

Parsons, Nelson, P. 1881

Box 100, Twp.

FIELD BOOK

302 T

PLEASE RETURN TO
GEAUGA COUNTY ENGINEER
COURT HOUSE
CHARDON, O.
PHONE 250-X

✓ 18 } Rec.

✓ 33

✓ 4 Eng.

Book 36

Parkman-Nelson Road

Please return to
County Surveyors Office
Court House
Chardon
Ohio

Parkman-Nelson Road - Sec. A-B-C
Align. pg. 48-51 C.H.#2
X-Secti. pg. ⁷⁻¹⁷52-55

Parkman Dump Lot pg 66

Parkman Alley 1950 pg 67

NELSON Rd #2

Pg 1

CULVERT Drainage CH#2 S of TH#214

Pg 64-65

Parkman - N.W. Sec. Bounded by Church & Carter St.
See tracing in file (Engineers Off. Court House)

Revised Bench Marks
in back of Book 48

Random traverse to determine Corner
Sections 18, 23, 19, 22

Eutland Road

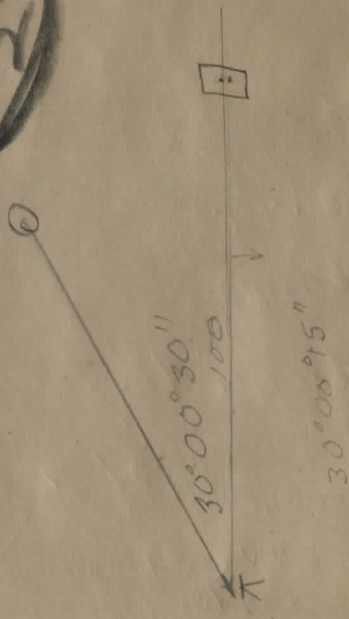
TH 217

Align. Pg. 69

G



03'
10.75



M. Fitchey

We found the Elev.
of the X on the Bridge Seat
to be 1004.18

Pitt. between O.P.S.
= 839.00

Geo. M. Fitchey

3/5/29 M. Richy
W. Richy

Levels on old road 5 from bridge

BM	13.10	13.10		0000
			11.9	01.2
1			3.4	09.7
	11.98	23.10	1.94	11.12
2			3.8	19.3
	12.78	35.77	0.29	22.81
3			5.5	30.3
	12.28	47.84	0.20	35.56
4			8.0	39.8
	12.07	59.42	0.49	47.35
-6			8.0	51.4
5			4.5	54.9
	12.79	71.88	0.53	58.89
6			2.7	69.2
	12.23	84.09	0.07	71.81
7			3.4	80.6
	10.25	94.06	0.23	73.81
8			2.2	87.9
9			3.0	91.1
10			2.5	91.6
BM			2.34	91.72

5103 SE Corner Bridge Sta 0+10
5 end bridge floor

End on E Post sta 10 1st Not in line

3/5/29 MR Richey
FR Richey

Levels on probable relocation

BM	12.36	12.36		0.00
0-58			12.7	99.7
	12.39	23.51	1.24	11.12
	11.85	34.55	0.91	22.70
3			4.8	29.7
	10.66	44.95	0.26	34.29
4			5.9	32.0
	10.76	55.60	0.11	44.84
5			7.1	48.5
	12.83	66.66	1.77	53.83
6			4.8	61.9
	12.95	77.78	1.83	64.83
	11.32	88.91	0.16	77.62
7			1.5	87.6
	7.75	95.76	0.93	88.01
8			4.3	91.5
9			4.9	90.9
9-150-10 relocation			4.10	91.66
BM				87.72

Bridges SE 4
N end Bridge floor

Bench Mark Levels

	BS	HI	FS	Elev
BM 11	1.21	1091.27		1090.06
BM 13	3.25	1085.27	9.25	1082.02
	0.65	1075.55	10.37	1074.90
	0.25	1063.74	12.06	1063.49
	0.63	1055.10	9.27	1054.47
	0.54	1042.73	12.91	1042.19
	1.71	1031.58	12.86	1029.87
BM 12	7.31	1031.58	7.31	1024.27
	9.68	1035.99	5.27	1026.31
	1.07	1024.80	12.26	1023.73
	0.26	1012.15	12.91	1011.89
	9.19	1015.24	6.10	1006.05
BM 11	11.64	1015.24	11.64	1003.60
	12.53	1027.42	0.35	1014.89
	11.19	1038.29	0.32	1027.10
BM 10	12.10	1045.78	4.61	1033.68
	12.00	1057.21	0.57	1045.21
	12.44	1069.51	0.14	1057.07
BM 9	4.59	1069.51	4.59	1064.92
	12.92	1082.25	0.18	1069.33
	10.99	1092.96	0.28	1081.97
BM 8	1.13	1092.96	1.13	1091.83
	7.97	1100.51	0.42	1092.54

Sept 9-1929. Fair

G Griswold - Gum

R Goodrich - Rod

"X" on SW Cor Town Hall (State)
West root 60" Elm 40' RT \neq

SE root 20" Elm 35' Lt \neq

"X" on NW seat of bridge

S root 26" Beech 35' Lt \neq W root 10" Maple 20' Lt \neq E root 16" Maple 25' Lt \neq

Sta	BS	HI	FS	Elev
		1100.51		
	2.82	1112.52	0.81	1099.70
	0.59	1101.87	11.24	1101.28
BM 7	5.68	1099.17	8.38	1093.49
	10.72	1109.54	0.35	1098.82
	6.95	1116.18	0.31	1109.23
	3.10	1109.77	9.51	1106.67
BM 6			8.02	1101.75
BM 6	2.51	1104.26		1101.75
	0.79	1094.54	10.51	1093.75
	10.15	1092.18	12.51	1082.03
	12.91	1104.29	0.80	1091.38
	9.01	1111.86	1.44	1102.85
BM 5	6.85	1111.90	6.81	1105.05
	8.85	1111.33	9.42	1102.48
BM 4	0.94	1108.92	3.35	1107.98
	5.41	1108.41	5.92	1103.00
	10.01	1115.80	2.62	1105.79
BM 3	6.20	1115.80	6.20	1109.60
	9.05	1120.12	4.73	1111.07
	13.05	1132.14	1.03	1119.09
	9.54	1141.08	0.60	1131.54
BM 2	4.47	1141.08	4.47	1136.61
	6.24	1146.41	2.91	1138.17

SE root 15" Shagbark 30' Lt &

W root 22" Maple 25' Rt &
 Sept 13 Rainy Rand-Griswold
 Windy Gun Rod

W root 24" Spruce 30' Rt &

W root 18" Spruce 65' Rt &

E root 36" Elm 30' Lt &

S root 12" Spruce 35' Rt &

BS	HI	FS	Elev
	1146.41	1.01	
	8.01	1153.11	1.31 1145.10
BM 1		0.67	1152.44
BM 1	0.67	1153.11	1152.44
	0.98	1146.08	8.01 1145.10
	3.03	1141.06	8.05 1138.03
BM 2		4.47	1136.59
BM 2	2.76	1139.35	1136.59
	0.88	1127.76	12.47 1126.88
	1.18	1116.99	11.95 1115.81
	4.94	1115.05	6.88 1110.11
BM 3	5.46	1115.05	5.46 1109.59
	6.43	1109.06	12.42 1102.63
BM 4	3.22	1111.10	1.18 1107.88
	8.89	1111.08	8.91 1102.19
BM 5	6.12	1111.08	6.12 1104.96
	1.30	1099.39	12.99 1098.09
	12.92	1111.09	1.22 1098.17
BM 6		9.48	1101.61
BM 6	2.14	1103.75	1101.61
	12.27	1115.81	0.21 1103.54

3704 W root 12" Maple 30' RT &

3704 W root 12" Maple 30' RT &

13725 S root 12" Spruce 35' RT &
 Sept 14 Cloudy Rand-gun
 Windy Griswold-rod

24790 E root 36" Elm 30' Lt &
 Error found - see last page
 W root 18" Spruce 65' RT &

Error - see back of book

Sept 16 Fair Rand-Griswold

HI

	BS	HI	FS	Elev
	1.89	1108.66	9.04	1106.77
	0.97	1098.76	10.87	1097.79
BM 7	9.97	1103.34	5.39	1093.37
	9.22	1112.48	0.08	1103.26
	1.04	1101.13	12.39	1100.09
	0.12	1093.79	7.46	1093.67
BM 8	2.08	1093.79	2.08	1091.71
	0.12	1081.66	12.25	1081.54
	1.40	1070.86	12.20	1069.46
BM 9	2.38	1067.19	6.05	1064.81
	0.00	1054.55	12.64	1054.55
	0.25	1042.22	12.58	1041.97
BM 10	8.66	1042.22	8.66	1033.56
	0.89	1030.26	12.85	1029.37
	0.89	1018.80	12.35	1017.91
	0.81	1010.61	9.00	1009.80
BM 11	7.11	1010.61	7.11	1003.50
	12.90	1023.33	0.18	1010.43
	10.43	1033.60	0.16	1023.17
	5.34	1031.80	7.14	1026.46
BM 12	7.61	1031.80	7.61	1024.19
	10.51	1042.22	0.09	1031.71
	12.72	1054.40	0.54	1041.68
	10.35	1064.51	0.24	1054.16

	Sta	BS	HI	FS	Elev
	12.40		1064.51	0.00	1064.51
	8.55		1076.91	0.91	1076.00
BM 13	9.64		1034.55	2.50	1032.05
BM (state)				1.61	1030.08

found error
see back
of book,

See Recommended BM's
in back of book.

566+75'7 Dc 0°00'

Iron
found

2 $\frac{+100}{22}$

$\frac{+65T}{16}$

8

$\frac{+40}{25}$ Drive

Tacked
Hub

40°00

7

Box '27

□

E = W edge Iron pin

1 pin installed '27

30°00 Tacked
Hub

$\frac{+60}{7}$

34°00

S&W
In
Tel. Pole

6

40°00

Tacked
Hub

5

$\frac{+35T}{16}$

4

14+0030 Det 800

Iron
Set

Box 87

14

13

12

11

10

9

Iron pipe
in concrete
base

25.4

37

51

65

79

93

107

121

135

150

165

180

195

210

225

240

255

270

285

300

315

330

345

360

375

390

405

420

435

450

465

125

150

175

200

225

250

275

300

325

350

375

400

425

450

475

500

525

550

575

600

625

650

675

700

725

750

775

800

825

850

125

150

175

200

225

250

275

300

325

350

375

400

425

450

475

500

525

550

575

600

625

650

675

700

725

750

775

800

825

850

125

150

175

200

225

250

275

300

325

350

375

400

425

450

475

500

525

550

575

600

625

650

675

700

725

750

775

800

825

850

125

150

175

200

225

250

275

300

325

350

375

400

425

450

475

500

525

550

575

600

625

650

675

700

725

750

775

800

825

850

125

150

175

200

225

250

275

300

325

350

375

400

425

450

475

500

525

550

575

600

625

650

675

700

725

750

775

800

825

850

125

150

175

200

225

250

275

300

325

350

375

400

425

450

475

500

525

550

575

600

625

650

675

700

725

750

775

800

825

850

125

150

175

200

225

250

275

300

325

350

375

400

425

450

475

500

525

550

575

600

625

650

675

700

725

750

775

800

825

850

125

150

175

200

225

250

275

300

325

350

375

400

425

450

475

500

525

550

575

600

625

650

675

700

725

750

775

800

825

850

125

150

175

200

225

250

275

300

325

350

375

400

425

450

475

500

525

550

575

600

625

650

675

700

725

750

775

800

825

850

125

150

175

200

225

250

275

300

325

350

375

400

425

450

475

500

525

550

575

600

625


650

675

~~5 to 23 + 0/2
 50' id pen
 15" hillside
 60' left
 Forward
 Flow Lt.~~

2423

$$\begin{array}{r} +86 \\ \hline 13 \end{array} T$$

5 1/2' Cotton
 wood  $\frac{+33}{7}$

2221

$$\begin{array}{r} +89 \\ \hline 13 \end{array} T$$
2019

Sta 28+44.29

Def 0°00'

Iron Found

Schaft obs. this
as 28+45.87

fd. in '65' by
Dick Schaft

X cut in
SW & W Hd Wall.

X cut in
SE & E
Headwall

12" C.I.P.

12" Corr I.P.

4' side road
T.H. 217

Shed
Shed

Drake

H

P 0 0 0

0 10 40

4 20 35

+72
55

+50 40

25

+98
13

24

23 34

22

23 69

6' - 10'

+65

Iron

Box 17

36

28

33 50

30 00

40 00

40 00

27
403
14

26

+50 40

+30

+15

0 10 40

4 20 35

4 20 35

4 20 35

4 20 35

4 20 35

4 20 35

Tack
Hub

Tack
Hub

Tack
Hub

P 0 0 0

0 10 40

4 20 35

$\frac{100}{20} = 5$ $\frac{100}{20} = 5$
 $\frac{100}{20} = 5$ $\frac{100}{20} = 5$ 34
 $\frac{100}{20} = 5$ $\frac{100}{20} = 5$

$\frac{100}{20}$

15T
19

35

$\frac{100}{20}$

36

$\frac{100}{20} = 5$ $\frac{100}{20} = 5$
 $\frac{100}{20} = 5$ $\frac{100}{20} = 5$
 $\frac{100}{20} = 5$ $\frac{100}{20} = 5$

20T
18

37

$\frac{100}{20}$

300

8
265

75 sec
Hub

40°

38

Box '87

□

30

Tacked
Hub

29

112T
17

6150

Sa Win
Tel. Pole

Sta 29-6360

Det 0°00'

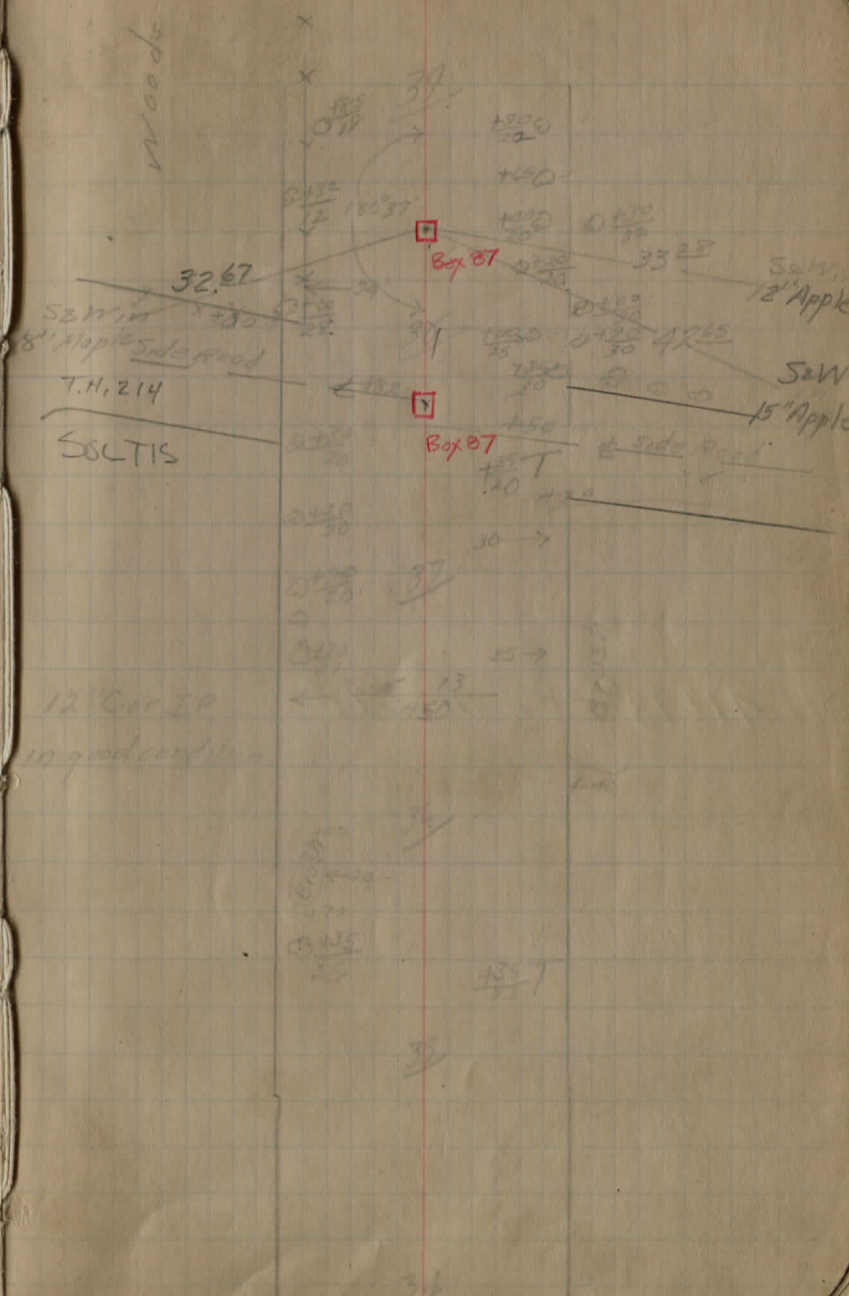
Iron
Found

Iron d. Lett of E

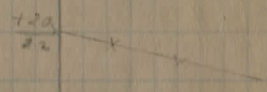
Sta 38.35⁰⁰ PI Def Rt 0°37'

Iron
Stake

Woods

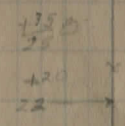


49



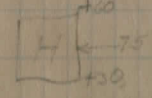
48

Cultivated Field

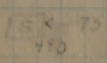
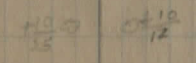


47

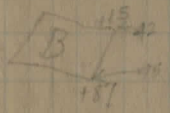
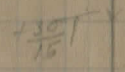
Property Line



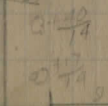
DRIVE



46



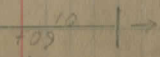
DRIVE



45

10 x 4 slab top in
good condition
stone mts
concrete slab
iron railing

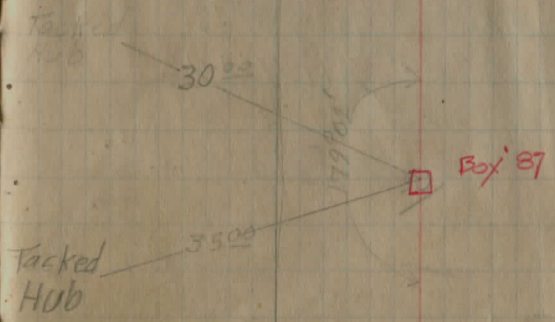
40



Sta 50+00 PI Def Lt 0°58'

Iron set

Sta 50+75
Culvert opened
unless grade can
be lowered
24.25' drained



39

X

139
75
22
+08

39

+25

+5500 X

22

W.O.C.P.

+06
20

130
74

Box '87

Sta 58+12.68

PI Deflt 22°58'40" 1/107
50.1

$\Delta = 22^{\circ}59'$ RT.

$D = 14^{\circ}00'$

$T = 53.20$

$E = 8.3$

$L = 164.17$

PC = 52+29.48

PI = 58+12.68

PT = 58+93.65

CURC
P. 10

Note:

Use Line C from
Sta 55+59.29 to Sta 77+32.55
see page 48

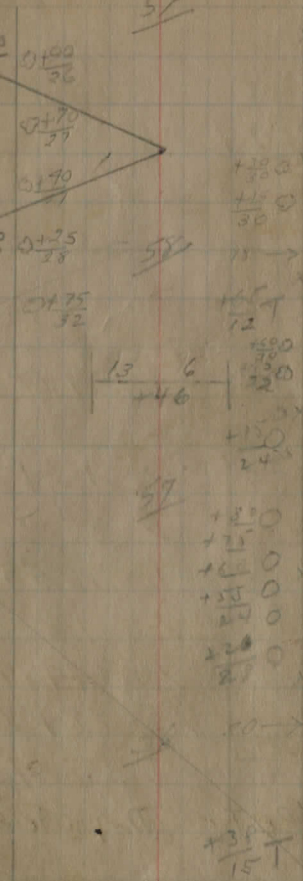
St Win
12" Maple 20° 00' 59

St Win
12" Hickory 36° 00' 59

Max Kistene

Box Stair
Sandstone

25' High



Woods

Woods

... - 25

Use Line C

0125
32

0145
30

0130
29

0135
29

0170
31

0160
30

0103
30

0175
30

0115
30

115T
16

140T
36

112T
27

DRIVE

S+W in
36" Maple
Plumb 6'

51⁰⁰

H ← -125

S+W in
36" Maple
Plumb 6'

160+70²⁵ POT Ref 0⁰⁰

307

60

50

50

PT Sta 68+84.3 PC

Iron
Set

Sta 67+41.00 PI Del Sta 67+21.1

Iron
SetCurve
Data $\Delta = 4^{\circ} 21' \text{ LT}$ $D = 3^{\circ} 00'$ $T = 72.53$ $E = 1.3$ $L = 144.97$ $PC = 66+69.47$ $PI = 67+42.00$ $PT = 68+14.24$

66+69.47 = 0+00

67+10 = 0+41

67+50 = 1+12

68+10 = 1+57

68+14.24 = 2+10

SIR in
24" 39

Use Line C

same
10' 50"B.M. Spire in
12' 10"58' 11" in
KELLY

23' 2"

15' 25"

D. 1.0

D. 1.0

D. 1.0

D. 1.0

Gravel
pit

70'

100'

30'

28' → Brush

32'

100'

15'

10'

74'

15'

Brush

Note:
Sta 75+47.07 Line C =
Sta 77+32.55 Line A
shorage 18548

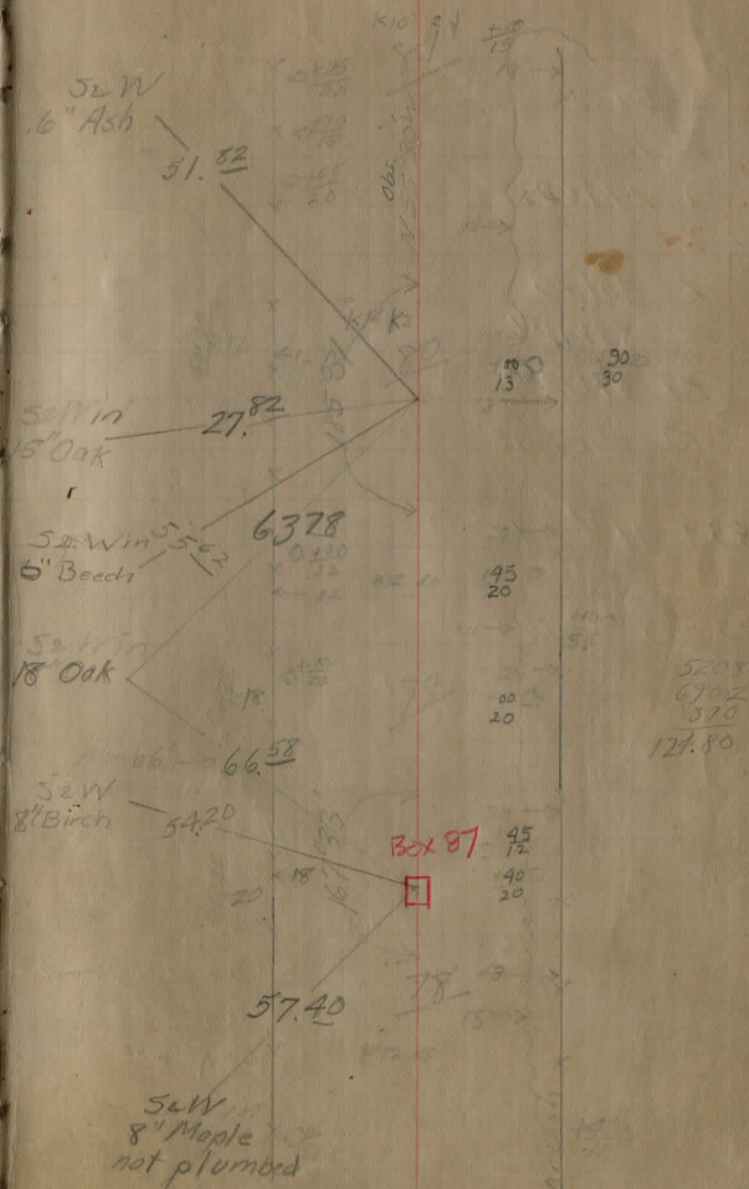
5208
6902
370
114.60

Sta 79 + 73⁶⁵ Def Rt 5°31' Tape Set

Δ	5°31' Rt	2°45'	79+09	0-00
D	4°	151	79+50	0-54
T	6902	0°51'	80+00	1-54
E	1.6	200	80+42	2-45
L	137.92			
PC	79+04. ⁶³			
PT	80+42. ⁵⁵			

Sta 78 + 49²⁶ Def Lt 12°27' Picut Set

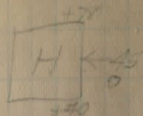
Δ	12°27' Lt		77+97 ¹⁸	0-00
D	12°		78+00	0-10
T	5208		78+50	3-10
E	2.83		79+00 ⁸³	6-13
L	103.75			
PC	77+97 ¹⁸			
PT	79+00. ⁸³			



Sta 87+92⁶² PT of curve

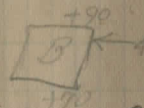
Iron Set

Probable Property line



52' W in 15" Walnut

52.22



52' W in 12" Maple

29.05

SE of Garage

4' Sideroad

90' Lin ft

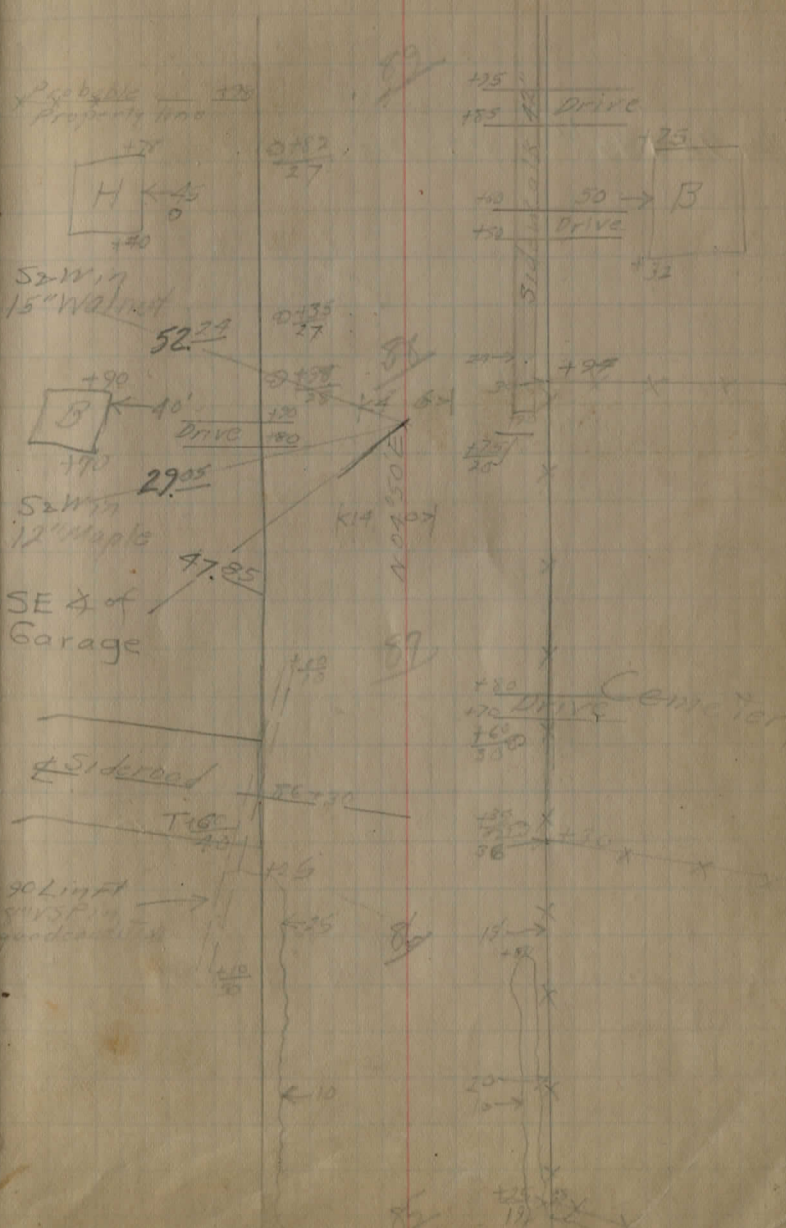
125 Drive

50 Drive

120 Drive

120 Drive

Cemetery



27

Ridley
Road
Barton

Nov 4 1924

B.M. 1 2.84 1155.32 1152.48

-200 19.0 1141.32

-100 11.1 1144.22

0+00 7.7 1147.62

1+00 5.8 1149.52

2+00 4.5 1150.82

3+00 9.4 1150.92

4+00 6.3 1149.02

2.47 1149.90 7.89 1147.43

5+00 3.1 1146.80

6+00 4.5 1145.40

Spike in root of 12" Maple 30' R to L at Sta 3+00

30	175	140	105	4	140	175	205	30
7.4	7.4	7.2	7.7	7.7	7.9	9.1	6.3	5.7

30	9	8	5	4	6	2	10	30
6.3	6.3	7.1	6.1	5.8	6.3	6.9	5.4	2.3

30	15	25	7	4	6	15	15	30
4.8	4.1	5.2	4.2	4.5	5.1	4.8	3.5	2.5

30	11	9.5	6.5	1	4	5	7	9.5	30
4.8	4.8	5.0	4.7	4.3	4.4	4.8	5.3	4.3	3.6

30	11	9	4	15	10.5	30
6.0	6.7	7.4	6.3	7.6	6.3	4.2

30	14.5	10	9.5	4	7.0	9	16	30
3.2	2.9	3.5	4.1	3.1	4.2	3.2	2.2	1.3

30	10.5	9.5	4	7	8	30
4.7	4.9	5.0	4.5	5.5	4.7	3.7

28

1149.90

7+00 6.1 1143.80

8+00 7.4 1142.50

2.76 1144.82 7.84 1142.06

9+00 4.1 1140.72

10+00 5.9 1138.92

11+00 7.1 1137.72

12+00 7.9 1136.92

4.21 1139.93 9.10 1135.72

13+00 4.1 1135.83

BM#2 3.21 1139.85 3.21 1136.72 1136.64

14+00 6.6 1133.25

$$\frac{30}{6.1} \quad \frac{15}{6.1} \quad \frac{11.5}{6.6} \quad \frac{10.5}{7.1} \quad \frac{6}{8.1} \quad \frac{6}{6.8} \quad \frac{12}{5.7} \quad \frac{30}{5.6}$$

$$\frac{30}{7.3} \quad \frac{16.5}{7.5} \quad \frac{9.5}{8.7} \quad \frac{6}{7.4} \quad \frac{7.5}{8.5} \quad \frac{10}{7.6} \quad \frac{30}{7.8}$$

$$\frac{20}{7.3} \quad \frac{12}{7.9} \quad \frac{9}{5.2} \quad \frac{6}{4.1} \quad \frac{7}{5.4} \quad \frac{9.5}{4.1} \quad \frac{16.5}{3.4} \quad \frac{30}{3.3}$$

$$\frac{30}{7.1} \quad \frac{2.5}{4.8} \quad \frac{8}{6.6} \quad \frac{6}{5.9} \quad \frac{7}{6.5} \quad \frac{16.5}{5.2} \quad \frac{30}{5.2}$$

$$\frac{30}{8.1} \quad \frac{11}{7.5} \quad \frac{10}{7.9} \quad \frac{6}{7.1} \quad \frac{12}{8.2} \quad \frac{12.5}{7.9} \quad \frac{19.5}{7.7} \quad \frac{30}{7.9}$$

$$\frac{30}{9.5} \quad \frac{10.5}{5.5} \quad \frac{7.5}{5.8} \quad \frac{6}{7.9} \quad \frac{6}{8.4} \quad \frac{22}{9.5} \quad \frac{30}{9.3}$$

$$\frac{30}{4.2} \quad \frac{12}{4.2} \quad \frac{12}{5.1} \quad \frac{7}{4.4} \quad \frac{6}{4.1} \quad \frac{11}{3.9} \quad \frac{30}{3.6}$$

Spike in root of 12" Spruce 35' Rt of @ Sta 13+25

$$\frac{30}{5.0} \quad \frac{13.5}{5.9} \quad \frac{10.5}{8.0} \quad \frac{7.5}{6.9} \quad \frac{6}{6.6} \quad \frac{5.5}{7.7} \quad \frac{9}{5.3} \quad \frac{16}{4.7} \quad \frac{30}{4.8}$$

1139.85

15+00		9.2	1130.65	
	314	1131.44	11.55	1128.30
16+00		4.2	1127.24	
17+00		8.2	1123.24	
	2.53	1123.40	16.57	1120.87
18+00		4.5	1118.90	
19+00		7.7	1115.70	
20+00		10.0	1112.40	
21+00		11.6	1111.80	
	3.00	1115.20	7.20	1112.20
22+00		4.5	1110.70	
23+00		5.2	1110.00	
24+00		5.5	1109.70	
25+00		7.4	1107.80	
B.M. #3		54.8	1109.72	1109.64

$$\frac{30}{7.7} \frac{14}{7.9} \frac{9}{10.9} \frac{8.5}{9.4} \frac{4}{9.2} \frac{3}{9.4} \frac{7}{10.4} \frac{14}{7.4} \frac{30}{7.7}$$

$$\frac{50}{1.9} \frac{17}{1.8} \frac{13}{5.8} \frac{11}{5.7} \frac{6.5}{4.6} \frac{2}{4.2} \frac{2.5}{4.6} \frac{6.5}{5.4} \frac{8}{4.1} \frac{13}{2.0} \frac{30}{2.2}$$

$$\frac{30}{5.5} \frac{12.5}{5.6} \frac{12.5}{8.3} \frac{11}{9.7} \frac{7}{8.5} \frac{4}{8.2} \frac{3}{8.7} \frac{6}{9.7} \frac{9}{8.0} \frac{14}{5.8} \frac{30}{6.0}$$

$$\frac{20}{2.2} \frac{17.5}{2.8} \frac{13.5}{4.1} \frac{15}{5.7} \frac{8.5}{4.6} \frac{7}{4.2} \frac{4}{4.5} \frac{6}{5.6} \frac{7}{4.0} \frac{12.5}{2.5} \frac{14.5}{2.8} \frac{30}{2.7}$$

$$\frac{30}{6.0} \frac{14.5}{7.0} \frac{11}{8.7} \frac{8.5}{8.1} \frac{4}{7.7} \frac{6}{7.9} \frac{8}{7.3} \frac{12.5}{6.2} \frac{70.5}{6.7} \frac{30}{6.6}$$

$$\frac{30}{9.6} \frac{15}{9.6} \frac{12}{10.5} \frac{6}{10.0} \frac{4}{10.0} \frac{2.5}{9.7} \frac{6}{11.1} \frac{9}{7.7} \frac{30}{9.9}$$

$$\frac{30}{12.5} \frac{16}{11.2} \frac{18.0}{11.9} \frac{10.5}{11.3} \frac{4}{11.6} \frac{4}{11.9} \frac{6.5}{13.0} \frac{8.5}{11.8} \frac{50}{11.7}$$

$$\frac{30}{5.1} \frac{13.5}{4.1} \frac{7.5}{11.1} \frac{4}{4.5} \frac{6}{4.8} \frac{10}{5.6} \frac{11}{4.9} \frac{30}{3.9}$$

$$\frac{30}{7.3} \frac{2}{5.7} \frac{4}{5.2} \frac{8}{5.6} \frac{10}{6.0} \frac{12}{5.8} \frac{30}{4.7}$$

$$\frac{30}{4.4} \frac{10}{5.2} \frac{8.5}{6.2} \frac{4}{5.5} \frac{6.5}{5.6} \frac{11.5}{7.4} \frac{13}{5.7} \frac{30}{3.9}$$

$$\frac{30}{6.3} \frac{11.5}{6.3} \frac{8}{8.3} \frac{4}{7.4} \frac{4}{7.7} \frac{10.5}{10.3} \frac{18}{5.8} \frac{30}{5.5}$$

Spike in root 30" Elm 35' Lt of E Sta 24+90

11/6/29
M. P. Roney
F. R. Roney

BM #3 0.26 1109.90

1109.64

26+00

5.7 1104.20

27+00

7.1 1102.8

28+00

8.2 1101.7

6.57 1108.58 7.89 1102.01

Sideroad

6.7 1101.88

Sideroad

28+65

6.2 1101.68

29+00

7.6 1100.98

30+00

7.0 1101.58

31+00

6.3 1102.28

BM #4 0.66 1108.60 0.66 1107.72 1107.72

32+00

5.4 1103.20

33+00

4.0 1104.60

34+00

2.9 1106.20

$\frac{30}{4.5}$	$\frac{12}{5.4}$	$\frac{9}{6.7}$	$\frac{5}{6.0}$	$\frac{6}{6.1}$	$\frac{9}{7.5}$	$\frac{12}{5.6}$	$\frac{18}{4.5}$	$\frac{30}{4.4}$
------------------	------------------	-----------------	-----------------	-----------------	-----------------	------------------	------------------	------------------

$\frac{30}{6.7}$	$\frac{1.5}{7.5}$	$\frac{8}{7.9}$	$\frac{7}{7.5}$	$\frac{7}{7.5}$	$\frac{10}{8.4}$	$\frac{12.5}{7.2}$	$\frac{30}{6.7}$
------------------	-------------------	-----------------	-----------------	-----------------	------------------	--------------------	------------------

$\frac{25}{8.7}$	$\frac{32}{7.2}$	$\frac{17}{8.6}$	$\frac{12}{5.8}$	$\frac{25}{8.9}$	$\frac{8}{8.4}$	$\frac{8}{8.1}$	$\frac{11}{8.9}$	$\frac{12.5}{8.2}$	$\frac{30}{7.7}$
------------------	------------------	------------------	------------------	------------------	-----------------	-----------------	------------------	--------------------	------------------

$\frac{150}{6.6}$	$\frac{100}{6.8}$	$\frac{50}{6.9}$
-------------------	-------------------	------------------

		$\frac{F1}{8.1}$	$\frac{F1}{7.9}$
		1108.5	1100.7

	$\frac{100}{2.4}$	$\frac{50}{2.8}$	$\frac{F1}{8.6}$	$\frac{F1}{8.6}$
			1100.0	1100.0

$\frac{30}{5.8}$	$\frac{7}{7.8}$	$\frac{5}{8.1}$	$\frac{10}{7.8}$	$\frac{12}{8.2}$	$\frac{13}{7.8}$	$\frac{19}{7.6}$	$\frac{22}{6.7}$	$\frac{30}{5.5}$
------------------	-----------------	-----------------	------------------	------------------	------------------	------------------	------------------	------------------

$\frac{30}{2.0}$	$\frac{6}{2.2}$	$\frac{5}{2.0}$	$\frac{9}{7.5}$	$\frac{11.5}{8.0}$	$\frac{13}{7.5}$	$\frac{20}{3.3}$
------------------	-----------------	-----------------	-----------------	--------------------	------------------	------------------

$\frac{30}{7.5}$	$\frac{8}{6.8}$	$\frac{7}{7.3}$	$\frac{9}{7.1}$	$\frac{10}{6.7}$	$\frac{15}{6.6}$	$\frac{19}{5.6}$	$\frac{30}{4.6}$
------------------	-----------------	-----------------	-----------------	------------------	------------------	------------------	------------------

Spike in front 15' Spruce 75' off Stg 31+60

$\frac{30}{5.8}$	$\frac{8}{6.0}$	$\frac{6}{6.5}$	$\frac{10}{6.3}$	$\frac{13}{5.8}$	$\frac{26}{4.8}$	$\frac{30}{3.9}$
------------------	-----------------	-----------------	------------------	------------------	------------------	------------------

$\frac{30}{4.3}$	$\frac{7}{3.7}$	$\frac{5}{4.7}$	$\frac{3}{3.8}$	$\frac{9}{4.5}$	$\frac{10.5}{4.9}$	$\frac{13}{3.6}$	$\frac{30}{3.2}$
------------------	-----------------	-----------------	-----------------	-----------------	--------------------	------------------	------------------

$\frac{30}{3.7}$	$\frac{10}{4.2}$	$\frac{5}{3.8}$	$\frac{3}{3.1}$	$\frac{12}{3.4}$	$\frac{15}{1.7}$	$\frac{30}{0.7}$
------------------	------------------	-----------------	-----------------	------------------	------------------	------------------

1108.60

1.70 110728 302 1105.98

35+60 3.6 1103.68

36+60 4.7 1102.58

36+60 4.9 1102.38

37+60 4.5 1102.98

745 1111.94 2.79 1104.49

37+60 7.8 1104.14

7+82 6.3 1105.64

38+60 5.6 1106.34

37+55 4.1 1107.84

37+60 6.6 1105.34

40+60 9.0 1102.14

37+55 6.85 1111.84 6.85 1105.09 1105.01

41+60 11.0 1100.26

4.48 110379 15.2 1101.51

$$\begin{array}{r} 30 \\ - 38 \\ \hline \end{array} \quad \begin{array}{r} 95 \\ 30 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ 45 \\ \hline \end{array} \quad \begin{array}{r} 9 \\ 41 \\ \hline \end{array} \quad \begin{array}{r} 11.5 \\ 45 \\ \hline \end{array} \quad \begin{array}{r} 15 \\ 25 \\ \hline \end{array} \quad \begin{array}{r} 30 \\ 15 \\ \hline \end{array}$$

$$\begin{array}{r} 30 \\ - 6.3 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ 3.1 \\ \hline \end{array} \quad \begin{array}{r} 4 \\ 3.4 \\ \hline \end{array} \quad \begin{array}{r} 4 \\ 4.5 \\ \hline \end{array} \quad \begin{array}{r} 2 \\ 5.0 \\ \hline \end{array} \quad \begin{array}{r} 12 \\ 95 \\ \hline \end{array} \quad \begin{array}{r} 15 \\ 50 \\ \hline \end{array} \quad \begin{array}{r} 30 \\ 5.1 \\ \hline \end{array}$$

$$\begin{array}{r} 50 \\ - 8.8 \\ \hline \end{array} \quad \begin{array}{r} 11.5 \\ 7.7 \\ \hline \end{array} \quad \begin{array}{r} 11.3 \\ 7.5 \\ \hline \end{array} \quad \begin{array}{r} 30 \\ 7.2 \\ \hline \end{array}$$

$$\begin{array}{r} 30 \\ 3.9 \\ \hline \end{array} \quad \begin{array}{r} 18 \\ 3.2 \\ \hline \end{array} \quad \begin{array}{r} 55 \\ 4.5 \\ \hline \end{array} \quad \begin{array}{r} 4.5 \\ 4.7 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ 3.9 \\ \hline \end{array} \quad \begin{array}{r} 13 \\ 4.6 \\ \hline \end{array} \quad \begin{array}{r} 15 \\ 4.4 \\ \hline \end{array} \quad \begin{array}{r} 30 \\ 3.0 \\ \hline \end{array}$$

$$\begin{array}{r} 50 \\ - 8.2 \\ \hline \end{array} \quad \text{Forget to add}$$

$$\begin{array}{r} 10 \\ - 10 \\ \hline \end{array} \quad \begin{array}{r} 30 \\ 6.6 \\ \hline \end{array}$$

$$\begin{array}{r} 36 \\ 2.3 \\ \hline \end{array} \quad \begin{array}{r} 25 \\ 4.5 \\ \hline \end{array} \quad \begin{array}{r} 17 \\ 13.2 \\ \hline \end{array} \quad \begin{array}{r} 7.5 \\ 8.5 \\ \hline \end{array} \quad \begin{array}{r} 4 \\ 8.1 \\ \hline \end{array} \quad \begin{array}{r} 85 \\ 2.1 \\ \hline \end{array} \quad \begin{array}{r} 12 \\ 4.4 \\ \hline \end{array} \quad \begin{array}{r} 15 \\ 2.7 \\ \hline \end{array} \quad \begin{array}{r} 30 \\ 4.1 \\ \hline \end{array}$$

$$\begin{array}{r} 30 \\ 4.5 \\ \hline \end{array} \quad \begin{array}{r} 25 \\ 4.3 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ 2.0 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ 5.2 \\ \hline \end{array} \quad \begin{array}{r} 2 \\ 3.6 \\ \hline \end{array} \quad \begin{array}{r} 10 \\ 5.0 \\ \hline \end{array} \quad \begin{array}{r} 13 \\ 2.0 \\ \hline \end{array} \quad \begin{array}{r} 23 \\ 2.3 \\ \hline \end{array} \quad \begin{array}{r} 30 \\ 2.7 \\ \hline \end{array}$$

$$\begin{array}{r} 30 \\ 6.5 \\ \hline \end{array} \quad \begin{array}{r} 23 \\ 6.2 \\ \hline \end{array} \quad \begin{array}{r} 10 \\ 3.7 \\ \hline \end{array} \quad \begin{array}{r} 7.5 \\ 7.9 \\ \hline \end{array} \quad \begin{array}{r} 8.5 \\ 1.7 \\ \hline \end{array} \quad \begin{array}{r} 12 \\ 5.0 \\ \hline \end{array} \quad \begin{array}{r} 25 \\ 3.6 \\ \hline \end{array} \quad \begin{array}{r} 31 \\ 2.3 \\ \hline \end{array}$$

$$\begin{array}{r} 30 \\ 10.9 \\ \hline \end{array} \quad \begin{array}{r} 11 \\ 9.7 \\ \hline \end{array} \quad \begin{array}{r} 9 \\ 10.1 \\ \hline \end{array} \quad \begin{array}{r} 4 \\ 9.2 \\ \hline \end{array} \quad \begin{array}{r} 8.5 \\ 9.9 \\ \hline \end{array} \quad \begin{array}{r} 11 \\ 8.3 \\ \hline \end{array} \quad \begin{array}{r} 30 \\ 8.7 \\ \hline \end{array}$$

Spike in root 24" Pine 30' RTE 5 to 40' 90

$$\begin{array}{r} 30 \\ 7.7 \\ \hline \end{array} \quad \begin{array}{r} 125 \\ 10.9 \\ \hline \end{array} \quad \begin{array}{r} 10 \\ 13.3 \\ \hline \end{array} \quad \begin{array}{r} 7.5 \\ 12.6 \\ \hline \end{array} \quad \begin{array}{r} 4 \\ 7.6 \\ \hline \end{array} \quad \begin{array}{r} 1.5 \\ 12.3 \\ \hline \end{array} \quad \begin{array}{r} 11 \\ 11.0 \\ \hline \end{array} \quad \begin{array}{r} 30 \\ 9.0 \\ \hline \end{array}$$

1103.79

41443 69 1096.89

42700 12.6 1091.19

1.80 1092.71 1288 1090.91

42780 9.1 1093.61

43100 10.2 1082.51

11/7/29 12.87 1077.84

5.75 1085.59

44100 5.4 1080.19

44109 5.2 1080.39

45100 2.7 1082.89

12.43 1097.98 0.04 1085.58

46700 5.5 1092.48

12.39 1109.26 1.11 1096.87

47000 10.1 1099.16

BM# 6 750 1109.22 750 1101.7 1101.7

48100 5.7 1103.52

13.28 1120.36 2.14 1107.68

49100 12.8 1107.56

49475 8.1 1112.26

30	11	6.5	9	12	22	20
5.7	4.0	7.7	7.2	8.0	17	9.7

30	25	11	3	5	10	13	6	23	3
14.8	2.4	7.4	13.5	12.3	13.0	14.0	11.3	6	8.3

30	23	13	3	11	14.5	18	24	30
6.7	2.7	7.1	9.6	9.1	10.3	7.9	7.3	8.3

30	18	9	5	13	14.5	23	30
16.0	14.5	11.7	12.6	10.9	11.2	11.9	12.7

SWD XV Parapat wall/stn 44+00

30-20	11	25	6	3	8	2.0	30
12.5	11.9	10.2	5.0	5.7	3.2	11.6	12.4

10	50	41	4.9	4.0	41	60	100	150	300
13.1	14.2	14.2	5.2	5.8	14.4	15.3	13.3	15.0	14.0
		1071.4	1080.4	1079.8	1071.2				

35-20	18	10.5	9.5	6.5	14	20.5	2.9	35
-4.0	1.6	3.2	4.0	3.5	2.9	4.8	3.3	9.5

20	25	19.5	13	8	5	10	11.4E	19	30
5.0	10.7	8	7.2	3.5	5.7	5.8	6.4	1.2	1.4

30	23	11	11	4	5	7	9	13	18-30
5.7	7.6	8.8	10.4	10.1	10.8	11.4	2.3	2.3	8.4

Spring road 18" pipe 25 ft of @ stn 47+30

30	14	10	7	7	11	17	30
6.7	4.6	6.8	6.3	6.7	4.3	4.1	4.5

40	35	22	9	5	8	11	24	30
6.3	6.7	9.1	10.8	13.0	11.9	11.7	12.1	12.7
								13.4

30	18	8	7	8	10	30
3.3	4.5	8.1	8.2	8.6	8.6	11.4

112036

50+00 7.9 1112.46

51+00 8.7 1111.66

51+.45 7.5 1112.86

52+00 10.1 1110.26

5.95 1113.47 12.84 1107.52

53+00 7.7 1105.77

54+00 12.9 1100.57

0.94 1101.55 12.56 1100.71

55+00 5.2 1096.65

56+00 8.4 1093.45

57+00 10.0 1091.85

57+.5 10.2 1091.65

57+.7 2.94 1096.35 5.34 1093.51 1093.41

57+.46 4.9 1091.45

57+.75 4.2 1092.15

$$\frac{30}{74} \frac{18}{59} \frac{9}{79} \frac{7}{88} \frac{8}{91} \frac{9}{85} \frac{11}{94} \frac{30}{113}$$

$$\frac{30}{67} \frac{9}{87} \frac{7}{94} \frac{7}{74} \frac{8}{90} \frac{30}{110}$$

$$\frac{30}{47} \frac{14}{52} \frac{9}{81} \frac{6}{83} \frac{8}{72} \frac{10}{64} \frac{12}{60} \frac{26}{60} \frac{30}{59}$$

$$\frac{30}{48} \frac{15}{57} \frac{7}{50} \frac{4}{106} \frac{8}{79} \frac{10}{105} \frac{13}{80} \frac{16}{74} \frac{30}{77}$$

$$\frac{30}{16} \frac{14}{25} \frac{5}{61} \frac{3}{30} \frac{6}{72} \frac{11}{80} \frac{14}{87} \frac{19}{67} \frac{30}{58}$$

$$\frac{30}{78} \frac{15}{76} \frac{6}{116} \frac{74}{187} \frac{4}{123} \frac{7}{127} \frac{12}{141} \frac{16}{107} \frac{30}{105}$$

$$\frac{30}{13} \frac{14}{27} \frac{7}{51} \frac{6}{61} \frac{7}{53} \frac{11}{65} \frac{14}{92} \frac{22}{22} \frac{30}{29}$$

$$\frac{30}{71} \frac{14}{75} \frac{8}{87} \frac{5-6}{74} \frac{2}{57} \frac{3}{84} \frac{8-10}{79} \frac{12}{82} \frac{30}{92}$$

$$\frac{80}{73} \frac{18}{24} \frac{15}{102} \frac{10}{107} \frac{8}{110} \frac{6}{105} \frac{5}{103} \frac{12}{110} \frac{30}{110}$$

$$\frac{30}{75} \frac{19}{86} \frac{16}{104} \frac{10}{107} \frac{8}{116} \frac{6}{107} \frac{8}{105} \frac{12}{112} \frac{30}{112}$$

Spine in post 15 4/4 30 4/4 of E 3 to 57+40

$$\frac{30}{54} \frac{22}{78} \frac{11}{73} \frac{10}{97} \frac{4-6}{51} \frac{5}{93} \frac{11}{25} \frac{30}{250}$$

$$\frac{30}{50} \frac{11}{51} \frac{6}{50} \frac{8}{43} \frac{30}{70}$$

34

109635

58+00 3.6 1092.75

9.47 1103.82 2.00 1094.35

58+50 9.7 1094.12

59+00 7.7 1096.12

12.56 1114.60 1.78 1102.04

60+00 9.2 1105.40

60+85 3.5 1111.10

61+00 5.7 1108.90

40
11174

62+00 12.1 1102.50

2.48 104.51 12.57 1102.03

63+00 5.4 1099.11

64+00 8.2 1096.31

64+60 9.5 1095.01

64+75 10.2 1094.31

65+00 10.1 1094.41

Note: use Line C levels
Sta 55+59 to Sta 77+32
See page 48

30	24	16	10	7	7	9	18	23	30
20	21	23	23	37	44	42	49	3.5	43

30	21	11	7	6	9	21	30
4.6	5.3	10.9	10.0	10.8	10.1	6.5	6.8

level	30	24	16	7	2	5	16	30	level
	0.0	25	33	78	79	83	1.6	1.5	

30	26	20	16	8	4	5	12	30	—
29	1.3	31	37	22	31	27	39	41	

10	17	13	3	6	9	13	22	30
1178	1150	100	36	3.6	4.4	1.5	2.3	2.5

27	23	15	12	8	3	4	11	13	30
1163	1130	1144	1.3	1.3	6.0	3.3	2.6	3.0	5.3

40	30	23	13	9	7	12	12	30
46	55	22	26	128	128	98	100	103

30	21	11	7	3	6	8	13	17	30
2.7	32	29	36	38	27	37	44	35	32

30	12	3	4	12	17	30
70	82	73	85	86	77	100

20	27	13	6	3	3	16	30
2.8	32	26	30	8.2	9.1	11.2	

30	25	13	7	3	4	11	16
2.3	99	100	34	101	124	17.6	29.0

30	25	15	5	1	2	18	30
2.5	101	102	3.3	103	99	123	16.9

110451

65+10		10.1	1094.41
	325	109652	11.24 1093.27
84+8		4.68	1091.84 1091.84
	11/11/29	6.28	1098.09
66+00		3.4	1094.69
67+00		6.9	1091.19
67+50		9.8	1088.29
68+00		14.6	1083.49
	1.61	1087.19	12.51 1085.58
68+50		8.4	1078.79
68+70		12.1	1075.09
67+00		17.1	1070.09
	2.11	1076.26	13.04 1074.15
69+10		7.3	1068.96
69+50		15.4	1062.86
	1.31	1065.49	12.08 1064.18
70+00		8.0	1057.49

59120569+00 except $\frac{18-30}{11.0}$

Spoke wheel 15 Maple 24 Lt of 5 67+45

$\frac{30}{2.7}$	$\frac{14}{3.1}$	$\frac{11}{4.8}$	$\frac{9}{4.0}$	$\frac{2}{3.2}$	$\frac{5.5}{4.6}$	$\frac{8}{3.0}$	$\frac{14}{2.6}$	$\frac{30}{2.6}$
------------------	------------------	------------------	-----------------	-----------------	-------------------	-----------------	------------------	------------------

$\frac{30}{5.3}$	$\frac{14}{5.7}$	$\frac{10}{8.8}$	$\frac{6}{7.5}$	$\frac{4}{7.6}$	$\frac{6}{8.4}$	$\frac{9}{5.5}$	$\frac{16}{4.6}$	$\frac{30}{4.0}$
------------------	------------------	------------------	-----------------	-----------------	-----------------	-----------------	------------------	------------------

$\frac{30}{6.6}$	$\frac{15}{6.8}$	$\frac{8}{11.0}$	$\frac{5}{10.2}$	$\frac{5}{10.5}$	$\frac{8}{11.1}$	$\frac{13}{7.5}$	$\frac{30}{8.5}$
------------------	------------------	------------------	------------------	------------------	------------------	------------------	------------------

$\frac{30}{7.8}$	$\frac{23}{8.1}$	$\frac{8.7}{13.6}$	$\frac{6}{11.6}$	$\frac{5}{15.0}$	$\frac{6}{15.4}$	$\frac{11}{14.0}$	$\frac{15}{14.5}$	$\frac{23}{14.4}$	$\frac{30}{10.3}$
------------------	------------------	--------------------	------------------	------------------	------------------	-------------------	-------------------	-------------------	-------------------

$\frac{30}{6.7}$	$\frac{23}{2.0}$	$\frac{11}{2.1}$	$\frac{9}{2.4}$	$\frac{3}{8.5}$	$\frac{5}{3.2}$	$\frac{6}{8.4}$	$\frac{9}{7.2}$	$\frac{18.7}{2.5}$	$\frac{30}{3.5}$
------------------	------------------	------------------	-----------------	-----------------	-----------------	-----------------	-----------------	--------------------	------------------

$\frac{32}{4.4}$	$\frac{24}{7.3}$	$\frac{16}{13.7}$	$\frac{8}{10}$	$\frac{3}{12.3}$	$\frac{6}{12.5}$	$\frac{26}{13.1}$	$\frac{30}{13.1}$	4 point
------------------	------------------	-------------------	----------------	------------------	------------------	-------------------	-------------------	---------

$\frac{10}{7.2}$	$\frac{35}{7.5}$	$\frac{28}{13.3}$	$\frac{25}{13.4}$	$\frac{22}{18.0}$	$\frac{16}{16.6}$	$\frac{6}{14.6}$	$\frac{11}{15.1}$	$\frac{32}{17.4}$
------------------	------------------	-------------------	-------------------	-------------------	-------------------	------------------	-------------------	-------------------

$\frac{30}{8.2}$	$\frac{25}{4.0}$	$\frac{21}{7.7}$	$\frac{17}{6.5}$	$\frac{10}{6.6}$	$\frac{5}{7.0}$	$\frac{6}{4.1}$	$\frac{11}{2.1}$	$\frac{18}{6.6}$	$\frac{30}{2.5}$
------------------	------------------	------------------	------------------	------------------	-----------------	-----------------	------------------	------------------	------------------

$\frac{37}{4.2}$	$\frac{28}{1.3}$	$\frac{28}{13.7}$	$\frac{23}{13.0}$	$\frac{6}{13.3}$	$\frac{3}{14.0}$	$\frac{9}{10.9}$	$\frac{21}{11.9}$	$\frac{32}{13.7}$	—
------------------	------------------	-------------------	-------------------	------------------	------------------	------------------	-------------------	-------------------	---

$\frac{32}{4.0}$	$\frac{25}{10.0}$	$\frac{21}{8.3}$	$\frac{8}{9.3}$	$\frac{4}{10.1}$	$\frac{2}{8.5}$	$\frac{4}{2.7}$	$\frac{13}{3.5}$	$\frac{17}{7.3}$	$\frac{30}{6.3}$
------------------	-------------------	------------------	-----------------	------------------	-----------------	-----------------	------------------	------------------	------------------

1065.99

70+25 11.6 1053.89

BM#9 0.67 1065.57 0.67 1064.82

0.55 1053.76 12.36 1053.21

70+50 6.9 1046.86

70+75 10.1 1043.66

1.62 1044.97 10.41 1043.35

71+00 4.1 1040.89

71+50 8.4 1036.57

BM#10 3.26 1037.11 11.32 1033.65

72+00 5.7 1031.41

72+50 10.5 1026.61

0.17 1026.66 10.62 1026.49

73+00 6.3 1020.36

73+50 11.1 1015.56

1.60 1015.56 12.70 1013.96

73+85 2.4 1012.96

74+00 4.5 1011.06

BM#11 5.15 1008.73 11.97 1003.59

1003.58

31	22	28	26	22	18	12	6	4	18	30
117	138	142	135	133	135	119	27	37		

Spike in root 10' Oak 30' Lt + E Sta 69+85

28	30	16	3	4	15	25	30
21	63	58	62	3.6	2.3	0.5	-0.3

30	22	19	17	14	4.5	10	15	20	30
21	83	94	109	94	11.0	8.2	7.2	6.1	5.0

125	50	25	19	15	12	3	7	9	14	20	30
70	55	76	96	93	7.7	5.0	3.7	2.7	1.8	3.0	

31	27	20	18	14	6	4	8	14	21	30
79	81	30	97	83	7.9	7.2	7.1	5.0	5.8	

Spike in root 18' Beech 35' Lt + E Sta 71+70

28	24	23	19	1	25	6	16	7	20
5.1	2.0	70	57	53	70	25	42	70	5.0

31	28	24	3	4	8	11	16	30	
level	100	1.7	101	11.3	12.1	97	96	85	7.0

31	27	25	10	3	6	8	15.7	3	
level	52	72	66	62	64	83	66	3.4	53

30	20	17	8	8	6	8	10	30
103	94	102	11.5	12.0	10	12.3		

30	24	22	105	9	8	8	17	19	21	30
10	09	02	07	30	23	23	27	34	33	29

30	25	16	10	8	7	8	25	16	1	10
102	1.7	12	28	5.2	4.8	4.7	9.3	14.0	1	10

X cut on NW & Sabotment 8' Lt + E Sta 74+80

1032.52

B.M. #12	804	1032.30	5.64	1034.28	1034.26
83+00			1.6	1030.70	
	11.38	1043.64	0.64	1031.66	
83+50			9.0	1034.04	
84+00			4.0	1039.04	
	12.47	1055.01	0.50	1042.54	
84+50			9.5	1045.51	
84+80			4.7	1050.31	
85+00			2.5	1052.51	
	11.52	1066.47	0.06	1054.93	
85+50			10.8	1055.67	
86+00			7.1	1059.37	
86+50			4.2	1062.27	
86+80			5.5	1060.97	
87+00			4.6	1065.37	
P.M. N			4.4	1062.1	
S			12.4	1054.1	

501 N. ... 24' E 1041 ... 4.5 4.4 4.5 5.6 8.7 + 4.0

33	23	17	12	10	8	4	6	7.5	11	16	30
7.8	1.3	0.7	1.8	5.0	1.8	2.2	2.8	1.6	-1.0	-2.6	-5.4
30	13	35	7	5	5	8	25	11	4	22	37
11.6	7.8	8.8	7.7	9.5	9.1	7.7	8.8	-1.3	-2.6	-4.5	
30	13	65	5	5	3	8	11	13	16	25	37
7.1	1.6	5.0	4.3	3.8	4.1	4.5	2.7	3.2	-2.8	-1.5	
30	13	6	5	8	13	13	21	30			
12.8	6.5	10.5	9.8	9.1	9.6	8.1	4.3	2.9	10.0		
23	4	13	65	5	7	11	13	21	30		
6.4	3.0	4.5	3.2	4.7	4.3	5.0	4.2	3.7	3.2		
30	13	7	5	6	10	11	24	40			
11.1	1.9	3.2	2.7	2.7	3.9	3.0	1.5	-8.2			
30	14	7	5	2	12	13	33				
11.5	8.7	11.0	12.3	10.8	10.7	11.5	2.9	19.1	11.0		
30	21	11	8	11	11	11	18	30			
11.6	7.6	7.4	7.1	8.1	3.2	1.0					
30	13	12	6	11	13	15	23	30			
2.5	5.4	4.6	4.7	4.3	3.0	4.5	1.9	-1.5	10.0		
30	18	50	50	100	100	50					
14.0	10.0	6.7									
30	17	11	13	14	18	20	33				
3.7	7.8	3.0	5.7	7.4	6.0	-5.0					

106647

10.95 107639 1.03 106544

87+50 8.2 1068.19

88+00 5.8 1076.59

89+00 2.8 1073.59

12.18 108627 2.30 1074.57

90+00 10.4 1075.87

91+00 6.3 1079.97

Elm 17 9.5 1076.77

Elm 5 and Elm 6 9.1 1076.17

92+00 4.6 1081.67

92+65 3.1 1083.17

92+35 2.9 1083.37

94+13 4.26 1082.61 1082.02

$$\frac{30}{80} \quad \frac{6}{27} \quad \frac{3.2}{89} \quad \frac{15}{8.1} \quad \frac{17}{85} \quad \frac{23}{63} \quad \frac{33}{2.3}$$

$$\frac{30}{82} \quad \frac{10}{70} \quad \frac{8}{42} \quad \frac{6}{67} \quad \frac{4}{61} \quad \frac{10}{55} \quad \frac{17}{62} \quad \frac{17}{35} \quad \frac{5}{25} \quad \frac{5}{28} \quad \frac{5}{33} \quad \frac{5}{27}$$

$$\frac{30}{43} \quad \frac{15}{35} \quad \frac{13}{39} \quad \frac{10}{34} \quad \frac{6}{25} \quad \frac{11}{27} \quad \frac{16}{11} \quad \frac{20}{05} \quad \frac{5}{-11} \quad \frac{5}{-13}$$

$$\frac{30}{122} \quad \frac{19}{120} \quad \frac{15}{10} \quad \frac{13}{115} \quad \frac{10}{109} \quad \frac{5}{10.5} \quad \frac{2}{11.1} \quad \frac{10}{103} \quad \frac{14}{20} \quad \frac{16}{86} \quad \frac{25}{69} \quad \frac{20}{70}$$

$$\frac{30}{78} \quad \frac{23}{78} \quad \frac{16}{71} \quad \frac{14}{77} \quad \frac{10}{67} \quad \frac{9}{5.9} \quad \frac{20}{50} \quad \frac{25}{41} \quad \frac{22}{41}$$

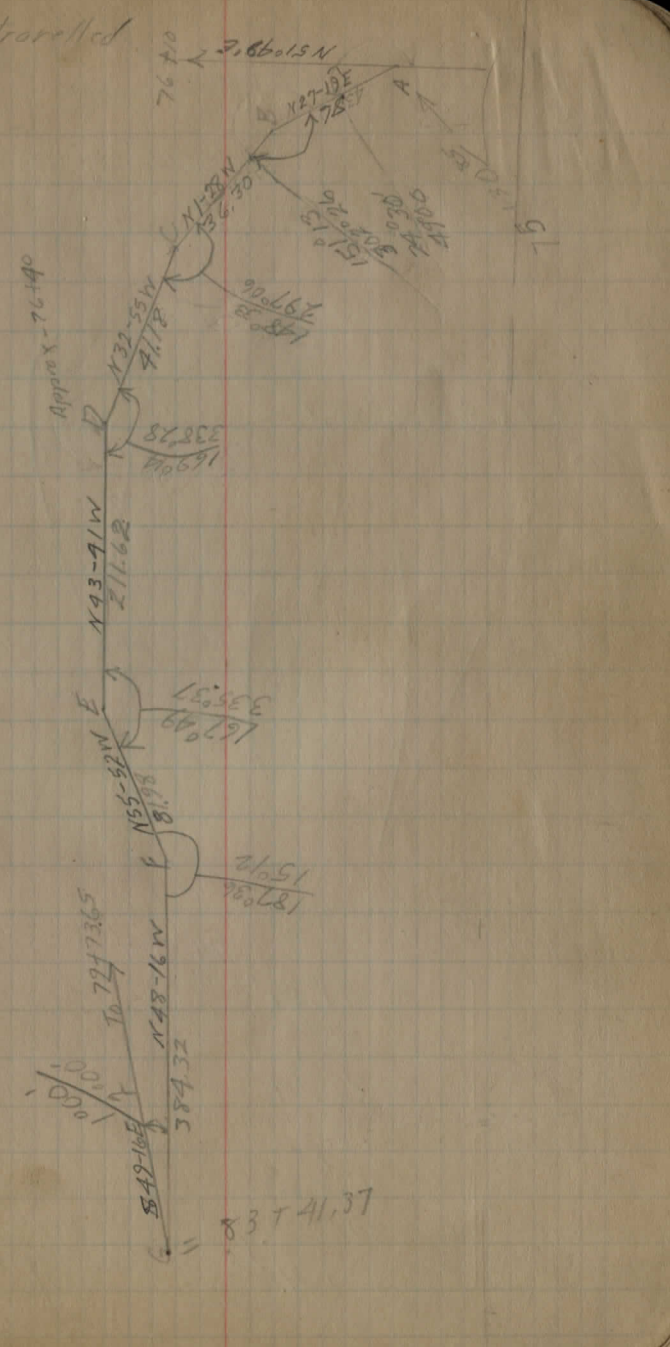
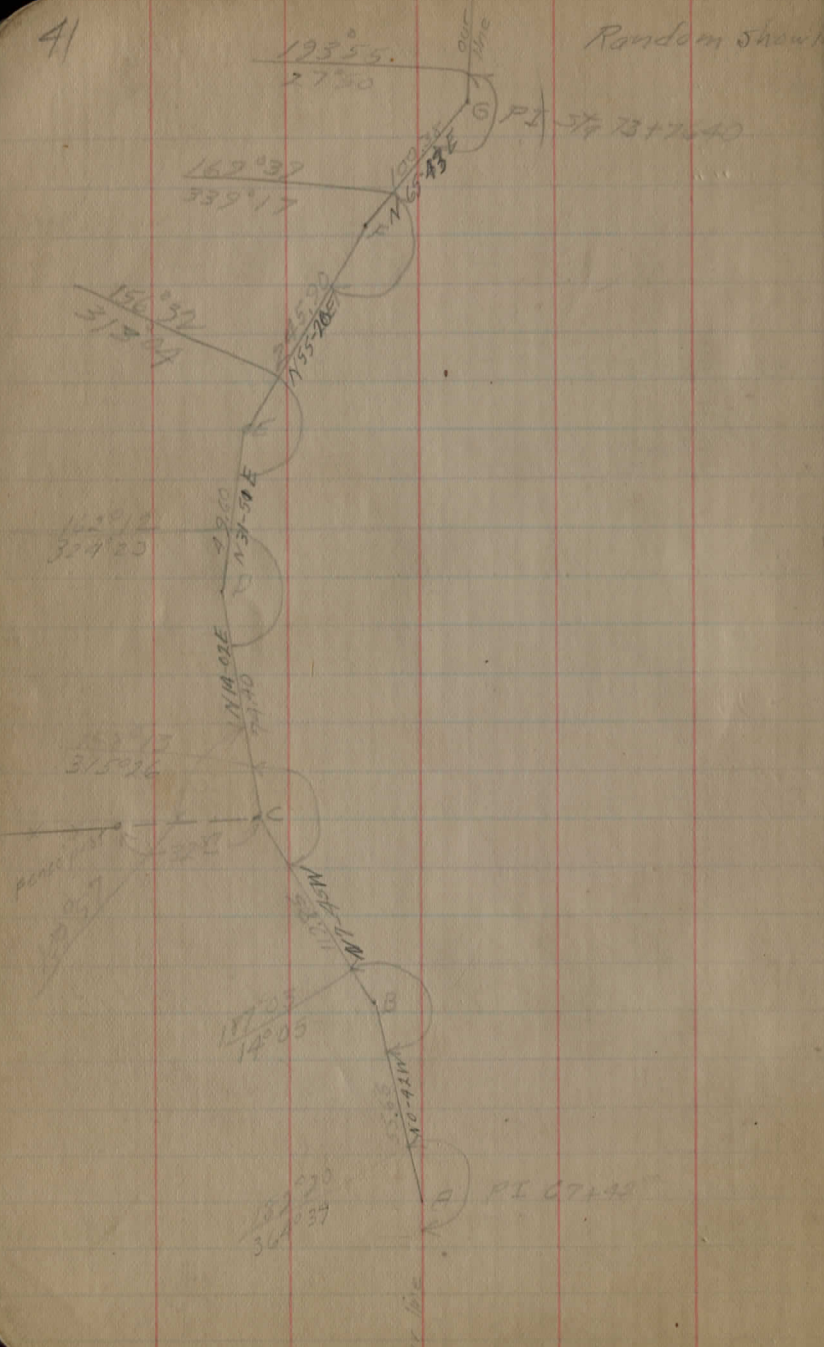
$$\frac{30}{41} \quad \frac{22}{40} \quad \frac{12}{57} \quad \frac{16}{58} \quad \frac{10}{45} \quad \frac{7}{45} \quad \frac{20}{51} \quad \frac{21}{49} \quad \frac{5}{38} \quad \frac{5}{38}$$

$$\frac{30}{52} \quad \frac{10}{32} \quad \frac{10}{3.1} \quad \frac{20}{4.3} \quad \frac{25}{30} \quad \frac{22}{30}$$

Spike in root 42" Elm 45' Hd & Sta 92+35

Random showing

present travelled
Road



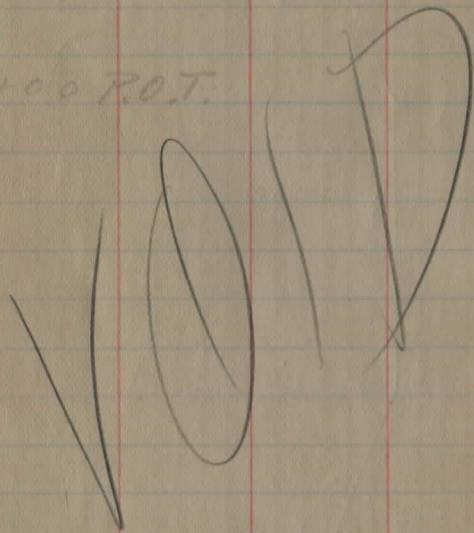
42

12/5/29

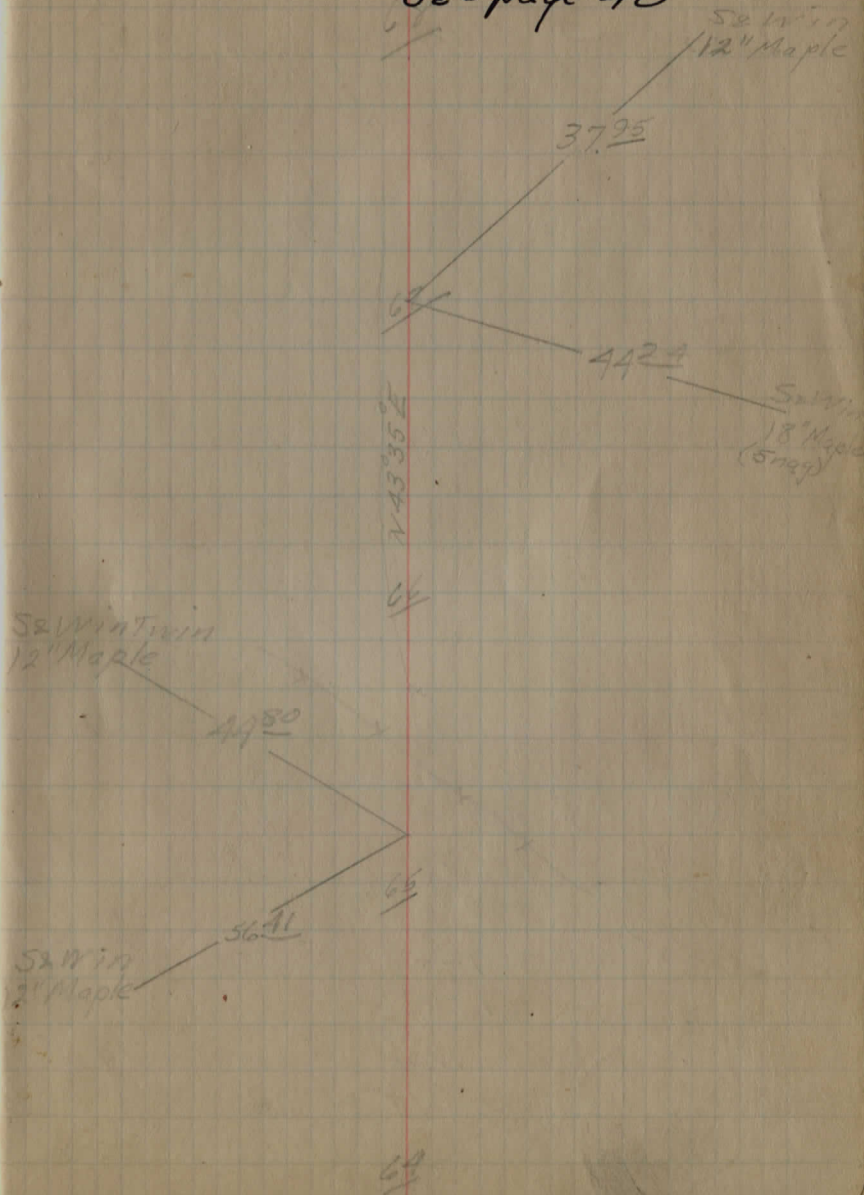
Line B

Relocation Sta 64+52³⁶ to Sta

Sta 67+00 P.O.T.

Sta 65+25⁰⁰ P.I. Def Ry 41° 39'Iron
set

Curve Data	$\Delta = 41^{\circ} 39'$	64+52 ³⁶ = 0° 00'
	$P = 30'$	175 = 3° 23'
	$T = 72.64$	65+00 = 7° 08'
	$E = 13.3$	125 = 10° 53'
	$L = 138.83$	45 = 14° 38'
	$PC = 64+52.36$	75 = 18° 23'
	$PT = 65+91.19$	191 ¹⁹ = 20° 49'

Note
Use Line C
see page 48

VOID

Curve
Data

$\Delta = 36^{\circ} 06'$

$D = 10^{\circ}$

$T = 186.73$

$E = 29.7$

$L = 361.00$

$PC = 66+38.27$

$PT = 69+99.27$

$PI = 68+15 \quad \Delta = 36^{\circ} 06'$

$66+38.27 = 0^{\circ} 00'$

$66+50 = 0^{\circ} 25'$

$67+00 = 3^{\circ} 25'$

$67+50 = 5^{\circ} 35'$

$68+00 = 8^{\circ} 05'$

$68+50 = 10^{\circ} 35'$

$69+00 = 13^{\circ} 05'$

$69+50 = 15^{\circ} 35'$

$69+99.27 = 18^{\circ} 03'$

$3^{\circ} 00'$

72

Sta 71+52

Culvert needed 70' R/Fwd

18"

74

70

103

9'8" Lot Line

14'38"

16'28"

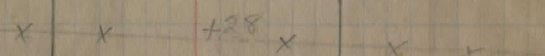
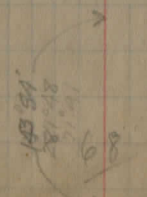
9'58"

7'38"

4'58"

2'28"

5'00"

69

VOLD

Sta 73+44⁸ Line B =
Sta 74+22¹⁶ Line A
Equation = 77.28'

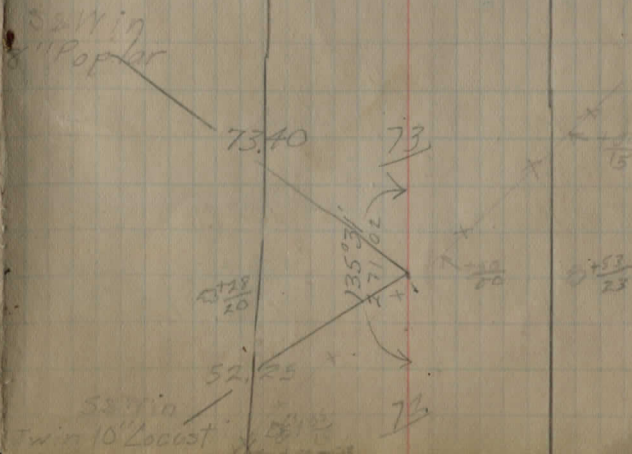
Curve Data	$\Delta = 44^{\circ} 29'$	$71+12^{\circ} = 6^{\circ} 00'$
	$D = 20'$	$+30 = 3^{\circ} 46'$
	$T = 117.16$	$72+00 = 8^{\circ} 46'$
	$E = 230$	$750 = 13^{\circ} 46'$
	$L = 222.42$	$73+00 = 18^{\circ} 46'$
	$PC = 71+12.34$	$73+39^{\circ} = 22^{\circ} 15'$
	$PT = 73+34.76$	

Sta 72+29⁵⁰ PI Defn $44^{\circ} 29'$ Iron Set

76

75

74



45

Cross Sections Line B

BM #11	12.72	101630	100358
73+34 ²⁶		6.7	1009.6
73+00		2.6	1013.70
	9.02	102382	1.50 1014.80
72+50		6.6	1017.22
	11.88	103431	1.39 1022.43
72+00		13.4	1020.91
71+50		16.2	1018.11
71+20		7.7	1026.61
71+00		8.0	1026.31
	12.93	104412	3.22 1031.09
70+40		12.9	1031.12
70+00		5.5	1038.52
	7.88	105163	0.07 1043.95
69+50		6.6	1045.03
near BM #10	12.68	1059.86	4.45 1047.18
69+00		5.5	1054.36
	10.25	1069.99	0.12 1059.74

Note:

Use Line C levels
see page 48

level	$\frac{27}{46}$	$\frac{22}{21}$	$\frac{14}{68}$	$\frac{2}{78}$	$\frac{7}{74}$	$\frac{28}{18.5}$	$\frac{40}{137}$	—	1011
	$\frac{30}{3.9}$	$\frac{20}{26}$	$\frac{17}{31}$	$\frac{12}{34}$	$\frac{5}{2.6}$	—	$\frac{17}{2.0}$	$\frac{23}{11}$	$\frac{30}{0.5}$
	$\frac{52}{48}$	$\frac{18}{60}$	$\frac{14}{78}$	$\frac{11}{61}$	$\frac{30}{70.3}$	—	—	—	same
	—	—	—	$\frac{30}{8.4}$	$\frac{30}{18.2}$	—	—	—	
108112	—	$\frac{40}{5.5}$	$\frac{13}{15.1}$	$\frac{6}{10.8}$	$\frac{30}{14.6}$	—	—	—	108112
				$\frac{30}{3.8}$	$\frac{30}{11.9}$				
				$\frac{30}{2.9}$	$\frac{30}{11.5}$				
				$\frac{30}{8.4}$	$\frac{30}{15.4}$				
				$\frac{30}{2.9}$	$\frac{15}{4.5}$	$\frac{14}{3.8}$	$\frac{30}{8.1}$		
				$\frac{30}{6.0}$	$\frac{30}{7.9}$				
				—	$\frac{30}{7.4}$	$\frac{30}{4.1}$	—	—	

add 50 gpd for revine

Spike in root 12' Oak 54 ft 54 ft 54 ft 69 ft 35

68+50 1067.99 10.0 1059.99

68+00 4.1 1065.89

new
3/11-9 10.87 1080.55 0.31 1069.68

67+50 9.10 1071.45

67+50 1.6 1078.95

11.53 1091.69 0.39 1080.16

66+50 6.65 1078.11 0.23 1091.46

67+00 6.2 1091.9

66+50 4.1 1094.0

66+00 3.8 1094.3

4.09 1099.00 3.20 1094.91

65+50 5.5 1098.5

65+00 4.7 1094.3

64+50 4.6 1094.1

64+52 3.8 1095.2

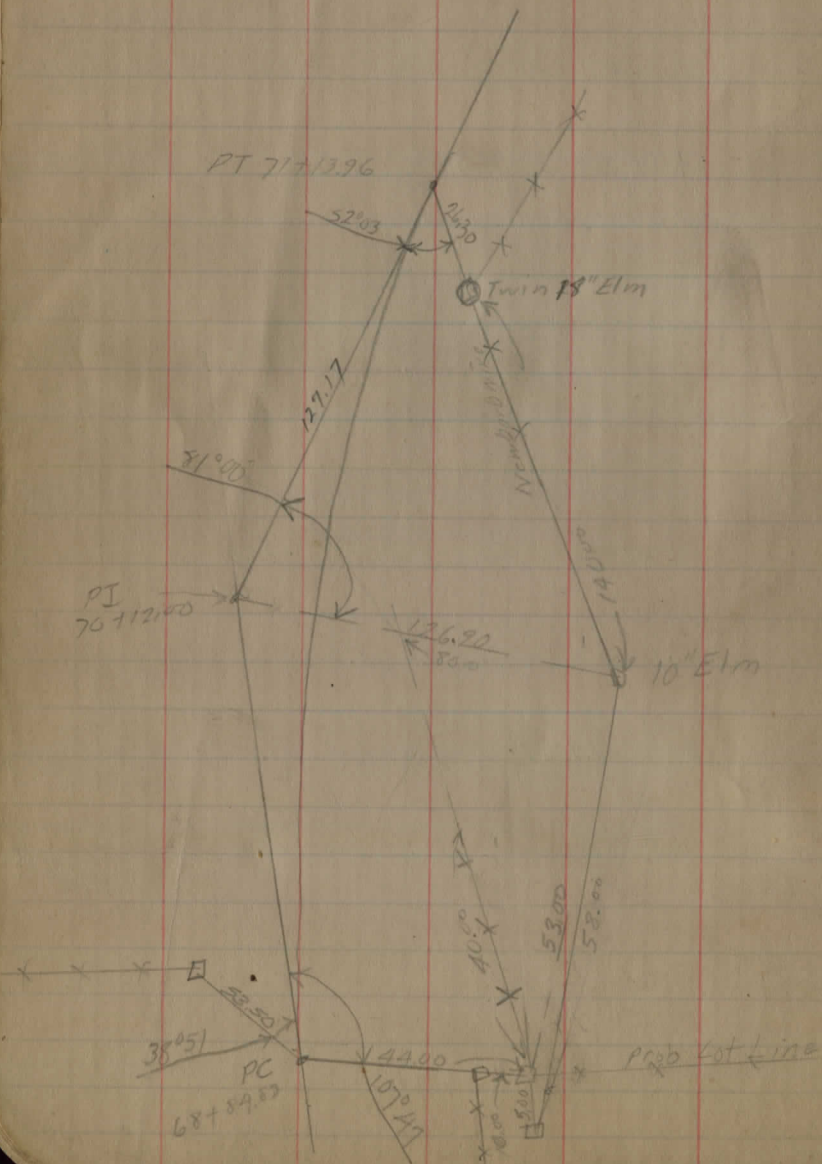
5M #8 old location 7.45 1091.85 1091.91

— $\frac{30}{25}$ $\frac{30}{81}$ —— $\frac{30}{11}$ $\frac{30}{28}$ — some at 53 then 101

Spike in roof 24" back 46 ft of 5 to 67+75

— $\frac{30}{70}$ $\frac{30}{42}$ — some at 67 then 111 $\frac{30}{49}$ $\frac{30}{81}$ 12:11 to 4:5 then 12:10 $\frac{30}{28}$ $\frac{25}{65}$ $\frac{30}{76}$ 1.1— $\frac{30}{29}$ $\frac{24}{25}$ $\frac{30}{46}$ 1.1 $\frac{30}{41}$ $\frac{22}{30}$ $\frac{30}{45}$ $\frac{25}{71}$ $\frac{30}{85}$ 15:10 $\frac{30}{46}$ $\frac{20}{47}$ $\frac{10}{38}$ $\frac{10}{63}$ $\frac{25}{120}$ $\frac{30}{139}$ $\frac{28}{238}$ $\frac{30}{43}$ $\frac{12}{50}$ $\frac{8}{46}$ $\frac{30}{207}$ $\frac{40}{226}$ $\frac{55}{270}$ $\frac{30}{32}$ $\frac{8}{33}$ $\frac{3}{36}$ $\frac{30}{52}$

Data on Newcomb piece



26
 100.30
 066.30

Line C Location

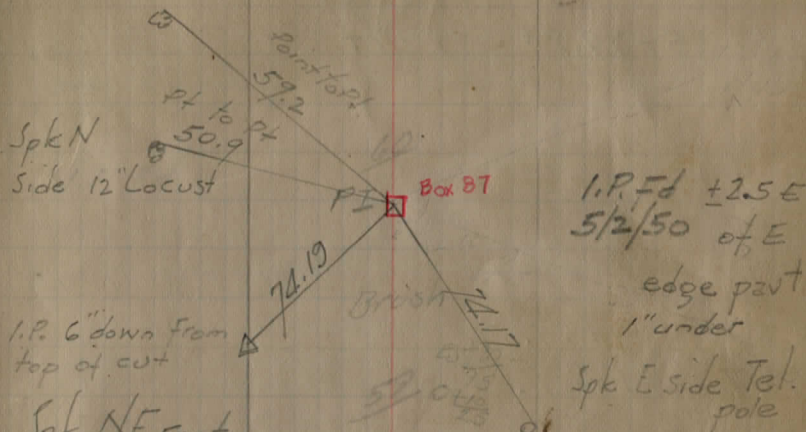
Sta 59+92.34	Det Lt 18°40'	Iron Set
$\Delta = 18^{\circ}40' Lt$	58+98.17 = 0°00'	
D = 10'	59+00 = 0°06'	
T = 94.17	59+50 = 2°36'	
E = 77	60+00 = 5°06'	
L = 186.67	60+50 = 7°36'	
PC = 58+98.17	60+98.84 = 9°20'	
PT = 60+84.84		

(not e/w)
 Note: for relocation of pavement
 from Sta 56+81.67 to 58+35.35

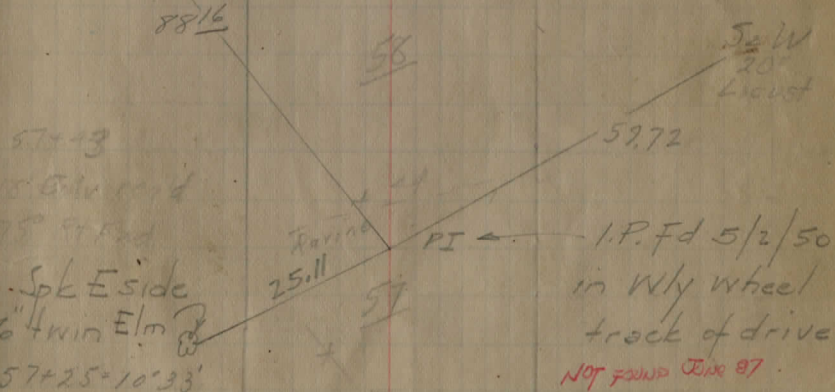
See page 56

Sta 57+06.00	Det Rt 54°14'	Iron Set
$\Delta = 54^{\circ}14' R$	58+00 = 3°03'	
D = 20'	57+50 = 8°23'	
T = 146.71	57+00 = 13°03'	
E = 35.4	56+50 = 18°23'	
L = 271.16	56+00 = 23°03'	
PC = 55+59.29	55+59.29 = 27°07'	
PT = 58+30.45		

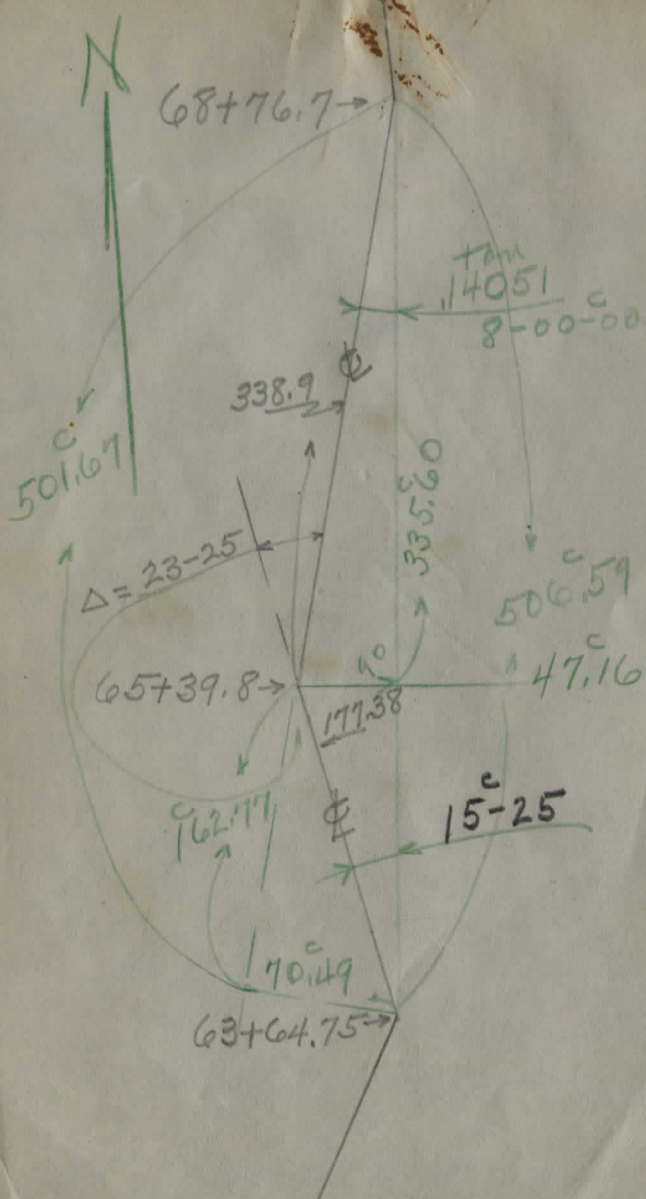
Spk NE side 12"
 Loc.



Spk NE root
 20" Hick



NOT FOUND Box 87



68+76.7 →

$\frac{\tan 14051}{8-00-00}$

501.67 ↙

338.9 →

$\Delta = 23-25$

335.60 ↗

506.59 ↘

65+39.8 →

177.38 ↘

47.16 ↘

162.77 ↗

15-25 →

170.49 ↘

63+64.75 →

90

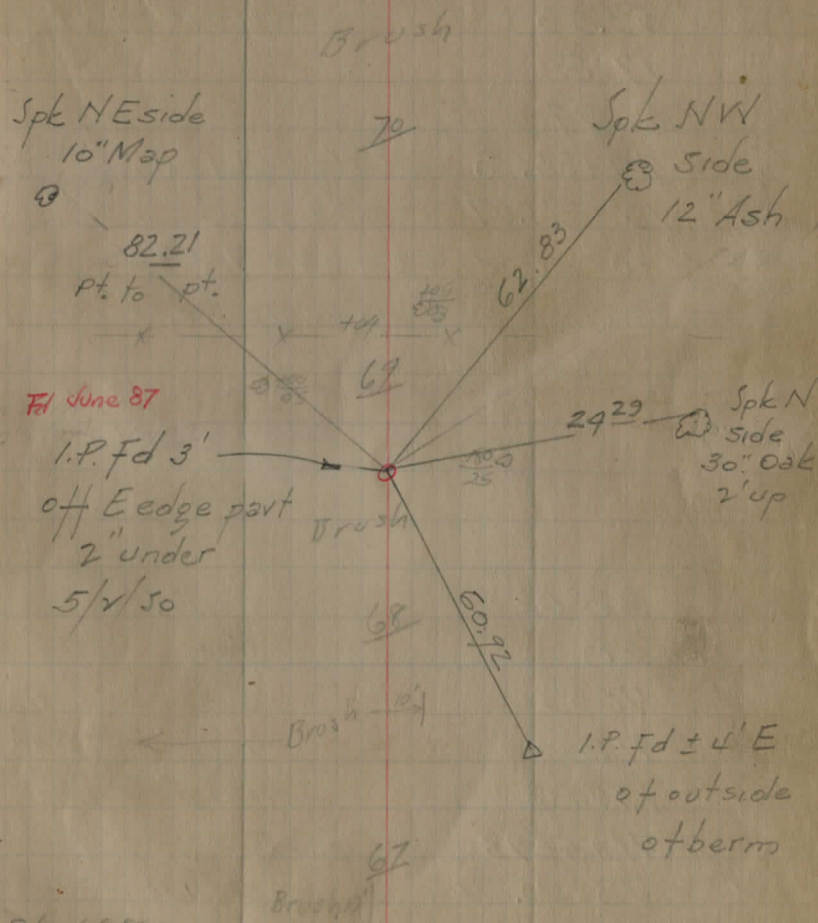
Sta 68+76.70 PI Def. Lt. 21°06'

$\Delta = 21^\circ 06'$ Lt.	67+69.98 = 0°00
D = 10°	68+00 = 1°30
T = 106.72	68+50 = 4°00
E = 9.8	69+00 = 6°30
L = 211.80	69+50 = 9°00
PC = 67+69.98	69+80.78 = 10°33
PT = 69+80.78	

66+22 to 68+76

1.00 +	4-7-31
.63 +	by MOK
1.7 +	on 11/12

12" Cor. Sta 7100
78" R.P. Rd
reg'd
F.I.R.T.



Sta 66+33
18" Cor. I.P. reg'd

$$\Delta = 73^{\circ}33' L$$

$$D = 80^{\circ}$$

$$T = 53.53$$

$$E = 17.8$$

$$L = 91.94$$

$$PC = 74+55.13 = 76+4061 \text{ Line A}$$

$$PT = 75+47.07 = 77+32.55 \text{ " "}$$

$$\text{Sta } 75+08.66 \text{ PI Def Lt } 73^{\circ}33' \text{ Iron Set}$$

$$= \text{Sta } 76+79.07 \text{ Line A}$$

$$R = 7162$$

$$77+32.55 = 0^{\circ}00$$

$$77+25 = 3^{\circ}01$$

$$77+10 = 13^{\circ}01$$

$$76+89 = 19^{\circ}25$$

$$\Delta = 38^{\circ}02' R$$

$$D = 28^{\circ}$$

$$T = 70.53$$

$$E = 11.8$$

$$L = 135.83$$

$$PC = 71+55.93$$

$$PT = 72+91.76$$

$$\text{Sta } 72+26.46 \text{ PI Def Rt } 38^{\circ}02'$$

$$71+55.93 = 0^{\circ}00$$

$$71+75 = 2^{\circ}40$$

$$72+10 = 6^{\circ}10$$

$$72+25 = 9^{\circ}40$$

$$72+50 = 13^{\circ}10$$

$$72+75 = 16^{\circ}40$$

$$72+91.76 = 19^{\circ}01$$

Equation

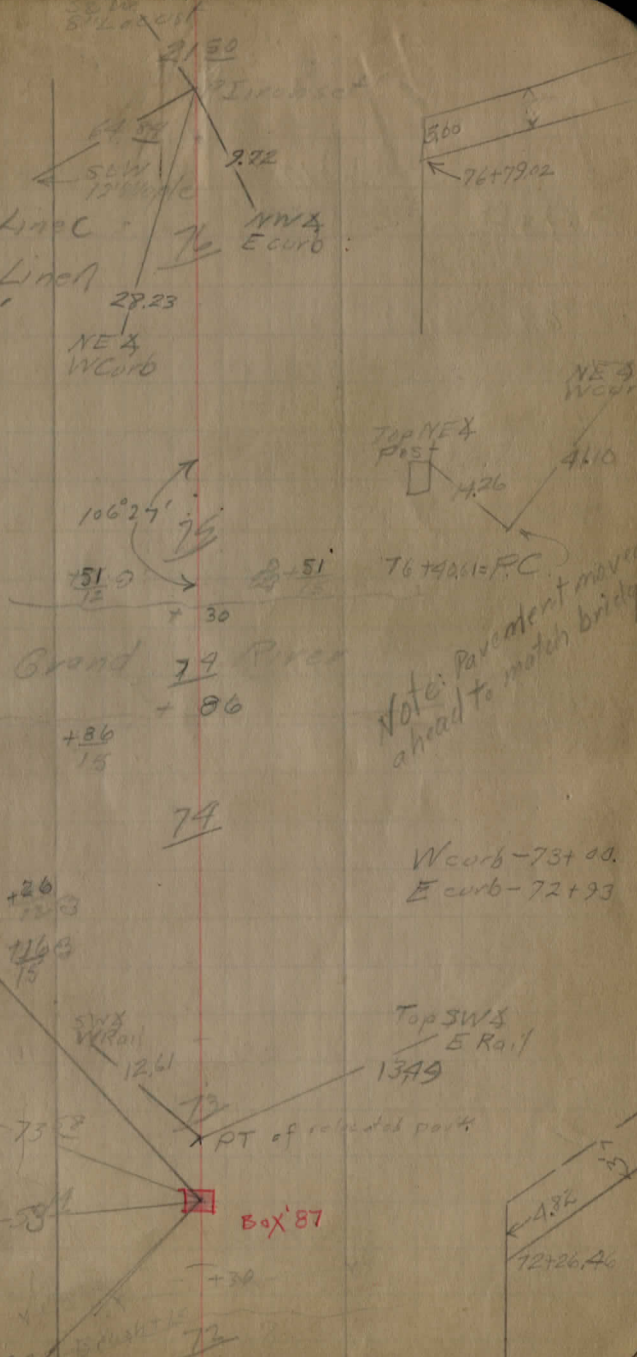
Sta 75+47.07 Line C

= Sta 77+32.55 Line A

$$= 185.48'$$

Top SW Cor

W Rail bridge

SWX
12' PlybrSWX
12' PlybrN+W in
2A' Plybr

52

STOSS sections

BM #11	6.90	1010.48		1003.58
75+08 ⁶⁶			3.8	1006.7
74+84	(74+97)		5.1	1005.38
T.P.	10.12	1019.67	0.93	1009.55
73+00	(73+39)		7.0	1012.7
72+66	(73+00)		4.6	1015.07
72+10			2.8	1016.9
T.P.	2.65	1021.27	1.05	1018.62
71+85			4.7	1016.6
71+55			6.4	1014.87
71+25			9.4	1011.9
71+00			4.6	1016.7
T.P.	8.96	1028.89	1.34	1019.23
70+00			4.9	1024.0
T.P.	12.81	1040.31	0.79	1028.10
69+00			1.5	1039.4
T.P.	8.81	1047.26	1.76	1039.15
Now BM #10			0.79	1047.18 (1047.18)
T.P.	3.67	1042.82		1039.15

$$\frac{30}{52} \quad \frac{3}{52} \quad \frac{4}{51.6} \quad \frac{20}{62.5} \quad \frac{22}{5.7} \quad \frac{30}{540}$$

$$\frac{20}{1.1} \quad \frac{19}{1.2} \quad \frac{8}{3.3} \quad \frac{7}{4.2} \quad \frac{30}{11.0}$$

$$\frac{30-27}{25} \quad \frac{25-17}{3.2} \quad \frac{13}{3.1} \quad \frac{8}{3.2} \quad \frac{27}{6.0} \quad \frac{28}{4.3} \quad \frac{30}{5.6}$$

$$\frac{30}{-0.6} \quad \frac{20}{0.0} \quad \frac{20}{4.1} \quad \frac{30}{4.6}$$

$$\frac{30}{2.3} \quad \frac{13}{6.3} \quad \frac{30}{8.7}$$

$$\frac{30}{4.5} \quad \frac{20}{5.0} \quad \frac{30}{10.5}$$

$$\frac{30}{6.0} \quad \frac{30}{11.1}$$

$$\frac{30}{1021.9} \quad \frac{30}{1009.7}$$

$$\frac{20}{0.5} \quad \frac{25}{1.3} \quad \frac{3}{5.0} \quad \frac{5}{4.5} \quad \frac{30}{8.4}$$

$$\frac{40}{1047} \quad \frac{30}{1043} \quad \frac{25}{-0.3} \quad \frac{20}{0.2} \quad \frac{10}{4.5} \quad \frac{35}{10.1}$$

Spike in root 42" Oak 50' L of & Sta 69+00

104282

68+78		2.9	1039.9
T.P.	1.96	1033.84	10.94 1031.88
68+00		11.3	1022.5
T.P.	7.52	1031.60	9.76 1024.08
T.P.	4.74	1025.09	11.25 1020.35
67+00		3.7	1021.4
T.P.	7.41	1032.07	0.43 1024.66
66+50		7.0	1025.07
66+33			1026.0
66+25		2.8	1029.27
T.P.	12.65	1044.07	0.65 1131.42
66+00		3.9	1040.2
T.P.	12.44	1056.21	0.30 1043.97
T.P.	11.95	1066.75	1.41 1054.80
BM		11.27	1056.48
65+60		14.9	1051.85
65+00		3.7	1063.05
T.P.	10.91	1077.14	0.52 1066.23
64+00		2.7	1074.4
T.P.	12.87	1089.53	0.42 1076.66
63+65		1.4	1089.13
T.P.	3.95	1092.92	0.56 1093.97
63+00		4.1	1088.62

$\frac{26}{10490}$ $\frac{26}{10462}$ $\frac{14}{10450}$ $\frac{18}{10345}$ $\frac{25}{10284}$ $\frac{30}{10237}$ same slope

$\frac{42}{10476}$ $\frac{30}{10400}$ $\frac{16}{10340}$ $\frac{5}{8.1}$ $\frac{5}{14.7}$ $\frac{18}{10150}$ $\frac{25}{10091}$ $\frac{40}{10020}$ level

$\frac{20}{10605}$ $\frac{48}{10485}$ $\frac{26}{10343}$ $\frac{6}{0.6}$ $\frac{10}{7.4}$ $\frac{30}{9.5}$ same slope

$\frac{30}{0.5}$ $\frac{30}{9.1}$

$\frac{30}{0.5}$ $\frac{15}{4.2}$ $\frac{30}{6.7}$

$\frac{30}{3.9}$ $\frac{6}{3.9}$ $\frac{24}{10326}$ $\frac{37}{10270}$ $\frac{50}{10219}$ Bot=60

New BM on NW root 36" Elm on E Sta 65+00
level $\frac{29}{10625}$ $\frac{10}{10595}$ $\frac{3}{17.9}$ $\frac{6}{19.6}$ 1:1 slope

$\frac{22}{-11.1}$ $\frac{25}{-8.1}$ $\frac{8}{1.7}$ $\frac{2}{2.4}$ $\frac{3}{5.9}$ 1:1 slope

$\frac{24}{-11.6}$ $\frac{26}{-9.6}$ $\frac{12}{-4.9}$ $\frac{7}{6.5}$ $\frac{21}{1061.4}$ $\frac{42}{10490}$ $\frac{66}{10384}$ same slope

$\frac{30}{0.5}$ $\frac{14}{1.0}$ $\frac{5}{1.5}$ $\frac{19}{5.1}$ $\frac{30}{7.4}$ same slope

63+50 same as 63

$\frac{30}{2.5}$ $\frac{25}{2.7}$ $\frac{30}{7.5}$

59

109292

62+50		8.9	1084.02
62+00		6.2	1086.7
T.P.	5.72	1097.16	1.48
BM ^{new}		5.52	1091.64 1091.64
61+00		4.4	1092.8
T.P.	3.56	1099.36	1.36
60+50		4.3	1095.06
T.P.	6.00	1094.93	10.43
59+50		7.7	1087.2
T.P.	6.92	1095.75	6.10
58+00		7.0	1088.8
BM ^{#7}		2.09	1093.66
58+80		6.3	1089.5
BM ^{#7}	1.49	1094.90	1093.41
57+10		4.6	1090.3
57+15		5.0	1089.9
57+43			1067.4
57+47			1067.4

$$\frac{30}{3.2} \quad \frac{10}{5.4} \quad \frac{8}{11.8} \quad \text{1:1 slope to 10}$$

$$\frac{30}{3.2} \quad \frac{25}{3.5} \quad \frac{8}{7.3} \quad \frac{30}{10834}$$

spike in foot + 24" 15' in 7' Right of 61+30

$$\frac{30}{3.2} \quad \frac{5}{3.5} \quad \frac{11}{5.9} \quad \frac{30}{8.9}$$

$$\frac{30}{2.1} \quad \frac{20}{6.1} \quad \frac{35}{7.4}$$

$$\text{same slope } \frac{90}{1.0} \quad \frac{26}{1.5} \quad \frac{10}{10.2} \quad \frac{16}{10813} \quad \frac{26}{10745} \quad \frac{51}{10628} \quad \text{same to } 75$$

$$\frac{20}{4.2} \quad \frac{20}{5.0} \quad \frac{7}{8.6} \quad \frac{14}{11.7} \quad \frac{19}{10818} \quad \frac{30}{10768} \quad \frac{20}{10630} \quad \text{54}$$

$$\frac{30}{34} \quad \frac{19}{10890} \quad \frac{43}{10825} \quad \text{54}$$

$$\frac{30}{46} \quad \frac{25}{59} \quad \frac{30}{7.6} \quad \frac{43}{100}$$

same as 57+00 A lower

$$\text{1st up } \frac{25}{10735} \quad \frac{45}{1068.5}$$

same as 57+43

X Section Line C

B.M. #11	-1351	995.07		100358
73+66.8	(74+0.8)	5.3	984.8	
Temp BM		338	986.69	
73+86	(74+20)	13.3	976.8	
74+31	(74+65)	13.0	977.1	
74+36	(74+70)	10.4	979.7	
74+52	(74+86)		997.4	
B.M. #11	483	1008.41		100358
73+31	(33+05)	18.5	989.9	
73+06	(33+40)	1.5	1006.9	

— — $\frac{30}{57}$ $\frac{30}{64}$ 1 to 1 up.

NW 1/4 bottom step 50 feet

$\frac{30}{13.0}$
 $\frac{30}{12.2}$

$\frac{30}{13.3}$
 $\frac{30}{13.3}$

$\frac{30}{17.0}$
 $\frac{30}{1.5}$

$\frac{18}{151}$
 $\frac{30}{9.5}$

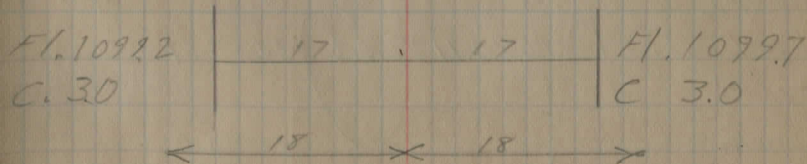
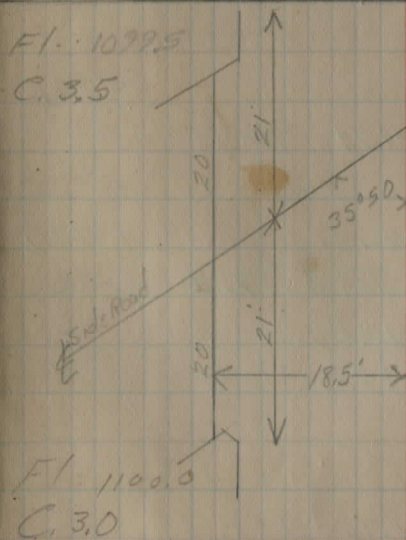
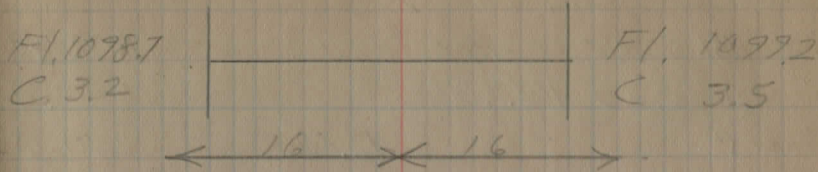
1 to 1 up.

57

No 2	Sta 28+65		9/23/30
BM #4	170	1109.64	1107.94
Flow R	10.44		1099.20
Stake R	10.29	6.79	C 3.5
Flow L	10.94		1098.70
Stake L	11.09	7.89	C 3.25

No 1	Sta 28+20		9/24/30
BM #4	131	1109.25	1107.94
Flow N	9.75		1099.50
Stake N	9.90	6.40	C 3.5
Flow S	9.25		1100.00
Stake S	9.10	6.10	C 3.0

No 3	Sta 36+50		
BM #4	363	1111.57	1107.94
Flow R	11.87		1099.70
Stake R	11.72	8.72	C 3.0
Flow L	12.37		1099.20
Stake L	12.52	9.52	C 3.0



58

9/24/30

No. 4 Sta 44+09

Temp BM Sincor W parapet wall 1079.84
5.25 1085.09

Flow R 13.69 1071.40

Stake R 13.94 11.94 C.20

Flow L 13.39 1071.70

Stake L 13.54 10.84 C.2.7

No. 5 Sta 57+51

BM #7 2.80 1096.21 1093.41

0.76 1086.06 10.91 1085.30

4.48 1077.77 12.77 1073.29

Flow L 3.27 1074.50

Stake L 3.10 2.10 C.10

Flow R 12.77 1065.00

Stake R 13.60 12.10 C.15

BM # 0.25 1055.73 1055.48

T.P. 0.21 1044.10 11.24 1044.49

T.P. 2.86 1036.46 11.10 1033.60

Flow 2 4.16 1032.0

Stake L 4.31 0.31 C.4.0

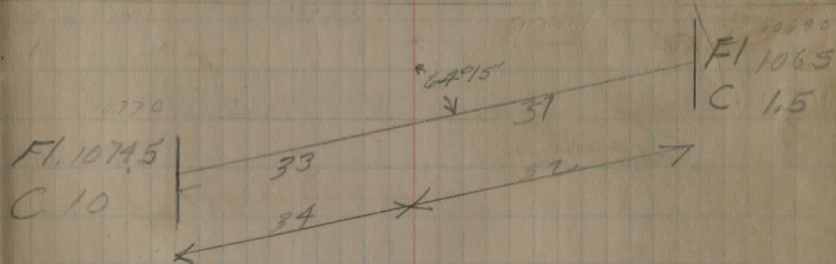
T.P. 1.34 1024.71 13.09 1023.37

Flow R 1.7 1023.0

Stake R 1.86 7.86 F.G.0

Fl. 1071.70 22 22 Fl. 1071.40
C.27 C.20

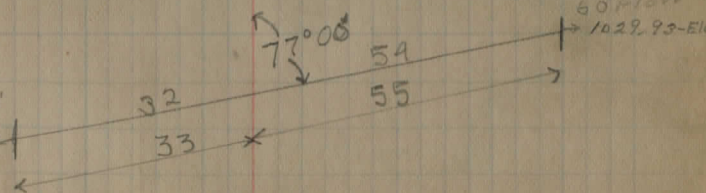
← 2.3 2.3 →



No. 6 Sta 66+33

Fl. 1022.0

Flow 50'
Elev. 1043.57



59

10/2/30

No 8

Sta 81+69

BM #12 6.47 1030.73

1024.26

Flow R 14.93 1015.80

Stake R 13.80 12.30 C.16

Flow L

Stake L

No 7

Sta 71+226

10/29/30

BM #22 7.39 1016.52

1009.13

Flow R 8.02 1008.50

Stake R 9.02 6.02 C.30

Flow L 3.02 1013.50

Stake L 2.02 0.02 C.20

BM #12 1.16 1025.42

1024.26

Footer S. Wall

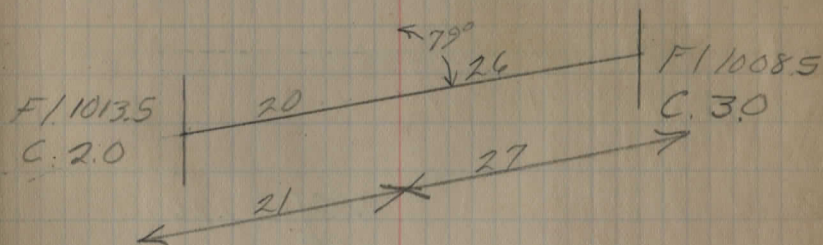
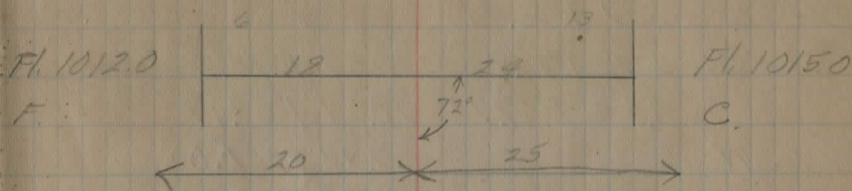
24.2	23.3
6.2	7.0

Top Wall W 1.6

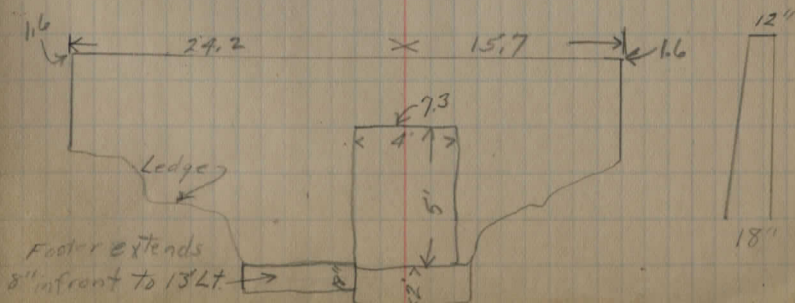
" " E 1.6

Top opening 7.3

$320 \text{ cu ft} = 400 \text{ cu ft}$
 58 foobars
 $458 \text{ cu ft} = 17.0 \text{ cu yds}$



200	17.5	17.5	13.1	13.1	12.5	2.2	2.0	30	30	68	80	90
8.0	8.7	9.5	9.9	11.9	11.9	12.2	12.2	12.2	96	89	77	7.1
								11.0	12.0	15.7		
								6.7	6.9	5.9		



BM#13 4.39 1086.41 1082.02

1.76 1077.78 1089 10760.2

0.82 1067.99 106.1 1067.17

Flow N 7.99 1060.00

Stake N 6.99 3.99 C30

Flow S 11.49 1056.50

Stake S 12.49 8.99 C3.5

BM#13 4.39 1086.41 1082.02

Top Catch Basin W 7.01 1079.00

NW 6.59 C0.4

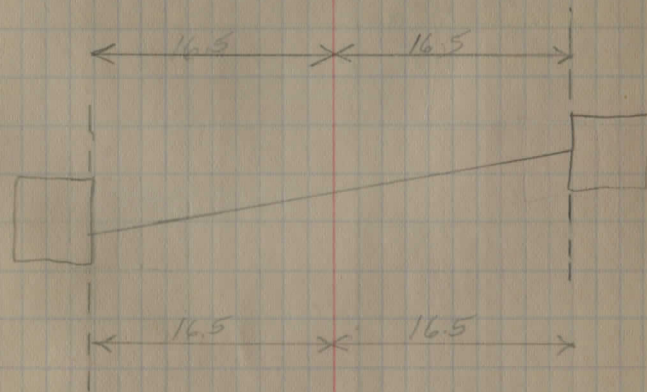
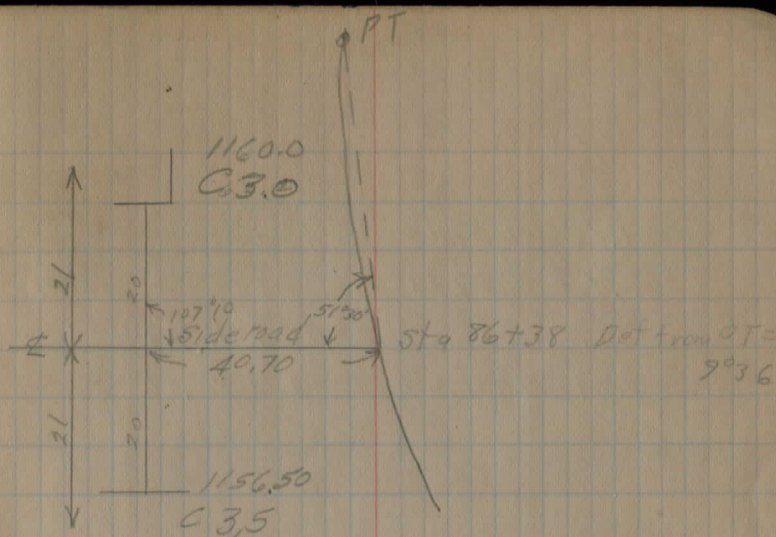
SW 6.99 C0.0

Top catch Basin E 6.53 1079.6

NE 6.23 C0.6

SE 6.63 C0.2

Flow E 9.5 1076.9



Check levels to top dam 700' W of Sta 86+50

N	0.13	1064.13		1064.00
S	5.13	1064.13		1059.00
	4.57	1056.30	12.40	1051.73
	3.24	1051.50	8.04	1048.26
			10.52	1041.00

} culv. & stakes at Sta 86+50

S End of Dam

Elev. of crest of dam = 1041.00

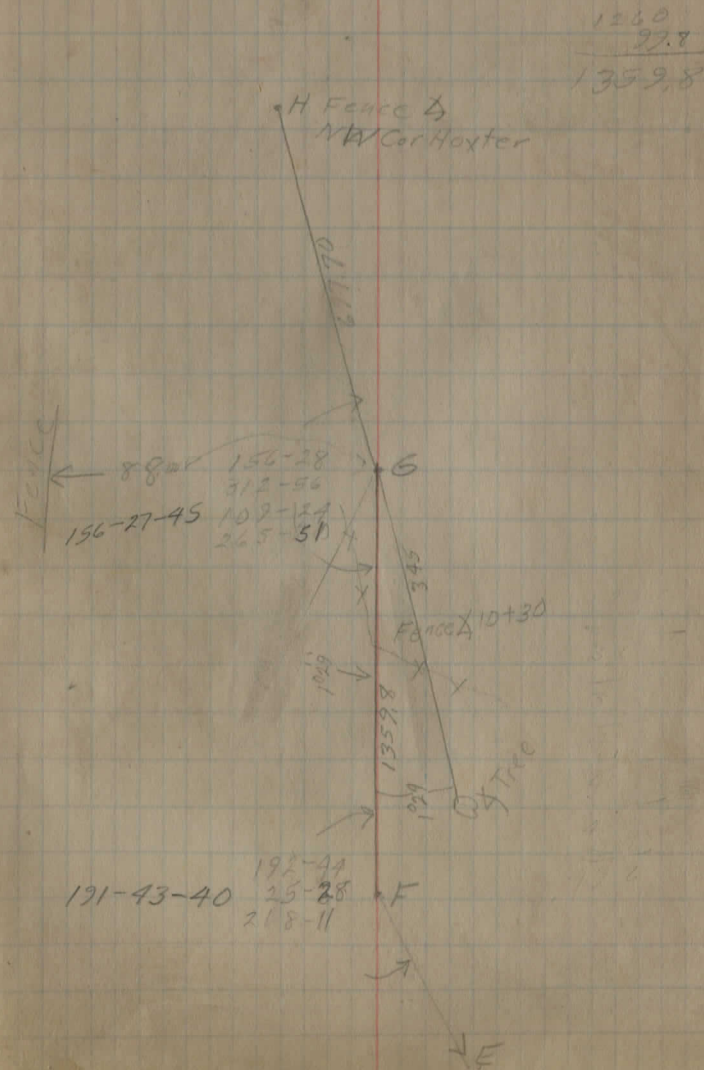
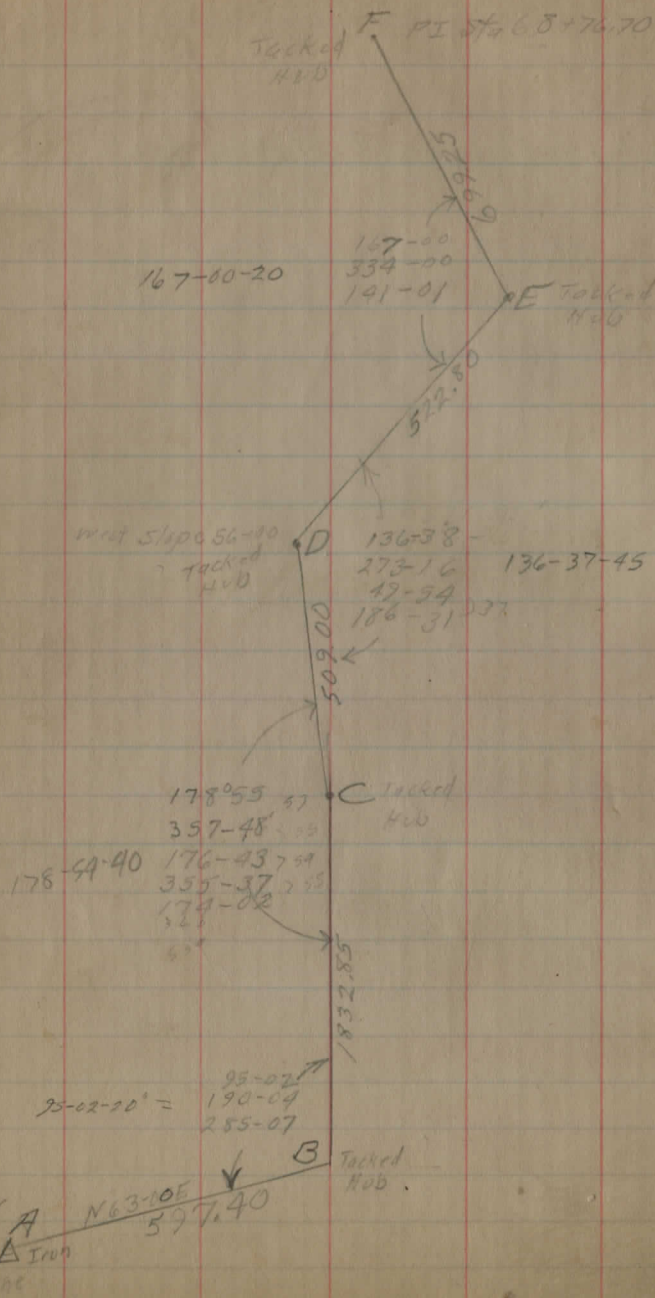
194' contour = = 1035.00

210' contour = 1051.00

839
194
1033.

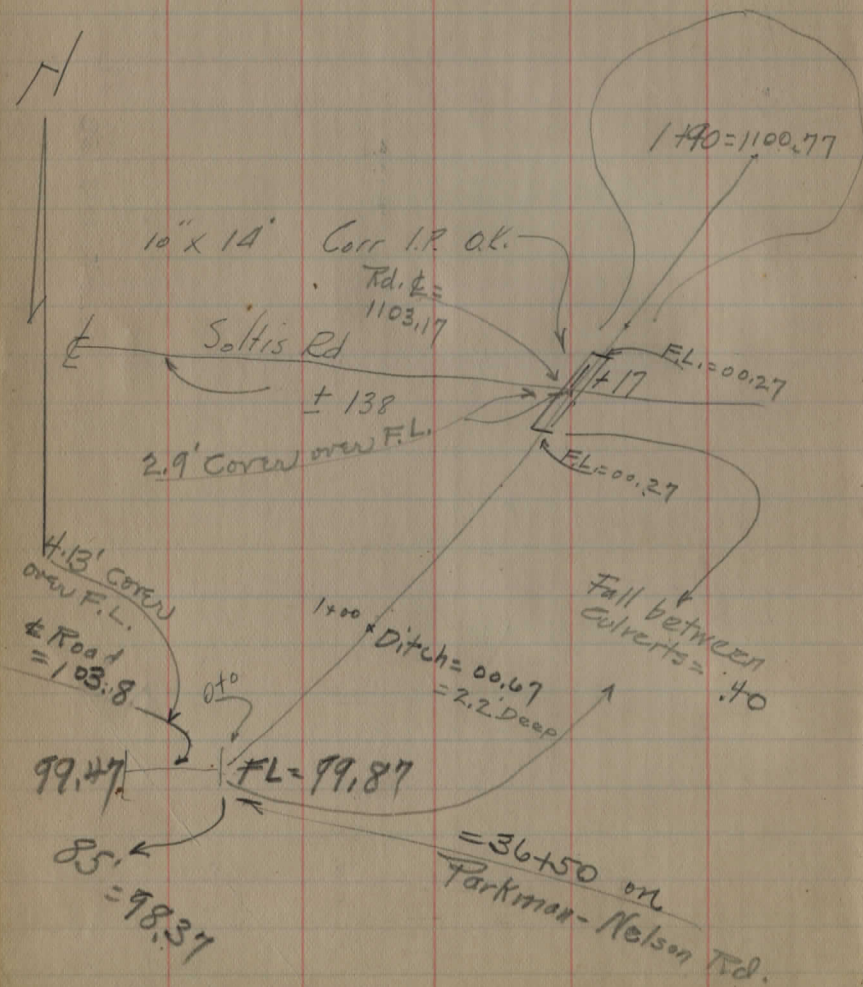
Random Traverse to locate Lot L Northwest of Sec 23 or SW of Sec 18

62



Parkman
& Nelson

Note: Stakes set 4'
H.W. of ditch line.



2-11-41 Pomeroy - Richards

DRAINAGE 1st Cunt. So. of
SOLTIS RD. on PARKMAN-
NELSON RD.

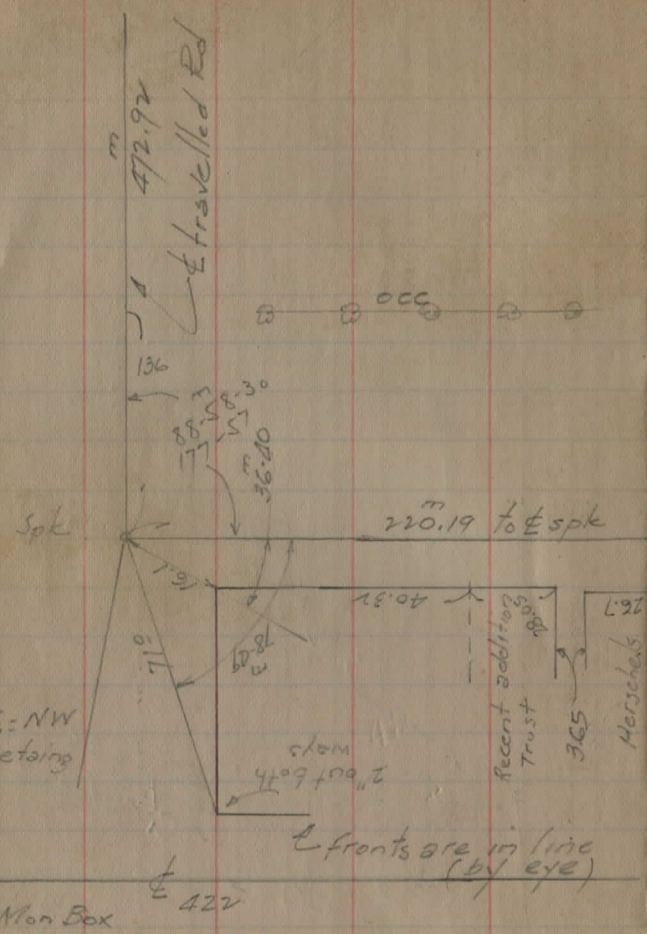
See next pg. For
levels

65

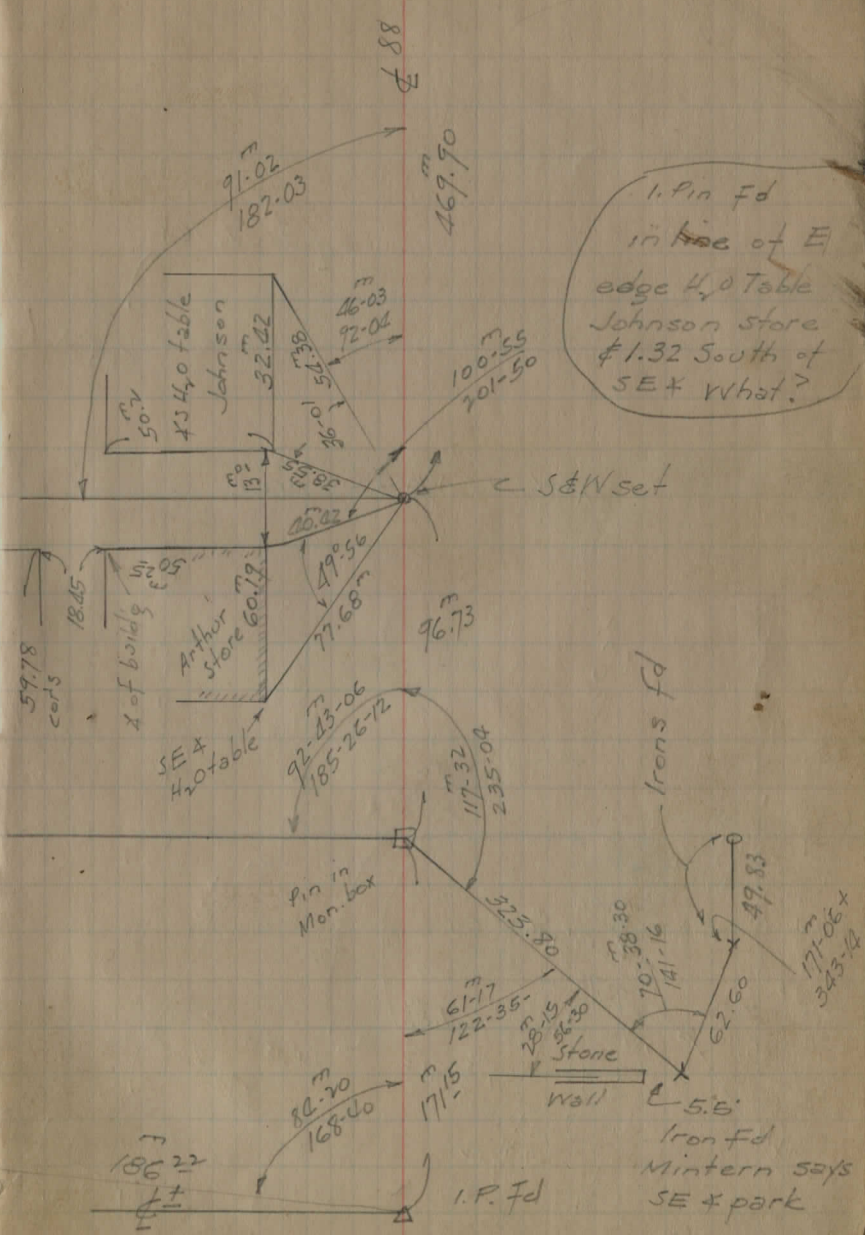
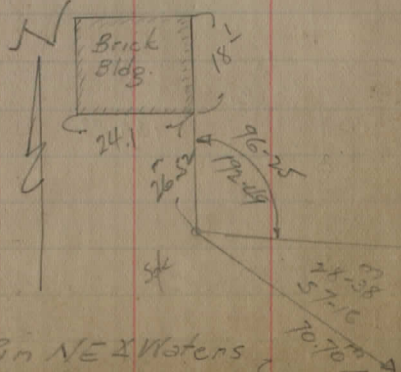
B.M. 4	4.54	1112.48		1107.94
T.P.	7.13	1109.87	9.74	1102.74
F.L. E			10.0	1099.87
FL W-35			10.40	1099.47
0-85			11.5	1098.37
1+0	Gd		7.0	1102.87
"	STK		6.38	1103.49
"	Exist. Ditch		9.2	1100.67
F.L. 5			9.6	1100.27
"	H		9.6	1100.27
1+35	STK		7.0	1102.87
	4' Ditch		9.0	1100.87
1+90	STK		7.44	1102.43
"	Gd		9.1	1100.77
Rd E of Culvert E at 1+17			6.7	1103.17

2-11-41

A.E. & E. H. Parkman Nelson Culvert



PARKMAN ALLEY
June '50



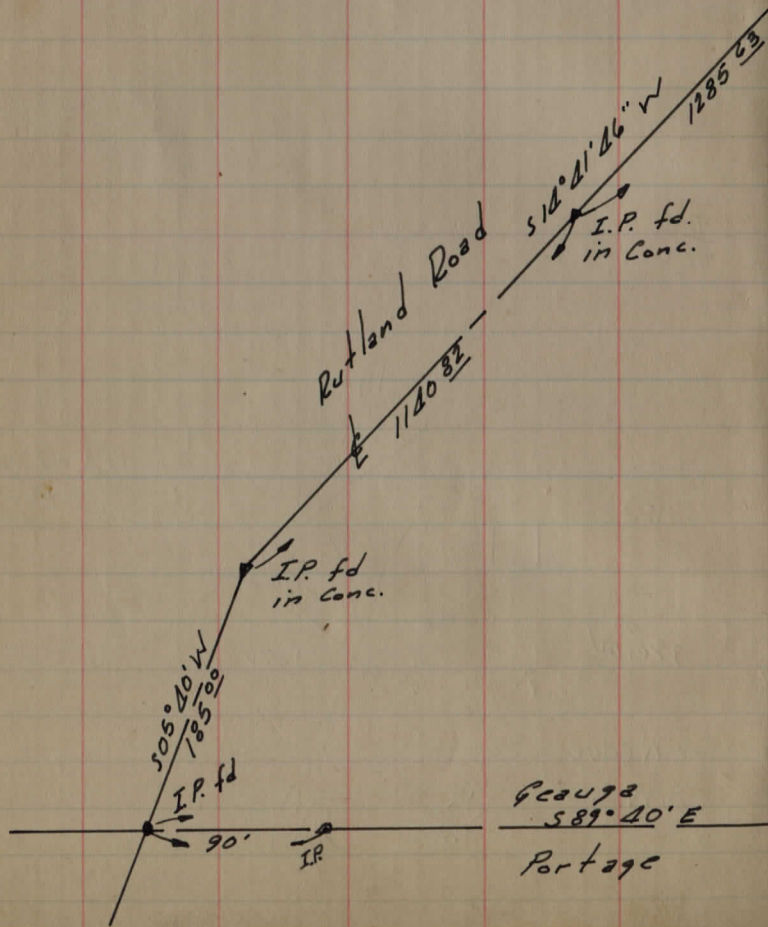
69

observation by Dick Schaft
made Feb. 1965

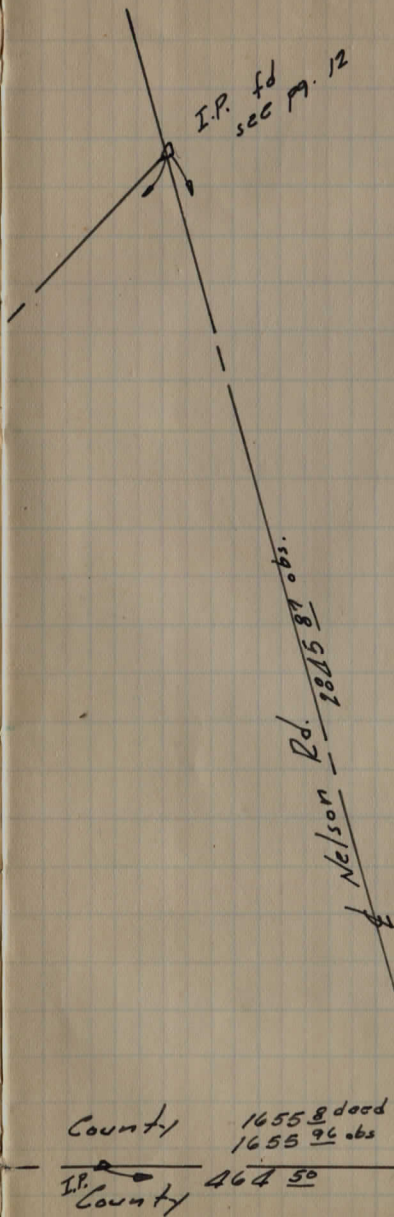
RUTLAND RD TR 217 (AKA PORT CITY PRENTISS)
RD

PER CAROLINE SIMON, PORTAGE CITY TAX MAP

DEPT. 3/5/1816 - ACCEPTED w/ 60' E/W



Georgia
589° 40' E
Portage



County 1655.8 dood
1655.96 obs
I.P. County 464.50

Line C - Prelim levels

BM# 11	12.61	1016.19		1003.58
73+44.8			2.3	1013.9
T.P.	2.79	1018.79	0.19	1016.00
73+00			3.5	1015.3
72+00			8.0	1010.8
T.P.	9.94	1023.36	5.37	1013.42
71+00			3.0	1020.4
T.P.	10.83	1033.12	1.07	1022.29
T.P.	8.39	1039.72	1.79	1031.33
70+00			4.9	1034.8
T.P.	2.48	1035.72	6.48	1033.24
69+00			5.3	1030.4
T.P.	0.38	1027.17	8.93	1026.79
T.P.	5.55	1020.48	12.24	1014.93
68+00			10.8	1009.68
67+00			6.5	1014.0
T.P.	7.67	1023.55	4.60	1015.88
66+00			4.2	1019.35
T.P.	3.14	1021.84	4.85	1018.70
BM			1.74	1020.10

X on NW x South bridge seat

SPINA
Sta 65+50 4" Maple on E.

Line C

Prelim Levels.

BM [#] 7	2.72	1096.19		1093.47
			3.9	1092.3
57+00			6.2	1090.0
T.P.	2.16	1092.34	6.01	1090.18
58+00			8.4	1083.9
T.P.	7.71	1096.10	3.95	1088.39
59+00			11.6	1084.5
T.P.	9.52	1102.09	3.53	1092.57
60+00			8.5	1093.6
T.P.	1.50	1102.98	0.61	1101.48
61+00			2.8	1100.2
62+00			12.0	1091.0
T.P.	4.01	1094.26	12.73	1090.25
63+00			7.3	1086.0
T.P.	6.29	1195.49	5.06	1089.20
64+00			4.8	1090.7
65+00			9.4	1086.2
T.P.	0.53	1085.09	10.93	1084.56
T.P.	5.76	1078.29	12.56	1072.53
BM [#] 9			6.87	1071.42 (1071.45)

Spike in root 15" Hickory 30' L + # Sta 57+00

Spike in root 24" Beech 40' R + # Line B.
Sta 67+54

- Check of B.M. + New B.M. set. -

Oct 6, 1930

Appleton - Grad.

	+	H.I.	-	Ele	
B.M.	12.83	1016.41		1003.58	
T.P.	6.10	1019.47	3.04	1013.37	
New B.M.			10.31	1009.16	1009.16
T.P.	11.72	1030.24	0.95	1018.52	
T.P.	10.90	1040.48	0.66	1029.58	
T.P.	7.67	1047.90	0.25	1040.23	
B.M.#8			0.69	1047.21	check 0.03 1047.18
New B.M.			1.67	1046.23	
T.P.	0.22	1040.08	2.04	1039.86	
	2.71	1030.43	12.36	1028.72	
	12.30	1038.28	9.45	1020.98	
	12.27	1045.02	0.55	1032.73	
New B.M.			3.18	1041.84	
	12.31	1056.64	1.67	1049.33	
			0.15	1055.49	check 0.01 1055.47

X cut on N.W. cor S. Bridge Seat.
 Stone \pm Sta 71+50
 Spike set 7" Black Walnut tree Sta 71+50-5E
 Stone 25' East \pm Sta 70+30
 Stone 15' West \pm Sta 69+75
 Stake set on \pm Sta 69+90
 Spike in Root 42" Maple 60' W. of \pm Sta 69+20
 " " Side 6" Hickory tree 100' W \pm Sta 69+20
 Stake set 10' W. \pm Sta 68+50
 " " 10' " " " 68+0
 Stump on \pm Sta
 Stake set Sta 66+22 25' W
 Spike E. side twin Hickory Tree 4" Sta 66+25-50' W
 Stake set on \pm Sta 65+25

10/6/30

New Check Levels on Line C.

BM # 7	2.77	1096.18		1093.41
	7.13	1102.50	0.81	1095.37
New BM #			0.23	1102.27
Slide 3 + 100				
New B.M.	2.71	1094.15	11.06	1091.44 1091.64
B.M.			12.63	1081.52
	0.16	1081.33	12.99	1081.17
	0.81	1069.48	12.66	1068.67
	2.13	1061.61	10.00	1059.48
new BM			6.40	1055.21 1055.48
	0.95	1049.93	12.63	1048.98
new BM			8.91	1041.52 1041.84
	10.30	1047.40	12.83	1037.10
BM # 8			0.46	1046.94 1047.18

Spike in root 24" Elm 7' Right ± 61430

Spike in root 15" Ash 65' Right ± 63130

Spike in root 36" Elm on ± Sta 65+40

2 spikes twin 4" Hickory 50' Lt ± Sta 66+25

Levels to Flow at Sta 74 to 75

100873

Flow 4.22 100451

-13.5 991.0

Ground Sand 12.5 9785

H₂O Level 14.3 9767

Flow 15.8 9752

Ground Sand 13.0 978.0

74+70

6.4 996.8 0.6 990.4

74+35

H₂O 13.6 9903 9767

74+70

74+35

84+10

-13.3 1003.6 1003.58

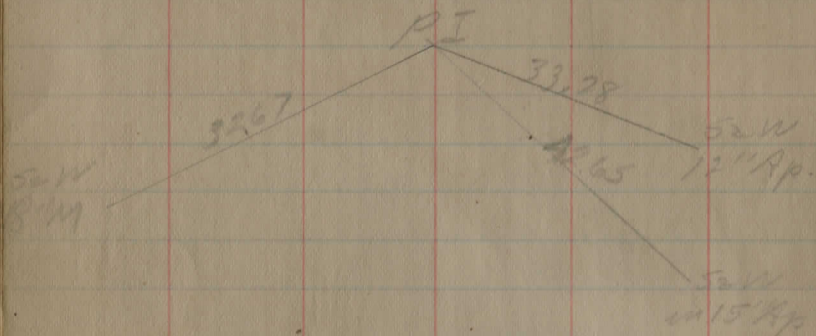
$\frac{40}{4.9} \frac{27}{40}$

$\frac{40}{6.2} \frac{27}{35}$

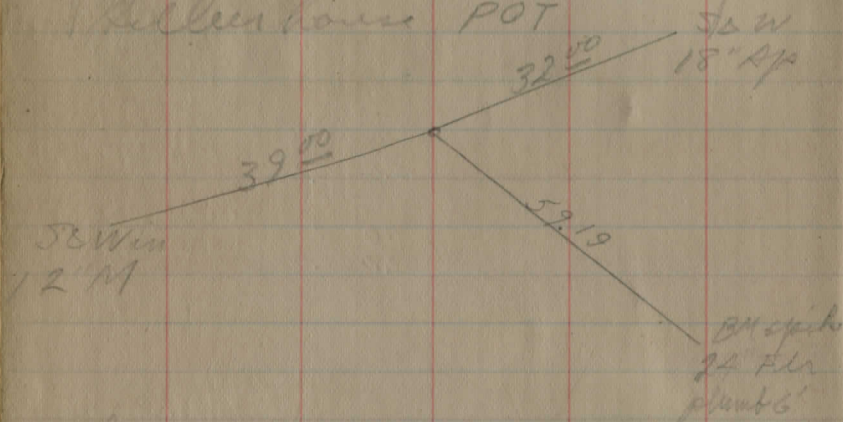
$\frac{27}{2.8} \frac{38}{5.2}$

$\frac{30}{1.0} \frac{45}{2.0}$

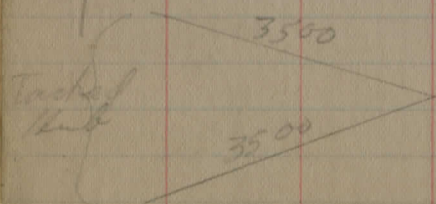
Reference to Iron set 50' N of
Road



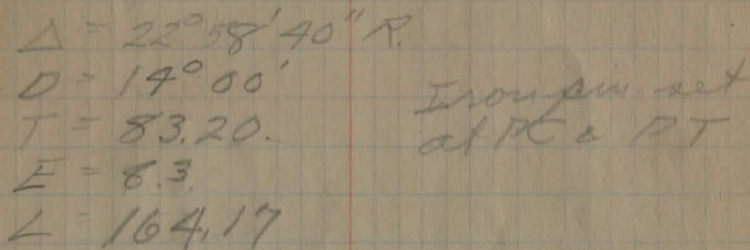
Reference to Iron set 75' N of
Killean house POT



Reference to Iron set 300' N of Funch PI

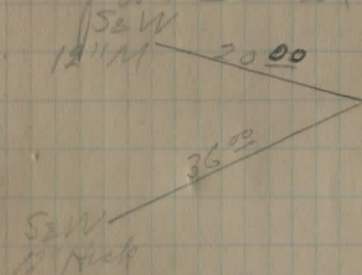


Reference to 100' S of 1st school house

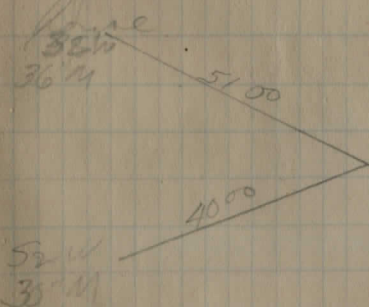


Iron pin set
at PT & PT

Ref to PI iron for above



Reference to POT iron set at Sleevan bog



Plant 6' on both

125.19

30.33

230.23

385.75

125.19

260.56

171.967

7380.23

$$A = 80^{\circ}24'$$

$$D = 10'$$

$$T = 42.08$$

$$E = 1.5$$

$$L = 84.00$$

67+42.00
2780.8

70+20.08
125.12

68.9+8.9
224.78

71+9.67

179.00
118.08
61.52

138.51
127.92
10.59

30.23

Reference to P. 5 iron tip of 16 00

BASPIKE

12 11

25.20

85°50'

175°39'

45.50

SELV

12 11

SELV
10 Poplar

60.70

SELV
8 Poplar

63.50

58 1/2 cherry

29.03

171°36'

343°12'

PI

17.56

SELV
Pout

38.50

75

118.08

35'

270.00

$$\Delta = 61^{\circ}52'$$

$$D = 27'$$

$$T = 127.92$$

$$E = 35.2$$

$$L = 229.13$$

$$\Delta = 40^{\circ}21'$$

$$D = 3^{\circ}00'$$

$$T = 72.53$$

$$E = 1.3$$

$$L =$$

175°39'

351°17'

K2

9/16/29 GHG

Recommended BM Elevation

Elev

BM 1	1152.48
BM 2	1136.64
BM 3	1109.64
BM 4	1107.94
BM 5	1105.01
BM 6	1101.72
BM 7	1093.47
BM 8	1091.81
BM 9	1064.90
BM 10	1033.65
BM 11	1003.58
BM 12	1024.26
BM 13	1082.02

Check Levels 9/16/29

BM	HS	HI	FS	EL
BM 6	3.32	1105.07		1101.75
	0.93	1092.89	13.11	1091.96
	12.41	1092.61	12.69	1080.20
	12.37	1103.73	2.25	1091.36
	4.44	1105.42	2.75	1100.98
BM 5	0.38	1105.42	0.38	1105.04
	1.16	1094.32	12.76	1093.16
	10.01	1092.15	2.18	1082.14
	12.12	1103.92	0.35	1091.30
			2.14	1101.78

BM	HS	HI	FS	EL
BM 13	2.77	1084.82		1082.05
	1.11	1075.74	10.19	1074.63
	0.91	1064.49	12.16	1063.58
	1.28	1053.25	12.52	1051.97
	0.49	1041.42	12.32	1040.93
	1.50	1032.53	10.39	1031.03
			8.25	1024.28

84.04
136
220.04

DIRECTIONS FOR USE OF TABLES

TABLE No. 1

Distance of slope stake from side or shoulder stake for any width roadway, slope 1% to 1%. If ground is nearly level the cut or fill at side stake is located by the double entry method in left column and top row. The number in boldface is the distance from side stake to slope stake. If ground is not

IMPROVED TABLES

AND

INFORMATION

TABLE No. 2

To find Tangent and External for curve of any other degree, divide by sine of curve and add correction found in column of correction. Degree of curve with a given L may be found in column of L , (or external), opposite L by given tangent (or external). The distance from a point on the tangent to the curve is very nearly the square of the tangent length divided by twice the radius.

DIRECTIONS FOR USE OF TABLES

TABLE No. 1.

Distance of slope stake from side or shoulder stake for any width roadway, slope $1\frac{1}{2}$ to 1. If ground is nearly level, the cut or fill at side stake is located by the double entry method in left column and top row. The number in body of table in same row and column gives distance from side stake to slope stake. If ground is not level estimate the difference in elevation between the side stake and slope stake, lower target by this amount if cut, elevate if fill. Add this amount to cut or fill and find distance in table. Set up rod at this point, and line of sight should cut target. If it does not make the slight adjustment necessary.

TABLE No. 9.

To find Tangent and External for curve of any other degree, divide by degree of curve and add correction found in column of corrections.

Degree of curve with a given I may be found by dividing tangent, (or external), opposite I by given tangent, (or external).

The distance from a point on the tangent to the curve is very nearly the square of the tangent length divided by twice the radius.

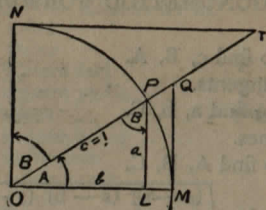


TABLE II
TRIGONOMETRIC FORMULÆ.

$$\begin{aligned} \angle A &= \angle MOP & \angle B &= \angle PON = \angle OPL \\ R &= OB = c = 1 \\ \sin A &= \frac{a}{c} = \frac{a}{1} = a = \cos B = LP \\ \cos A &= \frac{b}{c} = \frac{b}{1} = b = \sin B = OL \\ \tan A &= \frac{a}{b} = \frac{MQ}{OM} = \frac{MQ}{1} = MQ = \cot B = MQ \\ \cot A &= \frac{NT}{ON} = \frac{NT}{1} = NT = \tan B = NT \\ \sec A &= \frac{OQ}{OM} = \frac{OQ}{1} = OQ = \csc B = OQ \\ \csc A &= \frac{OT}{ON} = \frac{OT}{1} = OT = \sec B = OT \\ \text{vers } A &= \frac{LM}{OP} = LM = \text{covers } B \# \\ \text{covers } A &= \frac{OP - LP}{OP} = OP - LP = \text{vers } B \\ \text{exsec } A &= PQ = \text{coexsec } B \\ \text{coexsec } A &= PT = \text{exsec } B \\ \sin \frac{1}{2} A &= \sqrt{\frac{1 - \cos A}{2}} & \cos \frac{1}{2} A &= \sqrt{\frac{1 + \cos A}{2}} \\ \sin 2A &= 2 \sin A \cos A & \cos 2A &= \cos^2 A - \sin^2 A \\ \text{Law of Sines} & \frac{\sin A}{a} = \frac{\sin B}{B} = \frac{\sin C}{C} \\ \text{Law of Cosines} & c^2 = a^2 + b^2 - 2ab \cos C \\ \text{Law of Tangents} & \frac{a+b}{a-b} = \frac{\tan \frac{1}{2}(A+B)}{\tan \frac{1}{2}(A-B)} \end{aligned}$$

252.00
30.40

TABLE VI (continued)
SINES, COSINES, TANGENTS, COTANGENTS (continued)

deg.	sin 0'	tan 0'	sin 10'	tan 10'	sin 20'	tan 20'	sin 30'	tan 30'	sin 40'	tan 40'	sin 50'	tan 50'	deg.
46	7193	1.0355	7214	1.0416	7234	1.0477	7254	1.0533	7274	1.0599	7294	1.0661	43
47	314	.0724	333	.0786	353	.0850	373	.0913	392	.0977	412	.1041	42
48	431	.1106	451	.1171	470	.1237	490	.1303	509	.1369	528	.1436	41
49	547	.1504	566	.1571	585	.1640	604	.1708	623	.1778	642	.1847	40
50	660	1.1918	7679	1.1988	7698	1.2059	7716	1.2131	7735	1.2203	7753	1.2276	39
51	771	2349	790	.2423	808	.2497	826	.2572	844	.2647	862	.2723	38
52	880	2799	898	.2876	916	.2954	934	.3032	951	.3111	969	.3190	37
53	986	3270	8004	.3351	8021	.3452	8039	.3514	8056	.3597	8073	.3680	36
54	8090	3764	107	.3848	124	.3934	141	.4019	158	.4106	175	.4193	35
55	192	4281	208	.4370	225	.4460	241	.4550	258	.4641	274	.4733	34
56	290	4826	307	.4919	323	.5013	339	.5108	355	.5204	371	.5301	33
57	387	5399	403	.5497	418	.5597	434	.5697	450	.5798	465	.5900	32
58	480	6003	496	.6107	511	.6212	526	.6319	542	.6426	557	.6534	31
59	572	6643	587	.6753	601	.6864	615	.6977	631	.7090	646	.7205	30
60	660	1.7321	8675	1.7437	8689	1.7556	8704	1.7675	8718	1.7797	8732	1.7917	29
61	746	.8040	760	.8165	774	.8291	788	.8418	802	.8546	816	.8676	28
62	829	.8807	843	.8940	857	.9074	870	.9210	884	.9347	897	.9486	27
63	910	.9626	923	.9768	936	.9912	949	2.0057	962	2.0204	975	2.0353	26
64	988	2.0503	9001	2.0655	9013	2.0809	9026	.0965	9038	.1123	9051	.1283	25
65	9063	.1445	075	.1609	088	.1775	100	.1943	112	.2113	124	.2286	24
66	135	.2460	147	.2637	159	.2817	171	.2998	182	.3183	194	.3369	23
67	205	.3559	216	.3750	228	.3945	239	.4142	250	.4342	261	.4545	22
68	272	.4751	283	.4960	293	.5172	304	.5386	315	.5605	325	.5826	21
69	336	.6051	346	.6279	356	.6511	367	.6746	377	.6985	387	.7228	20
70	397	2.7475	9407	2.7725	9417	2.7980	9426	2.8239	9436	2.8502	9446	2.8770	19
71	455	.9042	465	.9319	474	.9600	483	.9887	492	3.0178	502	3.0475	18
72	511	3.0777	520	3.1084	528	3.1397	537	3.1716	546	.2041	555	.2371	17
73	563	.2709	572	.3052	580	.3402	588	.3759	596	.4124	605	.4495	16
74	613	.4874	621	.5261	628	.5656	636	.6059	644	.6470	652	.6891	15
75	659	.7321	667	.7760	674	.8208	681	.8657	689	.9136	696	.9617	14
76	703	4.0108	710	4.0611	717	4.1126	724	4.1653	730	4.2193	737	4.2743	13
77	744	.3315	750	.3897	757	.4494	763	.5107	769	.5736	775	.6382	12
78	781	.7046	787	.7729	793	.8430	799	.9152	805	.9894	811	5.0658	11
79	816	.1446	822	5.2257	827	5.3093	833	5.3955	838	5.4845	843	.5764	10
80	9848	5.6713	9853	5.7694	9858	5.8708	9863	5.9758	9868	6.0844	9872	6.1970	9
81	877	.63138	881	6.4348	886	6.5606	890	6.6912	894	.8269	899	.9682	8
82	903	7.1154	907	7.2687	911	7.4287	914	7.5958	918	7.7704	922	7.9530	7
83	925	8.1443	929	8.3450	932	8.5555	936	8.7769	939	9.0098	942	9.2553	6
84	945	9.5144	948	9.7882	951	10.078	954	10.385	957	10.711	959	11.059	5
85	962	11.4300	964	11.826	967	12.250	969	12.706	971	13.197	974	13.727	4
86	976	14.300	978	14.924	980	15.605	981	16.350	983	17.169	985	18.075	3
87	986	19.081	988	20.206	989	21.470	990	22.903	992	24.542	993	26.432	2
88	994	28.636	995	31.242	996	34.368	997	38.189	997	42.964	998	49.104	1
89	998	57.290	999	68.750	999	85.940	999	114.58	1.000	171.88	1.000	343.77	0
deg.	60'	60'	50'	50'	40'	40'	30'	30'	20'	30'	10'	10'	deg.
cos	cot	cos	cot	cos	cot	cos	cot	cos	cot	cos	cot	cos	cot

TABLE VII
RODS IN FEET AND INCHES

Rods	Feet Inches	Rods	Feet Inches	Rods	Feet Inches	Rods	Feet Inches	Rods	Feet Inches
1	16-6	21	346-6	41	676-6	61	1006-6	81	1336-6
2	33-0	22	363-0	42	693-0	62	1023-0	82	1353-0
3	49-6	23	379-6	43	709-6	63	1039-6	83	1369-6
4	66-0	24	396-0	44	726-0	64	1056-0	84	1386-0
5	82-6	25	412-6	45	742-6	65	1072-6	85	1402-6
6	99-0	26	429-0	46	759-0	66	1089-0	86	1419-0
7	115-6	27	445-6	47	775-6	67	1105-6	87	1435-6
8	132-0	28	462-0	48	792-0	68	1122-0	88	1452-0
9	148-6	29	478-6	49	808-6	69	1138-6	89	1468-6
10	165-0	30	495-0	50	825-0	70	1155-0	90	1485-0
11	181-6	31	511-6	51	841-6	71	1171-6	91	1501-6
12	198-0	32	528-0	52	858-0	72	1188-0	92	1518-0
13	214-6	33	544-6	53	874-6	73	1204-6	93	1534-6
14	231-0	34	561-0	54	891-0	74	1221-0	94	1551-0
15	247-6	35	577-6	55	907-6	75	1237-6	95	1567-6
16	264-0	36	594-0	56	924-0	76	1254-0	96	1584-0
17	280-6	37	610-6	57	940-6	77	1270-6	97	1600-6
18	297-0	38	627-0	58	957-0	78	1287-0	98	1617-0
19	313-6	39	643-6	59	973-6	79	1303-6	99	1633-6
20	330-0	40	660-0	60	990-0	80	1320-0	100	1650-0

TABLE VIII
LINKS IN FEET AND INCHES

Links	Feet Inches	Links	Feet Inches	Links	Feet Inches	Links	Feet Inches	Links	Feet Inches	Links	Feet Inches
1	0-7.92	18	11-10.56	35	23-1.20	52	34-3.84	69	45-6.48	86	56-9.12
2	1-3.84	19	12-6.48	36	23-9.12	53	34-11.76	70	46-2.40	87	57-5.04
3	1-11.76	20	13-2.40	37	24-5.04	54	35-7.68	71	46-10.32	88	58-0.96
4	2-7.68	21	13-10.32	38	25-0.96	55	36-3.60	72	47-6.24	89	58-8.88
5	3-3.60	22	14-6.24	39	25-8.88	56	36-11.52	73	48-2.16	90	59-4.80
6	3-11.52	23	15-2.16	40	26-4.80	57	37-7.44	74	48-10.08	91	60-0.72
7	4-7.44	24	15-10.08	41	27-0.72	58	38-3.36	75	49-6.00	92	60-8.64
8	5-3.36	25	16-6.00	42	27-8.64	59	38-11.28	76	50-1.92	93	61-4.56
9	5-11.28	26	17-1.92	43	28-4.56	60	39-7.20	77	50-9.84	94	62-0.48
10	6-7.20	27	17-9.84	44	29-0.48	61	40-3.12	78	51-5.76	95	62-8.40
11	7-3.12	28	18-5.76	45	29-8.40	62	40-11.04	79	52-1.68	96	63-4.32
12	7-11.04	29	19-1.68	46	30-4.32	63	41-6.96	80	52-9.60	97	64-0.24
13	8-6.96	30	19-9.60	47	31-0.24	64	42-2.88	81	53-5.52	98	64-8.16
14	9-2.88	31	20-5.52	48	31-8.16	65	42-10.80	82	54-1.44	99	65-4.08
15	9-10.80	32	21-1.44	49	32-4.08	66	43-6.72	83	54-9.36	100	66-0.00
16	10-6.72	33	21-9.36	50	33-0.00	67	44-2.64	84	55-5.28	101	66-7.92
17	11-2.64	34	22-5.28	51	33-7.92	68	44-10.56	85	56-1.20	102	67-3.84

30.49
9842 30.000
29.526
47400
39368
80320

TABLE IX. TANGENTS AND EXTERNALS TO A 1° CURVE

I	T	E	I=10°	I	T	E	I=20°	I	T	E	I=30°
1°	50.00	.218	+	11°	551.70	26.500	+	21°	1061.9	97.577	+
10'	58.34	.297	5° C.	10'	560.11	27.313	5° C.	10'	1070.6	99.155	5° C.
20'	66.67	.388	T	20'	568.53	28.137	T	20'	1079.2	100.75	T
30'	75.01	.491	T	30'	576.95	28.974	T	30'	1087.8	102.35	T
40'	83.34	.606	.03	40'	585.36	29.824	.06	40'	1096.4	103.97	.10
50'	91.68	.733	E	50'	593.79	30.686	E	50'	1105.1	105.60	E
2°	100.01	.873	.001	12°	602.21	31.561	.006	22°	1113.7	107.24	.013
10'	108.35	1.024		10'	610.64	32.447		10'	1122.4	108.90	
20'	116.68	1.188		20'	619.07	33.347		20'	1131.0	110.57	
30'	125.02	1.364		30'	627.50	34.259		30'	1139.7	112.25	
40'	133.36	1.552		40'	635.93	35.183		40'	1148.4	113.95	
50'	141.70	1.752		50'	644.37	36.120		50'	1157.0	115.66	
3°	150.04	1.964	10° C.	13°	652.81	37.070	10° C.	23°	1165.7	117.38	10° C.
10'	158.38	2.188	T	10'	661.25	38.031	T	10'	1174.4	119.12	T
20'	166.72	2.425	.06	20'	669.70	39.006	.13	20'	1183.1	120.87	.19
30'	175.06	2.674	E	30'	678.15	39.993	E	30'	1191.8	122.63	E
40'	183.40	2.934	.003	40'	686.60	40.992	.011	40'	1200.5	124.41	.025
50'	191.74	3.207		50'	695.06	42.004		50'	1209.2	126.20	
4°	200.08	3.492		14°	703.51	43.029		24°	1217.9	128.00	
10'	208.43	3.790		10'	711.97	44.066		10'	1226.6	129.82	
20'	216.77	4.099		20'	720.44	45.116		20'	1235.3	131.65	
30'	225.12	4.421		30'	728.90	46.178		30'	1244.0	133.50	
40'	233.47	4.755		40'	737.37	47.253		40'	1252.8	135.35	
50'	241.81	5.100	15° C.	50'	745.85	48.341	15° C.	50'	1261.5	137.23	15° C.
5°	250.16	5.459	T	15°	754.32	49.441	T	25°	1270.2	139.11	T
10'	258.51	5.829	.09	10'	762.80	50.554	.19	10'	1279.0	141.01	.29
20'	266.86	6.211	E	20'	771.29	51.679	E	20'	1287.7	142.93	E
30'	275.21	6.606	.004	30'	779.77	52.818	.017	30'	1296.5	144.85	.038
40'	283.57	7.013		40'	788.26	53.969		40'	1305.3	146.79	
50'	291.92	7.432		50'	796.75	55.132		50'	1314.0	148.75	
6°	300.28	7.863		16°	805.25	56.309		26°	1322.8	150.71	
10'	308.64	8.307		10'	813.75	57.498		10'	1331.6	152.69	
20'	316.99	8.762		20'	822.25	58.699		20'	1340.4	154.69	
30'	325.35	9.230		30'	830.76	59.914		30'	1349.2	156.70	
40'	333.71	9.710	20° C.	40'	839.27	61.141	20° C.	40'	1358.0	158.72	20° C.
50'	342.08	10.202	T	50'	847.78	62.381	T	50'	1366.8	160.76	T
7°	350.44	10.707	.13	17°	856.30	63.634	.26	27°	1375.6	162.81	.39
10'	358.81	11.224	E	10'	864.82	64.900	E	10'	1384.4	164.86	E
20'	367.17	11.753	.006	20'	873.35	66.178	.022	20'	1393.2	166.95	.051
30'	375.54	12.294		30'	881.88	67.470		30'	1402.0	169.04	
40'	383.91	12.847		40'	890.41	68.774		40'	1410.9	171.15	
50'	392.28	13.413		50'	898.95	70.091		50'	1419.7	173.27	
8°	400.66	13.991		18°	907.49	71.421		28°	1428.6	175.41	
10'	409.03	14.582	25° C.	10'	916.03	72.764	25° C.	10'	1437.4	177.55	25° C.
20'	417.41	15.184	T	20'	924.58	74.119	T	20'	1446.3	179.72	T
30'	425.79	15.799	.16	30'	933.13	75.488	.32	30'	1455.1	181.89	.49
40'	434.17	16.426	E	40'	941.69	76.869	E	40'	1464.0	184.08	E
50'	442.55	17.065		50'	950.25	78.264		50'	1472.9	186.29	
9°	450.93	17.717	.007	19°	958.81	79.671	.028	29°	1481.8	188.51	.065
10'	459.32	18.381		10'	967.38	81.092		10'	1490.7	190.74	
20'	467.71	19.058		20'	975.96	82.525		20'	1499.6	192.99	
30'	476.10	19.746		30'	984.53	83.972		30'	1508.5	195.25	
40'	484.49	20.447		40'	993.12	85.431		40'	1517.4	197.53	
50'	492.88	21.161		50'	1001.7	86.904		50'	1526.3	199.82	
10°	501.28	21.887	30° C.	20°	1010.3	88.389	30° C.	30°	1535.3	202.12	30° C.
10'	509.68	22.624	T	10'	1018.9	89.888	T	10'	1544.2	204.44	T
20'	518.08	23.375	.19	20'	1027.5	91.399	.39	20'	1553.1	206.77	.59
30'	526.48	24.138	E	30'	1036.1	92.924	E	30'	1562.1	209.12	E
40'	534.89	24.913	.008	40'	1044.7	94.462	.034	40'	1571.0	211.48	.078
50'	543.29	25.700		50'	1053.3	96.013		50'	1580.0	213.86	

T = R tan ½ I

E = R exsec ½ I

TABLE IX. TANGENTS AND EXTERNALS TO A 1° CURVE

I	T	E	I=40°	I	T	E	I=50°	I	T	E	I=60°
31°	1589.0	216.3	+	41°	2142.2	387.4	+	51°	2732.9	618.4	+
10'	1598.0	218.1	5° C.	10'	2151.7	390.7	5° C.	10'	2743.1	622.8	5° C.
20'	1606.9	221.7	T	20'	2161.2	394.1	T	20'	2753.4	627.2	T
30'	1615.9	223.5	.13	30'	2170.8	397.4	.17	30'	2763.7	631.7	.21
40'	1624.9	226.0	E	40'	2180.3	400.8	E	40'	2773.9	636.2	E
50'	1633.9	228.4	.023	50'	2189.9	404.2	.037	50'	2784.2	640.7	.056
32°	1643.0	230.9	10° C.	42°	2199.4	407.6	10° C.	52°	2794.0	645.2	10° C.
10'	1652.0	233.4	T	10'	2209.0	411.1	T	10'	2804.9	649.7	T
20'	1661.0	235.9	.34	20'	2218.6	414.5	.34	20'	2815.2	654.3	.42
30'	1670.0	238.4	E	30'	2228.1	418.0	E	30'	2825.6	658.8	E
40'	1679.1	241.0	.075	40'	2237.7	421.4	.075	40'	2835.9	663.4	.112
50'	1688.1	243.5		50'	2247.3	425.0		50'	2846.3	668.0	
33°	1697.2	246.1	10° C.	43°	2257.0	428.5	10° C.	53°	2856.7	672.7	10° C.
10'	1706.3	248.7	T	10'	2266.6	432.0	T	10'	2867.1	677.3	T
20'	1715.3	251.3	.26	20'	2276.2	435.6	.26	20'	2877.5	682.0	.26
30'	1724.4	253.9	E	30'	2285.9	439.2	E	30'	2888.0	686.7	E
40'	1733.5	256.5	.046	40'	2295.6	442.8	.046	40'	2898.4	691.4	.046
50'	1742.6	259.1		50'	2305.2	446.4		50'	2908.9	696.1	.112
34°	1751.7	261.8	15° C.	44°	2314.9	450.0	15° C.	54°	2919.4	700.9	15° C.
10'	1760.8	264.5	T	10'	2324.6	453.6	T	10'	2929.9	705.7	T
20'	1770.0	267.2	.51	20'	2334.3	457.3	.51	20'	2940.4	710.5	.51
30'	1779.1	269.9	E	30'	2344.1	461.0	E	30'	2951.0	715.3	E
40'	1788.2	272.6	.116	40'	2353.8	464.6	.116	40'	2961.5	720.1	.116
50'	1797.4	275.3		50'	2363.5	468.4		50'	2972.1	725.0	
35°	1806.6	278.1	20° C.	45°	2373.3	472.1	20° C.	55°	2982.7	729.9	20° C.
10'	1815.7	280.8	T	10'	2383.1	475.8	T	10'	2993.3	734.8	T
20'	1824.9	283.6	.68	20'	2392.8	479.6	.68	20'	3003.9	739.7	.68
30'	1834.1	286.4	E	30'	2402.6	483.4	E	30'	3014.5	744.6	E
40'	1843.3	289.2	.164	40'	2412.4	487.2	.164	40'	3025.2	749.6	.164
50'	1852.5	292.0		50'	2422.3	491.0		50'	3035.8	754.6	
36°	1861.7	294.9	25° C.	46°	2432.1	494.8	25° C.	56°	3046.5	759.6	25° C.
10'	1870.9	297.7	T	10'	2441.9	498.7	T	10'	3057.2	764.6	T
20'	1880.1	300.6	.84	20'	2451.8	502.5	.84	20'	3067.9	769.7	.84
30'	1889.4	303.5	E	30'	2461.7	506.4	E	30'	3078.7	774.7	E
40'	1898.6	306.4	.228	40'	2471.5	510.3	.228	40'	3089.4	779.8	.228
50'	1907.9	309.3		50'	2481.4	514.3		50'	3100.2	784.9	
37°	1917.1	312.2	30° C.	47°	2491.3	518.2	30° C.	57°	3110.9	790.1	30° C.
10'	1926.4	315.2	T	10'	2501.2	522.2	T	10'	3121.7	795.2	T
20'	1935.7	318.1	.53	20'	2511.2	526.1	.53	20'	3132.6	800.4	.53
30'	1945.0	321.1	.151	30'	2521.1	530.1	.151	30'	3143.4	805.6	.151
40'	1954.3	324.1	E	40'	2531.1	534.2	E	40'	3154.2	810.9	E
50'	1963.6	327.1	.189	50'	2541.0	538.2	.189	50'	3165.1	816.1	.189
38°	1972.9	330.2	35° C.	48°	2551.0	542.2	35° C.	58°	3176.0	821.4	35° C.
10'	1982.2	333.2	T	10'	2561.0	546.3	T	10'	3186.9	826.7	T
20'	1991.5	336.3	.85	20'	2571.0	550.4	.85	20'	3197.8	832.0	.85
30'	2000.9	339.3	E	30'	2581.0	554.5	E	30'	3208.8	837.3	E
40'	2010.2	342.4	.283	40'	2591.0	558.6	.283	40'	3219.7	842.7	.283
50'	2019.6	345.5		50'	2601.1	562.8		50'	3230.7	848.1	
39°	2029.0	348.6	40° C.	49°	2611.2	566.9	40° C.	59°	3241.7	853.5	40° C.
10'	2038.4	351									

TABLE IX. TANGENTS AND EXTERNALS TO A 1° CURVE

I	T	E	I=70°	I	T	E	I=80°	I	T	E	I=90°
61°	3375.0	920.2	+	71°	4086.9	1308.2	+	81°	4893.6	1805.3	+
10'	3386.3	925.9		10'	4099.5	1315.6		10'	4908.0	1814.7	
20'	3397.5	931.6	5° C.	20'	4112.1	1322.9	5° C.	20'	4922.5	1824.1	5° C.
30'	3408.8	937.3	T	30'	4124.8	1330.3	T	30'	4937.0	1833.6	T
40'	3420.1	943.1	.25	40'	4137.4	1337.7	.30	40'	4951.5	1843.1	.36
50'	3431.4	948.9	E	50'	4150.1	1345.1	E	50'	4966.1	1852.6	E
62°	3442.7	954.8	.080	72°	4162.8	1352.6	.110	82°	4980.7	1862.2	.149
10'	3454.1	960.6		10'	4175.6	1360.1		10'	4995.4	1871.8	
20'	3465.4	966.5		20'	4188.5	1367.6		20'	5010.0	1881.5	
30'	3476.8	972.4		30'	4201.2	1375.2		30'	5024.8	1891.2	
40'	3488.3	978.3		40'	4214.0	1382.8		40'	5039.5	1900.9	
50'	3499.7	984.3		50'	4226.8	1390.4		50'	5054.3	1910.7	
63°	3511.1	990.2	10° C.	73°	4239.7	1398.0	10° C.	83°	5069.2	1920.5	10° C.
10'	3522.6	996.2	T	10'	4252.6	1405.7	T	10'	5084.0	1930.4	T
20'	3534.1	1002.3	.51	20'	4265.6	1413.5	.61	20'	5099.0	1940.3	.72
30'	3545.6	1008.3	E	30'	4278.5	1421.2	E	30'	5113.9	1950.3	E
40'	3557.2	1014.4	.159	40'	4291.5	1429.0	.220	40'	5128.9	1960.2	.299
50'	3568.7	1020.5		50'	4304.6	1436.8		50'	5143.9	1970.3	
64°	3580.3	1026.6		74°	4317.6	1444.6		84°	5159.0	1980.4	
10'	3591.9	1032.8		10'	4330.7	1452.5		10'	5174.1	1990.5	
20'	3603.5	1039.0		20'	4343.8	1460.4		20'	5189.3	2000.6	
30'	3615.1	1045.2		30'	4356.9	1468.4		30'	5204.4	2010.8	
40'	3626.8	1051.4		40'	4370.1	1476.4		40'	5219.7	2021.1	
50'	3638.5	1057.7	15° C.	50'	4383.3	1484.4	15° C.	50'	5234.9	2031.4	15° C.
65°	3650.2	1063.9	T	75°	4396.5	1492.4	T	85°	5250.3	2041.7	T
10'	3661.9	1070.2	.76	10'	4409.8	1500.5	.91	10'	5265.6	2052.1	1.09
20'	3673.7	1076.6	E	20'	4423.1	1508.6	E	20'	5281.0	2062.5	E
30'	3685.4	1082.9	.240	30'	4436.4	1516.7	.332	30'	5296.4	2073.0	.450
40'	3697.2	1089.3		40'	4449.7	1524.9		40'	5311.9	2083.5	
50'	3709.0	1095.7		50'	4463.1	1533.1		50'	5327.4	2094.1	
66°	3720.9	1102.2		76°	4476.5	1541.4		86°	5343.0	2104.7	
10'	3732.7	1108.6		10'	4489.9	1549.7		10'	5358.6	2115.3	
20'	3744.6	1115.1		20'	4503.4	1558.0		20'	5374.2	2126.0	
30'	3756.5	1121.7	20° C.	30'	4516.9	1566.3	20° C.	30'	5389.9	2136.7	20° C.
40'	3768.5	1128.2	T	40'	4530.4	1574.7	T	40'	5405.6	2147.5	T
50'	3780.4	1134.8	E	50'	4544.0	1583.1	E	50'	5421.4	2158.4	E
67°	3792.4	1141.4	1.02	77°	4557.6	1591.6	1.22	87°	5437.2	2169.2	1.45
10'	3804.4	1148.0	E	10'	4571.2	1600.1	E	10'	5453.1	2180.2	E
20'	3816.4	1154.7	.321	20'	4584.8	1608.6	.445	20'	5469.0	2191.1	.603
30'	3828.4	1161.3		30'	4598.5	1617.1		30'	5484.9	2202.2	
40'	3840.5	1168.1		40'	4612.2	1625.7		40'	5500.9	2213.2	
50'	3852.6	1174.8		50'	4626.0	1634.4		50'	5517.0	2224.3	
68°	3864.7	1181.6		78°	4639.8	1643.0		88°	5533.1	2235.5	
10'	3876.8	1188.4		10'	4653.6	1651.7		10'	5549.2	2246.7	
20'	3888.9	1195.2	25° C.	20'	4667.4	1660.5	25° C.	20'	5565.4	2258.0	25° C.
30'	3901.2	1202.0	T	30'	4681.3	1669.2	T	30'	5581.6	2269.3	T
40'	3913.4	1208.9	1.28	40'	4695.2	1678.1	1.53	40'	5597.8	2280.6	1.83
50'	3925.6	1215.8	E	50'	4709.2	1686.9	E	50'	5614.2	2292.0	E
69°	3937.9	1222.7	.403	79°	4723.2	1695.8	.558	89°	5630.5	2303.5	.756
10'	3950.2	1229.7		10'	4737.2	1704.7		10'	5646.9	2315.0	
20'	3962.5	1236.7		20'	4751.2	1713.7		20'	5663.3	2326.6	
30'	3974.8	1243.7		30'	4765.3	1722.7		30'	5679.9	2338.2	
40'	3987.2	1250.8		40'	4779.4	1731.7		40'	5696.4	2349.8	
50'	3999.5	1257.9		50'	4793.6	1740.8		50'	5713.0	2361.5	
70°	4011.9	1265.0	30° C.	80°	4807.7	1749.9	30° C.	90°	5729.7	2373.3	30° C.
10'	4024.4	1272.1	T	10'	4822.0	1759.0	T	10'	5746.3	2385.1	T
20'	4036.8	1279.3	1.54	20'	4836.2	1768.2	1.84	20'	5763.1	2397.0	2.20
30'	4049.3	1286.5	E	30'	4850.5	1777.4	E	30'	5779.9	2408.9	E
40'	4061.8	1293.6	.485	40'	4864.8	1786.7	.671	40'	5796.7	2420.9	.910
50'	4074.4	1300.9		50'	4879.2	1796.0		50'	5813.6	2432.9	

T = R tan 1/2 I

E = R exsec 1/2 I

TABLE IX. TANGENTS AND EXTERNALS TO A 1° CURVE

I	T	E	I=100°	I	T	E	I=110°	I	T	E	I=120°
91°	5830.5	2444.9	+	101°	6950.6	3278.1	+	111°	8336.7	4386.1	+
10'	5847.5	2457.1		10'	6971.3	3294.1		10'	8362.7	4407.6	
20'	5864.6	2469.3	5° C.	20'	6992.0	3310.1	5° C.	20'	8388.9	4429.2	5° C.
30'	5881.7	2481.5	T	30'	7012.7	3326.1	T	30'	8415.1	4450.9	T
40'	5898.8	2493.8	.43	40'	7033.6	3342.3	.51	40'	8441.5	4472.7	.62
50'	5916.0	2506.1	E	50'	7054.5	3358.5	E	50'	8468.0	4494.6	E
92°	5933.2	2518.5	.200	102°	7075.5	3374.9	.268	112°	8494.6	4516.6	.360
10'	5950.5	2531.0		10'	7096.6	3391.2		10'	8521.3	4538.8	
20'	5967.9	2543.5		20'	7117.8	3407.7		20'	8548.1	4561.1	
30'	5985.3	2556.0		30'	7139.0	3424.3		30'	8575.0	4583.4	
40'	6002.7	2568.6		40'	7160.3	3440.9		40'	8602.1	4606.0	
50'	6020.2	2581.3		50'	7181.7	3457.6		50'	8629.3	4628.6	
93°	6037.8	2594.0	10° C.	103°	7203.2	3474.4	10° C.	113°	8656.6	4651.3	10° C.
10'	6055.4	2606.8	T	10'	7224.7	3491.3	T	10'	8684.0	4674.2	T
20'	6073.1	2619.7	.86	20'	7246.3	3508.2	.103	20'	8711.5	4697.2	1.25
30'	6090.8	2632.6	E	30'	7268.0	3525.2	E	30'	8739.2	4720.3	E
40'	6108.6	2645.5	.401	40'	7289.8	3542.4	.536	40'	8767.0	4743.6	.721
50'	6126.4	2658.5		50'	7311.7	3559.6		50'	8794.9	4766.9	
94°	6144.3	2671.6		104°	7333.6	3576.8		114°	8822.9	4790.4	
10'	6162.2	2684.7		10'	7355.6	3594.2		10'	8851.0	4814.1	
20'	6180.2	2697.9		20'	7377.8	3611.7		20'	8879.3	4837.8	
30'	6198.3	2711.2		30'	7399.9	3629.2		30'	8907.7	4861.7	
40'	6216.4	2724.5		40'	7422.2	3646.8		40'	8936.3	4885.7	
50'	6234.6	2737.9	15° C.	50'	7444.6	3664.5	15° C.	50'	8965.0	4909.9	15° C.
95°	6252.8	2751.3	T	105°	7467.0	3682.3	T	115°	8993.8	4934.1	T
10'	6271.1	2764.8	1.30	10'	7489.6	3700.2	1.56	10'	9022.7	4958.6	1.93
20'	6289.4	2778.3	E	20'	7512.2	3718.2	E	20'	9051.7	4983.1	E
30'	6307.9	2792.0	.604	30'	7534.9	3736.2	.806	30'	9080.9	5007.8	1.09
40'	6326.3	2805.6		40'	7557.7	3754.4		40'	9110.3	5032.6	
50'	6344.8	2819.4		50'	7580.5	3772.6		50'	9139.8	5057.6	
96°	6363.4	2833.2		106°	7603.5	3791.0		116°	9169.4	5082.7	
10'	6382.1	2847.0		10'	7626.6	3809.4		10'	9199.1	5107.9	
20'	6400.8	2861.0		20'	7649.7	3827.9		20'	9229.0	5133.3	
30'	6419.5	2875.0	20° C.	30'	7672.9	3846.5	20° C.	30'	9259.0	5158.8	20° C.
40'	6438.4	2889.0	T	40'	7696.3	3865.2	T	40'	9289.2	5184.5	T
50'	6457.3	2903.1	E	50'	7719.7	3884.0	E	50'	9319.5	5210.3	E
97°	6476.2	2917.3	1.74	107°	7743.2	3902.9	2.08	117°	9349.9	5236.2	2.52
10'	6495.2	2931.6	E	10'	7766.8	3921.9	E	10'	9380.5	5262.3	E
20'	6514.3	2945.9	.809	20'	7790.5	3940.9	1.08	20'	9411.3	5288.6	1.46
30'	6533.4	2960.3		30'	7814.3	3960.1		30'	9442.2	5315.0	
40'	6552.6	2974.7		40'	7838.1	3979.4		40'	9473.2	5341.5	
50'	6571.9	2989.2		50'	7862.1	3998.7		50'	9504.4	5368.2	
98°	6591.2	3003.8		108°	7886.2	4018.2		118°	9535.7	5395.1	
10'	6610.6	3018.4		10'	7910.4	4037.8		10'	9567.2	5422.1	
20'	6630.1	3033.1	25° C.	20'	7934.6	4057.4	25° C.	20'	9598.9	5449.2	25° C.
30'	6649.6	3047.9	T	30'	7959.0	4077.2	T	30'	9630.7	5476.5	T
40'	6669.2	3062.8	2.18	40'	7983.5	4097.1	2.61	40'	9662.6	5504.0	3.16
50'	6688.8	3077.7	E	50'	8008.0	4117.0	E	50'	9694.7	5531.7	E
99°	6708.6	3092.7	1								

TABLE X.
MIDDLE ORDINATES OF RAILS
Length of Rail (feet)

C o /	R Feet	30 Inch	28 Inch	26 Inch	24 Inch	22 Inch	20 Inch	C o	R Feet	30 Inch	28 Inch	26 Inch	24 Inch	22 Inch	20 Inch
0-20	17189	.08	.07	.06	.05	.04	.03	8	716.8	1.88	1.64	1.42	1.20	1.01	.84
0-40	8594	.16	.14	.12	.10	.08	.07	9	637.3	2.12	1.84	1.60	1.35	1.14	.94
1-0	5730	.24	.20	.18	.15	.13	.10	10	573.7	2.36	2.05	1.78	1.50	1.27	1.04
1-20	4297	.31	.27	.23	.20	.17	.13	11	521.7	2.59	2.26	1.95	1.65	1.39	1.15
1-40	3438	.39	.34	.29	.25	.21	.17	12	478.3	3.83	2.47	2.15	1.81	1.54	1.26
2-0	2865	.47	.41	.35	.30	.25	.20	13	441.7	3.05	2.66	2.30	1.96	1.66	1.36
2-20	2456	.55	.48	.41	.35	.29	.23	14	410.3	3.30	2.87	2.48	2.10	1.78	1.46
2-40	2149	.63	.55	.47	.40	.33	.27	15	383.1	3.54	3.08	2.68	2.26	1.91	1.57
3-0	1910	.71	.62	.53	.45	.38	.31	16	359.3	3.76	3.28	2.83	2.40	2.04	1.67
3-20	1719	.78	.68	.59	.50	.42	.35	17	338.3	4.00	3.48	3.02	2.57	2.16	1.78
3-40	1563	.86	.75	.65	.55	.46	.38	18	319.6	4.21	3.67	3.18	2.70	2.28	1.87
4-0	1433	.94	.82	.71	.60	.50	.42	19	302.9	4.45	3.89	3.36	2.86	2.41	1.98
4-20	1323	1.02	.89	.77	.65	.55	.45	20	287.9	4.70	4.09	3.55	3.00	2.54	2.09
4-40	1228	1.10	.96	.83	.70	.59	.48	22	262.0	5.16	4.44	3.84	3.30	2.80	2.29
5	1146	1.18	1.03	.89	.75	.63	.52	24	240.5	5.64	4.92	4.20	3.59	3.04	2.50
6	955.3	1.41	1.23	1.06	.90	.76	.62	26	222.3	6.07	5.29	4.58	3.88	3.29	2.70
7	819.0	1.65	1.44	1.24	1.05	.89	.73								

TABLE XI.
SHORT RADIUS CURVES

Radius Feet	Chord Feet	Central Angle	Deflection Angle	Deflection for 1 Foot
35	10	16-26	8-13	49.3
45	10	12-46	6-23	38.3
50	15	17-16	8-38	34.5
60	15	14-22	7-11	28.8
75	15	11-30	5-45	23.0
100	20	11-30	5-45	17.3
120	20	9-34	4-47	14.3
150	20	7-39	3-49	11.5
190	25	7-32	3-46	9.15
200	25	7-10	3-35	8.6
225	25	6-25	3-12	7.7
240	25	5-58	2-59	7.2
250	25	5-44	2-52	6.9
275	25	5-12	2-36	6.2
288	50	9-58	4-59	6.0
300	50	9-32	4-46	5.7
350	50	8-12	4-06	4.9
376	50	7-40	3-50	4.6
400	50	7-10	3-35	4.3
410	50	7-00	3-30	4.2

To find length of curve divide angle from P. C. to P. T. by central angle of chord, and multiply by length of chord.

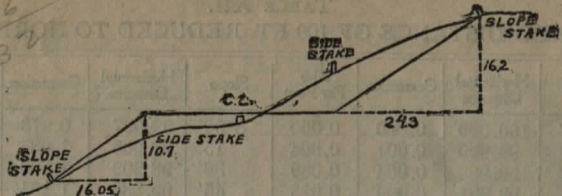
TABLE XII.
INCLINED DISTANCE OF 100 FT. REDUCED TO HORIZONTAL

Slope	Horizontal Distance	Correction	Rise Per Foot	Slope	Horizontal Distance	Correction	Rise Per Foot
0°00'	100.000	0.000	0.000	8°00'	99.027	0.973	0.139
15'	99.999	0.001	0.004	15'	98.965	1.035	0.143
30'	99.996	0.004	0.009	30'	98.902	1.098	0.148
45'	99.991	0.009	0.013	45'	98.836	1.164	0.152
1 00	99.985	0.015	0.017	9 00	98.769	1.231	0.156
15	99.976	0.024	0.022	15	98.700	1.300	0.161
30	99.966	0.034	0.026	30	98.629	1.371	0.165
45	99.953	0.047	0.031	45	98.556	1.444	0.169
2 00	99.939	0.061	0.035	10 00	98.481	1.519	0.174
15	99.923	0.077	0.039	15	98.404	1.596	0.178
30	99.905	0.095	0.044	30	98.325	1.675	0.182
45	99.885	0.115	0.048	45	98.245	1.755	0.187
3 00	99.863	0.137	0.052	11 00	98.163	1.837	0.191
15	99.839	0.161	0.057	15	98.079	1.921	0.195
30	99.813	0.187	0.061	30	97.992	2.008	0.199
45	99.786	0.214	0.065	45	97.905	2.095	0.204
4 00	99.756	0.244	0.070	12 00	97.815	2.185	0.208
15	99.725	0.275	0.074	15	97.723	2.277	0.212
30	99.692	0.308	0.078	30	97.630	2.370	0.216
45	99.657	0.343	0.083	45	97.534	2.466	0.221
5 00	99.619	0.381	0.087	13 00	97.437	2.563	0.225
15	99.580	0.420	0.092	15	97.338	2.662	0.229
30	99.540	0.460	0.096	30	97.237	2.763	0.233
45	99.497	0.503	0.100	45	97.134	2.866	0.238
6 00	99.452	0.548	0.105	14 00	97.030	2.970	0.242
15	99.406	0.594	0.109	15	96.923	3.077	0.246
30	99.357	0.643	0.113	30	96.815	3.185	0.250
45	99.307	0.693	0.118	45	96.705	3.295	0.255
7 00	99.255	0.745	0.122	15 00	96.593	3.407	0.259
15	99.200	0.800	0.126	15	96.479	3.521	0.263
30	99.144	0.856	0.131	30	96.363	3.637	0.267
45	99.087	0.913	0.135	45	96.246	3.754	0.271

TABLE XIII.
MINUTES IN DECIMALS OF A DEGREE.

0 30"	.00833	10' 30"	.17500	20' 30"	.34167	30' 10"	.50833	40' 30"	.67500	50' 10"	.84167
1 00	.01667	11 00	.18333	21 00	.35000	31 00	.51667	41 00	.68333	51 00	.85000
30	.02500	30	.19167	30	.35833	30	.52500	30	.69167	30	.85833
2 00	.03333	12 00	.20000	22 00	.36667	32 00	.53333	42 00	.70000	52 00	.86667
30	.04167	30	.20833	30	.37500	30	.54167	30	.70833	30	.87500
3 00	.05000	13 00	.21667	23 00	.38333	33 00	.55000	43 00	.71667	53 00	.88333
30	.05833	30	.22500	30	.39167	30	.55833	30	.72500	30	.89167
4 00	.06667	14 00	.23333	24 00	.40000	34 00	.56667	44 00	.73333	54 00	.90000
30	.07500	30	.24167	30	.40833	30	.57500	30	.74167	30	.90833
5 00	.08333	15 00	.25000	25 00	.41667	35 00	.58333	45 00	.75000	55 00	.91667
30	.09167	30	.25833	30	.42500	30	.59167	30	.75833	30	.92500
6 00	.10000	16 00	.26667	26 00	.43333	36 00	.60000	46 00	.76667	56 00	.93333
30	.10833	30	.27500	30	.44167	30	.60833	30	.77500	30	.94167
7 00	.11667	17 00	.28333	27 00	.45000	37 00	.61667	47 00	.78333	57 00	.95000
30	.12500	30	.29167	30	.45833	30	.62500	30	.79167	30	.95833
8 00	.13333	18 00	.30000	28 00	.46667	38 00	.63333	48 00	.80000	58 00	.96667
30	.14167	30	.30833	30	.47500	30	.64167	30	.80833	30	.97500
9 00	.15000	19 00	.31667	29 00	.48333	39 00	.65000	49 00	.81667	59 00	.98333
30	.15833	30	.32500	30	.49167	30	.65833	30	.82500	30	.99167
10 00	.16667	20 00	.33333	30 00	.50000	40 00	.66667	50 00	.83333	60 00	1.00000

54-14
125-46
251-32



DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING;

SLOPE 1 1/2 TO 1. ROADWAY OF ANY WIDTH.

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	0.00	0.15	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35	0
1	1.50	1.65	1.80	1.95	2.10	2.25	2.40	2.55	2.70	2.85	1
2	3.00	3.15	3.30	3.45	3.60	3.75	3.90	4.05	4.20	4.35	2
3	4.50	4.65	4.80	4.95	5.10	5.25	5.40	5.55	5.70	5.85	3
4	6.00	6.15	6.30	6.45	6.60	6.75	6.90	7.05	7.20	7.35	4
5	7.50	7.65	7.80	7.95	8.10	8.25	8.40	8.55	8.70	8.85	5
6	9.00	9.15	9.30	9.45	9.60	9.75	9.90	10.05	10.20	10.35	6
7	10.50	10.65	10.80	10.95	11.10	11.25	11.40	11.55	11.70	11.85	7
8	12.00	12.15	12.30	12.45	12.60	12.75	12.90	13.05	13.20	13.35	8
9	13.50	13.65	13.80	13.95	14.10	14.25	14.40	14.55	14.70	14.85	9
10	15.00	15.15	15.30	15.45	15.60	15.75	15.90	16.05	16.20	16.35	10
11	16.50	16.65	16.80	16.95	17.10	17.25	17.40	17.55	17.70	17.85	11
12	18.00	18.15	18.30	18.45	18.60	18.75	18.90	19.05	19.20	19.35	12
13	19.50	19.65	19.80	19.95	20.10	20.25	20.40	20.55	20.70	20.85	13
14	21.00	21.15	21.30	21.45	21.60	21.75	21.90	22.05	22.20	22.35	14
15	22.50	22.65	22.80	22.95	23.10	23.25	23.40	23.55	23.70	23.85	15
16	24.00	24.15	24.30	24.45	24.60	24.75	24.90	25.05	25.20	25.35	16
17	25.50	25.65	25.80	25.95	26.10	26.25	26.40	26.55	26.70	26.85	17
18	27.00	27.15	27.30	27.45	27.60	27.75	27.90	28.05	28.20	28.35	18
19	28.50	28.65	28.80	28.95	29.10	29.25	29.40	29.55	29.70	29.85	19
20	30.00	30.15	30.30	30.45	30.60	30.75	30.90	31.05	31.20	31.35	20
21	31.50	31.65	31.80	31.95	32.10	32.25	32.40	32.55	32.70	32.85	21
22	33.00	33.15	33.30	33.45	33.60	33.75	33.90	34.05	34.20	34.35	22
23	34.50	34.65	34.80	34.95	35.10	35.25	35.40	35.55	35.70	35.85	23
24	36.00	36.15	36.30	36.45	36.60	36.75	36.90	37.05	37.20	37.35	24
25	37.50	37.65	37.80	37.95	38.10	38.25	38.40	38.55	38.70	38.85	25
26	39.00	39.15	39.30	39.45	39.60	39.75	39.90	40.05	40.20	40.35	26
27	40.50	40.65	40.80	40.95	41.10	41.25	41.40	41.55	41.70	41.85	27
28	42.00	42.15	42.30	42.45	42.60	42.75	42.90	43.05	43.20	43.35	28
29	43.50	43.65	43.80	43.95	44.10	44.25	44.40	44.55	44.70	44.85	29
30	45.00	45.15	45.30	45.45	45.60	45.75	45.90	46.05	46.20	46.35	30
31	46.50	46.65	46.80	46.95	47.10	47.25	47.40	47.55	47.70	47.85	31
32	48.00	48.15	48.30	48.45	48.60	48.75	48.90	49.05	49.20	49.35	32
33	49.50	49.65	49.80	49.95	50.10	50.25	50.40	50.55	50.70	50.85	33
34	51.00	51.15	51.30	51.45	51.60	51.75	51.90	52.05	52.20	52.35	34
35	52.50	52.65	52.80	52.95	53.10	53.25	53.40	53.55	53.70	53.85	35
36	54.00	54.15	54.30	54.45	54.60	54.75	54.90	55.05	55.20	55.35	36
37	55.50	55.65	55.80	55.95	56.10	56.25	56.40	56.55	56.70	56.85	37
38	57.00	57.15	57.30	57.45	57.60	57.75	57.90	58.05	58.20	58.35	38
39	58.50	58.65	58.80	58.95	59.10	59.25	59.40	59.55	59.70	59.85	39
40	60.00	60.15	60.30	60.45	60.60	60.75	60.90	61.05	61.20	61.35	40
41	61.50	61.65	61.80	61.95	62.10	62.25	62.40	62.55	62.70	62.85	41
42	63.00	63.15	63.30	63.45	63.60	63.75	63.90	64.05	64.20	64.35	42
43	64.50	64.65	64.80	64.95	65.10	65.25	65.40	65.55	65.70	65.85	43
44	66.00	66.15	66.30	66.45	66.60	66.75	66.90	67.05	67.20	67.35	44
45	67.50	67.65	67.80	67.95	68.10	68.25	68.40	68.55	68.70	68.85	45
46	69.00	69.15	69.30	69.45	69.60	69.75	69.90	70.05	70.20	70.35	46
47	70.50	70.65	70.80	70.95	71.10	71.25	71.40	71.55	71.70	71.85	47
48	72.00	72.15	72.30	72.45	72.60	72.75	72.90	73.05	73.20	73.35	48
49	73.50	73.65	73.80	73.95	74.10	74.25	74.40	74.55	74.70	74.85	49
50	75.00	75.15	75.30	75.45	75.60	75.75	75.90	76.05	76.20	76.35	50

Computed by L. Leland Locke.

300.68
134.15
134.83

Y

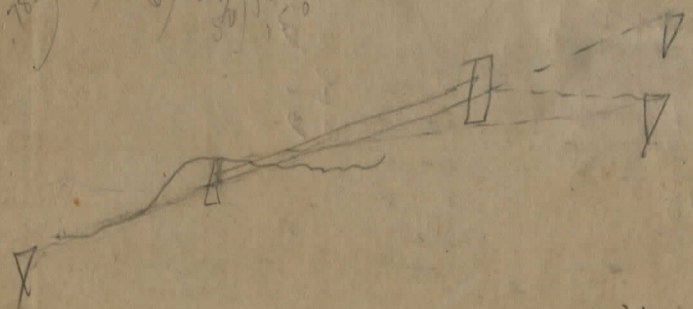
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~~Bank Hook No. 113R~~

~~161 = 45~~
~~104~~
PLEASE RETURN TO
GEAUGA COUNTY ENGINEER
COURT HOUSE
CHARDON, O.
PHONE 250-X

$\frac{959}{3000}$
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should be $W = 41 = 32$

65
 $E = 57 = 51$
 $\frac{70}{9}$

$100 = 5'$
 $50 = 2030'$
 $1' = 3'$

$69 + 80.98 = 0'10'$
 $69 + 50 = 1'32'$
 $69 + 00 = 4'02'$
 $68 + 50 = 6'32'$
 $68 + 00 = 4'02'$
 $67 + 69.88 = 11'32'$

