

189

FIELD
NOTEBOOK

363 A

J. W. Bennett Drain

KEUFFEL & ESSER CO.

DRAWING MATERIALS
AND
SURVEYING INSTRUMENTS.
NEW YORK.

CHICAGO. ST. LOUIS. SAN FRANCISCO. MONTREAL.

TABLES FOR EXCAVATIONS AND EMBANKMENTS.

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.
ROADWAY 18 FEET WIDE. SIDE SLOPES 1 TO 1.
FOR SINGLE TRACK EXCAVATION.

"Copyright, 1895, by Keuffel & Esser Co."

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	0
1	10.0	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	1
2	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	2
3	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	3
4	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	4
5	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	5
6	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	6
7	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	7
8	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	8
9	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	9
10	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	10
11	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	11
12	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	12
13	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	13
14	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	14
15	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	15
16	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8	25.9	16
17	26.0	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8	26.9	17
18	27.0	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8	27.9	18
19	28.0	28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8	28.9	19
20	29.0	29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8	29.9	20
21	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8	30.9	21
22	31.0	31.1	31.2	31.3	31.4	31.5	31.6	31.7	31.8	31.9	22
23	32.0	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8	32.9	23
24	33.0	33.1	33.2	33.3	33.4	33.5	33.6	33.7	33.8	33.9	24
25	34.0	34.1	34.2	34.3	34.4	34.5	34.6	34.7	34.8	34.9	25
26	35.0	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8	35.9	26
27	36.0	36.1	36.2	36.3	36.4	36.5	36.6	36.7	36.8	36.9	27
28	37.0	37.1	37.2	37.3	37.4	37.5	37.6	37.7	37.8	37.9	28
29	38.0	38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8	38.9	29
30	39.0	39.1	39.2	39.3	39.4	39.5	39.6	39.7	39.8	39.9	30
31	40.0	40.1	40.2	40.3	40.4	40.5	40.6	40.7	40.8	40.9	31
32	41.0	41.1	41.2	41.3	41.4	41.5	41.6	41.7	41.8	41.9	32
33	42.0	42.1	42.2	42.3	42.4	42.5	42.6	42.7	42.8	42.9	33
34	43.0	43.1	43.2	43.3	43.4	43.5	43.6	43.7	43.8	43.9	34
35	44.0	44.1	44.2	44.3	44.4	44.5	44.6	44.7	44.8	44.9	35
36	45.0	45.1	45.2	45.3	45.4	45.5	45.6	45.7	45.8	45.9	36

Calculated by Julien A. Hall, M. Am. Soc. C. E.

CHECK ON GRADE FOR
JOHN T BARNETT
DRAIN IN
UNION & CENTER
TOWNSHIP.

	-	+	BM	STA
	105.48	1.89	103.59	0+00
	9.74	48.99	95.74	
		3.25		
Sta. No.	N.	Grade	Check	
0+71	87.57	87.65		
2+00	87.70	88.24		
3+00	87.80	87.94		
3+72	87.87	88.16		
5+00	88.00			
6+00	88.10	89.39		
6+65	88.16	88.84	99.55	91.39
8+00	88.30	89.93	93.05	8.16 8484
8+71	88.37	89.51		
10+00	88.50	90.25		
11+00	88.60	89.85		
12+00	88.70	89.60		
13+23	88.82	89.60	99.58	95.13
		4.42	93.08	4.45
15+00	89.00	89.33		
16+09	89.11	88.46		
18+00	89.30	90.53		
19+00	89.40	91.13		
19+83	89.48	90.70		

Reading of
& Drudge

11.34
10.75
11.05
10.83
9.60
10.15
9.62
10.04
9.30
9.70
9.95 Sept 1250
10.25
11.12
9.05
8.45
8.85

	-	+	BM
	6.30	99.58	93.28
		96.46	96.98
		102.96	
		9.68	

Sta. N. Grade Check

21+00	89.60	93.00
22+59	89.76	92.89
24+00	89.90	93.36
25+00	90.00	93.96

26+18	90.12	94.26	105.21	74.41
		94.55	98.71	10.80
				99.91

27+00	90.20	94.11
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27+60	90.26	97.09
-------	-------	-------

28+57	90.35	
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29+00	90.40	
-------	-------	--

2.20

5.25

6.60

0.65

1.87

104.99
98.49

105.74
99.24

107.52

5.03

7.35

2.43

103.01

~~96.51~~

99.96

~~95.42~~

98.39

~~91.89~~

105.09

~~98.59~~

BM. on top of
root of tree.
Tree 50 ft. or
out off.

9.96

10.07

9.60

9.00

8.70

11.10

11.12

-	π	+	BM
			103.59 ^{BM#1} R/39
	106.11	2.52	
10.38			95.73
	99.13	3.40	

7.90			91.23
	100.68	9.45	

10/17/39

106.26

STA	Reading	Act. Elev.	New Grade
0+71	11.70	87.43	87.57-ok
2+00	10.78	88.35	87.70+.65
3+00	10.66	88.47	87.80+.67
3+72	11.13	88.00	87.87+.13
5+00	11.21	87.92	88.00-ok
6+00	10.28	88.85	88.10+.75
6+82	11.20	87.93	88.16-ok
8+00	10.30	88.83	88.30+.53
Apr 9+00	9.65	90.48	88.37+.11
10+00	11.14	89.54	88.50+1.04
11+00	10.90	89.78	88.60+1.18
11+50	10.52	90.16	
12+00	10.75	89.93	88.70+1.23
13+00	10.72	89.96	88.82+1.14
13+40	10.65	90.03	

-	π	+	BM
	100.68		
7.29			93.39
	98.24	4.85	

7.00			91.24
	95.69	4.45	

3.02			92.67
	102.11	9.44	

Station	- Reading	- Act. Elev	- New Grade
14+00	- 8.45	89.79	88.92+87
15+00	- 8.60	89.64	8900+.64
16+00	- 8.36	89.88	8911+.77
17+00	- 7.40	90.84	8921+1.62
18+00	- 7.24	91.00	8930+1.70
19+00	- 7.65	90.59	8940+1.19
19+83	- 7.25	90.99	8948+1.51

21+00	- 4.44	91.25	8960+1.65
22+00	- 4.55	91.14	8976+1.38
23+00	- 4.87	90.82	8980 +1.02
24+00	- 4.80	90.89	8990+.99
25+00	- 4.60	91.09	9000+1.09
26+18	- 3.85	91.84	9012+1.72

-	π	+	BM.
	102.11		
1.10			101.01
	108.48	7.47	
9.35			99.13
	106.03	6.90	
0.41			105.62
	112.72	7.10	
6.85			105.87
	110.11	4.24	
3.81			106.30

BM on
root of
tree 56
So. of Ditch
at Sta 29+57

Cutoff Check

- + BM

101.01

BM at Sta
28+57

102.27 1.26

2.29

101.55 1.57

99.98

1198 90.29 10 25 - 91.30

Sta	- Reading	Act. El.	Grade
27+00	- 10.31	91.96	90.26
28+00	- 10.46	91.81	90.30
28+57	- 10.46	91.86	90.35
+ 50	- 10.15	92.12	90.40
+ 50	- 10.45	91.82	90.45
+ 50	- 10.50	91.77	90.50

33+00	- 9.58	91.97	90.80
34+00	- 9.70	91.85	90.90
35+00	- 9.65	91.90	91.00

-	π	+	BM	Temp. BM
	104.45	3.44	101.01	28.57
7.75			96.70	
	101.62	4.92		
8.82			92.80	
	103.00	10.20		
8.68			94.32	
	102.92	8.60		

Sta	Reading	New Grade
33+0	-12.36 92.09	90.82
34+0	-11.92 92.53	
35+0	-9.62 92.00	91.00
36+0	-10.21 91.41	
36+50	-10.00 91.62	
37+0	-10.90 92.10	91.20
38+0	-10.40 92.60	91.30
39+0	-9.95 93.05	91.40
40+0	-9.95 93.05	91.50
41+0	-10.62 92.38	91.60

102.92

5.45

104.09 6.62

97.47

9.10

105.44 10.45

94.99

42+0 - 9.68	
93.24	
43+0 - 10.03	91.80
92.89	
44+0 - 10.08	91.90
92.84	
45+0 - 9.70	92.00
93.22	

46+0 - 10.55	92.10
93.54	
47+0 - 9.95	92.20
94.14	
48+50 - 9.90	92.35
94.19	

50+0 - 11.00	92.50
94.44	
51+0 - 11.15	92.60
94.29	
53+0 - 11.03	94.41
94.41	92.80
54+0 - 10.85	92.90
94.59	
55+0 - 11.18	93.00
94.26	

105.44

9.65

100.04 4.25

95.99

2.73

109.71 12.40

97.31

3.30

106.41

56+0 - 1105
94.39

93.10

57+0 - 1088
94.56

93.20

58+0 - 533
94.71

93.30

59+0 - 503
95.01

93.40

60+0 - 495
95.09

93.50

61+0

-	π	+	BM
	107.91	1.65	106.26 ⁶²⁺⁰²
6.30	102.52	0.91	101.61
3.05	105.69	6.22	99.47
6.45	107.92	8.68	99.24
4.30			

BM at
75+0
on E. End
of log.

Sta	Reading	New Grade
63+0	12.85 95.06	93.80
64+0	12.50 95.41	93.90
65+0	12.70 95.21	94.00
66+0	12.80 95.11	94.10
67+0	12.70 95.21	
68+0	7.47 95.05	
69+0	7.11 95.41	
70+0	9.60 96.09	
71+0	9.79 95.90	
72+0	9.90 95.79	94.70
73+0	9.73 95.96	
74+0	12.07 95.85	
75+0	11.84 96.08	
76+0	12.12 95.80	
77+0		

43" from Stk to Ditch Bottom
at Sta 68+44.

-	∩	+	B.M.
	106.36	.10	106.26 <small>B.M. at Sta. 62+02</small>
8.75	106.21	8.60	97.61
8.10	107.71	9.60	98.11
8.60	103.01	3.90	99.11

Feb 13, 1940 - Newman.

Sta.	Read.	Act. El.	Grade	+ or -
63+0	12.80	9356	93.80	-.24
64+0	12.50	9386	93.90	-.04
65+0	11.40	9496	94.00	+.96
65+50	11.16	9505	94.05	+1.00
67+0	11.67	9454	94.20	+.34
68+0	10.70	9551	94.30	+1.21
69+0	11.95	9576	94.40	+1.36
70+0	12.10	9561	94.50	+1.11
71+0	12.05	9566	94.60	+1.06
72+0	11.64	9607	94.80	+1.27

103.01

3.20 105.71 5.90 99.81

6.28 105.76 6.33 99.43

2.02

103.74

Temp. BM
on Nail in
C. Ron Pipe
E. line
87+00

Sta	Read	Act. El.	Grade	+ or -
75+0	6.90	96.11	95.00	+1.11

~~75+0~~

76+0

77+0	7.15	95.86	95.18	+0.68
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78+0	6.80	96.21	95.27	+0.94
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79+0	6.60	96.41	95.36	+1.05
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80+0	9.30	96.41	95.45	+0.96
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83+0	8.85	96.86	95.72	+1.14
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84+0	8.90	96.81	95.81	+1.00
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85+0	9.10	96.61	95.90	+0.71
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86+0

-	+	B.M.
		Temp. B.M.
		at 87+0
109.04	5.30	103.74

4.10		104.94
108.19	3.25	

Feb. 17, 1940 - Newman-Walls
(Cold East Wind)

Sta.	Reading	Act. El.	Grade	+ or -
87+0	11.85	9719	9608	+ 1.11
88+0	11.70	9734	9617	+ 1.17
89+0				
90+0	12.00	9709	9635	+ .69
91+0	11.35	9769	9644	+ 1.25
92+0	11.50	9754	9653	+ 1.01
93+0	11.40	9764	9662	+ 1.02
94+0				
94+0	10.90	9729	9678	+ .56
95+0	10.60	9759	9680	+ .79
96+0	10.80	9739	9689	+ .50
97+0	10.90	9729	9698	+ .31
97+0	10.90	9729	9707	+ .22

- π + BM

108.19

5.85

112.84

1.90

10.50

102.34

110.94

BM on
E. H. Rd.

Sta	Reading	Act. El.	Grade	+ or -
98+0	10.60	9759	9716	+ .43
99+0	10.50	9769	9725	+ .44
100+0	10.50	9769	9734	+ .35
100+80	10.00	9819	9740	+ .79

-	+	B.M.
	111.62	110.97
5.55		106.07
	110.13	4.06
4.05		106.08
	110.03	3.95
4.18		105.85
	110.55	4.70

Feb 17, 1940 - Newman - Walls

Sta.	Reading	Act. El.	Grade	+ or -
119+0	11.15	100.47	99.05	+ 1.42
118+0	10.93	99.20	98.96	+ .24
117+0	11.35	98.78	98.87	-.09
116+0	10.80	99.33	98.78	+ .55
115+0	11.50	98.63	98.69	-.06
114+0	11.35	98.68	98.60	+ .08
113+0	11.30	98.73	98.51	+ .22
112+0	11.55	98.48	98.42	+ .06
111+0	11.81	98.22	98.33	-.11
110+0	12.15	97.88	98.24	-.36
109+0	11.60	98.43	98.15	+ .28
108+0				

Feb. 29, 1940, - Newman.

-	∞	+	BM	Duko's BM BM
	115.91	.78	115.13	
8.40	114.37	6.86	107.51	
5.25	113.82	4.70	109.12	

sta	Read		
181+0	11.25	10466	103.95
180+0	11.30	10461	103.87
178+0	11.70	10421	103.71
177+0	12.25	10366	103.63
175+0	12.20	10371	103.47
174+0	12.80	10311	103.39 ✓
173+0	10.65	10372	103.31
172+0	11.00	10337	103.23
171+0	11.25	10312	103.15 ✓
170+0	11.55	10282	103.07 ✓
169+0	11.50	10287	102.99 ✓

- X + BM
113.82

6.70 107.12
112.32 520

6.82 105.50
113.40 790

Feb 29

STA	READ		
167+0	10.90	102.92	102.83
166+0	11.00	102.82	102.75
164+0	11.80	102.02	102.57
162+0	11.30	102.52	102.43
160+0	11.50	102.32	102.27
158+0	10.00	102.32	102.11
156+0	10.10	102.22	101.95
155+0	10.20	102.12	101.87
153+0	10.10	102.22	101.71

-	π	+	BM
	113.40		

7.70			105.70
	113.55	7.85	

5.50			108.05
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Feb 29

STA	Read		
151+0	11.30	10210	101.55
150+0	11.50	10190	101.47
148+0	11.45	10195	101.31
147+0	11.32	10208	101.23
146+0	11.80	10160	101.15
145+0	11.77	10163	101.07
144+0	11.90	10150	100.99 ✓
143+0	12.00	10140	100.91 ✓
142+0	12.00	10155	100.83
141+0	11.90	10165	100.75
140+0	12.50		
139+0	12.50	10105	100.59
138+0	12.25	10130	100.51
137+0	12.55	10100	100.43
136+0	12.65	10090	100.35

-	π	+	BM
	111.85	380	108.05

4.65	111.55	4.35	107.20
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Feb 29

134+0	11.20	100 65	100.19
133+0	10.70	101 15	100.11
132+0	11.20	100 65	100.03
131+0	10.70	101 15	99.95
130+0	10.90	100 95	99.86
129+0	11.40	100 45	99.77
128+0	11.40	100 45	99.68
127+0	11.50	100 35	99.59
126+0			
125+0	11.40	100 15	99.56
124+0	11.30	100 25	99.47
123+0	11.20	100 35	99.23
122+0	11.20	100 35	99.15
121+0	11.15	100 40	99.05

-	+	BM.
	111.55	
5.60		105.95
	115.40	9.45

4.38

111.02

110.97

Bmat

11940

R.R.B.

Feb 29

-	κ	+	BM	BM, at Dukes.
	116.73	1.60	115.13	

4.00			112.73	
	117.03	4.30		

March 1st 1940 - Newman - Walls

STA	READ		
182+0	12.55	104.8	104.03
183+0	11.95	104.78	104.11
184+0	11.98	104.75	104.19
185+0	12.08	104.65	104.27
186+0	12.25	104.48	104.35
188+0	12.35	104.38	104.51
189+0	11.50	105.23	104.59
190+0	11.80	105.23	104.67
191+0	12.10	104.93	104.75
192+0	12.10 11.80	105.23	104.83
193+0	11.50	105.53	104.91
194+0	11.40	105.63	104.99

- π + BM

117.03

4.18

117.07

4.22

117.85

Mar. 1st -

195+0 11.40 105.63 105.07

196+0 11.30 105.73 105.15

197+0 11.40 105.63 105.23

198+0 10.80 106.23 105.31

200+0 11.42 105.65 105.47

201+0 10.95 106.12 105.55

202+0 10.70 106.37 105.63

203+0 10.92 106.15 105.73

204+0

205+0 10.95 106.12 105.93

206+0 10.90 106.17 106.03

-	π	+	BM
	117.07		
2.05			115.02
	118.90	388	
3.60			115.30
	118.39	3.09	
9.15			114.19
			114.24

Mar 1st -

207+0	10.70	10637	106.13
208+0	10.30	10677	106.23
209+0	12.05	10685	106.33
210+0	11.75	10715	106.43
211+0			
212+0	11.70	10720	106.63
213+0	11.95	10695	106.73
214+0	11.55	10735	106.83
215+0	11.70	10720	106.93
216+0	11.00	10790	107.03
217+0	11.20	10770	107.13
218+0	11.10	10780	107.23
219+0			

- π + BM
121.12 1.95 119.17

BM at
258+0

4.30

119.72 2.90

116.82

Mar. 2nd Newman - Walls

STA	READ	ACT. EL	GRADE
258+0	9.65	111.47	
257+0	9.80	111.32	111.13
256+0	9.25	111.77	111.03
255+0	10.12	111.00	110.93
254+0	10.20	110.92	110.83
253+0	9.85	111.27	110.73
252+0	10.10	111.02	110.63
251+0	10.32	110.80	110.53
250+0	10.65	110.47	110.43
249+0	10.40	110.72	110.33
248+0	10.70	110.42	110.23
247+0	9.50	110.22	110.13
246+0	9.70	110.02	110.03 ✓
245+0	9.80	109.92	109.93 ✓

— π + BM

119.72

4.00

119.19 3.47

115.72

MAR. 2nd —

STA	READ	ACT. EL.	GRADE
244+0	9.90	109.82	109.83
243+0	9.90	109.82	109.73
242+0	9.65	110.07	109.63
241+0	9.65	110.07	109.53
240+0	9.90	109.82	109.43
239+0	9.75	109.97	109.33
238+0	9.70	110.02	109.23
237+0	10.05	109.67	109.13
236+0	10.10	109.62	109.03
235+0	10.60	109.12	108.93
234+0	10.55	109.17	108.83
233+0	9.95	109.24	108.73
232+0	10.10	109.09	108.63
231+0	10.80	108.39	108.53

—
π + BM
119.19

5.00

114.19 BM at
220+80

March 2nd

STA	READ	ACT. EL.	GRADE.
229+0	10.55	108.64	108.33
228+0	10.65	108.54	108.23
227+0	10.85	108.34	108.13
226+0	11.00	108.19	108.03
225+0	11.10	108.09	107.93
224+0	11.20	107.99	107.83
223+0	11.10	108.09	107.73
222+0	10.90	108.29	107.63
221+0	11.30	107.89	107.53

-	π	+	BM
			BM of St. Rd.
	125.60	3.88	121.72
3.88			BM at State Rd.
			121.72

MARCH 6th 1940-

STA.	READ	ACT. EL.	GRADE
at BM	7.00	118.60	114.53 4'-0"
292+0			
292+0	10.00	115.60	114.63 1'-0"
293+0	8.80	116.80	114.73 2'-1"
294+0			
294+0	8.65	116.95	114.83 2'-1 1/2"
295+0			
295+0	9.35	116.25	114.93 1'-4"
296+0			
296+0	9.55	116.05	115.03 1 1/2"
297+0	9.50	116.10	115.13 1 1/2"
298+0	9.90	115.70	115.23 5 1/2"
299+0	9.80	115.80	115.33 5 1/2"
300+0	10.10	115.50	115.43 1"
301+0	9.30	116.30	115.53 9"
302+0	9.80	115.80	115.63 2"
303+0	2'-4" water at end.		

-	π	+	BM
	125.02	3.30	121.72

4.30			120.72
	122.72	2.00	

STA. Reading

290+0	7.70	117 3v	114.43	1'-11"
289+0	9.50	115 5v	114.33	1'-7"
288+0	10.20	114 8v	114.23	7"
287+0	10.30	114 7v	114.13	7"
286+0	10.40	114 6v	114.03	7"
285+0	10.60	114 4v	113.93	6"
284+0	10.20	114 8v	113.83	1'-0"
283+0	10.90	114 6v	113.73	11"
282+0	10.90	114 1v	113.63	6"
281+0	11.00	114 0v	113.53	6"
281+0	1			
280+0	11.70	113 3v	113.43	—
279+0	11.00	114 0v	113.33	8 1/2"

278+0				
277+0	9.20	113 5v	113.13	5"
276+0	9.60	113 1v	113.03	1"
275+0	9.30	113 4v	112.93	6"
274+0	9.60	113 1v	112.83	3 1/2"
273+0	9.70	113 0v	112.73	3 1/2"

—	π	+	B.M.
	122.77		

340			119.32
	123.57	4.25	

438			119.17
			119.19

272 [±] +0	9.80	11292	112.63	3 1/4"
271+0	9.70	11302	112.53	6"
270+0	9.85	11287	112.43	5 1/2"
269+0	10.40	11232	112.33	—
268+0	10.55	11217	112.23	—
267+0	10.60	11212	112.13	—
266+0	10.40	11232	112.03	3 1/4"
265+0	10.40	11232	111.93	5"

264+0	11.10	11247	111.83	8"
263+0	10.40	11317	111.73	1'-5 1/4"
262+0	11.30	11327	111.63	9"
261+0	11.50	11207	111.53	7"
260+0	11.40	11217	111.43	9"
259+0	12.45	11112	111.33	—
258+0	9.50	11407	111.23	2'-10 1/2"
	11.45	11212	E. " "	11"

-	+	BM	Sta. 0+00
		103.59	
	107.99	4.40	
10.87		97.12	
	98.35	1.23	
4.32		94.03	
	98.66	4.63	
3.83		94.83	BM at 6+82

Nov. 3rd Newman - Miles
check on Allen.

5+50

9.42 - 88.93

5+50

10.55 - 88.11

6+82

10.76 - 87.90

-	π	+	BM	
97.19	2.36	94.83	BM at 6+82	

5.82

99.80

8.43

91.37

Nov. 4, 1939 - Newman.

Sta.	Reading	Grade.
6+50	87 89 9 30	88.15
6+75	88 04 9 15	
5+0	87 99 9 20	88.00
5+50	87 99 9 20	88.05
7+50	90 14 7 05	88.25
8+0	89 82 7 37	88.30
After cleanout		
7+0	87 97 9 22	88.20
7+50	88 29 8 90	88.25
8+0		
8+71	89 75 10 05	88.37
9+50	89 72 10 58	88.45
10+0	89 85 9 95	88.50

-	+	BM	
97.39	2.56	94.83	BM at 6182

4.85	98.23	5.69	92.54
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2.46

95.77 BM on red tree 15150

November 6th Newmon

STA.	Reading	Act. El.	Grade.
8+50	9.05	88.34	88.35
9+0	9.04	88.35	88.40
10+0	8.95	88.44	88.50
11+0	8.14	89.25	88.60

-	+	+	BM	
98.55	2.78	95.77		BM of sta 15+50

3.90	98.72	4.07	94.65
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November 7th Newman

Sta.	Reading	Act El.	Grade	
11+0	9.65	88.90	88.60	
11+50	9.75	88.80	88.65	
12+0	9.92	88.63	88.70	
13+0	9.63	88.92	88.80	
13+50	9.72	88.83	88.85	
14+50	9.54	89.01	88.95	
15+50	9.67	88.88	89.05	
16+09	9.70	88.85	89.11	
17+0	8.33	90.39	89.20	15'
17+50	7.95	90.77	89.25	2'
18+0	7.85	90.87	89.30	20"
18+50	7.50	91.22	89.35	2'

-	+	+ BM	BM at sta
	111.82	1.02	110.80
5.55	109.99	3.72	106.27

101+18

November 7th - Newman.

[check on Prop-line]

STA	Reading	Act. El.	Grade
98+0	12.30	97.69	97.16 7"
97+0	12.50	97.49	97.07 5 1/2"
96+50	12.32	97.67	97.02 8 1/2"

- \times + BM
 98.42 2.65 95.77 STA 15+50

0.58

97.84 BM on 500
 20+0

November 8th - Newman

STA	READING	ACT. EL.	GRADE
16+0	9.60	88.82	89.10
16+50	9.40	89.02	89.15
17+0			89.20
17+50	9.35	89.07	89.25
18+0			
18+50	9.00	89.42	89.35
19+0	7.43	90.99	89.40
19+50	7.82	90.60	89.45
20+0	7.72	90.70	89.50
20+50	7.75	90.67	89.55

-	π	+	BM
	98.02	.18	97.84
			514 20+0

4.83	104.37	11.18	93.19
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3.40			100.97
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November 9th Newman

sta	Reading	Act. El.	Grade
20+0	8.60	89.42	89.50
20+50	8.70	89.32	89.55
21+0	8.65	89.37	89.60
21+50	8.60	89.42	89.65
22+0			
22+50	8.50	89.52	89.75
23+50	8.50	89.52	89.85
24+0	8.20	89.82	89.90
25+0	7.80	90.22	90.00
26+0			

- π + BM
104.37

Sta	Reading	Act El.	Grade
26+18	1250	91.87	90.11
27+00	1245	91.82	90.20
cut off	1240	91.97	

- + BM

102.53 1.52 104.01 BM at cut
off

103.61 2.60 101.01

November 13th Newman

Sta	Reading	Act. El.	Grade
26+18	12.12	90.41	90.10
27+0	12.05	90.48	90.20
28+0	11.90	90.63	90.30
W End of C.O.	11.54	92.07	90.35 1-9
Midway	11.38	92.23	90.45 1-9
E. end	11.82	91.79	90.55 1-3

-	+	+	BM	
	105.14	4.13	101.01	28+57
7.21	101.03	3.10	97.93	

Nov 16th - Newman

STA	READING	ACT. EL.	GRADE
29+50	10.17	90.86	90.35
30+00	10.00	91.03	90.45
30+50	10.55	90.48	90.55

-	+	+	BM	Sta. of BM
			101.01	28+57

	105.14	4.13		
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8.56			96.58	
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	99.18	2.60		
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5.53			93.65	
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	97.25	3.60		
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3.33			93.92	
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	105.07	11.15		
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3.69			101.38	
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BM on high
bank of
Havermele
Fence line
S. of C. Sec.

Nov. 17th Newman.

STA	BP	A. El.	Grade
33+0	8.25	90.93	90.80
33+50	8.24	90.94	90.85
34+0	8.05	91.13	90.90
35+0	7.85	91.33	91.00

35+50	6.30	90.95	91.05
36+0	6.05	91.20	91.10
37+0	5.42	91.83	91.20

-	∞	+	BM
	113.95	2.65	110.80 ^{101.18}
535			108.10
	110.58	2.48	

Nov. 17th Continued

STA	Reading	Act. El.	Grade
102+48	10.90	9968	97.46
103+0	11.75	9883	97.61
104+0	11.90	9918	97.70
105+0	11.10	9948	97.79

-	+	+	B.M.
	108.94	2.68	106.26
8.02			100.92
	104.15	3.23	
8.90			95.25
	103.35	8.10	
4.92			98.43
	100.38	1.95	
4.65			95.73
	100.63	4.90	

Nov. 27th - Newman.

cool-cloudy

Sta.	Reading	Act. El.	Grade
57+0	10.72	93.43	93.20 + 3"
56+0	10.56	93.59	93.10 + 6"
55+0	10.40	93.75	93.00 + 9"
54+0	10.60	93.55	92.90 + 7"
53+0	9.80	93.55	92.80 + 9"
52+0	11.30	92.05	92.70 + 4"
51+0	10.50	92.85	92.60 + 3"
50+0	8.05	92.33	92.50
49+0	8.05	92.33	92.40

-	+	+	BM
	100.63		
5.42			95.21
	100.49	5.28	
3.33			97.16
	107.34	10.18	
6.00			101.34

check on
B.M.

Sta	Reading	Act. El.	Grade
48+0	8.73	91.90	92.30
47+0	8.60	92.03	92.20
46+0	8.78	91.85	92.10
45+0	8.90	91.73	92.00
43+0	8.85	91.64	91.80
42+0	8.89	91.60	91.70
40+0	9.11	91.38	91.50
38+0	9.50	90.99	91.30

- π + BM
110.85 0.05 110.80 101+18

2.90 111.15 3.20 107.95

3.12 115.75 7.72 108.03

~~3.58~~
4.78

~~112.25~~
111.05 BM at
RR Bridge

Nov 27th - Newman

Sta.	Read	Act. El.	Grade.
101+48	12.05	98.80	97.97+1'4"
103+0	12.30	98.55	97.61+11"
104+0	12.37	98.48	97.70+9"
105+0	12.35	98.50	97.79+8 1/2"
106+0	12.20	98.65	97.88+9"
107+0	12.20	98.65	97.97+8 1/2"
108+0	12.50	98.65	98.06+7"
109+0	12.40	98.75	98.15+7"
111+0	12.60	98.55	98.33+3"
112+0	11.30	99.85	98.51+4 1/2"
115+0	12.30	98.85	98.69+2"

-	π	+	BM
	117.91	6.99	110.97 BM at RR Bridge.
8.25			109.16
	111.55	2.39	

4.53

4.93

Nov. 28th - Newman.
cool - clear

Sta.	Read.	Act. El.	Grade	+ -
120+0	11.37	100.18	99.14	+1' 1/2"
121+0	11.36	100.19	99.23	+1 1/2"
122+0	11.68	99.87	99.32	+7"
123+0	11.00	100.55	99.41	+1' 2"
124+0	11.42	100.13	99.50	+8"
125+0	11.67	99.88	99.59	+3 1/2"
126+0	11.85	99.70	99.68	+1/4"
128+0	11.55	100.00	99.77	+3"

November 29th

-	π	+	B.M.
			110.97
	114.25	3.28	
11.90			102.35
	112.05	9.70	

	7.82		104.23
	112.98	8.75	

Dec. 6th - Newman

STA	READ	ALT. EL.	GRADE
121+0			
128+0	11.40	100.65	99.68+1
131+0	12.40	100.58	99.85+7"
sl. 135+0	12.23	100.75	100.27+6"
136+0	12.40	100.58	100.35+4"
137+0	12.20	100.78	100.43+9"
138+0	11.70	101.28	100.51+9"
140+0	11.90	101.08	100.67+5"
141+0	11.50	101.48	100.75+9"
142+0	11.60	101.38	100.83+6 $\frac{1}{2}$ "
143+0	11.80	101.18	100.91+3"

-	π	+	BM
7.05	112.98		105.93
	113.28	7.35	

4.40			108.88
	112.98	9.10	

3.58			109.90
	112.85	3.95	

STA	READ	ACT. EL	GRADE
144+0	11.90	101.38	100.99.5"
145+0	11.75	101.53	101.07.7"
146+0	11.50	101.78	101.15.8"
147+0	11.24	102.04	101.23.9"
148+0	11.30	101.98	101.31.8"
150+0	11.35	101.93	101.47.8"
151+0	10.90	102.38	101.55.10"

153+0	10.70	102.28	101. ⁷¹ 4 +7"
154+0	10.95	102.03	101.79.3"
155+0	10.55	102.43	101.87.7"
156+0			

-	∩	+	BM
3.00	112.85		109.85 ^{BM on tree at 1560}

STA	BEAD	ACT. EL.	GRADE
156+0	10.15	102.70	102.03.8
157+0	10.30	102.55	102.11.5"

Dec 23rd 1939

- π + B.M. 62+02
106.26

109.53 3.27

7.36

102.17

103.98 1.81

8.82

95.16

100.39 5.23

STA READ ACT. EL. GRADE.

62+02 9.68 94.30 93.70

61+0 10.20 93.78 93.60

60+0 10.30 93.68 93.50

59+0 10.20 93.78 93.40

57+0 6.70 93.69 93.20

55+0 6.83 93.56 93.00

-	+	BM
		62+02
		106.26
	107.71	1.45
11.15		96.56
	101.11	4.55

		READ	GRADE
E.	62+02	7.60	93.51
	63+0	7.75	93.36
	64+0	7.20	93.91
	65+0	6.55	94.56

-	π	+	BM	62402
			106.26	
3.60	107.78	1.52	104.18	
	107.21	3.03		
9.23	107.78	2.80	97.98	
9.90	105.83	7.45	97.88	

~~VOID~~

VOID

MAR 18-1940

VOID		VOID	
65+0	12.70	9451	94.00
66+0	12.70	9451	94.10
67+0	12.50	9471-	94.20
68+0	12.60	9461-	94.30
69+0	12.10	9511	94.40
70+0	12.80	9498	94.50
71+0	12.50	9528	94.60
72+0	12.50	9528	94.70
73+0	12.10	9564	94.80
74+0	10.15	9578	94.90
75+0	10.00	9533	95.00
76+0	9.50	9582	95.09
77+0	9.90	9543	95.18
78+0	9.60	9573	95.27
79+0	9.40	9593	95.36
80+0	8.90	9643	95.45

VOID

105.33

VOID

~~3.85~~ ~~VOID~~ ~~101.48~~
~~109.23~~ ~~7.75~~

~~7.80~~ ~~101.43~~
~~110.33~~ ~~8.90~~

4.65 105.68

2.38 112.18 7.50
110.80

~~VOID~~

~~81+0~~
~~82+0 9.10 9623 9563~~

~~83+0 9.10 9623 9572~~

~~85+0 12.75 9648 9590~~

~~87+0 12.70 9653 96.08~~

~~88+0 12.20 9703 96.17~~

~~89+0 12.55 9668 96.26~~

~~90+0 12.40 9683 96.35~~

~~91+0 12.70 9763 96.44~~

~~92+0 12.80 9753 96.53~~

~~94+0 12.70 9763 96.62~~

~~95+0 12.90 9743 96.71~~

~~97+0 B. 12.50 9783 96.98~~

~~98+0 12.70 9763 97.16~~

~~100+0 12.70 9763 97.34~~

-	π	+	BM
			110.80
	111.00	.20	
5.27			105.73
	106.23	1.10	

.98			105.85
	108.95	3.10	

2.95			106.00
	107.68	1.68	

MARCH 18th 1940

100+0	9.45	97.38	97.34	-
99+0	9.55	97.38	97.25	-
98+0			97.16	
97+0 B	9.40	97.00	97.07	x
97+0 A	10.00	96.83	96.98	-
96+0	10.25	96.58	96.89	-
95+0	10.45	96.38	96.80	-
94+0			96.71	
93+0	10.30	96.53	96.62	-
92+0	11.90	97.05	96.53	x
91+0	12.15	96.80	96.44	x
90+0	12.35	96.60	96.35	x
89+0				
88+0				

107.68

7.35

106.13

5.80

100.33

8.35

105.58

7.80

97.78

7.65

102.06

4.13

97.93

89+5	11.12	9656	96.26	x
88+5	11.00	9668	96.17	x
87+0	11.40	9628	96.08	x
86+0	11.60	9608	95.99	x
85+0	11.60			

85+0	10.10	9603	95.90	x
84+0	10.35	9578	95.81	x
83+0	11.00	9513	95.72	x
82+0	10.60	9553	95.63	✓
81+0	11.00	9513	95.54	✓
80+0	10.80	9533	95.45	✓
79+0	11.00	9513	95.36	✓
78+0				

76+0	10.45	9513	95.00	
74+0	10.50	9508	94.90	
73+0	10.70	9488	94.80	
72+0	10.80	9478	94.70	
71+0	10.95	9463	94.60	

	102.06		
4.13			97.93
	103.45	5.52	
7.90			95.55
	105.35	9.80	
4.20			101.25
	108.65	7.50	
2.40			106.25

70+0	7.30	9476	9450
69+0	7.50	9456	9440
68+0	7.45	9400	9430
67+0	9.00	9445	9420
66+0	9.00	9445	9410
65+50	11.28	9407	9405
65+0	11.00	9435	9400

-	K	+	BM	
	111.15	.35	110.80	101+18
7.45	110.30	6.60	103.70	

March 29, 1940 Newman-Terry

101+18	12.40	9875
101+40	12.50	9835
104+0	11.90	9840
105+0	11.80	9850
106+0	12.10	9820

— π + B/M 101+18

110.80

110.85 .05

7.72

110.53 7.10

103.43

3.62

112.47 5.56

106.91

1.50

110.97

STA. READ ACT. EL GRADE.

101+18	12.10	9875	97.49
101+40	12.62	9873	
103+0	12.90	9795	97.61
104+0	12.70	9815	97.70
105+0	12.65	9820	
106+0	12.65	9820	97.88
107+0	12.70	9815	97.97
108+0	12.80	9805	98.06
110+0	12.35	9818	98.24
111+0	12.30	9823	98.33
112+0	12.50	9803	98.42
113+0	12.10	9843	98.51
114+0	12.10	9843	98.60
116+0	12.00	9853	98.78

118+0	13.80	9867	98.96
119+0	14.30	9817	99.05
	13.00	9947	

88

10

—	π	+	BM
	113.75	2.78	110.97
7.00			106.75
	110.09	3.34	

3.80			106.29
	111.24	4.95	

~~120+0~~

120+0	10.80	99.29	99.05
121+0	10.90	99.19	99.15
123+0	10.70	99.39	99.23
124+0	10.70	99.39	99.32
125+0	10.90	99.19	99.41
126+0	10.50	99.59	99.50
127+0			
128+0			
127+0	11.70	99.54	99.59
128+0	11.80	99.44	99.68
129+0	11.60	99.64	99.77
130+0	11.30	99.94	99.86
131+0			

Nov. 3rd

check on stakes.

	Fr. Top of stk	CUT ON PROFILE	ABOVE
657	8'-1"	9'-7 $\frac{1}{2}$ "	1'-6 $\frac{1}{2}$ "
67+0	6'-2"	7'-4 $\frac{1}{2}$ "	1'-2 $\frac{1}{2}$ "
72+96	8'-6"	9'-10"	1'-4"
77+0	8'-10"	9'-10"	1'-0"
88+0	8'-1"	9'-6"	1'-5"

April 10, 1940

Newman-Terry

- + BM
 115.13 BM at
 Dukoo Bl.

115.81 .628

5.95

115.28 5.42

109.86

5.60

109.68

Sta #	Read.	Act EL	GRADE
181+0	12.80	103.01	103.95
180+0	12.50	103.31	103.87
179+0	11.90	103.81	103.79
178+0	12.10	103.71	103.71
177+0	12.25	103.56	103.63
176+0	12.60	103.21	103.55
175+0	12.50	103.31	103.47
174+0	12.70	103.11	103.39
173+0	12.60	103.21	103.31

172+0	11.75	103.53	103.23
171+0	12.20	103.08	103.15
170+0	12.10	103.18	103.07
169+0	12.50	102.78	102.99
168+0	12.50	102.78	102.91
167+0	12.60	102.68	102.83

- π + B.M.

113.68 4.00

109.68

5.10

117.48 3.90

108.58

3.15

109.33

4/10/40

Sta	Read	Act El.	Grade
166+0	10.80	102.88	102.75 ✓
165+0	11.45	102.23	102.67
164+0	11.55	102.13	102.58
163+0	12.00	101.68	102.51
162+0	12.10	101.58	102.43
161+0	12.30	101.38	102.35
160+0	12.30	101.38	102.27
159+0	12.30	101.38	102.19
158+0			
157+0			

156+0	11.20	101.28	101.95
154+0	11.50	100.98	101.79
153+0	11.50	100.98	101.71
152+0	11.25	101.23	101.55
150+0	11.55	100.93	101.47
149+0	12.00	100.48	101.39
148+0	11.80	100.68	101.31
147+0	12.00	100.48	101.23
146+0	12.25	100.23	101.15
145+0	12.20	100.28	101.07

- + + BM
109.33

112.13 280

4.10

111.78 375

108.03

3.78

117.27 9.22

108.00

630

110.92

4/10/40

Sta	Beet	Act	Grade
144+0	11.80	100.33	100.99
143+0	12.00	100.13	100.91
142+0	11.90	100.22	100.83
141+0	11.95	100.18	100.75
140+0	12.10	100.03	100.67
139+0	12.30	99.83	100.59
138+0			
137+0	12.60	99.53	100.43
136+0	12.45	99.68	100.35
135+0	12.30	99.83	100.27

134+0	11.80	99.98	100.19
133+0	12.10	99.68	100.11
132+0	12.00	99.78	100.03
131+0	12.00	99.78	99.95

~~130+0~~

~~129+0~~

-	x	+	BM
			115.13
	116.46	133	
6.92			109.54
	116.06	6.52	

4.90			111.14
	117.76	6.60	

5.75	117.11	5.10	112.01
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April 18, 1940 - Newman-Terry.

183+0	12.30	103.76	-
184+0	11.80	104.26	-
185+0	12.30	103.76	-
186+0	12.20	103.86	-
187+0	12.40	103.66	-
188+0	12.00	104.06	-
189+0	11.90	104.16	-
191+0			

192+0	12.50	105.26	104.83	5"
193+0	12.50	105.26	104.91	4"
194+0	12.30	105.46	104.91	6"
196+0	11.95	105.81	105.15	7"
198+0	11.70	106.06	105.31	9"

~~190+0~~

200+0	11.50	105.61	105.47	2"
200+0	11.30	105.81	105.55	3"
202+0	11.50	105.61	105.63	-

- + + BM

117.11

3.25

119
+20.16 5.30

113.86

4.95

114.21 BM at
220+80

4/18/40

204+0	11.20	105.91		
205+0	11.20	105.91	105.93	-
206+0	11.20	105.91	106.03	-
207+0	11.00	106.11	106.13	-
208+0	10.80	106.31	106.23	1"
209+0	10.40	106.71	106.33	5"
210+0	10.30	106.81	106.43	4 1/4"
212+0	12.40	106.76	106.63	2"
214+0	12.10	107.06	106.83	3"
216+0	12.10	107.06	107.03	-
218+0	11.60	107.56	107.23	4 1/4"
220+0	11.40	107.76	107.43	4 1/2"

—	π	+	BM	
			119.17	258+0 Station

120.52	1.35		
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3.70			
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120.07	3.25		
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		116.82	
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4.90			
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118.33	2.70		
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		115.67	
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April 22, 1990 Newman-Terry

Sta.	Read.	Adj. EL.	Grade	
258+0	9.35	111.17	111.23	—
257+0	9.40	111.12	111.13	—
256+0	9.70	110.82	111.03	—
255+0	9.80	110.72	110.93	—
254+0	9.75	110.82	110.83	—
253+0	9.50	111.02	110.93	3"
252+0	9.80	110.72	110.63	1
251+0	10.40	110.12	110.53	—
250+0	10.45	110.07	110.43	—
249+0	10.80	109.72	110.33	—

248+0	10.00	110.02	110.23	—
247+0	10.05	110.02	100.13	—
246+0	10.20	109.77	100.03	—
245+0	10.50	109.52	109.93	✓
243+0	10.30	109.77	109.73	1
242+0	10.75	109.32	109.63	—
241+0	10.60	109.47	109.53	—
240+0	10.75	109.32	109.43	✓
239+0	10.80	109.27	109.33	✓
238+0	10.60	109.47	109.23	3"

- π + BM

118.33

2,82

118.91 340

115.51

485

114.06

237+0	9.50	10883	10913	✓
236+0	9.30	10903	10903	✓
235+0	9.35	10898	10893	1"
234+0	9.65	10868	10883	✓
233+0	9.55	10878	10873	1"
232+0	9.30	10903	10863	5 1/4"
231+0	10.00	10833	10853	✓
230+0	10.40	10793	10843	✓
229+0	10.80	10753	10833	✓
228+0				
227+0				
				1
227+0	10.60	10771	10813	✓
226+0	11.10	10781	10803	✓
225+0	11.10	10781	10793	✓
224+0	11.20	10771	10783	✓
223+0	11.60	10731	10773	✓
			10773	
222+0	11.00	10791	10763	3 1/2"
221+0	11.25	10766	10753	2 1/2"

3.70

—	π	+	BM	Station
	122.17	3.00	119.17	258+0

Sta	Read	Act. El.	Grade	
258+0	10.93	111.77	111.28	✓
260+0	10.70	111.47	111.33	
261+0	11.00	111.17	111.43	
262+0	11.00	111.17	111.53	
263+0	10.60	111.57	111.63	
264+0	10.30	111.87	111.73	
265+0	10.30	111.87	111.83	
266+0	10.20	111.97	111.93	
267+0	10.12	112.05	112.03	
268+0	9.70	112.47	112.13 - .33	
269+0	9.80	112.37	112.23 - .14	
270+0	9.50	112.67	112.33 - .34	
271+0	9.70	112.47	112.43 - .04	
272+0	9.70	112.47	112.53	
273+0	9.75	112.42	112.63	
274+0	9.60	112.52	112.73	
275+0	9.40	112.52	112.83	
276+0	9.50	112.62	112.93	

- π + BM

120.02 4.30 121.72

291+0
STATION

STA.	Read.	Act. El.	Grade.
292+0	11.20	114.82	114.63
293+0	11.0	115.02	73
294+0			
295+0	10.70	115.32	93
296+0	11.0	115.02	03
297+0	10.80	115.22	13
298+0	10.60	115.42	23
299+0	10.50	115.52	33
300+0	10.50	115.52	43
301+0	10.30	115.72	53
302+0			63
302+39	10.30	115.72	67

K.P.A PROJ. RD - D-7
 CLOUDY-WINDY

Dec, 19, 1939.

- π + B.M.

100.00 Base of th.
 SE. Cor. B.C.

110.25 10.25

.71

109.54

121.74 12.20

1.30

120.44

131.05 10.61

1.69

129.36

B.M. - Nail
 in N Gate post
 to Saw mill.

25' 15' 15' 25'
 1 1 1 1

N
 ↑
 E

ST. BR.

6+50
 9.03 6 8.75 6 9.50 10.30
 8.25 6.52 8 6.40 8 6.65 6.90 7.17

Turn.

9 5.0 9
 10.16 11.83 11.54 12.10 12.50

9 4.0 9
 6.94 7.02 6.90 7.22 6.68

3.0
 8.6 8.6
 1.90 2.20 1.92 2.30 1.83

Turn

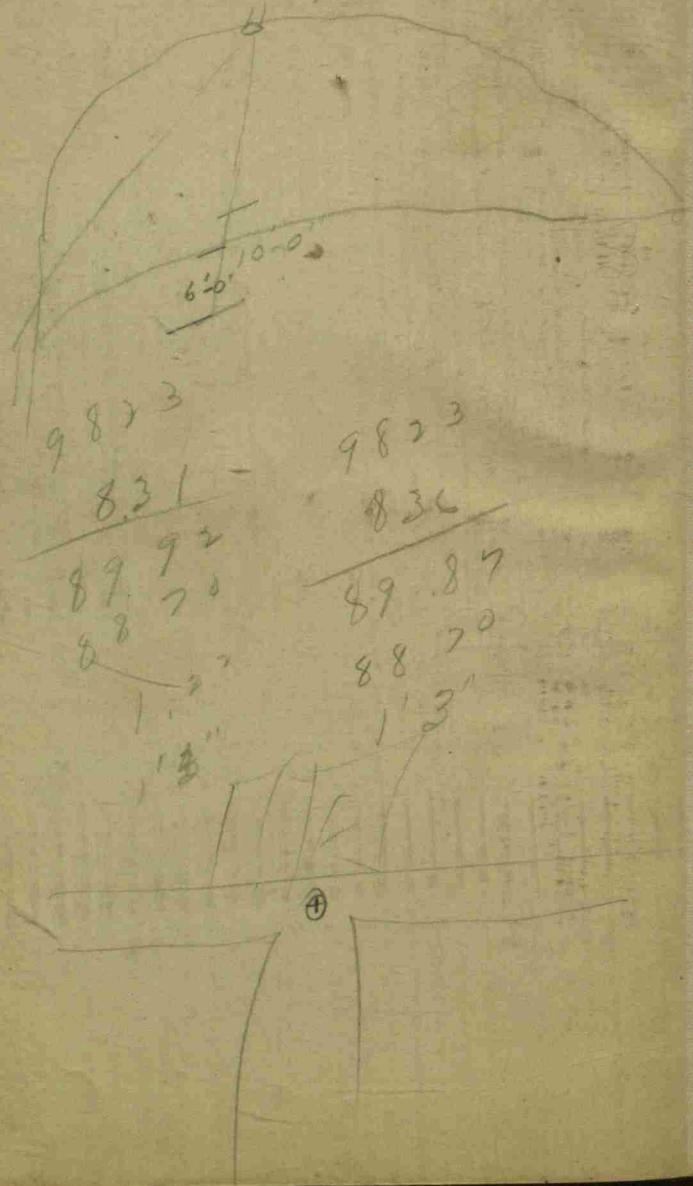
9 2.0 9
 5.89 7.18 6.99 7.28 4.25

9 1.80 9
 2.30 3.92 3.66 3.98 1.08

9 0.0 9
 2.65 2.60 2.27 2.59 2.66 Gate + Drive
 Saw mill.

212
164
1.48

45
80
3600 22
32+07
33+22
117+4
110.97
258+00



DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.
ROADWAY 14 FEET WIDE. SIDE SLOPES 1 1/2 TO 1.
FOR SINGLE TRACK EMBANKMENT.

	0	1	2	3	4	5	6	7	8	9	
0	7.0	7.2	7.3	7.5	7.6	7.8	7.9	8.1	8.2	8.4	0
1	8.5	8.7	8.8	9.0	9.1	9.3	9.4	9.6	9.7	9.9	1
2	10.0	10.2	10.3	10.5	10.6	10.8	10.9	11.1	11.2	11.4	2
3	11.5	11.7	11.8	12.0	12.1	12.3	12.4	12.6	12.7	12.9	3
4	13.0	13.2	13.3	13.5	13.6	13.8	13.9	14.1	14.2	14.4	4
5	14.5	14.7	14.8	15.0	15.1	15.3	15.4	15.6	15.7	15.9	5
6	16.0	16.2	16.3	16.5	16.6	16.8	16.9	17.1	17.2	17.4	6
7	17.5	17.7	17.8	18.0	18.1	18.3	18.4	18.6	18.7	18.9	7
8	19.0	19.2	19.3	19.5	19.6	19.8	19.9	20.1	20.2	20.4	8
9	20.5	20.7	20.8	21.0	21.1	21.3	21.4	21.6	21.7	21.9	9
10	22.0	22.2	22.3	22.5	22.6	22.8	22.9	23.1	23.2	23.4	10
11	23.5	23.7	23.8	24.0	24.1	24.3	24.4	24.6	24.7	24.9	11
12	25.0	25.2	25.3	25.5	25.6	25.8	25.9	26.1	26.2	26.4	12
13	26.5	26.7	26.8	27.0	27.1	27.3	27.4	27.6	27.7	27.9	13
14	28.0	28.2	28.3	28.5	28.6	28.8	28.9	29.1	29.2	29.4	14
15	29.5	29.7	29.8	30.0	30.1	30.3	30.4	30.6	30.7	30.9	15
16	31.0	31.2	31.3	31.5	31.6	31.8	31.9	32.1	32.2	32.4	16
17	32.5	32.7	32.8	33.0	33.1	33.3	33.4	33.6	33.7	33.9	17
18	34.0	34.2	34.3	34.5	34.6	34.8	34.9	35.1	35.2	35.4	18
19	35.5	35.7	35.8	36.0	36.1	36.3	36.4	36.6	36.7	36.9	19
20	37.0	37.2	37.3	37.5	37.6	37.8	37.9	38.1	38.2	38.4	20
21	38.5	38.7	38.8	39.0	39.1	39.3	39.4	39.6	39.7	39.9	21
22	40.0	40.2	40.3	40.5	40.6	40.8	40.9	41.1	41.2	41.4	22
23	41.5	41.7	41.8	42.0	42.1	42.3	42.4	42.6	42.7	42.9	23
24	43.0	43.2	43.3	43.5	43.6	43.8	43.9	44.1	44.2	44.4	24
25	44.5	44.7	44.8	45.0	45.1	45.3	45.4	45.6	45.7	45.9	25
26	46.0	46.2	46.3	46.5	46.6	46.8	46.9	47.1	47.2	47.4	26
27	47.5	47.7	47.8	48.0	48.1	48.3	48.4	48.6	48.7	48.9	27
28	49.0	49.2	49.3	49.5	49.6	49.8	49.9	50.1	50.2	50.4	28
29	50.5	50.7	50.8	51.0	51.1	51.3	51.4	51.6	51.7	51.9	29
30	52.0	52.2	52.3	52.5	52.6	52.8	52.9	53.1	53.2	53.4	30
31	53.5	53.7	53.8	54.0	54.1	54.3	54.4	54.6	54.7	54.9	31
32	55.0	55.2	55.3	55.5	55.6	55.8	55.9	56.1	56.2	56.4	32
33	56.5	56.7	56.8	57.0	57.1	57.3	57.4	57.6	57.7	57.9	33
34	58.0	58.2	58.3	58.5	58.6	58.8	58.9	59.1	59.2	59.4	34
35	59.5	59.7	59.8	60.0	60.1	60.3	60.4	60.6	60.7	60.9	35
36	61.0	61.2	61.3	61.5	61.6	61.8	61.9	62.1	62.2	62.4	36

Calculated by Julien A. Hall, M. Am. Soc. C. E.

MADE IN GERMANY.