

Dr. #8 BLACK HAWK
#3 Buchanan

Book 2

LEVEL BOOK

370

1077

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.

3 3 3
FEB 27 '23
ALLIED
J. M. B. 104

Sta BS M.I. - 8 Elev
0 5.85 9.85 4.00

7 2.10 7.75

0 Elev Br cut .25
4.00 0 4.00

7 7.75 1.75 6.00

0 4.70 9.20 4.50

4.70 4.50

14756r

475

Inpile

6.80 2.40

5.55

1.25

Elev fr cut

0 4.50 0 4.50

1.75 4.50 2.40 1.60

4.50 -

Levels
Line Page
Main 2

Checking
Line Page
Main 100-103

OK Levels + BMs B2R 157-152
HUBS 11/2 CHECK

BR2R 62 - Main 36 -

BR1 60 Main 100-114
2160 BB-1-2-3-4 R

BR1-R 10-35 BR2-R - 48 -

Main 114 - Main 76

BR3-R 44-46 BR1 L 80

BR4-R 58

BB4 1/2 R 14

X 445 53.06

T.P. 8.04 4.68 60.69 52.65

X 7.64 53.05

A 19 5.08 55.61 Gr=1.30 6.21

20 5.04 55.71 49.40 6.21

X 3.90 55.65 55.75 49.70 5.95

21 6.32 4.99 62.02 55.70 50.00

X 5.23 55.80 50.10 5.70

22 5.86 56.79 56.89

23 5.52 56.16 50.30

24 5.26 56.26 50.40 5.86

25 5.10 56.92 51.20 5.72

26 4.70 57.32 51.50 5.82

X 4.31 57.71

27 6.74 4.43 64.33 57.59 51.80

X 6.62 57.71

28 6.19 58.14 52.10 6.04

29 5.81 58.52 52.40 6.12

A

A

A

See page 102 for H.I.

4370

543

49.33 19

3

5.7

4370

5.7

49.40

Sign in field Feb. 26-20 H.P.C.

The adjustments made on

sta 19 to 22 were made to bring
date more nearly precise & not a
mistake in same.

+18	5.39	64.33	58.94	52.45	6.49	S.R.F.
B.M.	2.85	61.48	—	—	—	Red Bolden. 175' E of line + 6' N of N.R.F.
29+19	4.44	59.89	—	—	—	N.R.F. (Do not give out cut farther)
30	5.52	58.81	52.70	6.11	—	
31	5.29	59.04	53.00	6.04	—	
32	4.99	59.34	53.30	6.04	—	
33	4.77	59.56	53.60	5.96	—	
X	3.80	60.53	—	—	—	
34	5.77	4.97	65.13	59.36	53.90	5.46
X	4.60	60.53	—	—	—	
35	5.47	59.66	54.20	5.46	—	
36	5.01	60.12	54.50	5.62	—	
37	4.58	60.55	54.80	5.75	—	
38	3.98	61.15	55.10	6.05	—	
B.M.	1.85	63.28	—	—	—	Red Bolden
		A	A	A	200' E of Sta 30.	Set 26

Run Feb. 26 '20

J.H.C.
J.H.C.

6

7

LEVELS

District # 8

B.M.	160	65.34	63.74
Old Hvy		6.27	59.07
" "		6.25	58.99
New B.M.		3.12	62.22
New B.M.		4.87	60.47
	2.64	60.57	7.41 57.93
T.P.	3.50	60.58	8.26 57.08
R.P.	5.80	61.51	4.87 <u>55.71</u>

BRANCH I-R-

61.51

F. line	11.55	49.96	
		Gr. = .80	
Hvy. 0	7.27	54.24	49.70
1	6.12	55.39	50.50
		A	

Apr - 24 - 1920

Mitchel

Briggs

HOFF.

(bolt SW Handrail Post) ?
 (59.07) Hvy S. F.L. (Sta 29+18 Prelim)
 (58.98) Hvy N. F.L. (Sta 29+79 ")

Spike S. end East Cap of Hwy bridge

{ lat^y beside 5th F. Post in N. FL.
 East of Hwy bridge.

50' SW. Sta. 24.

lat^y Hvy by 2nd Post N. ditch line

S.P. Connection.

4.54

4.89

A

					.80	
2		61.51	5.31	56.20	51.30	4.90
3			4.60	56.91	52.10	4.81
4			3.96	57.55	52.90	4.65
5			2.79	58.72	53.70	5.02
6			3.46	58.05	54.50	3.55 in old ditch
G.L			2.8	58.71	—	—
7	9.07	68.84	1.74	59.77	55.30	4.47.
8			7.74	61.10	56.10	5.00
D. X			9.0	59.84	—	—
9			7.05	61.79	56.90	4.89
10			6.00	62.84	57.70	5.14
D. X			7.7	61.14	—	—
11			5.57	63.27	58.50	4.77
D. X			6.5	62.34	—	—
12			4.08	64.76	59.30	5.46
D. X			4.6	64.24	—	—
13			3.92	64.92	60.10	4.82
14			2.31	66.53	60.90	5.63
			A			A

14

15

3.50
3.85
7.35

.80

14+50 68.84 2.27 66.55 61.30 5.25

15 8.95 75.50 2.29 66.55 61.70 4.85

16 6.72 68.78 62.50 6.28

17 6.35 69.15 63.30 5.85

D.X 7.2 68.30 ———

18 6.05 69.45 64.10 5.35

19 4.85 70.65 64.90 5.75

19+30 4.61 70.89 ——— N. H. old notes = sta 19+41 (Prel. elev. = 70.86)

Intake 4.13 71.37 ——— old Hub (" " = 71.36)

19+60 4.24 71.26 65.38 5.88

E 2.9 72.60 ——— N. + S. Hwy.

20 3.89 71.61 65.70 5.91 Figs. mailed Apr. 18-'20. A.E.M.

old Hub 3.22 72.28 ——— A E H old notes = sta 20+44 (Prelim. elev. = 72.23)

B.M. 1.36 74.14 ——— Extreme SE. Cor W. Conc. abt.

Flow line 7.35 68.15 A 8" Farm tile 200' N. County drain.

Construction Levels

BR. 1- Right

B.M.	3.26	77.40	74.14
① W		8.60	68.80
② E		7.40	70.00
20+33		5.13	72.27
21		5.69	71.71
22		5.38	72.02
22+25		5.48	71.72

Elev. 22	5.34	77.36	72.02
22+25	5.45	71.71	66.60
23	5.50	71.86	66.90
24	4.78	72.58	67.30
25	4.22	73.14	67.70
26	3.90	73.46	68.10
27	3.35	74.01	68.50
27+50	3.21	74.15	68.70

 May 21-20
 Briggs
 Rod W. H. Allen
 Hoff

SE Cor. W. abutment Conc. Culv

Catch basin W. side HWY

" " E. side HWY

6/24/2024
6.94 E.F.L.

5.61 66.50 5.21

5.52 67.12 4.90

5.31 67.23 4.68

4.96 67.57 4.29

5.28 68.02 4.56

5.44 68.47 4.67

5.36 68.92 4.54

5.51 69.37 4.64

5.45 69.60 4.55

27+50 = 0

18 BR

1 77.36 1.58 75.78
 1+56 77.31

or B-B-1-R.

End of BB 1-R

BR, 1-R Cont.

27+75 77.26 3.10 74.26 68.80
 28 3.19 74.17 68.90
 29 5.15 2.40 74.96 69.30
 T.P. 5.22 80.11 2.47 74.89

BM. 2.26 77.95

30 4.99 75.12 69.70

31 3.98 76.13 70.10

32 4.26 75.85 70.50

33 2.57 77.54 70.90

34 2.05 78.06 71.30

35 1.50 78.61 71.70

5.46 69.71 4.55

5.27 69.82 4.35

5.66 70.27 4.69

— Spike Root of E. Cottonwood
 in Row off Sta. 28.

5.42 70.72 4.40

6.03 71.17 4.96

5.35 71.62 4.23

6.64 72.07 5.47

6.76 72.52 5.54

6.91 72.97 5.64

25 = 0 of 2R.

June, 24/1920.

	B.S.	H.I.	-S	Elev	Gr. 0.40%	Cut,	
B.M.	2.13	76.27		74.14			Extreme S.E. Cor. W abtment
FWK 20+69			4.05	72.22	65.98	6.74	Cuts left with Jensen 6/24/20 ap. 51
21			4.53	71.74	66.10	5.64	
21+70			4.60	71.67	66.38	5.79	
22			4.41	71.86	66.50	5.36	
23			4.12	72.15	66.90	5.75	
24	6.75	79.57	3.45	72.82	67.30	5.57	5.34 = Sta O B.B.R.
		77.58					
T.P.	6.88	79.59	2.56	72.71	—		
25	1.85		6.24	73.35	67.80	5.55	
26			6.17	73.42	68.30	5.12	
27			5.26	74.28	68.80	5.53	5.34 = Sta O B.B.R.
27+25			5.32	74.26	68.92	5.16	
					69.10	4.45	
1			3.84	75.75	71.30		
1476			2.32	77.26	72.97	4.29	
B.M.			1.70	77.80			
28			5.15	74.43	69.30	5.13	
29			4.56	75.02	69.80	5.22	

19.58 - 5

30 4.44 75.14 70.30 4.84

31 7.90 84.13 3.35 76.23 70.80 5.43

84.14

T.P. 8.10 84.15 3.53 76.05

32 7.45 76.69 71.20 5.39

33 6.13 77.41 71.80 5.61

34 5.93 78.21 72.20 5.91

35 5.37 78.77 72.80 5.97

34.75 5.66 78.48 72.63 = 54.0 73.2, R. 5.85

72.90 5.58

0.25 5.50 78.64 73.40 5.24

0.50 5.54 78.60 73.90 4.70

0.75 5.19 78.95 74.40 4.55

1 4.91 79.23 74.90 4.33

2 4.10 80.04 75.90 4.14

3 7.71 88.49 3.42 80.72 76.90 3.82

T.P. 7.75 88.49 3.40 80.74

4 6.28 82.21 77.90 4.31

Cuto Mailed January
6/26/20
Bingto

88.49

4+50

5.82 82.67 78.40

4.27

= Sta 0 BB 2R.

5

5.09 83.45 78.90

4.55

6

3.98 84.51 79.90

x 4.61

7

2.16 86.33 81.90

4.43

7+13

0.69 87.80 82.16

5.64

0

82.67 78.40

4.27 = Sta 4+50 BB 2R

1

4.02 84.47 79.60

4.87

2

3.75 84.74 80.80

3.94

2+23

2.88 85.61 81.07

4.54

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

B.M. 389 81.69 77.80

7.93 73.76

11.07 83.99 9.77 71.92 71.92

T.P. 10.68 83.99 9.38 72.31

Sta 35 421 78.78 72.80

1 7.73 86.71 4.01 78.98 12

2 7.14 79.57

3 6.79 79.92

4 5.91 80.80

5 4.47 82.24

6 7.07 90.31 3.47 83.24

7 6.26 84.05

6
7+14

8 5.67 84.64

9 4.66 85.65 81.10 4.55

10 3.55 86.76 82.00 4.76

11 7.24 94.52 3.03 87.28 82.90 4.38

Spike in E of Row Cottonwoods

Top of end tile Br B L.R.

Top of Tile Br / R Sta (31+50)?

= Sta D BB 4 R.

BB 4 R.

L R.

12 6.24 88.29 83.80 4.49

13 5.31 89.22 84.70 4.52

14 4.29 90.24 85.60 4.64

14+74 2.88 11.65 86.27 4.39

T.P. 7.38 100.13 1.78 92.75

7.59 100.11 2.01 92.52

Br-I.T.P.
52+95 5.57 96.25 9.42 90.71 86.26 4.45

End

52 6.60 89.65 85.60 4.05

51 6.85 89.40 84.85 4.55

50 7.27 88.95 84.10 4.88

49 7.84 96.00 8.09 88.16 83.35 4.81

48 8.66 87.34 82.60 4.74

47 9.26 86.74 81.85

46 9.90 86.10

45+58 10.50 85.50

Sta	B.S	H.I.	-S	Elev	Gr.	Cut.
		96.00				

45			10.13	85.87		
----	--	--	-------	-------	--	--

44	6.29	90.92	11.37	84.63		
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43			6.52	84.40		
----	--	--	------	-------	--	--

42+75			6.72	84.20		
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42			8.54	81.38		
----	--	--	------	-------	--	--

41			8.80	82.12		
----	--	--	------	-------	--	--

40	4.86	85.77	10.01	80.91		
----	------	-------	-------	-------	--	--

39			4.88	80.89		
----	--	--	------	-------	--	--

38			5.48	80.29		
----	--	--	------	-------	--	--

37			6.24	79.53		
----	--	--	------	-------	--	--

36			6.83	78.94		
----	--	--	------	-------	--	--

35			7.01	78.76	72.80	
----	--	--	------	-------	-------	--

0	1.64	86.42	78.78	73.00	5.78	= Sta 35	BR/A.
1		7.45	78.97	73.90	5.07		
2		6.90	79.52	74.80	4.72		
3		6.45	79.97	75.70	4.27		
4		5.66	80.76	76.60	4.16		
5		4.22	82.20	77.50	4.70		
6		3.18	83.24	78.40	4.84		
7		2.45	83.97	79.30	4.67		
8		1.82	84.60	80.20	4.40		

34

BR. I. R.

New Levels 7/30/20

35

Sta	B.S.	I.I.	-5	Elev	Int.	Out.
35	7.64	86.42		78.78	72.80	5.98
36			7.49	78.93	73.55	5.38
37			6.92	79.50	74.30	5.20
38			6.18	80.24	75.05	5.19 ✓
39			5.63	80.79	75.80	4.99
40			5.53	80.84	76.55	4.24
41			4.33	82.09	77.30	4.79
42	9.06	91.39	4.09	82.33	78.05	4.28
43			7.05	84.34	78.80	5.54
44			6.79	84.60	79.55	5.05
45			5.54	85.85	80.35	5.50
45+30			5.93	85.46	80.72	4.74
46			5.33	86.06	81.10	4.96
47			4.68	86.71	81.85	4.86

Tile Check

Main

Sta - 22 - 40

B.M. 2.02 62.49
 60.47

Top 22"
 Sta. 22+50 9.60 50.87

23 9.55 50.92 50.60 3 H

+50 9.25 51.12

24 9.45 51.02 50.90 OK

24+50 9.43

25 9.39 51.14 51.20 OK

+50 9.21 51.26

26 9.10 51.37 51.50 OK

+50 8.75 51.72

27 8.58 51.87 51.80 OK

+50 8.45

28 8.35 52.12 52.10 OK

+50 8.25

22" = 2.02
 20" = 1.82

Aug. 28-1920

Briggs
 Whalen
 Miller

62.49
 2.02
 60.47

38

62.49

Elev.
Bottom.

39

63.56

63.56

60.47

2.02
61.54

1.82

29

8.17

52.30

52.40

OK

61.74

B.M.

3.09

63.56

60.47

61.54

T.10 30

8.80

52.74

52.70

OK

+50

8.55

52.79

31

8.50

53.04

53.00

OK

+50

8.44

53.10

32

8.30

53.24

53.30

OK

+50

8.00

53.54

33

7.94

53.60

53.60

OK

+50

7.80

34

(61.74)

7.95

53.79

53.90

OK

On 20" this reading

H.13 34

4.19

59.37

+50

7.62

35

7.51

54.23

54.20

OK

+50

7.45

36

7.33

54.41

54.50

OK

40

T. 16 Chk Main

63.56

61.74

7.14

36+50

37

7.07

54.67

54.80

+50

6.90

54.84

37+70

6.80

54.94

20" = 1.82

15" = 1.50

12" = 1.21

41

10/19/20

Tile Spade = 1.60'

BM

2.50

66.92

63.92

38

7.80

55.20

.10 H

55.10 On 20" tile

+50

63.32

8.02

55.40

.15 H

55.25 On 15" tile

39

8.10

55.22

.18 L

55.40

+50

7.90

55.42

1.60

1.50

3.10

40

7.70

55.62

.08 L

55.70

+50

7.59

55.73

.16 L

55.89

41

7.42

55.90

.18 L

56.08

= 0 BR

+50

7.28

56.04

.23 L

56.27

+90

= 0 BR

42

63.61

7.03

56.58

.13 H

56.45

+50

6.83

56.78

.14 H

56.64

43 ^{66.42}
~~63.61~~ 6.53 57.08 .26 H 56.82

+50 6.30 57.31 .30 H 57.01

44 6.15 57.46 .26 H 57.20

+50 5.92 57.69 .20 H 57.49

Hob 45 5.34 69.47 2.29 64.13

45 ^{66.66}
~~63.61~~ 8.99 57.67 .10 H 57.57

+50 8.83 57.83 .07 H 57.76

46 8.72 57.94 .06 L 58.00

+50 8.52 58.10 .06 L 58.16

46+85 8.40 58.26 .06 L 58.32 Tile laid to 46+85 10/19/20

Note: Uncover + recheck Sta 3HSD-7245

44

BR. 3-R. 5r

11.5
6.5
11.65

45

Oct. 19/20 Briggs
Hoff
Alexander

B.M.	4.65	68.57		63.92	
Connection			11.65	6.34 56.92	
O. Hols			6.31	62.26	56.92
1			6.35	62.22	57.47
2			5.27	63.30	58.02
3			4.19	64.38	58.57
4			3.56	65.01	59.12
5			3.45	65.12	59.67
6	5.96	71.47	3.06	65.51	60.22
	4.02	71.47	1.12	67.45	
7			4.94	66.53	60.77
8			4.98	66.49	61.32
+50			4.62	66.85	61.60
9			4.70	66.77	61.87
+50			4.62	66.85	62.15
10			4.52	66.95	62.42
11	5.95	72.74	4.68	66.79	62.97
	4.24	42.95	2.96	68.51	

= 41+75 Main

72.74

12 5.87 66.87 63.52 3.35

13 5.16 67.58 64.07 3.51

14 4.57 68.17 64.62 3.55

15 3.97 69.77 65.17 3.60

16 2.90 69.84 65.72 3.12

16+09 2.76 69.98 65.77 3.21

End.

48 Tile Check BR 2 R

Oct 5th 49

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

Hoff - Alexander

B.M. 4.99 68.91 63.92
65.95

Hob by F.P. E+W F Line Between Main + BR 2 R

0+05 10.43 55.52

55.50 Constant = Tilespace 1.61 +

0+50 10.20 55.75

55.84 outside Diam 14" Tile 1.35'

1 9.73 56.22

56.18

= 2.96

+50 9.43 56.52

56.56

2 9.06 56.89

56.86

+50 8.84 57.11

3 8.59 57.36

57.87

+50 8.13 57.82

4 7.79 58.16

58.22

+50 7.42 58.53

5 7.12 58.83

58.90

+50 6.73 59.22

6 6.15 59.80

59.58

+50 6.00 59.95

7 5.60 60.35

60.26

+50 5.46 60.49

50

51

Sta

BS

H.I.
68.94
65.95

-5

Elev.

8
Hub
8

5.39

71.38

2.92

65.99

5.15 60.80

60.94

+50

68.42

7.13 61.29

9

6.90 61.52

61.62

+50

6.50 61.92

10

6.15 62.24

62.30x

+50

6.00 62.42

11

5.73 62.69

62.67

+50

5.59 62.83

12

5.44 62.98

63.07

+50

5.21 63.21

13

4.97 63.45

63.41

+50

4.86 63.56

14

4.68 63.74

63.78

14 Hub

5.73

73.86

3.25

68.13

+50

70.90

6.92 63.94

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

15 73.86 6.80 64.10 64.15

+50 70.90 6.69 64.21

16 6.51 64.39 64.52

+50 6.34 64.56

17 6.17 64.73 64.89

+50 5.90 65.00

18 5.65 65.25 65.26

+10 5.58 65.32

B.M. 3.60 70.26

OK,

Tile laid to Sta 18+10 Oct 5th 1920.

Hubby F.P. W. of Sta 20 BR 2-R

54

55

56

57

0	5.30	71.46	66.16	60.20	5.96	= 549 51 Main.
1		5.13	66.33	60.95	5.38	
2		4.55	66.91	61.70	5.21	
3		4.73	66.73	62.45	4.28	
4		4.42	67.04	63.20	3.84	
5		3.29	68.17	63.95	4.22	
6		2.55	68.91	64.70	4.21	
7		1.47	69.99	65.45	4.54	
7+91		1.57	69.89	66.13	3.76	

Hv5 BR. 1-L.

Tot.

Aug. 28 - 1920

Hv534 7.79 67.36 59.37 57.20 7.17 34 Mair = 0 BR.

Briggo
Whale
Miller

1 7.20 60.16 55.24 4.92

2 6.35 61.01 56.28 4.73

S/g 0-8+9-8" tele

3 4.90 62.46 57.32 5.14

" 8+9 - end 6" "

4 3.85 63.51 58.36 5.15

5 8.52 72.93 2.95 64.41 59.40 5.01

6 7.51 65.42 60.74 4.98

7 6.83 66.10 61.78 4.62

8 5.97 66.96 62.52 4.44

only 65'

9 4.98 67.95 63.20 4.75

10 4.23 68.70 64.24 4.46

B.M. 2.65 (70.28)

High pt. Red Rock J.

11 3.31 69.62 65.28 4.34

7th. F.P. J. line

12 2.32 70.61 66.32 4.29

13 2.13 70.80 67.36 3.44

68.19

11

68.80

13+80 1.32 71.61 68.19 3.42

Hubs BR. Z-R.

Hwy 38 Main	7.91	68.85	60.94	
" 37 "	7.62	68.83	61.21	
O (2-R)		68.84	7.99	60.85 55.50 5.35
O + 50			7.44	61.40 55.84 5.56
1			7.63	61.21 56.18 5.03
2			6.04	62.80 56.86 5.94
3			5.42	63.42 57.54 5.88
4			4.71	64.13 58.22 5.91
5			4.28	64.46 58.90 5.56
BM			4.92	(63.92) 63.92
6			3.98	64.86 59.58 5.28
7			3.05	65.79 60.26 5.53
8	6.69	72.76	2.77	66.07 60.94 5.13
9			6.44	66.32 61.62 4.70
10			6.16	66.60 62.30 4.30
11			5.83	66.93 62.67 4.26
12			5.25	67.51 63.04 4.47

Cut.	0-26	2600' - 14" to
	26-38	1200' - 12" ..
	O = 37 + 80 Main.	
	38-42	400' - 10" ..
	42-63	2100' - 8" ..
	63-end	6" ..

1/4th F.P. 300' W.

64 2-R. 65
Sta B.S. H.I. -5 Elev Gr. Gut.
13 72.76 4.42 68.34 63.41 4.93

14 4.60 68.16 63.78 4.38

15 3.95 68.81 64.15 4.66

16 3.73 69.03 64.52 4.51

17 3.73 69.03 64.89 4.24

18 3.87 69.39 65.26 4.13

19 3.13 69.63 65.63 4.05 Guts left with Jensen 8/30/20

Sept 18. 20

8.7 4.97 75.26 70.29 10.6 hub 5. 2d F.P. W 54.20
not hub.

18 ~~5.77~~

19 5.65 69.61 65.63 3.98

20 5.00 70.26 66.00 4.26

30+09

21 4.91 70.35 66.37 3.98

22 4.33 70.93 66.74 4.19

23 4.06 71.20 67.11 4.09

24 2.55 72.71 67.48 5.01

25 2.15 77.24 3.17 72.09 67.85 4.24

T.P. 3.54 77.24 1.56 73.70

26	77.24	5.46	71.78	68.22	3 56	= 549 0 BB 5 R
27	4.70	72.54	68.57	3 95		
27+50	4.46	72.78	68.77	4.01		
28	4.16	73.08	68.96	4.12		
28+50	4.00	73.24	69.14	4.10		
29	3.86	73.38	69.33	4.08		
30	5.96	74.76	73.44	73.80	69.70	4.10
T.R	4.26	74.75	1.75	75.49	4.11	
31	5.57	74.18	70.07	4.11		
32	5.06	74.69	70.44	4.25		
33	4.28	75.47	70.84	4.66		
34	4.32	75.43	71.18	4.25		
34+84	4.22	75.53	71.49	4.04	W. Hwy E.	
B.M.	3.09	76.66	(76.68)			

71.18
 17
 71.35

68

Nov 24 20 69

Sta BS H.I. -S Elev

5.70 82.38 76.68

35+59 6.73 75.65 71.77 3.88 = 0 B B L R

36 6.65 75.73 71.92 3.81

37 5.47 76.91 72.29 4.62

+50 5.29 77.09 72.48 4.61

38 5.10 77.28 72.66 4.62 = 0 B B 1 R.

39 4.58 77.80 73.03 4.77

40 3.37 79.01 73.45 5.61

41 2.60 79.78 74.05 5.73

42 7.22 87.46 2.14 80.24 74.74 5.54

43 7.15 80.31 75.35 4.96

44 6.60 80.86 76.09 4.86

45 5.96 81.50 76.63 4.85

46 5.78 81.68 77.34 4.38

47 5.53 81.93 77.95 3.98

48 4.93 82.53 78.60 3.93

49 4.13 83.33 79.25 4.08

87.46

44+50		4.00	83.46	79.58	3.88		519 0-26 = 14'
50	8.29 92.13	3.62	83.84	79.90	3.94		" 26-38 = 12"
51		7.60	84.53	80.55	3.98		" 38-42 = 10"
52		6.67	85.46	81.20	4.26		" 42-63 = 8"
53		5.52	86.61	81.85	4.76		" 63-69 = 6"
B M		5.42	86.71				Hub by 15' FP N. + D L
53+50		5.08	87.05	82.18	4.87		
54		4.97	87.16	82.50	4.66	519 41.15	Elev Gr Cut.
55		4.72	87.41	83.18	4.26	64 101.09	7.28 93.81 90.24 3.57
56		3.99	88.14	83.84	4.34	65	6.20 94.89 91.20 3.69
57		3.15	88.98	84.44	4.53	66	4.96 96.13 92.16 3.99
58		2.70	89.43	85.10	4.33	67	3.88 97.21 93.12 4.09
59	11.11 101.09	2.15	89.98	85.75	4.23	68 2.80	2.80 98.29 94.08 4.21
60		10.33	90.76	86.40	4.36	69	1.40 99.69 95.09 4.65
61		9.53	91.56	87.36	4.20		
62		8.93	92.16	88.33	3.84		
4.63		8.22	92.87	89.28	3.59	= 0	1313 8 R

72

B.B. 4 R

B.B. Nov 24 20 73

BM	57082.38	76.68	72.10		Sta 0 - 2 + 85 = 6'
0		6.73	75.65	72.10	3.55 = Sta 3 5 + 54 BR 2R
1		5.75	76.63	72.45	4.18
2		5.37	77.01	72.80	4.21
+85		5.20	77.18	73.10	4.08 = End

B.B. 7 R

82.38

0	5.10	77.28	72.90	4.38	= Sta 38 BR 2R
1	4.96	77.42	73.66	3.76	
2	3.70	78.68	74.42	4.26	Sta 0 - 4 = 7'
3	3.20	79.18	75.18	4.00	Sta 4 - 6 + 03 = 6'
4	2.24	80.14	75.94	4.20	
5	1.57	80.81	76.70	4.11	
6 + 03	0.46	81.92	77.48	4.44	= End

B.B. 8 R

101.09

0	8.22	92.87	89.40	3.47	= Sta 63 BR 2R
1	6.53	94.56	90.60	3.96	
1 + 80	4.90	96.19	91.56	4.63	= End
					Sta 0 - 1 + 80 = 6'

74 BB 4 1/2 R

35

Oct 21/2075

Sta 85 H.I. - 3 Elev Gr.

B.M. 5.55 15.84 70.29

0 6.80 69.04 64.80

1 6.51 69.33 65.50

2 5.43 70.41 66.20

3 4.97 70.87 66.90

L +50 4.94 70.90 67.25

4 4.58 71.26 67.60

5 3.92 71.92 68.30

6 3.27 72.57 69.00

L 7 7.45 80.83 2.46 73.38 69.70

8 6.56 74.27 70.40

9 5.96 74.87 71.10

10 4.32 76.51 71.80

11 2.82 78.01 73.60

12 7.70 87.15 1.38 79.45 75.40

+58 6.85 80.30 76.44

13 4.58 82.57 77.20

+25 5.36 81.79 77.65

Hub by 2d FP W Sta 20

+24 = Sta 16 BR 21R

3.83

4.21

3.97

3.65

3.66

3.62

3.57

3.68

3.87

3.77

4.11

4.41

4.05

3.86

5.37

4.14

Cuts by H. J. Jensen

Oct 30/1920

W H W H

= End.

1.80
58
1440
900
10440
1.80
145

76 Check 109 Main

Nov 3 '20 7-7

Sta 135 H-1 -S Elev.

2.64 66.56 63.92

38 6.60

+25 6.73

+50 6.68

+75 6.75

39 6.73

+25 6.63

+50 6.47

+75 6.46

40 6.34

37+80 6.97

+90 6.83

38 6.73

+10 6.78

+20 6.77

+30 6.70

78

Sta BS HI -S Elev

41 6.00

+25 5.99

+50 5.85

+70 5.69

+80 5.50

42 5.62

+25 5.50

79

← 20 B 3 R

Sta B = H1 - S Elev

H10
2 7.02 68.03 61.01Hub
3 5.56 68.02 62.46

0+50 9.08

1 8.73

+50 8.40

2 7.90

+50 7.45

3 6.95

+50 6.30

4 5.70

+50 5.08

5 10.55 74.22 4.35 63.47

+50 10.00

6 9.40

+50

7 8.73

+50 8.20

82

8

13+90

7.70

2.20

$$\begin{array}{r} 74.22 \\ 5.10 \\ \hline 68.42 \end{array}$$

$$\begin{array}{r} 2.20 \\ 3.20 \\ 6.0 \\ \hline 5.80 \end{array}$$

83

Tile laid to 13+90 7m 3^d 20

New Hubs
BR. 2-L

Jan 13-1921

Briggs, Jensen

BM. 4.00 67.92 63.92

H0742 5.90 62.02 62.03

O-41 Main 6.01 61.91 56.5 5.41

1 4.98 62.94 56.9 6.04

2 4.15 63.77 57.3 6.47

3 4.03 63.89 57.7 6.19

4 3.85 64.07 58.1 5.97

5 3.65 64.27 58.5 5.77

BM. 5.32 69.24 63.92

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

6 4.90 64.34 58.90 5.44

7 4.82 64.42 59.30 5.12

R.P. 4.17 65.07

New hubs Jan. 23 1921

Hoff.

Ford 10

Page 76

Book 1.

= 5th 0 BB 1 L

SPike N side 1st F. Rd N 5th 6+25 BR 2L

New Huts Main

Hut 48	5.02	70.91	65.89
51+50	4.60	70.70	66.10
52	4.77	70.71	65.94
		70.70	

New 51	4.48	66.22	59.8	6.40
50	4.05	66.45	59.4	7.20
49	4.50	66.20	59.0	7.12
48	4.70	66.00	58.7	7.30
47+50	5.09	65.61	58.5	7.10
47	4.69	66.01	58.3	7.69

58.70
38
58.32

58.70
58.51

1/12/21

Ford to

Page 70 Book 1.

88

H. 73 B. B. 5R.

6 =

77.48

89

800

8.86 68.62

2R 54.25 5.36 77.45 72.09

" 26 5.74 77.72 71.78

" 27 4.95 77.49 72.54

77.48

O = 26 + 12 5.23 72.25 68.60 68.60 3.65

1 5.03 72.45 68.80 68.80 3.65

1-40 8.51 68.97 Grade Present Bottom

T. 10 F.L.

2 4.56 72.92 69.00 69.00 3.92

3 4.99 72.49 69.20 69.20 3.29

4 4.47 73.01 69.40 69.40 3.61

5 3.99 73.49 69.60 69.60 3.89

6 2.94 74.54 70.20 70.10 4.44

7 2.54 74.94 70.80 70.60 4.34

8 2.10 75.38 71.40 71.10 4.28

8+ 1.50 75.98

90

New Hubs BB5R

$$\begin{array}{r} 3.82 \\ 2 \overline{) 6.03} \\ 6.03 \end{array}$$

91

1-21-21

Sta B5 H.I. -5 Elev Gr Cut.

79.18

5 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

9+10

End

Ford to P 94 Road 1/2

R.P. Old Sta 8 79.18 3.80 75.38.

92

93

94

95

96

97

98

99

Checking Main Dr.

8 Black

3 Buchana

B.M. 763

55.39 47.76

O.A. 24" 7.93 47.46

Flow line
of tiled to 11.69 43.70Top of
Tiled to 2. 9.55 45.84

+ 90 629 +307 43.63 44.00

2 5.99 43.93 44.80

+ 65 5.67

3+50 537 44.55 44.75

4+50 501 44.91 45.05

6+25 4.45 45.47 45.57

8 4.05 45.87 46.10

X 1.11 54.28

T.P. 3.27 1.15 57.51 54.24

X 3.22 54.29

9 5.32 46.72 46.40

10 5.13 46.91 46.70

11 5.10 46.94 47.00

12 4.97 47.07 47.30

S.W. Cor. H.W.

N

4370	48.56	307	55.39
30	4370	240	5.47
4400	4.86	547	49.92

Head wall has 12"
footings, 8" wall sloping to
6" at top. 4' x 5' aprons
about 8" thick

57.51
5.47
52.04

13 4.81 57.51 47.23 47.60

15 4.42 47.62 48.20

X 4.45 53.06

T.P. 8.04 4.86 60.69 52.65

X 7.64 53.05

16 6.82 { 4" } 48.40 48.50
22" } 48.60

17 6.49 48.93 48.80

+ 75 6.30 49.12 49.02

18+85 5.99 49.43 49.36

52.04

60.69

5.27

55.42

3.07

2.12

5.27

Laid to 18+85

Feb 26 '20 W.R.C. F.J.L.

Tile Check Main

Dist. # 8-3

B.M. 3.87 53.87 50.00

B.M. 5.95 52.71 47.76

47.49

Top 24" 7.94 7.94 43.65

0+33 3.70 7.80 43.79

0+66 3.65 7.75 43.84

1 3.52 7.62 43.97

+33 2.51 7.61 43.98

+66 2.28 7.38 44.21

2 3.11 7.21 44.38

+33 3.15 7.25 44.34

+66 2.94 7.04 44.55

3 2.82 44.67

+33 2.80 44.69

+66 2.71 44.78

4 2.58 44.91

Apr-24-1920

Briggs
Mitchel
Hoff

bolt in Willow.

SW. Cor Bulkhead Marked X

at. outlet

53.87	2.35
6.45	4.10
47.42	6.45
3	2.35

Tile Spade
= 4.10

Chy Pipe

53.87	2.28
6.38	4.10
47.49	6.38

4 + 33	53.87	2.52	94.97
+ 66	47.49	2.32	45.17
5		2.26	45.23
+ 33		2.08	45.41
+ 66		2.00	45.49
6		2.00	45.49
T. P. 5.87	56.47	3.27	50.60
	<u>80.09</u>		
6 + 33		4.60	45.49
+ 66		4.40	45.69
7		4.35	45.74
+ 33		4.20	45.89
+ 66		4.05	46.09
8		3.95	46.14
+ 33		3.70	46.39
+ 66		3.50	46.59
9		3.13	46.96
+ 33		2.99	47.10
+ 66		2.99	47.10

Tile uncovered

108

10 56.47 2.96 47.13

+33 50.09 2.90 47.19

+66 2.89 47.20

11 2.85 47.24

+33 2.85 47.24

+66 2.80 47.29

12 2.77 47.32

+33 2.73 47.36

+66 2.66 47.42

13 2.60 47.49

T.P. 3.65

3.05

109

Checking tile Gr - Main.

R.P. Hub.	4.73	60.44	55.71
Hub			
Sta. 22	4.39	56.00	
Hub			
Sta. 23	4.08	56.36	
Tile			
Sta. 22-66	58.39	7.51	50.88
Sta. 22	7.78	50.61	
22+33	7.62	50.77	
21+66	57.94	4.45	50.49
21+33	4.45	50.49	
21	58.39	7.83	50.56
20+66	8.35	50.04	
+33	6.58	49.91	
20	8.77	49.62	
19+66	57.94	5.32	49.62
19+33	5.15	49.79	
19	5.41	49.53	

52.64
21.05
50.21

6/12/20 Hoff
Wheeler

Note. New cuts given 6/12.

-5 Rod on tile

Gr. sp 22-24 = 0.15% Sta 22 57.49

Tile 2.30' high at Sta. 22 Sta 23 57.64

Sta 24 57.98

-5 Rod on spear
length 8.2

length of spear used Stas 13-22 3.45

Outside tile dimension " 18-22 2.05

" " " " " 13-16 2.29

Add 10-5 Sta 16-22 5.50

-5 Rod on tile

-5 Rod on
spear 1/3.45

✓

✓

6/2/20

R.P.	3.50	59.21	55.71
		<u>53.71</u>	
18+66		3.95	49.06
18+33		4.15	49.56
18		4.27	49.44
17+66		4.18	49.53
17+33		4.28	49.43
17		4.56	49.15
16+66		4.50	49.21
16+33		4.86	48.85
16		<u>53.47</u>	4.70 48.77
15+66		5.02	48.45
15+33		5.01	48.46
15		5.37	48.10
14+66		5.50	47.97
14+33		<u>52.87</u>	5.14 47.73
14		5.18	47.69
13+66		5.23	47.64
13+33		5.39	47.48

11 Rodon Spade Length 3.45

on 29" tile

On Spade Length 4.05

Rough between Stas 18 & 20. Backfall

Hubs Main

R.P. 4.77 60.48 55.71

Hwy 22 4.39 56.09 50.3 5.79

E.L. 22+69 7.62 50.86

23 4.09 56.39 50.6 5.79

24 3.80 56.68 50.7 5.78

25 3.62 56.86 51.2 5.66

26 6.11 63.42 3.17 57.31 51.5 5.81

27 5.80 57.62 51.80 5.82

28 5.28 58.14 52.10 6.04

29 4.82 58.60 52.40 6.20

B.M. 2.96 60.46 6.47

Same B.M. 4.69 65.16

N. Hwy. E.

29+79 6.16 59.00 52.64 6.36

30 6.07 59.09 52.70 6.39

31 6.01 59.15 53.00 6.15

32 5.82 59.34 53.30 6.04

33 5.92 59.74 53.60 6.14

May 21-20

(R.P. 17.10) Briggs
Hoff
Whalen

End where tile is at Present

6/12/20
 Briggs
 T/E 0.30 high at Sta 22
 Gr. raised 0.30 at 22
 & flatted to 0.15 % to Sta 24
 24th.

1st 5th - F.P. E. Bridge 17.10

6/12/20 Hoff
Whalen

116

7/19/20

117

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

B.M. 4.85 65.31 60.46

Lath hub 5th F Post N. side Hwy E of Bridge

28 7.17 58.14

29 6.50 58.81 52.40 6.91 New hub

NH WYF

29+79 6.38 58.98 52.64 6.34 7/19/20 exp

30 6.21 59.10

B.M. 3.50 63.96 60.46 Same Lath N side Hwy. 7/26/20

T.P. 6.56 65.82 4.70 59.26

" " 6.20 65.83 4.33 59.63

33 6.10 59.73 53.60 6.13

34 6.49 59.34 53.90 5.44

35 6.02 59.81 54.20 5.41

36 5.61 60.22 54.50 5.72

37 5.67 60.16 54.80 5.36

38 6.38 67.32 4.89 60.94 55.10 5.84 = Sta 0. Br 2K

-T.P. 6.39 67.32 4.90 60.93

118

55.32
38

119

B.S. H.1 - 5 Elev.

67.32

39 6.11 61.21¹⁰ 55.4 5.8140 5.72 61.60¹⁰ 55.70 5.9041 5.46 61.86¹⁰ 56.08 5.7842 5.21 62.11¹⁰ 56.15 5.66 Gots left with Jensen 8/30/20.B.M. ~~3.40~~ 3.40 63.92 Lath bub. by fence post bet Main +

T, let tested Main to Sta 40

Main

Same BM 4.55 68.47 63.92

8/30/20

40 6.92 61.55 55.70 5.85

41 6.65 61.82 56.00 5.74

42 6.44 62.03 56.45 5.58

43 5.73 62.74 56.82 5.92

44 5.04 63.43 57.20 6.23

45 4.35 64.12 57.57 6.55

46 6.21 71.01 3.67 64.80 58.00 6.80

T.P. 5.77 71.01 3.23 65.24

47 5.94 65.07 58.32 6.75

71.01

59.45
27
38
19

48 5.12 65.89 58.70 7.19

49 4.82 66.19 59.07 7.12

50 4.53 66.48 59.45 7.03

51 4.83 66.18 59.82 6.36

Cuts Mailed Jensen

9/3/20
Briggs.

10/19/20

B.M. 5.13 69.05 63.92

Hub by F.P. bet Main + BR 2-R.

T.P. 4.45 70.61 2.89 66.16

.. 4.25 70.61 2.69 66.36

51 4.45 66.16 59.82 6.34

+20 4.51 66.10 60.01 6.09

52 4.67 65.94 60.19 5.75

x 10"

53 4.14 66.47 60.59 5.90

54 4.02 66.59 60.94 5.65

55 5.65 72.49 3.77 66.84 61.32 5.52

T.P. 5.51 72.49 3.63 66.98

56 6.05 66.44 61.69 4.75

57 12.49 6.02 66.47 62.07 4.40

58 5.35 67.14 62.44 4.70

59 5.49 67.00 62.82 4.18

60 5.52 66.97 63.19 3.78

+25 5.37 67.12 63.28 3.84

+50 5.37 67.12 63.38 3.74

+75 5.11 67.38 63.47 3.91

61 5.21 67.28 63.57 3.71

x 8''

62 6.02 73.92 4.57 67.90 63.94 3.96

T.P. 5.74 73.92 4.31 68.18 63.94 3.96

63 5.55 68.37 64.32 4.05

64 5.39 68.58 64.69 3.89

+50 5.33 68.59 64.88 3.71

65 5.09 68.83 65.07 3.76

+50 5.00 68.92 65.26 3.66

66 4.62 69.30 65.44 3.86

66+50	73.92	4.29	69.63	65.63	4.00	
67	3.64	70.28	65.82	4.46		
68	2.62	71.30	66.19	5.11		
69	2.44	71.48	66.57	4.91		
69+54	2.40	71.52	66.77	4.75	End Main	

126

New hub readings
Pg. - 64

BR. 2-R

B.M

70.29

20

21 6.08 76.42

70.35

22 5.59 76.52

70.93

23 5.19 76.39

71.20

76.40

24

2.72 72.68 67.48 5.20

25

4.19 72.21 67.85 4.36

26

4.76 71.64 68.22 2.42

27

2.80 72.60 68.59 4.01

27+50 610 78.75 3.75 72.65 68.77 3.88

28

5.68 73.07 68.96 4.11

28+50 5.51 73.24 69.14 4.10

29

5.23 73.52 69.33 4.19

30

4.82 73.73 69.70 4.23

127

Briggs 12/5/20
alone

no hub nail in F.P.

72.00

72.72

73.80

128

78.75

31

but out

32

4.12 74.62 70.44 4.18

33

3.26 75.49 70.81 4.68

34

3.18 75.57 71.18 4.39

35

3.34 75.41

B.M.

2.22 76.53

New levels Jan. 24 1921

B.M. 6.16 82.69 76.53

34 6.93 75.76 71.41 4.35

34 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

36 6.74 75.95 72.07 3.88

37 5.54 77.15 72.40 4.75

+50 5.40 77.29 72.57 4.72

38 5.12 77.57 72.73 4.84

39 4.67 78.02 73.06 4.96

40 3.51 79.18 73.40 5.78

76.53

37

129

76

73

72

72

259

266

75.57

37

7469

75.91

52

.34

338

185

75.76

21.83

75.91

4.35

73.40

74.39

71.41

71.52

71.52

82

11.88

76.53

33

.312

6.16

25

75.76

82.69

23

4.95

6.93

21

71.71

75.76

27

71.71

33

214

177

.385

177

6.16

177

.33

177

= Sta 0 B.B. 6 R

= Sta 0 B.B. 7 R

Ford to Page 84 Book 1

6/12/20

Hoff
w/6/9/20

R.P.	3.50	59.21	55.71
0+10		<u>57.01</u>	4.27 49.74
0+50		3.99	50.07
1		3.36	50.65
1+25		3.30	50.71

R.P.	6.95	62.66	55.71
T.P.	6.99	67.09	2.51 60.15
"	6.79	67.09	2.36 60.30
T.P.	8.84	73.74	2.19 64.90
"	8.20	73.75	1.54 65.55
13+65		<u>72.60</u>	11.88 60.72
14			11.60 61.00
14+35			11.30 61.30
15			10.95 61.65
15+35			10.60 62.00
15+70			10.35 62.25

Lath Hub 50' N. of Stal. Br 1 R.

Readings (-S) on Spade Length 405'

on top of tile.

Outside tile Dia. = 1.15'

Ditch filled from Sta 1+25 to 13+65

-S = Rod on tile top

Tile laid to Sta 15+70 6/12/20

132

Tile Check B-1-R.

B.M. 2.27 76.41 74.14
75.31

20+50 9.16 67.25 66.15

21 9.03 66.27

21+50 8.80 66.51

22 8.68 67.73

T.P. 5.22 77.21 4.42 71.99

22+50 76.21 9.56 67.65

23 9.29 67.82

23+50 9.23 67.98

24 9.00 68.21 67.21

24+50 8.75 67.47 x

25 8.47 67.74 x

25+50 8.20 68.01 x

26 8.0 68.21 x

26+50 7.83 68.38 x

27 7.94 68.87

75.31
916
66.15

66.50
45
66.5

133

8/19/20 Briggs
Whaler

Cont. Abb.

2200 - 12"

1300 - 10"

1000 8"

809 - 6"

.8% 20

.45% 35

.75% End

.12" = 1.1

10" =

8" = .97

6" = .57

Title Chk B I-R.

77.21

T.P. 6.00

80.19

3.02

74.19

79.19

27+50

10.16

67.03

27+75

10.13

28

9.94

69.25

28+50

9.85

29

9.53

69.66

29+50

9.20

30

8.92

70.27

+50

8.67

31

8.45

70.74

+50

8.30

32

8.10

71.09

T.P. 6.19

82.82

3.56

76.63

81.82

32+50

10.60

33

10.20

71.62

+50

9.95

136

Tile Chk Br. 1-R.

34

82.82

81.82

9.80

72.02

+50

9.50

35

9.10

72.72

Hub 35

(4.10)

(78.72)

8" Tile

82.82

81.85

35+50

8.74

36

8.48

73.37

+50

8.10

73.75

37

7.65

+50

7.40

38

7.02

74.83

Hub

39

7.38

88.17

80.79

8"

87.20

39

11.55

11.55

95.65

+50

11.23

75.91

40

10.71

76.49

+50

10.29

76.91

82.82
97
21.85

137

Aug 30 - 20

41	87.20	9.92	77.28	
+50		9.76	77.44	
42		9.22	77.98	
+50		8.79	78.41	
43		8.43	78.77	
+50		8.23	78.97	
44		1.97	79.23	1
+50		7.53	79.67	
45		7.02	80.18	
HUB 45				
T.P.	4.98	90.80	2.35	85.82
		<u>54</u>		
+50	6" =	90.23	7.44	80.79
46		9.11	81.12	
47		8.30	81.93	
48				
48		7.60	82.63	
49		6.91	83.32	
50		6.13	84.10	
50				
HUB	4.60	92.51	1.88	88.92
		<u>31</u>		
51	6" =	92.95	8.12	84.83
52			7.34	85.61
52+95		6.52	86.43	= End.

T/c Check BB. 1.R.

Hub				
1+76	3.59	80.85	77.26	
	6" =	<u>.57</u>		
0		80.28	11.06	69.22
1+75			8.26	72.02
1+55			7.10	73.18

.2' High.

T/c Check B.B. 2.R.

Hub				
0-5+75	1.36	85.84	78.48	
	6" =	<u>.57</u>		
0		85.27	12.26	73.01
150			11.41	73.86
1			10.41	74.86
2			9.41	75.86
3			8.52	76.75
4			7.45	77.82
4+50			6.86	78.41

= Sta. 0 B.B. 3.R.

Hub				
4+50	7.63	90.28	3.19	82.65
	6" =	<u>.57</u>		
5		89.71	10.68	79.03
6			9.73	79.98
7			7.75	81.96
7+13			7.63	42.08 = End

Tile Chk BB3R.

0		90.28	11.23	78.48
1	6" =	$\frac{90.28}{57}$ 89.71	10.00	79.71
2		9.05	80.66	
2+23		81.19 8.52	= Eod	

Tile Chk BB4R.

Hub				
34175	7.17	85.65	78.48	
Hub				
36	6.72	$\frac{85.65}{57}$	78.93	
0	6" =	85.08	12.05	73.03
+50		11.72	73.36	
1		11.06	74.02	
2		10.14	74.94	
3		9.25	75.83	
4		8.33	76.75	
5		7.55	77.53	
Hub 5	6.60	88.82	343	82.22
6	6" =	$\frac{88.82}{57}$ 88.25	9.66	78.59

88.25

7 8.90 79.35

8 7.99 80.26

9 7.10 81.15

9+65 6.50 81.75

H. 5-10

Tile laid to here Aug 30 '20

146 New levels BB 6 R

Sta B.S. H.I. - 5 Elev 6r

BM 76.68

0 6.77

1 5.90

2 5.53

785- 5.22

Bot.

Ford to Pp 96 Boo/E. 1.

147
Jan 24 21
Hoff.

= Sta 35 + 59 B/T 2

End.

148

149

150

151

152

153

154

Check on orig. Survey + BM₃ BR 2 R.

B.M. 7.00 10.92 63.92

= Sta 10

T.P. 6.45 73.06 4.31 66.61

" " 6.33 73.06 4.19 66.73

T.P. 5.63 74.62 4.07 68.99

5.54 74.63 3.97 69.09

Sta 19 5.01 69.62

B.M. 4.34 70.29

= orig. 24

T.P. 5.15 77.83 1.95 72.68

" " 4.86 77.83 1.66 72.97

C

T.P. 8.05 82.27 3.61 74.22

" " 7.83 82.28 3.28 74.45

B.M. 5.59 76.68

orig

34113 6.70 75.57 75.32

T.P. 8.87 86.33 4.81 77.46

" " 8.44 86.33 4.38 77.69

T.P. 6.95 89.68 3.10 83.23

" " 6.27 89.68 2.92 83.41

155

at F. post.

Lat hub 300' W Sta 5 + 50 BR 2-R

Lat hub 5.2^d F.P W Sta 20 on ⁴⁵ E W

Pond Sta 4. B B 5. R

Bolt 5 Sta 34113
Spoke in root N. willow W side Co. Hwy.

89.68

T.P. 8.20 94.65 3.23 86.45

.. 7.83 94.64 2.87 86.81

B.M. 7.95 86.70

T.P. 10.27 101.44 3.18 91.47

.. 9.94 101.75 2.84 91.81

B.M. 5.60 96.15

Gr level end B2-R 2.30 99.45

Hub at 1st F.P. N D. Line Sta (51)²

New Hub at end B.B. & R.

Chk. on original

Survey -

25 8.72 87.33 78.61

H₀ 8.72 87.33 +1.30 88.63

T.P. 7.26 92.65 1.94 85.39

H₀ 7.26 92.65 0.80 91.85

T.P. 5.19 96.79 1.05 91.60

H₀ 5.19 96.79 6.00 90.79

BR 1-R. 79.19

H₀ End BR B-2 R.H₀ End BB-4 R.H₀ End B-1 R.

160

132
12765.70
13
65.8377.84
spike

BM 1935

TP 406 79.51 6.715 72.85

BM 2.77 76.91 74.12

BM 4.18 78.32 74.14

519.75
Topick 11.39 66.93
1.15

7.04 65.78

Sta 19+60 7.04 71.28

72.27
5.83
65.44
1.85

BM 3.37 81.32 77.95

T.P. 4.25 77.74 7.83 73.79

B.M. 3.48 74.14 .16

74.26

2.64

all till up to and
15" inc. on the grounds0 11.06
1 8.26
1+33 7.10

1 hole 3.59

11.47 - 70.26

19.97

20.44 72.23

Intake 11.50 = 70.07

68.00

2/ 80 - 3/ 60

26.6 13.3

13.3

40

341 85. H. 1. - 5 F1

8 M 5.45 75.77 70.29

25 5.30 77.42 3.62 72.12

30 5.13 78.95 3.60 73.82

231 76.67

8 M,

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

ROADWAY 14 FEET WIDE. SIDE SLOPES 1½ 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 Jullen A. Hall, M. Am. Soc. C. E.