

9

TRANSIT

F.B. 627

Table 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	2½	21	49	41	95½
2	4¾	22	51½	42	98
3	7	23	53¾	43	100½
4	9½	24	56	44	102¾
5	11¾	25	58½	45	105
6	14	26	60¾	46	107½
7	16½	27	63	47	109¾
8	18¾	28	65½	48	112
9	21	29	67¾	49	114½
10	23½	30	70	50	116¾
11	25¾	31	72½	51	119
12	28	32	74¾	52	121½
13	30½	33	77	53	123¾
14	32¾	34	79½	54	126
15	35	35	81¾	55	128½
16	37½	36	84	56	130¾
17	39¾	37	86½	57	133
18	42	38	88¾	58	135½
19	44½	39	91	59	137¾
20	46¾	40	93½	60	140

28th and Not to

J. D. Denny

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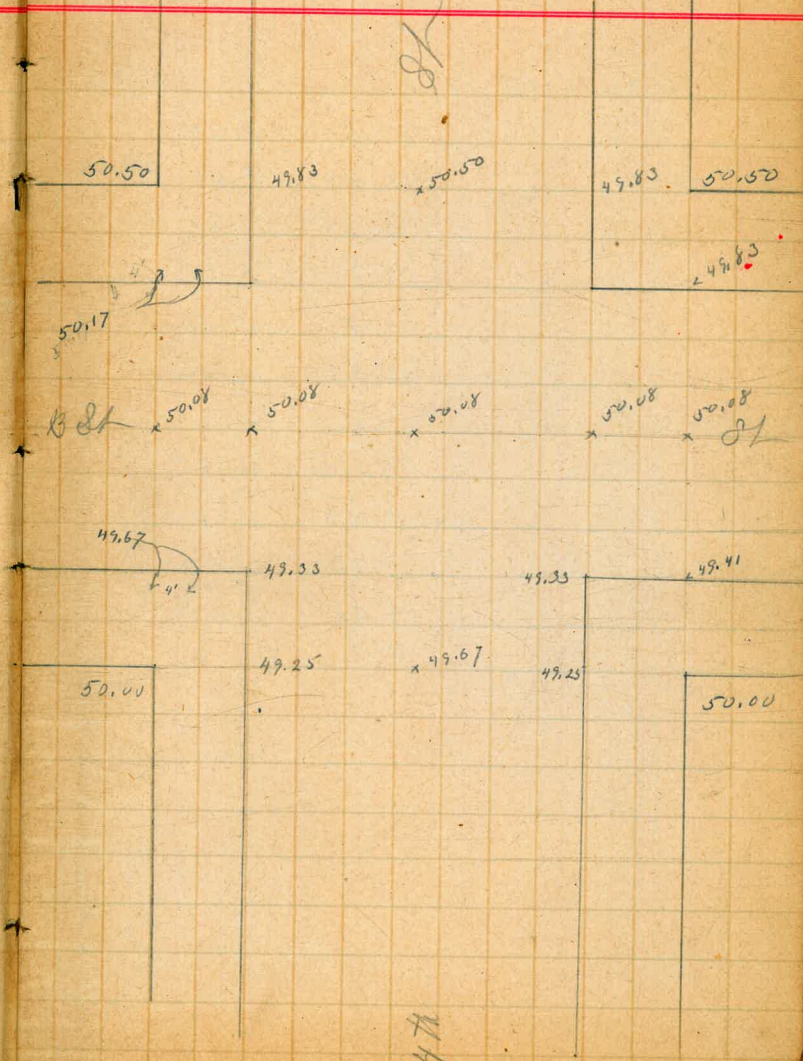
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Table for Running on Slopes.

In the following table the first column shows the angle, the second, the number of links to be added to a chain on the slopes, to make one chain, horizontal measurement.

Angle.	Cor. in links	Angle.	Cor. in links.	Angle.	Cor. in links.	Angle.	Cor. in links.
°		°		°		°	
4	0.24	11	1.88	18	5.14	25	10.54
5	0.38	12	2.24	19	5.76	26	11.26
6	0.55	13	2.63	20	6.42	27	12.24
7	0.76	14	3.06	21	7.11	28	13.37
8	0.98	15	3.53	22	7.85	29	14.34
9	1.24	16	4.02	23	8.64	30	15.47
10	1.55	17	4.56	24	9.47	35	22.07

MICROFILMED 1964

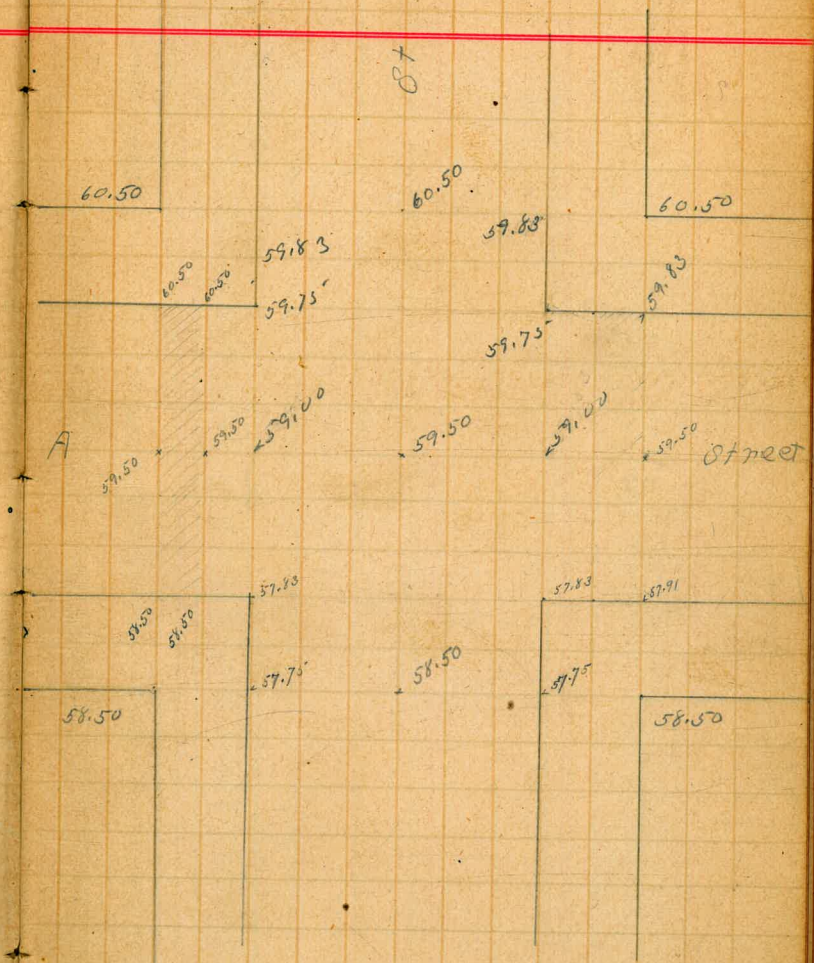


Ginder at 4th and 8th

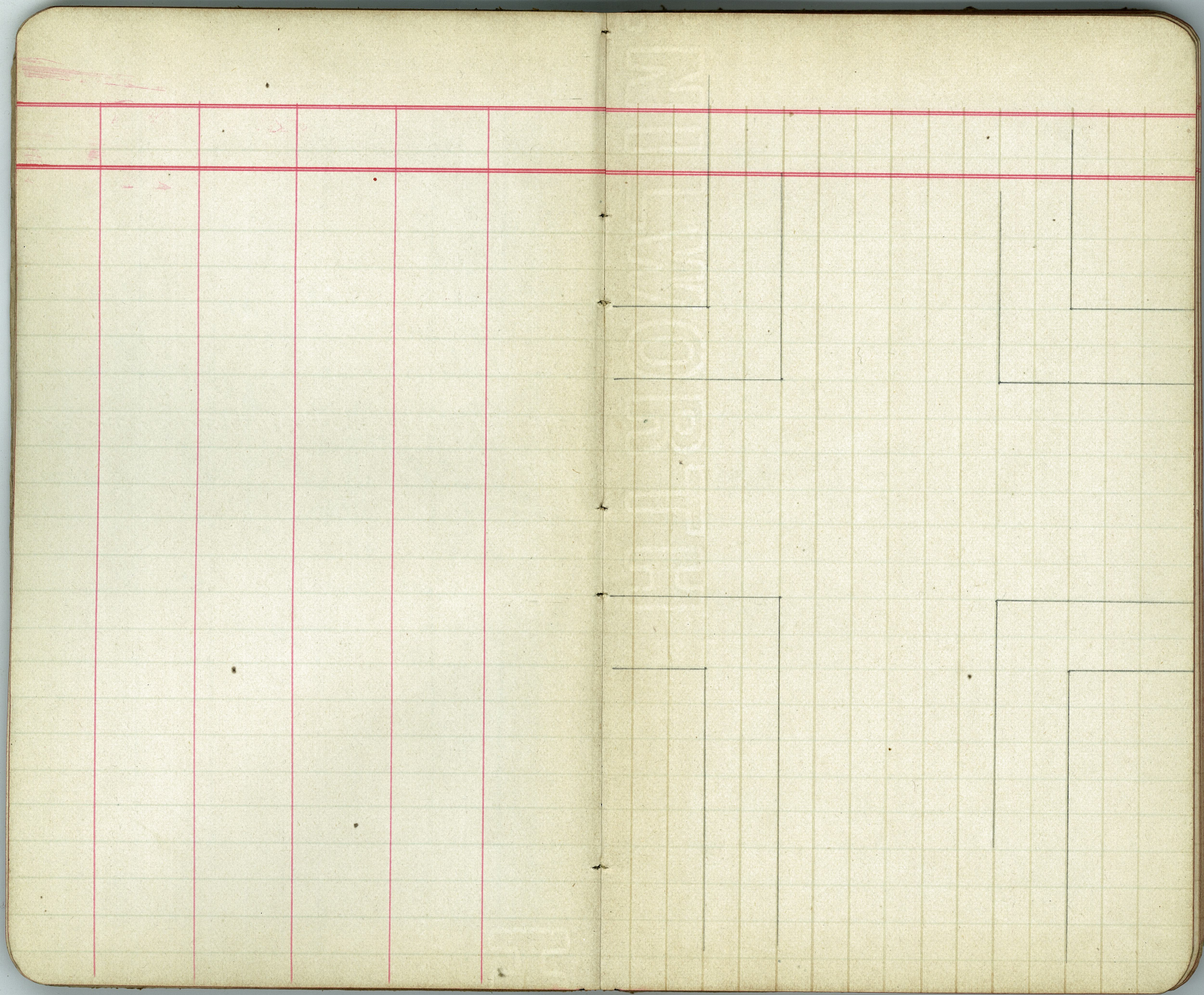
6.35
57.68
.67

39.50
67
58.83

Sta	+	HO	Ginder Rod	Elev.
3.36		65.18		61.82
			57.91	7.27
			57.83	7.35 ✓
			57.75	7.43 ✓
			59.50	5.68 ✓
			60.50	4.68 ✓
			58.83	6.35 ✓
			59.83	6.25
			59.00	6.18 ✓
			59.50	5.68 ✓
			59.83	5.35 ✓
			59.75	5.43 ✓
			60.	



A+B



Center of under on 4th St bet
A and B St

June 24 1890

Sta	+	HD	Grade	Red	Blw.
B.M.	9.61	69.27			50.66
0			50.50	10.77	
+25			57.17	9.10 ⁶⁷	
+50			57.83	8.44 ⁶⁶	✓
+75			52.50	7.77 ⁶⁷	✓
1			53.17	7.10 ⁶⁷	✓
+25			53.83	6.44	✓
+50			54.50	5.77	✓
+75			53.17	5.10	✓
2			55.83	4.44	✓
+25			56.50	3.77	✓
+50			57.17	3.10	✓
+75			57.83	2.44	✓
3			58.50	1.77	✓
#	5.37	63.39		2.25	58.02
B.M.				1.57	66.22

4th and B St.
North line of B St.

South line of B St.

4th and A St.

Center Grader on 6th St
bet H and I St

June 24 1890

Sta	+	H ₂ O	Grade	Rock	Elev
-----	---	------------------	-------	------	------

B9m	0.83	26.90			26.05
0			18.92	7.98 ⁴⁶	✓
+25			19.38	7.52 ⁴⁵	✓
+50			19.83	7.07 ⁴⁴	✓
+75			20.29	6.61 ⁴³	
1.			20.75	6.15 ⁴²	
+25			21.21	5.69 ⁴¹	
+50			21.67	5.23 ⁴⁰	
+75			22.13	4.77 ³⁹	
				7.12	19.78
			18.83	8.07	19.765
				8	
				8.15	
			24.57	2.33	
			24.23	2.67 ³⁹	

H and 6th St
North line of I St.

Leub-grader on 4th St bet
Elm and Fir

June 24 1890

Sta	+	H ₀	Grade	rod	Elev.
B ₂	7.40	143.56			138.16
0			138.00	7.56	✓
+25			^{1.96} 139.96	5.60	✓
+50			^{1.96} 141.92	3.64	✓
+75			143.88	1.68	✓
#	8.82	154.24		0.14	145.42
1			145.83	8.41	✓
+25	*		^{1.96} 147.79	6.45	✓
+50			^{1.96} 149.75	4.49	✓
+75			^{1.96} 151.71	2.53	✓
#	9.96	162.55		1.65	152.59
2			153.67	8.88	✓
+25			^{1.96} 155.63	6.92	✓
+50			^{1.96} 157.58	4.97	✓
+75			^{1.96} 159.54	3.01	✓
			1.96		
3			161.50	1.05	✓
			1.53		161.02

North line of Elm St

42.55
151.71
10.84 ✓
8.82
1.96

South line of Fir St

Center grades on 4th St
bet I and J St

Sta + H.S. Grade Prod. Elev.

B.M.	1.71	12.50		10.80
0			5.47	7.03 ✓
+50			6.17	6.33 ✓
1			6.87	5.63 ✓
+50			7.57	4.93 ✓
2			8.27	4.23 ✓
+50			8.97	3.53 ✓
3			9.67	2.83 ✓
B.M.				6.02 6.18
			5.80	6.70

4th and J St
North line of J St

South line of J St

Lev. under on East side of
4th bet A and B St

Sta	+	HO	Grade	Rod	Obs
-----	---	----	-------	-----	-----

B.M.	8.25	58.91			50.66
------	------	-------	--	--	-------

0			49.83	9.08 ✓	
---	--	--	-------	--------	--

+25			50.50	8.41 ✓	
-----	--	--	-------	--------	--

+50			51.16	7.75 ✓	
-----	--	--	-------	--------	--

+75			51.83	7.08 ✓	
-----	--	--	-------	--------	--

1			52.50	6.41 ✓	
---	--	--	-------	--------	--

+25			53.16	5.75 ✓	
-----	--	--	-------	--------	--

+50			53.83	5.08 ✓	
-----	--	--	-------	--------	--

+75			54.50	4.41 ✓	
-----	--	--	-------	--------	--

2			55.16	3.75 ✓	
---	--	--	-------	--------	--

+25			55.83	3.08 ✓	
-----	--	--	-------	--------	--

+50			56.50	2.41 ✓	
-----	--	--	-------	--------	--

+75			57.16	1.75 ✓	
-----	--	--	-------	--------	--

3			57.83	1.08 ✓	1.16
---	--	--	-------	--------	------

#	5.50	63.41		1.00	on east
---	------	-------	--	------	---------

B.M.				1.00	57.91
------	--	--	--	------	-------

B.M.				1.59	61.82
------	--	--	--	------	-------

4th and B St
North line of B St

6.41
67
5.74

5.75
67
5.08

lower 1"

South line of B St
line

4th and B St

Lev. grades on East side
of 6th St bet J and I

Sta	+	HO	Grade	Prod	Elw
B.M.	1.65	21.41			19.76
0			13.50	7.91 ⁴²	✓
+25			13.92	7.49 ⁴¹	✓
+50			14.33	7.08 ⁴²	✓
+75			14.75	6.66 ⁴²	✓
1			15.17	6.24	✓
+25			15.58	5.83	
+50			16.00	5.41	
+75			16.42	4.99	
2			16.83	4.58	✓
+25			17.25	4.16	✓
+50			17.67	3.74	✓
+75			18.08	3.33	✓
3			18.50	2.91	✓
B.M.				7.67	13.74

North of J St

South of J St
6th and J St

center grade on 4th St.
bet 4th and K St

Sta	+	HO	Grade	Pod	Blw
Bm	2.22	8.40			6.18
0			1.67	6.73 ^{.50}	✓
+50			2.17	6.23 ^{.50}	✓
1			2.67	5.73 ^{.50}	✓
+50			3.17	5.23 ^{.50}	✓
2			3.67	4.73 ^{.50}	✓
+50			4.17	4.23 ^{.50}	✓
3			4.67	3.73 ^{.50}	✓
Bm				4.93 ^{.40}	3.44 3.45
+40			5.07	3.33 ^{.40}	
0			5.47	2.93 ^{.40}	✓
			4.73	3.67 ^{.40}	
			5.13	3.27	

5783

73
65
26

73
57
56

4

4

4
33
73
67



33
30
73
67

North of K St

5.40
55
3.07

South of J St.
4th and K St

North of J St

Grades at intersection of 6th
and 1st

Sta	+	H ₂	Grade	rod
Bm	3.07	22.83		19.76
			18.83	4.00 ✓
			18.75	4.08 ✓
			18.67	4.16 ✓
			18.33 ³⁴	4.50 ³⁴ ✓
			17.91	4.91 ✓
			17.83	5.00 ✓
			17.75	5.08 ✓
			18.42	4.41 ✓
			17.92	4.91 ✓

checked on old stakes

Found 6th to 57 0.03 High

6th and 1st

Grade at intersection of H and
6th St

June 27 1890

Sta	+	HS	Grade	rock	Elw.
B.M.	3.70	29.76			26.05
			24.57	5.18	⁰
			24.23	5.52	³⁴ ✓
			24.17	5.88	✓
			23.83	5.92	³⁴ ✓
			23.75	6.00	

24.57
33
24.24

6th and H St.

cut grades on 4th St bet
 Erie and Grape on both sides

Sta	+	HQ	Grade	rod	Blv
B.M.	11.77	172.79			161.02
0			165.00	7.79	X
+25			166.25	6.54	
+50			167.50	5.29	✓
				2.50	
+75			168.75	4.04	
1			170.00	2.79	✓
#	10.62	182.66		0.75	172.04
+25			171.25	11.41	
+50			172.50	10.16	X
				2.50	
+75			173.75		
2			175.00	7.66	X
				2.50	
+25			176.25		
+50			177.50	5.16	X
+75			178.75	2.50	
3			180.00	2.66	✓
B.M.			0.13		182.53

North line of Erie St

$$\begin{array}{r} 172.79 \\ 161.5 \\ \hline 11.29 \\ 5.75 \\ \hline 3.50 \end{array}$$

$$\begin{array}{r} 3.58 \\ 182.50 \\ \hline 185.91 \end{array}$$

3.91

South line of Grape St
 4th and Grape St

Gutter grades on 4th St
bet 7th and 4th St

June 27 1890

Sta	+	H.S	Grade	Rod	Elev.
B.M.	0.43	31.48			31.05
0			22.33	9.15	L
+25			22.83	8.65	L
+50			23.33	8.15	L
+75			23.83	7.65	L
1			24.33	7.15	L
+25			24.83	6.65	L
+50			25.33	6.15	L
+75			25.83	5.65	L
2			26.33	5.15	L
+25			26.83	4.65	L
+50			27.33	4.15	L
+75			27.83	3.65	L
3			28.25	3.23	L
				8.83	22.65
			28.41	3.07	L

4th and 7th Street
North line of 4th St

9.15
33
8.82

31.48
25.67
5.81

South line of 7th Street

Butter grades on 4th St
between I and J St

June 27 1890

4.67
1.70
3.97

Sta + H₂O Grade Rod Elev.

Sta	+	H ₂ O	Grade	Rod	Elev.
B.M.	1.70	12.50			10.80
0			5.13	7.37	u
+25			5.48	7.0	
+50			5.83	6.67	W
+75			6.18	7.0	
1			6.53	5.97	u
+25			6.88	7.0	
+50			7.23	5.27	W
+75			7.58	7.0	
2			7.93	4.57	u
+25			8.28	7.0	
+50			8.63	3.87	W
+75			8.98	7.0	
3			9.33	3.17	u
B.M.			6.22	6.18	
			5.07	7.43	u
			4.67	7.83	u
			5.46	7.04	

4th and I St
North line of J St

5.80
5.33
5.97
12.50
7.03

7.37
3.33
2.04

South line of I St
4th and J St

Gutter grades on 4th St
bet K and J St

June 28 1890

Sta	+	H ₂	Grade	Prod	Elev.
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B.M.	1.58	7.76			6.18
0			1.33	6.43	-
+25			1.58		
+50			1.83	5.93	-
+75			2.08	5.0	
1			2.33	5.43	✓
+25			2.58	5.0	
+50			2.83	4.93	-
+75			3.08	5.0	
2			3.33	4.43	✓
+25			3.58	5.0	
+50			3.83	3.93	✓
+75			4.08	5.0	
3			4.33	3.43	✓
				4.31	3.46

4th and K St
North line of K St

South line of J St

3.43

3.51

3.43
3.51
16

Check of curb grades on
4th St bet H and I St

June 28 1890.

Sta + H.S. Grade Rod Elev

Sta	+	H.S. Grade	Rod	Elev
B.M.	0.53	18.02		17.49
0		11.00	7.02	✓
+25		11.38	6.64 ^{.33}	✓
+50		11.75	6.27 ^{.37}	
+75		12.13	5.89 ^{.38}	✓
1		12.50	5.52 ^{.37}	✓
+25		12.88	5.14 ^{.38}	✓
+50		13.25	4.77 ^{.37}	✓
+75		13.63	4.39 ^{.38}	✓
2		14.00	4.02 ^{.37}	✓
+25		14.38	3.64 ^{.38}	✓
+50		14.75	3.27 ^{.37}	✓
+75		15.13	2.89 ^{.38}	✓
3		15.50	2.52 ^{.37}	✓
B.M.			7.22	10.80
		10.40	8.02	
		10.17	7.85 ^{.34}	✓
		9.83	8.19 ^{.34}	✓

4th and H St
North line of I St.

South line of H St
4th and I St

Grade on West side of
6th St at intersection of J

Sta	+	HO	Grade	Wgt	
Bm	0.93	20.69			19.76
			17.67	3.02	✓
			17.33	3.36	✓
			17.25	3.44	✓
			18.17	2.52	✓
			17.83	2.86	✓
			18.67	2.02	✓
			18.25	2.44	
Bm			6.94		13.75

see next page

6th and J St

Center grade on 6th St
from 1st 150' south

Sta + H.S. Grade Rod Elev.

Sta	+	H.S. Grade	Rod	Elev.
B.M.	0.93	20.69		19.76
1+50		15.42		3.27 ^{.1}
1+75		15.83		4.81 ^{.42}
2		16.25		4.44 ^{.42}
1+25		16.67		4.22 ^{.41} ✓
1+50		17.08		3.61 ^{.42} ✓
1+75		17.50		3.19 ^{.42} ✓
3		17.92		2.77 ✓
B.M.			6.94	13.75

6th and 1st

South line of 1st
6th and 1st

Centre gander on WASH
det. E and F St

Sta	+	HO	Grnd	Pod	blew
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Bm	0.22	38.63			38.41
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0			29.42	9.21	✓
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+25-			29.94	8.52 ⁵²	✓
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+50			30.46	8.17 ⁵²	✓
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+75			31.98	7.63 ⁵²	✓
-----	--	--	-------	--------------------	---

1			31.50	7.13 ⁵²	✓
---	--	--	-------	--------------------	---

+25-			32.02	6.61 ⁵²	✓
------	--	--	-------	--------------------	---

+50			32.54	6.09 ⁵²	✓
-----	--	--	-------	--------------------	---

+75			33.06	5.57 ⁵²	✓
-----	--	--	-------	--------------------	---

2			33.58	5.05 ⁵²	✓
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+15			34.10	4.53 ⁵²	✓
-----	--	--	-------	--------------------	---

+50			34.62	4.01 ⁵²	✓
-----	--	--	-------	--------------------	---

+75			35.14	3.49 ⁵²	✓
-----	--	--	-------	--------------------	---

3			35.66	2.97 ⁵²	✓
---	--	--	-------	--------------------	---

			7.57	31.06	
--	--	--	------	-------	--

			29.33	9.30	
--	--	--	-------	------	--

			28.83	9.80	
--	--	--	-------	------	--

North of F St

South of E St

Center grades on 6th St
bet 2 and J St

Sta	+	HS	Grade	Rod	Elev
B9m	12.6	21.02			19.76
0			12.92	8.10 ^{.42}	✓
+25			13.33	7.68 ^{.41}	✓
+50			13.75	7.27 ^{.42}	✓
+75			14.17	6.85 ^{.41}	✓
1			14.58	6.44 ^{.42}	✓
+25			15.00	6.02 ^{.42}	✓
+50			15.42	5.60 ^{.41}	✓
+75			15.83	5.19 ^{.42}	✓
2			16.25	4.77 ^{.42}	✓
+25			16.67	4.35 ^{.41}	✓
+50			17.08	3.94 ^{.42}	✓
+75			17.50	3.52 ^{.42}	✓
3			17.92	3.10 ^{.42}	✓
				2.28	13.74

6th and J St
North of J St

South of J St

Levit. grades on 4th St bet
Frie and Grape St on both sides

July 2 1890

Sta + HD Grade Rod Elev

B 9m	11.88	172.90			161.02
0			165.00	7.90 ✓	
+25			166.25	1.25 ✓	
+50			167.50	1.25 ✓	
+75			168.75	1.25 ✓	
1			170.00	1.25 ✓	
1				1.25	
+25	10.09	181.34	171.25	1.65 ✓	171.25
+50			172.50	1.25 ✓	
+75			173.75	1.25 ✓	
2			175.00	1.25 ✓	
+25			176.25	1.25 ✓	
+50			177.50	1.25 ✓	
+75			178.75	1.25 ✓	
3			180.00	1.34 ✓	180.00
#	4.04	184.04		1.34	180.00
B 9m,				1.50	182.54

North line of Frie St

South line of Grape St

4th and Grape

July 2 1890

Check of curb grades on West side of 5th St bet J and J

Sta	+	H.I.	Grade	rod	Elev
Bm	1.34	21.10			19.76
0			13.00	8.12	✓
+25			13.42	7.68	✓
+50			13.83	7.27	✓
+75			14.25	6.85	✓
1			14.67	6.43	✓
+25			15.08	6.02	✓
+50			15.50	5.60	✓
+75			15.92	5.18 ^{.42}	✓
2			16.33	4.77 ^{.41}	✓
+25			16.75	4.35	
+50			17.16	3.94	✓
+75			17.58	3.52	✓
3			18.00	3.10	✓
			7.36	13.74	

North line of J St

60
28
32

South line of J St

Grades on 14th St. bet Redwood

July 2 1890

and Spruce

	West	Center	East
Grade	rod	rod	rod

B.M.		(276.12)	
269.50	8.62 50	270.00	6.12 270.50 5.62 .33
270.00	6.12 50	270.42	5.70 270.83 ✓ 6.29 .33
270.50	5.62 50	270.83	271.16 ✓ 4.96 .34
271.00	5.12 50	271.25	271.50 4.62 .33
271.50	4.62 50	271.67	271.83 ✓ 4.29 .34
272.00	4.12 50	272.08	272.17 ✓ 3.95 .33
272.50	3.62	272.50	3.62
272.75		272.75	
273.00		273.00	

14th and Spruce west end of granite split
of north door.
5th and Spruce

Sta	+ 100	-	Elev
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B.M.	2.22	284.27	282.07
#	2.84	276.12	11.01 273.28
0	North of Redwood		

+50			
1			

+60			
2			

+30			
3			

South of Spruce
+40 Center of Spruce St

0 North of Spruce St

B.M.		2.74	272.38
#	10.03	285.02	1.13 274.99
B.M.		1.62	283.40

Check center gullies, bet
 7th and 8th on 4th D

July 2 1890

Sta	+	HS	Grade	Prod	Elev
Bgn	0.20	38.61			38.41
0			29.42	9.19	✓
+25			29.94	8.67 ^{.52}	✓
+50			30.46	8.15 ^{.52}	✓
+75			30.98	7.63 ^{.52}	✓
1			31.50	7.11 ^{.52}	
+25			32.02	6.59	
+50			32.54	6.07	
+75			33.06		
2					
+25					
+50					
+75					
3				7.55	31.06

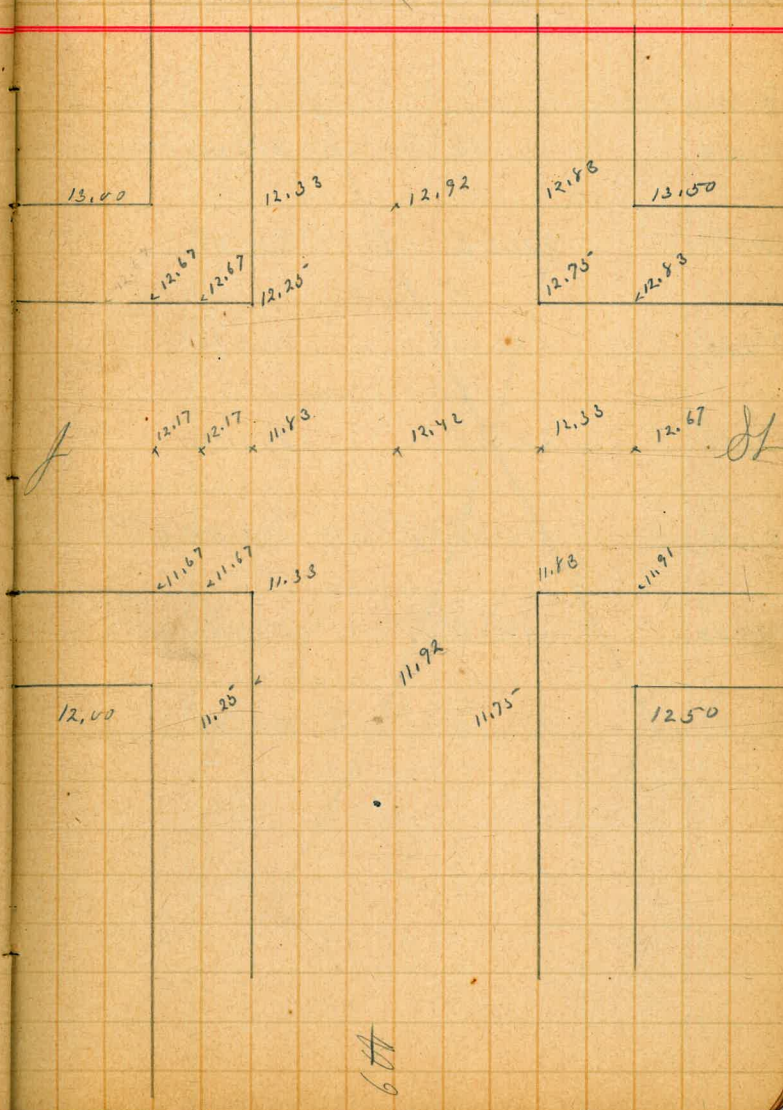
0.9m. 4th and 8th
 North of 7th St

0.05 high pavement.
 0.05 "
 0.03 "
 0.05 "

Grades at intersection of 6th and 1st

July 2 1890

Sta	+	HO	Grade	Dist	Elev
Bm	2.90	16.64			13.74
			11.75	4.89	✓
			11.83	4.81 ^{.08}	✓
			11.91	4.73 ^{.08}	✓
			12.50	4.14 ^{.59}	✓
			12.67	3.97 ^{.34}	✓
			12.33	4.31	✓
			12.83	3.81 ^{.08}	✓
			12.75	3.89	
			12.42	4.22	
			12.92	3.72	
			11.92	4.72	



64

Index on Spruce St
 - 3rd and 4th St
^{North} ^{Line} ^{South}
 Grade Rod Grade Rod Grade Rod

271.50	271.25	271.00
271.88	271.63	271.38
272.25	272.00	271.75
272.63	272.38	272.13
273.00 x	272.75 x	272.50 x
273.00	272.75	272.50
273.00 x	272.75 x	272.50 x

Sta + NG - Elev

0 East of 2nd St

+50

1

+50

2 West of 4th St

+40 Center of 4th St

0 East of 4th St

Center grades and H.S.P. bet

July 3 1890

Sound H.S.P.

Sta	+	H.S.P.	Grade	Prod	Elev
B.M.	1.13	23.78			22.65
0			16.17	7.61	✓
+25			16.63	.92	
+50			17.09	6.69	✓
+75			17.55	.91	
1			18.00	5.78	✓
+25			18.46	.92	
+50			18.92	4.86	✓
+75			19.38	.92	
2			19.84	3.94	✓
+25			20.30	.92	
+50			20.76	5.02	✓
+75			21.22	.91	
3			21.67	2.11	✓
			22.17		
B.M.				6.29	17.49

North of H.S.P.

South of H.S.P.

center grade on 4th St bet
H and G St.

Sta	+	NO	Grade	Prod	Elv-
Bm	0.41	31.46			31.05
0			22.67	8.79 ✓	
+25			23.17	8.29 ✓	
+50			23.67	7.79 ✓	
+75			24.17	7.29 ✓	
1			24.67	6.79 ✓	
+25			25.17	6.29 ✓	
+50			25.67	5.79 ✓	
+75			26.17	5.29 ✓	
2			26.67	4.79 ✓	
+25			27.17	4.29 ✓	
+50			27.67	3.79 ✓	
+75			28.17	3.29 ✓	
3			28.67	2.79 ✓	
Bm				8.80	22.66

North of G St

South line of F St
H and F St.

Gutter grades on 4th St
bet H and G St

Sta	+	HO	Grade	Rod	Elev.
B.M.	2.17	24.82			22.65
0			15.83	8.99 ⁵⁶	✓
+25			16.29	8.53 ⁵⁶	✓
+50			16.75	8.07 ⁵⁶	✓
+75			17.21	7.61 ⁵⁶	✓
1			17.67	7.15 ⁵⁶	✓
+25			18.13	6.69 ⁴⁵	✓
+50			18.58	6.24 ⁴⁵	✓
+75			19.04	5.78 ⁴⁵	✓
2			19.50	5.32 ⁴⁵	✓
+25			19.96	4.86 ⁴⁵	✓
+50			20.42	4.40 ⁴⁵	✓
+75			20.88	3.94 ⁴⁵	✓
3			21.33	3.49 ⁴⁵	✓
B.M.				7.35	17.47
			21.25	3.57	✓
			21.41	3.41	✓
			21.67	3.15	✓
			22.17	2.65 ³³	✓
			21.83	2.99 ³³	✓
			22.25	2.57	

North line of H St

8.99
33
8.66

South line of G St

17.49 4th and H St

Sta	+	HS	Grid	Grid	Code	Elev
-----	---	----	------	------	------	------

B.M.	3.95	35.00				31.05
			29.42	5.68	✓	
			29.94	5.06 ^{.52}	✓	
			30.46	4.54 ^{.52}		
			29.05	5.95	✓	

4th and 7th
north of 7th

center of 7th

Curb grades on 4th St bet
I and H St

Sta	+	Hd	Grade	Pod	Elev.
-----	---	----	-------	-----	-------

B.M.	0.48	17.97			17.49
------	------	-------	--	--	-------

0			11.00	6.97 ✓	
---	--	--	-------	--------	--

			11.38	6.39 ✓	
--	--	--	-------	--------	--

			11.75	6.22 ✓	62.05' south
--	--	--	-------	--------	--------------

			12.13	5.84 ✓	
--	--	--	-------	--------	--

B.M.				7.17	10.80
------	--	--	--	------	-------

			12.50	5.47 ✓	
--	--	--	-------	--------	--

			12.88	5.09 ✓	
--	--	--	-------	--------	--

cheek of curb grades on 4th and B St.

B.M.	4.07	57.73			50.66
------	------	-------	--	--	-------

			50.50	4.23	
--	--	--	-------	------	--

4th and H St
North of St

$\frac{1}{25} \times 38$

$\frac{25}{25} \times 38$
 $\frac{100}{125}$

B.M. 4th and I St

$\frac{6.22}{0.15}$
 $\frac{1.205}{}$

Grader at intersection of
6th and K St

9.16

Sta + HO Grade Rod Elev.

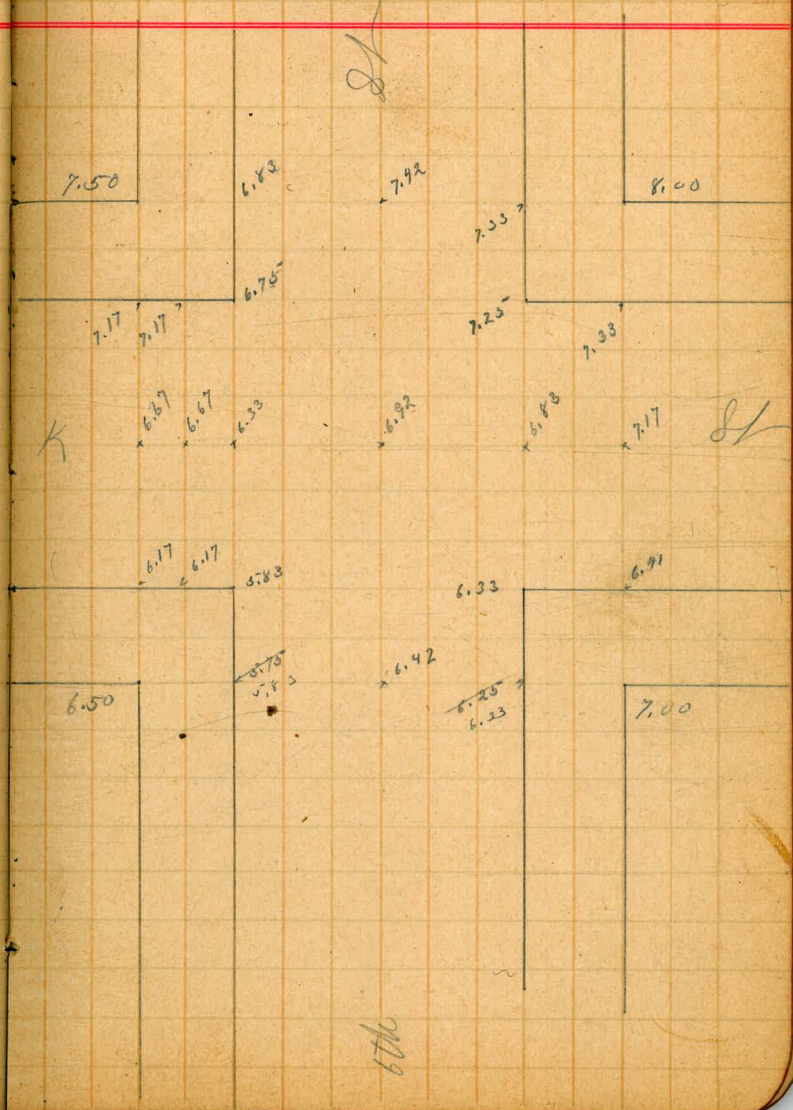
B. 9m 6th and J St
1.29 15.03

13.74

B. 9m 6th and K St

6.71 8.32

7.50	7.50	✓
6.83	8.20	✓
6.75	8.28	✓
7.17	7.86	✓
6.67	8.36	✓
6.33	8.70	✗
6.17	8.86	✓
6.43	9.20	✓
6.41	8.62	✓
7.17	7.86	✓
6.83	8.20	✓
7.33	7.70	✓
7.25	7.78	✓
7.42	7.61	✓
6.92	8.11	✓



6th

Check of curb grades on East
side of 6th St bet 1st and 12th

Sta	+	H.O	Mud over	Elev.
B.M.	1.29	15.03		13.74
0			8.00	7.03 ✓
+25			8.38	6.65 ^{.38} ✓
+50			8.75	6.28 ^{.37} ✓
+75			9.13	5.90 ^{.38} ✓
1			9.50	5.53 ^{.37} ✓
+25			9.88	5.15 ^{.38} ✓
+50			10.25	4.78 ^{.37} ✓
+75			10.62	4.41 ^{.37} ✓
2			11.00	4.03 ^{.38} ✓
+25			11.38	3.65 ^{.38} ✓
+50			11.75	3.28 ^{.37} ✓
+75			12.13	2.90 ^{.38} ✓
3			12.50	2.53 ^{.37} ✓
B.M.			6.71	8.22

6th and 1st
North of 12th

South line of 1st
6th and 12th

Butter grade 4th and 5th

Stn	+	H.O.	Grade	rod	Elev.
B.M.	1.90	32.95			31.05
			28.25	4.70	✓
			28.33	4.62	✓
			29.33	3.62	✓
			29.25	3.70	✓
			28.83	4.12	✓
			28.75	4.20	✓

checked on old stakes

Reset curb stakes on East side of 6th bet J and K

B.M.	1.65	15.39			13.74
0			8.00	7.39	✓
+25			8.38	7.01	✓
+50			8.76	6.64	✓
+75			9.13	6.26	✓
1			9.50	5.89	
				7.08	8.31

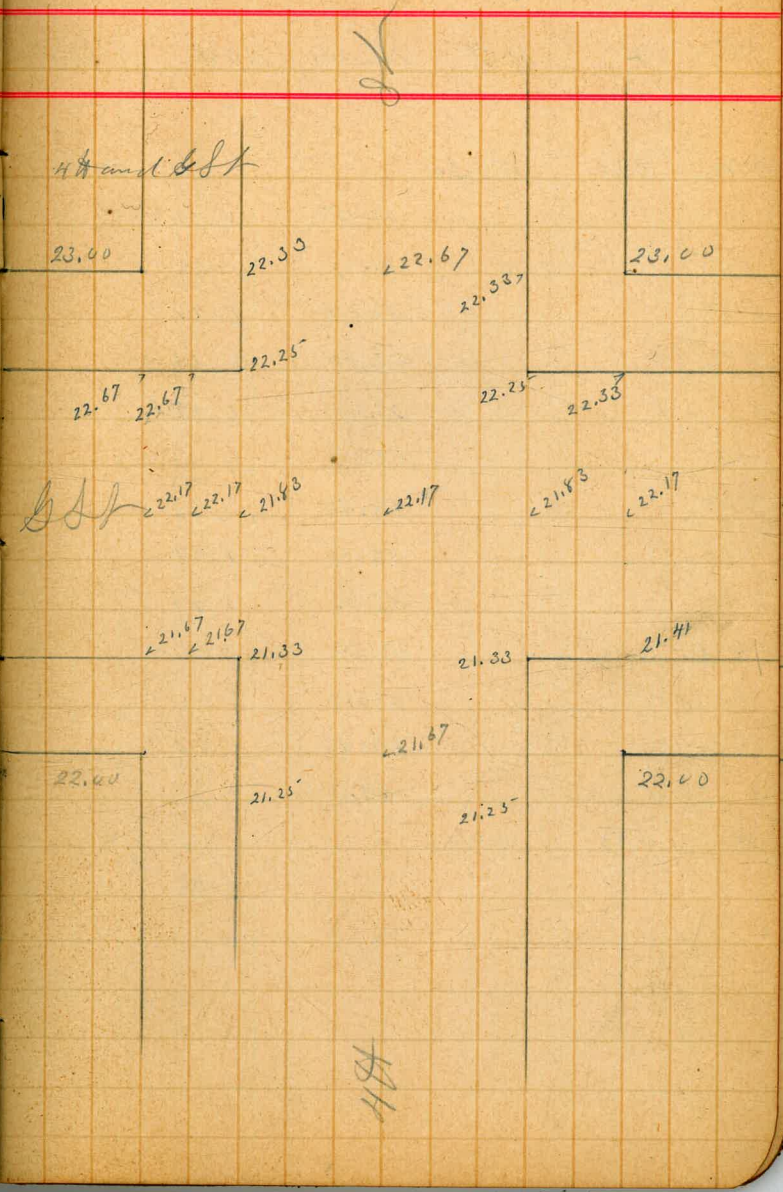
6th and J St
North of K St

Sketch of Grades at 4th and
 8th

July 9 1890

Sta + HD Grade Road Elev.

Sta	+	HD	Grade	Road	Elev.
Bm	4.57	27.22			22.65
			22.33	0.89	x
			22.25	4.97	✓
			22.67	4.05	✓
			22.17	0.05	✓
			21.83	0.39	✓
			21.67	0.55	✓
			21.33	0.89	x
			21.25	0.97	✓
			21.41	0.81	✓
cont of 8th			22.67	4.55	
			23.17	4.05	
			23.67	0.55	
0+75	0.04	Low.	24.17	0.05	
1	0.03	High			



Leante staker on 4th St bet
A and B St.

July 12 1890

Sta	+	NO	Grade	rod	Elv
B 9m	8.60	59.26			50.66
0			50.50	8.76 ✓	
+25			51.17	8.09 ✓	
+50			51.83	7.43 ✓	
+75			52.50	6.76 ✓	
1			53.17	6.09 ✓	
+25			53.83	5.43 ✓	
+50			54.50	4.76 ✓	
+75			55.17	4.09 ✓	
2			55.83	3.43 ✓	
+25			56.50	2.76 ✓	
+50			57.17	2.09 ✓	
+75			57.83	1.43 ✓	
3			58.50	0.76 ✓	
#	4.86	63.36		0.76	58.50
				1.62	61.84

Better stakes on 4th St bet
 4th and 8th

July 9 1890

Sta	+	HO	Grade	rod	Clear
Bm	8.97	59.63			50.66
0			49.83	9.80	
+25			50.50	9.13 ^{.66} ✓	
+30			51.16	8.47 ^{.66} ✓	
+75			51.83	7.80 ^{.67} ✓	
1			52.50	7.13 ^{.67} ✓	
+25			53.16	6.47 ^{.66} ✓	
+50			53.83	5.80 ^{.67} ✓	
+75			54.50	5.13 ^{.67} ✓	
2			55.16	4.47 ^{.66} ✓	
+25			55.83	3.80 ^{.67} ✓	
+50			56.50	3.13 ^{.67} ✓	
+75			57.16	2.47 ^{.66} ✓	
3			57.83	1.80 ^{.67}	1.66
			59.16	0.63 ✓	
			59.50	0.13 ✓	
			58.50	1.13 ✓	
#	4.46	63.46	0.63		59.10
B.M.			1.64		61.82
			60.50	2.96	

North line of 8th

South of 8th

4th and 8th

Grades at inter of 6th and J St

July 10 1890

Sta	+	HO	Grade	Rod	Blw
-----	---	----	-------	-----	-----

B.M.	3.19	16.93			13.74
------	------	-------	--	--	-------

			11.83	5.10	
--	--	--	-------	------	--

			12.67	4.26 ^v	
--	--	--	-------	-------------------	--

			12.33	4.60	
--	--	--	-------	------	--

			12.83	4.10	
--	--	--	-------	------	--

			12.75	4.18	
--	--	--	-------	------	--

			12.92	4.01	
--	--	--	-------	------	--

			11.92	5.01	
--	--	--	-------	------	--

			11.67	5.26 ^v	
--	--	--	-------	-------------------	--

			11.33	5.60 ^v	
--	--	--	-------	-------------------	--

			12.17	4.76 ^v	
--	--	--	-------	-------------------	--

			11.83	5.10 ^v	
--	--	--	-------	-------------------	--

			12.67	4.26 ^v	
--	--	--	-------	-------------------	--

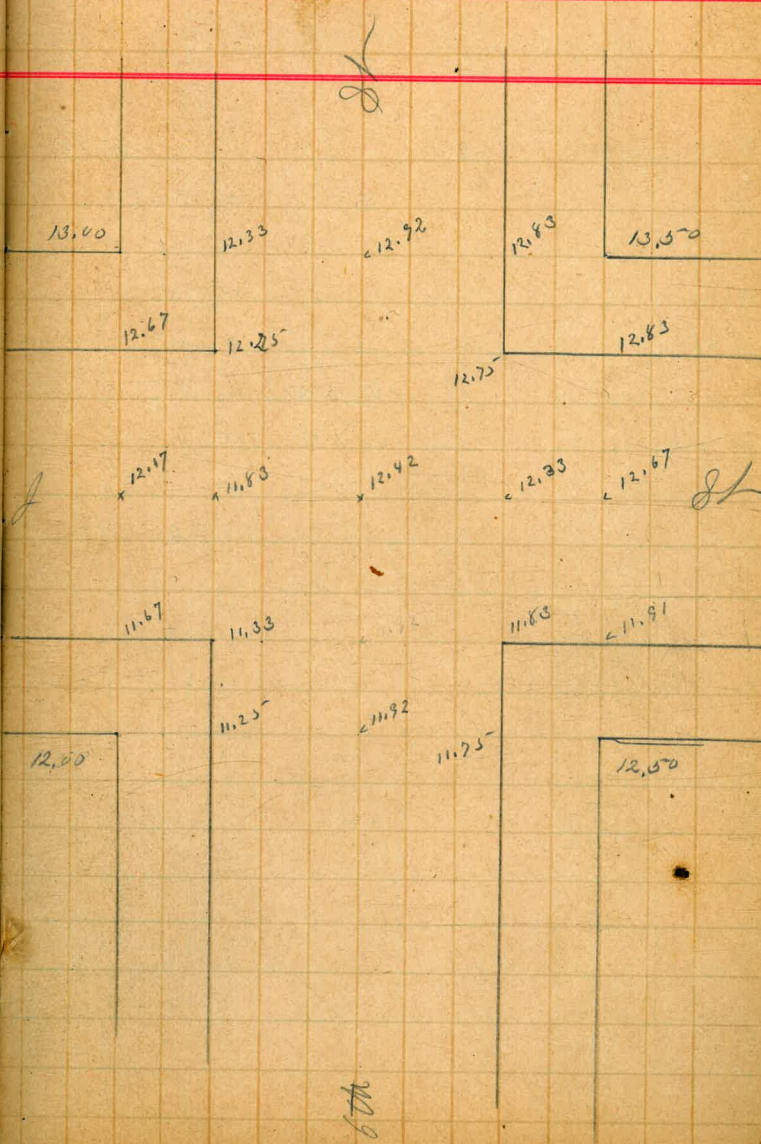
			12.25	4.68 ^v	
--	--	--	-------	-------------------	--

Lev. stake SW. 6th and J St

3.33	23.09	19.76
------	-------	-------

18.00	5.09
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checked on old grade stakes



6th

Acute angles on 6th St 100'
South of J

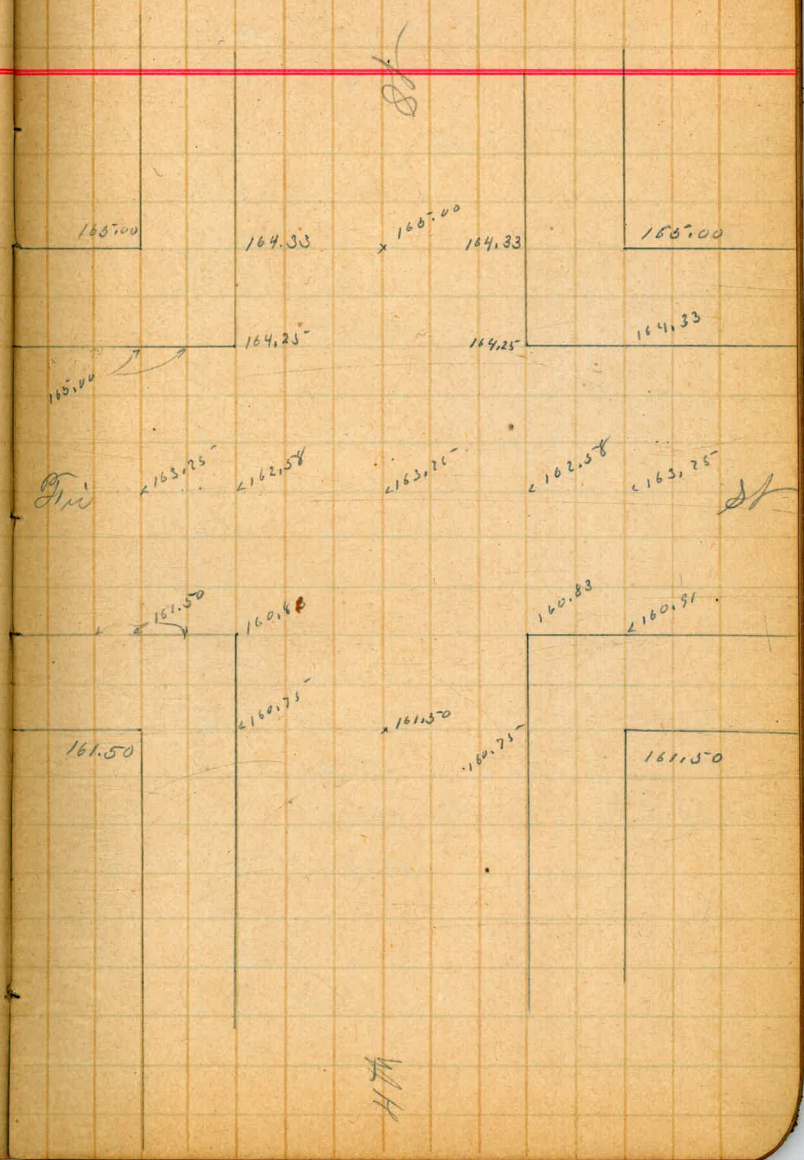
July 11 1890

Sta	+	H ₂	made	rod	Elev
Bm	1.41	15.15			13.74
3			11.92	3.23	✓
2+75			11.54	3.61	✓
2+30			11.17	3.98	✓
2+25			10.79	4.36	✓
2			10.42	4.73	✓
1+75			10.04	5.11	

South of J

Bm 8.32 6.83

6th and Rst



Level grades on H St Grape and
Hawthorn St.

July 14 1890

Sta	+	H.D	Grade	Prod	Elev.
Bm	11.92	194.44			182.52
0			183.00	11.44	
+25			183.96	10.48	
+50			184.92	9.52	
+75			185.88	8.56	
				.95	
1			186.83	7.61	
+25			187.79	6.65	
+50			188.75	5.69	
+75			189.71	4.73	
				.96	
2			190.67	3.77	
+25			191.62	2.82	
+50			192.58	1.86	
+75	6.99	200.53	193.54	0.90	193.54
3			194.50	6.03	
B.m.				4.25	196.28
B.m.				2.10	198.43
			19.550	5.23	

North of Grape St

} 4th and Hawthorn

Check of curb grades on west
side of 4th St bet A and B St.

July 14 1890

Sta	+	H ₂	Grade	Prod	Elev.
B _{9m}	8.68	59.34			50.66
0			50.50	8.84	✓
+25			51.23	8.11	✓
+50			51.96	7.37	✓ X
+75			52.48		
1			53.00	6.34 ₇₁	✓ X
+25			53.71	5.63 ₇₁	✓
+50			54.42	4.92 ₇₀	✓
+75			55.12	4.22	✓
2			55.83	3.51	✓ X
+25			56.50	2.84 ₆₇	✓
+50			57.17	2.17	✓
+75			57.83	1.51 ₆₇	✓
3			58.50	0.84 ₆₇	✓
#	4.62	63.12		0.84	58.50
B _{9m} .				1.30	61.82

North of B St

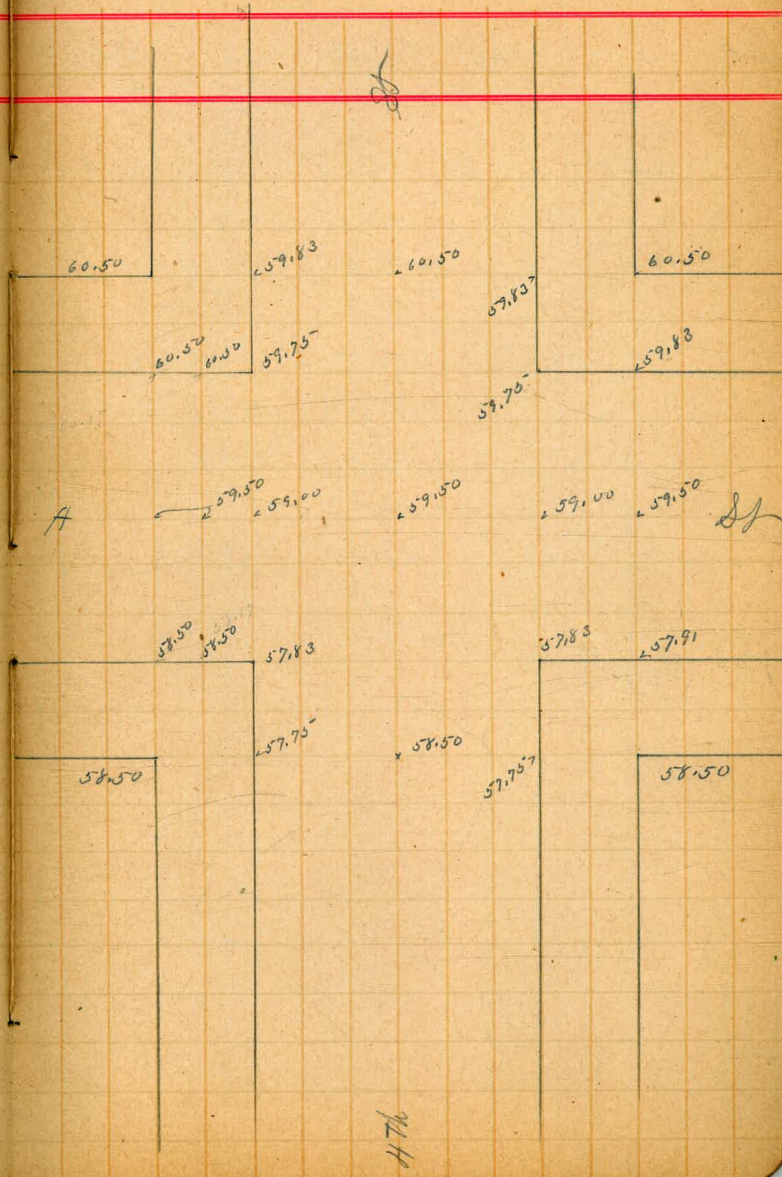
South of B St

4th and B St

Grades at intersection of 4th and
 5th st.

July 14 1890

Sta	+	H ₂	Grade Rod	elev.
-----	---	----------------	-----------	-------



Grade of 4th and A St.

July 16 1890

Sta	+	HQ	Grade	Rod	Obs.
1.42		63.24			61.82
			57.83	5.41	
			59.50	3.74 ✓	
			59.00	4.24 ✓	
			60.50	2.74 ✓	
			59.83	3.41 ✓	
			59.75	3.49 ✓	
			58.50	4.74	
			57.73	5.49 ✓	

checked on curb

Check of center of center
grade on 4th St bet B and C

July 17 1890

Sta	+	HD	Grade	rod	obs
B.M.	4.87	54.13			49.26
0			47.66	6.53	
+25			47.84	6.29	
+50			47.90	6.23	✓
+75			48.17	6.96	✓
1			48.34	5.79	✓
+25			48.50	5.63	✓
+50			48.67	5.46	✓
+75			48.84	5.29	✓
2			49.00	5.13	✓
+25			49.17	4.96	✓
+50			49.34	4.79	✓
+75			49.50	4.63	✓
3			49.67	4.46	✓
				3.47	50.66
			49.83	4.30	✓
			50.50	3.63	

4th and 1st
North of 1st

cable road line

South of B.M.

B.M. 4th and 3rd

Levee grades (check) bet J and K
Sta on 6th

July 17 1890

Sta	+	H ₂ O	Grade	Prod	Elev.
B 9m	0.97	14.71			10.74
3			12.50	2.21	✓
+ 75			12.13	2.58	✓
+ 50			11.75	2.96	✓
+ 25			11.38	3.33	✓
2			11.00	3.71	✓
+ 75			10.60	4.08	✓
+ 50			10.25	4.46	✓
+ 25			9.88	4.83	✓
1			9.50	5.21	✓
+ 75			9.13	5.58	✓
+ 50			8.75	5.96	✓
+ 25			8.38	6.33	✓
0			8.00	6.71	✓
			6.39		8.32

6th and J St
South of J St

North of K St
6th and J St

Cont. grades on West side
of 4th St bet Grope and Hawthorn

July 18 1890

Sta	+	H ₀	Grade	Inv	Elev
-----	---	----------------	-------	-----	------

B 2m	9.53	192.06			182.53
------	------	--------	--	--	--------

0			183.00	9.06	-
---	--	--	--------	------	---

+25			183.96	8.10	✓
-----	--	--	--------	------	---

+50			184.92	7.14	✓
-----	--	--	--------	------	---

+75			185.88	6.18	✓
-----	--	--	--------	------	---

1			186.83	5.23	✓
---	--	--	--------	------	---

+25			187.79	4.27	✓
-----	--	--	--------	------	---

+50			188.75	3.31	✓
-----	--	--	--------	------	---

+75			189.71	2.35	✓
-----	--	--	--------	------	---

2 #	8.37	199.04	190.67	1.39	✓ 190.67
-----	------	--------	--------	------	----------

+25			191.62	7.42	✓
-----	--	--	--------	------	---

+50			192.58	6.46	✓
-----	--	--	--------	------	---

+75			193.54	5.50	✓
-----	--	--	--------	------	---

3			194.50	4.54	
---	--	--	--------	------	--

B 2m			0.62	198.42	
------	--	--	------	--------	--

North of Grope

South of Hawthorn
4th and Haw.

Sched of lumber under on East
side of 4th 100' N of Fir

Stk	+	NO	Wash	rod	Other
B 9	B 9	0.11	182.64		182.53
0	#	0.38	171.63	11.59	171.25
+	B 9			10.61	161.02
+	1		170.00	17.63	✓
+	+ 75		168.75	1.25	✓
	+ 50		167.50	4 13	✓
1	+ 25		166.25	1.25	✓
+	0		165.00	5 38	✓
+				1.25	✓
+			50.66	6.63	✓
			4.05		
			54.71		
			49.83		
			4.88		

July 18, 1890

4th and Grape St

4th and Fir St

North of Fir St

138.16

71.17

143.33

138

7.33

139.96

5.37

141.92

8.91

8.87

1.96

7.49

4.27

26.78

17.49

4.29

21.78

15.80

5.93

3.87

6.03

143.33

141.92

3.41

12.67

33

12.34

12.50

13.50

226.00

15.23

11.66

TRAVERSE TABLE FOR TRANSIT BOOK.

From 1° to 90° for a distance of 100.

Degrees.	DEGREES.		¼ DEGREE.		½ DEGREE.		¾ DEGREE.		Degrees.
	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	
0			100.00	0.44	100.00	0.87	99.99	1.31	86
1	99.98	1.75	99.98	2.18	99.97	2.62	99.95	3.05	85
2	99.94	3.49	99.92	3.93	99.91	4.36	99.88	4.80	84
3	99.86	5.23	99.84	5.67	99.81	6.10	99.79	6.54	83
4	99.76	6.98	99.73	7.41	99.69	7.85	99.66	8.28	82
5	99.62	8.72	99.58	9.15	99.54	9.58	99.50	10.02	81
6	99.45	10.45	99.41	10.89	99.36	11.32	99.31	11.75	80
7	99.25	12.19	99.20	12.62	99.14	13.05	99.09	13.49	79
8	99.03	13.92	98.97	14.35	98.90	14.78	98.84	15.21	78
9	98.77	15.64	98.70	16.07	98.63	16.50	98.56	16.93	77
10	98.48	17.36	98.40	17.79	98.33	18.22	98.25	18.65	76
11	98.16	19.08	98.08	19.51	97.99	19.94	97.90	20.36	75
12	97.81	20.79	97.72	21.22	97.63	21.64	97.53	22.07	74
13	97.44	22.50	97.34	22.92	97.24	23.34	97.13	23.77	73
14	97.03	24.19	96.92	24.62	96.81	25.04	96.70	25.46	72
15	96.59	25.88	96.48	25.80	96.36	26.72	96.25	27.14	71
16	96.13	27.56	96.00	27.98	95.88	28.40	95.76	28.82	70
17	95.63	29.24	95.50	29.65	95.37	30.07	95.24	30.49	69
18	95.11	30.90	94.97	31.32	94.83	31.73	94.69	32.14	68
19	94.55	32.56	94.41	32.97	94.26	33.38	94.12	33.79	67
20	93.97	34.20	93.82	34.61	93.67	35.02	93.51	35.43	66
21	93.36	35.84	93.20	36.24	93.04	36.65	92.88	37.06	65
22	92.72	37.46	92.55	37.86	92.39	38.27	92.22	38.67	64
23	92.05	39.07	91.88	39.47	91.71	39.87	91.53	40.27	63
24	91.35	40.67	91.18	41.07	91.00	41.47	90.81	41.87	62
25	90.63	42.26	90.45	42.66	90.26	43.05	90.07	43.44	61
26	89.88	43.84	89.69	44.23	89.49	44.62	89.30	45.01	60
27	89.10	45.40	88.90	45.79	88.70	46.17	88.50	46.56	59
28	88.29	46.95	88.09	47.33	87.88	47.72	87.67	48.10	58
29	87.46	48.48	87.25	48.86	87.04	49.24	86.82	49.62	57
30	86.60	50.00	86.38	50.38	86.16	50.75	85.94	51.13	56
31	85.72	51.50	85.49	51.88	85.26	52.25	85.04	52.62	55
32	84.80	52.99	84.57	53.36	84.34	53.73	84.10	54.10	54
33	83.87	54.46	83.63	54.83	83.39	55.19	83.15	55.56	53
34	82.90	55.92	82.66	56.28	82.41	56.64	82.16	57.00	52
35	81.92	57.36	81.66	57.71	81.41	58.07	81.16	58.42	51
36	80.90	58.78	80.64	59.13	80.39	59.48	80.13	59.83	50
37	79.86	60.18	79.60	60.53	79.34	60.88	79.07	61.22	49
38	78.80	61.57	78.53	61.91	78.26	62.25	77.99	62.59	48
39	77.71	62.93	77.44	63.27	77.16	63.61	76.88	63.94	47
40	76.60	64.28	76.32	64.61	76.04	64.94	75.76	65.28	46
41	75.47	65.61	75.18	65.93	74.90	66.26	74.61	66.59	45
42	74.31	66.91	74.02	67.24	73.73	67.56	73.43	67.88	44
43	73.14	68.20	72.84	68.52	72.54	68.84	72.24	69.15	43
44	71.93	69.47	71.63	69.78	71.33	70.09	71.02	70.40	42
45	70.71	70.71							41
Degrees.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Degrees.
	DEGREES.		¼ DEGREE.		½ DEGREE.		¾ DEGREE.		

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