

SEWERAGE GRADES

ARCTIC N. OF ASH

INDIA N. OF ASH

UNION N. OF ASH

COLUMBIA N. OF

STATE

ALBATROSS N. OF UNION

BRANT

TRANSIT

F.B. 643

643

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

DEC 14 1964

MICROFILMED

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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

*Arctic to N of Ast
" " S of Grate
" " S of Dampier*

ENGINEERING DEPARTMENT,
CITY OF SAN DIEGO,
CALIFORNIA.

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1

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Columbia	22	S of H St.
Union	30	S of Ash
Union	31--34	N of Ash
Union	38--40	N of Ash
Albion	35--37	N of Union
Branch	41--42	N of Union

Sect. 10 N of Ash

Sta	Elev	Grade	cut	
		1		
0		9.00		
+10		9.13		
+20	15.75	9.26	6.49	6'3 1/4"
+30	16.61	9.39	6.22	6'2 3/4"
+40	16.15	9.52	6.63	6'7 3/4"
+50	17.09	9.65	7.44	7'5 1/4"
+57	17.46	9.74	7.72	7'4 3/4"
+67	17.65	9.87	7.75	7'9 3/4"
+92	17.95	10.20	7.75	7'9"
+17	18.13	10.62	7.61	7'7 1/4"
+42	18.48	10.55	7.63	7'7 3/4"
+67	18.65	11.18	7.47	7'5 3/4"
+92	19.15	11.50	7.65	7'7 3/4"
2+17	19.64	11.83	7.75	7'9"
+42	19.83	12.15	7.68	7'8 1/4"
+67	20.27	12.48	7.79	7'9 1/2"
+92	20.35	12.81	7.54	7'6 1/2"
3+17	20.63	13.13	7.40	7'4 3/4"
+42	20.76	13.46	7.30	7'3 3/4"

13033

1619

15

16.8

S. Ash 16.18

4.85

16.18 N. Ash

+42 N. Ash, lateral Y

PT 15 N of Ash

20 N. Ash

S. Bush St

21.00 Feb 29 1888

Arctic II - Prof. A. H.

Sta	Ele	Grade	Dist	
3+62	21.04	13.72	7.32	7' 3/4
+52	21.67	13.98	7.69	7' 8/4
4+02	21.34	14.24	7.10	7' 1/4
+22	21.13	14.50	6.63	5' 7/8
+47	21.45	14.89	6.56	6' 6/4
+72	21.92	15.29	6.63	6' 7/8
+92	22.05	15.68	6.37	6' 4/2
5+22	22.31	16.08	6.23	6' 2/4
+47	22.83	16.47	6.36	6' 4/4
+72	23.08	16.87	6.21	6' 2 1/2
+97	23.99	17.26	6.73	6' 1 5/8
6+22	24.00	17.67	6.33	6' 4
+47	24.66	18.06	6.60	6' 7/4
+72	24.89	18.46	6.43	6' 5/8
+97	25.23	18.85	6.38	6' 4 3/4
7+22	25.46	19.22	6.24	6' 2 7/8
+47	26.99	19.56	6.33	6' 4
+62	26.74	19.84	6.86	6' 10 3/4
+82	26.65	20.19	6.46	6' 5 1/2
8+02	27.04	20.50	6.54	6' 6 1/2

5.51
2.01

Buck II

NZ Buck II

7' 1/4
- 10 3/4

27.04
3.94
33.08
25.50
7.58

NZ Cedar Grad 26.00

Cedar II

NZ Cedar II

Atchafalaya St. N. of Ash

Sta	Elev	Grade	Dist	
		1		
+27	27.29	20.75	6.54	6 6/8
+52	27.54	21.00	6.54	6 5/8
+77	27.88	21.25	6.63	6 7/8
9+02	27.97	21.50	6.47	6 5/8
+27	27.93	21.75	6.19	6 2/4
+52	27.98	22.00	5.98	5 11/4
+77	27.90	22.25	5.63	5 7/4
10+02	28.04	22.50	5.54	5 6/2
+27	27.91	22.75	5.16	5 1 1/4
+52	28.15	23.00	5.15	5 1 5/4
+77	28.42	23.25	5.22	5 2 3/8
11+02	28.57	23.50	5.37	5 4 1/2
+22	29.25	23.66	5.59	5 7/4
+42	29.43	23.83	5.60	5 7/4
+62	29.59	23.99	5.60	5 7/4
+82	29.64	24.15	5.49	5 5 3/4
12+07	30.07	24.35	5.72	5 8 3/4
+32	30.20	24.56	5.64	5 7 3/4
+57	30.30	24.76	5.54	5 6 1/2
+82	30.61	24.97	5.64	5 7 3/4
13+07	30.54	25.17	5.37	5 4 1/2

1.00 / 1.00

6 7 1/2
9 1/2

36.05
29.00
6.05

S.I. Lata St - Grade 29.5

Lata St -

N.I. Lata St - 30.5 11+97

Arctic St. N of Ash

Sta	Elev	Grad	Cut		
13732	30.85	25.37	5.44	5	5 ³ / ₄
+57	31.36	25.38	5.72	5	6 ³ / ₄
+82	31.51	25.78	5.53	5	6 ³ / ₄
14707	31.42	25.98	5.44	5	5 ¹ / ₄
+32	31.71	26.19	5.52	5	6 ¹ / ₄
+57	31.93	26.39	5.54	5	6 ¹ / ₂
+82	32.43	26.59	6.84	5	10 ¹ / ₄
15707	32.67	26.86	5.47	5	10 ¹ / ₂
432	33.22	27.00	6.22	6	2 ³ / ₄ x
Total length of pipe 1537					

S. Line First St. Grade 33.5
 Feb 29 1899

S. Line First St.

S. Line First St. 33.5

S. Line 32.5

Arctic L. of Grapes

Sta	Eliv	Grad	Dist	
0		21.50		
+10	25.86	21.66	4.204	2 3/4
+20	29.58	21.82	6.766	9 1/4
+30	31.74	21.98	9.769	9 1/4
+40	32.13	22.14	9.999	11 3/4
+50	32.20	22.30	8.909	10 3/4
+57	32.17	22.42	9.759	9
+67	31.99	22.56	9.439	5 1/4
+75	32.46	22.98	9.489	15 3/4
+17	32.24	23.38	8.868	10 3/8
+42	32.55	23.79	4.768	9 1/4
+67	33.08	24.19	8.898	10 3/4
+92	33.29	24.59	4.708	4 3/4
+17	33.29	24.99	4.308	3 3/4
+42	33.52	25.40	8.728	8 - 1/2
+67	33.52	25.80	7.727	7 4 3/4
+92	33.38	26.20	7.187	7 2 1/8
+17	33.39	26.60	6.796	9 1/2
+42	33.44	27.00	6.446	5 1/4
Total length of pipe 3+47				

P.E.

0+42: L L Grapes

P.T. 15 S of Grapes

Y

33.30
 44.2
 40.14
 33
 7.14

A. L. Fair

33.5 Feb 29/1889

Arctic North of Grape

Sta	Elev	Grade	Cont		
0		21.56			
+10	29.94	21.63	8.31	8	3 ³ / ₄
+20	31.16	21.76	9.40	9	4 ³ / ₄
+30	32.64	21.89	10.79	10	9 ¹ / ₂
+40	33.15	22.03	11.12	10	1 ¹ / ₂
+50	32.90	22.16	10.74	10	8 ³ / ₄
+57	32.98	22.25	10.73	10	8 ³ / ₄
+67	32.97	22.38	10.59	10	7 ¹ / ₄
+92	33.00	22.71	10.29	10	3 ¹ / ₂
+117	32.84	23.04	9.40	9	9 ³ / ₄
+42	32.97	23.37	9.60	9	7 ¹ / ₄
+57	32.94	23.70	9.24	9	3 ³ / ₈
+92	32.88	24.02	8.86	8	10 ³ / ₈
2+17	32.67	24.35	8.32	8	3 ⁷ / ₈
+42	32.56	24.68	7.48	7	10 ³ / ₈
+67	32.25	25.01	7.24	7	2 ⁷ / ₈
192	32.13	25.34	6.79	6	1 ¹ / ₂
3+17	32.97	25.67	6.70	6	4 ¹ / ₄
+42	31.87	26.00	5.87	5	10 ¹ / ₂

0+42 N L Grape St Y Lateral

Y Lateral

S L Hawthorn St

Arctic N Gravel

Sta	Cliv	Grade	cut		
		21.30			
110	32.94	22.60	7.31	7	3 3/4
120	31.16	23.75	7.41	7	4 1/4
130	32.68	24.88	7.46	7	4 3/4
140	33.15	26.00	7.15	7	1 3/4
150	32.90	26.05	6.45	6	10 1/4
157	32.94	26.07	6.87	6	10 1/2
167	32.97	26.14	6.83	6	10
192	33.00	26.26	6.74	6	18 1/2
1117	32.84	26.29	6.43	6	5 3/4
142	32.97	26.51	6.46	6	5 1/2
167	32.98	26.64	6.34	6	4 1/4
192	32.68	26.76	6.72	6	1 1/2
2117	32.67	26.89	5.78	5	3 3/4
192	32.56	27.01	5.55	5	6 5/8
167	32.95	27.14	5.11	5	1 3/4
192	32.13	27.26	4.87	4	10 1/2
3117	32.37	27.38	4.99	4	11 1/4
142	31.87	27.50	4.37	4	4 1/2
Total length of pipe 3+47					

0.782 N S Gravel

PIT 15 N of Gravel

S. L. H. another 32.50

India North of Ash

Sta	Elev	Grade	Cut		
0		16.00			x
+9.8	23.35	16.50	6.85	6	10 1/4
+19.62	23.79	17.00	6.79	6	9 1/2
+29.43	24.36	17.50	6.86	6	10 3/4
+39.24	24.82	18.00	6.82	6	9 3/4
+49.05	24.95	18.50	6.45	6	5 3/4
+59.	25.22	19.00	6.22	6	2 3/4
+82	25.44	19.50	5.94	5	11 1/4
+107	26.08	20.00	6.08	6	1
+132	26.70	20.50	6.20	6	2 3/4
+157	27.21	21.00	6.21	6	2 1/2
+182	27.50	21.50	6.00	6	00
2+07	28.14	22.00	6.14	6	1 3/4
+32	28.71	22.50	6.21	6	2 1/2
+57	29.19	23.00	6.19	6	2 1/4
+82	29.64	23.50	6.14	6	1 3/4
3+07	30.23	24.00	6.23	6	2 3/4
+32	30.78	24.50	6.28	6	3 3/4
+57	31.50	25.00	6.50	6	6

Sta	Elev	Grade	Cut		
0		16.00			x
+9.8	23.35	16.50	6.85	6	10 1/4
+19.62	23.79	17.00	6.79	6	9 1/2
+29.43	24.36	17.50	6.86	6	10 3/4
+39.24	24.82	18.00	6.82	6	9 3/4
+49.05	24.95	18.50	6.45	6	5 3/4
+59.	25.22	19.00	6.22	6	2 3/4
+82	25.44	19.50	5.94	5	11 1/4
+107	26.08	20.00	6.08	6	1
+132	26.70	20.50	6.20	6	2 3/4
+157	27.21	21.00	6.21	6	2 1/2
+182	27.50	21.50	6.00	6	00
2+07	28.14	22.00	6.14	6	1 3/4
+32	28.71	22.50	6.21	6	2 1/2
+57	29.19	23.00	6.19	6	2 1/4
+82	29.64	23.50	6.14	6	1 3/4
3+07	30.23	24.00	6.23	6	2 3/4
+32	30.78	24.50	6.28	6	3 3/4
+57	31.50	25.00	6.50	6	6

DC man-hole

+56.5 N of Ash Y lateral
PT 2.5 N of Ash

35.78
31.50
4.28

S. S. Beech St 32.00

Index N Beech St

Sta	Elev	Grade	but		
3+77	31.74	25.24	6.50	6	
+97	31.83	25.48	6.35	6	4 1/4
4+17	31.58	25.72	5.86	5	10 3/4
+37	31.74	25.96	5.78	5	9 3/4
+62	32.06	26.26	5.80	5	9 3/4
+87	32.39	26.55	5.84	5	10 1/4
5+12	32.53	26.85	5.68	5	8 1/4
+37	32.94	27.16	5.82	5	9 3/4
+62	33.43	27.45	5.98	5	11 3/4
+87	33.77	27.75	6.02	6	1/4
6+12	34.15	28.05	6.10	6	1 1/4
+37	34.23	28.35	6.38	6	4 3/4
+62	35.21	28.65	6.66	6	7 3/4
+87	35.61	28.94	6.67	6	6
7+12	36.17	29.24	6.93	6	11 1/4
+37	36.57	29.54	7.03	7	3/4
+57	36.76	29.78	6.98	6	11 3/4
+77	36.81	30.02	6.79	6	9 1/2
+97	36.89	30.26	6.63	6	7 3/4
8+17	37.03	30.50	6.53	6	6 3/4

Beech St

N L Beech

S L bedar 36.50

bedar St

N L bedar

India N of Cedar

Sta	Elev	Grade	bat		
8+42	37.25	30.99	6.26	6	3/4
+67	37.64	31.49	6.15	6	1/4
+92	38.03	31.98	6.05	6	0 5/8
9+17	38.54	32.47	6.07	6	7/8
+42	39.14	32.97	6.17	6	2
+67	39.96	33.46	6.50	6	6
+92	40.58	33.95	6.63	6	7 5/8
10+17	41.23	34.44	6.79	6	9 1/2
+42	42.27	34.93	7.32	7	3 7/8
+67	42.95	35.44	7.51	7	6 1/8
+92	43.24	35.93	7.31	7	3 3/4
11+17	43.91	36.43	7.48	7	5 3/4
+37	43.91	36.82	7.09	7	1 1/8
+57	43.84	37.21	6.67	6	8
7+77	44.19	37.61	6.58	6	7
+97	44.31	38.00	6.31	6	3 3/4
12+22	44.51	38.24	6.27	6	3 1/4
+47	44.55	38.47	6.08	6	1
+72	44.62	38.71	5.91	5	10 7/8
8+97	45.01	38.94	6.07	6	7/8

S L Gate Sta 44.00

Gate Sta

N L Gate Sta

India No 1st

Sta	Elev	Grade	em-		
13+22	45.51	39.18	6.13	6	1 3/4
+47	45.57	39.41	6.16	6	1 1/4
+72	45.94	39.65	6.29	6	3 1/2
+97	46.15	39.88	6.27	6	3 1/4
14+22	46.40	40.12	6.28	6	3 3/4
+47	46.45	40.34	6.11	6	1 3/4
+72	46.64	40.58	6.06	6	0 3/4
+97	46.70	40.81	5.89	5	10 3/4
15+22	46.85	41.05	5.80	5	9 5/8
+47	46.80	41.28	5.52	5	6 1/4
+72	47.04	41.52	5.52	5	6 1/4
+97	47.07	41.75	5.32	5	3 7/8
16+22	47.41	42.00	5.41	5	4 7/8
Total length of pipe 16+22					

47.30
 4.50
 42.80

15' S of S. L. Tank 47.80
 S. L. Tank

Columbia St N of Ash

Sta	Elev	Grade	Cut	
0	29.91	24.90	5.11	5 1 ³ / ₈
10	30.23	25.04	5.19	5 2 ¹ / ₄
20	30.20	25.28	4.92	4 11
30	30.64	25.53	5.11	5 1 ³ / ₈
40	31.06	25.77	5.29	5 3 ¹ / ₂
50	31.78	26.01	5.77	5 9 ¹ / ₄
60	32.43	26.18	6.25	6 3
67	33.73	26.42	7.31	7 3 ³ / ₄
+92	35.43	27.02	8.41	8 4 ⁷ / ₈
1017	36.58	27.63	8.95	8 11 ³ / ₈
+42	37.54	28.23	9.31	9 3 ³ / ₄
+67	38.03	28.84	9.19	9 2 ¹ / ₄
+92	39.21	29.44	9.77	9 9 ¹ / ₄
2+17	39.64	30.04	9.60	9 7 ¹ / ₄
+42	40.26	30.65	9.61	9 7 ³ / ₈
+67	39.89	31.26	8.64	8 7 ³ / ₄
+92	39.50	31.86	7.64	7 7 ³ / ₄
3+17	39.55	32.46	7.09	7 1 ¹ / ₈
+42	39.95	33.07	6.88	6 10 ⁵ / ₈

1117
 2111

6+42 Y N Z ALL

 P.T. 15 N of Ash
 Y

40.94
 2.94
 43.92
 40.94

S.I. Buck St Grade 110.5

Columbia St. N. of Ast.

Sta	Elev	Grad	cm	
3+62	39.91	33.55	6.36	6' 4 ³ / ₄
+82	41.03	34.03	7.00	7' 00
4+02	40.65	34.52	6.13	6' 1 ³ / ₄
+22	40.97	35.00	5.97	5' 11 ³ / ₄ x
+47	41.04	36.39	5.65	5' 7 ³ / ₄
+72	41.32	35.80	5.52	5' 6 ¹ / ₄
+97	41.94	36.19	5.79	5' 9 ¹ / ₂
5+22	42.92	36.54	6.34	6' 4 ¹ / ₄
+47	43.35	36.97	6.38	6' 4 ⁵ / ₄
+72	43.95	37.37	6.54	6' 7
+97	44.80	37.76	7.04	7' 0 ¹ / ₂
6+22	45.66	38.16	7.50	7' 6
+47	45.72	38.65	7.17	7' 2
+72	46.21	38.94	7.27	7' 3 ¹ / ₄
+97	46.90	39.34	7.56	7' 6 ³ / ₄
7+22	47.26	39.74	7.52	7' 6 ¹ / ₄
+42	46.99	40.05	6.94	6' 11 ¹ / ₄
+62	47.69	40.37	7.32	7' 3 ³ / ₄
+82	47.18	40.68	6.50	6' 6
8+02	47.87	41.00	6.87	6' 10 ¹ / ₂ x

1671

Bush St-

N. L. Bush St-

S. L. Cedar St. Grad 47.50

Cedar St-

N. J. Cedar

Columbia

Sta	Elev	Grade	cut-	
6+27	45.85	41.17	4.684	4 1/4
+52	44.07	41.33	2.742	4 1/4
+77	42.98	41.50	1.481	5 3/4
9+02	43.74	41.67	2.072	7/8
+27	45.30	41.83	3.473	5 3/4
+52	46.02	42.00	4.024	0 1/4
+77	45.90	42.17	3.733	4 3/8
10+02	44.74	42.33	2.412	4 1/2
+27	43.81	42.50	1.311	3 3/4
+52	43.91	42.67	1.241	2 7/8
+77	43.33	42.83	0.500	6
11+02	47.48	43.00	4.484	5 3/4 x
+22	49.20	43.50	5.705	4 3/4
+42	49.87	44.00	5.877	5 10 1/2
+62	50.17	44.50	5.675	6
+82	50.03	43.00	5.035	3 1/2 x
12+07	50.08	45.57	4.514	6 1/2
+32	54.63	46.14	8.494	5 7/8
+57	56.36	46.71	9.659	10 1/4
+82	56.65	47.29	9.369	4 3/4

1999

25

S L Lane St Grade 1900

Lane St

N L Lane

Columbia N-N of Ast

Sta	Elev	Grade	cut-	
18+07	57.21	47.86	9.35	9' 4 1/4
+72	57.70	48.43	9.27	9' 3 1/4
+57	58.25	49.00	9.25	9' 3
+82	58.74	49.57	9.17	9' 2
14+03	59.28	50.14	9.14	9' 1 1/2
+23	59.45	50.71	8.74	8' 8 1/2
+43	60.05	51.28	8.77	8' 9 1/4
+63	60.49	51.86	8.63	8' 7 1/2 x
+83	60.71	53.00	7.71	7' 8 1/2 x
15+08	61.01	53.44	7.67	7' 9
+33	61.34	53.89	7.45	7' 5 3/4
+58	61.04	54.33	6.71	6' 8 1/2
+83	60.98	54.78	6.15	6' 1 3/4
16+08	61.05	55.22	5.83	5' 10
+33	61.55	55.65	5.89	5' 10 3/4
+58	62.03	56.11	5.92	5' 11
+88	62.73	56.55	6.18	6' 2 1/2 x
17+08	63.09	57.00	6.09	6' 1 1/2
Flush tank				4' 7 1/2
Total length of pipe				17+13

69.95
~~39.00~~
 5.95

N L Elev 59.50

Elev

N L Elev

61.00
~~4.50~~
 54.50
~~37.00~~
 1.50

62.9
~~1.50~~
 4.59

Flush Tank grade 63.50

State N of Ash

Sta	Elev	Grade	cut	
0	38.32	31.00	7.32	7 3/8
+9.9	38.46	31.19	7.27	7 3/4
+19.8	38.57	31.58	7.19	7 2/4
+29.7	38.72	31.57	7.15	7 1/4
+39.6	39.11	31.76	7.35	7 4/4
+49.5	39.56	31.95	7.41	7 4/8
+59.7	39.99	32.13	7.86	7 4 3/8
+67.6	39.70	32.56	7.40	7 4 7/8
+92	40.42	32.83	7.59	7 7/8
1+17	40.47	33.31	7.16	7 1 7/8
+42	40.84	33.78	7.10	7 1/4
+67	41.50	34.25	7.05	7 5/8
+92	41.73	34.73	7.00	7 00
2+17	42.30	35.21	7.09	7 1/8
+42	42.88	35.68	7.20	7 2 3/8
+67	43.46	36.16	7.30	7 3 5/4
+92	43.82	36.63	7.19	7 2 1/4
3+17	44.57	37.10	7.47	7 5 3/4
+42	44.96	37.57	7.39	7 4 3/4

DC

0+42 N2 Ash
 PT 15' N of Ash
 25' N, N, L Ash

S S Beech Grade 44.50

State of Ash

Sta	Elev	Grade	bot		
3+62	45.10	37.94	7.16	7' 17/8	1.85
+82	45.18	38.32	6.86	6' 10 3/4	
4+02	45.70	38.68	7.02	7' 0 1/4	1.85
+22	46.52	39.00	7.52	7' 6 1/4	
+47	47.35	39.79	7.56	7' 6 3/4	X
+72	48.09	40.58	7.51	7' 6 1/8	
+97	48.91	41.37	7.54	7' 6 1/2	
5+22	49.72	42.16	7.56	7' 6 3/4	
+97	50.63	42.95	7.68	7' 8 1/8	
+72	51.65	43.73	7.92	7' 11	
+97	52.46	44.52	7.94	7' 11 1/4	
6+22	53.84	45.31	8.03	8' 0 3/4	1.51
+47	54.14	46.10	8.04	8' 0 1/2	
+72	54.98	46.89	8.09	8' 1 1/8	8.1
+97	55.91	47.68	8.23	8' 2 3/4	
7+22	56.68	48.47	8.21	8' 2 1/2	
+42	57.17	49.04	8.13	8' 1 5/8	
+62	57.78	49.73	8.05	8' 0 5/8	
+82	58.80	50.36	7.94	7' 11 1/4	
8+02	58.41	51.00	7.40	7' 4 3/4	✓

Beech St

N S Beech St

S S Cedar Grade 57.00

Cedar St

N S Cedar St

State N of Ash

Sta Elev Grade Sub

+27	58.40	51.19	7.21	7	2 1/2
+32	58.56	51.38	7.18	7	1 1/4
+77	58.75	51.57	7.18	7	1 1/4
9+02	59.12	51.76	7.36	7	4 3/4
+27	59.48	51.95	7.53	7	6 3/8
+32	59.50	52.14	7.36	7	4 3/4
+77	59.64	52.33	7.31	7	3 3/4
10+02	59.78	52.51	7.27	7	3 1/4
+27	60.13	52.70	7.43	7	5 1/4
+32	60.46	52.89	7.57	7	6 1/4
+77	60.46	53.08	7.38	7	4 5/8
11+0	60.48	53.25	7.23	7	2 3/4
+20	60.61	53.41	7.20	7	2 3/8
+40	60.47	53.56	6.91	6	10 1/8
+60	60.57	53.71	6.86	6	10 3/4
+80	60.67	53.86	6.81	6	9 3/4
12+05	60.70	54.05	6.65	6	7 3/4
+30	60.84	54.24	6.60	6	7 1/4
+55	60.99	54.43	6.56	6	6 7/8
+80	61.59	54.62	6.97	6	11 5/8

75.75

75.75

S L Date Sh Grade 60.50

State N

N L Date L 9' 48" L of H

Stave St Not Axi

Sta	Elv	Grade	em-		
13705	62.50	54.81	7.69	7	4 1/4
+30	63.47	55.00	8.47	8	5 3/4
+55	64.42	56.26	8.16	8	1 1/8
+80	65.72	57.52	8.20	8	2 3/4
14705	66.87	58.78	8.09	8	1 1/4
+80	68.11	60.04	8.07	8	7/8
+49	68.85	61.04	7.85	7	10 1/4
+69	69.47	61.46	8.01	8	1/8
+89	69.83	61.92	7.91	7	10 7/8
1509	70.22	62.37	7.85	7	10 1/4
+29	70.57	62.83	7.74	7	8 7/8
+54	71.36	63.40	7.96	7	11 1/2
+79	71.88	63.98	7.90	7	10 3/4
16704	72.28	64.55	7.73	7	8 3/4
+29	72.80	65.12	7.68	7	8 1/8
+54	73.43	65.70	7.73	7	8 7/8
+79	73.90	66.28	7.62	7	7 1/2
17704	74.51	66.84	7.67	7	8
+29	75.19	67.41	7.78	7	9 3/8
+54	75.50	67.99	7.51	7	6 1/8

S. L. Elm Grade 69.0

Elm St.

N. L. Elm St.

State of Ark.

Sta	Elev	Grade	cut		
17+79	76.51	68.56	7.75	7	9
18+04	76.63	69.13	7.50	7	6
+20	77.13	69.50	7.63	7	7 5/8
+40	77.30	69.59	7.71	7	8 1/2
+60	77.38	69.67	7.71	7	8 1/2
+80	77.52	69.76	7.76	7	9 1/8
19	77.52	69.85	7.67	7	8
+25	77.52	69.96	7.56	7	6 3/4
+50	77.41	70.07	7.34	7	4 1/4
+75	77.52	70.17	7.35	7	4 1/4
20	77.49	70.28	7.21	7	2 1/2
+25	77.62	70.39	7.23	7	2 3/4
+50	77.59	70.50	7.09	7	1 1/4
+75	77.53	70.61	6.92	6	11
21	77.46	70.72	6.74	6	8 7/8
+25	77.69	70.83	6.86	6	10 3/8
+50	77.70	70.93	6.77	6	9 1/4
+75	77.72	71.04	6.68	6	8 1/8
22	77.75	71.15	6.60	6	7 1/4

152.291
x 2.2912.291
4.582

S S Triv St Grade 77.50

Triv St

N S Triv

S S Grade 79.00

State of Wash

Sta	Plw	Grade	cut				
22+20	78.09	71.29	6.85	6	10 1/4		3
+40	78.13	71.33	6.80	6	9 3/8		3
+60	78.22	71.41	6.81	6	9 3/4		3
+80	78.17	71.50	6.67	6	8		x
23+05	78.34	71.77	6.57	6	6 7/8		x
+30	78.51	72.04	6.47	6	5 5/8		
+55	78.84	72.32	6.52	6	6 1/4		
+80	79.22	72.59	6.63	6	7 3/4		
24+05	79.46	72.86	6.60	6	7 1/4		
+30	79.72	73.13	6.59	6	7 1/8		5
+55	80.31	73.40	6.91	6	10 7/8		5
+80	80.56	73.68	6.88	6	10 5/8		5
25+05	80.72	73.95	6.77	6	9 1/4		
+30	80.86	74.22	6.64	6	7 3/4		
+55	81.05	74.50	6.55	6	6 5/8		x
+80	81.18	76.50	4.68	4	8 1/8		x
Total length of pipe 25+85-							

Grave St

N. S. Pipe

S. S. Hawthorn Truck Tank

81.50

Columbia St South of H St
Sta Elev Grade bank

0	5.26	-3.50	8.76	8	9 1/4	x
+10	4.28	-3.31	7.59	7	7 1/4	
+20	4.25	-3.12	7.37	7	4 1/2	
+30	3.81	-2.92	6.73	6	8 3/4	
+40	3.82	-2.73	6.55	6	6 5/8	
+50	3.89	-2.55	6.44	6	5 1/4	
+56	4.15	-2.43	6.58	6	7	
+75	4.47	-2.07	6.54	6	6 1/2	
1	4.44	-1.59	6.03	6	3/8	
+25	3.71	-1.06	4.77	4	4 1/4	
+30	3.58	-1.00	4.58	4	7	x

8
2
6
1
15.26

FC 15.5 C.W. to Columbia

S.S. H St

77

25 S H St

40 S S S H St Flush Tank

The image shows an open notebook with two pages. The pages are cream-colored and feature a light green grid pattern. The left page is further divided into five vertical columns by red lines. The right page has the number '28' printed in the top right corner. The notebook is placed on a light blue surface.

Union St. South

Sta. Blue Grade Cut

0	40.95	35.00	5.95	5	11 3/8 x
+10	40.86	35.20	5.66	5	7 7/8
+20	40.93	35.40	5.53	5	6 3/8
+30	41.00	35.60	5.40	5	4 7/8
+40	41.19	35.80	5.39	5	4 3/4
+49	41.39	35.99	5.40	5	4 7/8
+54	41.62	36.09	5.53	5	6 3/8
+79	41.74	36.59	5.15	5	1 7/8
+104	42.50	37.09	5.41	5	4 7/8
+129	43.12	37.59	5.53	5	6 3/8
+154	43.51	38.10	5.41	5	4 7/8
+179	43.67	38.60	5.07	5	7/8
+188	44.04	38.80	5.24	5	2 7/8 x

Total length of pipe 7+94

of Ash

Man Hole west Line Union St

P.I.

S L Ash St

135' S of S L Ash St - Blue top line 44.30

44.30 Grade

Main N Ash

Sta	Clev	Grade	cut	
0		35.00		
+9.7	40.72	35.20	5.52	5 6 $\frac{1}{4}$
+17.4	40.96	35.46	5.50	5 7 $\frac{1}{4}$
+26.0	41.18	35.60	5.58	5 7 $\frac{1}{2}$
+34.8	41.46	35.80	5.66	5 7 $\frac{1}{2}$
+43.5	41.59	36.00	5.59	5 7 $\frac{1}{2}$
+52.2	41.95	36.20	5.75	5 9
+60.9	41.86	36.40	5.46	5 5 $\frac{1}{2}$
+82	42.45	36.88	5.57	5 6 $\frac{1}{4}$
+107	43.04	37.44	5.60	5 7 $\frac{1}{4}$
+32	43.87	38.00	5.87	5 10 $\frac{1}{2}$
+57	44.66	38.56	6.10	6 1 $\frac{1}{4}$
+82	45.44	39.12	6.32	6 3 $\frac{1}{2}$
+107	46.07	39.68	6.39	6 4 $\frac{3}{4}$
+32	46.95	40.24	6.71	6 8 $\frac{1}{2}$
+57	47.46	40.80	6.56	6 7 $\frac{1}{2}$
+82	48.27	41.36	6.91	6 10 $\frac{1}{4}$
+107	48.85	41.92	6.87	6 10 $\frac{3}{4}$
+139	49.85	42.48	7.37	7 4 $\frac{1}{2}$
+57	50.49	43.00	7.49	7 5 $\frac{1}{4}$

man-hole. PC

+56.5 N L Ash
+ J.T.

57

J L Beach St 50.5

Union N of Ashm

Sta	Ele	Grade	Lat		
3+77	50.86	43.35	7.517	4 1/4	
197	50.82	43.70	7.127	1 1/2	
9+17	50.97	44.04	6.436	5 1/8	
+37	50.40	44.39	6.016	1 1/4	
+62	50.69	44.83	5.915	9 3/4	
+87	51.35	45.26	6.096	1 1/8	
5+12	51.81	45.70	6.116	1 3/8	
+37	52.45	46.13	6.326	3 7/8	
+62	52.93	46.56	6.376	4 1/2	
+87	53.48	47.00	6.486	5 3/4	
6+12	54.97	48.67	6.506	3 5/8	
+37	56.89	50.93	6.526	6 3/4	
+62	58.60	52.00	6.606	7 1/4	
+87	60.35	53.65	6.706	8 3/8	
7+12	62.12	55.32	6.806	9 5/8	
+37	63.69	57.00	6.696	8 1/4	
+57	63.96	57.92	6.646	7 3/4	
+77	64.48	57.65	6.806	10	
+97	64.80	57.97	6.896	10 3/4	
8+17	64.87	58.29	6.586	6 7	

Beech St

N S Beech St 64.0

S S Bedar St 69.00

Bedar St

N S Bedar St

W. min N. Ash

Sta	Elev	Grade	cut		
8+42	65.28	58.70	6.58	6	7
+67	65.43	59.10	6.73	6	8 5/8
+92	66.44	59.51	6.93	6	11 1/8
9+17	66.82	59.91	6.91	6	10 7/8
+42	67.27	60.31	6.96	6	11 1/2
+67	67.69	60.72	6.97	6	11 5/8
+92	68.18	61.12	7.06	7	9/8
10+17	68.68	61.53	7.05	7	9/8
+42	68.98	61.90	7.00	7	10
+67	69.53	62.34	7.19	7	2 1/4
+92	70.08	62.74	7.34	7	5 1/8
11+14	70.51	63.10	7.41	7	4 7/8
+94	70.51	63.42	7.09	7	1 1/8
+64	70.98	63.75	7.23	7	2 5/8
+74	70.84	64.08	6.76	6	9 1/8
+94	71.27	64.40	6.86	6	10 3/4
12+194	71.48	64.84	6.64	6	7 3/4
+448	72.10	65.28	6.82	6	9 7/8
+70.8	72.40	65.72	6.68	6	8 1/4
+95.2	72.94	66.16	6.78	6	9 3/4

119.1

117.577 = 117.577

99.93
70.93
4.70

297.

S L Rate SL 70.5

Rate SL

N L Rate SL

Union St-

Sta	Clear	Grade	cut	
13+21	73.41	66.59	6.82	6 9 7/8
+46	73.62	67.03	6.59	6 7 1/8
13+60.1	73.97	67.28	6.69	6 8 1/4
+71.	74.19	67.47	6.72	6 8 5/8
+96	74.65	67.90	6.75	6 9
14+21	75.15	68.39	6.76	6 9 3/4
+46	75.34	68.77	6.57	6 8 7/8
+71	75.81	69.20	6.61	6 7 3/4
+96	76.25	69.63	6.62	6 7 1/2
15+16	76.62	69.98	6.64	6 7 3/4
+36	77.14	70.32	6.82	6 9 7/8
+56	77.38	70.67	6.71	6 8 1/2
+76	77.82	71.00	6.82	6 9 7/8
16+01	78.39	72.04	6.35	6 4 1/4
+26	79.10	73.07	6.03	6 2 1/8
+51	80.33	74.11	6.22	6 2 5/8
+76	81.25	75.15		
17+01		76.18		
+26		77.22		
+51		78.25		

11.725

A.145

Azale Abattoirs

Allerton St

2 S. Elm St 76.50

14+21 Union St

Elm St

N. L. Elm St

+76 regular Sta

Y Union St grade 75.15

Altations st. above 4 with

Division

Stn.	+	HD	-	Old	
+0	81.26	75.15	6.11	6	1 3/4
+4				6	
+29	82.23	76.18	6.05	6	5/8
+54	83.34	77.22	6.12	6	1/2
+79	84.57	78.25	6.32	6	3/4
+104	85.98	79.29	6.69	6	8/4
+129	87.25	80.33	6.92	6	11
+154	88.50	81.36	7.14	7	1 3/4
+179	89.93	82.40	7.53	7	6 3/8
2+10	91.74	83.68	8.06	8	3/4
+31	92.97	84.51	8.46	8	4 3/4
+51	93.25	85.34	7.91	7	10 7/4
+71	93.82	86.17	7.65	7	7 3/4
+91	94.32	87.00	7.32	7	5 7/4 x
3+16	95.33	88.08	7.25	7	3
+41	96.11	89.17	6.94	6	11/4
+66	97.06	90.25	6.81	6	9 3/4
+91	98.15	91.33	6.82	6	9 7/4
4+16	99.01	92.42	6.59	6	7 1/4
+41	100.26	93.50	6.76	6	9/8

W.H.B.

Side Fin St-

Fin St-

N.L. Fin

Albatross Mt Union

Sta	Elv	Grad	cut		
11+66	101.13	94.58	6.55	6	6 ³ / ₄
+91	102.25	95.67	6.58	6	7 ¹ / ₄
6+16	103.12	96.75	6.37	6	4 ¹ / ₂
+41	104.19	97.83	6.36	6	4 ³ / ₄
+66	105.59	98.92	6.47	6	5 ⁵ / ₈
+91	106.05	100.00	6.05	6	5 ¹ / ₄ x
6+11	106.51	100.25	6.26	6	3 ¹ / ₄
+31	106.89	100.50	6.39	6	4 ³ / ₄
+51	106.93	100.75	6.18	6	2 ¹ / ₄
+71	107.52	101.00	6.52	6	6 ¹ / ₄ x
+96	109.53	103.08	6.25	6	3
7+21	111.53	105.17	6.36	6	4 ³ / ₄
+46	113.58	107.23	6.13	6	1 ³ / ₄
+71	115.17	109.33	6.37	6	4 ¹ / ₂
+96	117.83	111.42	6.41	6	4 ⁷ / ₈
8+21	120.14	113.50	6.64	6	7 ³ / ₄
+46	122.11	115.58	6.53	6	6 ³ / ₄
+71	124.05	117.67	6.38	6	4 ⁵ / ₈
+96	126.09	119.75	6.34	6	4 ⁶ / ₈
9+21	128.08	121.83	6.25	6	3
+46	130.12	123.92	6.20	6	2 ³ / ₄

Apr 30

S L Grape Grade 106.5

Grade II

N L Grape

Albion St - N of Union

No	Elev	Grade	Cut	
9+71	131.96	126.08	5.88	5 10 3/8 X
+91	132.55	126.50	6.05	6 5/8
10+11	133.62	127.00	6.62	6 7 1/2
+81	134.05	127.50	6.55	6 6 3/8
+57	134.54	128.00	6.54	6 6 1/2 X
+76	135.79	129.50	6.29	6 3 1/2
11+01	137.18	131.00	6.18	6 2 1/8
+26	138.97	132.50	6.47	6 5 3/8
+51	140.55	134.00	6.55	6 6 5/8
+76	141.93	135.50	6.43	6 5 1/8
12+01	143.58	137.00	6.58	6 7
+26	145.30	138.50	6.83	6 10
+57	146.73	140.00	6.73	6 9 3/4
+76	148.58	141.50	6.88	6 10 3/4
13+01	149.93	143.00	6.93	6 11 1/8
+26	151.61	144.50	7.11	7 1 3/8
+57	153.00	148.50	4.50	4 6 X
Total length of pipe 13+56				

SZ Hawthorne to Grade 132.6

Hawthorne St

NZ Hawthorne 132.25

132.75

153
4.5
148.5

137.00

Super Grade 146.00

SZ Dry to Grade 153.6

Main St above Ash

Sta	Elev	Grade	cut	
16+72.9	81.25	75.00	6.25	6 3
+89	81.58	75.66	5.92	5 11
17+14	82.32	76.64	5.68	5 8 1/4
+58	83.27	77.61	5.66	5 8
+64	84.41	78.58	5.83	5 10
+89	85.57	79.56	5.95	5 11 3/4
18+14	86.67	80.53	6.14	6 1 3/4
+39	87.83	81.51	6.32	6 3 7/8
+64	88.96	82.48	6.48	6 5 3/4
+89	89.95	83.45	6.50	6 6
19+03	90.49	84.00	6.49	6 5 7/8
+23	91.14	84.14	7.00	7 00
+43	91.27	84.28	6.99	6 11 7/8
+62	91.30	84.42	6.88	6 10 5/8
+82	91.18	84.56	6.62	6 7 1/2
20+03	91.25	84.70	6.55	6 6 5/8
+23	91.21	84.84	6.37	6 4 1/2
+44	91.55	85.02	6.53	6 6 3/4
+73	91.49	85.19	6.30	6 3 5/8
+94	91.61	85.37	6.24	6 2 7/8

Y. Union & Abbotsross

S line Fir St 90.20
91.50

Fir St <

N.S. Fir

Union St Prof Ash

Sta	Elv	Grade	cut		
21+20	91.62	85.54	6 .08	6	1
+48	91.80	85.72	6 .08	6	1
+73	91.96	85.89	6 .07	6	6 7/8
+98	92.03	86.07	5 .96	5	11 1/2
22+25	92.32	86.24	6 .08	6	1
+48	92.37	86.42	5 .95	5	11 3/4
+75	92.72	86.59	6 .13	6	1 7/8
23+00	92.87	86.80	6 .07	6	0 7/8
+23	92.78	86.94	5 .84	5	10 1/8
+43	92.93	87.08	5 .85	5	10 1/4
+63	93.16	87.22	5 .94	5	11 1/4
+83	93.34	87.36	6 .18	6	2 1/8
24+00	94.01	87.50	6 .51	6	8 1/8
+29	94.64	88.14	6 .50	6	6
+53	95.22	88.79	6 .43	6	5 1/8
+78	95.69	89.43	6 .26	6	3 1/8
25+00	96.28	90.07	6 .21	6	2 1/2
+24	96.82	90.72	6 .10	6	1 1/4
+53	97.55	91.36	6 .19	6	2 1/4
+74	98.13	92.05	6 .08	6	1

2535
2883
235

S 2 Grapes by 93.00

N 2 Grapes by 93.00

V Brant St

Union St. No. of All

Sta	Elev	Grad	cut		
26+00	98.71	92.69	6.02	6	0 1/4
+24	99.09	93.04	5.75	5	9
+33	99.64	93.97	5.67	5	8
+78	100.12	95.12	5.00	5	.00
26+94		95.00			

Total length of pipe 26+83

94.62

F. Lusk Tank 101.33
S. H. Matheson St

26.83
24.03
2.80
26.83

Blunt St of Union

Sta	Old grade	Grade	cut			
0	97.84	92.00	5.84	5	10 1/8	X
+10.8	98.36	92.31	6.05	6	5/8	
+21.6	98.95	92.62	6.33	6	4	
+32.4	99.33	92.93	6.40	6	4 3/4	
+47	99.81	93.36	6.45	6	5 3/8	
+72	100.53	94.07	6.46	6	5 1/2	
+97	101.27	94.79	6.48	6	5 3/4	
+122	102.30	95.50	6.80	6	9 5/8	
+47	103.01	96.22	6.79	6	9 1/2	
+67	103.73	96.79	6.94	6	11 1/4	
+87	104.28	97.96	6.92	6	11	
+107	105.03	97.93	7.10	7	11 1/4	
+27	105.56	98.50	7.06	7	3/4	X
+52	106.33	100.04	6.57	6	6 1/8	
+77	108.25	101.58	6.67	6	8	
+102	109.91	103.12	6.79	6	9 1/2	
+27	111.47	104.67	6.80	6	9 5/8	
+52	113.23	106.21	7.02	7	0 1/4	
+77	114.87	107.75	7.12	7	1 1/2	
+102	116.33	109.29	7.04	7	6 1/2	

2.963

6.1666

= 25+78 V on Union St

S Line Hawthorn

Hawthorn St

N S Hawthorn St

B. and A. Hawthorn

Sto	Clear	Grade	Out		
4+27	117.86	110.53	7.03	7	0 ³ / ₈
+52	119.48	112.37	7.11	7	1 ³ / ₈
+77	121.33	113.92	7.41	7	4 ⁷ / ₈
6+02	122.69	115.46	7.23	7	2 ⁵ / ₈
+27	124.09	117.00	7.09	7	1 ¹ / ₈
+47	124.39	117.34	7.05	7	1 ⁷ / ₈
+67	124.49	117.48	7.01	7	1 ¹ / ₈
+87	124.52	117.73	6.79	6	9 ¹ / ₂
6+07	124.35	117.97	6.38	6	4 ⁵ / ₈
+32	124.67	118.27	6.40	6	4 ⁷ / ₈
+57	125.09	118.58	6.51	6	6 ¹ / ₄
+82	125.39	118.88	6.51	6	6 ¹ / ₄
7+07	125.66	119.18	6.48	6	5 ³ / ₄
+32	125.95	119.48	6.47	6	5 ⁵ / ₈
+57	126.27	119.79	6.48	6	5 ⁷ / ₄
+82	126.44	120.09	6.35	6	4 ¹ / ₄
8+07	126.91	120.39	6.52	6	6 ¹ / ₄
+32	127.13	120.70	6.43	6	5 ¹ / ₈
+57	127.60	121.00	6.60	6	7 ¹ / ₄
+82	128.03	123.00	5.03	5	0 ⁵ / ₈
9+07	Total length of pipe 8+87				

6.1666

x

I line I my 124.50

I my st

N S I my st

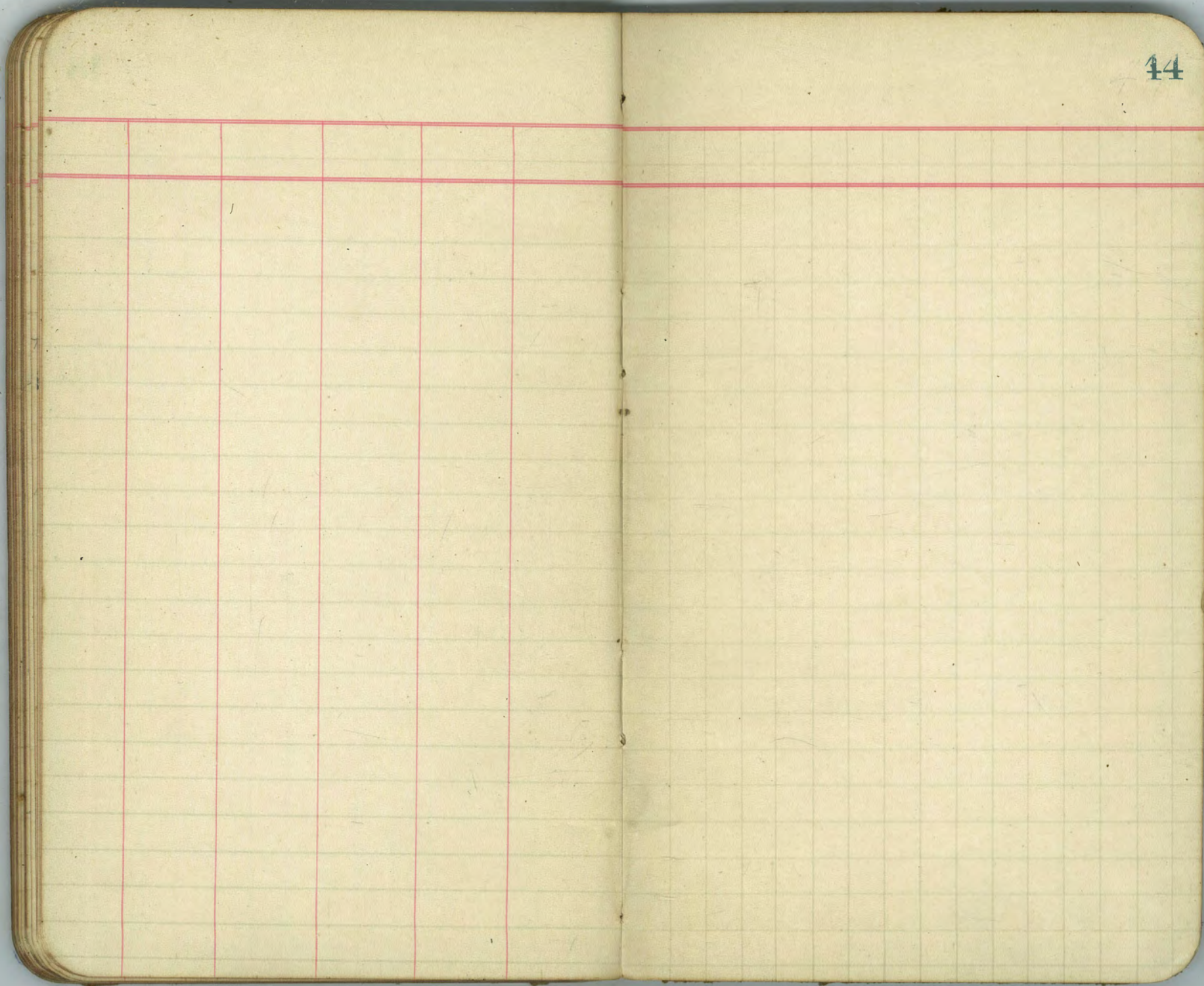
1.2121

x

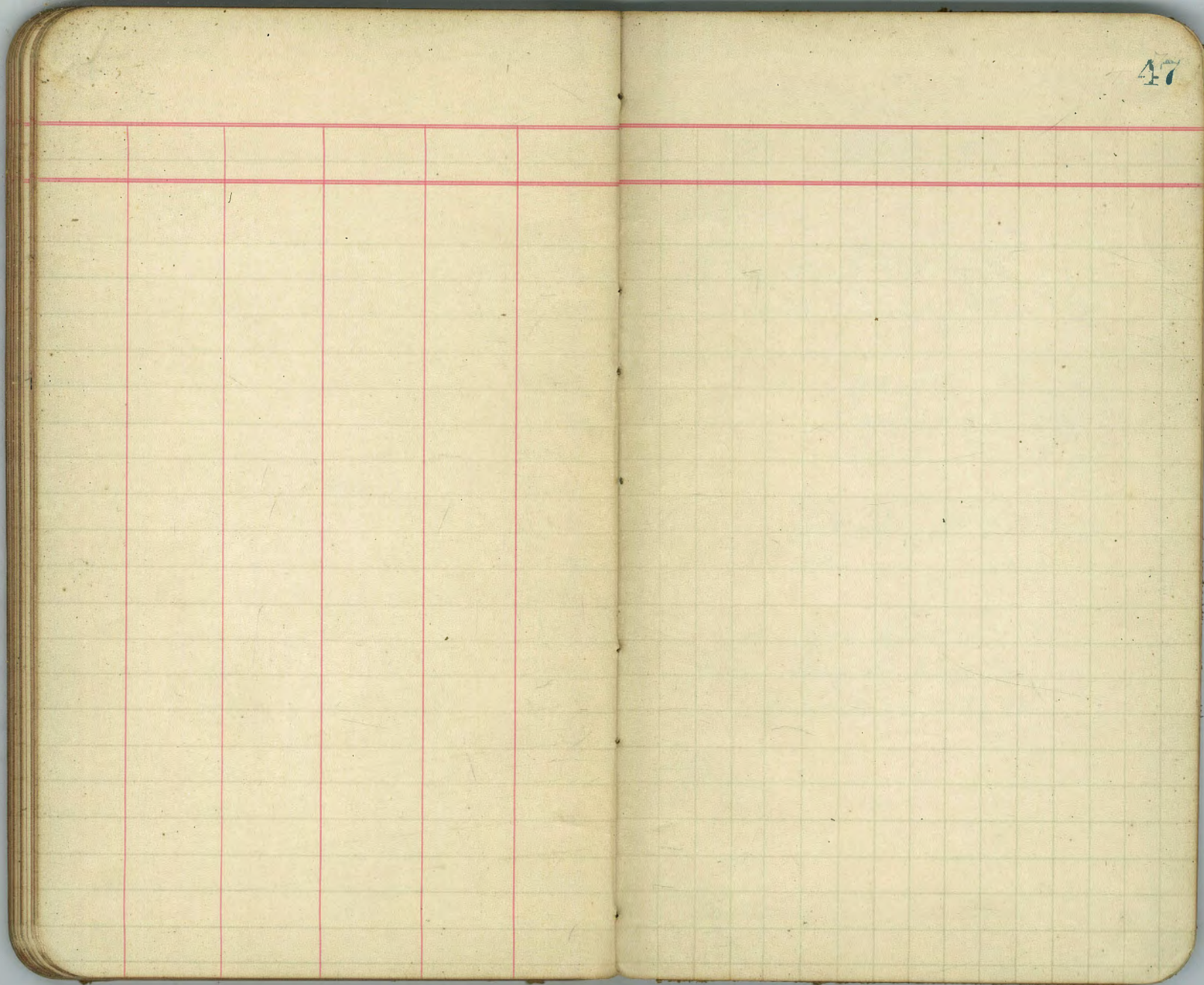
x

Flush Tanks 126.16
I S I unifier

B







	T	T	-	C
	11.16	49.98		38.82
#	8.98	57.87	0.89	49.09
#	11.07	68.09	0.85	67.02

57.87

56.50

7.87

S Line Tree St 84.00
 N Line Grape St 87.50
 S Line Hawthorn 95.00

N L. Tree & Abbotson
 87.00

Inspection grade
 S L Grape 93.00
 Hawthorn 102.00

Grades in Tunnel

130	11.89	20.91		9.27	
#	9.66	29.59	0.99	19.92	
130	1.00	19.34	11.24	18.34	
139					
150			16.26	2.94	✓
171		✓	16.44	2.90	✓
1501		✓	16.52	2.82	
115		✓	16.54	2.80	
130		✓	16.72	2.62	0+
135		✓	16.90	2.44	0.5
130		✓	17.08	2.26	✓
8+05		x	17.26	2.08	✓
150		x	17.44	1.90	✓
155		x	17.62	1.72	✓
180		x	17.80	1.54	
150	1.50	19.44	17.70	14.34	
7+15			16.54	3.30	

18.34

3.96

19

AD. 22.30

17.20

5.04

S. B. and tunnel

P. 2

B. 10		7.63	22.00		14.37
#		3.23	20.24	4.99	17.01
B. 11	5.102			15.08	5.16
757	+22			15.26	4.94
750	+52			15.44	4.82
751	+75			15.61	4.63
7501	+91			15.65	4.59
715	+92			15.73	4.51
750	6503			15.81	4.49
755	B. 12			0.74	19.50
750	6125	4.99	20.80		15.81
7505				15.89	4.91
+50		4.62	20.59	15.97	4.83
755	6136	4.37	20.95	16.04	4.55
780	+47	4.55	20.67	16.12	4.29
	+54			16.20	4.37
7715					

2082
~~4.98~~
 15.94

4.99
~~15.81~~
 20.80
~~132~~
 19.58

N. S. Grape T. T. 32.5
 bolum 60.5

$$\begin{array}{r} 154.00 \\ 133 \\ \hline 21.67 \end{array}$$

$$\begin{array}{r} 1701 \\ 72 \\ \hline 1629 \\ 24 \end{array}$$

$$\begin{array}{r} 1934 \\ 305 \\ \hline 1629 \\ 161 \end{array}$$

$$\begin{array}{r} 774 \\ 8 \\ \hline 782 \end{array}$$

TRAVERSE TABLE FOR TRANSIT BOOK,
 From 1° to 90° for a distance of 100.

Degrees.	DEGREES.		¼ DEGREE.		¼ DEGREE.		¼ DEGREE.		Degrees.
	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	
0			100.00	0.44	100.00	0.87	99.99	1.31	81
1	99.98	1.75	99.98	2.18	99.97	2.62	99.95	3.05	81
2	99.94	3.49	99.92	3.93	99.91	4.36	99.88	4.80	81
3	99.86	5.23	99.84	5.67	99.81	6.10	99.79	6.54	81
4	99.76	6.98	99.73	7.41	99.69	7.85	99.66	8.28	81
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	81
7	99.25	12.19	99.20	12.62	99.14	13.05	99.09	13.49	81
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	81
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	71
12	97.81	20.79	97.72	21.22	97.63	21.64	97.53	22.07	71
13	97.44	22.50	97.34	22.62	97.24	23.04	97.13	23.47	71
14	97.05	24.19	96.92	24.62	96.81	25.04	96.70	25.46	71
15	96.59	25.88	96.48	26.30	96.36	26.72	96.25	27.14	71
16	96.13	27.56	96.00	27.98	95.88	28.40	95.76	28.52	71
17	95.63	29.24	95.50	29.65	95.37	30.07	95.24	30.49	71
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	71
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	61
22	92.72	37.46	92.55	37.86	92.39	38.27	92.22	38.67	61
23	92.05	39.07	91.88	39.47	91.71	39.87	91.53	40.27	61
24	91.35	40.67	91.18	41.07	91.00	41.47	90.81	41.87	61
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	61
27	89.10	45.40	88.90	45.79	88.70	46.17	88.50	46.56	61
28	88.29	46.95	88.09	47.33	87.88	47.72	87.67	48.10	61
29	87.45	48.48	87.25	48.86	87.04	49.24	86.82	49.62	61
30	86.60	50.00	86.38	50.38	86.16	50.75	85.94	51.18	51
31	85.72	51.50	85.49	51.88	85.26	52.25	85.04	52.62	51
32	84.80	52.99	84.57	53.36	84.34	53.73	84.10	54.10	51
33	83.87	54.46	83.63	54.83	83.39	55.19	83.15	55.56	51
34	82.90	55.92	82.66	56.28	82.41	56.64	82.16	57.00	51
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	51
37	79.86	60.18	79.60	60.53	79.34	60.88	79.07	61.22	51
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.	DEGREES.		¼ DEGREE.		¼ DEGREE.		¼ DEGREE.		Degrees.

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