

5

FIELD BOOK

1880  
N<sup>o</sup> 155

# 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.

For Keith's Railroad Curve Tables see end of book.

24.94  
150  
24.94

SAR#	Job #	Data	Pg. to Pg.
Unorganized		Transit Notes	1 - 3
142-25		Levels & X-Sec Notes	5 - 11
2	2703	Transit Notes	12 - 21
2	2703	Level & X-Sec Notes	22 - 38
Slater Twp. 8 <sup>th</sup> Sec's 16, 17, 20, 21, 23, 29		Level & X-...	38 - 44
2	2703	Check Levels & Slope Stakes	45 - 61
2	2703	Re-X-Sec. Notes	11
2	2703	Offtake Sta 205+	62
2	2703	Re-X-Sec Notes	63 - 64
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2	2703	Re-X-Sec Notes	79

Transit Notes

East + West 1/4 Line Thru  
Sec. 34 - T142N. R25.W

Sta Defl. Angle Bearing

10+50

9+95.1 R 0°55' N84°30'E  
8+95. 8+51 = 105+00

0+00

N83°30'E

UNORGANIZED 142-25

4-26-26

Party { A.R. Tashman Tr  
W.C. Robbie - Ch.  
A.J. Nelson - Ch.  
Weather - Cool + Cloudy

offtake ←

18' x 8' Timber Bridge, In P.

Apprx. 1/4 Cor. Bet (Secs. 33 & 34 142+25)  
Beginning of S.J. 8+40 Beginning of Swamp  
R.P.s { 12" Cedar - S.E. 96.0  
8" " " S.W. 41.5'  
" " " " "

R.P.s { 14" Birch St 46.1' S.W.  
15" " " 42.9' SE.

Sta

31+70

23+00 = 120+37

21+66

40

35

Beginning of Ditch

30

25

End of Side D

20

Defl Angle Bearing

67+93

62+40

L

0°55'

N 83°30' E

57+73

P.O.T. 51+00

4-27-26

Weather - Cool & Cloudy

Center of Willow River

65

1/4 Cor Bet. Sec. 34 & 35  
142-25

R.P. 1

12" Cedar B.T. N. 20.7'

S.E. 19.4'

60

End of Side Ditches

58

R.P. 1 { 12" Cedar S.E. 23.5'  
4" " N.E. 37.2'

60

46

3

Level Notes  
 East-West 1/4 Line Thru Center of  
 Sec. 34-142-25

Sta	-	H1	+	Elev
B.M.		106.72	6.72	100.0
-2+00	7.2			99.5
-1+00	3.7			103.0
-0+85	2.6			04.1
0+00	2.8			03.9
0+83	9.6			99.1
1+00	8.9			97.8
1+18	8.9			97.8
TP+54	12.68			94.04
+		96.51	2.47	
2+00	3.9			92.6
+63.8	6.2			90.3
	7.6			88.9
3+00	6.6			89.9
+78	3.7			92.8
4+00	4.2			92.3
+41	7.7			88.8
5+00	7.5			89.0
+30.5	7.3			89.2
TP+47	7.5			89.0
6+00	12.67			83.84
+		84.89	1.05	+47 →
7+00	8.4			76.5

4-27-26

Party { Taubman - X  
 W.C. Hobbie - Rod  
 A.J. Nelson - Axe

On 12" Birch Stub				SE of Sta 0+00			
L		5.2	6.7	6.8	5.9	L	
CS	81	6.5	7.7	6.2	5.5	6.1	4.5
	29	16	14	8	7	12	16
CS	84	7.2	8.2	6.6	6.4	7.3	6.0
	28	18	14	9	10	13	16
L		5.7	7.0	5.9	7.8	6.5	7.9
		16	14	10	12	13	30
L		4.9	6.2	5.4	6.3	7.1	6.5
		16	14	11	10	12	15
L		5.7	7.3	5.9	7.8	6.9	L
		18	15	10	13	17	
L	56	5.8	7.6	6.0	6.6	7.9	6.8
	32	19	15	10	10	13	15
L	20	4.5	5.9	5.0	6.0	6.8	5.7
	37	19	14	6	11	13	16
CS	4.8	6.0	7.2	6.2	5.9	6.3	5.5
	35	18	14	9	10	13	16
L		6.7	7.7	6.7	6.3	7.2	5.6
		14	12	7	8	11	18
Bottom of 12" X 20"				C.M.C.			
L		6.0	6.8	5.2	5.7	4.6	5.9
		28	10	9	13	15	2.7
CS	84	7.1	8.0	6.1	6.7	4.5	4.3
	32	14	13	10	12	15	30
L	9.3	7.8	7.2	7.8	6.6	5.6	4.5
	38	25	13	12	13	15	3.5
L		6.4	6.0	6.9	5.9	4.6	3.2
		29	14	10	13	16	3.7
L		5.3	5.7	6.9	5.7	6.3	5.8
		32	17	12	7	11	1.7
L		4.7	6.0	5.3	5.6	4.1	3.0
		20	16	5	14	17	3.4
CS	4.5	4.3	5.6	4.6	3.4	1.8	L
	31	16	12	11	14	2.9	L
CS		5.8	5.5	6.9	6.2	4.8	2.9
		33	20	16	14	17	3.5
L		5.5	5.4	6.2	5.1	5.9	5.0
		26	16	14	8	11	1.3
							4.2
							2.8

Sta	-	H1	+	Elev
TP B.M.	11.88			73.01
+		73.04	0.03	
8+00	3.2			69.8
8+40	4.3			68.7
+95.1	5.2			67.8
9+00	5.3			67.7
10	6.0			67.0
11	7.0			66.0
12	6.5			66.5
13	6.4			66.6
TP 14	7.30			65.74
+		69.57	3.83	
15	3.4			66.2
16	3.5			66.1
17	4.6			65.0
18	5.3			64.3
+50	5.0			64.6
B.M.	3.62			65.95
19	5.4			64.2
20	5.2			64.4
21	5.2			64.4
22	4.5			65.1
TP 23	3.62			65.95
+		70.0	4.05	

Q of Ditch  
On Cedar Stump

Q of S.D.	S.W. of Sta 8+00			Q of S.D.
CS	5.9 31	5.1 20	5.9 14	5.3 11
L	6.3 25	6.8 15	6.7 7	6.1 13
				4.8 15
				5.5 20
				L

8.2 15	6.5 13	5.9 5	6.4 6	6.4 12	8.6 14
8.4 14	6.6 12	6.6 6	6.7 6	6.7 12	8.8 14
7.9 14	6.2 11	6.2 4	6.2 5	5.9 13	7.5 15
8.4 15	6.5 12	6.5 5	6.5 5	6.0 13	7.9 15
8.1 15	6.5 13	6.5 5	6.5 5	6.5 12	8.1 15
7.9 15		5.9 13	5.7 14	6.5 12	7.5 16

8.5 14	6.8 11		6.3 13		7.8 15
7.9 13	5.9 11		6.0 13		7.7 15
7.7 12	6.0 11		6.0 14		7.3 15
7.6 15					7.1 15
7.7 15					7.6 15

On 7" Cedar Stump S. of Sta 18

6.9					6.9
7.1					6.9
7.0 16					6.9 15
CS	L 6.2 24			5.5 24 5.6 24	CS



Sta	-	HI	+	Elev.
24	4.1	70.0		65.9
25	4.5			65.5
26	4.7			65.3
27	4.3			65.7
B.M.	3.08			66.92
28	4.6			65.4
29	5.5			64.5
30	5.9			64.1
31	6.8			63.2
TP 32	6.6			63.4
TP 33	6.13			63.87
+		67.82	3.95	
33	4.6			63.2
34	5.0			62.8
35	4.5			63.3
36	4.7			63.1
37	4.7			63.1
38	4.3			63.5
39	4.1			63.7
B.M.	3.05			64.77
+ 30	6.0			61.8
40	4.4			63.4
TP 41	4.08			63.74
+		68.74	5.00	

☐ of Ditch	HI = 5.6	☐ of Ditch
L		L
L		5.3
L		2.6
L		5.5
L		2.6
		5.4
		2.6
On 10" Cedar Stump S.E. of Sta 27 + 00		
CS	6.5	5.5
	2.2	2.4
CS	6.1	5.1
	1.9	2.2
CS	6.0	5.6
	2.0	2.2
CS	5.8	5.7
	2.1	2.1
	8.1	7.6
	1.3	1.4
	7.2	7.3
	1.3	1.4
	6.9	6.7
	7.0	6.6
	7.2	6.5
	7.0	6.8
	1.7	1.4
	7.6	6.8
	7.3	7.1
On 12" Spruce stump S.E. of Sta 39 + 00		
Bottom of Ditch		
	7.1	7.1
	7.2	7.2

Sta	-	H/I	+	Elev.
42	4.8	68.74		63.9
43	4.6			64.1
44	4.8			63.9
45	4.4			64.3
46	4.4			64.3
47	4.7			64.0
48	4.4			64.3
49	4.1			64.6
TP 50	2.85			65.89
+		72.54	6.65	
51	5.5			67.0
52	6.1			66.4
53	4.8			67.7
54	4.5			68.0
55	4.6			67.9
56	4.2			68.3
B.M.	3.02			69.52
57	4.0			68.5
58	3.4			69.1
TP 59	1.55			70.99
+		73.52	2.53	
+55	2.2			71.3
60	3.2			70.3

Q of Ditch	Q of Ditch
7.1	7.2
15	14
7.4	7.5
6.7	6.7
7.0	6.7
6.8	6.8
16	16
6.4	6.2
7.0	6.6
7.3	6.7
7.6	7.2
8.1	8.0
14	14
6.6	
14	
7.2	7.9
17.5	13
14	7.2
7.2	14
13	7.8
16	13
5.6	7.6
13	15
5.6	
13	
On 12" Spruce S.E. of Sta 56 + 00	
7.4	5.6
18	11
8.9	5.6
12	11
5.4	5.8
23	30
5.6	6.1
30	30
5.2	5.2
32	32

Sta	-	H.I.	+	Elev
61	6.0	$\frac{1}{73.52}$		67.5
62	7.4			66.1
+ 40	8.6			64.9
63	8.7			64.8
T.P.B.M.	7.65			65.87
+		68.52	2.65	
64	4.5			64.0
65	4.5			64.0
66	4.7			63.5
67	5.3			63.2
+ 88	7.4			61.1
+ 93	9.3			59.22

	L	H.I. 56	R	
CS	5.5		4.7	C.S
	25		20.0	
CS	6.0		5.5	C.S
	25		25	

On 24" Tam NE. of Sta 63 + 00

Bottom of Willow River

	Off the Ditch		Sta 39+30
	-	H I	+ Elev
BM		68.24	3.47 64.77
0+00=39+30	6.4		61.8
1	6.4		61.8
2	6.3		61.9
3	6.7		61.5
4	6.8		61.4
TP	4.55		63.69
+		66.14	2.95
5	4.9		61.2
6	5.0		61.1
7	5.7		60.4
8	5.5		60.6
9	6.0		60.1
TP	3.55		62.59
+		66.29	3.70
10	6.3		60.0
11	6.6		59.7
12	6.7		59.6

On 12" Spruce Stump SE. of Sta 39

offset to Ditch Sta 18+57

Sta	HI	F	Elev
B.M.	69.99	4.04	65.95
0+00	7.4		62.6
1	7.4		62.6
2	7.6		62.4
3	8.2		61.8
4	8.7		61.3
+24	8.9		61.1

+25 = 0.0 S.A.R # 2-2703

Sta	Grade
37+50	72.6
38	71.7
+50	71.2
39	71.0
+50	
40	

On 7" Cedar Stub S of Sta 18+00.

End of Ditch

Shoulder	7.6	7.8	6.5
5.6	20	25	26.6
5.6	7.7	8.0	6.1
5.6	19	25	27.6
5.6	7.5	7.5	5.5
5.6	19	26	28.4
5.6	7.2	7.7	5.3
5.6	17	26	28.5
5.6	7.4	7.7	5.4
5.6	18	24	26.8
5.6	7.0	7.5	5.2
5.6	15	21	23.5

Transit Notes

S.A.R. #2 Job #2703

From

Sta Defl. Angle. Mag. B. Com. B

PC 22+31.18 Fwd = 22+30.18 Back

14+75

5+56

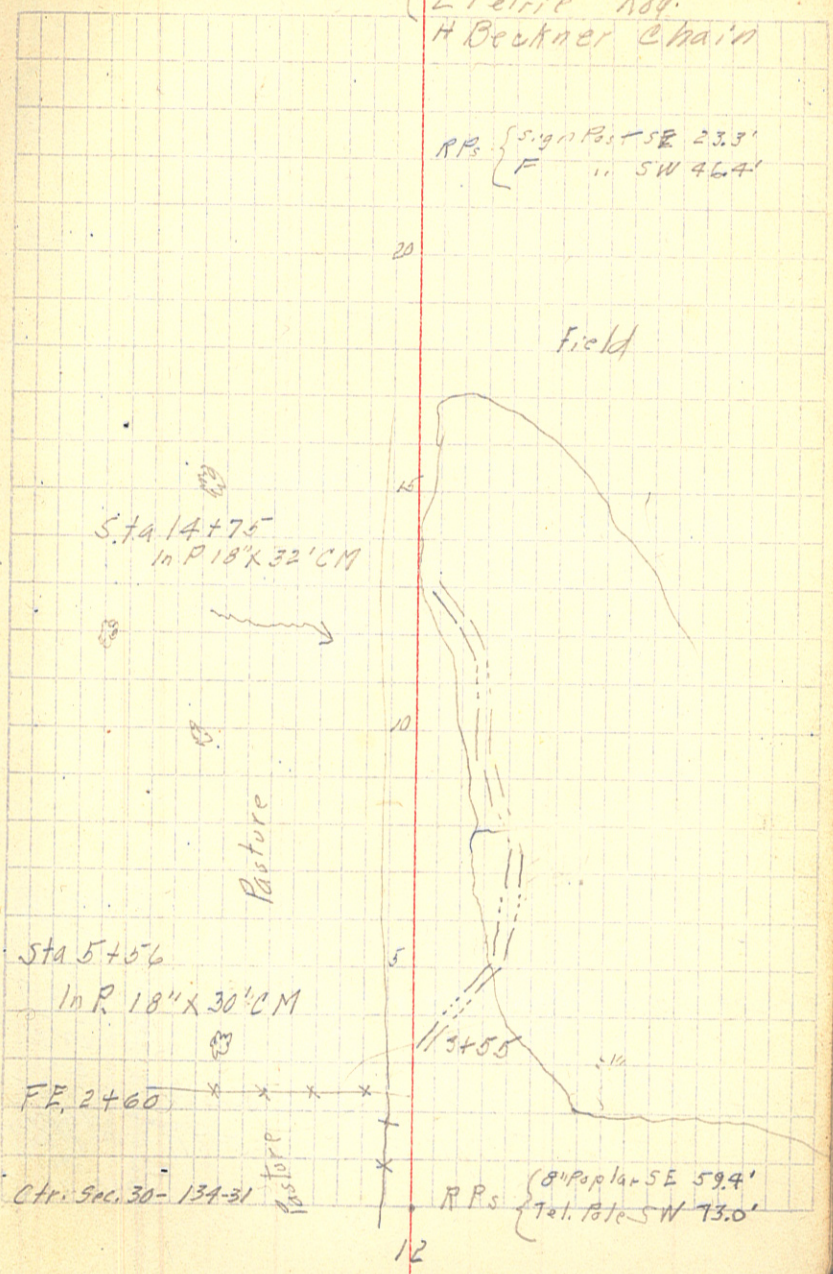
0+00

N 8° W

11-23-26

Party (R.A. Dahms Engr.  
A.R. Taubman Asst. Engr.  
E. Petric Rod.  
H. Beckner Chain)

R.P.s { Sign Post SE 23.3'  
F " SW 46.4'



Sta Defl Angle Mag. B C. B

PT. 41+35.24 Back = 42 + 88.23 Fwd

P. 1.39+17A R 88°18' N 9°30' W N 9°46' W  
 D = 15° T = 370.83' E = 150.39' L = 538.67

PC 35+46.57

PT 28+23.29 Back = 29 + 89.42 = + 91.6

P. 1.26+10.3 L 89°34' S 82°30' W S 82°26' W  
 D = 15° T = 379.12' E = 156.2' L = 597.11

+35.24 = 44.99  
 41 = 41.53  
 40 = 37.23  
 40 = 34.00  
 39 = 30.15  
 39 = 26.80  
 38 = 20.25  
 38 = 19.00  
 37 = 16.15  
 37 = 11.30  
 36 = 7.45  
 36 = 4.00

Defl's

+28.29 = 44.47  
 28 = 42.00  
 30 = 38.38  
 27 = 35.10  
 30 = 31.25  
 26 = 27.40  
 30 = 23.55  
 25 = 20.10  
 30 = 16.25  
 24 = 12.40  
 30 = 8.55  
 23 = 5.10  
 22 + 30 = 1.25

Defl's

10' Brush  
 66' →

Field

RPs { F. Post SW 36.7'  
 " " NW 34.1'

West 1/16 Cor. on N. Line  
 Sec. 30-134-31

RPs { Fence Post NW 41.4'  
 Tel. Pole SW 33.8'

RPs { F. Post NW 32.7'  
 " " NE 30.1'

Field

15 3686.8

FE 31 + 10  
 in P 12" X 16' C.M.

RPs { F. Post SW 43.8'  
 F. " NW 44.0'

1/4 Cor. on N. Line  
 5pc. 30-134-31

-- RPs { F. Post SE 31.1'  
 -- -- -- F. Post NE 36.5'

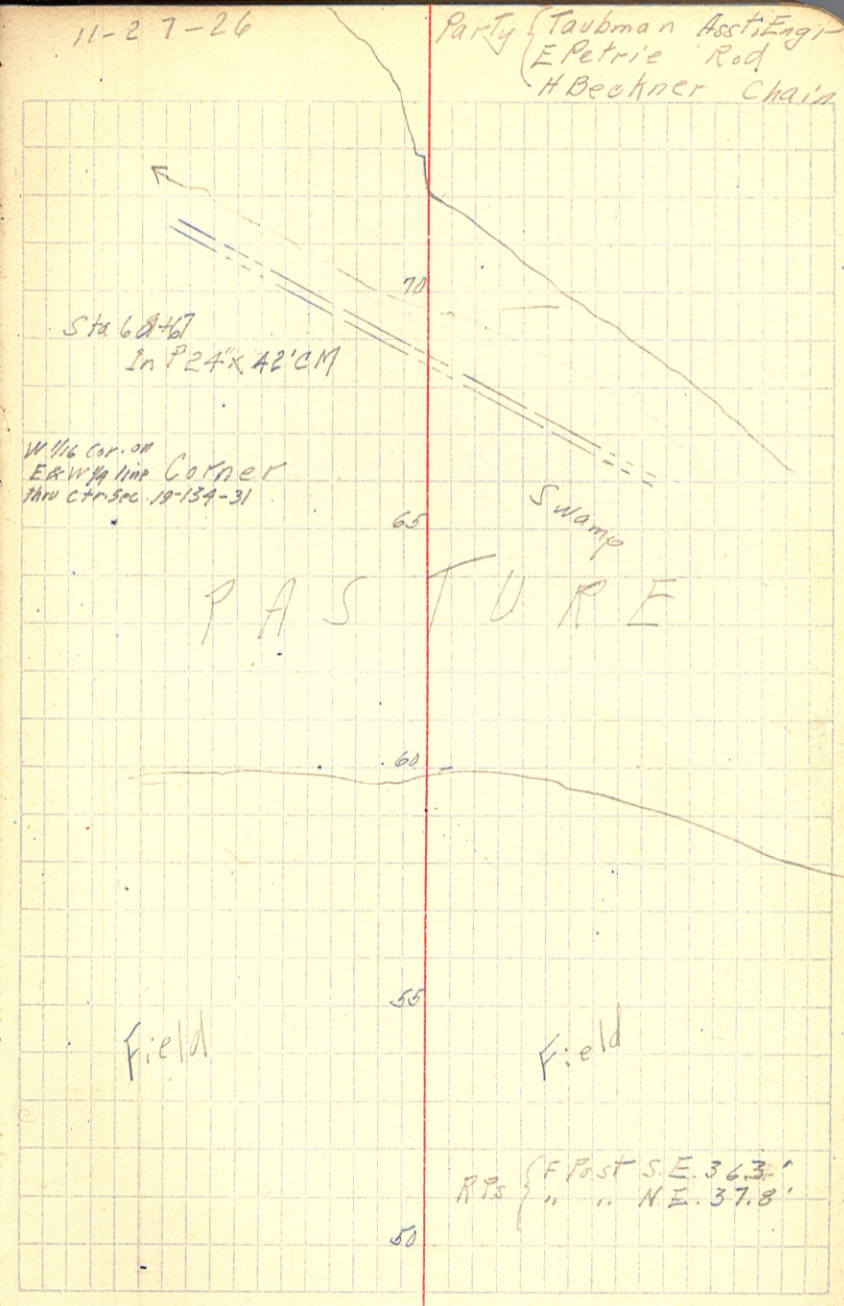
46+00  
65+56(?)

P&T. 5/100



11-27-26

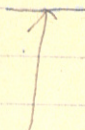
Party { Taubman Asst Engr  
E Petrie Rod  
H Beckner Chain



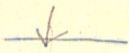


Defl Angle Mag. B C.B

97+00



0.4  
13'



P.I.  
91+94

R

0°08'

N10°W

N7°08'W

P.O.T. 85+00



Brushing  
20'

In P. 15" x 24" C.M.C

Woods

Field

Willie Cor on N. line  
Sec. 19-34-31

RPs { F Post NW 39.3'  
" " NE 31.5'

RPs { Fence Post NE 41.1'  
" " SE 37.7'

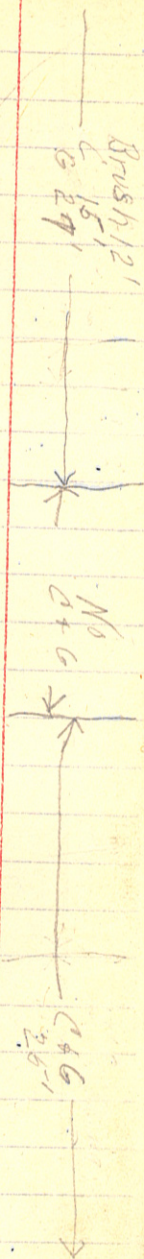
Field

Field

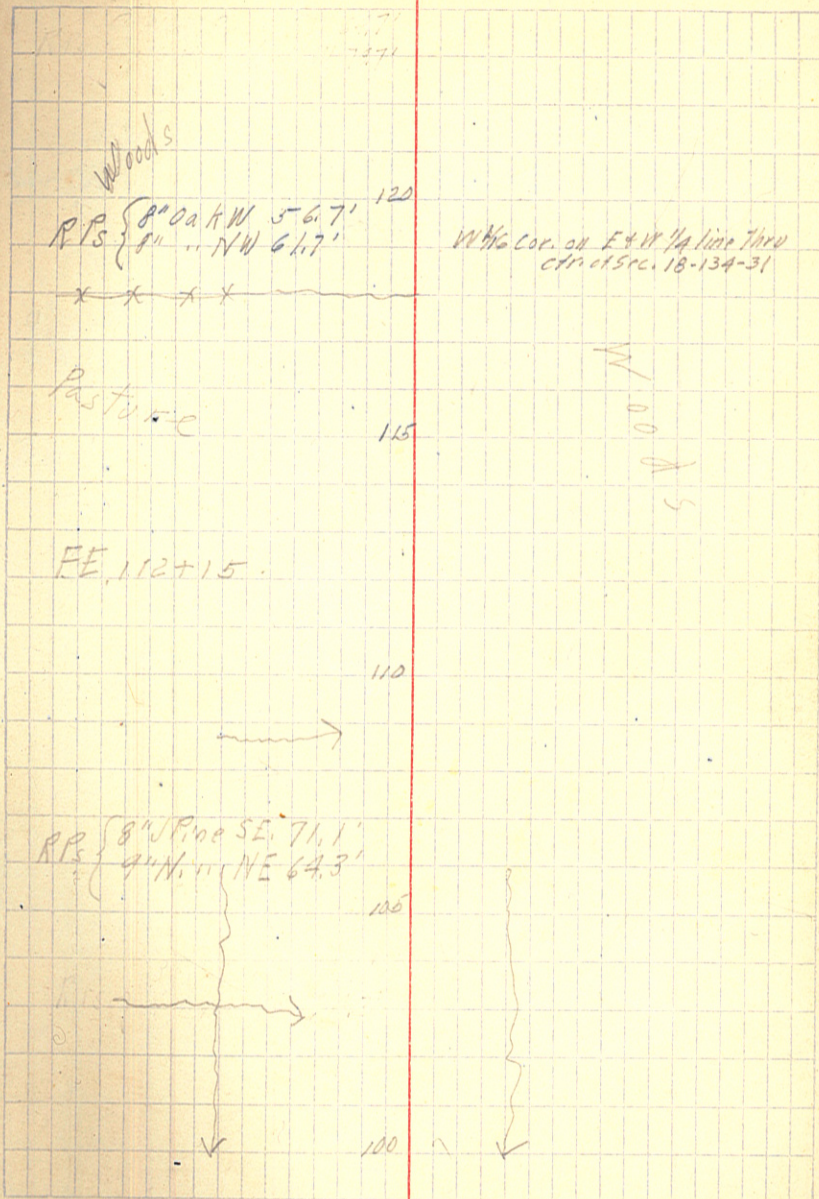
FE 76+52  
In P 12" x 24" C.M.

P.I. 119+00 R 0°08' N9°30'W N9°W

P.I. 106+25.5



122-26



R.P. { 8°00' NW 56.7' 120  
9° NW 61.7'

W 1/2 Cor. on E & W 1/4 line thro  
ctr of Sec. 18-134-31

FE 112+15

R.P. { 8°W Pine SE 71.1'  
9°W NE 64.3'

16

PT 147+10.1  
= +09.9

P.I.  
145  
Ex. 3.9

PC 142+89.9  
POT 142+67.0

145  
91.94  
53 86  
26 53  
118+47

133+37

A 4°12'  
D 1°L  
T 210.1  
L 420

L 4°12'

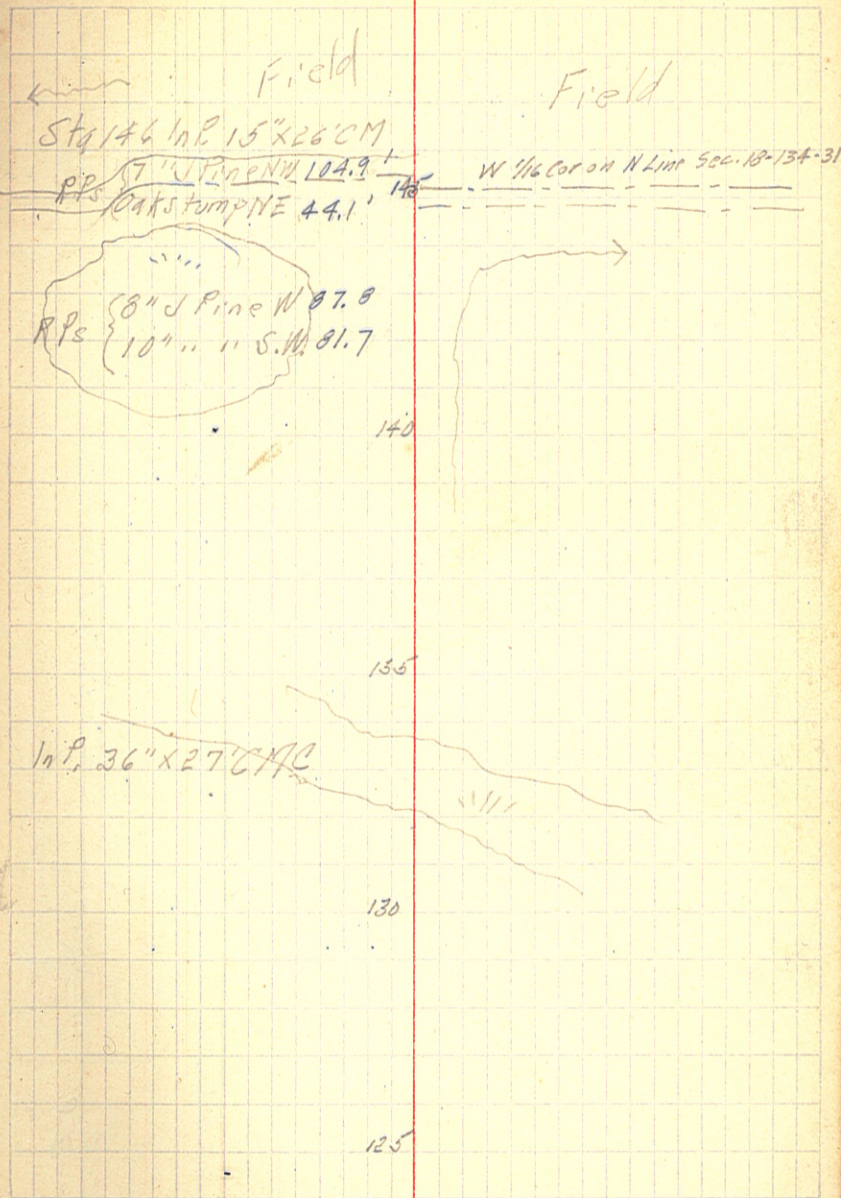
2°06'  
147 2°03'  
146 1°33'  
145 1°03'  
144 0°33'  
143 0°03'  
142 0°03'

(N13°12'W)  
N14°30'W

Brush 36'  
Clear 16'  
Grub 32'



12-3-26



140  
135  
130  
125

PT 163+81.86 back = 168+87.13

P.L. 167+80 L 31°20' N45°W N44°32'W

PC 16+72.977 = 15° T = 107.13' L = 208.89

Ext =  
Revised Sec.  
Page 21

Defls  
+0.86 = 15°40'  
+50 = 15°16'  
163 = 9°31'  
+30 = 5°46'  
167 = 2°01'

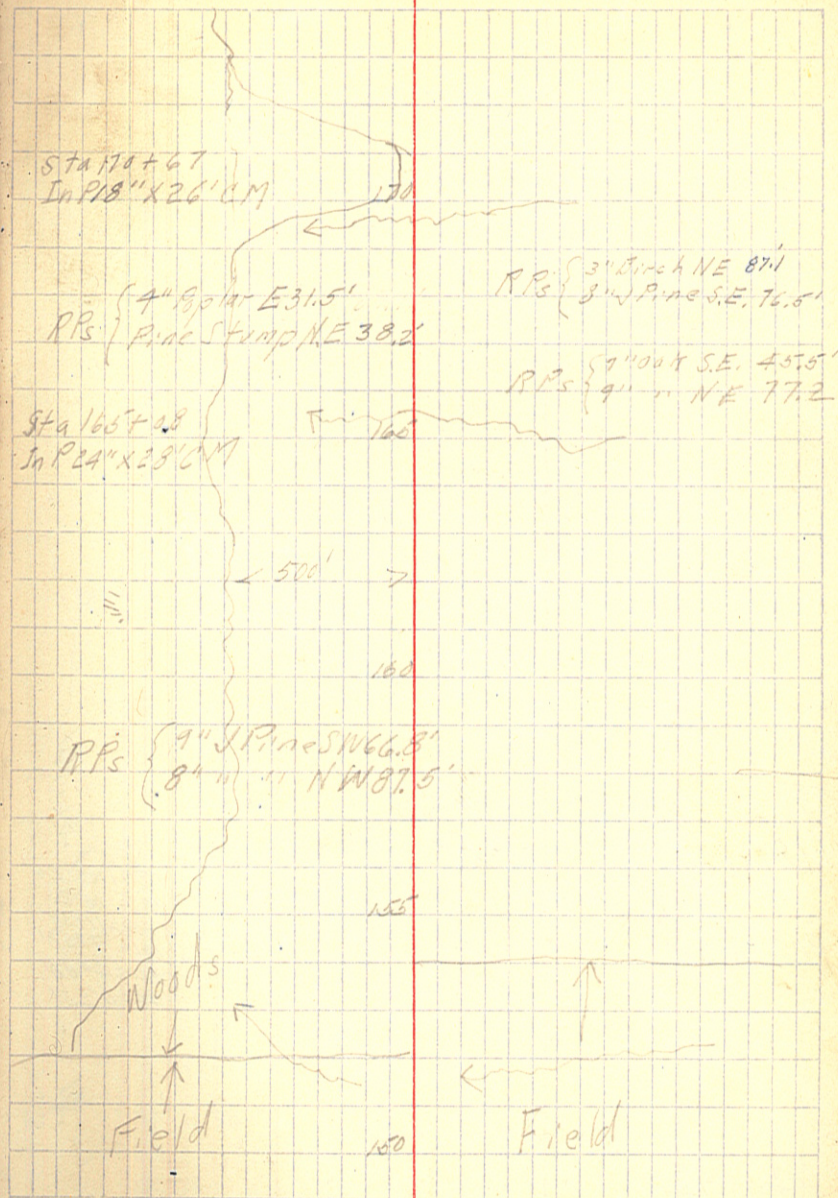
P.O.T. 168+80

167+80

10' Brushing  
Grubbing

12-6-26

19



18

12-7-26

20



186



187

PT 182+40.7 Back = 182+49.58 Fwd.

PL 181+22.2 R 36°53' N 7°30' W N 7°39' W

M = 15° T = 127.38' E = 20.7' L = 245.08'

PC 179+94.82

Revised See  
Page 21

Defls

+40.7 = 180.26'  
182 = 15° 23'  
+50 = 11° 38'  
181 = 7° 53'  
+40 = 40.08'  
180 = 0° 23'

Sta 174

185

195

190

185

RPs { 2" W Pine 54.0'  
7" " " W 35.4'

RPs { 8" U Pine NW 49.4'  
10" " " NE 47.0'

ppsg 1" U Pine W 53.0'  
1" 3" N Pine NW 64.1'

Approx. 1/4 Line

19

219

End of Survey

P.O. 213 + 30.6

P. 1200 + 40.8 L 0°18' N 83°0' W 75°7' W

210 + D

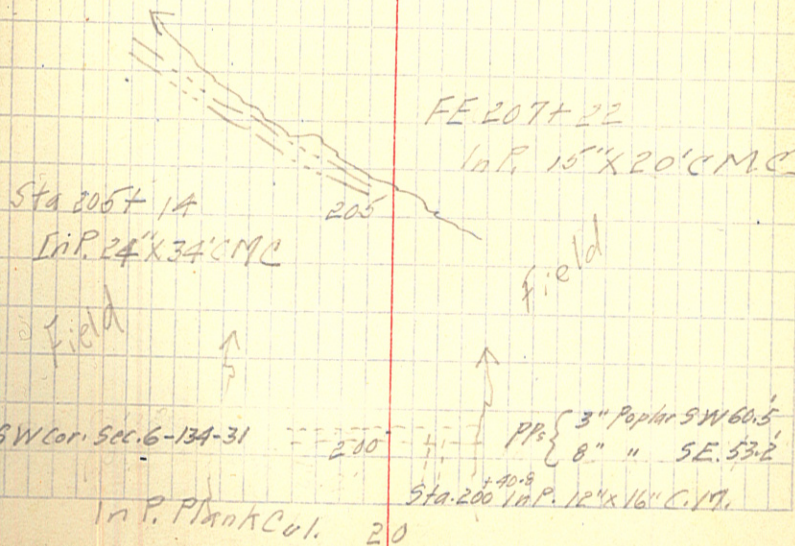
12-7-26

R.P.s { 12" W Pine SE 52.3'  
4" Poplar NE 48.2'

Field  
F.E. 214 + 25  
R.P.s { Tel. Pole SW 39.1' - 216  
" " SE 34.7'

Field

210



PT  
184+40.63 FA  
184+18.49 BK.

181+22.2

R

36°53'

A 36°53'

D 6°R

T 318.43

L 614.72

E 51.7

184 18°26'  
+50 17°53'  
183 16°23'  
+50 14°53'  
182 13°23'  
+50 11°53'  
181 10°23'  
+50 8°53'  
180 7°23'  
+50 5°53'  
179 4°23'  
+50 1°23'

PC

178+03.77

PT  
170+47.81 FA  
170+34.41 BK.

167+80

L

31°20'

A 31°20'

D 6°L

T 267.81

L 522.22

E 36.8

170 15°40'  
+50 14°38'  
169 13°08'  
+50 11°38'  
168 10°08'  
+50 8°38'  
167 7°08'  
+50 5°38'  
166 4°08'  
+50 2°38'  
165 1°08'

PC

165+12.19

## Level Notes

SAR#2 Job #2703

Sta	-	H.I.	+ Elev
BM (Old)		1252.75	2.65 1250.10
B.M.	0.87		1251.88 ✓
TP	6.33		1246.42
+		1252.47	6.05
BM	2.28		1250.19
- 0+00	5.9		45.6
0+00	6.8		45.7
1+00	6.0		46.5
2+00	5.9		46.4
3+00	6.0		46.5
4+00	6.0		46.5
5+00	6.0		46.5
6+00	6.0		46.5
7+00	5.6		46.9
5+56	8.00		44.5
TP	5.63		1246.84
+		1254.48	7.64
+35	7.3		47.2
8+00	6.5		48.0
9+00	4.8		49.7
+50	4.3		50.2
10	4.5		50.0
11	5.2		49.3
12	6.7		47.8

11-24-26

L H.I. = 5.2 R

On 15" Paper Stamp W of Sta 11+00

On 4" " W of Sta 9+00

On 20" Oak Stamp NW of Sta 2+00

56	54	6.7	6.6	5.3	5.2	5.8	8.6	3.6	6.5	6.5
36	20	18	14	18	12	18	32	24	28	35
4.2	4.9	7.2	6.1	5.3	5.4	6.8	9.2	3.2	6.1	6.6
36	21	17	14	11	1.5	1.8	2.2	2.4	2.8	3.7
6.0	6.6	5.9	7.2	7.0	5.5	6.6	9.2	9.1	6.9	7.0
33	27	20	18	16	9	13	18	2.2	2.5	2.9
5.5	6.0	5.9	6.1	6.1	5.2	6.1	6.6	8.7	9.2	7.3
31	18	13	10	10	1.1	1.5	1.8	2.1	2.5	2.7
4.6	5.4	6.5	6.5	6.1	5.3	7.6	7.6	6.0	5.4	5.4
33	20	18	14	13	1.0	1.7	2.0	2.2	2.6	2.6
4.7	5.6	6.3	6.5	5.3	5.4	7.5	7.6	6.5	6.8	6.8
33	19	17	15	10	1.0	1.5	1.7	1.9	3.3	3.3
CS	3.0	3.7	4.6	6.2	6.5	4.9	5.4	7.2	7.4	7.2
CS	33	30	21	17	16	11	11	16	19	3.5
CS	4.8	4.8	5.4	6.2	6.4	5.2	5.3	5.9	7.2	6.4
CS	33	24	18	16	13	9	11	13	18	2.0

Bot of C.M.C

CS	6.5	12	6.0	6.1	5.3	5.4	7.5	7.0	6.9	4.9
CS	32	24	14	11	9	11	17	20	21	30
L	0.6	0.6	5.7	6.3	6.2	5.4	5.2	6.3	7.4	7.3
L	33	28	14	17	13	10	11	15	17	19
CS	2.5	3.3	6.3	6.2	5.2	5.3	6.1	7.3	2.3	6.8
CS	33	22	17	14	9	11	15	17	19	21
L	3.5	3.4	3.9	5.0	6.4	6.4	5.2	5.3	6.2	7.5
L	33	31	2.5	2.0	1.6	1.4	1.0	1.1	1.6	1.7
CS	3.7	4.1	5.8	6.0	5.2	6.6	6.5	5.4	5.2	7.5
CS	32	24	25	23	19	17	15	14	9	16
CS	3.9	4.6	6.9	6.9	5.3	6.4	6.2	7.7	7.7	6.9
CS	33	22	17	13	10	9	12	16	18	2.0
CS	4.1	4.8	6.7	6.6	5.2	5.7	7.4	7.7	6.5	7.0
CS	33	22	18	15	11	11	15	18	21	3.3



Sta	-	H.I.	+	Elev.
13	7.9	1254.40		46.6
14	8.1			46.4
15	7.8			46.7
TP	7.95			1246.53
+		1254.09	7.56	
14+75	10.7			43.4
16	7.0			47.1
17	6.5			47.6
18	5.9			48.2
19	4.9			49.2
20	3.7			50.4
21	2.2			51.9
22	1.0			53.1
BM TP	0.60			1253.49
+		1264.92	11.43	
P.C. + 31.10	11.7			53.2
+50	11.9			53.0
23	11.5			53.4
+50	13.2			51.7
24	12.6			52.3
+50	10.9			54.0
25	9.3			55.6
+50	6.8			58.1

6.2

4.5	4.7	5.5	6.3	5.8	5.0	5.5	6.4	7.6	7.9	6.5	6.9
33	22	18	14	13	11	12	17	19	24	26	33
5.4	5.5	7.0	6.4	5.2		5.2	6.2	7.2	7.2	6.4	6.5
32	20	16	12	10		11	18	20	25	27	33
6.0	5.4	7.4	7.2	5.2		5.2	5.9	6.2	7.0	7.2	6.6
32	22	21	15	10		11	15	18	20	25	27

Bot. of C.M.C.

62	4.8	7.6	7.8	6.8	5.5	5.4	6.3	7.0	7.0	6.4	6.3
32	23	21	16	14	9	13	17	19	24	26	33
6.8	6.8	7.5	7.5	6.0	5.3	6.4	6.1	6.7	6.7	5.9	6.0
32	22	20	16	13	10	13	14	21	25	27	33
6.0	5.9	7.5	7.4	5.2		5.2	5.7	6.7	6.7	5.4	5.2
32	21	19	16	10		13	19	21	25	28	35
6.0	6.0	7.3	7.4	5.6	5.2	5.3	6.6	6.5	4.5	4.4	C.S.
31	22	19	15	13	12	16	18	23	28	33	C.S.
6.0	5.8	7.0	7.1	5.5		5.2	6.2	6.2	4.2	3.4	3.5
32	21	19	17	13		10	14	17	21	26	33
C.S.	5.7	5.2	6.8	6.9	5.5	5.2	6.0	6.2	3.8	2.6	
31	18	15	13	11		10	13	18	24	31	C.S.
C.S.	6.8	5.0	6.8	4.6	5.3	5.4	6.5	6.5	2.7	2.2	
32	17	14	12	10		11	14	17	22	33	C.S.

On 3" oak NW of Sta 19+00

H.I. = 51.5

5.6	4.6	6.5	6.5	5.6		5.6	6.5	6.4	3.2	2.7	
22	18	12	13	4		11	16	18	23	34	
4.9	4.8	6.2	6.2	5.6		5.6	6.2	6.1	3.8	3.0	
32	19	10	12	9		13	15	18	23	33	
7.3	6.3	6.6	5.6			5.4	5.6	6.2	6.4	4.9	
28	13	11	4			6	18	21	24	27	
		5.3	5.5			5.0	3.3	3.0	3.5		
		3.7	2.8			6	9	20	33		
C.S.	4.4					6.2	5.6	5.0	3.4		
	3.1					2.1	2.3	2.7	3.0		
C.S.	4.3									6.7	6.9
	3.1									2.4	3.3
C.S.	4.0					6.5	7.2				C.S.
	4.0					2.4	3.3				C.S.
C.S.	3.7						6.6				C.S.
	3.4						3.2				





Sta	-	#1	+	Elev
52	1.2	1278.34		77.1
53	4.4			73.9
54	7.9			70.4
55	10.5			67.8
TP	11.33			1267.01
+		1267.39	0.38	
56	3.2			64.2
57	6.7			60.7
58	9.9			57.5
59	12.6			54.8
TP	10.97			1258.42
+		1258.42	2.00	
+55	4.3			54.1
60	4.4			54.0
61	4.8			53.6
62	4.9			53.5
63	5.0			53.4
64	4.8			53.6
65	5.1			53.3
BM	4.95			1253.47
66	4.9			53.5
67	5.2			53.2
68	5.1			53.3
TP	5.38			1253.04
+		1260.19	7.15	
+67	12.5			47.7

L H.I. 55 R

CS	63	60	61	68	67	57	5.7	5.5	4.2	4.2	3.2
	23	19	16	14	12	8	1.2	1.5	1.8	2.6	3.5
				5.8	6.1	6.4	5.7	5.6	5.7	4.2	4.6
				1.9	1.6	1.2	1.3	1.4	1.6	1.9	2.1
											3.5
	5.3	4.9	4.8	5.1	6.2	6.8	6.0	5.7	6.1	4.3	4.4
	30	22	20	16	15	12	10	1.2	1.5	1.8	3.3
	5.1	5.0	5.0	6.3	6.2			5.9	6.2	4.6	4.6
	33	20	16	14	10			1.2	1.5	1.9	2.2
										2.5	3.1

	4.7	4.7	4.7	6.3	5.9	6.4	4.8	4.7	5.8		
	22	20	16	15	13	16	19	1.8	3.2		
	4.7	4.7	5.3	6.2	5.6	6.6	6.7	5.4	5.5	6.0	
	32	20	16	14	10	11	17	2.4	2.6	2.9	3.3
	5.9	5.8	5.8	5.4	5.7	7.5	8.1	8.1	5.5	5.6	
	34	19	17	11	11	17	20	2.4	2.8	3.2	
	5.5	5.5	6.9	5.8	5.6	6.6	7.0	6.6	5.6	5.0	
	33	20	17	13	11	14	20	2.4	2.6	2.9	

	5.9	6.0	6.6	6.4	5.7	5.6	6.1	6.6	6.4	5.0	
	20	21	19	15	11	11	1.3	1.5	1.9	2.7	
	4.7	7.1	7.1	6.5	6.5	5.6	6.2	6.4	7.3	7.1	6.4
	26	24	22	21	17	15	13	21	2.2	2.4	2.6
	6.8	7.8	7.8	6.6	6.8	5.8	6.3	6.6	8.0	7.8	7.0
	2.5	2.4	2.1	1.9	1.6	1.9	1.3	2.1	2.3	2.5	2.4
											3.1
	6.6	8.0	8.1	6.6	6.0	5.7	6.5	7.6	7.6	6.4	7.0
	26	24	21	19	11	11	14	1.8	2.1	2.3	2.5
	6.8	8.5	8.5	6.7	6.0	5.7	6.4	8.1	8.1	6.5	6.2
	26	23	21	19	13	10	14	2.0	2.3	2.6	3.1
	7.0	8.9	8.9	6.7	6.6	5.9	6.2	6.6	8.5	8.5	6.8
	46	24	22	20	14	11	1.4	2.1	2.3	2.6	2.7
	6.7	8.7	8.7	6.6	6.6	5.7	6.3	6.6	8.3	6.8	5.8
	25	24	21	19	16	9	1.5	2.1	2.3	2.8	3.0

On 7" Poplar E of Sta 65

	7.2	8.6	8.6	6.9	6.3	5.8	5.7	6.4	6.8	8.5	8.5
	25	23	21	18	14	9	1.2	1.5	1.8	2.3	2.5
	6.6	8.5	8.5	6.7	6.5	5.8	5.7	6.3	6.5	8.3	8.3
	25	23	21	20	14	9	1.2	1.5	2.1	2.3	2.5
	6.7	8.7	8.3	6.6	6.6	5.9	5.7	6.3	6.5	8.3	8.3
	25	23	21	17	9	1.2	1.5	2.0	2.3	2.5	2.7

Bot of C.M.C.

Sta	-	H1	
69	6.9	1260.19	53.3
70	6.7		53.5
71	6.7		53.5
72	6.4		53.8
73	5.9		54.3
74	5.4		54.8
75	4.4		55.8
76	2.5		57.7
TP	0.42		1259.77
+		1272.10	12.33
77	10.3		61.8
78	6.9		65.2
+60	4.9		67.2
79	3.3		68.8
TP	0.12		1271.98
+		1284.41	12.43
80	11.8		72.6
+50	9.8		74.6
81	8.1		76.3
82	4.2		80.2
83	1.8		82.6
84	0.3		84.1
TP	0.33		1284.08
+		1290.51	6.43

12-2-26 L 5.5 R

✓ 6.7	8.1	8.0	6.7	5.8	5.8	6.0	6.2	6.4	7.8	7.8	6.5	6.6
25	23	21	18	10	13	15	18	20	22	24	24	28
✓ 6.5	8.2	8.2	6.6	6.3	5.7		6.7	6.3	6.6	7.5	7.5	5.7
20	23	21	19	12	10		13	15	21	22	28	28
✓ 6.7	8.1	8.1	6.6	6.3	5.9	5.8	6.2	6.5	7.3	7.3	5.3	
26	23	21	20	14	10	13	16	21	23	25	27	L
✓	6.5	7.1	6.7	6.0	5.7	6.1	6.0	5.2	5.0			L
	22	21	14	10	14	15	20	23	26			L
			6.3	5.7	5.3	6.0	6.0	5.1	4.5			
			14	10	12	16	19	22	26			
			C.S.	6.3	5.4	5.5	4.2	4.1				
			30	14	15	23	27	33				
			CS	6.8	6.2	6.5	5.7	5.9	4.8	4.9	3.8	
			31	18	14	11	11	16	22	28	L	
			CS	7.6	6.9	6.9	4.9	5.6	4.2	3.9	CS	
			27	15	11	14	18	23	31	CS		
			CS	8.0	7.9	6.8	5.7	5.4	6.0	6.4	5.7	4.8
			24	16	12	8	11	16	19	21	32	CS
			CS	6.7	6.1	5.9	6.6	6.0	6.0	4.6	4.8	3.0
			33	23	15	10	9	11	13	18	26	32
			CS	5.4	4.7	6.0	6.2	5.7	6.3	1.6	1.5	1.2
			24	14	12	12	12	16	13	21	25	31
			CS	6.1	5.2	4.8	6.2	6.0	6.3	1.1	0.9	0.4
			29	21	13	11	12	12	13	23	32	37
			CS	4.7	4.0	3.6	6.8	6.4	6.0	6.4	1.7	0.7
			34	27	18	11	10	10	12	23	31	36
			CS	5.4	4.4	5.0	6.0	6.1	5.8	6.1	1.3	0.3
			33	27	20	12	11	10	11	13	24	30
			CS	6.3	5.0	5.8	5.8	6.0	5.9	6.2	2.7	2.1
			33	20	18	15	10	10	12	14	21	25
			CS	7.0	6.2	6.7	5.6	5.6	5.3	5.1	6.0	4.6
			32	18	15	8	7	7	13	15	18	22
			CS	6.7	6.1	6.6	5.4	5.6	5.6	5.3	6.0	4.8
			32	14	17	8	7	7	14	16	18	22
			CS	6.2	5.6	6.4	5.3	5.5	5.5	5.3	6.1	4.8
			32	20	16	8	7	7	12	14	18	20
												32

Sta	-	HI	+	Elev.
85	5.7	1290.57		1284.8
86	5.5			85.0
87	5.4			85.1
88	5.3			85.2
89	5.2			85.3
90	6.1			84.4
91	7.3			83.2
+94	8.9			81.6
T.P. B.M	12.32			1278.19
+		1282.92	4.73	
92	1.3			81.6
93	2.6			80.3
94	5.4			77.5
95	8.2			74.7
96	9.5			73.4
97	10.4			72.5
97	12.2			70.7
98	9.9			73.0
99	8.1			74.8
100	5.2			77.7
101	1.2			81.7
TP	1.08			1281.84
+		1293.79	11.95	

12-2-26

5.5

L	5.5	5.3	6.4	5.4	5.5	5.8	5.6	6.5	6.9	5.2
	29	18	15	8	6	13	14	18	20	24
L	5.5	6.7	5.5	5.6		5.7	5.4	6.7	5.7	L
	18	15	8	6		13	14	18	21	L
L	5.4	6.5	5.6			5.6	5.4	6.6	5.7	5.9
	18	15	8	7		12	13	18	21	31
L	5.5	6.4	5.3	5.6		5.6	5.4	6.3	5.6	L
	18	15	8	7		12	13	17	22	L
L	5.4	5.6	6.6	5.9		5.6	5.4	6.6	5.9	L
	30	19	16	8		12	13	17	21	L
L	5.2	5.1	6.3	6.6		5.6	5.5	6.6	5.9	L
	30	18	15	8		11	13	17	20	L
L	4.5	5.9	6.0	5.5		5.7	5.7	7.0	6.1	L
	30	19	15	11		11	13	18	21	L
L	4.6	5.2	6.0	5.6		6.0	6.5	6.2	6.5	L
	33	22	17	12		13	18	21	35	L

On 4 "Poplar E of Sta 92

L	5.0	6.1	6.1	5.5		6.0	6.1	6.1	6.5	
	22	19	15	11		12	17	19	32	
L	4.4	6.5	6.5	5.7	5.9	5.9	5.7	6.3	6.8	5.9
	23	18	15	17	10	10	11	15	18	22
L	4.0	4.8	6.3	6.4	5.6	5.9	7.4	7.3	7.0	7.1
	27	21	19	16	13	12	15	18	19	25
L	3.2	3.9	5.7	5.7	5.9	6.0	6.8	6.7	7.2	
	27	22	19	15	13	11	15	19	24	C.S.
L	4.1	4.2	5.9	6.7	6.5	6.0	7.3			
	30	27	24	20	16	9	14			L
L	5.1	5.9	6.9	6.9	5.6	5.9	7.2			
	28	24	22	14	11	9	12			L

Bot. of C.M.C.

C.S.	6.4	6.8	7.2	7.2	6.9	5.9	5.8	6.9		L
	31	25	23	18	16	11	8	10		L
L	6.5	7.2	7.2	5.6		5.7	7.0	7.0	6.0	L
	25	23	19	12		8	11	17	16	L
L	6.3	7.3	7.2	5.8		5.5	6.3	6.3	5.1	5.0
	22	20	17	12		9	13	14	17	21
L	6.0	7.4	7.2	5.9		5.5	6.1	5.8	3.9	4.0
	23	19	17	12		10	13	14	18	21



119	5.5	129261		1292.1
120	6.4			91.2
121	7.0			90.6
122	7.1			90.5
+ 70	7.5			90.1
TP123	8.14			1289.97
F		1290.25	0.78	
124	3.3			86.9
125	6.2			84.0
TPBM	2.74			1287.51
+		1287.71	0.20	
126	6.4			81.3
127	8.6			79.1
128	11.5			76.2
TP	12.00			75.71
+		76.90	1.19	
129	4.3			72.6
130	5.1			71.8
+ 55	5.8			71.1
131	7.2			69.7
+ 50	8.7			68.2
132	12.0			64.9
TP	12.10			1264.80
+		1273.42	8.62	

5.5

L	6.0	6.7	6.9	5.8	5.5	6.2	5.2		
	23	16	14	10	14	15	28		L
L	6.6	6.4	6.6	5.5	5.6	6.3	6.0	5.5	
	26	24	13	8	13	15	17	18	L
L		5.6	6.0	5.6	5.6	6.1	5.0		
		19	14	10	14	17	19		L
L		6.0	6.5	5.9	5.5	6.2	4.7		
		17	15	9	14	17	22		L
L		5.7	7.7	5.8	5.9	6.3	5.4	4.7	
		21	17	13	16	18	22	30	L
L		5.8	7.2	6.0	5.8	6.2	4.7		
		22	17	11	15	18	23		L
L	6.0	7.2	6.0		5.8	6.2	5.0		
	23	19	14		15	17	19		L
L	6.6	6.0	6.6	5.7	5.5	6.0	4.8	4.5	CS
	27	20	18	15	13	16	19	30	
On 7" d. Pine NE of Sta 124									
L	6.2	6.0	6.5	5.6	5.5	6.1	5.0	5.8	4.2
	28	22	18	12	14	16	21	28	33
L	5.9	6.3	5.7		5.9	5.5	5.3	2.8	CS
	18	16	12		16	19	28		
CS	6.1	5.6	6.3	6.0	5.5	5.7	4.6		
	26	17	15	13	17	19	21		L
L	6.0		5.7		5.9	6.4			
	30		10		18	25			L
L	5.6	5.2	6.0	5.4	6.0	6.5	6.7	6.5	L
	28	18	13	10	15	20	26	29	
L	4.8	6.2	5.7		5.5	6.0	5.0	5.0	CS
	17	13	10		15	20	23	30	
L	2.5	5.7	5.6		5.4	4.8	4.7		
	22	12	10		19	22	33		CS
L	1.0	1.6	5.9		5.7	4.4	4.7	5.4	
	28	18	12		19	22	30	36	CS
CS	+0.4	0.6	4.4	5.5	6.2	5.8	6.6	7.1	
	33	23	16	12	16	18	27	35	CS



+20	9.6	73.42	1263.8
+52	11.2		62.2
133	12.6		60.8
+35	13.6		59.8
+37	14.6	Top of CMC	58.8
134	12.9		60.5
135	14.7		62.2
+65	7.4		66.0
136	5.7		67.7
+45	3.3		70.1
+75	2.0		71.4
137	1.6		71.8
+65	1.3		72.1
138	1.1		72.3
TP	0.64		1272.78
+		1278.56	57.8
BM	5.17		1273.39
+55	5.0		73.6
139	4.2		74.4
+55	3.0		75.6
140	1.3		77.3
TP	0.73		1277.83
+		1287.17	9.34

55

CS	0.0	8.7	5.7	5.6	6.0	7.5			
	34	23	13	11	17	30		CS	
CS	4.7	6.7	5.8		5.8	7.1		CS	
	34	22	10		16	29		CS	
L			7.1	5.5	6.0	8.7	9.4	CS	
			13	9	13	22	30		
L			9.1	7	6.2	7.8	8.2		
			13	9	1.3	20	3.3		
+60	L	4.2	6.6	6.9	5.6	5.8	6.0		
		26	18	13	10	16	19		
CS		7.0	6.8	5.9		5.9	7.2		
		25	13	13		14	18		
CS	4.1	6.6	6.7	5.6	5.8	6.0	5.5		
	5.2	20	14	9	14	17	19		
L	5.3	6.2	6.7	6.8	6.8	6.8	6.0		
	31	19	17	15	17	25	37		
	4.3	4.5	5.7	5.4	5.8	5.9	5.3	6.0	
	34	21	17	14	17	20	24	36	
CS	2.4	2.6	5.0	5.6	5.6	4.0			
	30	19	13	8	16	31		L	
L	2.4	2.6	5.7	5.6	5.7	4.0			
	32	20	14	9	16	21			
L	3.6	4.0	6.0	5.6	5.5	4.2	4.4		
	31	18	13	12	18	22	34		
CS	6.7	6.5	5.8		5.6	6.5	7.0	6.3	6.8
	17	11	8		15	19	25	29	35
CS	6.5	6.0	6.4	5.7	5.7	6.0	6.0		
	29	14	12	9	15	18	31		

→ On 7<sup>th</sup> W Pine NW. of Sta 137

CS	6.0	5.5	6.2	5.7	5.8	6.2	5.2		
	30	14	13	11	15	19	34		CS
CS	6.4	6.1	6.5	5.9	5.5	5.9	5.5	5.0	
	29	15	13	9	16	19	22	34	
CS	9.0	7.7	6.1		5.6	5.0	4.0		CS
	28	17	10		17	21	34		
CS	8.6	6.9	5.6		5.7	3.1	2.8	1.6	
	31	15	12		14	21	32	37	

+ 45	8.1	1287.17		1279.1
141	6.9			80.3
+ 65	3.9			83.3
142	2.6			84.6
+ 45	1.7			85.5
+ 67.0	1.7			85.5
143	2.3			84.9
+ 80	4.2			83.0
144	5.0			82.2
+ 60	8.0			78.4
145	11.7			75.5
TP B.M.	9.95			1277.22
+		1280.57	3.35	
+ 40	7.4			73.2
+ 75	8.2			72.4
146	8.4			72.2
146	10.3			70.3
147	8.1			72.5
148	6.6			74.0
149	4.7			75.9
+ 45	3.8			76.8
150	3.0			77.6
TP	2.95			1277.62
+		1289.56	11.94	

12-9-26

5.5

CS	9.2	7.3	6.9	5.3	4.4	2.6	1.2	CS
	38	16	12	12	20	26	36	
CS	8.9	7.4	6.0	4.7	4.5	3.2	2.7	0.2
	29	19	14	11	20	27	33	37
CS		7.1	5.8	6.6	3.6	3.3	1.9	1.4
		28	15	12	19	27	31	38
CS	7.1	6.1	5.8	5.3	5.6	3.7	2.8	
	30	16	13	11	14	20	34	
CS	6.0	5.2	5.5	5.3	5.3	3.0	2.0	
	28	16	13	9	14	19	32	L
CS	6.6	6.1	5.4	5.3	2.6	2.6	2.0	1.5
	37	31	17	14	14	19	29	36
CS	7.2	6.2	5.5	5.4	5.3	2.4	2.3	1.6
	35	26	16	9	14	18	26	34
CS		7.1	5.7	6.4	5.1	1.8		
		35	23	6	11	27		L
CS	6.8	6.4	5.4	5.6	6.2	5.0	2.2	
	33	29	20	8	7	11	33	L
CS	7.8	6.9	5.7	7.2	7.8			
	34	25	20	9	26	32		
CS	7.8	6.9	5.3	6.2				
	33	26	22	24				

On 7" d. Pine SE. of Sta 145

	7.0	6.3	4.8	5.8	6.1	7.4	
	37	24	20	11	15	36	
	7.0	6.4	5.1	5.7	6.7	7.0	L
	37	25	20	5	10	34	
L	6.9	5.8	5.4	5.8	6.2	7.0	6.6
	25	21	11	4	6	11	21
							31

Date of C.M. C

6.1	5.8	6.2	6.0	5.2	4.7	4.2
34	29	25	21	14	14	29
6.8	5.7	6.0	5.9	5.4	5.2	5.0
38	25	22	17	9	12	30
6.0	6.5	5.6	5.6	5.6	6.1	5.4
32	19	16	6	20	25	39
7.0	6.4	6.6	6.0	5.7	6.4	5.7
35	23	18	16	7	11	14
7.0	6.2	5.5	6.0	5.6	3.3	2.0
36	22	18	16	9	14	29

+60	11.9	1289.56	1277.7
151	11.7		77.9
+55	12.8		76.8
152	14.2		75.4
+55	14.7		74.9
153	14.5		75.1
+65	12.0		77.6
154	11.0		78.6
155	8.3		81.3
+60	7.0		82.6
156	7.0		82.6
+45	5.9		83.7
157	4.6		85.0
+55	2.4		87.2
158	1.3		88.3
+50	1.0		88.6
159	1.6		88.0
TP	3.75		1285.81
+		1289.48	3.67
160	3.7		85.8
+35	4.4		85.1
+75	5.0		84.5
161	5.8		83.7
+55	6.8		82.7

45

	6.4	5.8	5.7	6.3	6.3	4.9	4.2
	34	15	6	8	14	18	34
CS	5.2	4.7	5.5	5.3	2.2	L	
	31	20	16	8	15		
6.3	5.8	6.3	5.8	5.9	4.1	3.8	
32	21	18	16	4	13	31	
	7.5	6.8	5.0	5.5	6.3	6.4	6.0
	33	20	16	6.8	9	17	24
L	8.3	7.6	5.8	5.8	7.0	6.8	5.7
	26	21	15	5	8	17	33
CS	8.0	7.0	5.6	5.7	6.7	7.2	7.0
	27	20	15	6	9	14	24
CS	6.2	6.0	5.5	5.5	6.4	6.7	5.7
	35	20	15	5.8	12	22	26
CS		7.1	5.5	5.7	6.3	5.3	5.5
		32	16	10	17	20	24
CS		8.0	6.1	5.5	2.5	1.5	2.4
		32	15	14	21	12	7
CS		8.5	5.8	5.5	5.9	2.9	2.4
		32	14	18	14	20	33
CS	9.7	7.6	6.1	5.7	5.9	4.7	2.8
	30	16	12	11	14	18	33
CS	10.0	8.4	6.1	5.6	5.8	3.3	2.8
	25	16	11	12	13	28	34
CS	10.1	8.0	6.0	5.6	6.0	3.9	1.5
	24	17	11	12	15	20	33
CS	10.0	8.7	6.6	5.6	6.0	1.6	0.5
	23	15	11	12	14	24	29
CS	9.5	8.3	6.0	5.8	6.1	1.9	0.4
	25	15	11	11	15	22	31
CS		10.0	6.1	5.6	5.9	2.7	1.1
		31	12	11	14	2.2	3.3
CS		8.7	5.9	5.4	5.8	3.3	1.9
		31	11	10	13	19	33
CS	7.4	7.0	7.1	5.7	5.7	6.0	4.9
	34	19	17	11	10	13	17
CS	7.0	6.5	6.9	5.5	6.0	5.3	4.6
	32	20	17	12	13	17	32
L	4.7	6.0	5.5	6.0	4.9	4.6	
	21	18	14	12	15	30	
CS	5.0	4.6	5.6	5.4	5.6	5.9	5.3
	34	21	17	13	10	13	17
CS	8.5	7.1	5.7	5.8	6.2	5.5	5.7
	28	17	13	9	14	18	32

		1289.49		
162	7.3			1282.2
+70	8.1			81.4
163	7.4			82.1
+75	6.8			82.7
164	6.8			82.7
BM	9.10			1280.38
+80	7.7			81.8
165	7.5			82.0
165708	10.6			78.9
+38	6.7			82.8
166	4.1			85.4
+60	3.2			86.3
+72.97	3.2			86.3
167	2.9			86.6
+50	3.1			86.4
168	5.2			84.3
+58	7.2			82.3
+81.86	8.80			80.7
TP	8.80			1280.68
+		1285.38	4.70	
169	5.5			79.9
+58	8.5			76.9
170	10.8			74.6
+67	13.8	Bot. of CMC		71.6
+50	11.8			73.6

2.09 for 30 + paper for 100  
 2.09 for 30 + paper for 100

Void

	8.2	7.5	5.7	5.7	6.8	5.0	4.5	CS
	33	18	11	10	14	19	30	
CS	7.6	6.7	5.7	5.3	5.4	4.2	3.8	L
	29	15	12	9	12	17	26	
	9.7	7.2	7.1	5.6	6.8	4.2	3.7	
	85	20	17	18	13	18	30	
7.4	6.7	7.2	7.3	5.5	4.0	4.2	3.7	
35	29	21	17	8	12	17	31	
	7.5	6.4	7.0	5.4	5.4	4.1	3.6	
	36	22	19	9	12	18	32	
On 12" S. Pine S of Cfa	16.4							
CS	8.6	7.7	6.0	5.7	6.5	5.8	5.2	
	32	13	15	7	12	17	32	
CS	9.2	8.2	6.8	5.7	6.3	5.5	5.3	
	34	19	14	6	10	13	31	
Bot. of CMC								
CS	8.6	8.2	5.5	5.6	6.2	6.1	5.6	5.1
	36	21	15	4	6	18	21	33
CS	6.5	5.7	6.4	5.6	6.4	6.5	5.6	4.4
	38	25	21	4	6	12	17	22
CS	5.1	3.9	4.0	5.5	5.5	3.6		L
	44	34	26	6	11			
CS	5.0	4.0	3.8	5.7	5.4	3.6	3.4	L
	44	35	27	6	12	24		
CS	4.9	4.2	4.1	5.9	5.6	3.5	3.3	L
	41	27	20	12	17	28		
CS	4.6	3.2	3.1	5.8	5.0	2.5		L
	39	20	10	3	28	33		
CS	5.6	5.2	4.0	5.8	5.5	3.8		L
	43	33	12	5	24	38		
CS	7.3	6.1	5.4	6.4	5.4	6.0	4.6	4.7
	40	25	13	9	6	16	20	24
CS	9.0	6.7	5.8	6.3	5.5	6.0	5.7	5.2
	40	29	13	10	7	15	18	22
CS	10.6	8.4	6.0	5.4	6.5	4.5	5.0	CS
	31	13	9	12	17	24	34	CS
CS	10.8	8.6	5.7	5.5	6.2	4.6	5.7	CS
	31	17	9	13	17	24	31	CS
CS	9.6	8.2	6.3	5.8	7.0	5.2	4.6	CS
	29	14	9	10	14	25	28	CS

171	12.1	1286.38	1273.3
172	10.2		76.2
173	7.9		77.5
+60	6.4		79.0
174	5.2		81.2
+45	4.7		80.7
175	3.5		81.9
+65	0.9		84.5
TP	0.64		1284.74

+		1296.39	11.65
176	10.0		86.4
+60	8.1		88.3
177	7.3		89.1
178	5.8		90.6
+50	4.2		92.2
179	3.2		93.2
TP	0.30		1296.09

+		1303.05	6.96
OC+94.82	5.8		97.2
180	5.6		97.4
+50	5.4		97.6
181	5.8		97.2
+50	5.9		97.1

2 Elev. Projected to 600.

Void

55

	8.5	8.0	7.0	6.0	5.6	6.7	5.3	4.9
	35	23	16	11	10	14	20	32
L			7.2	6.3	5.7	7.3	6.3	
			15	11	9	13	18	L
L	56	6.0	6.5	6.0	6.8	6.5	6.8	6.4
	30	17	14	11	10	13	22	34
CS	30	4.5	5.8		5.9	6.5	5.0	4.5
	30	17	14		13	23	30	35
CS	56	4.8	6.0		5.8	6.5	6.4	3.6
	31	18	14		12	15	21	28
CS		8.5	7.2	6.0	5.9	6.4	6.3	4.2
		30	16	13	10	15	22	27
CS	83	7.2	6.8	6.3	5.8	6.4	5.8	4.5
	31	22	17	14	11	18	23	27
CS	64	6.8	6.0	5.7	5.2	5.7	4.2	2.2
	33	23	19	15	12	14	21	27

CS	67	6.1	7.0	5.7	5.4	6.0	3.1	2.9
	33	23	18	13	11	14	25	34
CS	73	6.2	6.9	5.7	5.1	5.5	4.2	3.5
	34	21	17	13	11	14	19	33
CS	70	6.2	6.6	6.0	5.3	5.8	4.5	3.7
	32	20	17	13	12	14	19	32
CS		7.8	6.7	6.0	5.2	5.5	4.3	4.0
	32	22	17	13	13	16	20	30
CS	64	6.2	7.4	5.6	5.7	6.3	4.9	4.4
	33	27	18	13	12	14	19	29
CS	70	6.8	7.6	5.7	5.4	6.4	4.9	
	34	22	18	12	11	15	18	L

CS	71	6.9	7.0	6.0	5.7	6.5	5.4	
	33	23	20	13	12	16	21	L
CS	71	6.9	7.0	6.0	5.7	6.8	5.4	
	33	23	20	13	12	16	20	L
CS	70	6.8	5.6		5.6	6.0	5.0	4.7
	33	21	17		7	9	14	24
		7.5	5.0	5.7	4.8	4.6		5.4
		33	22	3	1	14		3.5
CS	71	7.0	5.0		5.4	3.9	3.5	
	30	25	19		7	14	24	L

182	5.3	1303.05		1297.7
PT+40.7	5.3			97.7
T.P.B.M	6.03			1297.02
+		1300.49	3.47	
183	3.7			96.8
✓ 184	4.9			✓ 95.6
185	5.2			95.3
186	4.6			95.9
187	5.1			95.4
188	5.4			95.1
189	6.5			94.0
TP	6.54			1293.95
+		1297.46	3.51	
190	4.8			92.7
191	5.4			92.1
192	5.5			92.0
+65	4.7			92.8
193	5.0			92.5
194	5.7			91.8
195	6.6			90.9
196	7.8			89.7
T.P.	7.63			1289.83
+		1292.36	2.53	

12-8-26

CS	7.6	6.7	7.2	5.9	5.5	4.2	3.8	CS
	31	20	16	12	14	20	28	CS
L	6.5	7.2	7.2	5.8	5.6	5.9	4.8	L
	17	14	12	9	14	17	21	L
Snow "N. Pine NW of Sta 183								
	6.0	6.7	6.8	5.8	5.6	6.2	5.3	4.7
	18	15	13	10	13	15	17	24
	6.1	6.7	6.4	6.0	5.5	5.8	6.2	5.3
	18	15	13	9	12	15	16	19
	6.0	6.5	6.6	5.9	5.7	5.5	4.8	
	20	17	14	10	12	16	21	
6.7	7.5	7.3	6.9	6.2	6.1	6.6	6.4	5.5
22	22	18	15	13	10	14	14	16
	6.2	7.0	6.0		5.5	6.2	5.1	4.1
	20	16	12		11	13	16	18
6.0	7.4	6.6	6.7	5.8	5.5	5.8	5.4	5.1
23	21	18	15	12	10	12	15	14
	6.0	7.8	7.0	6.1	6.0	6.7	6.4	5.2
	25	23	20	13	10	18	19	21
	6.2	7.1	6.7	5.8	6.1	6.4	6.4	5.7
	25	21	15	11	10	12	16	13
	7.0	7.4	7.2	6.2	5.9	6.4	6.8	5.8
	22	20	14	11	9	13	17	20
	6.2	7.1	7.1	5.9	5.6	6.2	6.2	5.1
	22	19	15	11	10	14	18	21
6.0	7.0	7.0	6.0	5.7	5.7	6.5	6.6	5.1
24	19	16	12	9	9	13	19	21
	6.0	6.7	6.7	5.9	5.6	6.7	6.7	5.7
	24	20	16	13	10	14	19	21
	5.6	6.8	6.7	5.9	5.8	6.7	6.7	5.8
	27	23	17	14	9	12	17	22
5.8	7.2	7.1	5.9	6.0	6.8	6.7	6.7	5.8
24	22	18	13	8	11	16	16	18
	5.7	7.0	6.0	5.8	6.9	6.9	6.9	5.9
	22	19	12	9	12	15	15	17

197	3.9	1292.36	1288.5
198	3.8		89.6
+65	4.1		88.3
199	4.6		87.8
200	5.6		86.8
201	6.7		85.7
TPBM	6.52		1288.84
+		1294.41	8.5-7
202	8.6		85.8
203	8.2		86.2
204	8.1		86.3
205	7.1		87.3
+14	11.7	Bot. of FC MC	1282.7
206	5.7		88.7
207	3.0		91.4
TP	0.32		1294.09
+		1306.21	12.12
208	11.0		1295.2
209	6.2		1300.2
+50	3.5		1302.7
210	1.3		04.9
TP	0.27		1305.94
+		1308.36	12.42

	4.0	6.9	5.7		6.1	7.0	6.8	6.2
	25	22	13		12	17	19	
	6.1	7.2	7.1	5.7	5.9	7.5	7.4	6.2
	25	23	17	13	7	13	20	22
	5.9	6.6	7.1	7.1	5.9	6.0	6.7	7.4
	26	24	22	18	13	8	10	15
	5.9	7.0	7.0	6.2	6.0	6.7	7.4	7.3
	28	25	18	14	8	10	15	18
	6.2	8.0	8.0	6.9	6.3	6.1	6.5	6.8
	31	28	26	21	14	11	14	18
	6.2	6.2	8.0	8.0	6.4	5.9	6.1	6.4
	30	27	25	23	21	17	17	18

On Tel. Pale Wolf Sta 202

L	6.7	8.0	8.0	6.5	6.3		6.1	6.9	7.9	7.6	6.5
	28	26	23	21	11		11	20	21	23	25
L	7.2	8.2	8.2	7.1	6.6	6.1	6.5	7.0	8.0	8.0	6.7
	27	26	22	21	12	12	12	18	24	24	25
L	7.6	8.5	8.7	7.4	6.6	6.1	6.1	6.5	7.8	8.0	7.2
	27	26	22	21	11	10	12	19	21	24	26
	7.9	8.7	9.0	9.0	8.6	8	6.6	7.3	8.6	7.7	
	32	28	26	22	21	13	19	20	24	25	L

CS	8.8	7.1	6.3		6.1	6.7	6.5	5.9	5.7	CS
	32	14	13		14	15	19	22	22	CS
CS	8.5	6.8	6.3		6.3	6.5	4.4	3.6	3.6	CS
	30	17	15		13	16	21	33	33	CS

CS	8.0	7.1			6.4	6.5	4.5	3.2	CS
	31	20			14	17	20	3.3	CS
	6.4	7.0	6.5	6.8	6.3	6.2	4.8	3.4	
	32	27	19	18	14	16	18	3.2	L
CS	6.9	6.6			6.3	5.5	3.7	3.0	CS
	32	19			14	17	20	3.3	CS
CS	6.4	6.2	6.8		6.0	5.2	3.3	2.7	CS
	31	19	17		14	16	20	3.3	CS

211	8.5	1318.36	1309.9
212	4.9		1313.5
+60	3.4		15.0
213	2.6		15.8
+30.6	2.0		16.4
+70	1.7		16.7
214	1.5		16.9
215	1.3		17.1
216	2.9		15.5
+50	4.1		14.3
217	5.7		12.7
+60	8.2		1310.2
218	10.1		08.3
TP	10.05		1308.31
+		1310.41	2.10
219	6.6		1303.8
220	11.0		1299.4
BM	2.82		1307.59

55

CS	5.9 3.2	5.1 1.6	6.1 1.4	6.5 1.3	6.2 1.6	2.9 1.9	2.4 3.2	CS
CS	6.8 3.1	5.8 1.8	6.4 1.3	6.1 1.9	5.2 1.6	2.9 1.9	2.2 3.2	CS
CS	6.5 3.2	5.6 1.6	6.6 1.4	6.3 1.4	4.7 1.6	2.8 1.6	2.2 3.3	CS
CS	6.2 3.1	5.7 1.6	6.4 1.3	5.8 1.3	5.1 1.5	2.6 2.1	2.0 3.3	CS
CS	6.2 3.1	5.4 1.5	6.4 1.2	5.6 1.6	4.4 1.7	2.4 2.2	1.8 3.4	CS
CS	5.9 3.1	5.1 1.4	6.3 1.2	5.9 1.6	4.9 2.1	2.0 2.1	1.8 3.3	CS
CS	5.6 3.2	4.8 1.6	6.2 1.2	5.4 1.6	4.8 2.2	3.1 2.2	2.3 3.4	CS
CS	5.3 3.0	4.7 1.6	6.3 1.2	6.1 1.6	3.3 2.2	2.8 3.4	CS	
L		4.5 1.8	6.3 1.2		6.3 1.6	3.4 2.2	L	
L	4.4 1.9	6.5 1.4			6.4 1.5	3.8 2.1	3.4 3.3	CS
L		4.8 2.0	6.3 1.4		6.2 1.6	3.6 2.0	L	
L	4.7 1.7	6.4 1.1	6.0 1.9	5.8 1.4	6.4 1.4	4.6 2.0	L	

On 12" J Pine (old B.M) SE. of Sta 219



Slater Township - 142-26  
Between Secs 16, 17, 20, 21, 28, 29

	-	H1	+	Elpv
B M		104.1	4.10	100.00
42	4.5			99.6
43	3.9			100.2
+ 95				
44	5.1			99.0
45	5.4			98.7
+ 69	4.0			100.1
+ 80	5.2			98.9
46	6.0			98.1
47	4.7			99.7
+ 79	2.5			101.6
TP	0.40			103.70
+		115.02	11.32	
48	10.4			104.6
49	1.1			113.9
TP	0.35			114.67
+		118.19	3.52	
+ 33	3.6			114.6
+ 78	8.8			109.4
50	10.6			107.6
TP	11.71			106.48
+		110.69	4.21	
50+76=57	6.2			104.5

4-30-27

Robt Pahl - Rod  
Roy Pahl - Chain  
Taubman Asst Engr

On 1/4 "N. Pine Sof Sta 41

	L	L
Swamp	L	L
1/4 Cor Bpt. Secs 28+29-142-26	L	L
	L	L
	L	L
	L	L
	L	L
Swamp	L	L
CS	7.6 12.2	
	43 18 13.4	L

CS	4.6 7.8 10.4 12.6	
	40 20 10.4 13	L
CS	0.1 11 3.2 5.9	R.S.
	8 13 2.6	

	0.6 2.0 3.6 6.3 8.0	
	33 17 17 17 2.5	CS
CS	5.6 6.8 10.5 12.4	
	29 19 115 12.5	
	8.8 18 19	

+50	5.4	110.69		105.3
52	6.5			104.2
53	5.8			104.9
+70	4.3			106.4
54	5.7			105.0
54+24=54	7.9			102.8
+10	9.4			101.3
55	9.4			101.3
56	9.2			101.5
57	9.3			101.4
58	9.6			101.1
T.P.	5.13			105.56
+		115.41	9.25	
+55	13.6			101.8
59	8.6			106.8
60	4.0			111.4
61	2.8			112.6
TP B.M.	1.48			113.93
+62	2.7	11678	2.85	114.1
63	5.2			111.6
64	6.5			110.3
65	7.4			109.4
66	7.9			108.9
TP	7.46			109.32
+		11731	7.99	

	L	4.3	5.1	CS
		4.5	5.7	
		2.0		CS
		6.9	7.9	8.7
swamp	CS	1.8		1.6
	L			L
	L			L
	L			L
	L			L
	L			L

swamp	L	13.6	12.4
	L	8.4	8.6
CS	L	4.5	4.0
	L	2.5	3.5
	L		2.5
	L		L

On Pine Stump E of Sta 61

swamp	L		L
	L		L
Swamp	L		L

67	6.7	117.31		110.6
68	4.8			112.5
69	5.8			111.5
70	5.8			111.5
+ 31				
71	3.9			113.4
TP 72	4.13			113.18
+		118.00	4.82	
+56	4.4			113.6
+63	5.2			112.8
73	5.3			112.7
74	3.4			114.6
BM	2.92			115.08

BM		103.74	3.74	100.00
92	3.0			100.7
93	4.6			99.1
94	4.5			99.2
+80	7.0			96.7
95	7.6			96.7
96	8.2			95.5
97	8.1			95.6
+22	7.9			95.8

Swamp

Cot Specs 28, 29, 20, 21 - 142-26

↑	4.3	4.8	5.5
	2.2		2.2
Swamp	L	L	
	L	L	

On Pine Stump E of Sta 74

On 3" Poplar E of Sta 93

↓	3.9	5.8	6.7	CS
	2.2	1.7	2.8	
+60 Swamp	6.2	8.0		
↑	2.5	2.1		
	6.3	7.9		
	2.0	2.0		
	L	L		
	L	L		
	L	L		



+ 30	6.2	104.14	97.9
+ 65	7.7		96.4
126	6.1		98.0
+ 50	3.4		100.7
127	5.2		98.9
+ 60	5.6		98.5
128	6.5		97.6
TP	6.64		97.50

+		103.24	5.74
+ 13	6.3		96.9
+ 60	6.8		96.4
129	6.2		97.0
+ 67	4.3		98.9
+ 67	Δ P		

130	6.0		97.2
+ 05	6.4		96.8
131	6.6		96.6
132	6.6		96.6
133	5.4		97.8
+ 70	2.5		100.7
TP	1.30		101.94

+	9.4	112.61	10.67
134	9.4		103.2

Swamp		L		L		
↓		L		L		
↑		L		L		
Swamp		L		L		
L	4.1	4.1	3.4	5.6	6.3	L
	20	3		20	26	
L		3.9		5.8		L
		20		19		
L	5.4		5.6		5.4	L
	1.5				15	
	6.1		6.5		5.9	
	20				20	

Swamp		L		L	
↑		L		L	
↓		L		L	
Swamp		L		L	
	4.9	4.3	4.8	5.9	Swamp
			13	23	
					RP5 { Pine Stump W 63.0'
					" " " SW 76.5'

	5.8	4.3	4.9	6.4	L
	40	25	14	8	
Swamp		L		L	
↑					
↓					
Swamp	4.6		5.4	6.3	L
	2.2			18	
L		1.7		2.3	L
		20	2.5	20	

L	10.0	9.4	8.4	7.8	CS
	21		19	30	

+ 23	6.1	112.61		106.5
+ 55	3.2			109.4
135	1.6			111.0
TP	0.67			111.94
+		118.02	6.08	
+ 60	Δ	L		
+ 60	5.8			112.2
136	5.6			112.4
+ 90	4.6			113.4
137	5.8			112.2
BM	7.83			110.19
138	5.2			112.8
139	1.1			116.9
TP	0.41			117.61
+		122.86	5.25	
140	4.8			118.1
141	5.8			117.1
+ 45	5.3			117.6
+ 70	7.4			115.5
142	8.0			114.9
+ 40	9.0			113.9
+ 75	8.3			114.6
143	5.5			117.4
144	5.3			117.6
BM	4.45			118.41
+ 35				

L	8.7	7.9	4.8	L
	2.8	1.9	2.2	
L	8.1	6.0	2.05	L
	3.4	2.4	2.6	
CS	3.0	1.4	2.1	L
	3.4	1.9	2.7	

RP (Pine Stump NEG)  
" " " SE 55.4

6.3	5.4	5.7	5.8	6.5	L
4.5	2.5	1.5		1.5	
			3.6		L
L	3.8	4.6		0.4	L
	2.1			2.1	

On 7" Basswood SE of Sta 107

CS	6.4	5.8	5.3	L	
	2.0		1.8		
swamp CS	7.7	5.3	4.2	L	
	1.8		2.1		
↑ "	L	8.9	7.4	4.2	3.5
		1.3		2.2	3.4
	L	8.9	8.0	6.2	4.77
		7		1.7	
	L		9.0	8.6	
swamp	L			L	
	L			L	

On 5" Poplar SW of Sta 144

1/4 Cor Bet. 16217-142-26 44 (B.T. Pine Stump SW 36.2')  
RPs) FBst NW. 36.1

Slope Stakes SAP#2 Job 2703

Sta	-	H1	+	Elev	Grade Elev.
BM		1250.92	0.73	1250.19	
0+00	5.5			45.4	46.1
1	4.6			46.3	46.3
2	4.5			46.4	46.6
3	4.6			46.3	46.8
4	4.6			46.3	47.1
5	4.6			46.3	47.3
+56	4.8			46.1	
6	4.7			46.2	47.4
7	4.2			46.7	47.4
TP	4.21			1246.71	
+		54.95	8.24		
+35	8.0			47.0	47.4
8	7.1			47.9	47.4
9	5.5			49.5	47.5
BM	12.3			53.72	
+50	5.0			50.0	47.5
10	5.1			49.9	47.5
11	5.8			48.2	47.5
12	7.4			47.6	47.6
13	8.6			46.4	47.6
TP	8.58			46.37	
+		52.41	6.04		

May 12-1927

Party { Taubman - Asst. Engr.  
Houston - Rod  
Beckner - Chain

Weather - Clear & Warm

On 20" Oak Stump NW of Sta 2+00

D.C. 1.1		-0.8	
21.7	-0.7	13.2	RP 40'
+0.5		-0.2	
23.8	-0.6	12.3	
D.C. 1.4		-0.5	
22.1	-0.2	12.8	
D.C. 1.0		-1.4	
21.5	-0.5	14.1	
D.C. 1.1		D.C. 0.3	
21.7	-0.8	20.5	
D.C. 0.8		-3.3	
21.2	-1.0	17.8	RP 40'
D.C. 1.4		11	
22.1	-1.2	-3.3	
D.C. 1.7		17.0	
22.6	-0.7	D.C. 0.6	
		20.9	

+5.4	-0.4	
31.1	+0.5	D.C. 0.6
+4.3		20.9
29.5	+2.0	+0.5
		23.8

On 4" Poplar W of Sta 9+00

+2.1	+2.5	
26.2	+2.4	+0.6
+2.9		23.9
27.4	+1.7	D.C. 1.9
+0.9		22.9
24.4	0.0	D.C. 0.8
D.C. 0.9		21.0
21.4	-1.2	-2.0
		15.0