

City Sewer
Levels
77th St.

10TH 9TH 12TH

TRANSIT

F.B. 700

700

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	4½	22	51½	42	98
3	7	23	53½	43	100½
4	9½	24	56	44	102½
5	11½	25	58½	45	105
6	14	26	60½	46	107½
7	16½	27	63	47	109½
8	18½	28	65½	48	112
9	21	29	67½	49	114½
10	23½	30	70	50	116½
11	25½	31	72½	51	119
12	28	32	74½	52	121½
13	30½	33	77	53	123½
14	32½	34	79½	54	126
15	35	35	81½	55	128½
16	37½	36	84	56	130½
17	39½	37	86½	57	133
18	42	38	88½	58	135½
19	44½	39	91	59	137½
20	46½	40	93½	60	140

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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.
0		0		0		0	
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

H.C.L.
I. Miller } July 28, 1887

Δ	+	HI	-	Elev	B.B.
B.M.	4.80	12.94		8.14	
0+50			6.67	6.27	
1			6.38	6.56	
1+50			6.21	6.73	
2			6.11	6.83	
2+50			6.22	6.72	
3			6.88	6.06	
3+50			7.24	5.70	
4			7.35	5.59	
4+50			7.30	5.64	
5			6.91	6.03	
5+50			6.06	6.88	
6			4.38	8.56	
6+50			3.33	9.61	
7			1.70	11.24	
T.P.	11.87	23.11			
7+50			10.04	12.07	
8			8.86	14.25	
Δ 1			8.04	15.07	
1+50			6.91	16.20	
2			6.19	16.92	

REMARKS.

at 12th SW. corner
N & IIth STS.

M & IIth STS.

II & IIth STS.

H.C.L. }
 F. Miller. } July 28, 1887

2

Δ	+	H.I.	-	Elev	B.B.
2+50		23.11	5.32	17.79	
3			3.84	19.27	
3+50			2.94	20.17	
4			1.96	21.15	
4+50			0.77	22.34	
B.M.			1.23	21.88	21.88
T.P.	9.78	31.99	0.90	22.21	
5			8.62	23.37	
5+50			7.52	24.47	
6			6.89	25.10	
6+50			6.42	25.57	
7			5.00	26.99	
7+50			4.06	27.95	
8			2.91	29.08	
B.M.			0.94	31.05	31.05
T.P.	8.28	39.33			
8+50			9.36	29.97	
9			7.70	31.63	
9+50			6.76	32.57	
10			5.96	33.38	
10+50			4.62	34.71	

REMARKS.

K & 11th STS.

K & 12th STS.

J & 11th STS.

H.C.I. }
 F. Miller } July 28, 1887

3

Δ	+	HI	-	Ele	BB.
11		39.33	376	35.57	
11+50			272	36.61	
12			150	37.83	
12+50			120	38.13	
BM		39.33 2.23}	0.00	41.96	41.96
I.P.	508	47.04			
13			7.08	39.96	
13+50			5.54	41.50	
14			5.20	41.84	
14+50			4.82	42.22	
15			4.18	42.86	
15+50			3.29	43.75	
16			2.20	44.84	
16+50			1.66	45.38	
BM			3.54	43.50	43.49
I.P.	10.46	53.95			
17			8.31	45.64	
17+50			8.53	45.42	
18			9.05	44.90	
18+50			8.94	45.01	
19			8.00	45.95	

REMARKS.

II & III th 5/5.

III & III th 5/5.

H.C.I. } July 28, 1887
 F. Miller }

4

Δ	+	H.I.	-	Elev	BB.	REMARKS.
19+50		53.95	5.97	47.98		C.I. & II th 5/5.
20			5.30	48.68		
B.M.			0.00	54.82	54.82	
20+50			4.22	49.73		
21			3.68	50.27		
I.P.	7.18	57.45				I th & II th 5/5.
21+50			6.47	50.98		
22			5.85	51.60		
22+50			4.51	52.94		
23			2.58	54.87		
23+50			1.28	56.57		I th & II th 5/5.
B.M.			0.85	56.90	56.93	
I.P.	11.70	68.63				
24			12.31	51.32		
24+50			10.96	57.67		
25			9.73	58.90		I th & II th 5/5.
25+50			8.75	59.88		
26			7.73	60.90		
26+50			5.88	62.75		
27			4.75	63.88		
27+50			3.82	64.81		

H.C.L. }
 F. Miller. } July 28, 1887

5

Δ	+	H.I.	—	Elev	B.B.	REMARKS.
B.M.		68.63 1.77 69.80	000	69.80	69.80	
28			286	65.77		
T.P.	7.63	73.40				
28+50			7.64	65.76		
29			7.06	66.34		
29+50			5.28	68.12		
30			5.07	69.39		
30+50			3.04	70.26		
31			2.65	70.75		
31+50			1.93	71.47		
B.M.		73.40 } 3.22 }	000	76.62	76.62	
T.P.	3.43	80.03				
32			7.14	72.91		
32+50			6.20	74.85		
33			5.78	74.37		
33+50			4.73	75.62		
34			4.11	75.94		
34+50			2.74	77.31		
35+033			1.19	78.86		
T.P.	9.64	88.50				
35+50			7.20	81.30		

IX IIth 5/5.

C & II IIth 5/5.

H.C.L. }
 F. Miller } July 28, 1887

6

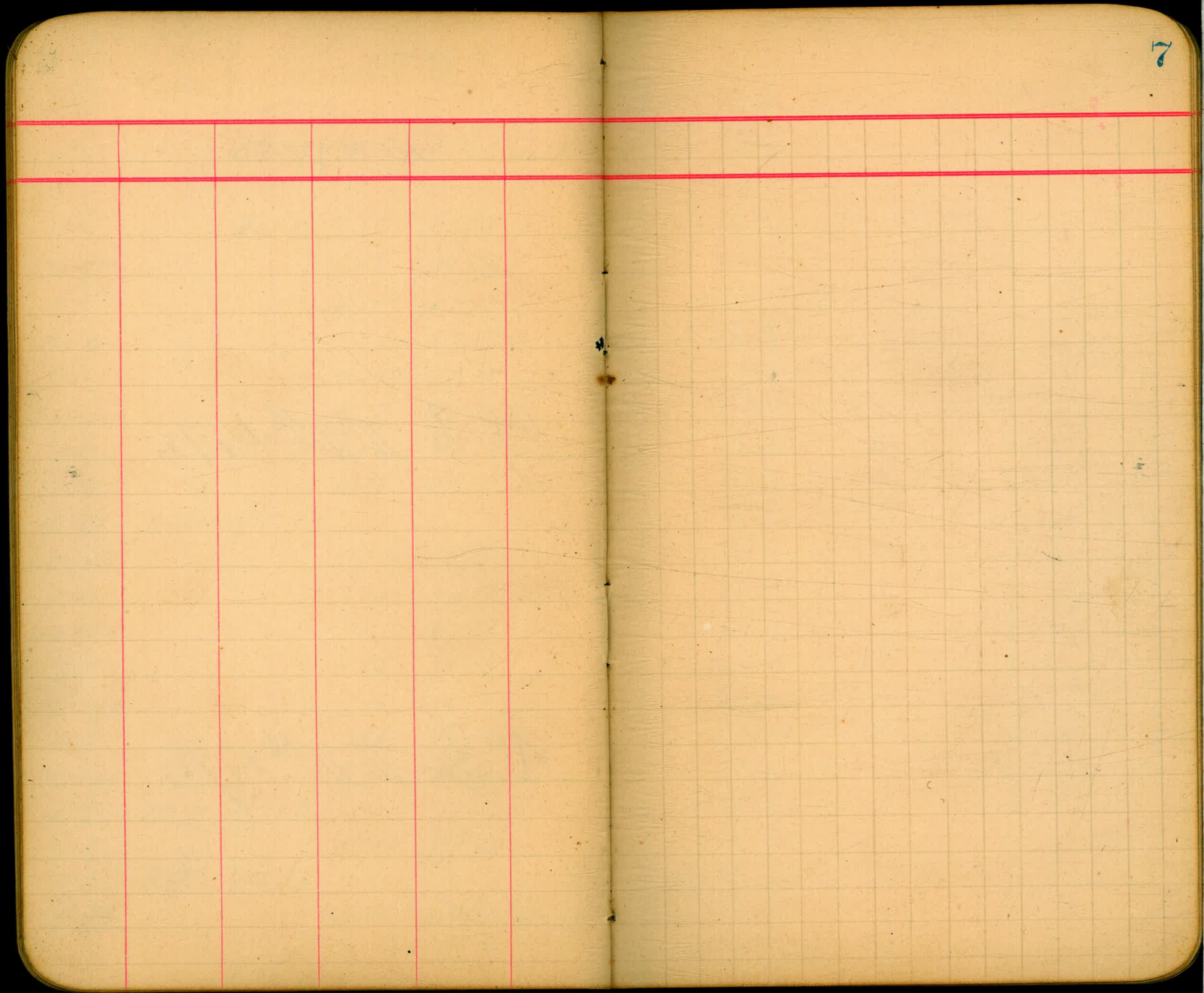
Δ	+	H.I.	—	Elev	B.B.
36		88.50	6.52	81.98	
36+50			6.67	81.83	
37			4.80	83.70	
37+50			5.83	82.67	
38			4.50	84.00	
38+50			3.77	84.73	
39			3.16	85.34	
B.M.			0.15	88.35	88.35
I.P.	4.94	93.29			
39+50			7.32	85.97	
40			6.30	86.99	
40+50			5.97	87.32	
41			6.56	86.73	
41+50			7.01	86.28	
42			6.05	87.24	
42+50			7.61	85.68	
I.P.	12.17	97.85			
I.P.			0.41	97.44	
I.P.	8.92	106.36			
B.M.			1.08	<u>105.28</u>	<u>105.28</u>

REMARKS.

B & II th S/T's.

A & II th S/T's.

on A & 12th S/T's.



7

L.O.M.

L.S. 91[#] 37 N.H.I. Dec 10/87

Sta	+	Ht.	-	Elv.
B.M.	8.36	23.56		15.20
1			8.19	15.37
+ 25			7.87	15.69
+ 50			7.43	16.13
+ 75			7.20	16.36
2			6.83	16.73
+ 25			6.29	17.27
+ 50			5.85	17.71
+ 75			4.98	18.58
3			4.30	19.26
+ 25			3.74	19.82
+ 50			3.89	20.17
+ 75			3.23	20.33
4			2.57	21.06
+ 20			1.89	21.67
+ 40			1.46	22.10
+ 60			1.14	22.42
+ 80			0.67	22.89
T.P.	8.21	20.66		
B.M.				

91 47 N.B. SK to P.M.

N.I. I 31-

8.50 6.57

S.K. ST

A ST

N.I. K ST

114K SAK P.M.

21.39
~~3.66~~
 25.06
~~21.00~~
 4.06

21.99
~~3.86~~
 25.25
~~21.00~~
 4.25

SBM,

92 11th St Nov 7 Dec 10/89

Sta	+	Hi	-	Elev
B.M.	9.27	30.66		21.39
5+05			7.57	23.15
+30			6.92	23.74
+55			6.43	24.23
+80			5.93	24.73
6+05			5.67	24.99
+30			5.37	25.29
+55			4.89	25.77
+80			4.87	25.79
7+05			4.83	26.33
+30			3.60	27.06
+55			2.83	27.88
+80			2.11	28.53
B.M.	11.08	39.96	1.78	24.88
8			11.10	28.86
+20			10.49	29.47
+40			10.27	29.69
+60			9.95	30.01
+85			9.04	30.92
9+10			8.44	31.52

11th & K SW AK Guard Post

12 & St

114 & SW AK Post Dec 22/87

8 St

11 & St

Mendenhall

10

Leonard 11th St. Vol 9 Dec 22/27

Sta	+	Hs.	-	Elev
9+35		39.96	7.78	32.18
+60			7.40	32.56
+85			7.10	32.86
10+10			6.27	33.69
+35			5.66	34.30
+60			5.72	34.24
+85			5.03	34.93
11+10			4.30	35.66
+35			3.82	36.14
+60			3.36	36.60
+80			3.03	36.93
12			2.59	37.37
+20			2.07	37.89
+40			1.92	38.04
Bm.	7.89	46.38	1.47	38.49
+65			8.05	38.83
+90			7.58	38.85
13+15			6.14	40.24
+40			5.88	41.00
+65			5.05	41.33
+90			5.07	41.31

38.49

$$\frac{29.0}{41.39}$$

37.3

$$\frac{4.09}{}$$

S. S. S.

S. S.

N. S. S.

11th St - North Street

Sta	+	Ht.	-	Elev
11+15		46.38	4.85	41.53
+40			4.04	42.34
+65			4.28	42.10
+90			4.02	42.36
15+15			3.99	42.39
+40			3.58	42.80
P.M.	9.24	51.72	3.90	42.48
+65			5.07	43.65
+90			6.91	44.81
16+15			7.27	44.45
+40			7.08	44.69
+65			6.76	44.96
+90			6.61	45.11
17+15			6.87	45.35
+40			6.78	44.94
+65			6.49	45.23
+90			6.91	44.81
18+15			6.73	44.99
+40			6.50	45.22
+65			5.47	46.25

42.45
3.67
 46.15

11th St H 3.50
 2.35
 12/27/87

H St

N St

60.10

0.18
 60.28

14+90 4.46 45.43
 +65 4.05 45.24
 5.07 45.22

Mendenhall

Level 11th 21-1 of 9.12, 27/87

12

Sta	+	Hi.	-	Elev
18790		57.72	5.88	45.44
19415			5.28	46.44
+40			4.00	47.72
+60			3.55	48.17
+80			3.16	48.56
20			3.18	48.54
+20			2.86	48.46
Bsm.	5.84	55.94	1.62	50.10
+45			6.20	49.74
+70			5.80	50.14
+95			5.58	50.39
21+20			5.45	50.49
+45			5.12	50.82
+70			4.88	51.06
+95			4.50	51.44
22+20			4.01	51.93
+45			3.43	52.51
+70			2.60	53.34
+95			1.58	54.36
23+20			1.08	54.86

S.T. G. 21-

G. 21-

N.T. G. 21-

114 G. S.B. Hyarum Dec 31/87

Mundatall

Leonard 11th St N of 7 Dec 21/27

13

Sta	+	Ht.	-	Elev
Bm.	11.10	55.94	13.4	54.60
Bm.	11.10	65.70		54.60
23+40			10.07	55.63
+60				
+80			9.63	56.17
24			9.74	55.92
+25			4.99	56.71
+50			8.28	57.42
+75			7.66	54.04
25			6.96	54.74
+25			6.95	54.75
+50			6.11	59.59
+75			5.53	60.17
26			5.12	60.58
+25			4.34	61.36
+50			3.52	62.18
+75			2.90	62.90
27			1.89	63.81
Bm.			0.36	65.34

119 F & W M-K Leonard Post

104.86

F 51-

N 77.81-

117 E N 8 corners walk

Mündelhall

Leonard

11th St - Mt 2 1-2-88

14

Sta	+	Ht.	-	Elev
B.M.	5.31	70.65		65.34
27			6.84	63.41
+20			6.33	64.32
+40			6.15	64.50
+60			6.95	64.70
+80			6.02	64.63
28+05			5.26	65.39
+30			5.24	65.41
+55			5.03	65.62
+80			4.86	65.79
29+05			4.38	66.27
+30			3.55	67.10
+55			2.81	67.84
+80			1.96	68.70
30+05			1.44	69.21
+30			0.80	69.85
I.P.	5.56	75.74	0.47	70.18
+55			5.51	70.23
+80			5.04	70.70
31			4.91	70.83
+20			4.08	71.66

I E 31

C 31

N E 31

I E 31

L 31

Learnsd 11th St - N. W. L. 1-3-88

Sta	+	Adj.	-	Elev
31+41		75.74	4.21	71.53
+60			3.13	72.61
B.M.	7.77	79.42	4.10	71.64
+85			6.64	72.78
32+10			6.46	72.96
+35			6.41	73.01
+60			6.99	73.43
+85			5.30	74.12
33+10			4.99	74.43
+35			4.88	74.54
+60			4.55	74.87
+85			4.12	75.30
34+10			3.64	75.78
+35			2.91	76.51
+60			2.14	77.28
+80			1.67	77.76
35			0.91	78.51
+20			0.22	79.20
B.M.			1.28	74.14

11th & St. B. cement walk
1-10-88

St. C. St.

C. St.

11th & C. St. B. P. St.

Mendenhall

16

Leonard 11th St - No 2 1-11-88

Sta	+	Hi	-	Elev
Bm.	990	88.05		78.15
35+40			7.46	80.59
+65			7.08	80.97
+90			6.78	81.27
36+15			6.46	81.59
+40			6.43	81.62
+65			6.44	82.57
+90			5.43	82.62
37+15			5.93	82.12
+40			5.60	82.46
+65			5.49	82.56
+90			5.05	83.20
38+15			4.67	83.38
+40			3.83	84.22
Bm.			3.55	84.60
+60			3.57	84.48
+80			3.19	84.86
39			3.63	84.42
+20			3.29	84.76
+45			2.42	85.63

11th + C A.P. Gump
 11th C St

A.L.B. St
 11th + B A.P. St Post

Bm

22 11th St - N 12 - 7-11-88

Sta	+	Hgt	-	Elev
Bm	8.45	92.98		84.57
39+70			7.26	85.72
+95			6.65	86.39
40+20			6.26	86.72
+45			6.47	86.51
+70			6.27	86.71
+95			6.84	86.15
41+20			6.62	86.36
+45			7.13	85.85
+70			6.74	86.24
+95			6.18	86.80
42+20			6.24	86.74
Bm			3.55	89.43 89.42

11th St A & C Junction

S.M.

1-17-88

19

22 10th NW 1/4

Sta + Hgt - Elev

Bm	7.56	21.52		13.96
1			7.20	14.32
+25			6.75	14.77
+50			6.39	15.13
+75			5.88	15.64
2			5.38	16.14
+25			5.12	16.40
+50			4.57	16.95
+75			4.30	17.22
3			3.88	17.64
+25			3.50	18.02
+50			3.05	18.47
+75			2.68	18.84
4			2.28	19.24
+20			2.11	19.41
+40			1.82	19.70
+60			1.59	19.93
+81			1.19	20.33
B.M.#	8.02	28.13	1.41	20.11

10th & 2 NW 1/4 K 61 104

L.I.K.

K. H.

N.L.K.

10+K NW 1/4 K 61 104

B.M.

1-17-88

20

72

10th St NW

Sta + Hgt - Elev

2813

5+05		7.48	20.65
+30		7.01	21.12
+55		6.63	21.50
+80		6.05	22.09
6+05		5.44	22.69
+30		5.00	23.13
+55		4.39	23.74
+80		4.01	24.12
7+05		3.64	24.49
+30		3.27	24.86
+55		2.66	25.47
+80		2.28	25.85
8		1.77	26.36
+20		1.20	26.93
+40		0.95	27.18
+60		0.52	27.61
# B.M.		0.91	27.22
	4.27	31.52	
B.M.		2.62	28.90

12 g st

7 st

N 1/2 st

10th St NW Sp E I Pole114 g. S 91st St Pole

B.M.

952 10th St. No. 2 1-21-88

Sta	+	Hs.	-	Elev
B.M.	9.98	37.20		27.22
+60				
+85			9.17	28.03
9+10			4.55	28.65
+35			8.08	29.12
+60			7.50	29.70
+85			6.45	30.35
10+10			6.27	30.93
+35			5.73	31.47
+60			5.33	31.87
+85			4.82	32.38
11+10			4.00	33.20
+35			3.87	33.33
+60			3.10	34.10
+80			2.76	34.46
12			2.53	34.67
B.M.	0.10	37.10		

11th St. E. I. P. R.

12th St.
 5th St.
 10th St.

E. F. New

9-17

10th St - Nov 2

Sta	H	Hi	-	Plu
B.M.	2.78	39.88		37.10
12.			5.21	34.67
+ 20			5.20	34.68
+ 40			5.57	34.31
+ 65			5.21	34.67
+ 90			4.87	35.01
13+15			4.70	35.18
+ 40			4.29	35.59
+ 65			4.08	35.80
+ 90			3.79	36.09
14+15			3.58	36.30
+ 40			3.28	36.60
+ 65			2.73	37.15
+ 90			2.27	37.61
15+15			1.80	38.08
+ 40			1.50	38.38
+ 65			1.43	38.45
+ 90			0.76	39.12
16+15			1.25	38.63
+ 40			0.90	38.98
P.M.				

S. L. H. DT

N. S. H. DT

S. L. H. DT

H. DT

N. S. H. DT

10th St. N. of I 1-22-88

Sta	+	Hs	-	Elev
T.P.		39.88	1.81	38.57
#	5.60	44.17		38.57
B.M.			2.54	40.63
B.M.	6.10	46.72		40.62
16+65			7.20	39.52
+90			6.70	40.02
17+15			6.21	40.51
+40			5.64	41.08
+65			5.17	41.55
+90			4.83	41.89
18+15			4.46	42.26
+40			3.70	43.02
+65			3.34	43.38
+90			2.59	44.13
19+15			2.21	44.51
+40			1.94	44.78
+60			1.67	45.05
+80			0.93	45.79
20.			0.58	46.14
+20			0.12	46.60
B.M.			1.58	45.14

10th + # Hydrant S.E.

S.P.G. St.

S.M.

N.S.G. Street

1/26 Levels 1944 H. H. H.

Stn	+	HI	-	elev	BB
Bm	696	46.20		39.34	
#	8.87	53.23	1.64	44.56	
20+45			6.34	46.89	
+70			6.89	47.34	
+95			5.39	47.44	
21+20			4.90	48.33	
+45			4.48	48.75	
+70			3.92	49.31	
+95			3.32	49.71	
22+20			3.07	50.16	
+45			2.47	50.76	
+70			2.10	51.13	
+95			1.57	51.66	
23+20			1.22	52.01	
T-P	7.31	58.78	1.76	51.47	
Bm	3.53	64.15	4.17	54.61	54.62
#	4.34	61.83	4.64	53.61	
+40			9.42	52.43	
+60			8.99	52.86	
+80			8.54	53.27	
24			4.39	53.40	

S Line F. st

11.8 F.

F. st

11.2 F. st

10. ch of levels

Str	+	H.O	-	Obs	
+25		61.85	7.90	53.95	
+50			7.25	54.60	
+75			6.44	55.41	
25			3.79	56.00	
+25			4.86	56.99	
+50			4.27	57.54	
+75			3.50	58.35	
26			2.49	59.01	
+25			2.22	59.63	
+50			1.33	60.32	
+75			0.72	61.19	
T.P	10.16	71.09	0.92	60.93	
27			9.55	61.54	
+25			9.35	61.74	
+40			8.97	62.12	
+60			8.44	62.61	
+80			7.97	63.12	
T.P	4.67	71.73	4.03	67.60	
			1.56	71.57	71.38
B.M.	2.17	67.53	6.53	65.36	
T.P.	10.91	71.91		61.00	

P.S.D

S.S. 6 st

C. St.

H.S. 6 st

11+6.

10th St. North of

Sta	+	A.S.	-	Blow
28+05		71.91	8.43	63.48
+30			7.81	64.10
+55			7.24	64.67
+80			6.93	64.98
29+05			6.70	65.21
+30			6.25	65.66
+55			5.86	66.05
+80			5.33	66.58
30+05			5.08	66.83
+30			4.87	67.04
+55			4.56	67.35
+80			4.45	67.46
31			5.17	66.74
+20			4.60	67.31
+40			4.87	67.04
+60			4.50	67.91
B 7w.			0.53	71.38
+85	4.65	76.03	7.63	68.40
32+10			7.24	68.79
+35			6.96	69.07
+60			6.52	69.57

S.L. Gilt.

D. St.

N. L. G. St.
N. E. How Hall

10th Street W.A.L.

Sta	+	A.S.	-	Elev.
32+85		76.03	6.07	69.96
33+10			5.89	70.14
+35			5.63	70.40
+60			5.23	70.60
+85			5.03	71.00
34+10			4.65	71.38
+35			4.16	71.87
+60			3.93	72.10
+80			3.72	72.31
35			3.45	72.58
+20			3.33	72.70
+40			3.38	72.65
T.P.	7.10	80.84	2.29	73.74
B.M.			4.32	76.52, 76.57
B.M.			2.71	78.13
B.M.	2.72	80.97		79.15
#	2.33	76.73	6.47	74.40
+65			3.74	72.95
+90			3.65	73.09
36+15			3.93	72.90

S.L.C. St.

C St.

N.L.C. St.
10th St.

114/6

10 th St above 10 st

+ 40	7073	3.69	73.09
+ 65		3.35	73.34
+ 90		3.28	73.45
57+15		3.31	73.42
+ 40		3.19	73.54
+ 65		3.19	73.54
+ 90		3.14	73.55
58+15		2.97	73.76
+ 40		2.74	73.99
Bm		4.13	72.60
#	9.85	85.54	1.04
			75.69
		1.04	84.50
Bm	4.39	76.99	72.60
+ 60		3.08	73.91
+ 80		3.48	73.51
39		4.01	72.99
+ 20		4.84	72.15
+ 45		5.02	71.97
+ 70		4.77	72.22
+ 95		4.70	72.29

S L B St.
S W 10th B spk tel

118. B

B Street

N Line B St

10th St N West

Sta	+	HD	-	Ch
40+20		76.99	4.44	72.51
+45			4.48	72.51
+50			4.48	72.56
+55			4.48	72.51
41+20			4.61	72.38
+45			4.49	72.50
+70			4.34	72.60
+55			4.39	72.60
42+20			4.40	72.59
BIn			6.31	70.68
BIn	6.74	77.42		70.64
+40			4.67	72.75
+60			5.00	72.42
+40			4.72	72.70
43			4.29	73.13
+25			4.34	73.08
+36			4.20	73.22
+75			4.06	73.36
44			3.72	73.70
+25			3.75	73.67

S Line A St

A Street

N Line A St

10th St North of L.

Sta	+	HQ	-	elev
44+50		77.42	3.36	74.06
+75			2.63	74.79
45			1.97	75.45
+25			1.22	76.20
+50			0.31	77.11
#	6.15	82.66	0.91	76.31
+75			4.27	74.33
46			3.28	74.38
B.M.	10.87	88.72	4.81	77.85
+20			8.77	79.95
+40			8.25	80.47
+60			7.77	80.95
+80			7.01	81.71
47+05			5.03	83.69
+30			2.62	86.10
+55			0.48	88.24
T.P.	11.33	99.72	0.33	88.39
+80			9.51	90.21
48+05			7.60	92.12
+30			5.53	94.19
+55			3.69	96.03

S Line Ash St
 S pk NW cor culvert

Ash St.

N. Line Ash St.

W.C.L.
J.F.H.

10th St North of L.

31

Sta	+	A.S.	-	Elev.
48+80		99.72	1.60	98.12
T.P.	11.34	110.84	0.22	99.50
49+05			10.75	100.09
+30			8.50	102.34
+55			6.45	104.39
+80			4.35	106.49
T.P.			1.02	109.82
B.W.	5.93	118.01		112.08
50			10.55	107.46
+20			9.65	108.36
+40			8.94	109.07
+60			8.42	109.59
+85			7.18	110.83
51+10			5.13	112.88
+35			3.00	115.01
+60			0.87	117.14
T.P.	9.17	126.96	0.22	117.79
+85			8.19	118.77
52+10			6.35	120.61
+35			4.51	122.45
+60			3.07	123.89

N. Line Birch.

N. W. Spike.

Back St.

S. Line Rock St.

10th St North of L.

Sta	+	N.O.	-	Elev.
52	+85	126.96	2.83	124.13
53	+10		2.82	124.14
	+35		3.18	123.78
	+60		3.38	123.58
	+80		3.16	123.80
54			3.07	123.89
	+20		3.06	123.90
	+40		3.22	123.74
B.W.	8.21	130.16	5.01	121.95
	+65		6.52	123.64
	+90		6.32	123.84
55	+15		5.86	124.30
	+40		5.65	124.51
	+65		5.16	125.00
	+90		4.53	125.63
56	+15		4.01	126.15
	+40		3.64	126.52
	+65		3.07	127.09
	+90		2.87	127.29
57	+15		2.66	127.50
	+40		2.37	127.79

S. line Cedar St.

Cedar St.

N. line Cedar St.

Cedar St. to deep plug.

S. line Cedar St.

W.C.S.
J.F.H.

12th St. North of L.

Sta	+	H.S.	-	Elev.
B.W.	8.67	18.07		9.40
1+07			7.91	10.16
+25			7.61	10.46
+50			7.13	10.94
+75			6.16	11.91
2			5.13	12.94
+25			4.05	14.02
+50			3.47	14.60
+75			2.63	15.44
3			1.76	16.31
+25			0.90	17.17
+50			0.32	17.75
T.P.	5.35	23.31	0.11	17.96
+75			4.90	18.41
4			4.14	19.17
+20			3.77	19.54
+40			3.19	20.12
B.W.	9.51	31.19	1.63	21.68
+60			11.06	20.13
+80			10.50	20.69
5+05			9.62	21.57

S. W. Sp. prot.

S. Linn K. St.

K. St.

N. Linn K. St.

W.L.L.
J.F.M.

35

13th St. North of L.

Sta	+	H.S.	-	Elev.
5+30		31.19	8.44	22.75
+55			7.01	24.18
+80			5.83	25.36
6+05			4.57	26.62
+30			3.53	27.66
+55			2.66	28.53
+80			1.69	29.50
7+05			0.42	30.77
T.P.	5.89	36.83	0.25	30.94
+30			5.35	31.48
+55			4.34	32.49
+80			3.22	33.61
8			2.59	34.24
+20			2.11	34.72
+40			1.74	35.09
+60			1.62	35.21
B.M.	6.09	41.21	1.72	35.11 35.10
+85			5.63	35.58
9+10			4.97	36.24
+35			4.17	37.04
+60			3.59	37.62

S. Line J. St.

J. St.

N. Line J. St.

12th St. North of L.

Sta	+	A.S.	-	Elev.
9+85		41.21	2.97	38.24
10+10			2.46	38.75
+35			1.86	39.35
+60			1.23	39.98
+85			0.63	40.58
11+10			0.11	41.10
B.M.	3.73	47.72		43.99
+35			6.10	41.62
+60			5.27	42.45
+80			4.82	42.90
12			4.70	43.02
+20			4.25	43.47
+40			3.90	43.82
B.M.	6.16	50.15		43.99
+65			6.13	44.02
+90			5.64	44.51
13+15			5.19	44.96
+40			4.85	45.38
+65			4.55	45.60
+90			3.87	46.28
14+15			3.55	46.60

S. Line D. Lt

D. Lt

N. Line D. Lt

12th St. North of L.

Sta	+	H.S.	-	Elev.
14+40		50.15	3.37	46.78
+65			3.04	47.11
+90			2.92	47.23
15+15			2.86	47.29
+40			2.87	47.28
B.M. 5.14	55.24		0.04	50.11
+65			7.48	47.76
+90			6.44	48.80
16+15			6.31	48.93
+40			6.35	48.89
+65			6.27	48.97
+90			5.88	49.36
17+15			5.58	49.66
+40			5.18	50.06
+65			4.70	50.54
+90			4.28	50.96
18+15			3.95	51.29
+40			3.35	51.89
+65			3.10	52.14
+90			2.42	52.82
19+15			1.92	53.32

S. Line N. St.

H. St.

N. Line N. St.

12th St. North of L.

Sta	+	H.S.	-	Elev.
19+40		55.24	1.39	53.85
B.M.	5.98	60.83	0.39	54.85
+60.			6.80	54.03
+80.			6.74	54.09
20			6.74	54.09
+20			6.80	54.03
+45			6.58	54.25
+70			6.12	54.71
+95			5.42	55.41
21+20			4.87	55.96
+45			4.33	56.50
+70			3.81	57.02
+95			3.36	57.47
22+20			3.17	57.66
+45			2.67	58.16
+70			2.13	58.70
+95			1.66	59.17
23+20			1.23	59.60
B.M.	6.20	65.09	1.95	58.88
+40			5.28	59.81

S. Line S. St.

St.

N. Line St.

S. Line F. St.

12th St North of L St

Sta	+	H.S.	-	Elev.
23	60	65.09	5.23	59.86
	+50		5.14	59.95
24			4.87	60.22
	+25		4.66	60.43
	+50		4.38	60.71
	+75		4.05	61.04
25			3.66	61.43
	+25		3.16	61.93
	+50		2.65	62.44
	+75		1.96	63.13
26			1.38	63.71
	+25		0.81	64.28
T.P.	5.95	70.47	0.57	64.52
	+50		5.74	64.73
	+75		5.23	65.24
27			4.73	65.74
	+20		4.22	66.25
	+40		3.79	66.68
	+60		3.25	67.22
	+80		3.01	67.46
B.M.			0.67	69.80

F. St.

N. Line F. St.

S. Line E. St.

E. St.

N. Line E. St.

27 E. N. E. Spore

12th St North of L. St.

Sta	+	H.D.	-	Elev.
B.M.		70.47	5.10	65.37
B.M.	4.21	74.01		69.80
28+05			5.97	68.04
+30			5.71	68.30
+55			5.54	68.47
+80			4.91	69.10
29+05			4.70	69.31
+30			4.20	69.81
+55			3.52	70.49
+80			3.15	70.86
30+05			2.87	71.14
+30			2.81	71.20
+55			2.87	71.14
+80			2.38	71.63
31			2.51	71.50
+20			2.33	71.68
+40			2.51	71.50
+60			1.70	72.31
B.M.	6.62	80.00	0.64	73.37 73.36
+85			6.64	73.36

11th St. N.E.

L. Ave. E. St.

D. St.

N. Ave. E. St.

12th St North of R.R.

Sta	+	H.D.	-	Elev.
32+10		80.00	5.64	74.36
+35			4.85	75.15
+60			3.66	76.34
+85			2.38	77.62
33+10			1.44	78.56
+35			0.41	79.59
T.P.	8.56	87.90	0.66	79.34
+60			7.35	80.55
+85			6.38	81.52
34+10			5.79	82.11
+35			4.63	83.27
+60			3.57	84.33
+80			3.14	84.76
35			2.85	85.05
+20			2.44	85.46
+40			2.10	85.80
B.M.	10.70	95.38	3.21	84.69
35+65			9.04	86.34
+90			8.23	87.15
36+15			7.30	88.08
+40			5.99	89.39

J. Line Co. St.

to St

M. Sim Co. St.

12th St. N. Sp. pile.

12th St North of E St

Sta	+	N. I	-	Elev.
36+65		95.38	4.99	90.39
+90			3.89	91.49
37+15			2.85	92.53
+40			1.88	93.50
+65			0.62	94.76
T. P.	9.16	104.39	0.15	95.23
+90			8.50	95.89
38+15			7.33	97.06
+40			6.63	97.76
B. W.			5.47	98.92
+60			6.30	98.09
+80			5.81	98.58
39			5.45	98.94
+20			5.13	99.26
+45			4.89	99.50
+70			4.29	100.10
+95			3.64	100.75
40+20			3.30	101.09
+45			2.92	101.47
+70			2.41	101.98

S. Line B St

B St

N. Line B St

12th St North of L. St.

Sta	+	H.S.	-	Elev.
40+95		104.39	1.91	102.48
41+20			1.13	103.26
+45			0.57	103.82
T.P.	4.96	109.21	0.14	104.25
+70			4.92	104.29
+95			4.39	104.82
42+20			3.77	105.44
B.W.			3.92	105.29

S. Line A. St.

18 # 11 11 11

	+	H.9	-	Elev.
B.M.	10.44	73.29		62.85
1				
+25				
+50	4.51		4.51	68.78
+75			2.07	71.22
2		84.89	10.56	74.33
+25			7.71	77.18
+50			5.83	79.06
+75			3.88	81.01
3			2.14	82.75
+25			0.87	84.02
+50		95.29	9.62	85.67
+75			8.20	87.09
4			6.37	88.92
B.M.	6.03			89.26
B.M.	8.73	97.97		89.24
+20			8.40	89.57
+40			7.58	90.39
+60			6.82	91.15
+80			6.85	91.12
4405			6.62	91.35

N.L. L.D.

	73.29	
	Elev	
IP	33-72.76	
	11.934	
	84.89	
IP	2.11	
	84.78 Elev	
	10.514	
	95.29	

Sta	+	N.S	-	Elev
4+30		97.97	6.13	91.84
+55			5.69	92.28
+80			4.88	93.09
5+05			3.64	94.33
+30			2.86	95.11
+55			1.45	96.52
+80		106.34	7.70	98.64
6+05			7.11	99.23
+30			6.01	100.33
+55			4.63	101.71
B.M			2.84	103.50

$$\begin{array}{r}
 0.85 - TP. 97.12 \\
 + \quad 9.22 \\
 \hline
 106.34
 \end{array}$$

Inspection on 10th

	+	Hi'	-	Elev
B.M	3.31	23.40		20.09
			19.00	4.40
B.M	2.94	30.16		27.22
			25.50	4.66

107 R

Sta	+	HT	-	Ele	
Bm	7.33	21.70	1	14.37	167/11
	2.77	19.77	4	4.70	17.00
		15		^{ele} 15.44	Rod
5+52				15.44	4.93
+77				15.61	4.16
+81				15.65	4.12
+92				15.73	4.04
6+03				15.81	
I.P.	11.04	20.52	0.29	19.48	
6+03				15.81	4.71
+14				15.89	4.63
				15.97	

	Bm	+	Hs	-	Elev	
10		3.79	18.99		15.20	7
				5.03	13.96	10
		5.26	22.22		13.96	
5		8.65	28.74	2.13	20.09	9
+		11.54	31.76	1.52	27.22	
+				2.88	28.88	
+	Bm	10.13	37.35		27.22	107
6	Bm	4.69	41.78	0.26	37.09	107.8
7	Bm	6.87	47.49	1.16	40.62	107.44 Hydrom
6	Bm	9.17	54.33	2.33	45.16	107.2
+	Bm	3.74	57.53	0.54	53.79	107.4
	Bm			2.89	54.64	117.4

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	1.81	81
1	99.98	1.75	99.98	2.18	99.97	2.62	99.95	3.05	80
2	99.94	3.49	99.92	3.93	99.91	4.36	99.88	4.80	79
3	99.86	5.23	99.84	5.67	99.81	6.10	99.79	6.54	78
4	99.76	6.98	99.73	7.41	99.69	7.85	99.66	8.28	77
5	99.62	8.72	99.58	9.15	99.54	9.58	99.50	10.02	76
6	99.45	10.45	99.41	10.89	99.36	11.32	99.31	11.75	75
7	99.25	12.19	99.20	12.62	99.14	13.05	99.09	13.49	74
8	99.03	13.92	98.97	14.35	98.90	14.78	98.84	15.21	73
9	98.77	15.64	98.70	16.07	98.63	16.50	98.56	16.93	72
10	98.48	17.36	98.40	17.79	98.33	18.22	98.25	18.65	71
11	98.16	19.08	98.08	19.51	97.99	19.94	97.90	20.36	70
12	97.81	20.79	97.72	21.22	97.68	21.64	97.53	22.07	69
13	97.44	22.50	97.34	22.92	97.24	23.34	97.13	23.77	68
14	97.03	24.19	96.92	24.62	96.81	25.04	96.70	25.46	67
15	96.59	25.88	96.48	26.30	96.36	26.72	96.25	27.14	66
16	96.13	27.56	96.00	27.98	95.88	28.40	95.76	28.82	65
17	95.63	29.24	95.50	29.65	95.37	30.07	95.24	30.49	64
18	95.11	30.90	94.97	31.32	94.83	31.73	94.69	32.14	63
19	94.55	32.56	94.41	32.97	94.26	33.38	94.12	33.79	62
20	93.97	34.20	93.82	34.61	93.67	35.02	93.51	35.43	61
21	93.36	35.84	93.20	36.24	93.04	36.65	92.88	37.06	60
22	92.72	37.46	92.55	37.86	92.39	38.27	92.22	38.67	59
23	92.05	39.07	91.88	39.47	91.71	39.87	91.53	40.27	58
24	91.35	40.67	91.18	41.07	91.00	41.47	90.81	41.87	57
25	90.63	42.26	90.45	42.66	90.26	43.05	90.07	43.44	56
26	89.88	43.84	89.69	44.23	89.49	44.62	89.30	45.01	55
27	89.10	45.40	88.90	45.79	88.70	46.17	88.50	46.56	54
28	88.29	46.95	88.09	47.33	87.88	47.72	87.67	48.10	53
29	87.46	48.48	87.25	48.86	87.04	49.24	86.82	49.62	52
30	86.60	50.00	86.38	50.38	86.16	50.75	85.94	51.13	51
31	85.72	51.50	85.49	51.88	85.26	52.25	85.04	52.62	50
32	84.80	52.99	84.57	53.36	84.34	53.73	84.10	54.10	49
33	83.87	54.46	83.63	54.83	83.39	55.19	83.15	55.56	48
34	82.90	55.92	82.66	56.28	82.41	56.64	82.16	57.00	47
35	81.92	57.36	81.66	57.71	81.41	58.07	81.16	58.42	46
36	80.90	58.78	80.64	59.13	80.39	59.48	80.13	59.83	45
37	79.86	60.18	79.60	60.53	79.34	60.88	79.07	61.22	44
38	78.80	61.57	78.53	61.91	78.26	62.25	77.99	62.59	43
39	77.71	62.93	77.44	63.27	77.16	63.61	76.88	63.94	42
40	76.60	64.28	76.32	64.61	76.04	64.94	75.76	65.28	41
41	75.47	65.61	75.18	65.93	74.90	66.26	74.61	66.59	40
42	74.31	66.91	74.02	67.24	73.73	67.56	73.43	67.88	39
43	73.14	68.20	72.84	68.52	72.54	68.84	72.24	69.15	38
44	71.93	69.47	71.63	69.78	71.33	70.09	71.02	70.40	37
45	70.71	70.71							36
Degrees.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Degrees.
	DEGREES.		¼ DEGREE.		½ DEGREE.		¾ DEGREE.		

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10.44

93.5

12.20

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61.59

100.935

100.897

60.844

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