2

F.B. 16

16.

ble showing the difference of latitude and departure in running 80 chains at any course from 1 to 60 minutes.

Minutes.	Lks.	Minutes.	Lks.	Minutes.	Lks.
1	2 1/3	21	49	41	95 2/3
2	4 2/3	22	51 1/3	42	98
3	7	23	53 2/3	43	100 1/3
4	9 1/3	24	56	44	102 2/3
5	11 2/3	25	58 1/3	45	105
6	14	26	60 2/3	46	107 1/3
7	16 1/3	27	63	47	109 2/3
8	18 2/3	28	65 1/3	48	112
9	21	29	67 2/3	49	114 1/3
10	23 1/3	30	70	50	116 2/3
11	25 2/3	31	72 1/3	51	119
12	28	32	74 2/3	52	121 1/3
13	30 1/3	33	77	53	123 2/3
14	32 2/3	34	79 1/3	54	126
15	35	35	81 2/3	55	128 1/3
16	37 1/3	36	84	56	130 1/3
17	39 2/3	37	86 1/3	57	133
18	42	38	88 2/3	58	135 1/3
19	44 1/3	39	91	59	137 2/3
20	46 2/3	40	93 1/3	60	140

PUBLISHED BY

EDWARD DENNY & CO.

DRAWING PAPER & MATERIAL, MATHEMATICAL INSTRUMEN

STATIONERS AND PRINTER

SAN FRANCISCO, CAL.

Table for Running on Slopes.

In the following table the first column shows the angle, the second, th links to be added to a chain on the slopes, to make one chain, horizontal measu

Angle.	Cor. in links.	Angle.	Cor. in links.	Angle.	Cor. in links.	Angle.	C
°		°		°		°	
4	0·24	11	1·88	18	5·14	25	
5	0·38	12	2·24	19	5·76	26	
6	0·55	13	2·63	20	6·42	27	
7	0·76	14	3·06	21	7·11	28	
8	0·98	15	3·53	22	7·85	29	
9	1·24	16	4·02	23	8·64	30	
10	1·55	17	4·56	24	9·47	35	2

MICROFILMED Return to City Engineers Office City Hall, San Diego, Cal.

DEC 2 1964

16

Return to City Engineers Office
City Hall, San Diego, Cal.

Barbeling J. survey of lot 3 Blk 34
M.T. 46
M.T. Div line 47
Lot J Blk 304 H A 48
Keating D.J. Mrs grades 49

Main Sewer Preliminary to Tals
Bay 1-18
Connection of Cal to Center
line of 1st St Ind 19-21
Location of Culvert at Logan & 16 22
Witherbee X Sec 23-27
S.H.&C St Car Co Curve at
Union & Fir 28
Board of Education, grades for
B St Schoolhouse wall 33-4
Switch at Atl. & G Sts 35
Beam pipes at M.T. Schoolhouse 36
S.H. St Car Co measurements of
gutter on S side of H St 37
H St Check of Paving 38-40
Lot G Blk 38 H.A. grades 42
Masonic Hall grades 43
S.H.C.&E.R.R. switches of foot
of 11th St on N 44
Stowe O.J. grades & lines, curb 45

July 8 1889
Hamlin
Oxton
William Hensley

Old Town

1

Preliminary Line for Main Sewer along S W Line of

Sta.	
9	
8	
+59	Center of Trine St
7	
6	
5	
4	
3	
2	
1	
+84.2	Δ 17° 58' Right Old Town Line
0	S Line of Witherbee St in center of 1 St St M.T.

Preliminary line for Main Sewer along S W line of Old Town.

July 8 1883

Hamlin
Clifton
Williams
Hensley

Sta	
20	
19	
18	
17	
16	
15	
+59	Center of Austin St
14	
13	
12	
11	
10	

Preliminary Line for Main Sewer along SW Line of Old Town

July 8 1887

43.075

3

Sta	
37	
36	
+59	Center of Jackson St
35	
34	
33	
32	
31	
30	
29	
+59	Center of Mason St
28	
27	
26	
25	
24	
23	
22	
+59	Center of Harney St
21	

Preliminary Line for Main Sewer along S.W. Line of Old Town

July 8 1889

Sta		
	55	
	54	
	53	
	52	
	51	
	+07	Center of Riley St
	50	
	49	
	48	
	47	
	46	
	45	
	44	
	+07,5	Center of Scott St
	43	
	42	
	41	
	40	
	39	
	34	

Preliminary line along S.W. side of Old Town for main Sewer

July 8 1889

Sta	∠ 60° 09' Left BS to Sta 68 and	right to Sta 6+50
+06	= Sta 10+36.5 on A line	
77		
76		
75		
74		
73		
72		
71		
70		
69		
68		
67		
66		
65		
64		
63		
62		
61		
60		
59		
58		
57		
56		

6+50
3 86.5
10 36 5

Levels along SW Sine. of Old Town. for Main Sewer

June 8 1889

Hamlin Dock
Oster Seal
Williams Dock
Hensley

6

Sta	+	HI	−	Elev		
		(14.8)				
B.M.	4.02	14.75		10.73		
0			10.3	4.5	✓	
+84.2			10.41	4.34	✓	B.M. S cor of Old Town
1			9.9	4.9	✓	
2			3.0	11.8	✓	
3		(4.5)	4.9	9.9	✓	
#	0.99	4.51	11.23	3.52		
4			5.3	−0.8	✓	
5			6.8	−2.3	✓	
6			6.8	−1.8	✓	
7			6.8	−2.3	✓	
+59			6.3	−1.8	✓	Centre of Trias St
8			6.1	−1.6	✓	
9			5.9	−1.4	✓	
10			5.9	−1.4	✓	
11			5.9	−1.4	✓	
12			5.6	−1.1	✓	
13			5.0	−0.5	✓	
14			5.0	−0.5	✓	
+59#	7.33	5.71	6.13	−1.62	✓	centre of Arista St

Levels along S W line of Allentown for main sewer

July 8 1888

Hamlin Book
Orton Level
Williams Rod
Hensley. —

7

Sta	+	HI	−	Elev	
		(5.7)			✓
		5.71			
15			6.5	−0.8	✓
16			6.2	−0.5	✓
17			5.0	0.7	✓
18			5.5	0.2	✓
19			5.4	0.3	✓
20			4.3	1.4	✓
21			3.9	1.8	✓
+59		(6.2)	3.6	2.1	✓
#	3.44	6.15	3.04	2.67	Top of stake 15 W of center BM
22			4.2	2.0	✓
23			4.6	1.6	✓
24			3.9	2.3	✓
25			3.8	2.4	✓
26			4.5	1.7	✓
27			5.2	1.0	✓
28			5.7	0.5	✓
+59#	8.84	7.60	7.43	−1.28	✓ St Center Railway
29			8.7	−1.1	✓
30			8.7	−1.1	✓

Levels along SW line of Old Town for main sewer

July 8 1885

Hamblin Book
Acton Level
Williams Rod
Hensley

8

Sta	+	HO	−	Elev		
31		7.60	5.9	1.7	✓	
32			7.0	0.6	✓	
33			4.5	3.1	✓	
34			4.5	3.1	✓	
35		(6.9)	4.7	2.9	✓	
+59#	4.32	6.85	5.07	2.53	✓	St center B.M.
36			4.0	2.9	✓	
37			4.4	2.5	✓	
38			4.7	2.2	✓	
39			5.0	1.9	✓	
40			4.5	2.4	✓	
41			4.5	2.4	✓	
42			5.5	1.4	✓	
43			4.7	2.2	✓	
+07.5#	5.50	7.50	4.85	2.65	✓	St center. B.M.
44			5.0	2.5	✓	
45			5.6	1.9		
46			6.6	0.9		
47			5.3	2.2		
48			5.1	2.4		

Level along SW line of Old Town for main sewer

July 8 1889

Hamlin Book
Arton Level
Williams Rod
Hensley

Sta	+	HO	−	Elev	
49		7.50	5.8	1.7	
50			6.7	1.8	
+07			5.4	2.1	
51			5.6	1.9	
52			6.5	1.0	
53		(8.4)	3.8	3.7	
#	4.29	8.96	3.43	4.07	Top of stake near Sta 53
54			6.1	2.3	
55			5.6	2.9	
56			5.0	3.4	
57			5.1	3.3	
58			5.0	3.4	
59			4.2	4.2	
60			3.7	4.7	
61			5.3	3.1	
62			3.8	4.6	
63		(7.10)	4.5	3.9	
#	2.47	7.11	3.72	3.64	Top of stake near Sta 63
64			3.8	3.3	
65			3.6		

Levels along SW line of Old Dom for main sewer.

July 8 1889

Hamlin Book
Acton Level
Williams Rod
Hensley

Sta	+	HI	−	Elev
		(7.1)		
65		7.11	4.1	3.0
66			4.4	2.7
67			4.8	2.3
68			5.2	1.9
69			5.4	1.7
70			5.5	1.6
71			5.7	1.4
72			6.2	0.9
73			6.0	1.1
#	8.65	10.42	5.04	1.77
74			9.3	1.1
75			9.6	0.4
76			10.1	0.3
77			4.2	6.2
+06	= 10+06.5		3.7	7.7

on A line

Hamlin Book
Riton, Level
Williams Rod
Hensley Rod

July 11 1889

Sevels along C Line

Sta	+	HI	-	Elev	Left	Right
BM	4.50	9.70		5.20		
BM#	4.29	9.35 (9.4)	4.64	5.06		
0			4.9	4.5		
+54			4.8	4.6		
+73			10.2	-0.8		
1			10.4	-1.0	-0.6/14	0/20
2			10.5	-1.1	4.3/40 1.1/30 -0.1/20 -1.4/10	-0.6/20
3			12.2	-2.8	4.4/6	-2.5/20
#	3.31	4.49 (4.50)	8.17	1.18		
4			6.4	-1.9	6.2/70 1.8/50 0.9/40 -0.6/20	-2.4/20
+56			6.8	-2.3		
5			6.0	-1.5	3.6/50 -0.2/40	-1.8/20
6			4.7	-0.2	3.6/40 -0.4/20	-1.4/20
7			5.2	-0.7	9.0/40 4.2/30 0.1/20	-0.6/20
8			5.3	-0.8	4.9/57 0.3/47	-0.7/20
9			5.3	-0.8	5.0/70 -0.7/58	-0.7/20

foot of dyke

Sta 26+50 on A line
Top of stake Sta 34 A line

Levels along C Line.

Sta	+	HD	−	Elev		Left	Right
		(4.3)					
10		4.49					
10			5.4	−0.9	✓	5.2/60 11/50 −1.0/45	−1.2/20
11			5.2	−0.7	✓	3.7/80 −1.7/60	−1.5/20
#	4.07	3.35	5.21	−0.72			
12		(3.7)	4.4	−1.0	✓	3.3/120 −2.1/100 −0.9/50	−1.6/40
13			5.1	−1.7	✓	0.8/130 0.6/120 −1.7/100 −1.0/50	−2.1/50
14			5.7	−2.3	✓	1.5/180 0.7/170 −1.3/150 −1.7/100 −1.3/50	−2.0/50
15			5.6	−2.2	✓	2.2/200 −1.3/150 −2.4/100 −1.3/50 −1.4/30	−2.2/50
+15			5.7	−2.3	✓	6.5/30 3.7/25 −2.3/3	
16			5.7	−2.3	✓	8.1/40 3.7/30 −1.5/17	−1.4/30
17			5.8	−2.4	✓	2.6/40 1.3/30 −2.4/22	−1.4/50
18			6.0	−2.6	✓	2.6/50 2.6/40 1.1/30 −2.6/10	−2.0/50
19			5.1	−1.7	✓	−1.7/50	−1.5/50
20			5.0	−1.6	✓		−1.3/30
21		(9.4)	6.0	−2.6	✓		
#	12.00	9.36	5.99	−2.64			
+60			11.4	−2.5	✓	1.6/30	−2.6/50
22			1.4	8.0	✓	10.5/50	5.3/50

Levels along 6 Line

Sta	+	HI	−	Elev		Left	Right
		9.36					
#	8.60	17.03	0.93	8.43			
22+20			5.5	11.5	✓	$\frac{11.3}{50}$	$\frac{11.4}{50}$
23		(7.7)	4.2	12.8	✓	$\frac{9.2}{50}$	$\frac{15.1}{50}$
#	2.02	7.18	11.87	5.16			
24			5.8	1.4	✓	$\frac{-2.6}{50}$ $\frac{-2.6}{20}$	$\frac{87}{80}$
+50			10.8	-2.6	✓		$\frac{-1.3}{50}$ $\frac{3.7}{50}$
25			10.4	-3.2	✓		
26			10.4	-3.2	✓		
27			11.0	-3.7	✓		
28		(6.7)	10.3	-3.1	✓		
#	9.59	6.66	10.11	-2.93		Stake at Sta. 28	
29			9.9	-3.2	✓		
30			10.2	-3.5	✓		
31			10.3	-3.6	✓		
32			10.2	-3.5	✓		
33			11.8	-5.1	✓		
+85			11.3	-4.6	✓	$\frac{+0.8}{50}$	$\frac{-4.6}{5-8}$
34			7.5	-0.8	✓	$\frac{2.9}{50}$	$\frac{-2.9}{50}$
35			6.0	0.7	✓	$\frac{3.8}{50}$	$\frac{-2.3}{3-0}$

Levels along C Line

Sta	+	HO	−	Elev			Left	Right
36		(6.7) 6.66	6.5	0.2	✓		3.5/50	−2.9/50
37			6.6	0.1	✓		3.7/50	−3.4/50
38			7.0	0.3	✓		4.0/50	−3.8/50
39			7.0	0.3	✓		4.8/50	−3.9/50
#	9.62	(11.5) 11.48	4.80	1.86		Top of stake Sta 40		
40			9.7	1.8	✓		7.0/50	−3.1/50
41			6.6	4.8	✓		10.9/50	−0.2/50
42			4.6	6.9	✓		13.3/50	1.6/50
43			4.4	7.1	✓		12.5/50	1.0/50
44			7.0	4.5	✓		10.6/50	0.7/50
45		(2.9)	9.0	2.5	✓		8.5/50	−3.9/30
+32#	0.35	2.92	8.41	2.57		Top sta	7.0/30	−3.6/20
46			5.0	−2.1	✓		7.5/20 4.8/10	−4.9/20
47			7.4	−4.5	✓		5.7/20 2.6/10	−6.7/10
+88			5.8	−2.9	✓		5.5/10	−6.1/10
48			6.1	−3.2	✓		4.0/10	−6.2/10
49			7.8	−4.9	✓		8.0/20 −2.7/10	−6.2/10
50			4.5	−1.6	✓		7.5/10	−4.8/10
+33			6.6	−3.7	✓	83/15	3.2/10 −2.1/6	−6.6/10
51			5.9	−3.0	✓		9.6/17 2.5/10	−6.6/10

July 10 1889

Hamlin Book
Orton Sevel
Williams Rod
Hensley.

Sevelt along C Line.

Sta	+	HI	−	Elev		Left		Right
52		2.92	7.6	−3.7	✓		7.3/20 −0.9/10	−6.7/10
#	4.41	0.1 0.08	7.25	−4.33	Top of Cope Sta 52		−0.7/60	
53			5.0	−4.9	✓			
54			5.0	−4.9	✓			
+53			4.9	−4.8	✓			
55			7.1	−7.0	✓			
56			5.2	−5.1	✓			
57			4.9	−4.8	✓		7.5/20 −2.7/8	−6.8/10
+64		3.3	3.2	−3.1	✓	9.6/15	4.5/10 −2.3/4	−5.7/10
#	5.65	3.28	2.45	−2.37			6.3/10	−5.3/10
58			5.8	−2.5	✓		6.1/15 1.3/16	−5.5/10
59			6.7	−3.4	✓		9.2/20 0.1/10	−5.3/10
60		9.4	7.4	−4.1	✓		8.9/20 −1.0/10	5.6/10
#	11.34	9.42	5.20	−1.92				
61			14.2	−4.8	✓		5.6/20 −2.5/10	−5.2/10
+70			11.5	−2.1	✓	10.2/20	2.4/10 0.3/8	−5.4/10
62			11.4	−2.0	✓		8.6/15 3.7/10	−4.4/10
63			12.4	−3.0	✓		10.4/20 1.4/10	−5.0/10
64			12.1	−2.7	✓		17.5/20 2.8/10	−5.0/10

Levels along C Line July 13 1889

3.3
8.7
14.1

Sta	+	HO	−	Elev		Left		Right	
		(9.4)							
		9.42							
64+90			5.9	3.5	✓		12.8/10	-2.6/10	-5.0/20
65			5.6	3.8	✓		13.7/10	-2.8/10	-5.3/20
66			12.8	-3.4	✓	11.3/20	2.5/10	-5.9/10	
67			12.0	-2.6	✓	12.6/20	5.1/10	-5.7/10	
68		(8.0)	11.4	-2.0	✓	15.6/20	6.1/10	-5.3/10	
#	10.48	8.01	11.89	-2.47		Top of plug at ear marked Blk 9			
+90			9.9	-1.9	✓	14.1/20	6.7/10	-5.2/10	
69			9.9	-1.9	✓	14.0/20	5.8/10	-5.3/10	
70			1.1	-3.1	✓	14/20	3.8/10	-5.7/10	
71			13.0	-5.0	✓	10.1/20	-2.3/10	-6.2/10	
72			12.3	-4.3	✓	10.8/20	2.9/10	-5.4/10	
+50			11.0	-3.0	✓	Top of Bank 11.2/10	6.4/10	5.7/10	
73			10.4	-2.4	✓	" " "	8.7/13	-6.6/10	
74			11.4	-3.4	✓	" " "	10.2/15	-2.2/6	-5.7/10
+90			10.6	-2.6	✓	" " "	10.3/15		-5.1/10
75			11.9	-3.9	✓	" " "	10.0/10		-5.3/10
76			10.3	-2.3	✓	" " "	10.2/15		-5.3/10
77			12.0	-4.0	✓	" " "	8.7/20	-1.3/10	-6.0/10
78			10.6	-2.0	✓	" " "	7.2/15		-4.2/10

Sevels along C Line July 13 1889

Sta	+	HI	−	Elev	Left	Right
		8.01				
#	11.30	8.13	11.18	−3.17		
78+30		(8.1)	10.8	−2.9	68/15 +6.6/12 −2.1/4	−4.0/10
79			11.2	−3.1	Top of Bank 7.4/18 −2.2/5	−4.1/10
80			11.3	−3.2	" " " 6.9/17 −2.0/5	−5.0/10
81			8.1	0.0	6.5/20 4.5/7	−3.5/10 −5.0/20
+50			3.4	4.7	7.1/20	2.6/7 −2.9/17 −5.0/27
82			6.9	1.2	5.9/20 4.6/10	−2.3/10 −4.2/20
83			8.8	−0.7	3.3/20	−3.0/20
84			6.2	1.9	4.2/20	−1.1/20 −2.8/30 −4.6/30
+30			4.5	3.6	5.2/20	1.4/20 −3.5/40
85			6.3	1.8	4.2/20	−1.1/20 −4.3/20
86			9.1	−1.0	3.5/20 1.7/5	−4.3/10
87			5.5	2.6	4.3/20	−0.6/10 −4.2/20
#	5.40	7.38	6.15	1.98	Plug at Sta 87+20	
+20		(7.4)	5.40	2.0	4.3/20	−2.3/7 −4.0/20
88			4.0	3.4	4.9/20	1.5/12 −2.5/15
89			5.5	1.9	3.3/20	0.6/10 −2.6/15
90			6.8	0.6	1.5/20	−2.2/20

Levels along C Line July 13 1889

Sta	+	HI	−	Elev		Left	Right
		(7.4)					
9.1			8.2	− 0.8	✓	$-\frac{1.4}{20}$	$-\frac{2.2}{20}$
9.2			8.4	− 1.0	✓	$-\frac{1.0}{20}$	$-\frac{2.6}{20}$
+ 25			11.1	− 3.7	✓		
+ 35			12.9	− 4.5	✓		

Checked

Line to connect centr Int Col with center of First and Bean St.

Sta	
+42	centr of Bean St
7+02	
+52	
6+02	
+52	
5+02	
+52	
+37.5	Intersection of Centr Line 1 Sth 3 Line of Calif. St
+11.3	E C
4	
+75	
+50	12° 23'
+25	
3	
+87.5	B.C. 20° Curve to left Δ 24° 46' Lest
+50	
2	
+50	
1	
+50	
0	= N Line of Vine St.
3+40	Center of Vine St.

Levels along line of Main Sewer from N L of Vine & line of 11th & Beech.

July 18 1889

Hamlin
Elton
Williams
Hensley.

Sta	+	H.I.	−	Elev	
B.M.	9.93	31.71		21.78	Cal & Vine
0			9.7	22.0	N line of Vine St
+50			9.1	22.6	
1			9.7	22.0	
+50			8.9	22.8	
2			8.5	23.2	
+50			7.9	23.8	
+87.5			6.9	24.8	B.C. 20° curve to Left
3			6.5	25.2	
+25			6.3	25.4	
+50			6.1	25.6	
+75			5.5	26.2	
4			5.5	26.2	
+11.3			5.4	26.3	E.C.
+37.5			5.5	26.2	Intersection of Center line of 7th St with
+52			5.3	26.4	West line of California
5+02			5.8	25.9	
+52			5.5	26.2	
6+02			5.4	26.3	
+52			5.3	26.4	

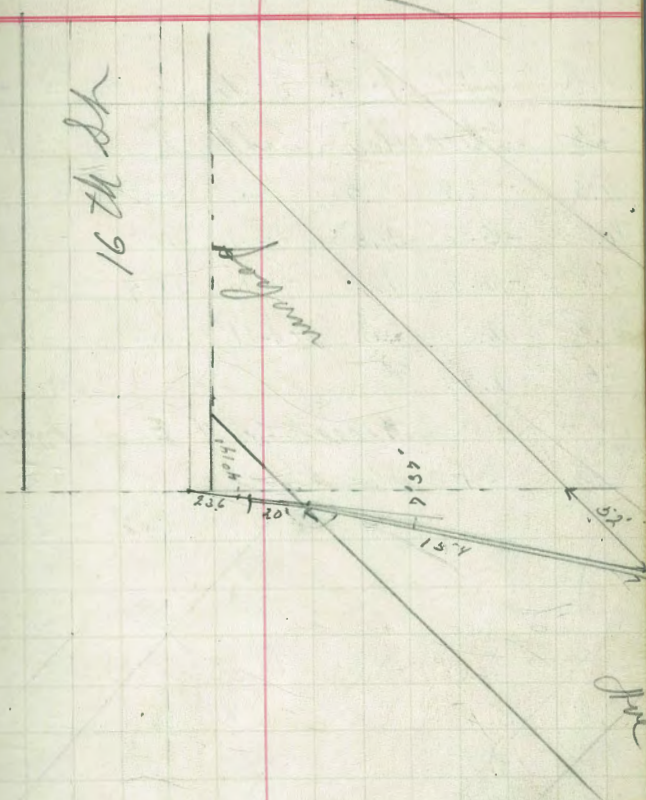
Levels along line of Main Sewer from N line of Vine & Calif — 21
to Centr of Bean & 1st. M.J.

Sta	+	HI	−	Elev		
7+02		31.71	5.4	26.3	49+17	
+42			4.8	26.9	48+57	Center of Bean & 1st St
B M			4.30	27.41		California & Willow St

Location of Culvert at Sogan & N Shs

July 19 1889 Hamlin
William
Orton
Hensley

Set up at E 7' point on 16th at intersection with Pueblo Line B.S. to point on Pueblo Line L 4° to Right 23.6 to end of culvert 20. from this point to angle in culvert 7° 37' Right, 154 ft to E Line of Sogan, and dist 52 from intersection of E of Sogan with Pueblo Line.



X Section of Wilkerbee St

July 20 1889

Hamlin
Williams
Orton
Hensley

North Side		Center		South Side		S +	H I	-	Elev
Rod	Elev	Rod (8.4)	Elev	Rod	Elev				
						4.04	8.38		4.34
11.3	-2.9	11.5	-3.1	11.4	-3.0				
11.6	-3.2	11.5	-3.1	11.4	-3.0				
8.8	-0.4	9.7	-1.3	10.4	-2.0				
6.4	2.0	7.3	+1.1	7.3	1.1				
5.5	2.9								
		0.0	8.4						
6.0	2.4								
				6.2	2.2				
		1.6	6.8				62 + 62		
				3.8	4.6		38 + 70		
0.7	7.7	2.9	5.5	5.3	3.1				
3.3	5.1	6.6	1.8	9.1	-0.7				
4.2	4.2	6.4	2.0	7.6	0.8				
4.0	4.3								
3.0	5.3	3.3	5.1	4.0	4.4				
1.8	7.4	1.6	6.8	3.0	5.4				
0.3	8.1	1.4	7.0	4.2	4.2				
3.5	4.9	5.5	2.9	8.0	0.4				

West Line of 1 St St
SW of Old Town
Center of 1 St St
East of 1 St.

X Section of Witherbee St

North Side		Cent		South			+	H I	−	Elev
			(8.4)							
Rod	Elev	Rod	Elev	Rod	Elev			8.38		
2.8	5.6	5.8	2.6	7.0	1.4	+	9.30	16.50	1.18	7.20
			(16.5)							
7.2	9.3	7.4	9.1	7.3	9.2	+				
6.6	9.9					+	of of Rail			
7.5	9.0	7.4	9.1	7.5	9.0	+				
				6.5	10.0		of of Rail			
12.1	4.4	11.0	5.5	10.4	6.1	1				
13.6	2.9	14.6	1.9	15.3	1.3	+				
				16.3	0.2	+				
15.6	0.9	15.6	0.9	15.2	1.3	+				
13.2	3.3	11.8	4.7	8.4	8.2	2	West Line of 2nd St			
10.2	6.3	6.9	9.6	6.2	10.3	+	2nd St Center			
7.3	9.2					+	West Line of Hancock St			
6.4	10.1	5.1	11.4	4.9	11.6	0	East Line of 2nd St			
5.6	10.9					+	Center of Hancock St			
4.4	12.1					+	East Line of Hancock St			
3.3	13.2	2.9	13.6	2.5	14.0	+				
0.7	15.8	0.6	15.9	0.3	16.2	1				
						+	11.95	27.75	0.70	15.80

X Section of Withrow St

North		Center		South			+	H.I.	−	Elev
			(27.8)							
Rod	Elev	Rod	Elev	Rod	Elev			27.75		
9.7	18.1	9.1	18.7	9.0	18.8	1				
6.0	21.8	5.6	22.2	4.8	23.0	2	West line of 3rd St			
				2.7	25.1					
3.2	24.6	2.6	25.2	−0.7	28.5	7	center of 3rd St			
~~2.2~~	~~25.6~~	1.7	26.1			+				
2.2	25.6					+				
			(34.2)				1.31	34.20	0.86	26.89
						B			6.19	32.01
				7.8	30.9	+				
				7.2	31.0		of Rail			
8.6	24.6	8.1	30.1			+				
						+				
8.0	38.2									
8.9	29.3	8.9	29.3	8.4	29.8					
5.9	32.3	3.6	34.6	1.5	36.7	+				
5.3	22.9					+	West line of Moore St			
1.8	36.4					+	center of Moore St			
			(49.4)				11.91	49.41	0.70	37.50
10.0	39.4	8.9	40.5	6.6	42.8	L				

X Section of Witherbee St

North		Center		South	
			49.4		
Rod	Elev	Rod	Elev	Rod	Elev
9.0	40.4				
1.5	47.9	0.0	49.4		
			60.5		
				9.9	50.8
2.3	58.3/4	2.3	58.3/4	1.8	58.8
			71.2		
6.6	65.1/2	5.9	65.8	6.5	65.2/3
			82.8		
10.4	72.4/5	8.9	78.9	8.5	74.3/4
			94.0		
11.6	82.4/5	9.3	84.7/8	8.7	85.3/4
			105.0	4.9	
9.9	95.0	7.6	97.3/4	7.4	97.5/6
			115.6	5	
12.7	102.5/8				
6.0	109.5/6	4.5	111.0	3.8	111.7
5.3	110.3/4				

+	H.I.	−	Elev
	49.41		
East line of St Moore St			
11.48	60.59	0.70	48.71
West line of 4th St			60.01
		0.58	60.91
11.79	71.26	0.71	59.88
Center of 4th St = 2+72			
11.79	82.76	0.70	70.97
East line of 4th St			
11.89	94.85	0.70	82.96
11.68	104.83	0.70	93.25
11.54	115.60	0.97	103.66
West line of Stockton St			
Center of Stockton St			
11.85	126.62	0.83	114.76

X Section of Witherbee St

North		Center		South	
Rod	Elev	Rod	Elev	Rod	Elev
			126.X5		
10.0	116.X5				
4.7	121.X8	1.7	124.X8	1.3	125.X2
			137.X7		
6.6	131.X1	4.0	133.X7	1.8	135.0 5.9
			139.X2		
1.6	137.X6				
			149.X8		
		6.5	143.X3	4.3	145.X5
			161.X1		
13.6	147.X5	9.8	151.X3	5.7	155.X4
6.4	154.X7	3.2	156.0 7.9	0.2	161.0 0.9
				1.4	162.X5
5.1	156.X0	2.5	158.X6		

	+	H.I.	−	Elev
		126.X2		
East Line of	Stockton St			
W. Line of	5th St			
	11.91	137.X3	0.70	125.X2
Center of	5th St.			
	2.27	139.X2	0.74	137.X5 6.9
East Line of	5th St			
	11.56	149.X8	1.00	138.X2
			~~7.15~~	~~142.73~~
			7.15	142.63
	12.00	161.X6	0.72	149.X6
+ Elev	Line			
+ Elev	Line			

Curve for St Car Coo a[illegible]
the intersection of Fir & Wm[illegible]

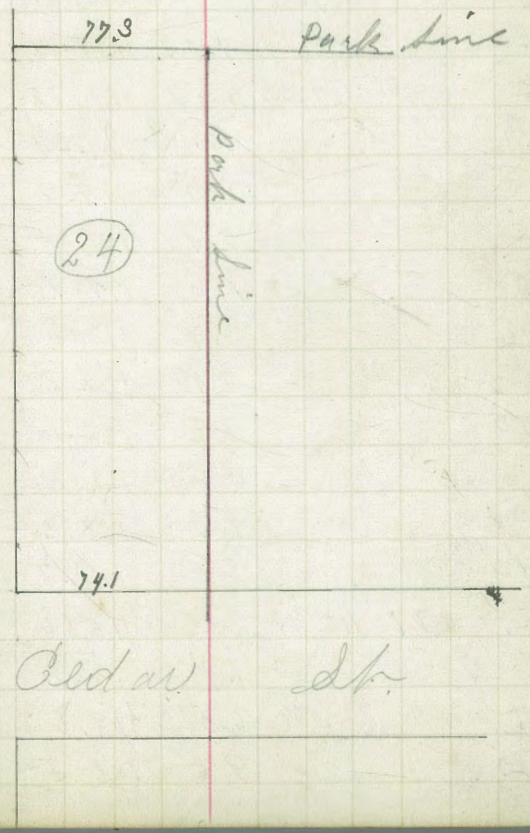
July 22 1889 Hamlin
Orton
Williams
Hensley

4+31.8		S Line of Grape St
+81.8		
3+31.8		
+81.8		
2+31.8		
+81.8		
+31.8		N Line of Fir St
1+10.14	EC	
94.45		
+78.76		
+63.07	90° 06'	
+47.38		
+31.69	35°	
+16		
0	BC curve 90' Radius Δ 70° 12[illegible]	
	Semi Tangents 63.23'	
	BC 25.73 East of East line	
	Union on centerline of F[illegible]	

X Section of Blk 24 Carathers Add.

July 23 1889

Humbin
Orton
Williams
Hensley



Sta	+	HI	−	Elev		
BM	11.65	131.65		120.0		Beech & 9th
BM			9.68	121.97	✓	Cedar & 10th
B.M.	1.80	149.21		148.41		Cedar & 9th
#	0.75	138.14	11.82	137.39		
#	0.20	127.32	11.02	127.12		
BM			6.33	121.99	✓	Cedar & 10th
A			7.5	119.6		
+25			7.9	119.4		
+50			9.6	117.7		
+75			8.7	118.6		
1			7.1	120.2		
+50			6.2	121.1		
2			4.6	122.7		
+50			4.0	123.3		
+80			3.6	123.7		Park Ave
#	0.27	116.13	11.46	115.86		
B			1.9	114.2		
+7			6.5	109.6		
+25			9.8	106.3		

Sta	+	HI	−	Ele	Rod	
+26		116.13 (108.7)	10.4	105.7	8.0	1 to left
+36			9.3	99.4		
+50			9.0	99.7		
+62			8.7	100.0		
+75			7.2	101.5		
1+0			13.0	103.1		
#	3.82	108.67	11.28	104.85		
C			1.6	107.1		
+25			4.5	100 2		
+27	See next page	(101.0)	9.0	99.7		
+39			8.7	92.3	12 to rd	3.6 foot of Slope
+50			8.7	92.3	"	3.8 foot of slope
+56			8.9	92.1	"	3 6 " " "
+63			11.9	96.8		
+75			12.2	96.5		
1			11.5	97.2		
+50			8.5	100.2		
2			6.3	102.4		

C						
+50		108.67	4.3	104.2		
+80			4.9	103.8		
∏						
∏ 2+80			12.7	96.0		
2+50			12.7	96.0		
#	3.14	101.04	10.77	97.90		
2			5.1	95.9		
+50			6.3	94.7		
1			7.4	93.6		
+84			6.9	94.1		
+75			9.4	91.6		
+50			9.7	91.3		
+25			8.6	92.4	18' to left	99.1 Elev
+9					15' " "	101.4
0			4.6	96.4		

Elev for walls of B Sch
School house

July 24 1889

Hamlin
Orton
Williams
Hensley

Sta	+	HI	−	Elev	
B M	11.89	70.35		58.46	
a 21			1.7	68.7	St grade
c "			3.2	67.1	"
e "			4.7	65.6	
g "			6.2	64.1	
i "			7.7	62,7	
K "			8,8	61.6	
m "			10.0	60.4	
o "			11.3	59 1	
p "			11.7	58.7	
a 19			5.0	65. 4	
a 17			5.2	65. 2	
a 15			5.6	64.8	
a 13			4.0	66.4	
a 11			+0.2	70.6	
#	11.75	81.82	0.28	70.07	
a 9			11.84	70.0	+ 6.8 = 76.8
a 7			11.84	70.0	+ 9.6 = 79.6
a 5			11.84	70.0	+10.4 = 80.4

796
64.3
15.3

804
28643
16.1

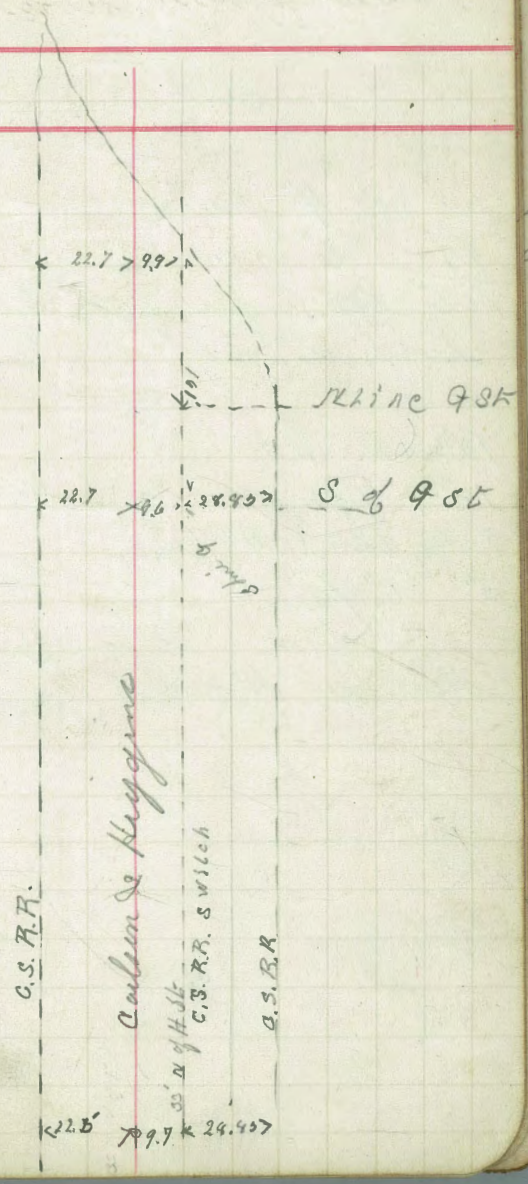
763
64.3
12.0

Elev for Walls at B St School house

Sta	+	HI	-	Elev		
a 3		81.82	11.84	70.0	+11.5 =	81
a 1			11.84	70.0	+10.8 =	80
q 1			3.4	78.4		
c 1			6.8	75.0		
e 1			8.6	73.2		
g 1			11.2	70.6		
#	0.95	70.81	11.96	69.86		
i 1			2.5	68.3		
k 1			4.4	66.4		
m 1			6.7	64.1		
o 1			8.4	62.4		
p 1			9.2	61.6		
BM			10.12	60.69		
p 3			9.9	60.9		
5			9.9	60.9		
7			10.1	60.7		
9			10.5	60.3		
11			10.5	60.3		
13			10.7	60.1		
15			11.4	59.4		
17			12.2	58.6		
19			11.7	59.1	21	12.58.6

at St grade

Sketch showing proposed location of Switch at G & A Tk



Drain pipes at Middle Town school house.

60' of 4" pipe
45 " " 6" "
105' @ $.10 per foot ditching & back filling

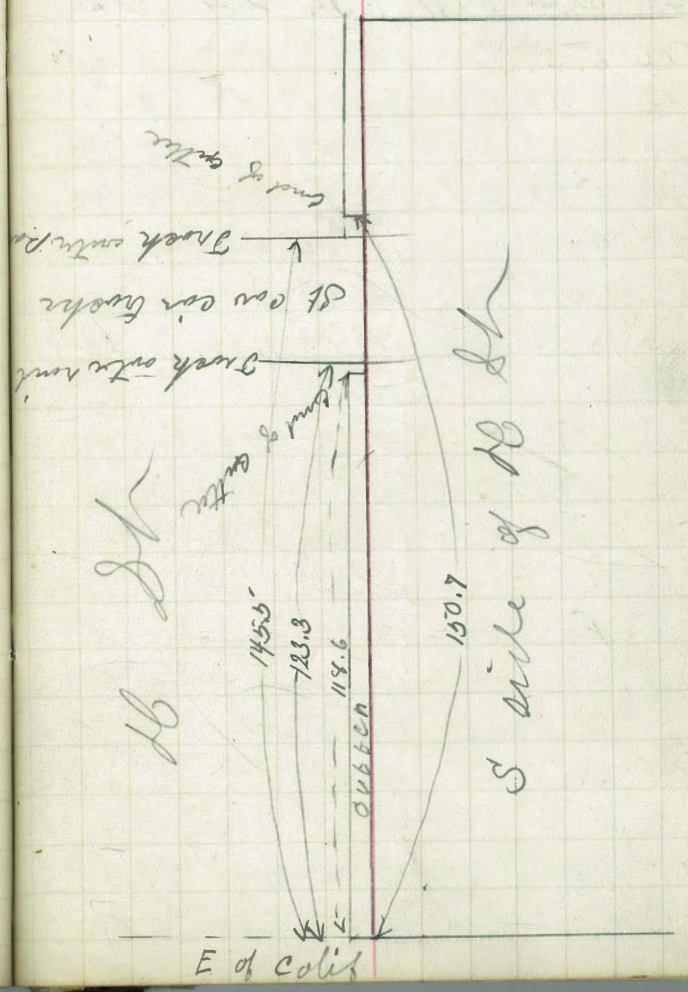
105' @ $.10	10.50
16' 4" pipe new @ .20¢	3.20
1 1/8 band 4" pipe	.40
2" 6" pipe	.60
	$ 14.70

Hue McDonald

July 12 1883

Hamlin
Peters
Williams
Kenedy

Measurement of gutters on south side of B St in front of St Car Co's sheds.



Checking paving grades on H St.

North		Center		South		St	HI		Elev
			(14.10)						7.64
Rod	Elev	Rod	Elev	Rod	Elev		6.46	14.10	7.639
7.76	6.34	7.08	7.02	7.77	6.33	0	East of Capitol		
6.92	7.18	6.40	7.70	7.07	7.03	+5			
6.03	8.07	5.57	8.53	6.48	7.62	1			
5.18	8.92	4.82	9.28	5.82	8.28	+5			
4.32	9.78	4.06	10.04	5.28	8.82	2	West of Arctic		
3.26	10.84	3.57	10.53	4.22	9.88	+3			
3.25	10.85	3.07	11.03	4.22	9.88	0	East of Arctic		
			(16.28)			B M	6.00	16.28	3.82	10.28
4.93	11.35	4.73	11.55	5.86	10.42	+5			
4.43	11.85	4.22	12.06	5.22	11.06	1			
3.97	12.31	3.51	12.77	4.55	11.73	+5			
3.49	12.79	2.98	13.30	4.01	12.27	2	West of India		
2.66	13.62	2.75	13.53	3.12	13.16	+3			
2.94	13.32	2.47	13.81	3.55	12.73	0	East of India		
			(19.80)			B M	6.20	19.80	2.68	13.60
5.63	14.17	5.22	14.58	6.31	13.49	+5			
4.80	15.00	4.44	15.36	5.60	14.20	1			
3.96	15.84	3.74	16.06	4.88	14.92	+5			
3.19	16.61	2.95	16.85	4.20	15.60	2	West of Columbia		

Check of Paving grades on H St

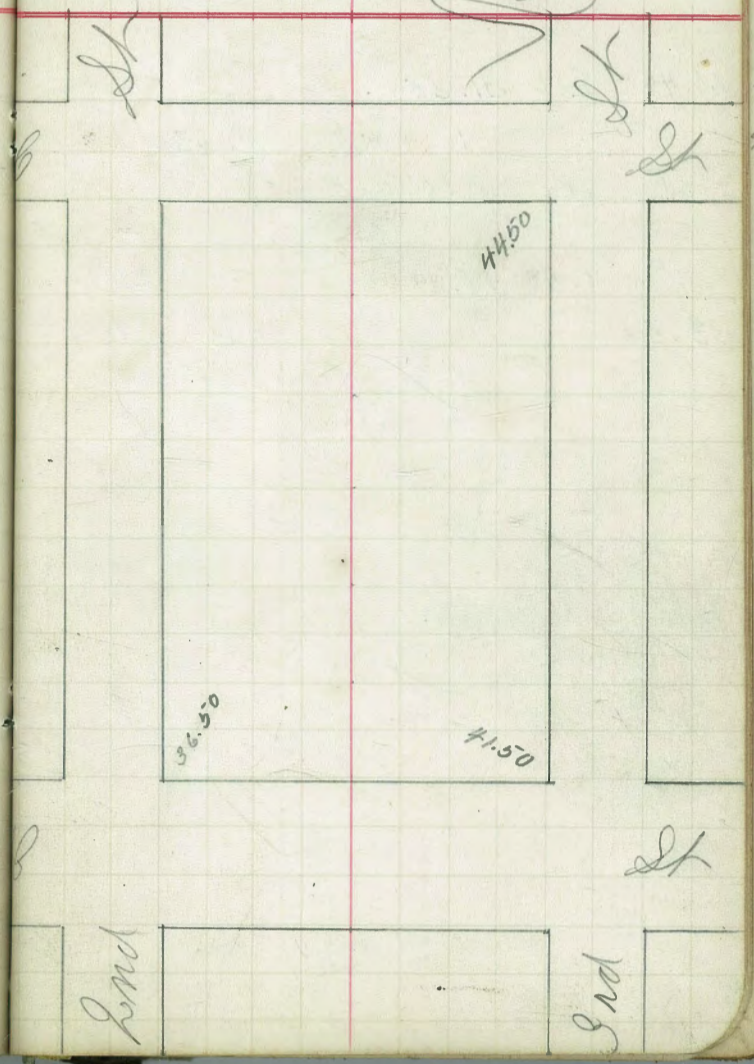
North		Centre		South		Sta	H I		—	Elev
			(19.80)							
Rod	Elev	Rod	Elev	Rod	Elev	St		19.80		
1.97	17.73	2.20	17.50	2.62	17.08	+5				
2.24	17.56	1.59	18.21	2.30	17.50	0	East of Columbia			
			(24.96)			BM	5.35	24.96	0.19	19.61
6.53	18.43	5.82	19.14	6.52	18.44	+5				
5.62	19.34	4.97	19.99	5.64	19.32	1				
4.63	20.33	4.07	20.89	4.70	20.26	+5				
3.83	21.13	3.13	21.83	3.88	21.08	2	West of State			
2.23	22.73	2.28	22.68	2.40	22.56	+37				
2.05	22.91	1.41	23.55	2.07	22.89	0	East of State			
			(30.15)			B.M	7.09	30.15	1.90	23.06
6.56	23.59	5.90	24.25	6.51	23.64	+5				
5.78	24.37	5.10	25.05	5.78	24.37	1				
5.02	25.13	4.37	25.78	5.02	25.13	+5				
4.31	25.84	3.63	26.52	4.30	25.85	2	West of Union St			
3.07	27.08	3.26	26.88	3.42	26.73	+37				
3.28	26.87	2.89	27.26	3.72	26.43	0	East " Union St			
			(32.88)			BM	5.86	32.88	3.13	27.02
5.38	27.50	5.08	27.80	5.85	27.03	+5				
4.81	28.07	4.37	28.51	5.27	27.61	1				

Check of Paving grades on H.St.

North		Centre		South		St	HO		
		(32.88)					32,88		
Rod	Elev	Rod	Elev	Rod	Elev				
4.16	28.72	3.76	29.12	4.57	28.31	+5			
3.55	29.33	3.13	29.75	4.01	28.87	2	West of Front		
2.55	30.33	2.90	29.98	3.31	29.57	+37			
3.00	29.88	2.63	30.25	3.41	29.47	0	East of Front		
							P.M.	0.73	32.15

July 31 1887 Hamlin Book
Ortona Sewer
Williams
Hensley

B M	+	H I	Grade	Rod	-
Curb lines & Grades for Lot G Bk 38 H A for W. Macdonald contractor					
40.00	4.655	44.655			
			41.50	3.155	
			40.25	4.405	
			39.00	5.655	
37.195					7.460



8.25
9.08

Grades for Masonic Hall Grade cor H & 6th NW 25.5
Cor of H & H St " " G & 6th SW 31.0

Humbin
Hensley

BM	+	HI	Grade	Rod	-		
26.49	5.06	31.55					
			27.12	4.43	At a point 75' N of H St		
					-		
	6.58	35.29			2.840	28	
33.58		1.71 / 33.58			1.710		& G 300

31.25
25.75
5.50) .01833
3 00
2 50
2 40
1 00

4) 18.33 (4

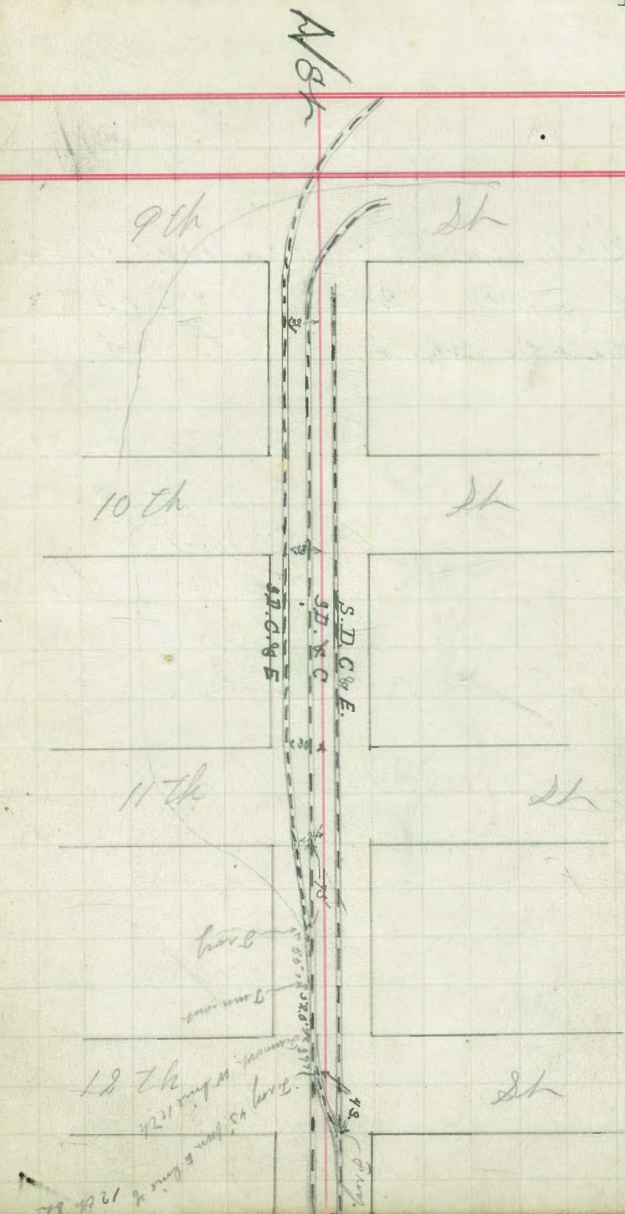
.1833
25
9165
3666
.45825
5
137475
25.75
27.124

Blk 87 H.A.

Aug 5 1889

Hamlin
Hensley

Diagram showing locat
of S.D.C. & E. RR. side
track at foot of N. St



Aug 5 1889

BM	+	HI	-	Grade	Rod	E

Curb lines & Grades for

Sop Junct Blk H A

4th

209.52 4.93 214.45 Stowe O.J.

3.43

(206.70) 195.50 11.20

197.08 9.62 ✓

198.67 8.03 ✓

200.25 6.45 ✓

201.83 4.87 ✓

(214.45) 203.42 11.03 ✓

205.0 9.45 ✓

2.53 206.70 10.28 204.17

10.39 196.31

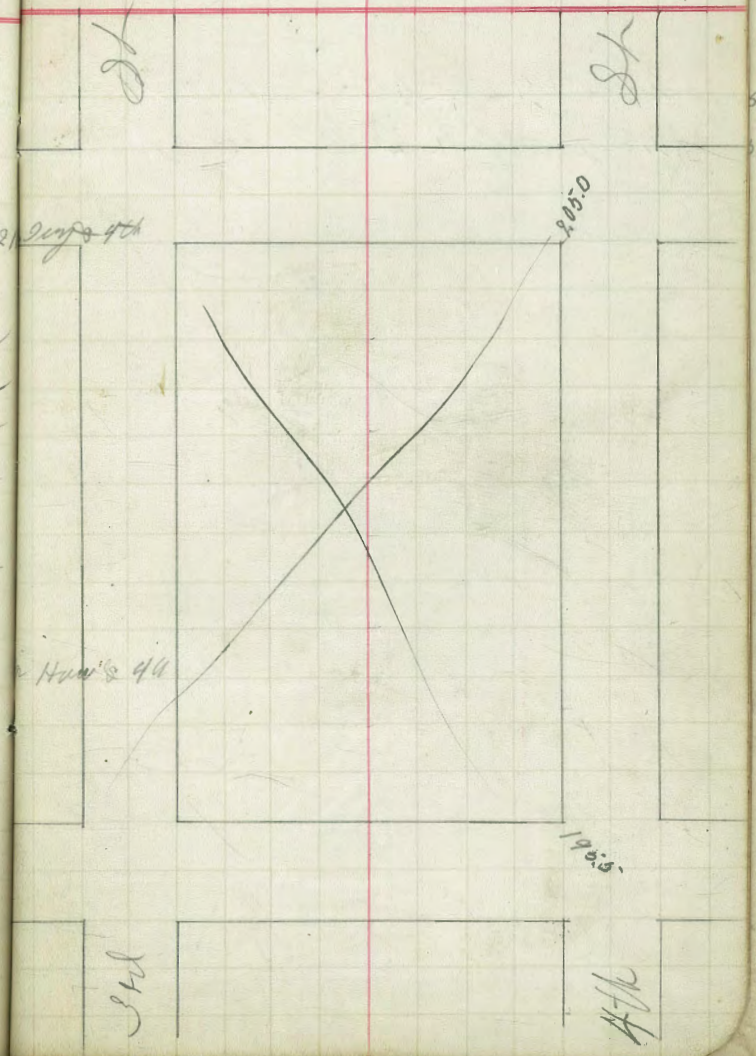
Not Used

NW cor Hawthorn & 4. (195.5)

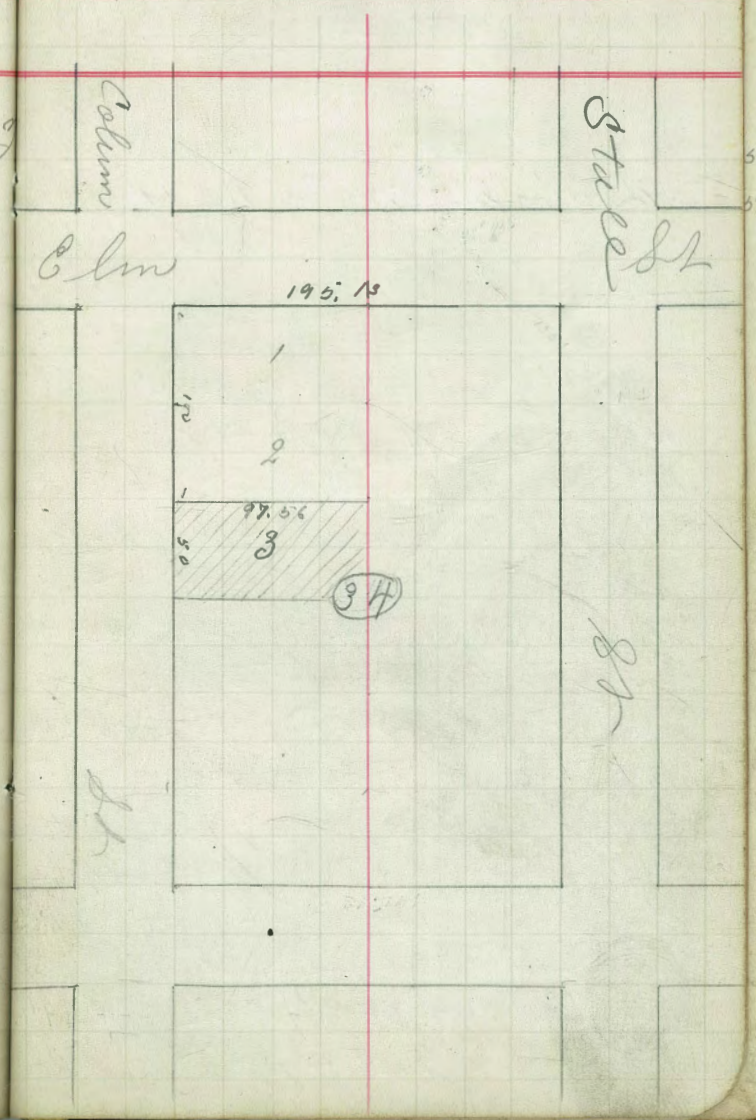
W cor of Ivy & 4th (205.0)

W cor of Hawth & 4th (194.5)

W Grape & 4th. (183.0)



Survey of Sub 3 Blk 34 Ord 2
for Joseph Barbeling



Notes of Middle Town div line, connection to st cent

Dist from centre of Union & Kalmia to div line 175.8 ∠ 110° 19' Left
Dist from this pt to next mon 294.6
Dist from centre of Horton Ave & Laurel St to div line 161.83'
Angle 96° 41' Left
Distance from Maple & Horton to div 60.48 ∠ 96° 37½ Left
Distance from centre of Horton & Newmeg 104.31 ∠ 78° 13½ Left
Rec from Olive & Horton Ave to div line, (West) 2.09 ∠ 86° 28½
Distance from Horton & Palm to div line 39.14 ∠ 94° 30' Left
Dist from Horton & Quince to div line 69.63 ∠ 94° 33' Left
Dist from Redwood & Horton to div line 48.55 ∠ 84° 49½
Dist from Spruce & Horton to div line 14.19 ∠ 44° 45' Left

Sycamore & Horton to div line 58.25
dist 20.32 (West) ∠ 84° 45½ Left 59.08
Thom & Horton to div line (West)
dist 55.0 ∠ 84° 49' Left
Maple & Union dist to div line
184.92 (East) ∠ 84° 49'
Vine & Union to div line 150.56
∠ 84° 47' Left
Willow & Union to div line 54.61
∠ 57° 42½'
Chalmers & State dist 48.90
∠ 37° 41½ Left
Winder & Columbia dist to div line
122.19 ∠ 52° 46 Left
Price & Linden dist to div line 156.8
∠ 57° 41½ Left

McNeely & Acetic dist 116.0 ∠ 68° 03' L

Aug 14, 1889

Hamlin
Arten
Williams
Hemsley

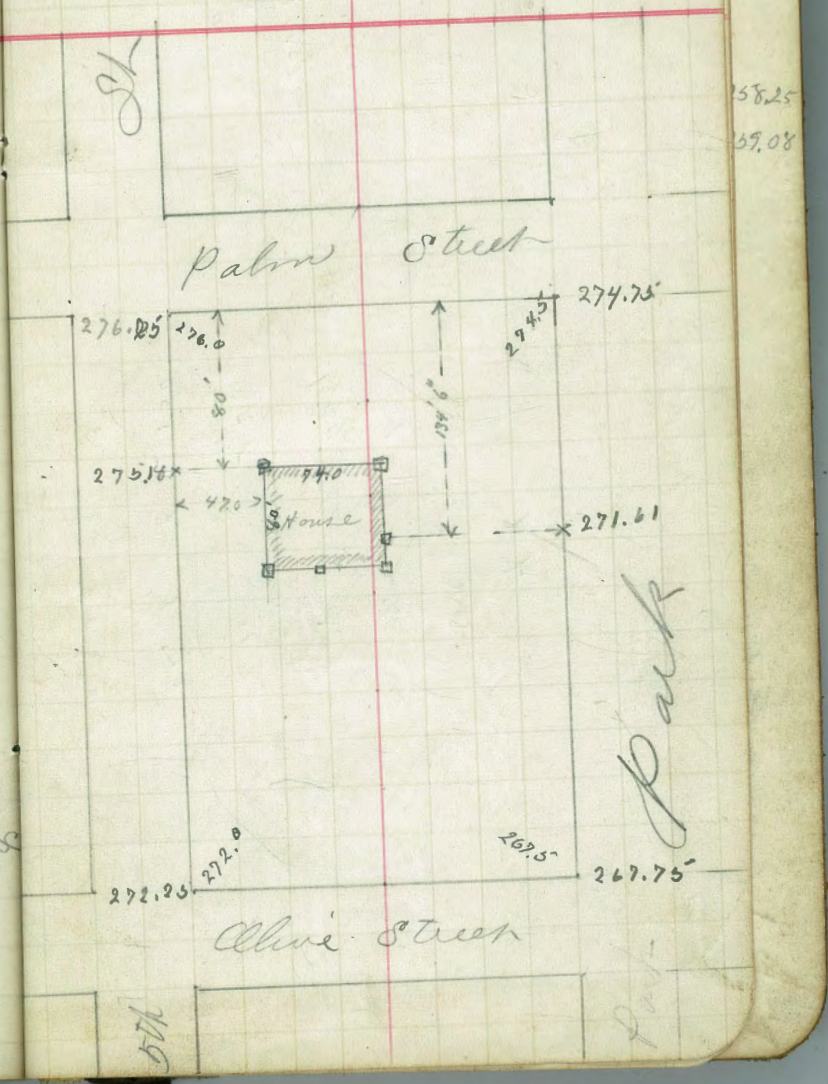
Dta	+	HI	Grade	Rod		
Grades for lot J Blk 30 HA						
258.44	8.15	266.59				
			260.50	6.09		
			261.33	5.26	-	E
B M 5th & Nut					2.63	263.
4 Grades for Lots G. H & I. Blk 304 for Van Norman.						
258.44	6.18	264.62				
			258.25	6.37	83	
			259.08 (83)	5.54	83	
			259.92 (84)	4.70	84	
			260.75 (83)	3.87	Elev 83	
Sept 4 1889			B M 5th, Nut	0.68	263.94	
Hamlin						
Hubon						

59.
58.25
59.08

Grades for
Set Olive & Palm on 5th

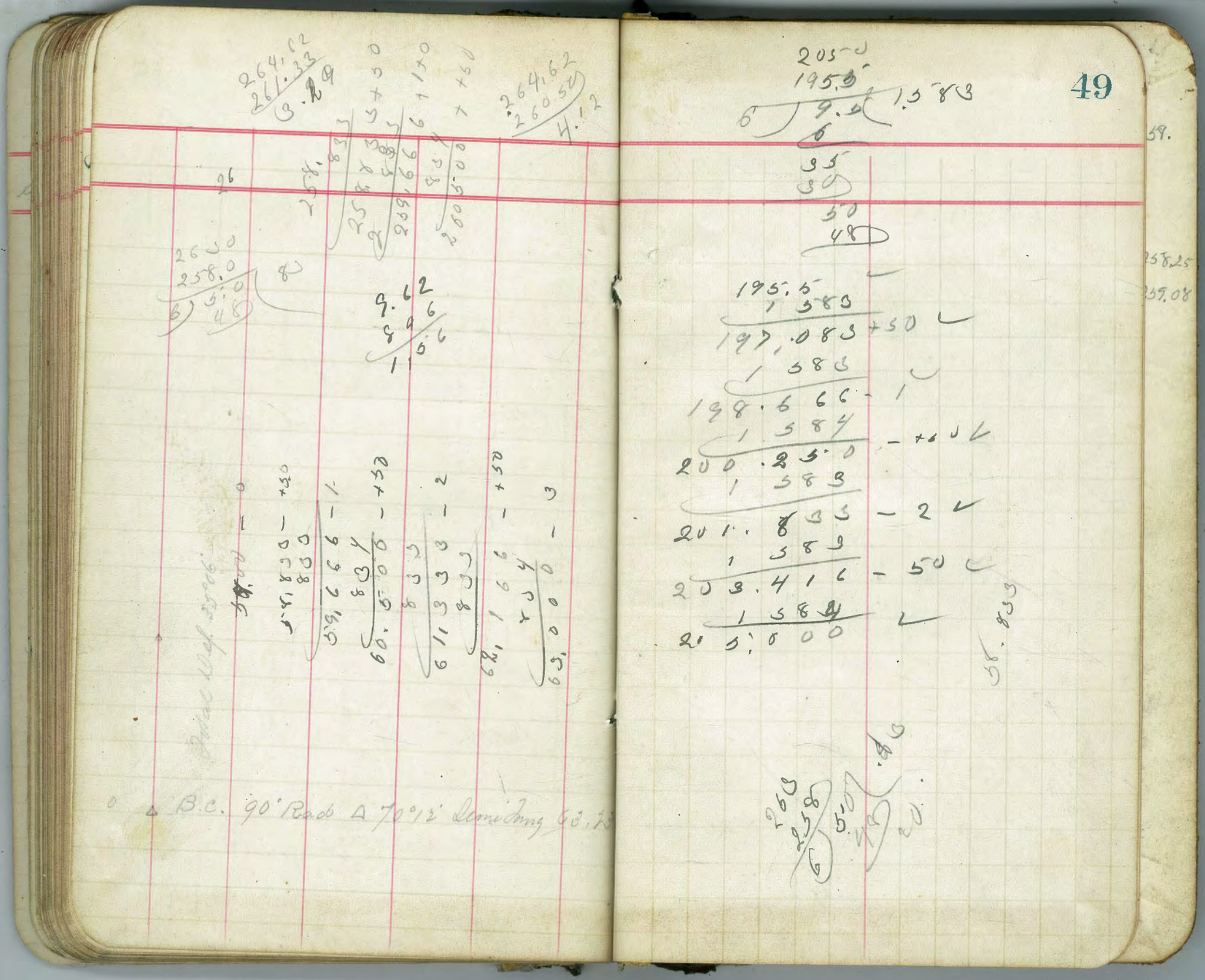
B M	+	H I	Grade	Rod	Elev
271.20	7.65	278.85			
			275.18	3.67	
Grade for House			275.78	3.07	
			274.75	4.10	
			271.61	7.24	
			267.75	11.10	
B M				1.62	277.23

Set 4 joint str on cor of house
10 Grade stakes



264.62
261.33
3.29

264.62
260.50
4.12



26

258.833 + 50
258.833 + 50
259.666 + 1 + 0
200.500 + 50

2650
258.0
6) 5.0
48

9.62
896
1.56

Total Def. 55.06

58.833 - +50
833
59.666 - 1
834
60.500 - +50
833
61.333 - 2
833
62.166 - +50
834
63.000 - 3

0 △ B.C. 90° Rad △ 70°12' Semi Tang 63.25

2050
195.5
6) 9.5 (1.583
6
35
30
50
48

195.5
1.583
197.083 + 50
1.583
198.666 - 1
1.584
200.250 - +50
1.583
201.833 - 2
1.583
203.416 - 50
1.584
205.000

58.833

263
258
6) 5.0
48
20

59.

258.25
259.08

86.2 8½

85° 49½

Sta	+	HI	−	Elev	
BM	11.83	71.94		60.11	4th 8
#	11.84	83.58	0.20	71.74	
#	11.71	95.14	0.15	83.43	
#	11.76	106.85	0.05	95.09	
#	11.90	118.66	0.09	106.76	
#	11.76	130.38	0.04	118.62	
#	11.69	141.86	0.21	130.17	
#	7.45	148.15	1.16	140.70	
BM			5.45	142.70	

8.82
11.42
70.00

11.5

4.5
29
1.6
2
14

45.8
9
4.12

.458
3
13.74
25.75
27.124
4122
31.246

258.25
259.08
259.92

4150
3650
4500
125

3650
~~1125~~
38.75
1125
40.00

81.84
75

Withurbee

3650
250
900

81.84
12) 5.50 (45874
48
70
60
100
6
81.84
401.00
1084

89

3650
125
37.75
125
39.00
1125
40.25
125
41.50

81.84
70
11.84

.9166

3125
25.75
6) 5.50 (.916
54
10
6
40

10.8
70
80.8

.916
3
27.49

25.75
2.75
28.50

258.25
259.08

Return to City Engineers Office
City Hall, San Diego, Cal.

Return to City Engineers Office
City Hall, San Diego Cal.

VERSE TABLE FOR TRANSIT BOOK,

From 1° to 90° for a distance of 100.

GREES.	¼ DEGREE.		½ DEGREE.		¾ DEGREE.		Degrees
Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	
	100.00	0.44	100.00	0.87	99.99	1.31	8
1.75	99.98	2.18	99.97	2.62	99.95	3.05	8
3.49	99.92	3.93	99.91	4.36	99.88	4.80	8
5.23	99.84	5.67	99.81	6.10	99.79	6.54	8
6.98	99.73	7.41	99.69	7.85	99.66	8.28	8
8.72	99.58	9.15	99.54	9.58	99.50	10.02	8
10.45	99.41	10.89	99.36	11.32	99.31	11.75	8
12.19	99.20	12.62	99.14	13.05	99.09	13.49	8
13.92	98.97	14.35	98.90	14.78	98.84	15.21	8
15.64	98.70	16.07	98.63	16.50	98.56	16.93	8
17.36	98.40	17.79	98.33	18.22	98.25	18.65	7
19.08	98.08	19.51	97.99	19 94	97.90	20.36	7
20.79	97.72	21.22	97.63	21.64	97.53	22.07	7
22.50	97.34	22.92	97.24	23.34	97.13	23.77	7
24.19	96.92	24.62	96.81	25.04	96.70	25.46	7
25.88	96.48	26.30	96.36	26.72	96.25	27.14	7
27.56	96.00	27.98	95.88	28.40	95.76	28.82	7
29 24	95.50	29.65	95.37	30.07	95.24	30.49	7
30.90	94.97	31.32	94.83	31.73	94.69	32.14	7
32.56	94.41	32.97	94.26	33.38	94.12	33.79	7
34.20	93.82	34.61	93.67	35.02	93.51	35.43	6
35.84	93.20	36.24	93.04	36.65	92.88	37.06	6
37.46	92.55	37.86	92.39	38.27	92.22	38.67	6
39.07	91.88	39.47	91.71	39.87	91.53	40.27	6
40.67	91 18	41.07	91.00	41.47	90.81	41.87	6
42.26	90.45	42.66	90 26	43 05	90.07	43 44	6
43.84	89.69	44.23	89.49	44.62	89.30	45.01	6
45.40	88.90	45.79	88.70	46.17	88.50	46.56	6
46.95	88.09	47.33	87.88	47.72	87.67	48.10	6
48.48	87.25	48.86	87.04	49 24	86.82	49.62	6
50.00	86.38	50.38	86.16	50.75	85.94	51.13	5
51.50	85.49	51.88	85.26	52.25	85.04	52.62	5
52.99	84.57	53.36	84.34	53.73	84.10	54.10	5
54.46	83.63	54.83	83.39	55.19	83.15	55.56	5
55.92	82 66	56.28	82.41	56.64	82.16	57.00	5
57.36	81.66	57.71	81.41	58.07	81.16	58.42	5
58.78	80.64	59.13	80.39	59.48	80.13	59.83	5
60.18	79.60	60.53	79.34	60.88	79.07	61.22	5
61.57	78.53	61.91	78.26	62.25	77.99	62.59	5
62.93	77.44	63.27	77.16	63.61	76.88	63.94	5
64.28	76.32	64.61	76.04	64.94	75.76	65.28	4
65.61	75.18	65.93	74.90	66.26	74.61	66.59	4
66.91	74.02	67.24	73.73	67.56	73.43	67 88	4
68.20	72.84	68.52	72.54	68.84	72.24	69.15	4
69.47	71.63	69.78	71.33	70.09	71.02	70.40	4
70.71							
Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Degrees.
GREES.	¾ DEGREE.		½ DEGREE.		¼ DEGREE.		

ed by Edward Denny & Co., Stationers, Drawing Materials,
Mathematical Instruments, Etc., San Francisco.