Main
Sewer System
9th Ward

F.B. 199

IND

Hatch

199

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	2⅓	21	49	41	95⅔
2	4⅔	22	51⅓	42	98
3	7	23	53⅔	43	100⅓
4	9⅓	24	56	44	102⅔
5	11⅔	25	58⅓	45	105
6	14	26	60⅔	46	107⅓
7	16⅓	27	63	47	109⅔
8	18⅔	28	65⅓	48	112
9	21	29	67⅔	49	114⅓
10	23⅓	30	70	50	116⅔
11	25⅔	31	72⅓	51	119
12	28	32	74⅔	52	121⅓
13	30⅓	33	77	53	123⅔
14	32⅔	34	79⅓	54	126
15	35	35	81⅔	55	128⅓
16	37⅓	36	84	56	130⅓
17	39⅔	37	86⅓	57	133
18	42	38	88⅔	58	135⅓
19	44⅓	39	91	59	137⅔
20	46⅔	40	93⅓	60	140

MICROFILMED DEC 8 1964

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

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

199
Return to City Engineers Office
City Hall, San Diego, Cal.

S Main 1-7
Outfall - 8-9
S Main - 10-15
N. Main 16-

BM. 24.66 S.E. Kearney spk in cor.
0.2 Fence post
24.86 v

0.61
14.0
14.61 v
6.07
8.54

26.03
5.91
31.94
22.65
9.29
22.06
9.88

12"
South Main Sewer.
Sicard - To Beardsley.

BM.	0.150	22.462		22.282	
0+00			7.60	14.9	
0+30			7.9	14.6	
0+50			7.75	14.7	
1			8.05	14.4	
+50			7.1	15.36	
2			7.2	15.26	
+50			6.7	15.76	
3			6.6	15.86	
+50			6.6	15.86	
4			6.3	16.16	
+50			5.83	16.63	
5			6.3	16.16	
+50			6.12	16.34	
6			5.52	16.94	
+50			5.33	17.13	
+90			5.36	17.10	

Rate of Grade - 0.379 %

2/1/05

Grade	Cut.	
		and Sampson Spkin N.W. Cor. Race
13.00	1.9	¢ Sicard St.
12.89	1.7	W. Line " "
12.81	1.9	
12.62	1.8	
12.43	2.9	
12.24	3.0	
12.05	3.7	
11.86	4.0	
11.67	4.2	
11.48	4.7	
11.30	5.3	
11.11	5.1	
10.92	5.4	
10.73	6.2	
10.54	6.6	
10.38	6.7	W. Line Sampson

		22.462			
7			5.440	17.022	
B.M.	0.815	23,097		22.282	
+50			6.27	16.83	Rate of Grade -0.379 %
8			6.42	16.68	
+50			5.87	17.23	
9			5.98	17.12	
+50			6.10	17.0	
10			6.16	16.94	
+50			6.24	16.86	
11			6.15	16.95	
+50			6.61	16.49	
12			6.30	16.80	
B.M. Check.			2.245	20.852	
+50			7.10	16.0	
13			7.07	16.03	
+50			7.07	16.03	
14	3.970	19.882	7.185	15.912	
+50			4.64	15.24	

2/2/05

Grade	Cut	
10.35	6.7	NW Cor Pierce & Simpson
10.16	6.7	
9.97	6.7	
9.78	7.5	
9.59	7.5	
9.40	7.6	
9.21	7.7	
9.02	7.9	
8.83	8.1	
8.64	7.9	
8.45	8.4	Evans & Pierce —
8.26	7.7	
8.07	8.0	
7.88	8.1	13+52 West Line Evans
7.69	8.2	
7.50	7.8	

						Grade	Cut	
		19.882						
15			6.02	13.86		7.31	6.6	
+50			6.40	13.48		7.18	6.3	
16			6.33	13.55		6.94	6.6	
+50			5.76	14.12	-0.379 %	6.75	7.4	
17			5.42	14.46		6.56	7.9	
+50			5.52	14.36		6.37	8.0	
18			5.74	14.14		6.18	8.0	
+50			5.78	14.10		5.99	8.1	
19			6.36	13.52		5.80	7.7	
+50			7.05	12.83		5.61	7.2	
20			7.64	12.24		5.42	6.8	
+50			7.44	12.44		5.23	7.2	20+13.2 W line Dewey
21	5.400	17.847	7.435	12.447		5.04	7.4	
+50			5.85	12.0		4.85	7.2	
22			6.04	11.81		4.66	7.2	
+50			6.36	11.49		4.47	7.0	
23			6.90	10.95		4.28	6.7	

		17.847								
23+50			6.62	11.23		4.10	7.1			
24			5.60	12.25		3.91	8.3			
+50			4.89	12.96		3.72	9.2			
B.M. Check.			3.220	14.627				Crosby & Pierce		
25			5.08	12.77		3.53	9.2			
+50			5.26	12.59		3.34	9.3			
26			5.83	12.02		3.15	8.9			
+50			6.86	10.99		2.96	8.0			
								26+74.3 W Line Crosby		
27			7.10	10.75		2.77	8.0			
+50			6.44	11.41		2.58	8.8			
28			5.43	12.42		2.39	10.0			
+50			5.23	12.62		2.20	10.4			
29			5.70	12.15		2.02	10.1			
+50			5.93	11.92		1.83	10.1			
30	3.783	15.255	6.375	11.472		1.64	9.8			
+50			4.72	10.53		1.45	9.1			
31			6.18	9.07		1.26	7.8			
+50			6.95	8.30		1.07	7.2			

		15.255						
32			7.15	8.10		0.88	7.2	
+50			4.41	10.84		0.69	10.2	32+75.5 ℄ Line Beardsley
33			7.70	7.55		0.50	7.05	
+055			7.52	7.73			7.2	
Check	BM.		11.065	4.190	4.176			Spk in Cor Oil Yard

20" Outfall sewer from Alley bet. Pierce & Railroad S. 383 ft.

B.M.	11.065	15.241		4.176
0+00			7.43	7.81
0+50			9.33	5.91
1			10.45	4.79
+50			11.50	3.74
+51 M.H.				
2			12.16	3.08
+50			12.22	3.02
3			12.88	2.36
+50			12.29	2.95
+81			11.88	3.36
+90 M.H.				
(Sta 4)	5.67	3.91		-1.76
4+20				
4+50			2.25	+1.66
5			4.54	-0.63

823
624
3292
1646
4938
5.13552
286
7995

50823
12
1646
823
.09876

5135
2.567

257
286
543

Rate of Grade 0.566%

0.823%

2/2/05

Spk in Cor Oil Yard.

0.50	7.3
0.22	5.7
-0.07	4.9
-0.35	4.1
-0.63	3.7
-0.92	3.9
-1.20	3.6
-1.48	4.4
-1.66	5.0
-1.71	
-2.20	3.9
-2.61	2.0

52
12
104
52
624

Bent 1
" 2
3

2.0
823
1.2
1646
823
.09876

G. M.H. 3+90

1+51 N. Line Railroad Ave

52
12
104
52
624

140
624
764

800

6290 | 764
6112 | 8233
1780
1528
2520
2292
2280

G. of Bent No 1 = -2.86 which is 140' from ℄ of M.H.

1.00 | 5.18 | 4.18

		El.	Gr.	Cut
Bent 1	5.41	-0.23	-2.86	2.7
" 2	5.92	-0.74	-2.96	2.2
3	8.91	-3.73	-3.06	0.8

(Stakes 5' S of Cr) + Elev'ns from Stake Cut

		HI			
	5.17	4.35	4.18		
		Rod	Elev.	Grade	
1	3	4.51	-0.16	-2.86	-2.70
Bent 2		4.91	-0.56	-2.96	-2.40
3		7.89	-3.54	-3.06	+0.48
4		8.65	-4.30	-3.16	+1.14
5		9.11	-4.76	-3.25	+1.51
6		9.39	-5.04	-3.35	+1.69
7		9.82	-5.47	-3.45	+2.02
8		10.28	-5.93	-3.55	+2.38
9		10.42	-6.07	-3.65	+2.42
10		10.56	-6.21	-3.75	+2.46
11	-4.73	10.63	-6.28	-3.85	+2.43
12	6.89	10.39	-6.04	-3.95	+2.09
13	+0.16	10.78	-6.43	-4.05	+2.38
14		10.96	-6.61	-4.14	+2.47
15		10.73	-6.38	-4.24	+2.14
16		11.00	-6.65	-4.34	+2.29
17	HI	10.52	-6.47	-4.44	+2.03
18	+0.16	11.05	-6.73	-4.54	+2.19
19		6.89	-6.73	-4.64	+2.09
20		7.38	-7.22	-4.74	+2.48
21		7.50	-7.34	-4.84	+2.50
22		7.56	-7.40	-4.93	+2.47
23		7.78	-7.62	-5.03	+2.58
24		8.06	-7.90	-5.13	+2.77
25		7.93	-7.77	-5.23	+2.54
26		7.91	-7.75	-5.33	+2.42
27		8.10	-7.94	-5.43	+2.46
28		8.05	-7.89	-5.53	+2.31
29		8.00	-7.84	-5.63	+2.16
30		8.10	-7.94	-5.72	+2.15
31	HI -0.76	8.07	-7.91	-5.82	+2.07
32		7.00	-7.76	-5.92	+1.84
33		6.92	-7.68	-6.02	+1.66
34		6.55	-7.31	-6.12	+1.19

	HI -0.76	Rod	Elev	Grade	
35		6.66	-7.42	-6.22	+1.20
36		6.40	-7.16	-6.32	+0.84
37		6.86	-7.62	-6.42	+1.20
38		6.90	-7.66	-6.51	+1.15
39		6.83	-7.59	-6.61	+0.98
40		6.52	-7.28	-6.71	+0.57
41		7.02	-7.78	-6.81	+0.97
42		7.10	-7.86	-6.91	+0.95
43		6.30	-7.06	-7.01	+0.05
44		5.86	-6.62	-7.11	-0.49
45		6.58	-7.34	-7.21	+0.13
46		6.75	-7.51	-7.30	+0.21
47		6.20	-6.96	-7.40	-0.44
48		6.70	-7.46	-7.50	-0.04
49		6.80	-7.56	-7.60	-0.04
50		7.30	-8.06	-7.70	+0.36
51		7.08	-7.74	-7.80	-0.06
52		6.90	-7.66	-7.90	-0.24
53		7.00	-7.76	-8.00	-0.24

10.7 Lots
76
1046
6
346

714
76
638
780

-11.46 El. Bottom at end of Pipe

Diam. of 20' Cast Pipe
26 1/8"

South Main

BM.	2.645	24.927		22.282	
MH. 219					
0+00			10.1	14.83	
+50			8.43	16.50	
1			8.25	16.68	8.0
+50			7.26	17.67	
2			6.22	18.71	1.23
+50			4.65	20.28	
3			3.86	21.07	
+50	from	34.687	2.85	22.08	
+88	MH 201		10.82	23.87	
4	11.100	34.687	1.340	23.587	
+50			11.20	23.49	
5			10.25	24.24	
+50			8.90	25.79	1.792%
6			7.46	27.23	
+50			6.24	28.45	
7			5.24	29.45	
+50			3.80	30.89	

MH 219 - 121 on Sicard St

21/105

Spk in Fence Cor 26 ft of Pierce

13.00	1.8
13.62	2.9
14.23	2.5
14.85	2.8
15.46	3.4
16.08	4.2
16.69	4.4
17.30	4.8
17.78	6.1
17.98	5.6
18.88	4.6
19.78	4.4
20.67	5.1
21.56	5.7
22.46	6.0
23.36	6.1
24.25	6.6

South Main

MH 219		34.687	MH 57					
7+63 6	MH.	176	3.73	30.96		24.50	6.5	
8			2.76	31.93		25.46	6.5	
+50	11.480	44.705	1.462	33.225		26.79	6.4	
9			9.77	34.93	0/0	28.12	6.8	
+50			8.52	36.18	2.6	29.44	6.7	
10			7.11	37.69		30.77	6.9	
+50			5.94	38.76		32.09	6.7	
11			4.72	39.98		33.41	6.6	
+49 77	MH No 149		2.91	41.79		34.60	7.2	
+50			2.97	41.73		34.78	7.0	
12	10.314	54.459	0.560	44.145		36.53	7.6	
+50			6.63	47.83	0/0	38.28	9.6	
13			5.82	48.64	3.1	40.03	8.6	(13+86 Y-F.T. Grade on line = 42.68 Cut =)
+50			4.91	49.55		41.78	7.8	
14			2.15	52.31		43.53	8.8	
+50			1.20	53.26		45.28	8.0	
+99 14	— Top of Rail —		0.37	54.09		47.00	7.1	
B.M.			4.060	50.399				NE Cor 26th & National

South Main

MH. 219 - MH 57

BM.	8.47	63.39		54.92	
	- Top of Rail -				
15+33	MH. 122		8.40	54.99	
15+50			8.20	55.19	
16			6.67	56.72	Rad 3.233
+50			5.15	58.24	
17			4.01	59.38	
+34'	- Top of Rail -		3.41	59.98	
+50			3.41	59.98	
18			2.73	60.66	
+50			2.08	61.31	
+97[6]	MH 110				
19	7.615	70.180	6.825	62.565	
+50			8.20	61.98	
BM.	8.21	70.63		62.42	0.6431
20			8.40	62.23	
+50			7.04	63.59	
21			6.30	64.33	
+50			5.85	64.78	

3/1/05

Alley bet Logan & National Spk. - Pole -

47.5	C. 7.5	
48.05	7.1	
49.67	7.1	
51.28	7.0	
52.90	6.4	
54.0	6.0	
54.10	5.9	
54.42	6.3	
54.74	6.6	
55.04		
55.06	7.5	
55.39	6.6	26 & Marcey - 3/4/05 SE Cor
55.71	6.5	
56.03	7.6	
56.35	8.0	
56.67	8.1	

South Main

MH 219 - MH 57

		70.63		
22			5.70	64.93
+30.6	MH. 107		5.94	64.69
+50			5.93	64.70
23			5.56	65.07
+50			5.20	65.43
24			5.60	65.03
+50			5.01	65.62
25			4.31	66.32
+28.2	MH. 108 7.06	73.16	4.53	66.10
+50			6.94	66.22
26			8.00	65.16
			7.98	65.18
27			7.94	65.22
			7.25	65.91
28			6.31	66.85
			6.01	67.15
+73.2	MH 109		5.92	67.24

Rate 0.516 %

3/4/03

	Cut
56.99	7.9
57.20	7.5
57.30	7.4
57.56	7.5
57.82	7.6
58.07	7.0
58.33	7.3
58.59	7.7
58.85	7.4
59.11	6.1
59.36	5.8
59.62	5.6
59.88	6.0
60.14	6.7
60.40	6.8

South Main

MH. 219 — MH 57

		73.16				3/4/05	
29			5.48	67.68	Rate 0.516%	60.65	7.0
			6.57	66.59		60.91	5.7
30			6.14	67.02		61.17	5.9
			6.22	66.94		61.43	5.5
31			5.23	67.93		61.69	6.2
			3.00	70.16		61.94	8.2
32			4.51	68.65		62.20	6.5
+18 3	MH 81		3.77	69.39		62.30	7.1
+43 2	MH. 82		4.08	69.08		62.50	6.6
+50	10.29	80.15	3.30	69.86	Rate 1.818%	62.62	7.3
33			9.17	70.98		63.53	7.5
			8.30	71.85		64.44	7.4
34			6.93	73.22		65.35	7.9
			5.82	74.33		66.26	8.1
+90 7	MH 75		5.69	74.46		67.0	7.5
35			5.31	74.84		67.16	7.7
			4.93	75.22		68.01	7.2
BM			4.29	75.86	75.83		

South Main

MH 219 – MH 57

80.15

36			4.21	75.94	Rate 1.696
			2.94	77.21	
37			2.17	77.98	
+38	MH 73		1.53	78.62	
			1.40	78.75	
38	10.25	89.32	1.08	79.07	
			8.93	80.39	
39			8.10	81.22	
			6.78	82.54	Rate 1.685
+99	MH 74				
40			6.39	82.93	
			5.10	84.22	
41			4.29	85.03	
			3.12	86.20	
42			2.96	86.36	
+50	MH 59		2.61	86.71	
+59			2.13	87.19	
+59					

3/4/05

68.85	7.1
69.70	7.5
70.55	7.4
71.20	7.4
71.90	7.4
72.24	6.8
73.08	7.3
73.93	7.3
74.77	7.8
75.62	7.3
76.46	7.8
77.30	7.7
78.15	8.1
78.99	7.4
79.84	6.9
80.00	7.2
80.5	

{30' from Cr of MH, Elev of Ft = 80.50}

North Main —
M.H. 3 - M.H. 10

B.M.	2000	14.576		12.576	
0+50			7.80	6.78	
1			5.48	9.10	
+50		3	6.12	8.46	
2			5.95	8.63	
+50			6.21	8.37	
3			7.05	7.53	0.10
+16	M.H. #4		6.95	7.63	
+50			7.18	7.40	0.211
4			7.60	6.98	
+50.			7.86	6.72	
5	1.182	7.416	8.342	6.234	
+50			1.48	5.94	
6			2.25	5.17	
+32	M.H. #5		2.93	4.49	
+50			3.50	3.92	
7			4.83	2.59	

2/21/05

Spk in Home Pole. Point at 22d —

0.61	6.2
0.71	8.5
0.82	7.6
0.93	7.7
1.03	7.3
1.13	6.4
1.16	6.5
1.24	6.2
1.35	5.6
1.45	5.3
1.56	4.7
1.66	4.3
1.77	3.4
1.84	2.7
1.88	2.0
1.98	0.6

+ North Main —

MH 3 — MH 10

		7.416			
+50			5.97	1.45	
8			7.13	0.29	
+50		17.416	8.70	8.72	0.211 %
9	(Elevation Dropped 10 ft)		6.76	10.66	
Check			3.550	13.866	13.869
+50			7.53	9.89	
10			5.13	2.29	
+50	3.400	7.056	3.760	3.656	
11			4.24	2.82	
+26 I	MH. 6		4.96	2.10	
+50			3.46	3.60	
12			2.58	4.48	
+50			1.35	5.71	
13			1.14	5.92	
+36 4	MH # 6½ 1.990	8.203	0.843	6.213	
+50			0.87	7.43	
14			1.65	6.55	

12.3
9.7
2.6

2.08	f. 0.6
2.19	f. 1.9
12.29	f 3.6
12.40	f 1.7
—	BM Cor Garbage Crematory
12.50	f. 2.6
2.61	f. 0.3
2.72	c 0.9
2.82	oo
2.88	f 0.8
2.93	c 0.7
3.03	c. 1.5
3.14	c 2.6
3.24	c 2.7
3.31	c 2.9
3.35	4.1
3.45	3.1

— North Main —

MH. 3 — MH 10

		8.203						
+50			2.82	5.38	0.211 %	3.56	1.8	
15			2.88	5.32		3.66	1.7	
+149	MH No 7		3.24	4.96		3.70	1.3	
+50			3.12	5.08		3.77	1.3	
16			3.26	4.94		3.87	1.1	
+50			2.36	5.84		3.97	1.9	
17			1.16	7.04	0.20 %	4.07	3.0	
+50			2.34	5.86		4.17	1.7	
18			2.67	5.53		4.27	1.3	
+50	4.760	11.043	1.920	6.283		4.37	1.9	
19			2.50	8.54		4.47	4.1	
+128	MH No 8		2.46	8.58		4.50	4.1	
+50			1.74	9.30		4.57	4.7	
20			2.39	8.65	0.20 %	4.67	4.0	
+50			3.84	7.20		4.77	2.4	
21			3.35	7.69		4.87	2.8	
+50			2.31	8.73		4.97	3.8	

— North Main —

M.H. 3 — M.H. 10

(7 / 1095)

3/17/05 { Davis, Lewis, Brooks

Sta.	+	11.043 HI	−	Elev.	Rate	Grade	Cut.
22			3.09	7.95	0.20	5.07	C 2.9
50			5.24	5.80		5.17	C 0.6
23			5.90	5.14		5.27	f 0.1
+13 6	M H No 9		5.46	5.58	✓	5.30	C 0.3
+50			5.07	5.97		5.47	+0.5
Check			5.780	5.263	5.242		
B.M.	9.25	14.49	[illegible]	5.24	0.456 %		
	7.86	13.10	5.45	76.5	5.24		
24						5.70	+1.9
+50			4.04	10.45		5.93	+4.5
	3.46	17.65		14.19	BM		
{+82 6 / 0+00	M H 10		7.8	9.85	✓	6.07	3.8
0+50		5	6.55	11.10		6.27	4.8
1			5.65	12.00		6.47	5.5
+50			5.9	11.75	0.40 %	6.67	5.1
+86 5			5.4	12.25		6.82	5.4
2			5.2	12.45		6.87	5.6
+50			6.6	11.05		7.07	4.0
3 —			4.55	13.10		7.27	5.8

BM. 20th & Alleghet Logan & Milton

1692 / 513 / 1179 / 734 / 445

1692 / 755 / 937 / 844 / 93

.00456 / 364 / 1824 / 2736 / 1368 / .165984

530 / 546 / 228 / 5688 / 228 / 5916

1430 / 1045 / 385

311 / 1711 / 292 / 1419

311 / 292 / 1

7/11/05

1 — North Main —

MH 10 — End of Main

Sta	+	H.I.	−	Elt	Rate	Grade	Cut
{3+42.7 / 3+48.6}	MH 11	17.65 (22.42)	5.8	12.85		7.44	5.4
4 TP.	9.02	23.87	7.57	14.85		8.81	+6.0
			7.95	15.92		10.14	+5.8
5			6.9	16.97	2.666%	11.48	+5.5
			5.5	18.37		12.81	+5.6
6			4.9	18.97		14.14	+4.8
+56.7	MH 12		4.1	19.77		15.65	+4.1
7 T.P.	9.35	29.11	4.11	19.76		16.35	+3.4
				17.84	1.628%	17.17	+0.7
8			9.65	19.46		17.98	+1.5
			8.4	20.7		18.79	+1.9
9			5.7	23.4		19.61	+3.8
TP	12.97	41.16	0.92	28.19			
+54.7	MH 13		9.85	31.31		20.50	+10.8
10			6.1	35.06		21.52	+13.5
			8.4	32.76		22.65	+10.1

16.66 6.15 11.31 2.81 14.65

21.52
.82
22.34

14.85
.51
19.95
.846
11.5
10.8
0.7

14.73
.814
33.44

B.M. (24.68)
24.67

1.976
1
22.76
.492
17.84
17.17
.67

32.84
3.92
36.76
4.06
32.70
2.33
35.03
22.06
12.97

35.03
22.65
12.38

22.56
.24
9.024
4.512
.54144
21.52
22.06 grade

— North Main —

MH 10 – End of Main

Sta	+	H.I	–	Ele	Rate	Grade	Cut		
11	5.87	37.14	9.89	31.27		23.78	+7.5		
			10.35	26.79		24.90	+1.9		
12			10.6	26.54		26.03	+0.5		
+53.8	MH 14		9.0	28.14	2.256 %	27.25	+0.9		
13			6.1	31.04		28.29	+2.8		
			2.7	34.44		29.42	+5.0		
14			4.2	32.94		30.55	+2.4	-4.98	B.M. 42.18
TP	12.90	47.16	2.88	34.26					
			9.75	37.41		31.67	+5.7		
15			7.8	39.36		32.80	+6.6		
+53.0	MH 15		5.15	42.01	X	34.00	+8.0		
16			2.8	44.36		34.59	+9.8		
	5.62	52.07	0.71	46.45		35.22	+11.2		
17			4.8	47.27	1.26 %	35.85	+11.4		
			4.4	47.67		36.48	+11.2		
18			6.7	45.37		37.11	+8.3		
+50.5	MH 16		7.1	45.0		37.75	+7.3		

.022.56
36
4512
13536
5768
.816,672

(2256
1128
2603
27.16

4512
2256
.27072
5490
25.17

North Main

NH10 – End of Main

Sta	+	I.H	–	Elc.	Rate	Grade	Cut		
19 T.P.	5.56	47.64	9.99	42.08		38.37	+3.7		
			9.7	37.9		39.00	-1.1		
20			8.0	39.64	1.26 %	39.63	0.0		
			5.8	41.8		40.26	+1.5		
21			3.6	44.0		40.89	+3.1		
+47.9	NH17		1.5	46.1		41.50	+4.6		
22			1.6	46.0		42.12	+3.9		
		corrected Elc 55.87							
	9.80	55.90	1.54	46.10		42.72	+3.4		
23			8.4	47.5		43.32	+4.2		
			7.7	48.2		43.92	+4.3		
24			6.2	49.7	1.97 %	44.52	+5.2		
			7.8	48.1		45.12	+3.0		
+61.2	NH18		6.0	49.9		45.25	+4.7		
25			7.1	48.8		45.71	+3.1	-4.91	(B.M. (50.96) 50.99)
			6.9	49.0		46.31	+2.7		
26			7.5	48.4		46.91	+1.5		
						47.51			

.378
106
378
.3906
57
38.76
35.99
2.82

1. — North Main —

MH 10 — End of Main

Sta	+	I.H	−	Ele	Rate	Grade	Cut
27 TP	8.65	58.72	5.8	50.07	1.197 %	48.11	+2.0
			6.6	52.1		48.71	+3.4
+74.4	MH 19		7.0	51.7	X	49.00	+2.7
28			5.9	52.8		49.28	+3.5
			4.9	53.8		49.84	+4.0
29			5.0	53.7		50.39	+3.3
			4.2	54.5		50.94	+3.6
30 T.P.	12.52	69.85	1.39	57.33	1.106 %	51.49	+5.8
			9.0	60.9		52.05	+8.8
+68.1	MH 20		8.4	61.5		52.25	+9.2
31			7.3	62.6		52.60	+10.0
			6.8	63.1		53.15	+10.0
32			7.2	62.7		53.71	+9.0
			7.3	62.6		54.26	+8.3
33			6.7	63.2		54.82	+8.4
	6.62	70.51	5.96	63.89		55.37	+8.5
+61.9	MH 21		6.2	64.3	X	55.50	+8.8

15.8
31.68
33.26 ft. —

41.3

L North Main —

MH 10 - End of Main

Sta	+	I.H. (70.51)	—	Ele	Rate	Grade	Cut
34			5.4	65.1		55.75	+9.4
			3.6	66.9 ~~60.9~~		56.07	10.8 ~~+7.8~~
35			4.5	66.0		56.39	+9.6
			5.0	65.5		56.75	+8.8
36			6.2	64.3		57.04	+7.3
			8.7	61.8		57.36	+4.4
+56.2	MH 22		8.5	62.0	0.646 %	57.40	+4.6
37			8.5	62.0		57.68	+4.3
			9.8	60.7		58.01	+2.7
38			9.6	60.9		58.33	+2.6
			10.2	60.3		58.65	+1.7
39			9.5	61.0		58.98	+2.0
+50.6	MH 23		7.9	62.6		59.30	+3.3
B.M.	0.14	68.77		68.63			
TP	5.47	68.23	6.01	62.76			
40			3.80	64.43	0.542 %	59.57	4.9
			6.10	62.13		59.84	2.3
41	7.38	72.06	3.55	64.68		60.11	4.6

{Hatch
{Metmore

5/23/05

North Main —
MH 10 — End of Main

72.06

5/23/65

+50			5.25	66.81	60.38	6.4
42	(Not staked)		4.77	67.29	60.66	6.6
+46.4	MH 24		5.05	67.01	60.91	6.1
+50			4.90	67.16	60.93	6.3
43			4.25	67.81	61.20	6.6
			3.51	68.55	61.47	7.1
44			4.00	68.06	61.74	6.3
			3.72	68.34	62.01	6.3
45	8.20	76.35	3.91	68.15	62.28	5.9
+41.3	MH 25 L		9.14	67.21	62.50	4.7
+50			9.20	67.15	62.58	4.6
46			7.83	68.52	63.03	5.5
			7.50	68.85	63.48	5.4
47			6.82	69.53	63.93	5.6
+50			6.32	70.03	64.38	5.6
+84.4	MH 26 L		5.60	70.75	64.69	6.1
48			5.62	70.73	64.82	5.9

0.542 %

0.898 %

477 84.4
156
14.7

North Main

MH 10 — Ft 2.

		76.35				5/23/53	
48+50			4.74	71.61	0.898%	65.27	6.3
49			4.04	72.31		65.72	6.6
			3.54	72.81		66.17	6.6
50			3.88	72.47		66.62	5.9
+42°	MH. 27		3.28	73.07	x	67.00	6.1
			2.96	73.39		67.11	6.3
51	11.70	85.42	2.63	73.72		67.76	6.0
			10.94	74.48		68.42	6.1
52			10.00	75.42	1.319%	69.08	6.3
			9.91	75.51		69.74	5.8
53			9.50	75.92		70.40	5.5
			7.38	78.04		71.06	7.0
54			5.45	79.97		71.72	8.3
+21°	MH 28		4.77	80.65	x	72.00	8.7
			3.95	81.47		72.88	8.6
55			2.28	83.14	3.027	74.39	8.7
+50	12.10	96.43	1.09	84.33		75.90	8.4

30+21
30+92
3 79

1122
74.20
7418

— North Main —

NH 10	96.43	Ft. 2.			5/23/05	Hatch Wetmore		
56		11.00	85.43	0/0	77.41	8.0		
		9.54	86.89		78.93	8.0		
57		7.32	89.11	3.027	80.44	8.7	15.22 / 81.21 / 91.19	Bm
		5.20	91.23		81.96	9.3		
58		5.00	91.43		83.47	8.0		
+043	NH46	4.47	91.76	X	83.60	8.2		
+	Ft 2.							

7/12/05 Levels on Piers at Outfall

Pier	3.09 +0.23 HI	Rod	Grade ÷2.86	Elev	±
1		3.15	-3.02	-2.92	-1 1/4"
2		3.29	-3.12	-3.06	-3/4"
3		3.40	-3.22	-3.17	-1/2"
4		3.67	-3.32	-3.44	+0.12
5		3.80	-3.41	-3.57	+0.16
6		3.83	-3.51	-3.60	+0.09
7		3.94	-3.61	-3.71	+0.10
8		4.16	-3.71	-3.93	+0.22
9		4.18	-3.81	-3.95	+0.14
10		4.32	-3.91	-4.09	+0.18
11		4.41	-4.01	-4.18	+0.17
12		4.42	-4.11	-4.19	+0.08
13		4.60	-4.21	-4.37	+0.16
14		4.69	-4.30	-4.46	+0.16
15		4.80	-4.40	-4.57	+0.17
16		4.90	-4.50	-4.67	+0.17
17		4.97	-4.60	-4.74	+0.14

	Rod	Grade	Elev	±
18	4.95	-4.70	-4.72	+0.02
19	5.14	-4.80	-4.91	+0.11
20	5.42	-4.90	-5.19	+0.29
21	5.40	-5.00	-5.17	+0.17
22	5.56	-5.09	-5.33	+0.24
23	5.64	-5.19	-5.41	+0.22
24	5.70	-5.29	-5.47	+0.18
25	5.80	-5.39	-5.57	+0.18
26	5.92	-5.49	-5.69	+0.20
27	6.06	-5.59	-5.83	+0.24
28	6.16	-5.69	-5.93	+0.24
29	6.17	-5.79	-5.94	+0.15
30	6.32	-5.88	-6.09	+0.21
31	6.35	-5.98	-6.12	+0.14
32	6.48	-6.08	-6.25	+0.17
33	6.66	-6.18	-6.43	+0.25
34	6.78	-6.28	-6.55	+0.27

	+0.23				
35		6.82	-6.38	-6.59	+0.21
36		6.87	-6.48	-6.64	+0.16
37		6.93	-6.58	-6.70	+0.12
38		7.07	-6.67	-6.84	+0.17
39		7.13	-6.77	-6.90	+0.13
40		7.20	-6.87	-6.97	+0.10
41		7.33	-6.97	-7.10	+0.13
42		7.38	-7.07	-7.15	+0.08
43		7.70	-7.17	-7.47	+0.30
44		7.65	-7.27	-7.42	+0.15
45		7.84	-7.37	-7.61	+0.24
46		7.96	-7.46	-7.73	+0.27
47		8.02	-7.56	-7.79	+0.23
48		8.03	-7.66	-7.80	+0.14
49		8.23	-7.76	-8.00	+0.24
50		8.27	-7.86	-8.04	+0.18
51		8.47	-7.96	-8.24	+0.28

	+0.23				
52		8.42	-8.06	-8.19	+0.13
53		8.47	-8.16	-8.24	+0.08

Trial profile
20 - 21st
Kearney - Logan

B.M.	0.20	29.23		29.03		
			4.19	25.04	25.00	G. of M.H.
0			1.8	27.4		
+30			4.6	24.6		
+35			7.7	21.5		
+50			7.8	21.4		
+70			12.3	16.9		
1			13.2	16.0		
T.P.	4.07	20.35	12.95	16.28		
+25			4.7	15.6		
+50			5.8	14.5		
2			6.1	14.2		
+50			6.9	13.4		
3			7.4	12.9		
+50			7.6	12.7		
3+78	M.H.		7.5	12.8	7.44	

Alley bet. Kearney & Logan
from old MH. on 21st to MH 11
on North Main.

10/6/05 { Hatch
Evans

	6.40	22.68		16.28		
0	MH.				25.0	
+50		3	1.4	21.3	16.43	4.9
+70			5.8	16.9	13.0	3.9
1			6.5	16.2	12.48	3.7
+50			8.2	14.5	11.60	2.9
2			8.3	14.4	10.72	3.7
+50			9.1	13.6	9.85	3.7
3			9.2	13.5	8.97	4.5
+50	401	1744	9.25	13.43	8.09	5.3
+76	MH 11.				7.64	5.0

16.28
6.40
22.68
9.25
13.43
401
17.44
427
13.17
418
17.35
332
14.03 BM.

9.70
7.74 Bottom of MH 11
(should have been 7.44)

17.14 %

~~2.16 %~~

1.96 %

13
744
25 556
13
120 | 70
70 | 17.014
500
490
100
70
300

556
516
400
258
1420
1548

17.14
70
49.980

328
70
258
.216

258
2.16
1548
258
516
5.5728

Resurvey of Sewer Line
From Kearney Ave to Logan
Sta.

POSTED

Principal Base on Pueblow Line

4+33.09 Pin on Pueblow Line ℄ 17th St.

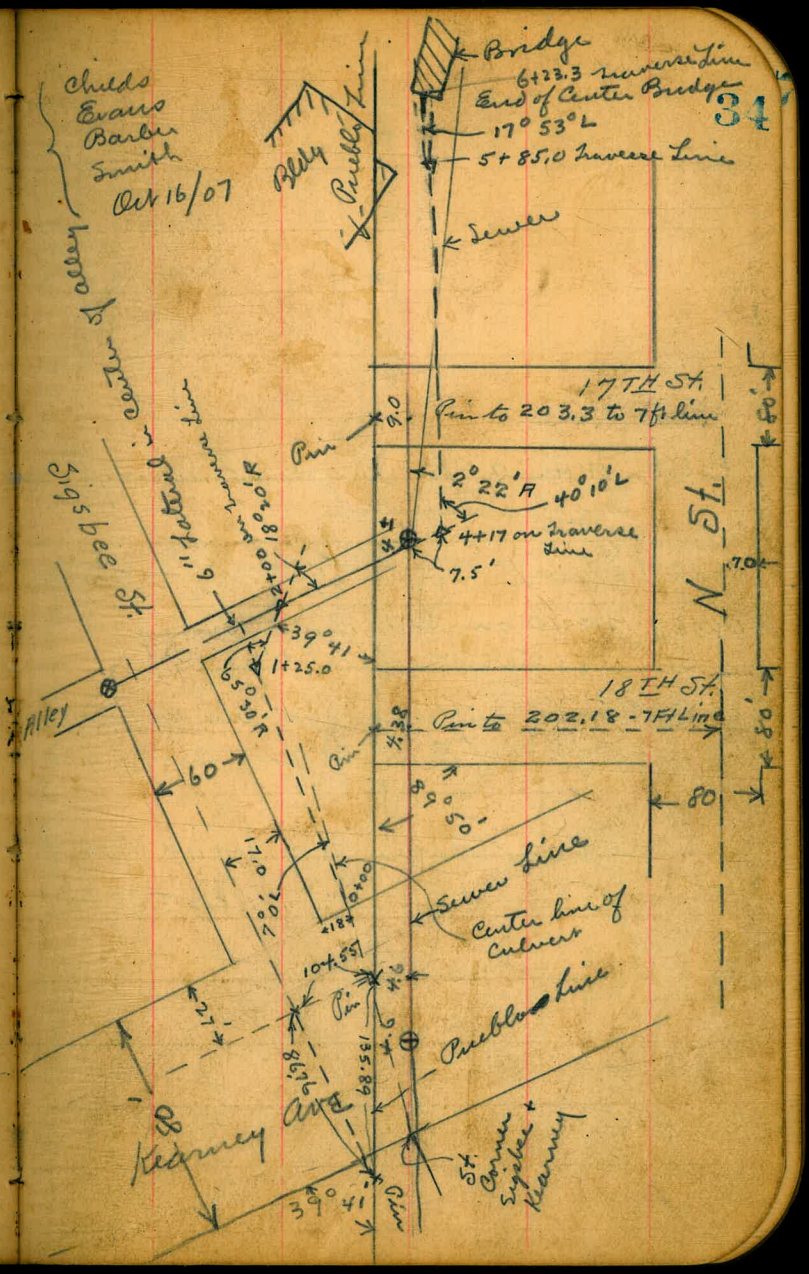
3+07.8 M.H. 11 Original Survey

1+53.14 Pin on Pueblow Line ℄ 18th St.

+ 13.5 Pin on Pueblow Line
13' S of ℄ of Kearney Ave

0=6+56.7 M.H No. 12 Original Survey

⊕ = Man hole
× = Pin



Sta.

Principle Base on Pueblow Line

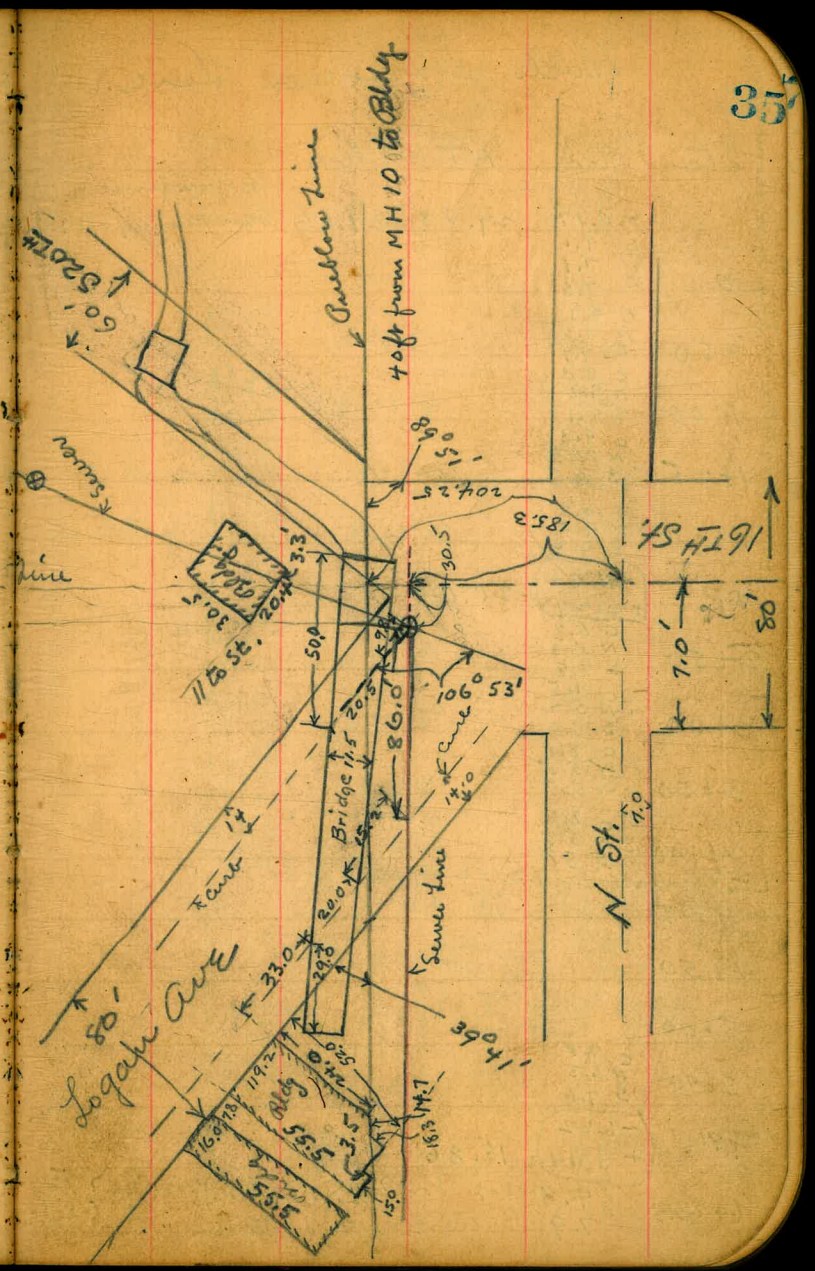
8+20.3 M.H. 9 on Original Survey
← This is on sewer line.

6+80.91 Intersection Line 7' W of E Prop Line 16 ft + Pueblow Line

6+51.3 MH 10 on Original Survey
← This sta on the sewer line

6+ 9.47 Pin on Pueblow line at line parallel to +13ft W of ℄ of Logan Ave.

Distance between MH 10+11 = 343.5 ft
" " " 11+12 = 307.8 ft.



Levels on Traverse Line.

L.S. to Corners as they run from 0+00

Sta	Rod	HI	Elev.	
	+ 0.17	24.83	24.66	BM on fence post Scor Kearney + 21st
0	C 9.1 N 7.1 S 7.8			
+50	C 9.7 N 7.6 S 7.1			
1+00	C 8.0 N 9.8 S 8.1			POSTED
1+25	C 9.8 N 8.3 S 8.5			
2+00	C 10.7 N 9.5 S 9.2			
T.P.	-11.06 + 6.27	20.04	13.77 6.27	
2+50	C 6.3 N 5.8 S 4.8			
3+00	C 7.5 N 5.2 S 5.8			
3+50	C 8.1 N 5.5 S 5.5			
4+00	C 8.6 N 5.3 S 5.7			
L to forward Cor H +17				
4+50				
5+00				
5+50	C 9.8 N 6.3 S 7.6			
T.P.	-6.62 + 3.44	16.86	13.42 3.44	
6+23.3	4.8		12.0	Top Bridge } E Side
	7.9		8.9	Bottom "

Childs
Evans
Barber
Smith
Oct 6/07.

North	Center	South
E 17.7 / 20.0	E 15.7	E 17.5 / 20.0
E 17.2 / 20.0	E 15.1	E 17.7 / 20.0
E 15.0 / 20.0	E 16.8	E 16.7 / 20.0
50 Same E 16.5 / 20.0	E 15.0	E 16.3 / 20.0
In Alley E 15.3 / 10.0	E 14.1	E 15.6 / 10.0
E 14.2 / 9.0	E 13.7	E 15.2 / 9.0
E 14.8 / 7.0	E 12.5	E 14.2 / 9.0
E 14.5 / 9.0	E 11.9	E 14.5 / 9.0
E 14.7 / 8.0	E 11.4 / C	E 14.3 / 9.0
E 15.2 / 6.0	E 13.0 / 0.0	E 11.0 / 3.0
E 14.9 / 13.0	E 14.4 / 20.0	E 13.6 / 40.0
E 15.4 / 7.0	E 10.8	E 15.1 / 15.0
E 14.0 / 25.0	E 13.7 / 50.0	E 13.4 / 75.0
E 15.3 / 10.0	E 10.8	E 13.9 / 10.0
E 13.4 / 30.0	E 12.6 / 50.0	
E 13.7 / 15.0	E 10.2	E 12.4 / 7.0

See Book No 200 P62-64 for levels from W end of Bridge

Sta	Rods	HI.		Elev.
		16.86		
W end Bridge 0+00	7.4	Top	W end Bridge E	9.4
	11.1	Bottom		5.7

POSTED

South Main MH 219 – MH 57

0+00	6.795	19.795		13.00	
+25			6.485	13.31	
+50			6.175	13.62	
+75	7.165	21.095	5.865	13.930	
1			6.865	14.23	
+25			6.555	14.54	
+50			6.245	14.85	
+75			5.945	15.15	
2			5.635	15.46	
+25			5.325	15.77	
+50			5.015	16.08	
+75	8.835	25.225	4.705	16.39	
3			8.535	16.69	
+25			8.235	16.99	3/3/05
+50			7.925	17.30	
+75			7.615	17.61	
+88	MH 201		7.455	17.77	

3/3/05 450 ft

		25.225			
4			7.245	17.98	
			6.795	18.43	
			6.345	18.88	
			5.905	19.32	
5			5.445	19.78	
			5.005	20.22	
	10.105	30.775	4.555	20.67	
			9.655	21.12	
6			9.215	21.56	
			8.765	22.01	
			8.315	22.46	
			7.865	22.91	
7			7.415	23.36	
	11.11	34.92	6.965	23.81	
+50			10.67	24.25	3/4/05
+63.6	MH 176		10.42	24.50	
+75			10.12	24.80	

1.792%

South Main

NH. 219 – NH 57 3/4/05

		54.92			
8			9.46	25.46	
			8.80	26.12	
			8.13	26.79	26.5
			7.47	27.45	
9	11.74	39.86	6.80	28.12	
			11.08	28.78	
			10.42	29.44	
			9.76	30.10	
10			9.09	30.77	
BPC	201	43.51		41.50	Alley bet Milton + Newton
			12.08	31.43	
			11.42	32.09	
			10.76	32.75	
11			10.10	33.41	
			9.44	34.07	
+44.8	NH 149		8.91	34.60	
+75	9.49	45.15	7.85	35.66	
12			8.62	36.53	

	South Main				
M.H.	219		M.H.	57	3/4/05
		45.15			
+25	12.535	49.935	7.75	37.40	
+50			11.655	38.28	3/6/05
+75			10.775	39.16	
13			9.905	40.03	
+27			8.96	40.975	
B.M.	2.76	53.15		50.39	
+50			11.37	41.78	
+75			10.50	42.65	
14			9.62	43.53	
+25			8.74	44.41	
+30			7.87	45.28	
B.M.	3.48	58.40		54.92	3/7
+75			12.24	46.16	
+99	M.H. 121 11.54	58.51	11.40	47.00 46.97	
15+33			11.01	47.5	
+50			10.46	48.05	
+75			9.65	48.86	

				9091 7777 13.19	
		from P. 58			3/22/05
		87.20			
41			9.90	77.30	
			9.48	77.72	
B.M.	0.29	90.91		90.62	3/23/05
			12.76	78.15	
			12.34	78.57	
42			11.92	78.99	
			11.50	79.41	
+50				79.84	
+59 Z	M.H. 57		10.91	80.00	
+89	Ft –		10.41	80.50	

South Main

MH 219 – MH 57 3/7/05

		58.57			
+6			8.84	49.67	✓
			8.03	50.48	✓
+50	7.22	58.50	7.23	51.28	✓
			6.41	52.09	✓
	5.02	65.94		60.92	
17			13.04	52.90	✓ 3/8/05
+34'			11.94	54.00	✓
+50			11.84	54.10	✓
+75			11.68	54.26	✓
18			—	54.42	
+25			11.36	54.58	✓ 0.6431 %
+50			11.20	54.74	✓
+75			11.04	54.90	✓
+97.6	MH. 110		10.90	55.04	✓
19			10.88	55.06	✓
+25			10.72	55.22	✓
+50			10.55	55.39	✓
+75			10.39	55.55	✓

3/8/05

		65.94			
20			10.23	55.71	✓
			10.07	55.87	✓ 0.6431 %
+50			9.91	56.03	✓
			9.75	56.19	✓
21			9.59	56.35	✓
			9.43	56.51	✓
+50			9.27	56.67	✓
	5.15	68.78		63.63	
			11.95	56.83	✓ 3/9/05
22			11.79	56.99	✓
	6.38	70.01		63.63	
+30.6	MH 107		12.84	57.20	✓ ✓
+50			12.71	57.30	✓
+75			12.58	57.43	✓
23			12.45	57.56	✓
+25			12.32	57.69	✓ 0.5167 %
+50			12.19	57.82	✓
+75			12.06	57.95	✓
	6.55	70.18		63.63	
24			12.11	58.07	✓ 3/10/05

— South Main —

MH 219		— MH	57		3/10/05
		70.18			
24 +25			11.98	58.20	✓
+50			11.85	58.33	✓
+75			11.72	58.46	✓
25			11.59	58.59	✓
	11.36				
+28²	MH.108	70.09	11.45	58.73	✓
+50			11.24	58.85	✓ 3/11/05
+75			11.11	58.98	✓
26			10.98	59.11	✓
+25			10.85	59.24	✓
+50			10.73	59.36	✓
+75			10.60	59.49	✓
27			10.47	59.62	✓
+25			10.34	59.75	✓
BM	3.23	72.17		68.94	3/13/05
+50			12.29	59.88	✓
+75			12.16	60.01	✓
28			12.03	60.14	✓
+25			11.90	60.27	✓

		72.17			
+50			11.77	60.40	✓
+73²	MH 109		11.65	60.52	✓
29			11.52	60.65	✓
	11.12	71.90	11.39	60.78	✓
			10.99	60.91	✓
			10.86	61.04	✓
30			10.73	61.17	✓
			10.60	61.30	✓
			10.47	61.43	✓
	4.06	73.00		68.94	3/14/05
			11.44	61.56	✓
31			11.31	61.69	✓
			11.18	61.82	✓
			11.06	61.94	✓
			10.93	62.07	✓
32				62.20	
+18³	MH. 81		10.70	62.30	✓
	6.56	75.60		65.94	3/21/05
+43²	MH 82		13.00	62.50	✓

1 – South Main –
MH 219 – MH 57

3/21/05

		75.50			
+50			12.88	62.62	
+75			12.43	63.07	✓
33.			11.97	63.53	✓
			11.52	63.98	✓
			11.06	64.44	✓
			10.61	64.89	✓
34			10.15	65.35	✓
			9.70	65.80	✓
			9.24	66.26	✓
			8.79	66.71	✓
B.M.	3.955	79.79		75.835	
+90 7	MH. 75		12.79	67.00	✓
35			–	67.16	
			12.21	67.58	✓
			11.78	68.01	✓
			11.36	68.43	✓
36			10.94	68.85	✓
			10.52	69.27	✓
B.M.	5.08	80.915		75.835	3/22/05
			11.215	69.70	

		87.20		10.85	
		75.62		3.1	
		11.58		17.75	
		80.915			3/22/05
			10.795	70.12	✓
37			10.365	70.55	✓
+38 3	MH 73		9.715	71.20	✓
+50			9.515	71.40	✓
			9.095	71.82	✓
38			8.675	72.24	✓
			8.255	72.66	✓
	3.82	85.62		81.80	
			12.54	73.08	✓
			12.12	73.50	✓
39			11.69	73.93	✓
			11.27	74.35	✓
			10.85	74.77	✓
			10.43	75.19	✓
+99'	MH 74		10.00	75.62	✓
	5.40	87.20		81.80	
40+25			11.16	76.04	✓
+50			10.74	76.46	✓ 90 ± 0.55
+75			10.32	76.88	✓
41 –			9.90	77.30	✓

North Main

2/28/05

	7.24	11.416		4.176	
1+25			10.65	0.77	
+50			10.60	0.82	
+75			10.55	0.87	
2			10.49	0.93	
+25			10.44	0.98	
+50			10.39	1.03	
+75			10.34	1.08	0.211 %
3			10.29	1.13	
+16	MH. 4		10.26	1.16	
+25			10.24	1.18	
+50			10.18	1.24	
+75			10.13	1.29	3/2/05
	4.575	8.445		3.87	
4			7.095	1.35	
+25			7.045	1.40	
+50			6.995	1.45	

North Main

3/2/05

		8.445			
+75			6.94	1.505	✓
5			6.885	1.56	✓
+25			6.835	1.61	✓
+50			6.785	1.66	✓
+75			6.73	1.715	✓
6			6.675	1.77	✓
+25			6.62	1.825	✓
+32	MH. 5		6.605	1.84	✓
+50			6.565	1.88	✓
+75			6.515	1.93	✓
7			6.465	1.98	✓
~~BMC~~ +50		7.32	5.24	2.08	✓
8			5.13	2.19	✓
+50			5.03	2.29	✓
9			4.92	2.40	✓
+50			4.82	2.50	✓
10			4.71	2.61	✓

12.84
1.23
14.07

17.07
7.29
6.78
0.54

7.32
5.34

North Main

		7.32			
+50			4.60	2.72	✓
11			4.50	2.82	✓
+26 1	MH 6		4.44	2.88	✓
+50			4.39	2.93	✓
BM	10.92	7.94		-2.98	
12			4.91	3.03	
+50			4.80	3.14	✓
13			4.70	3.24	✓
+36 4	MH 6½		4.63	3.31	✓
+50	5.98	8.19 9.33	4.84	3.35	✓
14			5.88	3.45	✓
			5.77	3.56	✓
15			5.67	3.66	✓
+14 9	MH 7		5.63	3.70	✓
			5.56	3.77	✓
16			5.46	3.87	✓
			5.36	3.97	✓
17			5.26	4.07	✓

3.24
4.95
8.19

1.88
4.9
6.78

208 / 4.70 / 4.2
219 / 4.59 / 4.1
229 / 4.49 ✓
240 / 4.88 ✓ / 3.98

250 / 4.28 / 5 / 3.78
261 / 4.17 / 5 / 3.67
272 / 4.06

381
288
6.69
293
376

386

5/2/05

✓

5/3/05

North Main -

5/3/05

+60		9.33	5.16	4.17	✓
18			5.06	4.27	✓
			4.96	4.37	✓
19			4.86	4.47	✓
	B.M. 12.87	14.95		2.08	
+12.8	MH 8		10.45	4.50	✓
	B.M. 519	10.43		5.24	
			5.86	4.57	✓
20			5.76	4.67	✓
			5.66	4.77	✓
21			5.56	4.87	✓
			5.46	4.97	✓
22			5.36	5.07	✓
			5.26	5.17	✓
23			5.16	5.27	✓
+13.6	MH 9		5.13	5.30	✓
		11.01	5.54	5.47	
		12.45			
24			6.75	5.70	✓
		14.30	8.37	5.93	✓

20

1045
208
837

2468
2313
1.55

524
494
1018
450
568
561

517
301

4.67
5.76
10.43

1018
530
488

456
13
1368
456
15928

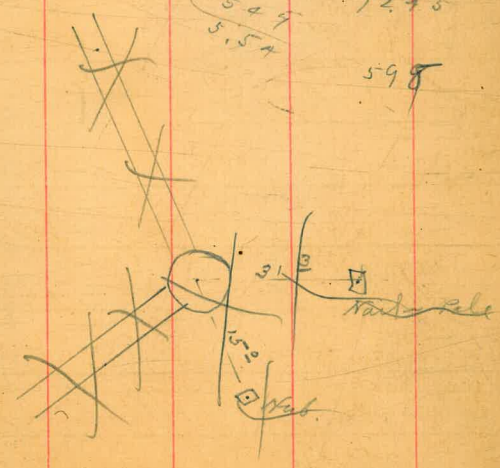
456
176
2736
3192
456
80256
14.30

5/6/05

531
570
11.01
549
5.54

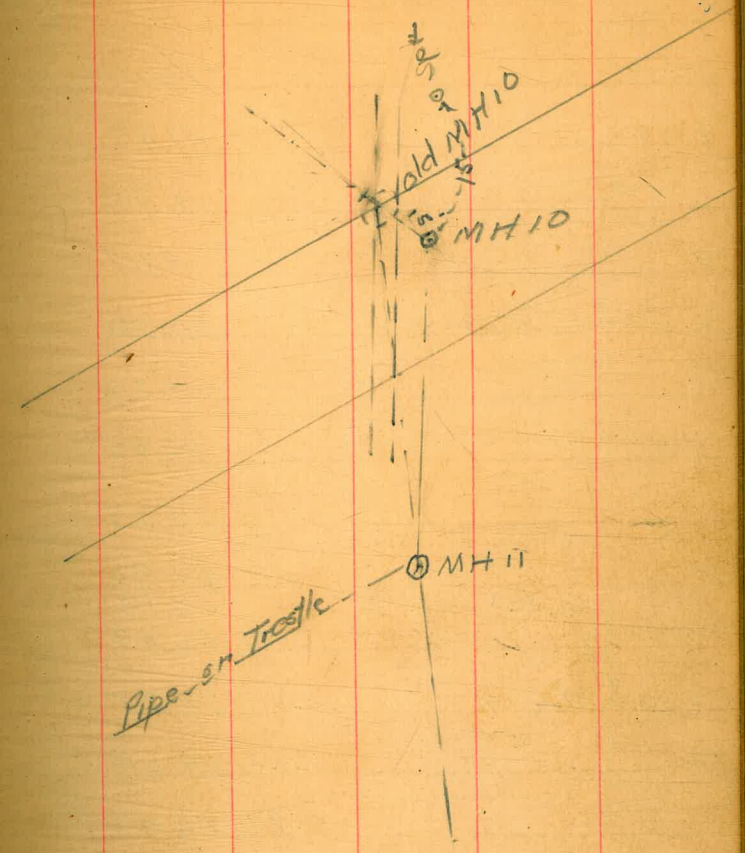
593
652
12.45

598



North Main

24+82.6 MH10		6.07	x
		6.79	
0+50		6.27	
		6.90	
1	5	6.47	
		7.01	
+50		6.67	
		7.01	
2		6.87	
		7.22	
+50		7.07	
		7.33	
3		7.27	
{+42.7 / +48.6} MH 11		7.44	X
4		8.81	
		10.14	
5		11.48	
		12.81	
6		14.14	
+50		—	
+56.7 MH 12		15.65	X
7		16.35	



North Main

7+50				17.17	1,628 %
8				17.98	
+50				18.79	
9				19.61	
+54.7	MH13			20.50	×
10				21.52	
+50				22.65	
11				23.78	
+50				24.90	2,256 %
BM	4.45	37.33		32.88	
12			11.30	26.03	
+53.8	MH14		10.08	27.25	✓
13			9.04	28.29	✓
			7.91	29.42	✓
14			6.78	30.55	✓
		43.83	12.16	31.67	✓
15			11.03	32.80	✓
+53.0	MH15		9.83	34.00	✓

5/23/05

5/25/05

953
+
9.3.83

904
628
2.76

763
3.67
39.30
30.55
8.75

2050
223
22.73
19.61
3.12

North Main

	1.69	47.35		45.66	
16			12.76	34.59	✓
+50			12.25	35.22	✓
17			11.50	35.85	✓
+50			10.87	36.48	✓
18			10.24	37.11	✓
+50 5 MH16			9.60	37.75	✓
19			8.98	38.37	✓
+50			8.35	39.00	✓
		52.14			
20	6.83	46.46	12.51	39.63	✓
+50			6.20	40.26	✓
21			5.57	40.89	✓
+47 9 MH17			4.96	41.50	×
22			4.34	42.12	✓
+50	3.72	46.44	3.74	42.72	✓
23			3.12	43.32	✓
+50			2.52	43.92	✓
24			1.92	44.52	✓

1.26%

1.97%

(35,10) .0126

12.6

5/27/05

45.66
34
11.66
13
1.34

51.43
.071
52.14
39.63
12.51

169
45.66
47.35
34
1335

4.64
41.82

45.69
41.84
3.85

39.63
6.06
45.69
39
6.69

38.37
7.32

45.66
.022
45.88

41.8
4.08

40.26
5.62

39.63
6.25

39.0
6.88

38.37
7.51

5/25/05

North Main 5/25/05

		46.44			
24+50			1.32	45.12	✓
+61² MH 18			1.19	45.25	✓
25			0.73	45.71	✓
BM	2.65	53.61		50.96	
			7.30	46.31	✓
26			6.70	46.91	✓
			6.10	47.51	✓
27			5.50	48.11	✓
+50			4.90	48.71	✓
+74⁴ MH 19		61.41	4.61	49.00	X
28			12.13	49.28	✓
			11.57	49.84	✓
29			11.02	50.39	✓
			10.47	50.94	✓
30			9.92	51.49	✓
			9.36	52.05	✓
+68¹ MH 20			9.16	52.25	✓
31			8.81	52.60	✓

1.197 %

1.106 %

6/2/05

.022

50.96
2.65
53.61
45.71
7.90

53.21
8.20
61.91
49
12.91

North Main

MH 10 - Ft 2. 6/2/05

		61.41			
31+50			8.26	53.15	✓
32			7.70	53.71	✓
			7.15	54.26	✓
33			6.59	54.82	✓
			6.04	55.37	✓
	12.68	68.18			
+61.9	MH.	21	5.91	55.50	✓
34			12.43	55.75	✓
			12.11	56.07	✓
35			11.79	56.39	✓
			11.46	56.72	✓
36			11.14	57.04	✓
+56.2	MH.	22	10.78	57.40	✓
37			10.49	57.69	✓
			10.17	58.01	✓
38			6.99	58.33	
	6.02	65.32		59.30	
			6.67	58.65	✓
39			6.34	58.98	✓

1.106 %

0.646 %

63230

5550
11.71
67.21
9.1
58.1

59.79 Bn
841
6220
5550
12.70

83

39506
33612
5887
646
35322
23548
35322
3803002

646
38
5168
1938
24548
01292
23256

5930
5550
380

985

646

.01292

6/8/05

1251
.23
12.28

323
5575 -34
56.073
56.396 -35
56.719
57.042 -36
57.365
57.688 -37
58.011
58.334 -38
58.657
58.990 -39
59.293

6/7/05

North Main

MH10 - Ft 2.

		65.32			
39+50.6	MH23		6.02	~~59.30~~	✓
40			5.75	59.57	✓
			5.48	59.84	✓
41	9.68	69.79	5.21	60.11	✓
			9.41	60.38	✓
42			9.13	60.66	✓
BM	4.55	73.25		6870	
+46.4	MH24		12.34	60.91	✓
+50			12.32	60.93	✓
43			12.05	61.20	
			11.78	61.47	✓
44			11.51	61.74	✓
			11.24	62.01	✓
45			10.97	62.28	✓
	9.45				
+41.3	MH25	71.95	10.75	62.50	✓
+50			9.37	62.58	✓
46			8.92	63.03	✓
+50			8.47	63.48	✓

0.542 ft

0.898 ft

6/8/05

6/9/05

6/10/05

4555
68690
73250
6066
12.59

7206
6228
9.78

6201
1005
7206
6250
9.56

6270

North Main

MH 10 – FT 2.

		71.95			
47			8.02	63.93	
+50			7.57	64.38	0.0
		77.91			
+84	MH 26		13.22	64.69	
48			13.09	64.82	0.898
			12.64	65.27	
49			12.19	65.72	
			11.74	66.17	
50			11.29	66.62	
+42°	MH 27		10.91	67.00	
	5.80	79.98		74.18	
			12.87	67.11	
51			12.22	67.76	
			11.56	68.42	0.0
52			10.90	69.08	1.319
			10.24	69.74	
53			9.58	70.40	
BM	7.43	83.33		75.90	
			12.27	71.06	
54			11.61	71.72	

6/12/05

6/20/05

6/21/05

7.26

74.18
6.80
79.98

75.90
7.43
83.33
7.40
12.93

North Main

MH 10 -		83.33	Ft	L.	
54+21.2	MH 28		11.33	72.00	✓
BM	9.32	85.22		75.90	
			12.34	72.88	✓
55			10.83	74.39	✓
			9.32	75.90	✓
56			7.81	77.41	✓
		90.09	11.16	78.93	✓
57			9.65	80.44	✓
			8.13	81.96	–
58			6.62	83.47	✓
+04.2	MH 46		6.49	83.60	✓

3.027

85.93

6/21/05 ✓

6/24/05

1268
7741
90.09
8360
6.49

362
9119
7481
8360
1121

9630
8360
500
89

6/26/05

1 Outfall Sewer

2/25/05

MH #3.	9.368	9.868		0.50
0+25			9.508	0.36
+50			9.648	0.22
+75			9.793	+0.075
1			9.938	-0.07
+25			10.078	-0.21
+50			10.218	-0.35
+75			10.358	-0.49
2			10.498	-0.63
+25			10.643	-0.775
+50			10.788	-0.92
+75			10.928	-1.06
3			11.068	-1.20
+25			11.208	-1.34
+50			11.348	-1.48
+75			11.488	-1.62
4			11.628	-1.76

South Main

2/23/05

.00379
.02758

19
95

	7.480	11.656		4.176		
			11.156	0.50		0.50
	7.775	11.951		4.176		
33			11.43	0.52	Rate 0.379	0.52
+75			11.346	0.605		0.605
32+50			11.26	0.69		0.69
+25			11.166	0.785		0.785
32	12.470	13.350	11.07	0.880		.088
+75			12.385	0.975		
+50			12.280	1.07		
+25			12.185	1.165		
31			12.090	1.26		
+75			11.995	1.355		
+50			11.900	1.45		
+25			11.805	1.545		
30			11.710	1.64		
+75			11.615	1.735		

South Main

B.M.	7.330	14.635		7.305	
29+50			12.805	1.83	✓
+25			12.710	1.925	✓
29-			12.615	2.02	✓
+75			12.525	2.11	✓
+50			12.435	2.20	✓
+25			12.340	2.29.5	✓
28			12.245	2.39	✓
+75			12.150	2.485	✓
B.M.	0.570	15.190		14.620	
+25			12.515	2.67.5	✓
27			12.420	2.77	✓
+75			12.325	2.865	
+50			12.230	2.96	✓
+25			12.135	3.055	✓
26			12.040	3.15	✓
+75			11.945	3.245	✓

Rate 0.379%

2/23/05

Near Ice Plant on Pole -

2/24/05

Spk in 1/2 Mile Post -

South Main.

		15.190			
+50			11.850	3.34	✓
+25			11.755	3.435	✓
25			11.660	3.53	✓
+75			11.565	3.625	✓
+50			11.470	3.72	✓
+25			11.375	3.815	✓
24			11.280	3.91	✓
BM.	8.520	15.824		7.304	
+75			11.819	4.005	✓
+50			11.724	4.10	✓
+25			11.634	4.19	✓
BM.	0.220	16.690		16.47	
23			12.410	4.28	
+75			12.315	4.375	
+50			12.220	4.47	
+25			12.125	4.565	
22			12.03	4.66	
+75			11.935	4.755	

2/24/05

2/25/05

Railroad and 23rd Spk. in Home Phone Pole

Pierce + 24th Spk in fence Cor.

South Main

		16.69			
21 +50			11.84	4.85	
+25			11.745	4.945	
21			11.65	5.04	
+75			11.555	5.135	
+50			11.46	5.23	
+25			11.365	5.325	
20			11.27	5.42	
+75			11.175	5.515	
				~~5.61~~	
				~~5.705~~	2/28/05
				~~5.80~~	
19					
B.M.	1.62	22.47		20.85	25th of Pierce —
T.P.	1.70	19.90	4.270	18.20	
14			12.21	7.69	
+75			12.105	7.785	
+50			12.020	7.88	
+25			11.925	7.975	

2/25/05

South Main

		19.90		
13 -			11.83	8.07
			11.735	8.165
			11.64	8.26
			11.545	8.355
12			11.45	8.45
			11.355	8.545
			11.26	8.64
			11.165	8735
11			11.07	8.83
+75			10.975	8.925
	0.73	21.58		20.85
+50			12.56	9.02
+25			12.465	9.115
10			12.37	9.21
+75			12.275	9305
+50			12.18	9.40
+25			12.085	9.495

2/28/05

266
10. + 234

20000 | 1.414
1
100
20 96
400
280 281
2820 11900
11296

7.100

3/1/05

South Main

	21.58			
9			11.99	9.59
+75			11.895	9.685
+50			11.80	9.78
+25			11.705	9.875
8			11.61	9.97
+75			11.515	10.065
+50			11.42	10.16
+25			11.325	10.255
7			11.23	10.35
+75			11.135	10.445
+50			11.04	10.54
+25			10.945	10.635
6			10.85	10.73
+75			10.755	10.825
+50			10.66	10.92
+25			10.565	11.015
5			10.47	11.11

		21.58		
+75			10.375	11.205
+50			10.28	11.30
~~+25~~			~~10.19~~	~~11.39~~
4			10.10	11.48
BMG	1.135	23.415		22.28
T.P.	5.080	19.795	8.700	14.715
+25			8.405	11.39
4			8.315	11.48
			8.22	11.575
			8.125	11.67
+452 MH			8.105	11.69
			8.03	11.765
3			7.935	11.86
			7.84	11.955
			7.745	12.05
			7.65	12.145
2			7.555	12.24
			7.46	12.335

81.80
9.95
91.75
45
87.25

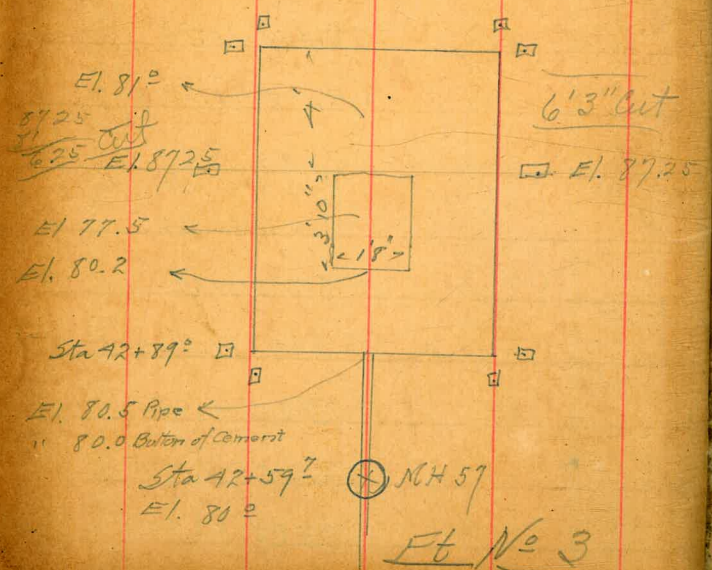
19.795

3288
457
3745
48
32.65

24
26

9	+50	7.365	12.43
+75		7.27	12.525
+50	1	7.175	12.62
+2		7.08	12.715
8	+50	6.985	12.81
+75		6.89	12.905
+50	0+00	6.795	13.00

3276
4.69



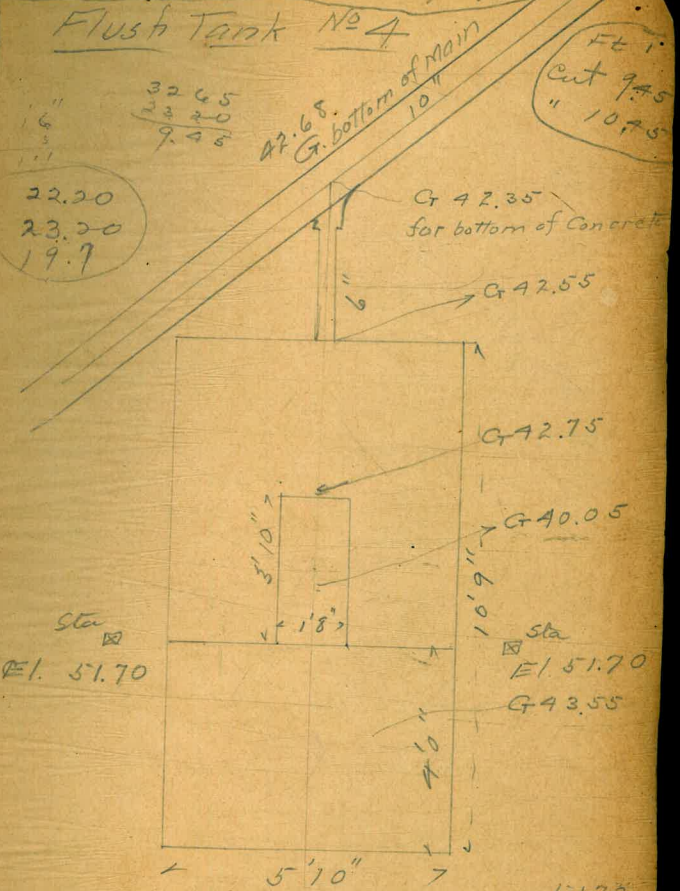
Ft No 3

Ft 1 Sta -10+23.4
12.8 Ft 1
G = 22.34
10+36.2
Transferred

Flush Tank No 4

3265
2320
9.45

22.20
23.20
19.7



Ft 1
Cut 9.45
" 10.45

5170
4355
C - 8.15

171
8
629 | 764
6112 | 823
1786
1528 52
2520 12
104
32

634
146
764

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	89
1	99.98	1.75	99.98	2.18	99.97	2.62	99.95	3.05	88
2	99.94	3.49	99.92	3.93	99.91	4.36	99.88	4.80	87
3	99.86	5.23	99.84	5.67	99.81	6.10	99.79	6.54	86
4	99.76	6.98	99.73	7.41	99.69	7.85	99.66	8.28	85
5	99.62	8.72	99.58	9.15	99.54	9.58	99.50	10.02	84
6	99.45	10.45	99.41	10.89	99.36	11.32	99.31	11.75	83
7	99.25	12.19	99.20	12.62	99.14	13.05	99.09	13.49	82
8	99.03	13.92	98.97	14.35	98.90	14.78	98.84	15.21	81
9	98.77	15.64	98.70	16.07	98.63	16.50	98.56	16.93	80
10	98.48	17.36	98.40	17.79	98.33	18.22	98.25	18.65	79
11	98.16	19.08	98.08	19.51	97.99	19.94	97.90	20.36	78
12	97.81	20.79	97.72	21.22	97.63	21.64	97.53	22.07	77
13	97.44	22.50	97.34	22.92	97.24	23.34	97.13	23.77	76
14	97.03	24.19	96.92	24.62	96.81	25.04	96.70	25.46	75
15	96.59	25.88	96.48	26.30	96.36	26.72	96.25	27.14	74
16	96.13	27.56	96.00	27.98	95.88	28.40	95.76	28.82	73
17	95.63	29.24	95.50	29.65	95.37	30.07	95.24	30.49	72
18	95.11	30.90	94.97	31.32	94.83	31.73	94.69	32.14	71
19	94.55	32.56	94.41	32.97	94.26	33.38	94.12	33.79	70
20	93.97	34.20	93.82	34.61	93.67	35.02	93.51	35.43	69
21	93.36	35.84	93.20	36.24	93.04	36.65	92.88	37.06	68
22	92.72	37.46	92.55	37.86	92.39	38.27	92.22	38.67	67
23	92.05	39.07	91.88	39.47	91.71	39.87	91.53	40.27	66
24	91.35	40.67	91.18	41.07	91.00	41.47	90.81	41.87	65
25	90.63	42.26	90.45	42.66	90.26	43.05	90.07	43.44	64
26	89.88	43.84	89.69	44.23	89.49	44.62	89.30	45.01	63
27	89.10	45.40	88.90	45.79	88.70	46.17	88.50	46.56	62
28	88.29	46.95	88.09	47.33	87.88	47.72	87.67	48.10	61
29	87.46	48.48	87.25	48.86	87.04	49.24	86.82	49.62	60
30	86.60	50.00	86.38	50.38	86.16	50.75	85.94	51.13	59
31	85.72	51.50	85.49	51.88	85.26	52.25	85.04	52.62	58
32	84.80	52.99	84.57	53.36	84.34	53.73	84.10	54.10	57
33	83.87	54.46	83.63	54.83	83.39	55.19	83.15	55.56	56
34	82.90	55.92	82.66	56.28	82.41	56.64	82.16	57.00	55
35	81.92	57.36	81.66	57.71	81.41	58.07	81.16	58.42	54
36	80.90	58.78	80.64	59.13	80.39	59.48	80.13	59.83	53
37	79.86	60.18	79.60	60.53	79.34	60.88	79.07	61.22	52
38	78.80	61.57	78.53	61.91	78.26	62.25	77.99	62.59	51
39	77.71	62.93	77.44	63.27	77.16	63.61	76.88	63.94	50
40	76.60	64.28	76.32	64.61	76.04	64.94	75.76	65.28	49
41	75.47	65.61	75.18	65.93	74.90	66.26	74.61	66.59	48
42	74.31	66.91	74.02	67.24	73.73	67.56	73.43	67.88	47
43	73.14	68.20	72.84	68.52	72.54	68.84	72.24	69.15	46
44	71.93	69.47	71.63	69.78	71.33	70.09	71.02	70.40	45
45	70.71	70.71							
Degrees.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Degrees.
	DEGREES.		¾ DEGREE.		½ DEGREE.		¼ DEGREE.		

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