.77

90.22

3+75	3.9	86.3	
4	5.3	84.9	
+50	6.1	84.1	
5	6.4	83.8	
+50	7.0	83.2	
6	6.4	83.8	
+50	4.6	85.6	
7	2.9	87.3	
+22.3	2.0	88.2	

Feet 37

Levels - Lot Line between 36th & Pennell from 37th 6+91.7 "D" Line North for 1297.9'

B.M.	0.40	107.99		107.59
0+0 = 37th 6+91.7 "D" Line			0.4	107.6
+25			7.5	100.5
T.P.	0.55	95.66	12.88	95.11
+50	↓		1.2	94.5
+75			5.9	89.8
1			12.3	83.4
T.P.	0.90	83.62	12.94	82.72
+25			3.5	80.1
+50			4.2	79.4
2			5.9	77.7
+50			7.1	76.5
3			5.8	77.8
+50			5.2	78.4
4			4.3	79.3
+50			3.9	79.7
5			3.2	80.4
T.P.	9.22	89.99	2.85	80.77
+50			8.8	81.2

Sheet 32

89.99

6			8.0	82.0
+50			7.5	82.5
7			6.6	83.4
+50			5.8	84.2
8			5.1	84.9
+50			4.3	85.7
9			3.9	86.1
T.P.	10.27	97.06	3.20	86.79
+50			9.7	87.4
+90			9.6	87.5
10			11.2	85.9
+20			12.8	84.3
+30			11.0	86.1
+50			9.1	88.0
11			8.9	88.2
+50			6.7	90.4
T.P.	12.81	109.58	0.29	96.77
12			12.4	97.2
+25			8.8	100.8
+50			4.9	104.7
+75			1.7	107.9
T.P.	9.19	117.21	1.56	108.02
12+97.9 = 55 x 64 x 6 - 6 = 32			5.2	112.0

Levels & Pennell Are from Sta 47+54 "A" Line N for 576'

B.M.	12.21	94.00		81.79
0+0 = Sta 47+54 "A" Line			12.2	81,8
+28			10.9	83,1
+78			10.1	83.9
1+03			8.1	85.9
+28			1.7	92,3
T.P.	12.05	105.63	0.42	99.58
+53			8.2	97.4
+78			4.9	100.7
+86			4.2	101.4
2+03			6.6	99.0
+14			3.0	102.6
T.P.	12.40	117.66	0.37	105.26
+28			7.6	110.1
T.P	12.44	129.50	0.60	117.06
+53			10.4	119.1
+78			6.2	123,3
3+03			2.6	126.9
T.P.	12.34	140.71	1.13	128.37
+28			1.8	130.9

Sheet 33

		140.71		
3+53			1.9	138,8
T.P.	12.64	153.26	0.09	140.62
+78			8.7	144.6
4+03			4.8	148.5
T.P.	12.38	165.35	0.29	152.97
+28			11.9	153,5
+53			7.5	157.9
+78			1.3	164.1
T.P.	12.38	177.27	0.44	164.91
5+03			9.5	167.8
+28			4.5	172.8
+53			1.7	175.6
T.P.	12.42	184.25	0.96	176.33
+76			5.7	178.6

Levels ℄ 35th St from Sta 2+76.8 "D" North for

B.M. Hub				77.01
B.M.	12.31	89.32		
0+0 = Sta 2+76.8 "D" Line			12.3	77.0
+50			10.4	78.9
1			7.5	81.8
+50			4.6	84.7
2			3.0	86.3
+20			3.3	86.0
+50			5.6	83.7
3			6.2	83.1
+50			5.47	83.85
4			7.2	82.1
+05			5.6	83.7
+50			3.6	85.7
T.P.	12.55	101.29	0.58	88.74
5			10.3	91.0
+25			5.7	95.6
+50			0.2	101.1
T.P.	12.59	113.75	0.13	101.16
+75			6.4	107.4
6			1.2	112.6
T.P.	12.73	126.00	0.48	113.29

Sheet 33

		126.00		
6+25			12.0	114.0
+50			9.3	116.7
+75			7.0	119.0
7			1.5	124.5
T.P.	12.56	138.45	0.11	125.89
+25			8.2	130.3
+50			2.6	135.9
T.P.	12.35	150.69	0.11	138.34
+75	cut 8'		11.2	139.5
8			7.4	143.3
+25			4.5	146.2
+50			2.9	147.8
+75			1.2	149.5
T.P.	12.45	162.75	0.39	150.30
9	cut 8'		11.8	151.0
+25			9.4	153.4
+50			7.0	155.8
10	cut 8'		3.4	159.4
T.P.	12.40	174.87	0.28	162.47
+50			11.3	163.6

	174.87		
1140		7.2	167.7
+50		4.0	170.9
12		1.5	173.4
+50		2.1	172.8
+98	cut 6'	7.2	167.7

Levels Lot Line between 35th & Whaley from Sta 1+37.9 "D" Line North for 650 to Sta 7+76.4 "B" Line

B.M.				102.65
B.M.	12.77	115.42		
0+0 = 1+37.9 "D" Line			12.8	102.6
+25			6.8	108.6
+50			2.2	113.2
T.P.	12.12	127.31	0.25	115.19
+75			10.7	116.6
1			8.3	119.0
+50			4.5	122.8
2			1.6	125.7
T.P.	5.73	131.44	1.60	125.71
+50			2.5	128.9
+75			2.7	128.7
3			6.9	124.5
+25			12.0	119.4
T.P.	1.53	120.36	12.61	118.83
+50			4.6	115.8
+75			8.4	112.0
4			12.6	107.8
T.P.	0.59	108.57	12.38	107.98
+25			4.4	104.2

Sheet 38

108.57

4+50			6.0	102.6
+75			6.9	101.7
5			9.6	99.0
+50			11.2	97.4
T.P.	1.42	97.60	12.39	96.18
6			2.9	94.7
+50 = Sta 7+76.4 "B" Line			5.41	92.19

Levels ℄ Whaley from sta 0+0 "D" Line North
for or 155 N of N.L. Cedar St

B.M.				149.86
	12.38	162.24		
0+0 = 0+0 "D" Line			12.4	149.8
0+50			7.1	155.1
1			2.7	159.5
T.P.	12.40	174.64	0.00	162.24
+50			10.7	163.9
2			7.5	167.1
+50			3.6	171.0
T.P.	5.30	176.63	3.31	171.33
3			4.2	172.4
+50			3.2	173.4
4			5.9	170.7
+50			8.8	167.8
5			12.4	164.2
T.P.	0.52	164.47	12.68	163.95
+25			4.1	160.4
+50			12.3	152.2
T.P.	0.93	152.81	12.59	151.88
+75			12.6	140.2
T.P.	0.58	140.77	12.62	140.19

Sheet 33

		140.77		
6+0			12.8	128.0
T.P.	0.18	128.04	12.91	127.86
+25			9.9	118.1
T.P.	0.36	115.49	12.91	115.13
+50			5.2	110.3
+75			9.3	106.2
7			12.4	103.1
T.P.	5.96	108.89	12.56	102.93
+27.8 = sta 1+59.4 "C" Line			10.88	98.01
+50			11.4	97.5
+75			13.1	95.8
8			12.3	96.6
+50			9.3	99.6
+63			8.0	100.9
9			0.5	108.4
+15			0.2	108.7
+50			7.3	101.6
+60			11.2	97.7
+69			7.8	101.1
10+0 = sta 11+52.6 "B" Line			6.4	102.5

		108.89		
10+45			7.8	101.1
+50			6.9	102.0
11			3.2	105.7
T.P.	11.67	119.09	1.47	107.42
+50			11.4	107.7
+84			11.0	108.1
+91			13.2	105.9
+95			12.0	107.1
12			11.9	107.2
+12			10.8	108.3
+25			6.6	112.5
T.P.	12.22	130.90	0.41	118.68
+50			11.0	119.9
+75			7.1	123.8
+98=155' N of M.L. Cedar			1.8	129.1

Levels - Lot Line between 34th & Whaley from
Sta. 15+09 3 "B" Line South for 160.6' = 25' N of N.L. Cedar St

B.M. Hub	15+09 3			112.32
	11.64	123.96		
0+0 = 15+09 3 "B" Line			11.6	112.4
+50			12.8	111.2
+57			13.3	110.7
+59			14.4	109.6
+87			14.3	109.7
/			10.5	113.5
+25			0.5	123.5
T.P.	12.03	135.59	0.40	123.56
+50			4.9	130.7
+60.6			0.3	135.3

Sheet 33

Pret. sewer on Ash from center 36th this will be part of main line

Pennell to center of

May 24/15

{ Childs
Evans
Shaw

29

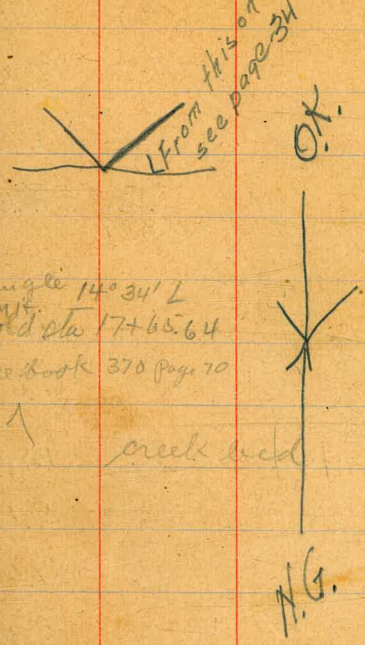
Sta		H.I.	Rod	Elev.
0+00	=43+74 main line M.H. center Pennell	85.34	7.04	78.30
+50	✓		7.5	77.8
1+00			7.2	78.1
+50			6.8	78.5
2+00			6.3	79.0
+50		96.95	12.1	84.9
+77	=46+51 main line M.H. center 36th		5.31	91.64

Sheet 30

380
93.15
96.95 H.I.
11.71
85.24 T.P.
0.10
85.34

Main Sewer from M.H. in alley [illegible] N. of 7th St.

		1060	H.I.	Rod			H.I.	Rod	Elev.
	angle 32° 29' R	5.35	47.69	12.68	37.09		46.64		39.5
0+00	= Sta 6+68.9		40.36	5.57	35.01			7.1	22.0478
+3'	Book 370 Page		top MH		34.85				39.5
+50	69		creek bottom	6.3	34.1			7.9	1099.41
				8.0	32.4	8+42			1538.50
1+00				7.1	33.3	+50		7.2	394
+50				6.9	33.5	9+00			
2+00				6.7	33.7	+50		6.4	40.2
+50				6.3	34.1	+66			
	angle 22° 58' R					10+00		5.8	40.8
3+00	m.h.			5.84	34.52	+50		6.2	
+50				4.2	36.2	angle 140° 34' L m.h. +9941 = old sta 17+65.64		5.52	
4+00				4.0	36.4	see Book 370 Page 70		4.9	
+50				5.2	35.2	11+50		4.5	
5+00		Creek bottom		5.9	34.5	12+00		4.0	
+50				4.0	36.4	+50		3.0	
6+00				3.6	36.8	13+00		2.8	
	angle 37° 56' L					+50		2.9	
+48.5	m.h. = 13+14.73		H.I.	3.31	37.05	14+00		3.1	
	Book 370 page 9.5		46.64			+50		2.9	43.7
7+00				9.3	37.3	15+00			44.64
+50				6.4	40.2	angle 11° 39' L 5.68	50.32	6.04	44.28
+60				3.5	43.1	+18			
8+00				3.7	42.9	MH old sta 21842.3		5.9	
+34				2.7	43.9	Book 370 Page 71			
						+50		6.7	
						+65			
						creek bottom			



Sta			HI	Rod	Elev.
16+00			50.32	5.0	
+50				4.9	
+57				3.4	
17+00				2.5	
+32				2.6	
J.P.		10.17	58.09	2.40	47.92
+43				12.0	
+50				11.1	
+53				9.6	
+97.8	angle 8° 36' L M.H. old Sta. 246445 Book 370 page 71			9.57	48.52
18+50				8.1	
+95				7.6	
19+00				8.3	
+09				10.4	
+16				8.1	
+30				7.1	
+35				4.9	
+50				4.6	
20+00				4.4	

Sta	HI	Rod	
90+50	58.09	3.4	276.35 1792.5 2074.15
+74.15 M.H.		3.67	54.42

3/16 Gregory Main Sewer from M.H. in Benesch Ave
Moore
Miller

See page 31 this book
7+97.8 = 00 Angle 31°15' L from back line

00	12.60	61.12	48.52
+10		12.1	
+50		11.5	
+75		10.7	
1+00		10.3	
+50		9.4	
+75		9.0	
2		10.3	
+20		9.3	
+50		8.4	
3		7.3	
+13.8 = M.H D ST		7.23	
+50		7.1	
4		7.7	
+50		7.3	
+80		7.4	
+90		5.1	
5		5.1	
+16.7 = M.H Alley bet C+D Angle 27°58' R.		5.10	

5+50	
6	
+25	
+50	
+65	
+80	
+95	
7	
+02	
T.P.	
+50	
8	
+15	
+25	
+35	
+50	
+98.45 = 1.9' west	
9+50	
10	
+50	

1797.80
1518.00
279.80

668.9
300.0
9689

1538.55
259.67
1798.22

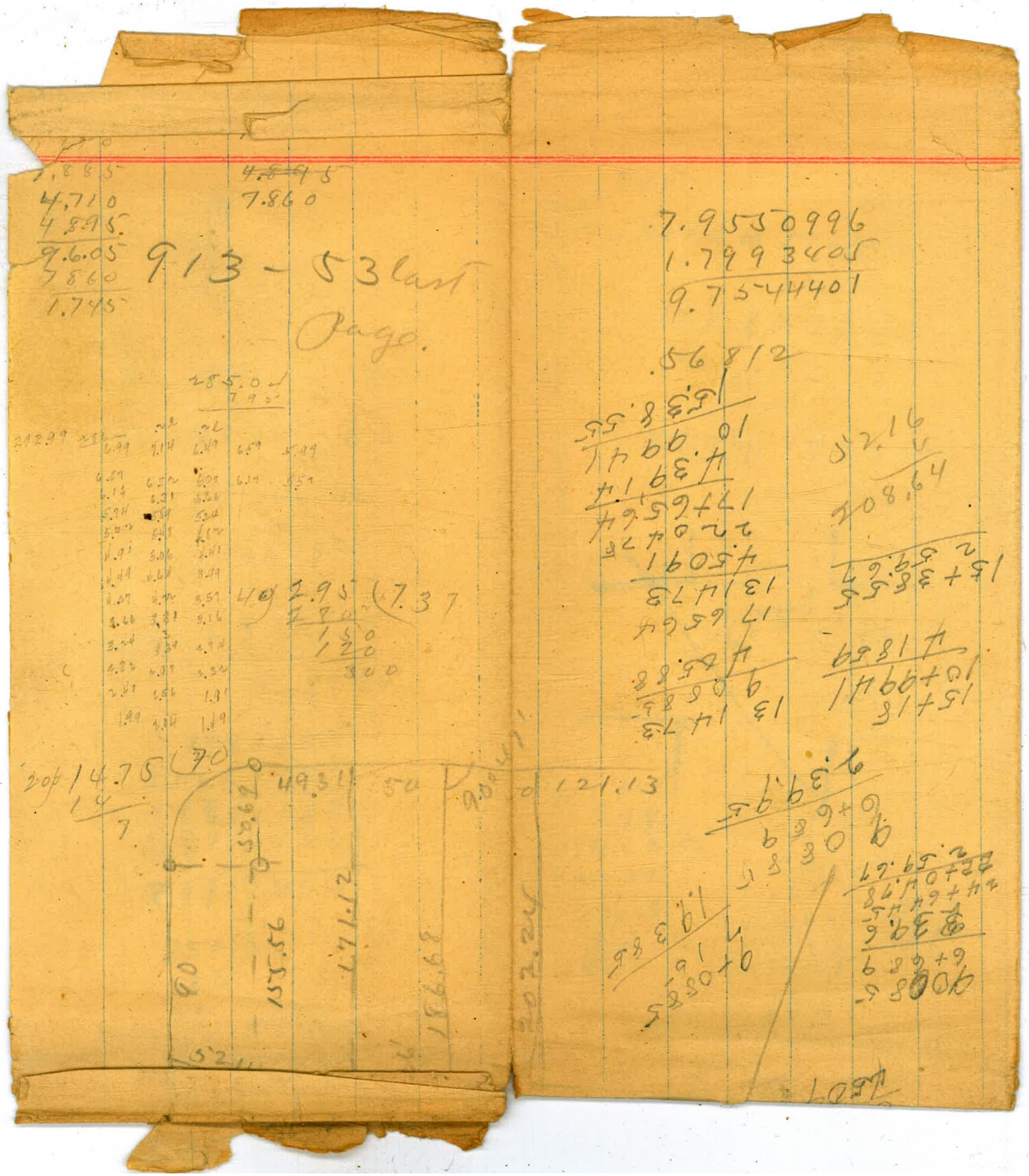
1518.00
1099.71
418.59

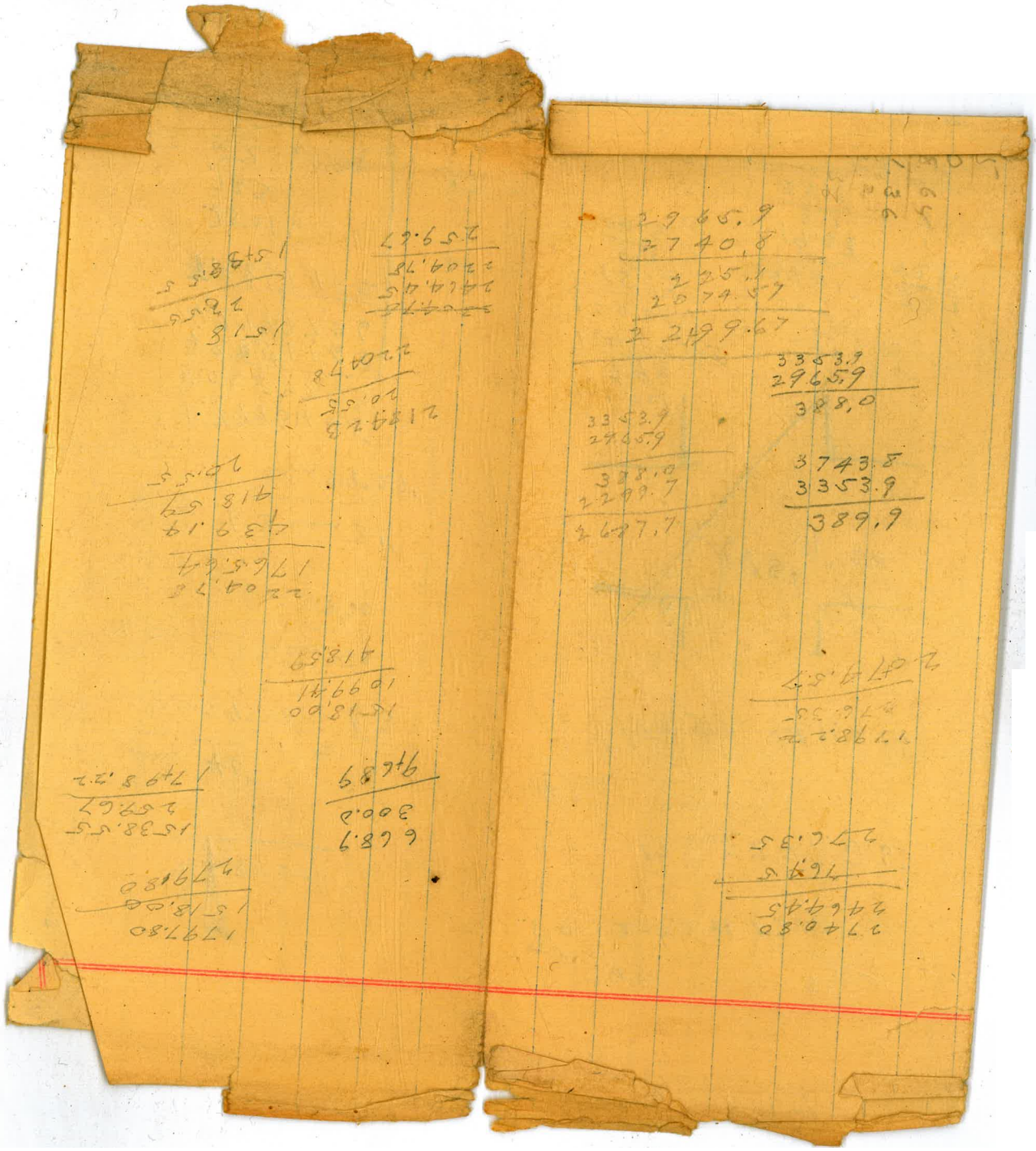
2204.78
1765.64
439.14
418.59
20.55

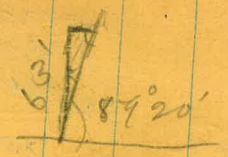
21+42.3
20.55
2204.78

1518
20.55
1538.55

~~3204.78~~
2464.45
2204.78
259.67







$$\frac{\sin 40'}{\sin 89°20'} = \frac{x}{63}$$

$$x = \frac{63 \sin 40'}{\sin 89°20'}$$

$$x = \frac{63 \sin 31'}{\sin 89°29'}$$

1.7993405
8.0657763
9.8651168
9.9999706
$\bar{1}$.8651462

.75015
.733
.57
16

29'

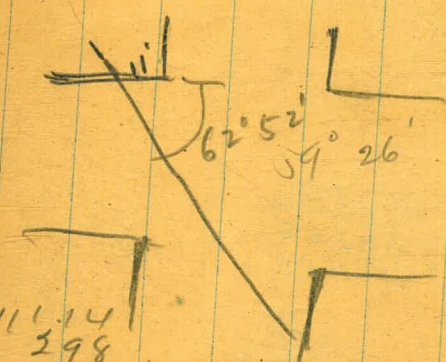
.57
.12

8.48

208.0 ⊡ 170.34

13' hub. 278.35

189.9 (N) 191.2 (S)



111.14
2.98
114.12 HI
129.25
15.13
5.2
20.3

106.70
133.35
19.23
3.1
22.3

3.82
110.30

59°20'

59°29'

8/8/16 Gregory Moore Miller — Main Sewer from M.H. in Benesch Ave

See page 31 this book
17+97.8 = 00 Angle 31°15' L from back line

00	12.60	61.12			48.52
+10			12.1		
+50			11.5		
+75			10.7		
1+00			10.3		
+50			9.4		
+75			9.0		
2			10.3		
+20			9.3		
+50			8.4		
3			7.3		
+13.8 = M.H D ST			7.23		
+50			7.1		
4			7.7		
+50			7.3		
+80			7.4		
+90			5.1		
5			5.1		
+16.7 = M.H Alley bet C+D Angle 27°58' R.			5.10		

5+50			5.2		
6			4.6		
+25			4.6		
+50			3.7		
+65			4.1		
+80			5.8		
+95			5.1		
7			3.8		
+02			1.2		
T.P.	12.78	72.71	1.19	59.93	
+50			11.9		
8			11.3		
+15			10.4		
+25			9.2		
+35			10.4		
+50			10.5		
+98.45 = M.H Alley bet B+C Δ 2°59' R. 1.9' west of X station 33+53.9 Book 370-73			9.58		
9+50			8.5		
10			7.8		
+50			6.6		

72.71
continued from page 32

10+63			7.1	
+70			10.2	
+80			11.0	
11			8.9	
+45			9.5	
+50			8.2	
+60			7.4	
12			5.8	
+41			4.1	
+45			7.4	
+50			8.1	
+70			7.7	
+88.95 = M.H. Alley bet A+B Δ 5°08' R			6.09	
13			5.9	
+50			5.5	
+70			4.6	
14+00			5.5	
+10			3.9	
+50			2.7	
+85			2.4	

14+90			3.5	
15			3.2	
+50			1.8	
	9.91	81.42		
+84.60 = M.H. Sta 40+31.7 page 3 this book. Δ = 14°49' Left			1.20	71.51
16			9.5	
+50			9.2	
+65			9.5	
17			8.0	
+50			8.4	
+85			8.0	
+90			6.8	
18			6.5	
+50			5.9	
			5.7	
+75			3.8	
19			3.5	
19+19.25 = M.H. Sta 43+74 page 3 this book			3.27	78.15

8/11/16 Gregory Main Sewer on 35th St
Moore
Miller
from 50.0 x F St To No. 0 x B St.

Sta 9+66 on page 30 M.H. Δ 32°42' L.	50.46	10.16	40.30
9+85		8.4	42.1
10		8.4	42.1
+35		8.1	42.4
+50		8.7	41.8
+85		8.2	42.3
11		4.7	45.8
+50		4.4	46.1
12		4.5	46.0
+50		3.8	46.7
+68.42 = ℄ F St.		3.5	47.0
13		3.0	47.5
+50		3.1	47.4
14		2.8	47.7
+50		1.5	49.0
+70		1.2	49.3
T.P.	8.00	0.70	49.76
+79		4.8	53.0
14+97.42 = ℄ Lemon Grove		4.9	52.9
15+08		7.9	49.9

57.76

+50		7.5	50.3	
16		6.6	51.2	
+50		5.9	51.9	
17		5.4	52.4	
+57.8 = ℄ Bensch Ave		5.1	52.7	
18		4.8	53.0	
+50		4.8	53.0	
19		4.0	53.8	
+35		3.4	54.4	
+40		1.8	56.0	
+50		2.4	55.4	
T.P.	9.60	1.14	56.62	Mon. NW 35th + 0
20		10.7	55.5	
+31.83 = MH ℄ Broadway		10.69	55.53	
+50		10.0	56.2	
21		9.4	56.8	
+50		9.6	56.6	
22		9.3	56.9	
+21.83 = ℄ Alley bet ℄ Broadway		9.07	57.15	
+50		8.5	57.7	

66.22

Continued from page 34

23			7.2	59.0
+50			6.1	60.1
+70			7.0	59.2
+90			6.9	59.3
24			4.9	61.3
+50			4.8	61.4
+95			4.1	62.1
25			7.7	58.5
+25			6.7	59.5
+50			6.1	60.1
26+01.13 = M.H Alley bet B+C Δ 90°03 R.			6.56	59.66
+50			5.3	60.9
+85			5.4	60.8
27			4.0	62.2
T.P.	1220	74.13	11.29	61.93
+25			10.8	63.3
+50			10.5	63.6
EQUATION ←				
+72.08 = M.H. = Sta 33+53.9 Book 370-73 Δ 77°20' L			11.00	63.13
Sta 34			9.9	64.2
+50			9.1	65.0

74.13

35	27 72.08 26 01.13 170.95		7.8	66.3
+30			8.2 10.8	65.9 63.3
+35			11.7	62.4
+50			10.9	63.2
36			9.5	64.6
+20			11.1	63.0
+30			8.0	66.1
+50			7.3	66.8
+75			7.0	67.1
+95			5.9 8.2	68.2 65.9
37			9.8	64.3
+43.8 = M.H Book 370-73 Δ 1°16' R = 5' Difference			7.86	66.27
+95			6.2	67.9
38			7.3	66.8
+35			5.7	68.4
+45			7.0	67.1
+50			6.5	67.6
+70			4.1	70.0
39			3.6	70.5
+40			3.2	70.9

74.13

Continued from page 35

+50	4.6	69.5
+70	4.3	69.8
40	3.6	70.5
6.25 77.39		
+31.7 = MH. page 3 this book	2.99	71.14
Δ 12°34' L		
41	4.8	72.6
+30	5.5	71.9
+50	4.4	73.0
42	4.1	73.3
+50	3.9	73.5
+55	2.7	74.7
+90	2.6	74.8
43	1.9	75.5
	1.6	75.8
+40	+0.4	77.8
43+74 MH page 3 this book.	+0.8	78.2

Levels for proposed sewer - see sketch page 38

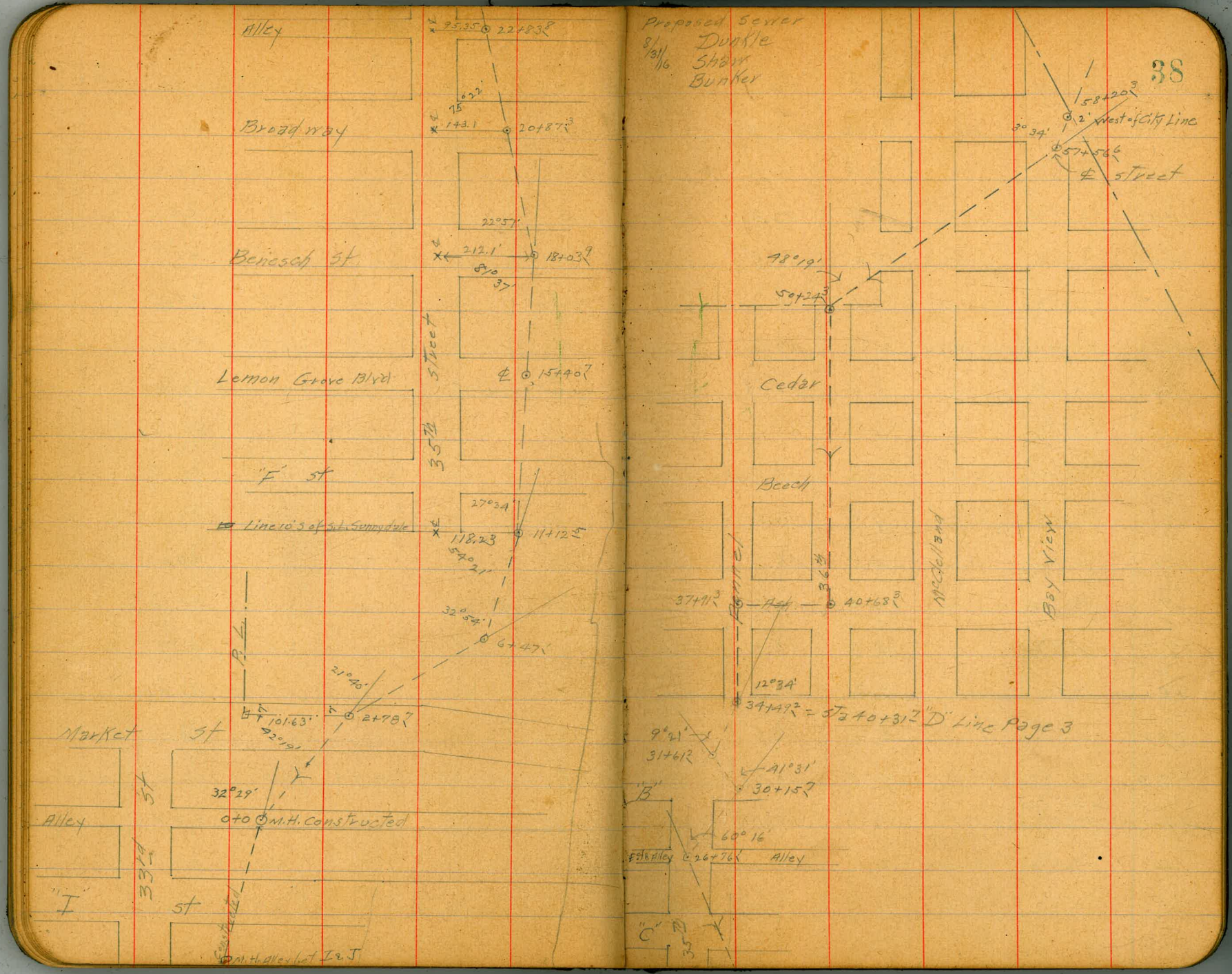
8/31/46 Dunkle Shaw Dunkle

B.M. Mon S.E. 33rd D.I.	3.54	38.62		35.08	
			bottom.	11.40	27.2
0+00 = M.H. bet H & I, constructed T.P.				3.8	34.8
+02				4.9	33.7
+50				6.3	32.3
1				5.3	33.3
+50				5.2	33.4
2				5.0	33.6
+50				4.6	34.0
T.P.	6.84	40.66		4.80	33.82
+78	R 21° 40'			6.49	34.17
3				6.1	34.6
+50				5.0	35.7
4				4.4	36.3
+50				4.8	35.9
+75				5.9	34.8
5				6.0	34.7
+20				6.4	34.3
+25				5.2	35.5
+50				4.3	36.4
6				3.9	36.8

				40.66	
6+47	L 32° 54'		6.33	43.29	
+50					3.70
7					7.0
+50					6.1
8					5.4
+50					5.5
9					5.7
+25	cut 5'				5.7
+50					6.7
10					5.1
+50					4.4
11					4.0
+12.5	L 27° 34'				3.3
+27					3.11
+50					2.0
12					1.5
T.P.		8.33	50.74		0.8
+50					0.88
13					8.3
+30					8.0
					8.0

36.96
36.3
37.2
37.9
37.8
37.6
37.6
36.6
38.2
38.9
39.3
40.0
40.18
41.3
41.8
42.5
42.41
42.4
42.7
42.7

Proposed Sewer
8/31/16
Dunkle
Shaw
Bunker



		50.74		
13+32	cut 4'	10.3	40.4	
+50		10.2	40.5	
+85		9.8	40.9	
14		7.9	42.8	
+50		7.2	43.5	
15		6.7	44.0	
+40.7	= ℄ Lemon Grove Blvd	6.78	43.96	
+50		6.4	44.3	
16		5.7	45.0	
+30		5.2	45.5	
+37		4.3	46.4	
+50		4.5	46.2	
+70		4.4	46.3	
+75		3.4	47.3	
17		2.8	47.9	
+32		2.2	48.5	
+50		3.2	47.5	
18+03.9	∠ 22° 57' ℄ Benesch 10.05	1.60	49.14	59.19
+50		9.8	49.4	
+63		10.0	49.2	

		59.19		
18+70		8.5	50.7	
19		8.7	50.5	
+30		8.6	50.6	
+33		7.6	51.6	
+50		7.4	51.8	
20+0		6.9	52.3	
+17		6.5	52.7	
+30		7.4	51.8	
+50		6.9	52.3	
+87.3	℄ Broadway	5.95	53.24	
21		5.9	53.3	
+18		5.8	53.4	
+30		4.9	54.3	
+50		4.2	55.0	
22		3.7	55.5	
+50		3.5	55.7	
+83.8	℄ Alley bet C & Bdy	3.89	55.30	
23		3.7	55.5	
+37		2.9	56.3	
+43		3.9	55.3	

		59.19		
23+50			3.8	55.4
+87			3.2	56.0
24			2.1	57.1
+50			0.6	58.6
T.P	8.93	67.68	0.44	58.75
25			8.5	59.2
+13			7.8	59.9
+27			9.5	58.2
+50			9.3	58.4
+62			9.3	58.4
+64			8.4	59.3
26			8.2	59.5
+50			7.7	60.0
+76	R 60° 16'		8.00	59.7
	℄ Alley bet "B" & "C"			
27			6.7	61.0
+50			5.3	62.4
28			5.0	62.7
+50			5.0	62.7
29+0	cut 5'		6.0	61.7
+24			5.4	62.3

		67.68		
29+36			4.3	63.4
+50			3.9	63.8
30			3.5	64.2
+15	L 41°31' 11.12	75.00	3.80	63.88
+50			10.0	65.0
+65			11.7	63.3
+70			11.6	63.4
+72			10.1	64.9
31			8.7	66.3
+27			7.5	67.5
+31			10.4	64.6
+50			8.9	66.1
+61	R 9°02'		8.70	66.3
32			7.4	67.6
+12			7.1	67.9
+15			8.2	66.8
+50			6.7	68.3
+65			7.7	67.3
+70			6.4	68.6
33			5.2	69.8

		75.00		
33+50			4.6	70.4
+62			4.4	70.6
+70			5.6	69.4
34			4.5	70.5
+19			4.5	70.5
+49.2	L 12° 34'		3.85	71.15
35			2.4	72.6
+38			3.0	72.0
+50			2.1	72.9
36			1.6	73.4
T.P.	10.59	83.85	1.74	73.26
+50			10.3	73.5
+57			9.2	74.6
37			9.0	74.8
+47			8.1	75.7
+50			6.2	77.6
+91.3	℄ Pennell & Ash		5.62	78.23
38			5.8	78.0
+50			5.9	77.9
39			5.2	78.6

		83.85		
39+50			5.3	78.5
+76			5.6	78.2
40			4.2	79.6
+33			0.9	82.9
T.P.	8.51	92.22	0.14	83.71
+50			6.1	86.1
+68.3	℄ 36" Ash		0.64	91.58
41			5.8	86.4
+50			8.2	84.0
42			8.2	84.0
+50			8.7	83.5
43			8.9	83.3
+50			7.4	84.8
44			5.5	86.7
+50			4.1	88.1
T.P.	8.38	96.94	3.66	88.56
45			8.9	88.0
+50			10.2	86.7
46			10.0	86.9
+50			8.5	88.4

		96.94		
47+0			7.2	89.7
+50			6.7	90.2
48			6.0	90.9
+42			5.0	91.9
+50			6.1	90.8
+54			10.9	86.0
+87			10.1	86.8
+89			9.3	87.6
49			8.9	88.0
+41			8.0	88.9
+50			6.6	90.3
+85			4.9	92.0
+88			5.5	91.4
50+0			4.6	92.3
+24.3	PA 8°19' 10.28	103.31	3.91	93.03
+50			10.1	93.2
51+0			9.7	93.6
+50			9.2	94.1
52			8.7	94.6
+50			8.2	95.1

		103.31		102.32 103.26
53+0			7.2	96.1
+50			6.5	96.8
54			6.2	97.1
+12			6.4	96.9
+30			7.2	96.1
+40			5.8	97.5
+50			5.5	97.8
55+0			5.1	98.2
+50			3.9	99.4
T.P.	7.64	107.12	3.83	99.48
56			6.9	100.2
+50			6.1	101.0
57			5.9	101.2
+50			4.9	102.2
+56.6	L 3°37' ℄ Bay View Ave		4.8	102.3
58			4.0	103.1
+20.3	2' west of City Line		4.01	103.11

East San Diego Outfall

June 11, - 1921 Bartlett & Wittman

Offset 6' W to Sta 9+65.5

Cement Monument S.E. Cor 33rd & I P 37

Top M.H. Sta 0, 7.6 deep,

	—	HI	+	El.			
B.M.		37.39	2.31	35.08			
T.P.	2.56	38.70	3.87	34.83			
0	4.37			34.33	27.00	7.33	M.H. (constructed) on alley but Market & I
+50	5.16			33.54	27.36	6.18	aug R 29° 35' from Lower South
1	5.98			32.72	27.72	5.00	
+50	6.04			32.66	28.08	4.58	
2	5.31			33.39	28.45	4.94	
+50	5.72			32.98	28.81	4.17	
+65	5.72			32.98	28.91	4.07	M.H. - aug R 25° 07'
3	4.84			33.86	29.17	4.69	
+50	2.77			35.93	29.53	6.40	
4	2.90			35.80	29.90	5.90	R 0.72
+50	3.70			35.00	30.26	4.74	
5	4.10			34.60	30.62	3.98	
+50	2.12			36.58	30.98	5.60	
T.P.	2.12	48.23	11.65	36.58	—	—	
6	11.10			37.13	31.35	5.78	
+51.5	11.87			36.36	31.73	4.63	M.H. aug L 37° 13'
7	9.96			38.27	32.07	6.20	

		48.23		Elev.		Offset 6' East from 9+65	
7+50	5.20			43.03	32.43	10.60	
8	4.56			43.67	32.80	10.87	
+50	5.80			42.43	33.16	9.27	
9	8.87			39.36	33.52	5.84	
+50	7.92			40.30	33.88	6.43	
+65.5	7.68			40.55	34.00	6.55	M.H. ΔL. 330.28 6' Offset W
+65.5	8.77			39.46	34.05	5.41	" " 6' " E.
10	6.08			42.15	34.37	7.78	
TP	6.08	51.98	9.83	42.15	—		
B.M.	3.37			48.61	—	nail & tin in Y of Olive tree 25' W of line 10+75	
+50	9.30			42.69	34.83	7.85	
11.	9.47			42.51	35.29	7.22	
+50	6.02			45.96	35.75	10.21	
12	5.73			46.25	36.21	10.04	
+50	5.34			46.64	36.67	9.97	
+72.4	5.08			46.90	36.88	10.02	M.H. Center F St.
13	4.93			47.05	37.13	9.92	
+50	4.48			47.50	37.59	9.91	
14	4.30			47.68	38.05	9.63	

		51.98					
14+50	3.51			48.47	38.51	9.96	
T.P.	3.51	57.28	8.81	48.47	—		
15+01.4	4.15			53.13	39.00	14.13	M.H. 10' N. ℄ Lemon Grove
15+10.4 +50	7.02			50.26	39.09 39.93	10.33	Manhole changed from 15+01.4 to 15+10.4
16.	6.27			51.01	40.89	10.12	Elev. lower side 39.09 " upper side 39.19
+50	5.60			51.68	41.85	9.83	
17	5.26			52.02	42.81	9.21	
+50	4.90			52.38	43.77	8.61	
+61.8	4.95			52.33	44.00	8.33	M.H. Center Benesch
18.	4.54			52.74	44.55	8.19	
+50	4.36			52.92	45.27	7.65	
19	3.82			53.46	46.00	7.46	
+50	2.01			55.27	46.72	8.55	
T.P.	2.01	62.39	7.12	55.27	—		
20.	6.97			55.42	47.45	7.97	
+37.3	7.01			55.38	48.00	7.38	M.H. ℄ Broadway
+50	6.20			56.19	48.13	8.06	
B.M.	6.23			56.16	~~[illegible]~~	Lot stake N.E. cor. Broadway + 35'	
21.	5.71			56.68	48.63	8.03	

		62.39					
21+50	5.59			56.80	49.18	7.62	
22	5.22			57.17	49.70	7.47	
+27.3	5.11			57.28	50.00	7.28	M.H. center alley
+50	4.24			58.15	50.24	7.91	
23.	3.17			59.22	50.77	8.45	
+50	2.59			59.80	51.30	8.50	
24	3.90			58.49	51.83	6.66	
T.P.	3.90	65.52	7.03	58.49	—		
+50	4.06			61.46	52.35	9.11	
25	7.37			58.15	52.88	5.27	
+50	6.12			59.40	53.41	5.99	
26+06.6	5.67			59.85	54.00	5.75	M.H. center alley. ang R 45°48'
B.M.	2.09	69.72	6.29	63.43			Cp & tin in fence post → about 30' west opp. Sta 26+06
= 26+10.6	=			59.85	54.00		
+50	8.20			61.52	54.46		
27	7.29			62.43	55.05		
+50	6.85			62.87	55.64		
28.	6.12			63.60	56.23		
+50	7.09			62.63	56.82		

		69.72				
29	5.96			63.76	57.41	
+49.1	6.25			63.47	58.00	M.H. Aug L. 40°37'
30	5.61			64.11	58.70	
TP. +50.	5.55	74.61	10.44	64.17	59.39	
+94.6	8.55			66.06	60.00	M.H. Aug R. 9°02'
31+50	7.70			66.91	60.96	
32.	6.22			68.39	61.83	
+50	4.50			70.11	62.70	
33.	4.43			70.18	63.56	
+50	4.29			70.32	64.43	
+82.6	4.44			70.17	65.00	— found old 1x2 stake 140' East M.H. Aug L. 12°34'
34. +10	2.76			71.85	65.48	
TP.	2.76	82.95	11.10	71.85	—	
+50	10.64			72.31	66.18	
35	10.58			72.37	67.06	
+50	10.05			72.90	67.93	
36.	9.88			73.07	68.81	
+50	8.10			74.85	69.69	
37.	5.22			77.73	70.56	℄ Pinnell + ash
+24.7	4.80			78.15	71.00	Old stake 37+91.3 M.H. Aug R. 89°40'

	—	83.78					
37+50	5.73			78.05	71.36	6.69	
38	6.08			77.70	72.07	5.63	
+50	5.23			78.55	72.29	5.76	
+64?	5.38			78.40	73.00	5.40	M. H.
39	5.55			78.23	74.29	3.94	
T.P. +50	2.50	93.90	1267	81.28	76.11	5.17	Old stake L 36th & ash.
40+01?				92.75	78.00	14.75	40+68 M. H. aug L. 89°40'
T.P.		91.14	988	81.28			
+50	4.96			86.20	78.25	7.95	
41	6.65			84.57	78.52	5.99	
+50	6.38			84.78	78.78	6.00	
42	7.35			83.81	79.04	4.77	
+50	6.97			84.19	79.31	4.88	
BM	6.81			84.35			spike & tin in crotch of Pepper tree about 25' W of 42 +50
43	5.60			85.36	79.57	5.99	
+50	5.47			87.69	79.83	7.86	
+81?	2.50			88.66	80.00	8.66	M. H.
44	2.57			88.59	80.10	8.49	
+50	3.16			88.00	80.36	7.64	
45	3.53			87.23	80.62	6.61	
+50	3.43			87.73	80.89	6.84	

		91.16					
46 T.P.	22.6	96.49	7.57	88.90	81.15	7.75	
+50	6.24			90.25	81.41	8.84	
47	5.89			90.60	81.67	8.93	
+50	4.70			91.79	81.94	9.85	
+61.7	3.66			92.83	82.00	10.83	M. H.
48	10.45			86.04	82.29	3.75	
+50	8.95			87.54	82.67	4.87	
49	8.33			91.16	83.06	8.10	
+57.7	3.27			92.72	83.50	9.22	M.H. Old Stake, Sta 49+57.7 Orig R. 48°19'
T.P	3.54	101.03	8.10	92.93			
50	7.92			93.11	83.85	9.26	
+50	8.04			92.99	84.26	8.73	
51	7.26			93.77	84.68	9.09	
+38.7	6.42			94.61	85.00	9.61	M. H. found old stake
+50	6.30			94.73	85.12	9.61	
52	5.66			95.37	85.66	9.71	
+50	4.62			96.41	86.20	10.21	
53	4.45			96.58	86.74	9.84	
+24	4.65			96.38	87.00	9.38	M. H. found old stake
+50	3.78			95.85	87.42	8.43	

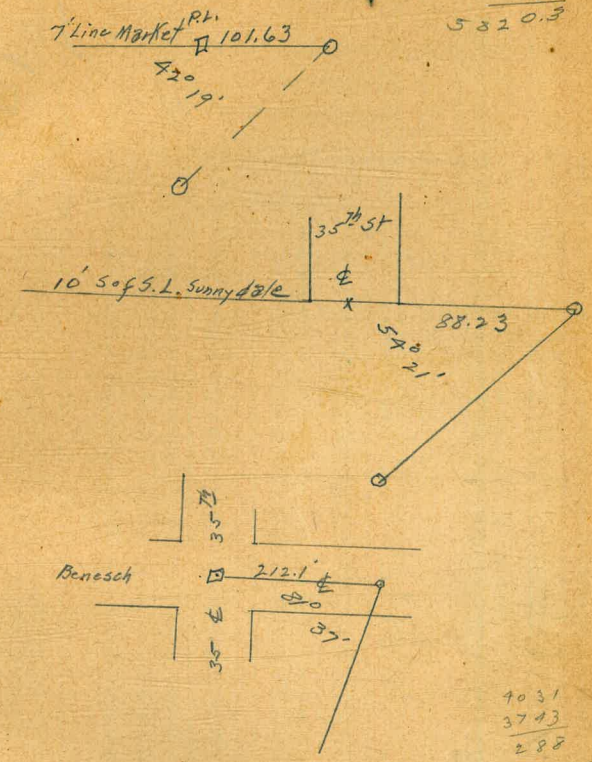
√4	3.17			97.86	88.23	9.63		
+50	2.22			98.81	89.04	9.77		
TP	2.22	106.38	7.57	98.81	—	—		
√5	6.96			99.42	89.85	9.57		
+09.5	6.62			99.76	90.00	9.76	M. H. found old stake	
+50	5.74			100.74	90.67	10.07		
√6	5.24			101.14	91.50	9.64		
+50	4.61			101.77	92.33	9.44		
+90	4.57			101.81	93.00	8.81	M H, aug L 3°31'	
√7	4.68			101.70	93.31	8.39		
+54	3.18			103.20	95.00	8.20	M.H. 2' W of City Dem lane	
							old sta 58+20.3 found old stake	
BM.	3.31			103.07		old stake —	103.11 to check. Pg 42.	

			77.0	
		134.11	89.01	~~134.11~~
			11.98	
			11.03	
	~~0.41~~		0.41	133.70
	10.92	144.62		
T.P.	7.32	151.34	0.60	144.02
			1.48	149.86

2031.8
1757.8
274.0

5024.3
732.3
57+56.6

5024.3
796.0
5820.3



4031
3743
288

288
7
295

26+76.1 R 60° 16'

30+15.7 L 41° 31'

31+61.2 R 9° 21'

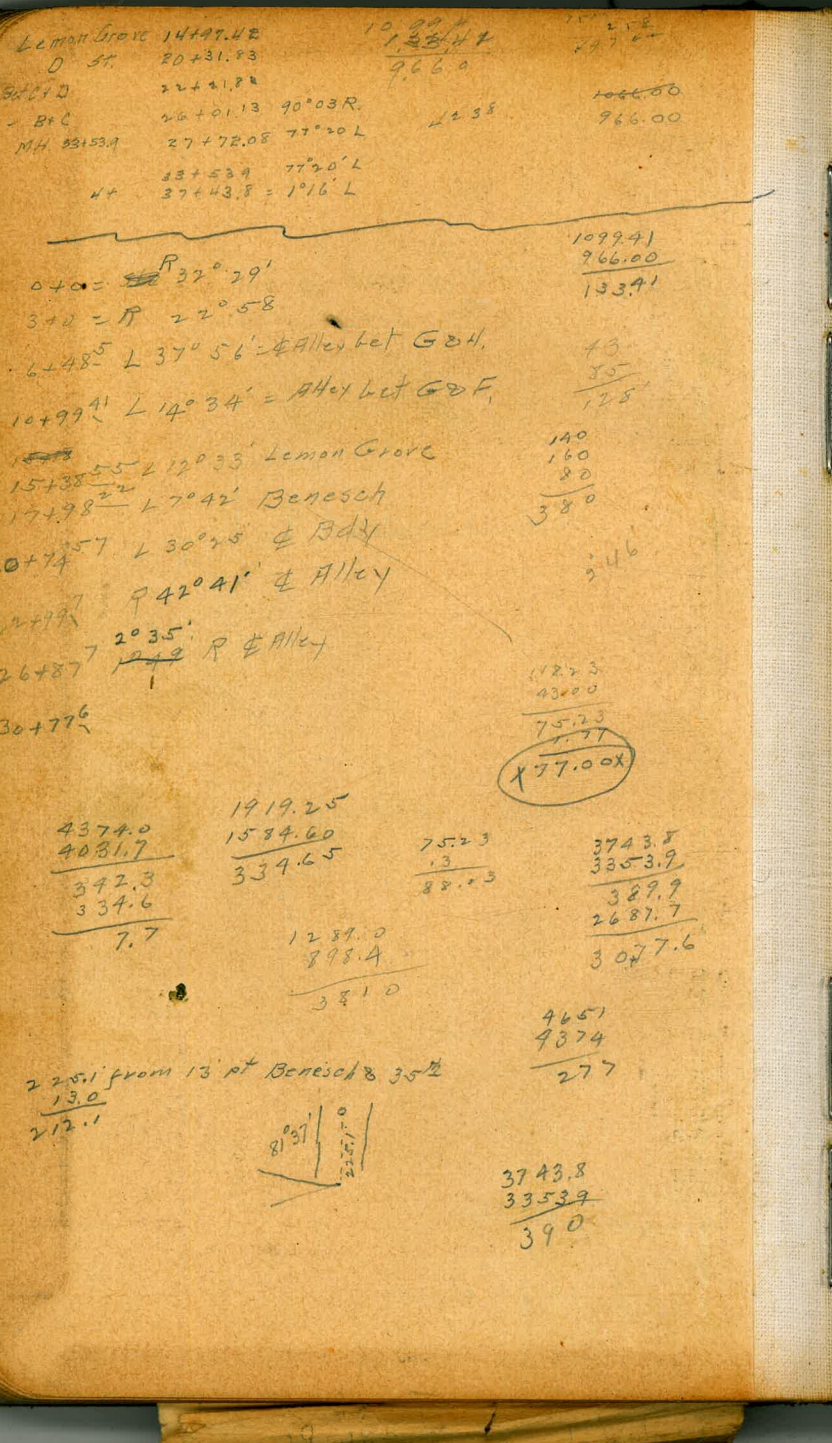
34+49.2 L 12° 33'

37+91.3

40+68.3

50+24.3 R 48° 19' 48° 02'

58+20.5 L 3° 18'



DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

Roadway 14 feet wide. Side Slopes 1½ to 1.

For Single Track Embankment.

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	7.0	7.2	7.3	7.5	7.6	7.8	7.9	8.1	8.2	8.4	0
1	8.5	8.7	8.8	9.0	9.1	9.3	9.4	9.6	9.7	9.9	1
2	10.0	10.2	10.3	10.5	10.6	10.8	10.9	11.1	11.2	11.4	2
3	11.5	11.7	11.8	12.0	12.1	12.3	12.4	12.6	12.7	12.9	3
4	13.0	13.2	13.3	13.5	13.6	13.8	13.9	14.1	14.2	14.4	4
5	14.5	14.7	14.8	15.0	15.1	15.3	15.4	15.6	15.7	15.9	5
6	16.0	16.2	16.3	16.5	16.6	16.8	16.9	17.1	17.2	17.4	6
7	17.5	17.7	17.8	18.0	18.1	18.3	18.4	18.6	18.7	18.9	7
8	19.0	19.2	19.3	19.5	19.6	19.8	19.9	20.1	20.2	20.4	8
9	20.5	20.7	20.8	21.0	21.1	21.3	21.4	21.6	21.7	21.9	9
10	22.0	22.2	22.3	22.5	22.6	22.8	22.9	23.1	23.2	23.4	10
11	23.5	23.7	23.8	24.0	24.1	24.3	24.4	24.6	24.7	24.9	11
12	25.0	25.2	25.3	25.5	25.6	25.8	25.9	26.1	26.2	26.4	12
13	26.5	26.7	26.8	27.0	27.1	27.3	27.4	27.6	27.7	27.9	13
14	28.0	28.2	28.3	28.5	28.6	28.8	28.9	29.1	29.2	29.4	14
15	29.5	29.7	29.8	30.0	30.1	30.3	30.4	30.6	30.7	30.9	15
16	31.0	31.2	31.3	31.5	31.6	31.8	31.9	32.1	32.2	32.4	16
17	32.5	32.7	32.8	33.0	33.1	33.3	33.4	33.6	33.7	33.9	17
18	34.0	34.2	34.3	34.5	34.6	34.8	34.9	35.1	35.2	35.4	18
19	35.5	35.7	35.8	36.0	36.1	36.3	36.4	36.6	36.7	36.9	19
20	37.0	37.2	37.3	37.5	37.6	37.8	37.9	38.1	38.2	38.4	20
21	38.5	38.7	38.8	39.0	39.1	39.3	39.4	39.6	39.7	39.9	21
22	40.0	40.2	40.3	40.5	40.6	40.8	40.9	41.1	41.2	41.4	22
23	41.5	41.7	41.8	42.0	42.1	42.3	42.4	42.6	42.7	42.9	23
24	43.0	43.2	43.3	43.5	43.6	43.8	43.9	44.1	44.2	44.4	24
25	44.5	44.7	44.8	45.0	45.1	45.3	45.4	45.6	45.7	45.9	25
26	46.0	46.2	46.3	46.5	46.6	46.8	46.9	47.1	47.2	47.4	26
27	47.5	47.7	47.8	48.0	48.1	48.3	48.4	48.6	48.7	48.9	27
28	49.0	49.2	49.3	49.5	49.6	49.8	49.9	50.1	50.2	50.4	28
29	50.5	50.7	50.8	51.0	51.1	51.3	51.4	51.6	51.7	51.9	29
30	52.0	52.2	52.3	52.5	52.6	52.8	52.9	53.1	53.2	53.4	30
31	53.5	53.7	53.8	54.0	54.1	54.3	54.4	54.6	54.7	54.9	31
32	55.0	55.2	55.3	55.5	55.6	55.8	55.9	56.1	56.2	56.4	32
33	56.5	56.7	56.8	57.0	57.1	57.3	57.4	57.6	57.7	57.9	33
34	58.0	58.2	58.3	58.5	58.6	58.8	58.9	59.1	59.2	59.4	34
35	59.5	59.7	59.8	60.0	60.1	60.3	60.4	60.6	60.7	60.9	35
36	61.0	61.2	61.3	61.5	61.6	61.8	61.9	62.1	62.2	62.4	36

Calculated by Julien A. Hall, M. Am. Soc. C. E.

MADE IN GERMANY.