

1079

Book 2

LEVEL BOOK

Chas. E. Boyack,
Independence, Iowa.

FILED

FEB 27 '23

S. W. Escher
COUNTY RECORDER

Chas. E. Boyack,
Independence, Iowa.

12 50

W. L. Escher
FEB 27 '23

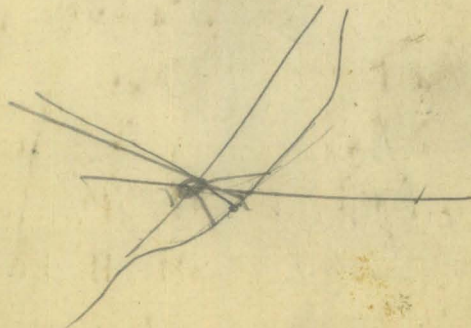
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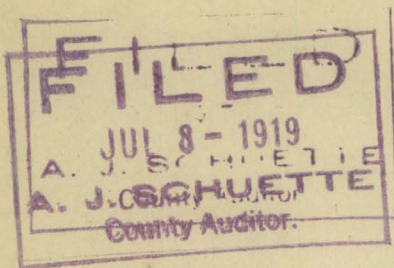
4.50
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28

H. Jensen

Co Gilbert Holven
Krester
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Intakes Page 58

Construction Levels.

Main sta 47-End P	70-74
BR 2 L " 3-End "	76-80
BB 1 L all	82
BR 2 R " 34-End "	84-90
BR 3 R all	90-92
BR 4 R all	102
BB 5 R " 5-End	94
BB 6 R all	96
BB 7 R all	98
BB 8 R all	124 160

June 9 1919

Drainage Dist { 8 Black Hawk
3 Buchanan

Sta 0 at Point - 287^{Main Tie} Ft West of at Sta 60+74 - Curve 70° Right
SW cor SE-SE Sec 25 and at Sta 66, Curve Right 58°
264 Ft Sout 90° West, Sta 70+17 - 500^{ft} N of SE cor
Sta 9, 218^{ft} W-W line SE 1/4 - NW 1/4 Sec 24

Sta 9 6 1/2° Left

Sta 22, 206^{ft} W-W line

at Sta 22 Curve 14° Left

Sta 29+18' S Road Fence

" 29+47' S Road (N side Sec 2)

" 29+79' N Road Fence

Sta, 38, Curve [W] 19° Left

Sta 43+87 - 387^{ft} E of S-E cor

NE 1/4 SW 1/4 Sec 24 -

Sta 51 - 700^{ft} North of S-E cor

NE 1/4 - SW 1/4 Sec 24 -

at Sta 51 Curve 10 1/2° Left

Sta 60+74 6+58^{ft} West of

NE cor N-E-SW-Sec 24

A June 10-19 Dist (Blackham)						June 10-19						5
Main Title						Main Corn						
Sta	RR	H I	Elev	Cut	Elev Cut	Sta	RR	H I	Elev	Cut	Elev Cut	
B.M. 1	443	54.43	50.00	on Willow Tr	BS	6,16	58.80					
Creek Bed	10,25		44.18		13	5,83			52.97	5,37	47.60	
0	6,72		47.71	4.01	43.70	14	5,63		53.17	5,27	47.90	
1	6,46		47.97	3.97	44.00	15	5,35		53.45	5,25	48.20	
2	5,30		49.13	4.83	44.30	16	4,62		54.18	5,68	48.50	
Fence	2,64	4,95	49.48	4.98	44.50	17	3,86		54.74	6,14	48.80	
3	5,25		49.18	4.58	44.60	BS	5,48	60.42				
4	4,66		49.77	4.87	44.90	18	5,20		55.22	6,12	49.10	
5	4,56		49.87	4.67	45.20	19	4,80		55.62	6,22	49.40	
Bottom Ditch	6,45		47.98			20	4,92		55.50	5,80	49.70	
6	5,10		49.33	4.83	45.50	21	4,70		55.72	5,72	50.00	
BS	7,65	56.98				BS	6,34	62.06				
7	5,70		51.28	5.48	45.80	22	5,90		56.16	5,86	50.30	
8	5,46		51.52	5.42	46.10	BS 22	5,83		56.23			
9	5,17		51.81	5.41	46.40	23	5,60		56.46	5,86	50.60	
C.S. 9,	5,20		51.78			24	5,30		56.76	5,66	50.90	
10	4,80		52.18	5.48	46.70	25	5,05		57.01	5,81	51.20	
11	4,65		52.33	5.33	47.00	26	4,62		57.44	5,94	51.50	

June 10-19

Main

Sta	RR	HI	Elev	Cut	Elev	Cut
BS	6.02	63.46				
27	5.72		57.74	5.94	51.80	4.38
28	5.15		58.31	6.21	52.10	3.9
29	4.95		58.51	6.11	52.40	4.0
BS	6.87	65.38				
29 ⁵⁵	6.31		59.07	6.61	52.46	4.2
29 ⁴⁷	3.95		61.43	6.88	52.55	4.3
BM 2	1.64		63.74			
29 ⁷⁷	6.40		58.98	6.36	52.62	BS
30	6.52		58.86	6.16	52.70	4.4
31	6.20		58.18	5.18	53.00	4.5
32	6.04		58.34	6.04	53.30	4.6
33	5.80		59.58	5.98	53.60	4.7
BS	5.38	64.96				
34	5.68		59.28	5.38	53.90	BS
35	5.37		59.59	5.39	54.20	4.9
36	4.91		60.05	5.55	54.50	5.0
37	4.56		60.40	5.60	54.80	5.1
38	4.14		60.82	5.72	55.10	4.51

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June 10-19

Main

Sta	RR	HI	Elev	Cut	Elev	Cut
BS	5.72	66.54				
	5.67		60.87			
	5.40		61.14	5.74	55.40	
	4.96		61.58	5.88	55.70	
	4.65		61.89	5.82	56.07	
	4.24		62.30	5.85	56.45	
	3.45		63.09	6.27	56.82	
	2.83		63.71	5.59	57.12	
	6.23	69.94				
	6.18		63.76	6.56	57.20	
	5.37		64.57	7.00	57.57	
	4.78		65.16	7.21	57.95	
	4.61		65.33	7.01	58.32	
	3.90		66.04	7.34	58.70	
	5.65	71.69				
	5.32		66.37	7.30	59.07	
	5.22		66.47	7.02	59.45	
	5.48		66.21	6.39	59.82	
	5.56		66.13			

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 15" 38-42
 Ave Out 5.82
 Ave Out 6.66

8 June 11 - 19
Main Cont

Sta	RR	HI	Elev	Cut	Elev	Cut	Sta
BS	5.35	71.48					65
52	5.85		65.63	x 5.43	60.20		66
53	5.30		66.18	5.61	60.57		66
54	5.03		66.45	5.50	60.95		67
Pond	7.35		64.13				68
55	5.00		66.48	5.16	61.32		69
56	5.20		66.28	4.58	61.70		68
BS	6.15	72.43					70
57	6.02		66.41	4.34	62.07		70+17
58	5.52		66.91	4.46	62.45		Pond
59	5.52		66.91	4.09	62.82		Pond
60	5.55		66.88	3.68	63.20		
60+74	5.00		67.43	3.95 3.86	63.48 63.57		
C&G"	5.20		67.23				
61	5.20		67.25	x 3.68	63.57		
62	4.80		67.63	3.68	63.95		
63	4.10		68.33	4.01	64.32		
BS	5.43	73.76					
64	5.30		68.46	3.76	64.70		

9
June 11 - 19
Main Cont

RR	HI	Elev	Cut	Elev	Cut
5.24	73.76	68.52	3.45	65.07	
5.08		68.68	3.23	65.45	
5.08		68.68			
4.23		69.53	3.71	65.82	
3.40		70.36	4.16	66.20	
2.71		71.05	4.48	66.57	
6.67	77.72				
6.43		71.29	4.34	66.95	
6.37		71.35	4.34	67.01	
6.25		71.47			
3.80		73.92			
		H	H	H	

10 June 11-19
Branch 1 Left

Com at Sta 34 on Main
64° Left

at Sta 4 Curve 13° Left

at Sta 8+9 Curve Left 58°

Sta 8+9 521' North SE Cor

NE 1/4 - SW 1/4 Sec 24

Sta 14+12 & Road 300' West

of SE Cor S E 1/4 SW 1/4 Sec 24

June 11-19
Branch 1 Left

11

Sta R R H I Elev Cut Elev Out
0 at Sta 34 main 120

0 7.45 66.73 59.28 5.08 54.20

1 6.38 60.35 5.11 55.24

2 5.60 61.13 4.85 56.28

3 4.11 62.62 5.30 57.32

4 3.30 63.43 5.07 58.36

BS 7.35 70.78

5 6.53 64.25 4.85 59.40

6 5.45 65.33 4.89 60.44

7 4.62 66.16 4.68 61.48

8 3.95 66.83 4.31 62.52

8+9 3.78 67.00 4.38 62.62

9 2.98 67.80 4.24 63.56

BS 6.98 74.78

10 6.20 68.58 3.98 64.60

11 5.21 69.57 3.83 65.64

12 4.27 70.51 3.83 66.68

13 4.12 70.66 2.94 67.72

BS 7.38 78.04

H H H

Ave Out 490'

Ave Cul 3.88'

June 11-19

B 1 L Com

Sta RR H I Elev Cont Elev Cur

NE

13+80 6.38 78.04 71.66 3.13 68.53

14 5.00

73.04 4.28 68.76

E Road

14+12 4.11

73.93 5.04 68.89

SF

14+43 4.04

74.00 4.74 69.26

H H H

June 11-19

Branch 2 Left

Com a Sta 41 on Main Elev 61.89

Angle 280° Left

Sta 4+89 11 East S E cor NE 1/4

SW 1/4 Sec 24.

Sta 6+23.65' N S E cor. N E 1/4

SW 1/4 Sec 24

at Sta 6+23 Curve 10° Left

Sta 14.315^{Ft} N of N Line

SE 1/4 SW 1/4 Sec 24

at Sta 14 Curve 18° Left

Sta 20+13.340^{Ft} N S W cor NE 1/4

SW 1/4 Sec 24

14 June 12 - 19
Branch 2 Left

Sta RR HI Elev Out Elev Cut

Com Sta 41 Main

0 6.60 68.49 61.89 5.39 56.50

1 6.33 62.16 5.26 56.90

2 5.47 63.02 5.72 57.30

3 5.04 63.45 5.75 57.70

4 4.71 63.78 5.68 58.10

Fence 4+89 4.64 63.85 5.40 58.45

5 4.75 63.74 5.24 58.50

BS 6.29 70.03

Fence 6+23 6.04 63.99 5.09 58.90

6 6.02 64.01 5.01 59.00

7 5.90 64.13 4.83 59.30

8 5.80 64.23 4.53 59.70

9 5.82 64.21 4.11 60.10

BS 5.90 70.11

10 5.58 64.53 x 4.03 60.50

11 5.52 64.59 3.69 60.90

12 4.70 65.21 3.91 61.30

13 4.56 65.55 3.75 61.70

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June 12 - 19
Branch 2 Left cont

15

Sta RR HI Elev Out Elev Cut

14 3.80 70.11 66.31 4.21 62.10

BS 5.58 71.89

15 5.15 66.74 4.24 62.50

16 4.87 67.02 4.12 62.90

17 4.48 67.41 4.11 63.30

18 3.95 67.94 4.24 63.70

19 3.82 68.07 3.97 64.10

20 3.15 68.74 4.24 64.50

Fence 20+13 2.95

68.94 4.36 64.58

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16 June 12-19
Branch on Branch 1 Left

com at Sta 5 Branch 2. Left
Angle 21° Left.
Sta 1+12. 21° South of NE cor
SE $\frac{1}{4}$ - SW $\frac{1}{4}$ Sec 24

Sta	R.R	H.I	Elev	Cut	Elev
0	5.87	69.61	63.74	5.04	58.70
1	5.25		64.36	4.36	60.00
Fence +12	5.85		64.76 63.76	4.61	60.15

June 12-19
Branch 1 Right

com at Sta 16 Main E 154.18
Sta 0, 211 $^{\circ}$ West of NW cor
SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec 25
angle 54° Right

Sta 2+80-185 $^{\circ}$ N NE Cor
SE - NE Sec 25

at Sta 7 Angle 9° Right
at Sta 15. - Angle 18° Left
W Fence Sta 19+41. - $^{\circ}$ S
E Road Sta 19+92. - 69 $^{\circ}$ S
South NE cor Sec 25
E Fence 20+44

Sta 21-17 $^{\circ}$ N N Line
NW-NW - Sec 30-89-10

Sta 20+78, N Line End
at Sta 21+50 Angle 82° Right
at Sta 28 Angle 15° Left
Sta 28, 149 $^{\circ}$ N N Line NW-NW
Sec 30-89-10

June 13 - 19

Branch 2 Right. Sta 16 Main

at Sta 32 Angle 12° Left

at Sta 35 Curve 10° Left

at Sta 42 Curve 8° Right

at Sta 45 Curve 46° Right

Sta 45 on N Line of

SE 1/4 - SW 1/4 Sec. 19

Sta 53+9 - 9th South N.W. Cor

SW 1/4 - SE 1/4 Sec 19-89-10

Sta	RR	H	I	Elev	Cut	Elev	Out
Comat	Sta	16	main				

0	6.63	60.81	54.18	5.18	49.00		
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1	5.52		55.29	5.29	50.00		
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2	4.62		56.19	5.19	51.00		
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2+80	4.02		56.79				
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3	3.87		56.94	4.94	52.00		
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BS	6.98	63.92					
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4	6.23		57.69	4.69	53.00		
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5	5.18		58.74	4.74	54.00		
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6	5.05		58.87	4.07	54.80		
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7	3.98		59.94	4.34	55.60		
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8	2.85		61.07	4.67	56.40		
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9	2.23		61.69	4.49	57.20		
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BS	7.74	69.43					
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10	6.67		62.76	4.76	58.00		
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11	6.10		63.33	4.53	58.80		
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12	4.94		64.49	4.89	59.60		
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13	5.03		64.40	4.00	60.40		
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14	2.91		66.51	5.31	61.20		
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H

Sta	RR	H I	Elev	Cut	Elev	Cut
BS	7 00	73.51	66.51			
15	7.06		66.45	4.45	62.00	
16	5.22		68.29	5.49	62.80	
17	5.43		68.08	04.48	63.60	
18	4.05		69.46	5.38	64.08	
BS	6 57	76.03				
19	5.79	74.73				
19+41	5.16	70.24		4.38	64.56	
19+92	3.37	70.86		4.86	64.71	
20	3.35	72.66		6.36	65.00	
EF	3.80	72.68		6.34	65.04	
20+44	4.04	72.23		4.68	65.25	
20+78	4.31	71.99		5.29	65.40	
21	5.55	71.72		4.90	65.52	
21+50	5.72	70.42				
22	5.03	71.55		4.49	65.76	
23	4.70	70.25		4.79	66.48	
24	4.20	72.24		4.81	66.96	
25	4.95	70.94		3.58	67.44	

H

1812

Sta	RR	H I	Elev	Cut	Elev	Cut
26	4.10	77.27	73.17			
BS	6.50	75.97	71.87	3.95	67.92	
27	5.05	79.67				
28	5.82	74.62		4.92	68.40	
29	4.45	73.32		3.67	68.88	
30	4.00	73.85		4.56	69.36	
31	2.10	72.55		4.53	69.84	
BS	5.40	75.22		5.77	70.50	
32	6.09	73.95		4.58	71.00	
33	5.10	75.67		5.07	71.50	
34	5.01	77.57		4.66	72.00	
35	4.35	76.88		4.82	72.50	
36	3.90	75.58		4.77	73.00	
BS	6.75	77.87				
37	6.42	76.57		4.60	73.50	
38	5.50	77.96		5.02	74.00	
39	4.78	76.66		5.24	74.50	
40	4.30	78.62		5.22	75.00	
41	4.60	77.52		4.15	75.75	

H

22

June 13-19

B I R Con

Sta R.R. H.T. Elev Cut Elev Cut

BS 6.57 ~~87.79~~
~~86.49~~42 5.27 ~~82.52~~
~~81.12~~43 3.30 ~~84.49~~
~~83.19~~44 3.40 ~~84.39~~
~~83.09~~45 1.98 ~~85.81~~
~~84.51~~BS 6.60 ~~92.41~~
~~91.11~~46 6.40 ~~86.01~~
~~84.71~~47 6.01 ~~86.40~~
~~85.10~~48 5.08 ~~87.33~~
~~86.03~~49 4.48 ~~87.93~~
~~86.63~~50 3.75 ~~88.66~~
~~87.36~~BS 5.55 ~~94.21~~
~~92.91~~51 4.97 ~~89.24~~
~~87.94~~52 4.61 ~~89.60~~
~~88.30~~53 3.90 ~~90.30~~
~~89.01~~53+7 3.58 ~~90.63~~
~~89.33~~

H

June 13-19

Branch on Branch & Right

23

Com at Sta 27 on B.I. R. E 73.31

Angle Right 51°

Sta 199 at N Line NW-NW

Sec 30-89-10

B B I. R Con Sta 27-B I R

Sta R.R. H.T. Elev Cut Elev Cut

0 5.15 ~~79.77~~ ~~74.62~~
~~78.47~~ ~~73.32~~ 4.72 58.601 4.52 ~~75.25~~
~~73.95~~ 3.60 50.351+99 2.45 ~~77.32~~
~~76.02~~ 3.92 52.10

H

June 13-19
B B 2 Right

Conn at Sta 32 on B.I.R
angle 58° Right E 175.57
at Sta 4 Angle 24° Left
Sta 7+43 336° E N E con
NW NW Sec 30

B, B, 2, R

Sta	RR	HI	Elev	Out	Elev	Out
0	845	85.33 84.03	76.88 75.58	4.28	71.30	1+15
1	675	78.58 77.28	4.48	72.80		
2	535	79.98 78.68	4.38	74.30		
3	380	81.53 80.23	4.43	75.80		
4	272	82.61 81.31	4.01	77.30		
BS	830	90.91 89.61				
5	638	84.53 83.23	4.33	78.90		
6	495	85.96 84.66	4.16	80.50		
7	432	86.59 85.29	3.19	82.10		
7+43	285	88.06 86.76	3.91	82.85		

N

June 13-19
B B 3 Right

Conn at Sta 4, B B 2 Right
Angle 16° Right
Sta 1+15 97° E N E con
NW NW 30

Sta	RR	HI	Elev	Out	Elev	Out
0	816	90.77 89.77	82.61 81.61	4.21	7740	
1	635	84.42 83.42	4.02	7940		
1+15	526	85.51 84.51	4.51	80.00		

AVG 4.18

June 13-19

BB4 Right

Com at Sta 35 on B.I.R

Angle 32° Right

at Sta 8 Curve 34° Right

Sta 14+72 ^{498 FT} N SW Cor

SW-SE Sec 19-89-10

Sta RR HI Elev Cut Elev Cut

Com at Sta 35 B.I.R

0	770	86.32 85.02	78.62 77.50	4.52	72.80
1	680		79.52 78.22	4.52	73.70
2	643		79.89 78.59	3.99	74.60
3	585		80.47 79.17	3.67	75.50
4	465		81.67 80.37	3.97	76.40
5	335		82.97 81.67	4.37	77.30
6	227		84.05 82.75	4.55	78.20

C

2959

June 13-19

BB4 R COT

Sta RR HI Elev Cut Elev Cut

BS	6.90	90.95 89.65			
7	604		84.91 83.61	4.51	79.10
8	572		85.23 83.93	3.93	80.00
9	444		86.51 85.21	4.31	80.90
10	361		87.34 86.04	4.24	81.80
11	274		88.21 86.91	4.21	82.70
BS	6.58	94.79 93.49			
12	551		89.28 87.98	4.38	83.60
13	482		89.97 88.67	4.17	84.50
14	387		90.92 89.62	4.22	85.40
4+72	245		92.34 91.04	4.98	86.00

C

June 14 - 19

Branch 2 Right

com at Sta 38 on Main
 Angle 37° Right
 Sta 5+38, 385^{ft} W. SE cor
 NW-SE Sec 24

Sta 19+92 - 215^{ft} E-S. E cor
 S-W $\frac{1}{4}$ NE $\frac{1}{4}$ Sec 24-89-11
 at Sta 19+92 curve R 13°

at Sta 28 curve R. 21°

Sta 34+72 W Fence
 co Line Road 35+10,
 Sta 35+49 E Fence
 Sta 35+10 (E Road) 310^{ft}
 South SE cor NE $\frac{1}{4}$ -NE $\frac{1}{4}$
 Sec 24-89-11

June 14 - 19

at Sta 36 Angle Right 51°
 at Sta 38 Angle Right 44°
 at Sta 42 Angle Left 46°
 at Sta 49 Angle Left 33°
 at Sta 53+50 Angle 20° Right
 at Sta 63 Angle 69° Right
 at Sta 68 " 14° Left
 Sta 69, 22^{ft} South NW cor
 NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec 19-89-10

30

June 14-19

Branch 2 Right

Corn at Sta 38, Main Elev 60.82

Sta	RR	H I	Elev	Cut	Box	Out
0	7.48	68.30 68.20	60.82	5.32	55.50	
1	6.43	61.87 61.87	56.9	56.18		
2	5.45	62.85 62.75	58.9	56.86		
3	4.68	63.62 63.52	59.8	57.54		
4	4.05	64.25 64.15	59.3	58.22		
5	3.65	64.65 64.55	56.5	58.90		
5+38	3.31	64.99 64.89	57.6	59.13		
BS	6.32	71.31 71.21				
6	6.29	65.02 64.92	5.34	59.58		
7	5.31	66.00 65.90	5.64	60.26		
8	5.05	66.26 66.16	5.22	60.94		
9	4.84	66.47 66.37	4.73	61.64		
10	4.62	66.69 66.59	04.27	62.30		
11	4.17	67.14 67.04	4.37	62.67		
BS	6.24	73.38 73.28				
12	5.67		67.61	4.57	63.04	
13	5.18		68.10	4.69	63.41	
14	5.10		68.18	4.40	63.78	

These Elevs all
to low

June 14-19

B2 R Con

31

slu RR H I Elev Out Elev Cut

15	4.64	73.28	68.64	4.49	64.15
16	4.52		68.76	4.24	64.52
BS	5.31	74.07			
17	5.14		68.93	4.04	64.89
18	4.90		69.17	3.91	65.26
19	4.55		69.52	3.89	65.63
19+92	4.16		69.91		65.96
20	4.02		70.05	4.05	66.00
21	3.61		70.46	4.09	66.37
BS	6.70	77.16			
22	6.44		70.72	3.98	66.74
23	5.92		71.24	4.13	67.11
24	4.64		72.52	5.04	67.48
25	5.27		71.89	4.04	67.85
26	5.25		71.91	3.69	68.22
27	4.63		72.53	3.94	68.59
BS	6.20	78.73			
28	5.76		72.97	3.99	68.96
29	5.52		73.21	3.88	69.33

Ave Out 4.96
Ave 4.29

32

June 14-19

B 2 R COTT

Sta RR H I Elev Out Elev Cut

30 512 78.73 73.61 3.91 69.70

31 4.65 74.08 4.01 70.07

32 4.19 74.54 4.10 70.44

33 3.54 75.19 4.38 70.81

B.S. 5.53 80.72

34 5.60 75.12 3.94 71.18

34+72 5.40 75.32 3.87 71.45

35 3.10 77.62 6.07 71.55

35+10 3.20 77.52 5.94 71.58

35+49 5.31 75.41 3.68 71.73

36 5.22 75.50 3.58 71.92

B.S. 7.02 82.52

37 5.96 76.56 4.27 72.29

38 5.43 77.09 4.43 72.66

39 4.91 77.11 4.58 73.03

40 3.88 78.64 4.24 73.40

41 2.95 79.57 5.52 74.05

B.S. 6.97 86.54

42 6.61 79.93 5.23 74.70

June 17-19

B 2 R COTT

Sta RR H I Elev. Cut Elev Cut

43 6.44 86.54 80.10 4.75 75.35

44 5.91 80.63 4.63 76.00

45 5.35 81.19 4.54 76.65

46 5.08 81.46 4.16 77.30

B.S. 6.55 88.01

47 6.25 81.76 3.81 77.95

48 5.68 82.33 4.73 78.60

49 4.92 83.09 3.84 79.25

50 4.38 83.63 3.53 79.90

51 3.68 84.33 3.78 80.55

B.S. 6.67 91.00

52 5.78 85.22 4.02 81.20

53 4.60 86.40 4.55 81.85

54 4.25 86.75 4.57 82.18

55 4.03 86.97 4.47 82.50

56 3.88 87.12 3.97 83.15

B.S. 6.82 93.94

57 6.05 87.89 3.99 83.80

58 5.31 88.63 4.18 84.45

June 17-19

Branch R Right Corset

B. 3. R

Sta	R.R	H I	Elev	Out	Elev	Cut
58	4.80	93.94	89.14	4.04	85.10	
59	4.16		89.78	4.03	85.75	
60	3.42		90.52	4.12	86.40	
61	2.65		91.29	4.93	87.36	
BS	7.00	98.29				
62	6.45		91.84	3.52	88.32	
63	5.76		92.53	3.25	89.28	
64	4.76		93.53	3.29	90.24	
65	3.70		94.59	3.39	91.20	
66	2.43		95.86	3.70	92.16	
BS	7.12	102.98				
67	6.04		96.94	3.82	93.12	
68	4.99		97.99	3.91	94.08	
69	3.62		99.35	4.31	95.04	

Ave Cut 4.14

3.95

Ave Cut 3.95

C

Corn at Sta 42 Main
 angle 40° Right to Fence
 Sta 1+69 Fence N Line
 SW-SE-Sec 24-89-11.
 at Sta 1+69, Angle 33° Right
 at Sta 7 Angle 18° Left
 at Sta 10 Angle 10° Left
 Sta 16+3' 316' E West
 SE cor SW-NE-Sec 24

June 17-19
B.3.R

Corn at Sta 42 Main							Sta	R R	H I	Elev	Cut	Elev	Cut
Sta							14	4,78	72.95	68.17	3.67	64.50	
0							15	4.16		68.79	3.74	65.05	
1							16	3.10		69.85	4.25	65.60	
1+69							6+3	3.10		69.85	4.23	65.62	
2													
3													
4													
5													
BS													
6													
7													
8													
9													
10													
11													
BS													
12													
13													

June 17-19

B.3.R con

Sta R R H I Elev Cut Elev Cut

June 17-19

B A R

Com at Sta 51 Main

Angle 58° Right

Sta 8+3-362' E S W cor

SW-NE Sec 24

Sta	RR	HI	Elev	Cut	Elev	Cut
0	5.50	71.71	66.21	6.01	60.20	
1	5.45		66.26	5.31	60.95	
2	5.12		66.59	4.89	61.70	
3	5.04		66.67	4.42	62.45	
4	4.91		66.80	3.60	63.20	
5	3.85		67.86	3.91	63.95	
BS	5.98	73.84				
6	5.12		68.72	4.02	64.70	
7	3.71		70.13	4.68	65.45	
8	4.30		69.54	3.34	66.20	
8+3	4.03		69.81	3.69	66.22	
Pond	4.75		69.09			Pond

C

June 18-19

B B 5 Right

Com at Sta 26-B2 R

Angle 90° Left

at Sta 3+50 Angle 25° R

at Sta 7 Angle 13° Left

Sta 9+28-182' South

NE cor-SW-NE-24

over

June 18-19

BB5R

Corr at Sta 26. B2R.

Sta	RR	HI	Elev	Cut	Elev	Cut
0	5.67	77.58	72.01 71.91	3.56	68.35	
1	5.62		71.96	3.41	68.55	
2	5.13		72.45	3.70	68.75	
3	5.36		72.22	3.27	68.95	
3+56	5.41		72.17	3.12	69.05	
4	5.18		72.40	3.25	69.15	
5	4.55		73.03	0	3.68	69.35
BS	6.56	79.59				
6	5.51		74.08	4.13	69.95	
7	4.94		74.65	4.10	70.55	
8	4.37		75.22	4.07	71.15	
9	3.85		75.74	3.99	71.75	
9+28	3.43		76.16	4.21	71.95	

These Elevs all 10 Low.

June 18-19

BB6R

Corr at Sta 35+49 on B2R

N 10° E to a Point at
Sta 2+87-63 East of
SW cor NW-NW Sec 19

Sta	RR	HI	Elev	Cut	Elev	Cut
0	5.28	80.69	75.51 75.41	3.51	71.90	
1	4.44		76.25	4.00	72.25	
2	4.18		76.51	3.91	72.60	
2+87	3.80		76.89	3.89	72.90	

These Elevs
all 10 Low.

ave Cut 3.88

June 18-19.

B.B. 7. R

corn at Sta 38 B 2 R
 Angle 32° Left
 at Sta 4 Angle 30° Left
 Sta 6+3.863 ^F/East
 SW on NW-NW-Sec 19

Sta	RA	H I	Elev	Cut	Elev	Cut
0	6.98	84.07	77.19 77.09	4.19	72.90	
1	6.87		77.20	3.54	73.66	
2	5.61		78.42	4.05	74.42	
3	5.05		79.02	3.84	75.18	
4	4.17		79.90	3.96	75.94	
5	3.58		80.49	3.79	76.70	
6	2.55		81.52	4.06	77.46	
6+3	2.44		81.63	4.15	77.48	

These Elevs all .10 Low.

C

June 18-19

B.B. 8. R.

corn at Sta 63, on B. 2 R
 Angle 17° Left
 Sta 1+80 at West Fence
 585^{ft} North, S.W. cor SW-NE
 Sec 19-89-10

Sta	R R	H I	Elev	Cut	Elev	Cut
0	6.41	98.94	92.63 92.53	3.23	89.30	
1	4.97		93.97	3.47	90.50	
1+80	3.61		95.33	3.87	91.46	

These Elevs all .10 low.

June 28-19
BB 4½ Right

Cor at Sta 16-B, 2.R

Sta 3+50 333 ft South

NH in NE-SE-Sec 24

Sta 12+17 W Road Fence

Sta 12+49 E Coline Road

385 Ft south NE Cor

NE-SE-Sec 24-89-11

Sta 12+82 E Road Fence

June 28-19

BB 4½ R

Sta	RR	H I	Elev	Cut	Elev	Cut
0	7.42	76.18	68.86 68.76	4.06	64.70	
1	6.93		69.25	3.82	65.43	
2	5.26		70.92	4.76	66.16	
3	5.14		71.04	4.15	66.89	
3+50	5.17		71.04	3.76	67.25	
4	4.91		71.27	4.65	67.62	
5	4.26		71.92	3.57	68.35	
BS	7.62	79.54				
6	6.60		72.94	3.86	69.08	
7	5.54		74.00	4.19	69.81	
8	4.49		75.05	4.51	70.54	
9	3.95		75.59	4.32	71.27	
10	2.65		76.89	4.89	72.00	
B.S.	7.55	84.44				
11	5.90		78.54	4.64	73.80	
12	4.25		80.19	4.59	75.60	
12+17	3.89		80.55	4.65	75.90	
12+49	1.92		82.52	6.02	76.50	
12+82	2.77		81.67	4.63	77.04	

These Elevs all 10 low.

Ave Cut 4.97

Total No Ft Tile 30989

" " Miles 5.86+

Estimated Cost of Tile

Completed \$11950.52

5 Intakes 58.50

1 Concrete Bulkhead 75.00

12084 02

Engineering 10% Est 1208.40

Estimated Cost \$13292.42

For Intakes see page 58

Intakes

24" intake 4 ft North of Fence
at Sta 29+18 and 16 ft from Main
Elev of top of Intake 57.50

15" T. Junction

15" Intake at 19+50 Co Line
Road on B1R.

Six ft from W Fence

Elev Top of Intake 68.22

12" Intake at Fence
Sta 51+8½ Main

Elev Top of Intake 65.75

Intakes

1-12" Intake at Co Line
Road Sta 34-7.8 B2R

Top Level with ditch, and
16 ft from West Fence

Elev 74.61

1-12" Intake B1B4½ R
at Co Line Road Sta 12+23
Elev Top of Intake 79.85

For Level Notes See Page 65

One Bulkhead Concrete
at Sta. O. Main 2.74 yds concrete

Oct 7-19
Intakes (special)

main
at Sta 29+18-24" Intake-12" T

Elev of intake

Sta	RR	HI	Elev	Out
29+18				
Main	5.15	64.22	59.07	
Stake	5.22		59.00	
Intake				
Level	6.22		58.00	
Water				

cut 6" below water level

at Sta 51+8 1/2 Main

Sta	RR	HI	Elev	Out
51				
Intake	5.24	71.45	66.21	
51+8 1/2	5.03		66.42	.67
Water				
Level	5.03		66.42	

cut 8" below Water Level

Oct 7-19

Intake Sta 19+56 B.1.R

Sta	RR	HI	Elev
19+41	5.77	76.63 75.34	70.86 69.57
Intake 19+56	5.27		71.36 70.07 68.22
Ditch	7.12		68.22

Elev of Intake to be same
as Ditch = 68.22

Intake at Sta 34+78 B.2.R

Sta	RR	HI	Elev
34+72	5.10	80.42	75.32
Intake 34+78	5.29		75.13
Ditch	5.81		74.61

Intake to be same Elev as Ditch

Intake at Sta 12+23 B 4½ R

Sta	RR	HI	Elev
12+17	5.44	85.99	80.55
Intake 12+23	5.21		80.78
Ditch	6.14		79.85

Intake Same Elev as Ditch

Main

Sta B.S. H.I. - S Elev Gr Cut.

47			4.69	66.01	58.32	7.69
+50			5.09	65.61	58.51	7.10
48			4.70	66.00	58.70	7.30
49			4.50	66.20	59.07	7.13
50			4.05	66.65	59.45	7.20
51			4.48	66.22	59.82	6.40

Ford from
Page 86 Book 2.

60.26
59.82
44

R.P. 65.07 Spike N side 1st F.P. N Sta 6+25 Br 2 L. Grade.(Sta 40 to End. 395⁹/₁₆)

H.V.B.							
51	4.74	70.96		^x 66.22	60.22	6.00	Size
Tile Top			9.50	61.46	60.26	actual grade	Sta 42-52 12"
52			5.15	65.81	60.40	5.41	" 52-61 10"
53			4.67	66.29	^x 60.57	5.72	" 61-End (70+17) 8"
54			4.34	66.62	60.94	5.68	
55	4.95	71.80	4.11	66.85	61.32	5.52	
56			5.57	66.23	61.69	4.54	
57			5.52	66.28	62.07	4.21	
58			4.45	67.35	62.44	4.91	
59			4.84	66.96	62.82	4.14	

$$\begin{array}{r} \sqrt{1375} \\ 1093 \end{array}$$

Sta B.S. H.I. -5 Elev Gr but.

60	71.80	4.83	66.97	63.19	3.78
+25		4.64	67.16	63.28	3.88
+50		4.57	67.23	63.38	3.85
+75		4.43	67.37	63.47	3.90
61		4.39	67.41	63.57	3.84

10" laid to Sta 60+25

60+75 5.62 ~~42.99~~ 67.3761 5.59 ^{H.I.} 73.00 67.41

+25 5.25 67.75 63.66 4.09

62 4.65 68.35 63.94 4.41

63 4.48 68.62 64.32 4.20

64 4.40 68.60 64.69 3.91

+50 4.23 68.77 64.88 3.69

65 6.33 75.20 4.13 68.87 65.07 3.80

+50 6.37 68.83 65.26 3.57

66 5.50 69.40 65.44 3.96

+50 5.50 69.70 65.63 4.09

67 4.96 70.24 65.82 4.42

68 3.99 71.21 ~~66.32~~ ~~4.84~~ ^X 5.02 50%

74

69

75.70

3.80

71.40

66.82

4.58

~~66.54~~~~4.83~~

67.09

4.49

~~66.77~~~~4.81~~

3.62

71.58

1375

.56

1800

1875

20250

67 65.82

68 66.32

69 66.82

+54 2.6

68.08

74

BR 2-Left.

Sta B.S. H.I. - S Elev Gr Cut.

B.M. 5.32 69.24 63.92

Main + BR 2 R
Lath hub by F.P. between Jnct

3 5.34 63.90 57.70 6.20

4 5.18 64.06 58.10 5.96

5 5.22 64.02 58.50 5.52

+25 4.91 64.33 58.60 5.73 = Sta 0 B.B.I.L.

6 4.90 64.34 58.90 5.44

7 4.82 64.42 59.30 5.12

R.P. 4.17 65.07

Grade

Sta 0-End. 40'

Size

Sta 0-10 10"

(2043)

Sta 10-End 8"

R.P. 4.09 69.16 65.07

7 4.70 64.72 64.42 59.30 5.12

8 4.56 64.60 59.70 4.90

9 4.43 64.73 60.10 4.63

10 5.40 70.41 4.15 65.01 60.52 4.51

11 5.06 65.35 60.90 4.45

12 4.72 65.68 61.30 4.38

13 4.53 65.88 61.40 4.18

14 3.80 66.61 62.10 4.51 spike.

R.P. 3.29 67.12

Top S side old 1x2 hub Sta 14

Ford
from
Page 84
Book 2.

Gr Cut

14	5.71	72.32	66.61	62.10	4.51	62.10	4.51	.5768
RP	5.21	42.33	67.12		6			
15		5.30	67.02	62.60	4.52	62.60	4.42	
16		4.92	67.40	63.90	4.50	63.10	4.30	
17		4.29	68.03	63.30	4.73	63.60	4.43	
18		3.96	68.36	63.70	4.66	64.10	4.26	
19		3.66	68.66	64.10	4.56	64.60	4.06	
20		<u>2</u>			65.10			
20413		2.48	69.84	64.56	5.28	65.17	4.67	

$$\frac{20.60}{1000}$$

$$\begin{array}{r} 16 \\ 40 \\ \hline 65.10 \end{array}$$

$$\begin{array}{r} 61.3 \\ 5 \\ \hline 3065 \end{array}$$

$$\begin{array}{r} 13 \\ 5 \\ \hline 65 \end{array}$$

$$\begin{array}{r} 61.3 \\ 5 \\ \hline 3065 \end{array}$$

$$\begin{array}{r} 13 \\ 5 \\ \hline 65 \end{array}$$

$$\begin{array}{r} 61.3 \\ 5 \\ \hline 3065 \end{array}$$

$$\begin{array}{r} 13 \\ 5 \\ \hline 65 \end{array}$$

$$\begin{array}{r} 61.3 \\ 5 \\ \hline 3065 \end{array}$$

$$\begin{array}{r} 13 \\ 5 \\ \hline 65 \end{array}$$

$$\begin{array}{r} 62.10 \\ 250 \\ \hline 64.60 \end{array}$$

82

BR B1 Left.

Sta B.S. H.I. -S Elev Gr Cut.

Grade

O-End 1.30%

Size - 6"

Sta B.S. H.I. -S Elev Gr Cot.

B.M 6.16 82.69 76.53

of Sta 34+50 BR 2R
Bolt in root of N. of 2 Willows S

34 6.93 75.76 71.44 4.35

+84 6.87 75.82 71.69 4.13

35 7.10 75.59 71.74 3.85

+59 6.77 75.92 71.94 3.98

= 0 B.S. 6 R

36 6.74 75.95 72.07 3.88

37 5.57 77.15 72.40 4.75

+50 5.40 77.29 72.57 4.72

38 5.12 77.57 72.73 4.84 = 0 B.S. 7 R

39 4.67 78.02 73.06 4.96

40 3.51 79.18 73.40 5.78

(old)

86.70

(old)

96.15

Hub by 1st F.P. N. Sta 53+

New hub at End 13 B. 8 R.

Ford from p 128 Book 2

Gr

Sta 26-34 .37%

" 34-40 .33%

Sta 40-60 .65%

" 60-End .96%

Size

26-38 - 12"

38-42 - 10"

42-63 - 8"

(69)

63-End - 6"

39 7.76 85.78 78.02

40 6.62 85.79 79.18

41 5.94 79.85 74.08 5.80

42 5.39 80.40 74.70 5.70

43 5.37 80.42 75.35 5.07

1.20	
1.60	
2.1.60	71.94
1.30	80
	72.24

44		85.79	4.98	80.81	76.00	4.81	
45	5.80	87.38	4.21	81.58	76.65	4.93	
46		5.61	81.77	77.30	4.47		
47		5.49	81.89	77.95	3.94		
48		4.79	82.59	78.60	3.99		
49		3.82	83.56	79.25	4.31		
+50		3.80	83.58	79.58	4.00		
50	6.85	90.82	3.41	83.97	79.90	4.07	
51		6.00	84.82	80.55	4.27		
52		5.18	85.67	81.20	4.44		
53	out			81.85			
+50		3.61	87.21	82.18	5.03		
B.M.		3.91	86.91		Hub E. of 1 st F.R. N Sta	5-8+	

B.M.	5.36	92.27	86.91			
53+50		5.05	87.22	82.18	5.04	
54		5.04	87.23	82.51	4.72	
55		4.74	87.53	83.16	4.37	
56		4.15	88.12	83.81	4.31	
57		3.26	89.01	84.46	4.55	

56	7.63	95.75	88.12		
57	6.70	95.76 95.77	89.01	84.46	4.55
58			6.34	89.42	85.11 4.31
59			5.80	89.96	85.16 4.20
60			4.98	90.78	86.41 4.37
61			4.15	91.61	87.37 4.24
62			3.55	92.21	88.33 3.88

63	9.75	101.39 101.40	91.61		
64	9.20	101.41	92.21	88.33	3.88
65			8.49	92.91	89.29 3.62
66			7.52	93.88	90.25 3.63
67			6.36	95.04	91.21 3.73
68			5.27	96.13	92.17 3.96
69			4.18	97.22	93.13 4.09
70			3.04	98.36	94.09 4.27
71			1.75	99.65	95.05 4.60

= 0 B 13 8 17

90

BR 3 R

1/26/21

Sta B.S. H.I. -S Elev. Gr. Gut.

B.M. 5.30 69.22 63.92 Lath sub 5.0 of F.R. by Sta 2+ BR 3 R.

0 7.23 61.99 57.00 4.99

1 7.05 62.17 57.54 4.62

2 5.80 63.42 58.10 5.32

3 4.54 64.68 58.66 5.03

4 3.93 65.29 59.20 6.09

5 5.45 70.82 3.85 65.37 59.75 5.62

6 5.08 65.74 60.30 5.44

7 4.14 66.68 60.85 5.83

8 4.08 66.74 61.40 5.34

150 3.74 67.08 61.68 5.40

9 3.85 66.97 61.95 5.02

150 3.82 67.06 62.23 4.77

R.R. 3.74 67.08 Spike in 8th F.R. E. Sta 6.50 BR 3 R

3 5.66 70.34 64.68

4 5.05 70.34 65.29

5 4.95 65.39

6 4.57 65.77

Grade 5.5%
Size 6" allall Chub class
62.26
all 0.85
56.92

10.24

7	3.65	66.69
8	3.61	66.73
+50	3.24	67.10
9	3.39	66.97
+50	3.30	67.02

9	4.92	71.89	66.97
+50	4.84	71.88	67.04 62.23 ₇
10		4.70	67.18 62.50 4.68
11		4.96	66.92 63.05 3.87
12		4.79	67.09 63.60 3.49
13		4.20	67.68 64.15 3.53
14		3.55	68.33 64.70 3.63
15		3.00	68.88 65.25 3.63
16		1.95	69.93 65.80 4.13
+09		1.95	69.93 65.85 4.08

94

B B S R

Sta B.S. H.I. - S Elev Gr Gut.

5 79.18 5.76 73.42 69.60 3.82

6 4.66 74.52 70.10 4.42

7 4.27 74.91 70.60 4.31

8 3.72 75.46 71.10 4.36

9 3.24 75.94 71.60 4.34

+10 = End
old Sta 8

R.P. 3.80 79.18

75.38

Grade

Sta 5 - End 50%

all
size 8"

Ford from p 90 B o o T 2

96

B.B. 6, R+.

Sta B.S. H.I. - S Elev Gr. Cut.

B.M. 6.16 82.69 76.53

Bolt in root Willow W Side Hwy

0 6.77 75.92 72.23.68

1 5.90 76.79 72.54.20

Grade all. 3.50

2 5.53 77.16 72.94.22

Size 6"

2+85 End. 5.22 77.47 73.24.23

$$\begin{array}{r}
 85 \\
 20 \\
 \hline
 425 \\
 250 \\
 \hline
 2975
 \end{array}$$

98

B.B. 7 R

Sta	B.S.	H.I.	-S	Elev	Gr	Got
37450 BR 2R+	6.42	83.77 83.73		77.29		
0-38-2R	6.18	83.74		77.57	73.00	4.57
1		6.24		77.49	73.76	3.73
2		4.99		78.74	74.52	4.22
3		4.36		79.37	75.28	4.09
4		3.55		80.18	76.04	4.14
5		2.96		80.77	76.80	3.97
6403		1.79		81.94	77.58	4.36

Gr 16%

size

Sta 0-4 7"
(6+03)
"4-End 6"

End

72.73

56

76

03

0020

76

6

456

73

71.94

77.56

7.38

B B 8 R

Sta B.S. H.I. - S Elev Gr Tot

Gr 1.20

Size 6"

102

BR 4 RT

9.30

Sta	B.S.	H.I	-S	Elev	Gr	Cut
51 Main	5.00	77.22		66.22		
52 "	5.49	77.21		65.81		
Tile Gr						
0			9.90	61.31		
Hub						
0			5.10	66.11	61.40	4.71
1			4.94	66.27	61.95	4.32
2			4.23	66.98	62.50	4.48
3			4.45	66.76	63.05	3.71
4	6.22	73.19	4.24	66.97	63.60	3.37
5			5.07	66.14	68.12	64.15 3.97
6			4.39	66.82	68.80	64.70 4.10
7			3.30	67.21	69.89	65.25 4.64
7+91			3.49		69.70	65.75 3.95

0 = 51 Main

.55
Gr = .45%
(0.8+0.3)

Size 6"

55

9

495

65.70

61.40

8)4.30

.53

6.50

4.00

66.20

104

Tile Check

Hoff
HillApr 2^d 21

B.B.T.L.

Sta B.S. H.I. -5 Elev Actual Grade Elev

B.M. 3.95 69.02 65.07

0+10 65.41 6.47 59.94

0+90 = End 5.37 60.04

0+90 Ground 4.90 64.12

Splice N. side 12' F.P. N Sta 6.25 BR 2L.

Used Rod 3.1' long. 6' Tile

Constant = 3.61'

Tile CK BR 2-L

5+50 69.02
4.10
64.92 5.95 58.99

6 5.80 59.12

+50 5.63 59.29

7 5.45 59.47

+40 5.38 59.54

8 5.10 59.82

+50 4.99 59.93

9 4.82 60.10

+50 4.66 60.26

9+90 69.02 4.54 60.38

Constant = 3.1 + .8 = 3.9

10+10 3.96 65.12 4.55 60.57

+50 4.44 60.68

11 4.4 60.98

T.P. 5.92 71.01 3.93 65.09

106

Sta	B.S.	H.I.	- B	Elev	Actual Gr. Elev.	Sta 10 - 10' tile	1/2 Full - half sand + 2 1/2'
11+50		71.01 3.90	5.90		61.21		
12		67.11	5.66		61.46		
+50			5.58		61.53		
13			5.45		61.66		
+50			5.23		61.88		
14			4.90		62.21		
+50			4.89		62.22		
15			4.40		62.71	Note: - Water over tile Sta	
+50			4.05		63.06	15+ to 18 - Investigate -	
16			3.81		63.30		
+50			3.55		63.56	15+25 +50	8.55 8.30
17			3.33		63.78	16	7.88
T.P.	4.96	72.88 3.90	3.09	67.92		17	7.60
17+50		68.98	4.93		64.05		
18			4.77		64.21	19	10.50 sand - 15' to 20
+18			4.59		64.39	20	6.05 1' sand + 1' to 20
19			4.26		64.72		
+50			4.00		64.98		
20			3.81		65.17		
+13			3.75		65.28		
20+13	End.		3.80	69.08			
Grand Level Rod.							

Apr 2^d '21

Sta B.S. H.I. - S Elev Actual Gr. Elev.

519 3.70 70.78 67.08

$$\begin{array}{r} 70.78 \\ 3.70 \\ \hline 67.08 \end{array}$$
Spike in 8th F.I.P.E. of Sta 6+50 BR 3-R

3 7.92 59.16

+50 7.62 59.46

4 7.15 59.83

+50 6.95 60.13

5 6.70 60.38

+50 6.46 60.62

6 6.18 60.90

+50 6.05 61.03

7 5.46 61.62

+50 5.07 62.01

8 5.00 62.08

+50 4.86 62.22

9 4.46 62.62

+50 4.12 62.96

+75 4.12 62.96

10 4.20 62.88

+05 4.15 62.93

Hub 10

T.P. 5.37 72.17 3.98 66.80

$$\begin{array}{r} 72.17 \\ 3.70 \\ \hline 68.47 \end{array}$$

Hub stepped on

10+25 5.70 62.77

11+00 5.37 63.10

Used Rod 3.1' long
Constant 3.7'

6" tile.

Sta	D.S.	H.I.	-S	Elev	Actual G. Elev
		72.14			
		68.47			
11+50			5.08		63.39
12			4.88		63.59
+50			4.58		63.89
13			4.19		64.28
+50			3.94		64.53
14			3.53		64.94
+50			3.41		65.06
15			3.06		65.61
+50			2.92		65.55
16+	Eod		2.20		66.27
Ground Level - Eod			2.22	69.95	

Actual
Gr. Elev

Apr 2 1921

Hub Sta 7 257	42.46 72.42	69.89	
Hub 11.4 5.41	72.38 3.10	66.97	
7+90 End	68.72	3.00	65.72
7+50	3.16		65.56
7+00	3.43		65.29
6+50	3.64		65.08
6	3.97		64.75
5+50	4.24		64.48
5	4.56		64.16
4+50	4.72		64.00
4	5.13		63.59
3+50	5.35		63.37
3	5.60		63.12
2+50	5.95		62.77
2	6.02		62.70
1+50	6.39		62.33
1	6.90		61.82

Used Rod 3.1' long
Constant = 3.7' 6" π 12

8.96

8.92

Tide Check Main

Hoff
Hill

Apr 21 '21

Sta	BS	H.I	- S	Elev	Actual Grade Elev
Hub 5-5	4.43	71.28		66.85	
Hub Sta 2		71.23			
BR4-R.	4.42	71.18		66.76	
		4.31			
37+50		66.92	8.16		58.76
48			7.76		59.16
+33			7.86		59.06
+66			7.72		59.20
49			7.51		59.41
+33			7.30		59.62
+66			7.03		59.89
50			7.03		59.89
+33			6.79		60.13
+66			6.68		60.24
51			6.56		60.36
+33			6.48		60.44
+66			6.32		60.40
52		71.23	6.44		60.48
		14.10			
+33		67.13	6.57		60.59
+66			6.50		60.63
53			6.50		60.63

Used Rod 3.1' long.

12" T/I

Constant = 4.31

10" T/I

Constant = 3.1 + 1.0 = 4.1

71.23
~~4.10~~
 67.13

53+33		6.22	60.91
+66		6.15	60.98
54		6.06	61.07
T.P.			
Hub Stass	4.83	71.63 4.10 67.53	4.43 66.80
54+50		6.22	61.31
55		6.14	61.39
+50		5.92	61.61
56		5.74	61.79
+50		5.56	61.97
57		5.51	62.02
+50		5.25	62.28
58		5.06	62.57
+50		4.80	62.72
59		4.56	62.97
+50		4.32	63.21
60		4.42	63.11
+50		4.27	63.46
61		4.10	63.63
T.P.	6.57	73.58	4.62 67.01

8" T.I.C - Constant = 3.1 + .8 = 3.9'

Sta	73.58 3.90 69.68				
62	5.77	63.91	Sta 59+00	7.42	
63	5.36	64.32	Sta 60	7.36	
64	4.82	64.86			
65	4.59	65.09			
66	4.31	65.37			
67	3.75	65.93			
68	3.43	66.25			
69	2.50	67.18			
End	2.42	67.26			
Hub	1.93				

Apr. 11th '21

Main filled to st.

Uncovered Sta. 51+33 + 51+66

Found 1" sand + 1" water. Also .04 Fall.

Uncovered Sta 59+50 + 60.

Found Sta 60 .15 sand + .15 fine - .06 Fall.

Apr. 11 '21 Main O.K. except
Sta. 48-48+33

120

Tile Check BB 6 RHoff
Hill

Apr 22 '21

Sta B.S H.I - S Elev

B.M. 6.00 82.53 76.53

4.65

0+50 77.88 5.43 72.45

1 5.25 72.63

+50 5.00 72.88

2 4.79 73.09

+50 4.65 73.23

End 4.57 73.31

Ground " 5.65 76.68

Tile CK BB 7-R.

0+50 82.53 4.34 73.44

4.75

1 77.78 4.00 73.18

2 3.05 74.73

3 2.50 75.28

4 1.55 76.23

5 0.95 76.83

5+50 0.25 77.53

Bolt in Willow W side Hwy.

Used Rod 4.05' long.

6" Tile Constant = 4.65

on rod 4.05' long.

7" Tile Constant = 4.75

122

Tile Check BR 2.1RHoff
Hill

Apr. 29 '21

Sta	BS	H.I	-S	Elev
BM	6.00	82.53 5.03		76.53
38+00		77.48	4.62	72.86
38+50			4.48	78.00
39			4.41	73.07
+50			4.03	73.45
40			3.98	73.50
+50			3.76	73.72
41			3.41	74.07
+50			2.97	74.51
42		82.53 4.85	2.75	74.73
+50		77.68	2.35	75.33
43			2.18	75.50

Bolt in willow W side Hwy

Used rod 4.05' long

10' Tile Constant = 5.05

8" Tile Constant = 4.85

B.M.	5.85	92.76 4.85	X	86.91
53		87.91	5.89	82.02
55+25			4.49	83.42
56+30			3.73	84.18
T.P.	10.62	100.71	2.67	90.09

Lat hub by 12' F.P. N Sta

8" Tile

Constant = 4.85

124

10.13

92.91
75.92

17

59 $\frac{100.71}{4.85} - 10.13$ 85.73

62 95.86 7.30 88.56

63 $\frac{100.71}{4.60} - 6.35$ 89.61

65 96.06 4.50 91.56

69 End 0.50 95.56

Ground - Rd. 1.04(?) 99.71

with yellow above top of rd

B.B-8 R Hubs

{ Hoff
Hill

T.R. Gr.

0 = Sta 93 BR 2,

89.51

4/2/21

0 101.71 7.78 93.93 89.60 4.33

1 6.41 95.30 91.00 4.30

= Sta 93 BR 2

1+80 5.12 96.59 92.13 4.46

= End

Hubs BB SR

Hoff
#11
4/2/21

79.48

Tile 7+15	3.95	70.68	
old	4.71	74.77	70.60 4.17
7+25	4.76	74.72	70.75 2.98
8	4.33	75.15	71.10 4.05
9	3.77	75.71	71.60 4.11
9+10 = End		71.65	

On 4ps Rod 8' Tile

Tile CK BB 4 1/2 R

Hub at End	2.22
Tile - End	1.72
100' From End	4.05
200' " "	5.36
300' " "	7.30
400' " "	8.00

on 4.05' Rod

Notes for tile investigation
and Repair

Main Line	Sta 48-48+33 .10	Backfall	} Uncover, Recheck and examine joints + fill.
"	51+33-51+66 .04	"	
"	52+66-53	Flat.	
	59+50-60 .10	Backfall.	

BR 2 Left. Water standing Sta 15-18 Uncover + examine joints + fill

BR 3 R.

Sta 3-9+50 .5% high

Backfall from Sta 9+50 - 10+50

Relay Sta 6+50 to 7 to 10+25

Recheck BR 3R April '21

Sta	B.S.	H.I	-5 Elev
B.M.	4.07	71.15	67.08
File top.		<u>1.60</u>	
7		70.55	61.62
8			8.40 62.15
+50			8.24 62.31
9			7.78 62.77
+50			7.57 63.01
+75			63.04
10			7.57 62.98
+25			62.70
+50			7.56 62.99
10+75			7.48 63.07
10+25			7.65 62.90
9+75			7.51 63.04
9+25			

Hub	Gr	cut.	Gr = .39%	Size = 6"
7	71.15	4.65 66.50 61.62	4.88	Relay Sta 7-10+50
8		4.48 66.67 62.01	4.66	
+50		4.19 66.96 62.20	4.76	
9		4.20 66.95 62.40	4.55	
+50		4.03 67.12 62.60	4.52	
10		4.00 67.15 62.79	4.36	
+50		4.40 66.75 62.99	3.76	
11		4.21 66.94 63.18	3.76	

Check tile Relaid Br 3 Rt.

Apr 30 1921

Hott
Hill

Sta	F.S.	H.I.	-S	Elev.	Gr.
B.M.	4.46	$\frac{71.54}{4.65}$		67.08	
7+10		66.89	5.20	61.69	61.69
+50			5.13		61.76
8			4.90		61.99
+50			4.75		62.14
9			4.49		62.40
+50			4.38		62.51
10			3.94		62.95
+50			4.00		62.89
11			3.75		63.14
10+25			4.02		62.87
9+75			3.96		62.98
			3.88		63.01

6"
On tile Top + Rd 4.05'
Constant = 4.65

Tile CR, BB, SR

4/30/21

Hub stab	436	79.51 4.85	75.15	
+25		74.66	3.93	70.73
+50			3.80	70.86
8			3.51	71.15
+50			3.16	71.50
9			2.89	71.77
+10			2.81	71.85

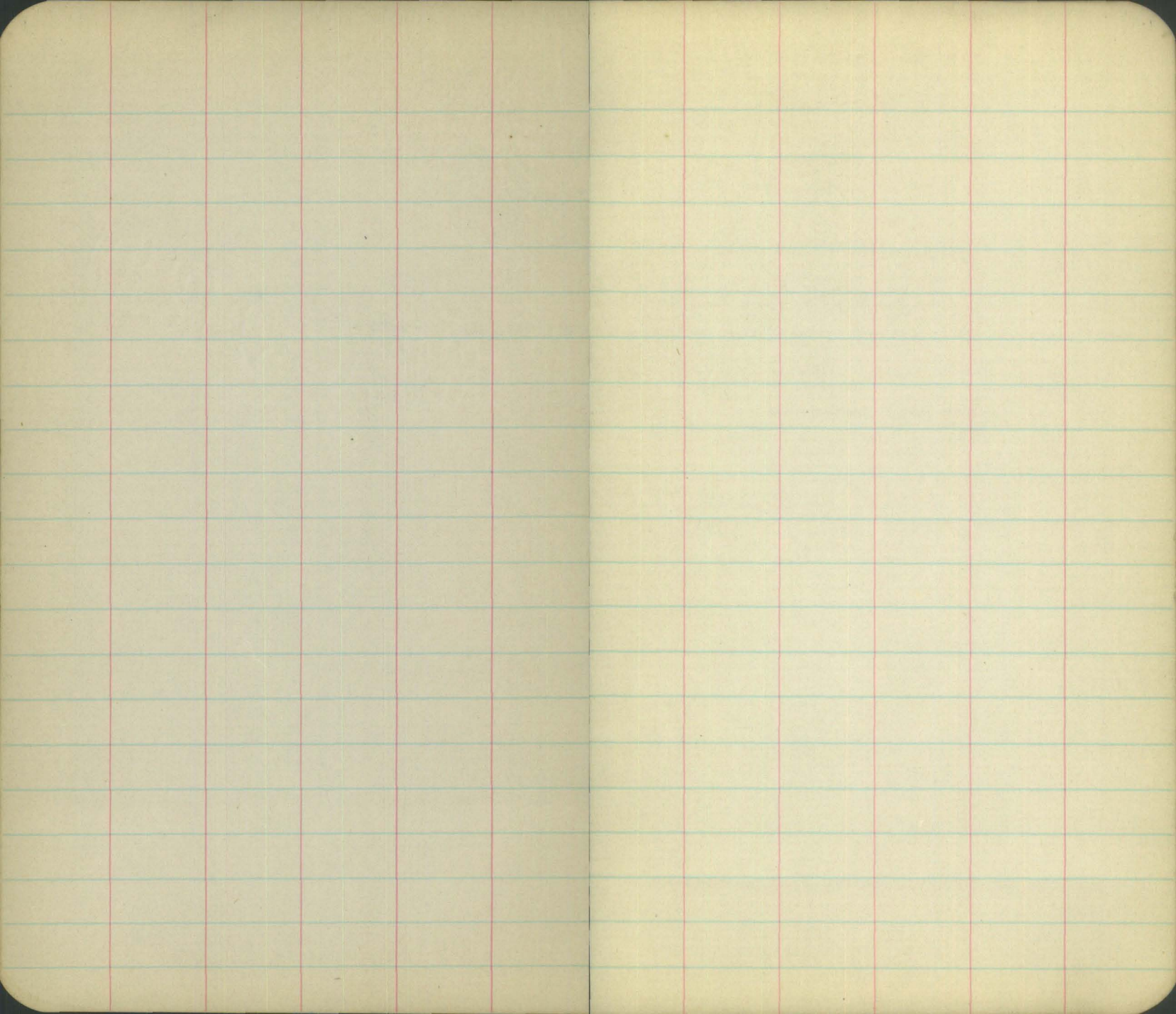
Top 8' tile on Rod Length 405
Constant = 4.85
= end

Tile CR BB8R

0+10	3.92		6" Tile + Rod 405
+50	3.60		Constant = 4.65
1	3.23		
+50	2.95		
+80	2.32	} cut = 4.07	= end
+80 Ground	2.90		

10 2.

2.32	10.00
4.65	2.90
6.97	7.10
3.03	3.03
	4.07

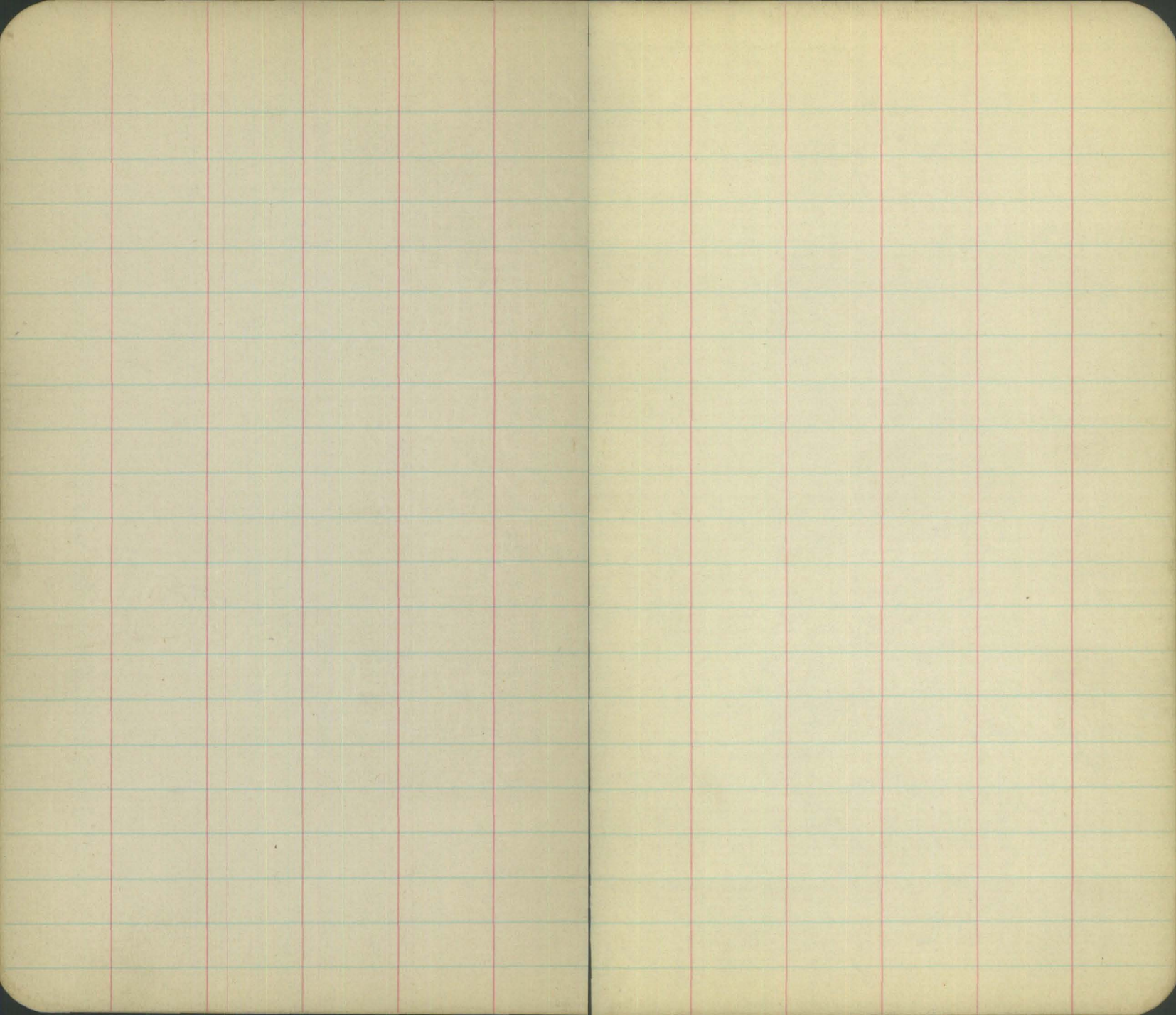


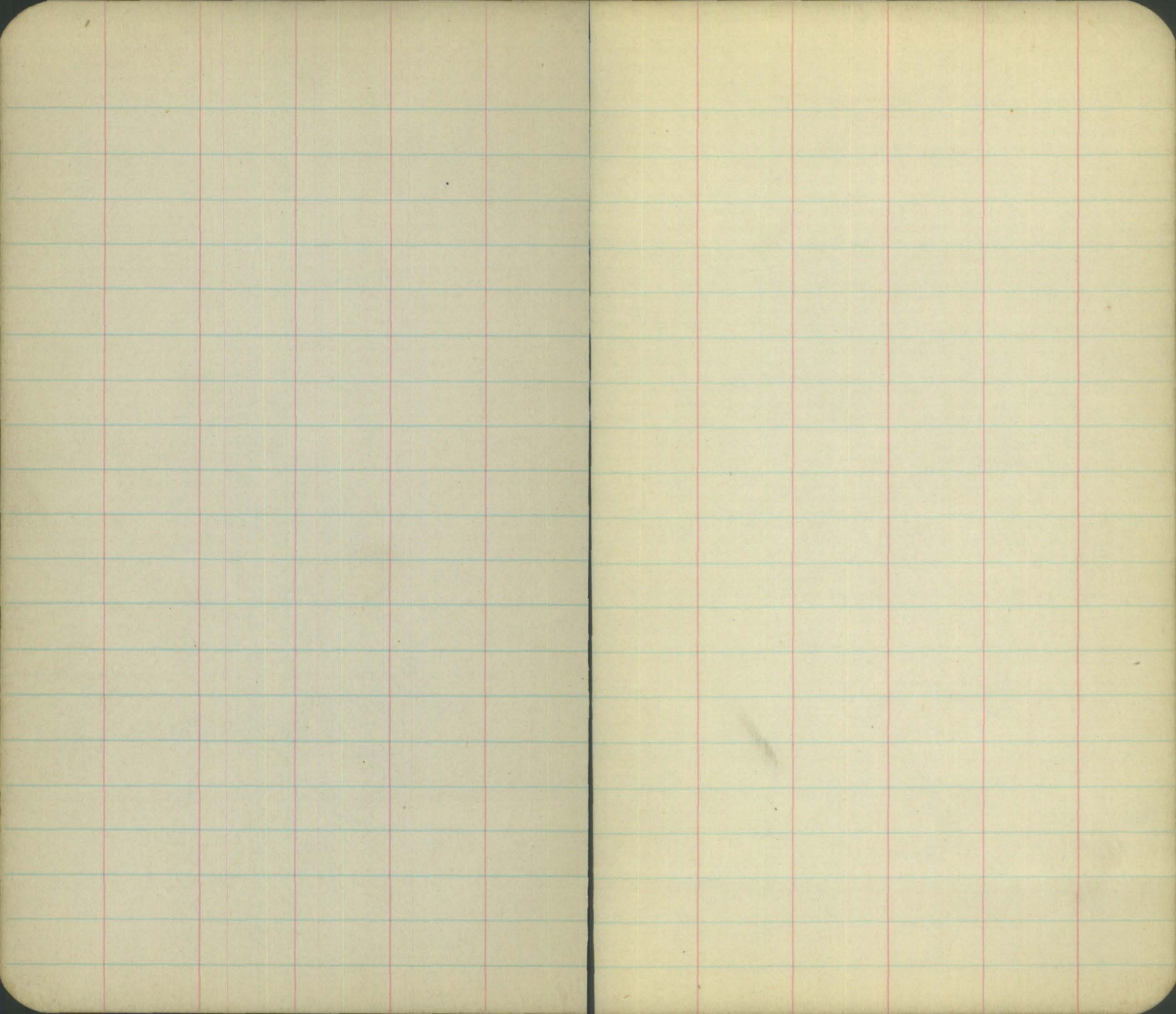
Construction Figures For Relay
8" tile BR 2-Left.

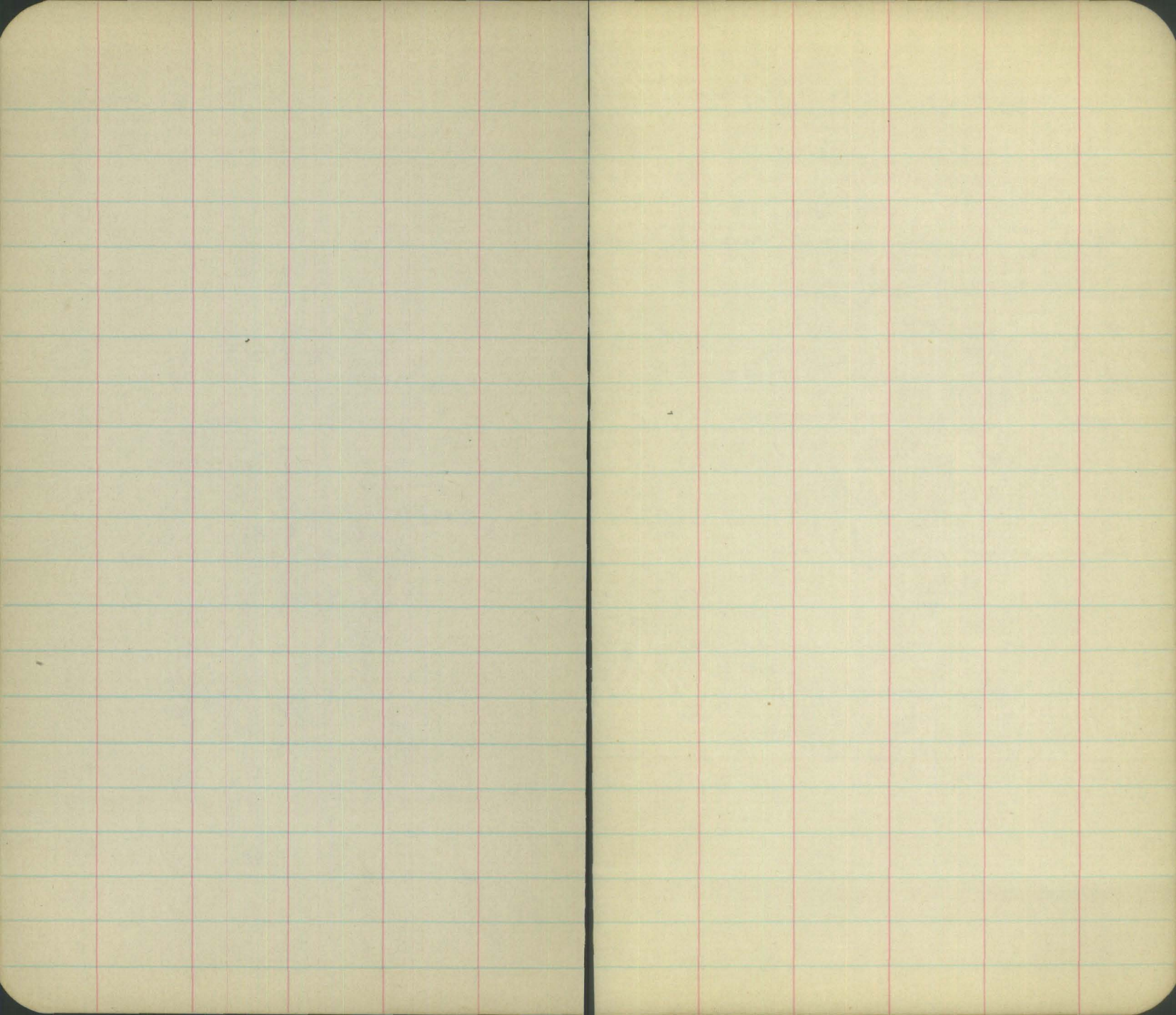
Sta	B.S.	H.I.	-S	Elev	Gr	Cut	
FlowLine							
10	10.13	70.63		60.50			= Flowline 10" tile as laid by H. Jensen 2/21.
Hub							
10			6.04	64.59	60.50	4.09	
11			5.51	65.12	60.90	4.22	
12			5.32	65.31	61.30	4.01	%
13			5.04	65.59	61.70	3.89	%
14			4.35	66.28	62.10	4.18	—
+50			3.79	66.84	62.35	4.49	8
15			3.89	66.74	62.60	4.14	
16	5.94	72.92	3.65	66.98	63.10	3.88	
17			5.18	67.74	63.60	4.14	%
18			4.62	68.30	64.10	4.20	
19			4.72	68.20	64.60	3.60	
20			4.28	68.64	65.10	3.54	
20+20			4.00	68.92	65.20	3.72	
FlowLine							
20+20			7.45	65.47			= FlowLine of last 8" tile laid end 13x2L.

Oct 28-21 Hoff Hill.

Note: These figures not used
Tile cleaned - not relaid CRH.







Average Cuts from Mch 9 '21

Line Sta to Sta		Construction Levels		Actual Length	Prelim. Ave	Over Depth + Under "
		Ave Cut	Size			
Main 0-0-16		5.04	24"	1600'	5.04	
16-34		5.94	22"	1800'	6.45	
34-38		5.55	20"	380'	5.53	
38-42		5.76	15"	395'	5.82	
42-52		6.48	12"	1025'	6.66	
52-61		4.81	10"	825'	4.76	
61-End		4.25	8"	929'	3.51	

Sec 2

BR 1-L	0-8+09	4.91	8"	809'	4.90	
	8+09-End	4.34	6"	634'	3.98	
BR 2-L	0-10	5.47	10"	1000'	4.65	
	10-End	4.38	8"	1013'	3.92	
BR 1-L	0-0+89	4.83	6"	89'	4.70	
BR 3-R	0-16+09	4.77	6"	1609'	4.79	
BR 4-R	0-7+91	4.14	6"	791'	4.46	

Section 3

Line	Sta to Sta	Avg Cut	Size	Actual length	Prelim Ave	over Depth + Under -	
							.00
BR2R	0-26	4.73	14"	2600'	4.90	-	.17
	26-38	4.21	12"	1200'	4.29	-	.08
	38-42	5.41	10"	400'	4.80	-	.39
	42-63	4.44	8"	2100'	4.14	+	.30
	63-69	3.99	6"	600'	3.95	+	.04
BB42R	0-10	3.83	7"	1000'	4.25	-	.42
	10-13+25	4.84	6"	325'	4.97	-	.43
BB5R	0-9+10	3.95	8"	910'	3.70	+	.25 725' 1/10 3/1/21
BB6R	0-2+85	4.08	6"	285'	3.80	+	.28
BB7R	0-4	4.15	7"	400'	3.91	+	.24
BB8R	4 6+83	4.14	6"	203'	3.90	+	.24
	0 1+80	3.89	6"	180'	3.89	+	.00 None laid 3/1/21.
Sec 4							
Bu1R	0-22	5.12	12"	2200'	4.93	+	.19
	22-35	5.42	10"	1300'	4.61	+	.81
	35-45	5.02	8"	1000'	4.90	+	.12
	45 52+95	4.75	6"	795'	4.90	-	.15
BB1R	0 1+76	4.63	6"	176'	4.08	+	.55
BB2R	0 7+13	4.60	6"	713'	4.13	+	.47
BB3R	0 2+23	4.40	6"	223'	4.18	+	.22
BB4R	0 14+74	4.65	6"	1474'	4.28	+	.37

June 17-1922 at B
BB Right on B2R
com at Sta 63 on B2R
angle 17° Left.

Sta 1+80, W. Fence
585 Ft North SW cor
SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec 19-89-10

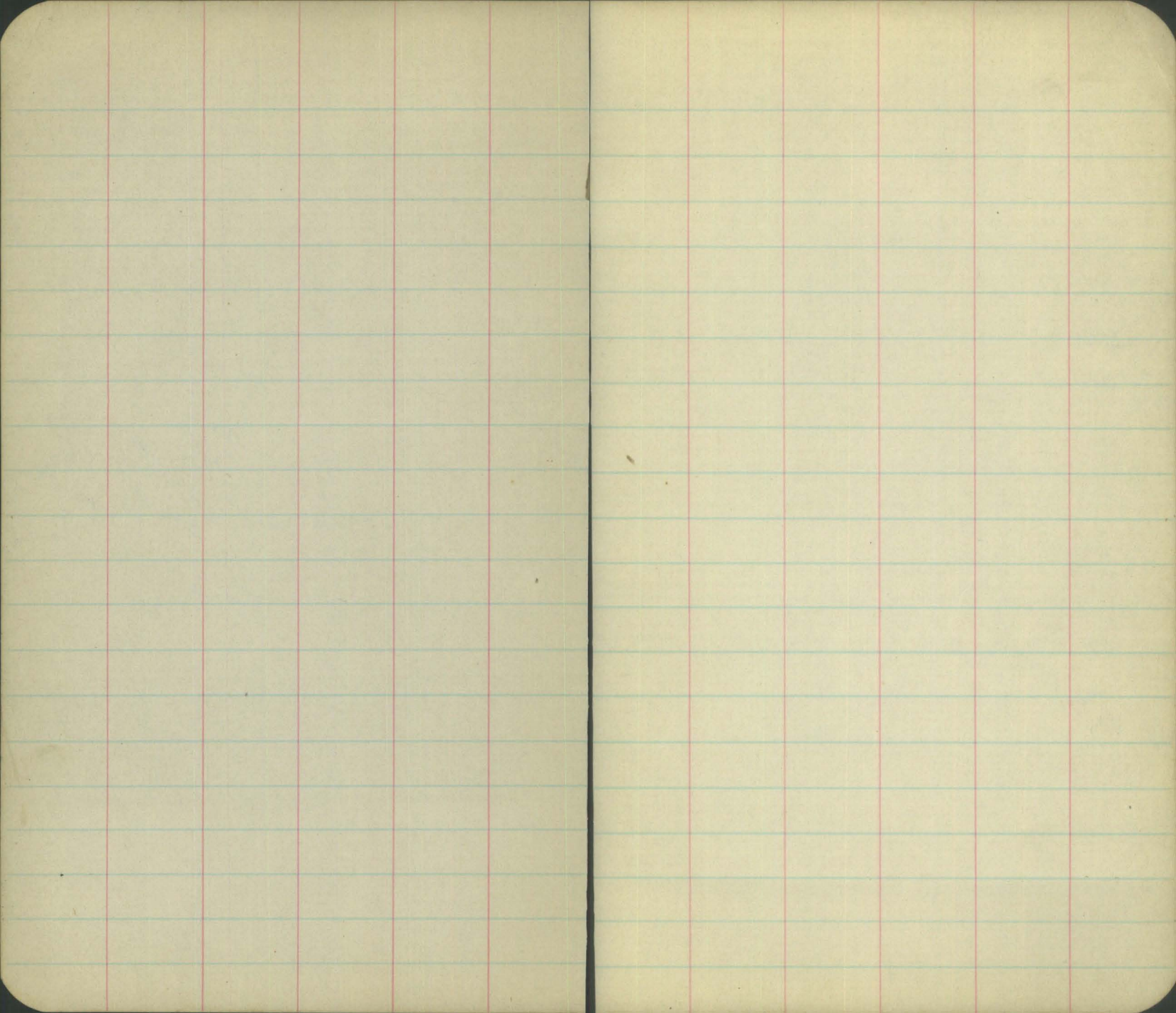
Com at Sta 63 B2R Elev

0 641

1 4.97

480 3.61

See Page 43



M-
Chas. Fisher
East. Waterloo-:

Jesup - Town
#8

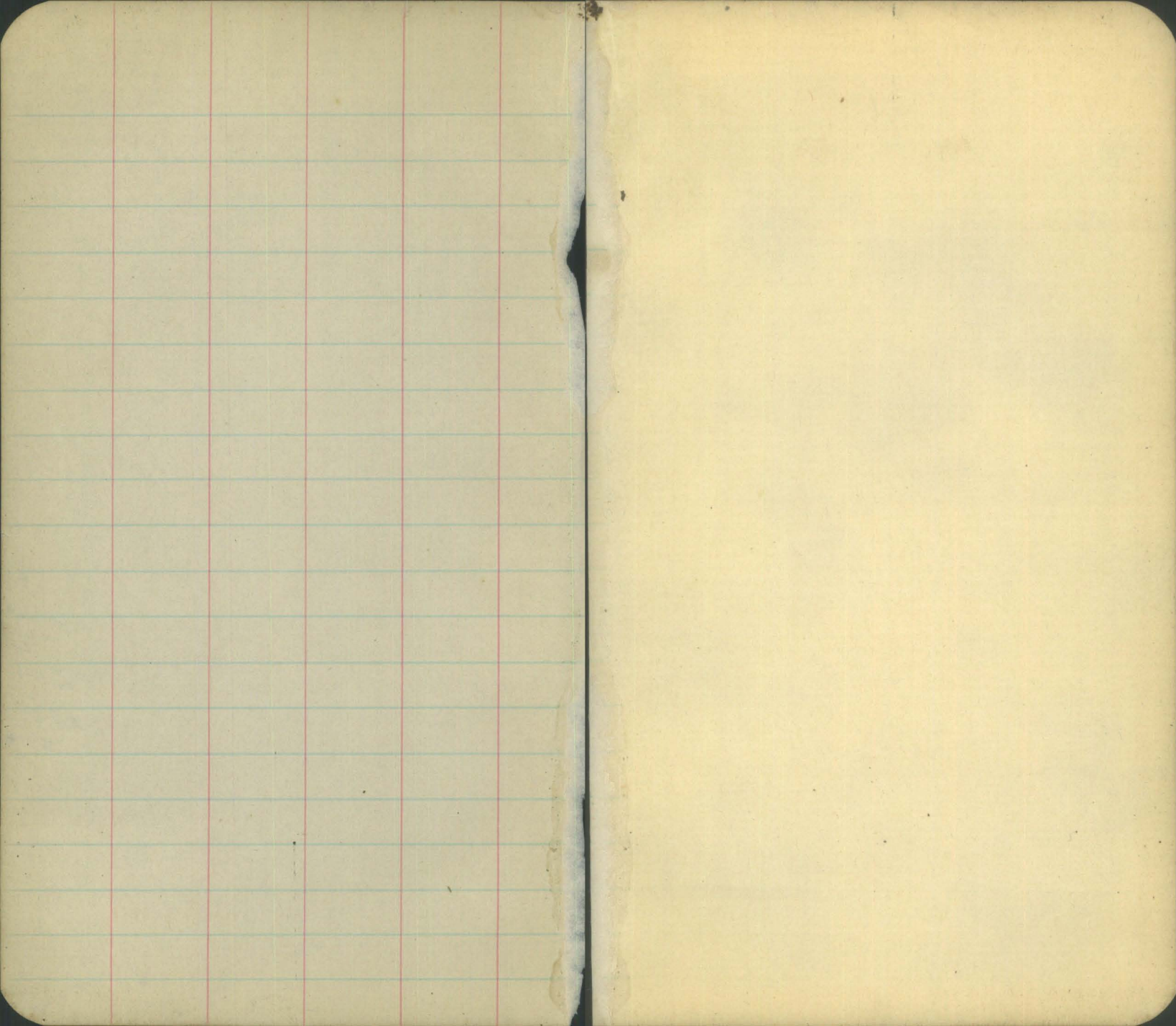
"Hardware Store"

Hermes Jensen =
Hawkeye Const.
Co. Webster City.
Henry Legit.

Martin Hotel:

Mason City.

Lyle Pickford =
Auto Co. 1196



10.99
725

3.74

7.25
950

75

950
725

2.25

725
280

10.05

1.8
22

3.7

75