FIELD BOOK

364

KEUFFEL & ESSER CO.

DRAWING MATERIALS
AND
SURVEYING INSTRUMENTS.
NEW YORK.

CHICAGO. ST. LOUIS. SAN FRANCISCO. MONTREAL.

TABLES FOR EXCAVATIONS AND EMBANKMENTS.

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

ROADWAY 18 FEET WIDE. SIDE SLOPES 1 TO 1.

FOR SIDE-TRACK EXCAVATION.

"Copyrighted 1911 by Keuffel & Esser Co."

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

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

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

Navroo Road Page 1
Middlefield Twp.
T.H. 123 Pg 1-4

Georgia Road From 45 Rd East
T.H. 124 Middlefield Twp Page 7-10

County Line Road
Huntsburg & Windsor Twp's
Page 13-21

County Highway #45 (Spencer)
Pen Fiets & Spencer School House
X Secs Pg 42 Page 29-39

Drainage Ditch from CH 45
southerly to Mayfield Road
Page 40

County Home Water Supply
Location & Levels Page 71

County Home & Popa Farm 48

County Home Spring Levels Pg 71
" " Tops of East Fields Pg 77

134

Please return to the
County Surveyors Office
Chardon, Ohio

T.H. 123

Nauvoo Road ℄ Location

Note: Sidestakes are set 25' Rt or South

1950 side stked every 100' at 30' Rt
(only to Sta 24+49)

Sta 3+77.25 POT

May 1950 Sidestked 30' Rt
0+0 - 24+49

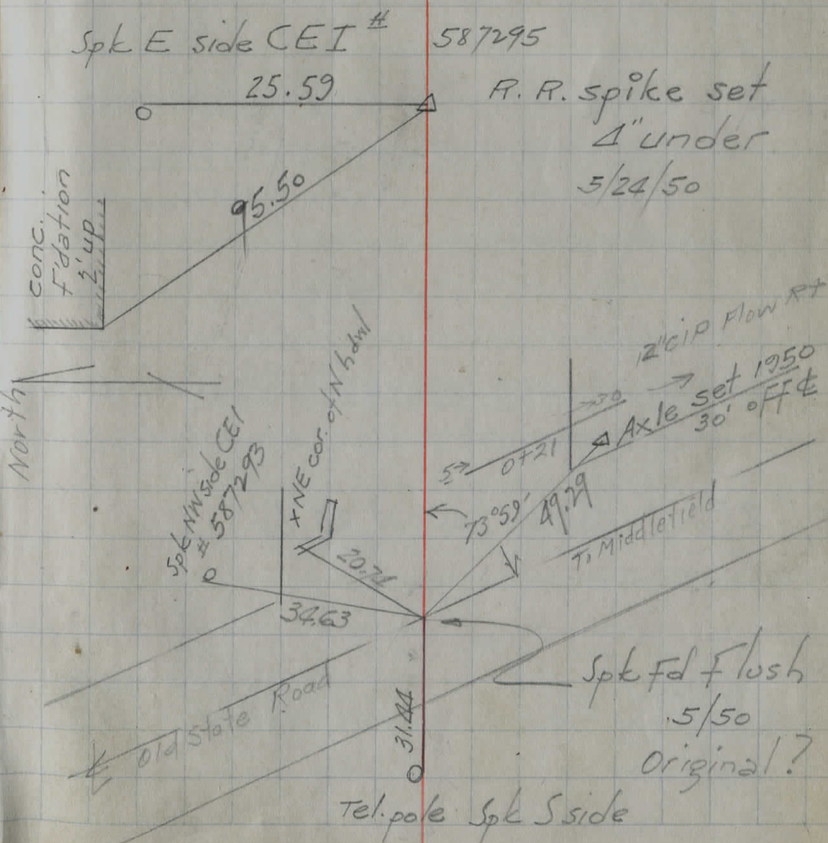
Sta 0+00 Beginning of Imp spike set

6/8/34 Richey Pomeroy Road

Middlefield Twp.

11+44
Probable culv.

30' △ I.P. 5+99
12" Cor IP Flow Rt.
5+90
4> 28>



S/a 28 on sidestakes set 25' Lt.

36+99 Prop Line

Crittenden

Hershberger

Prop Line 29+96

Ridout

10' CIP Flow Lt ←

28+12

12 6

Crittenden

24+49 Prop Line

30'

Pin set

± 3' W of

fence

(Not on P/L)

Sta 37+00 Def Lt 0°03' Pipe Bed

Prop line 60+04

60+03

7 15

12" Cor IP & C/P Flow Lt.

Prop line 54+20

46+19 Prop line

Prop line 45+83

R 1950

Δ 179-54

179°57

Bent over I.P.
Fd reset
straight
7" under
5/24/50

50°

I.P. set

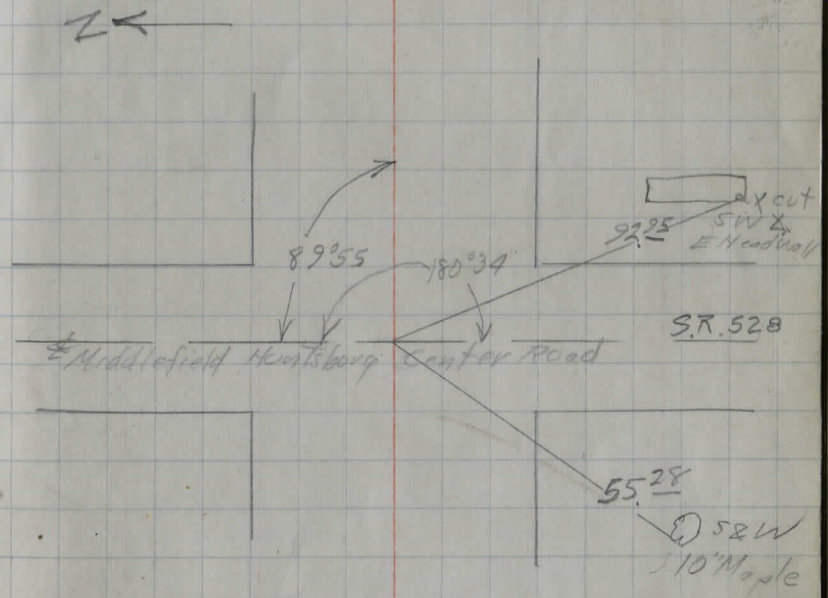
Spk N
69.90 root 18"
Maple

1.44 miles

5280 | 7630.26
5280
2350.2
21120
23826

Note Sta 76+30.26 = Sta 67+83.05 of
Middlefield Huntsburg Center Road.

Sta 76+30.26 End of Project Spike Set



T.H. 124

Georgia Road ℄ Location

From s Cor. Road east to Parkman Road

Note: Sidestakes are set 25' Rt or South

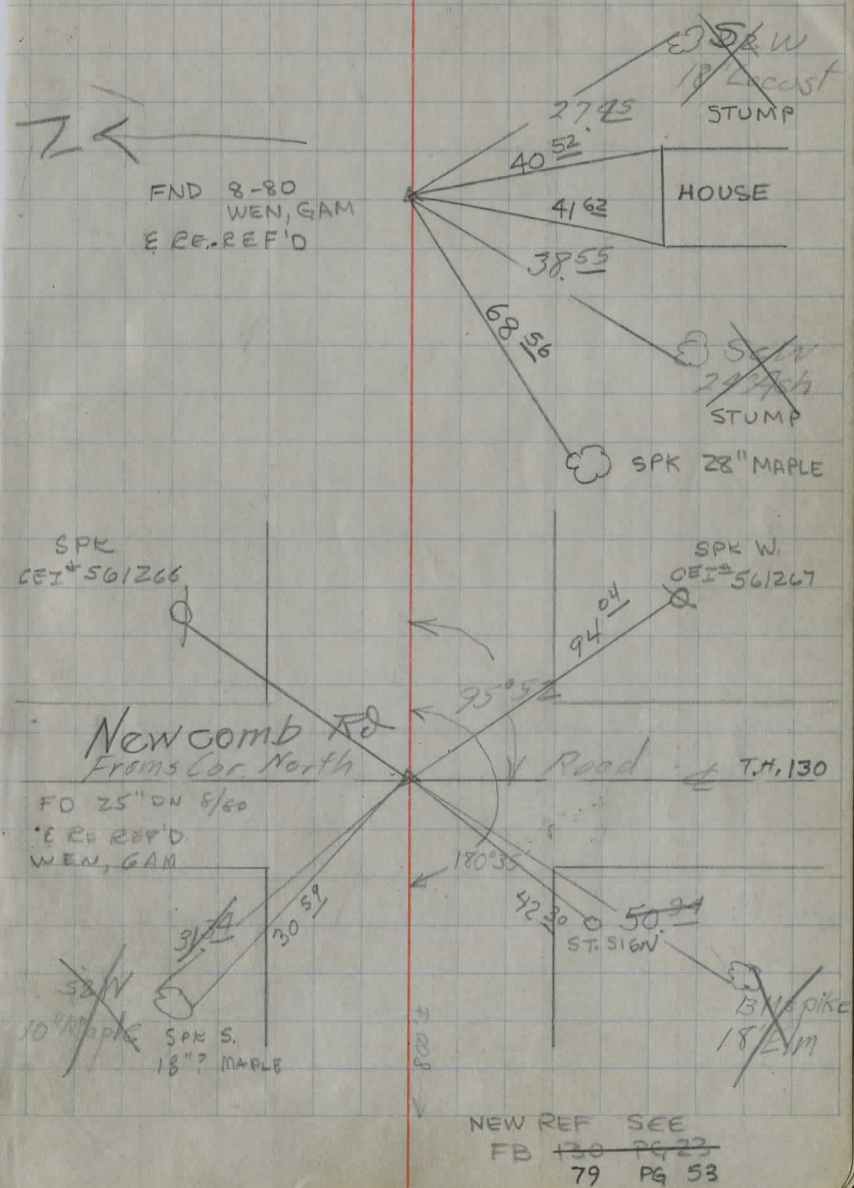
Sta		
Sta 3+00	POT	Pipe Set
Sta 0+00	Beginning at Imp	Pipe Set

6/12/24

Middlefield Twp.

Richey Pomeroy Road

7



Prop Line 2+25
← 264' to nail corner.

Prop. Line 7+50

Prop. Line 4+19

M Miller

PropLine 3+37

N Gingerich

17+20 Prop Line

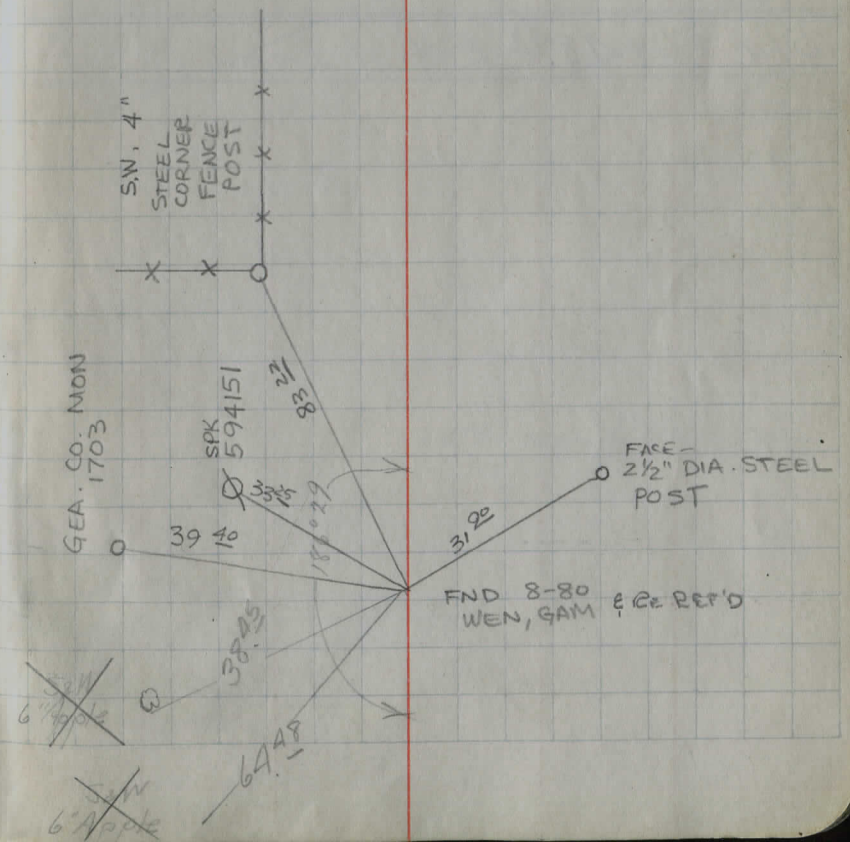
15+51 Prop Line

Curve Data

Δ = 6°29' Rt.
D = 3°
T = 108.17
E = 3.1
L = 216.11
PC = 9+75.21
PT = 11+92.02

10 = .13
11 = 2.24

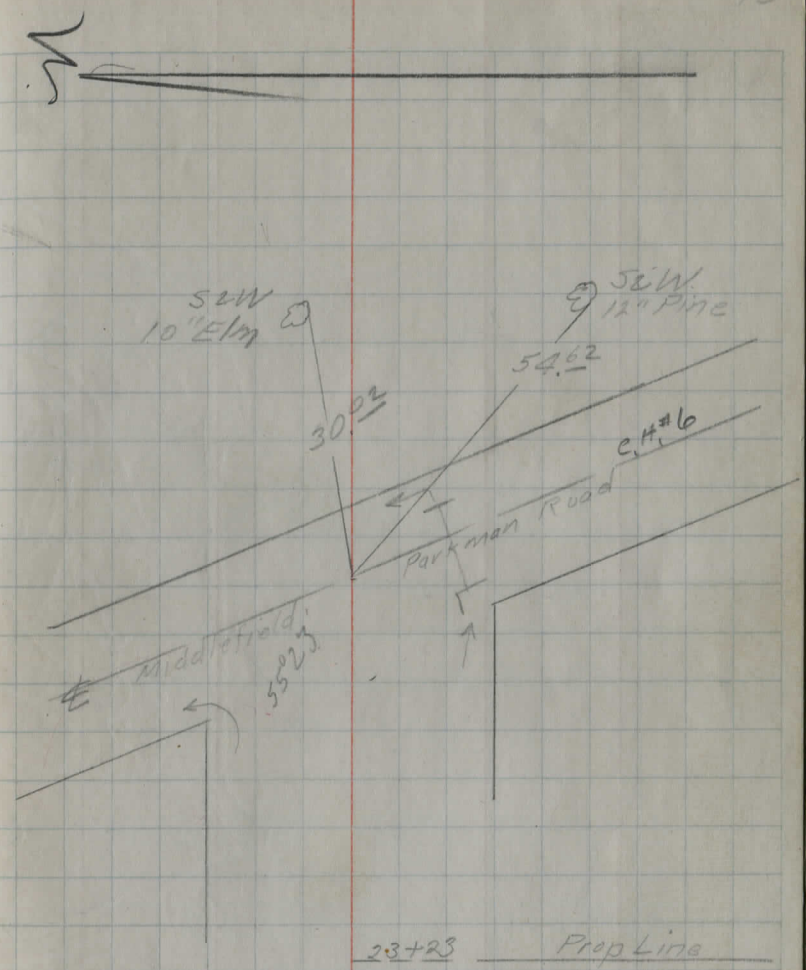
Sta 10+84.08 PI of Rt 6°29' Pipe Set



.502 miles

5280 | 2648.48
26400
8480

Sta 26+48.48 End of Imp. Spike Set



T.H. No 311

℄ Location County Line Road
Huntsburg Windsor Twp. Line

Note: Sidestakes set 30' Lt. or West except as noted. Stakes set at Stations 2, 4, 6, 8, etc. except as noted

Restaked
See Vol. 141
F.B.

Sta 0+00 Beginning of Imp. Pipe Set

9/12/34

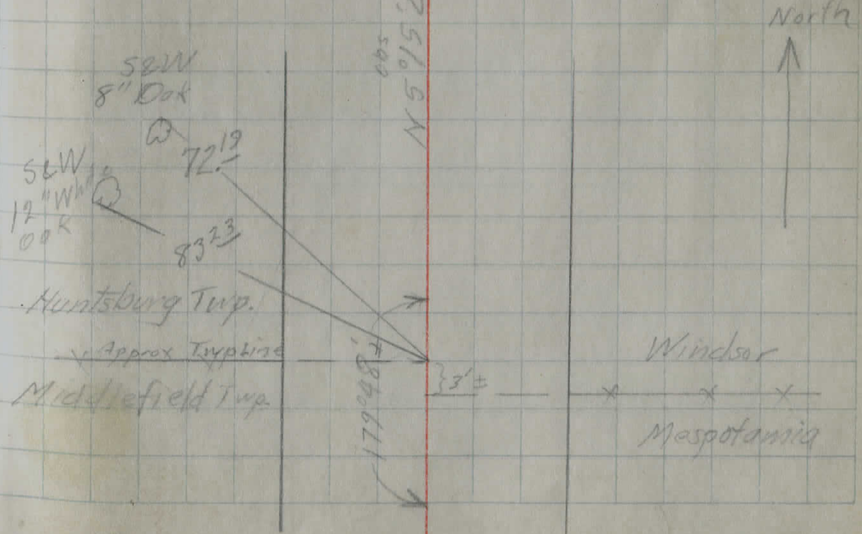
Richey
Rand
Dietz

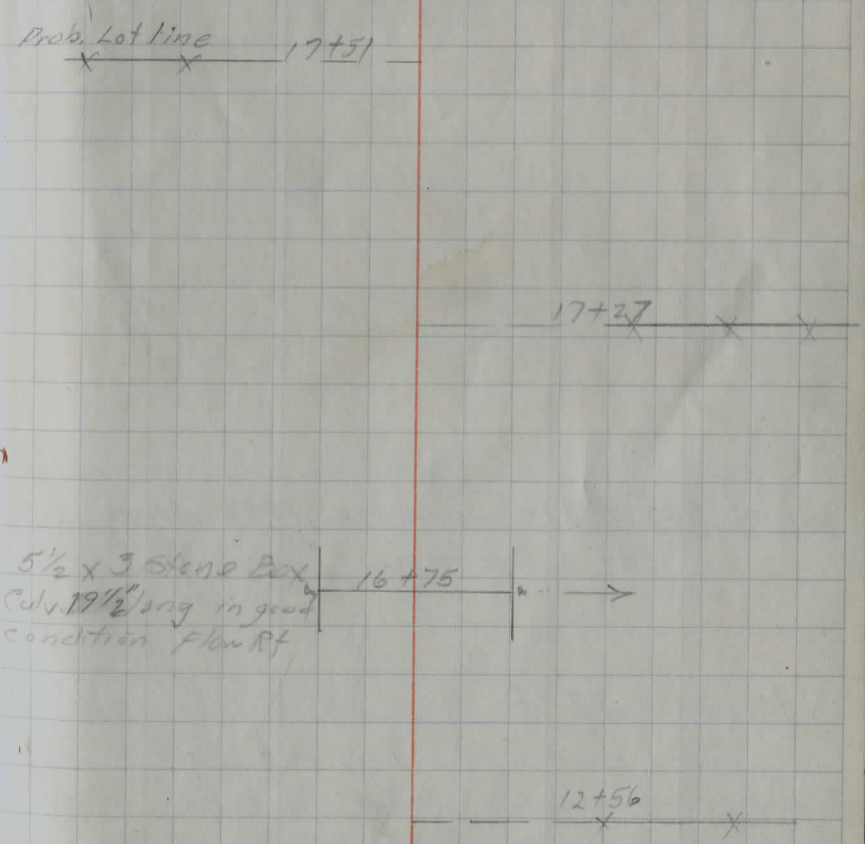
13

18" C.I.P. in good condition 24' long flow Rt. 8" Fill — 11+40 →

12" Conc. pipe good condition 16' long flow Rt. 12" Fill — 5+75 →

Replace
1'x1' Wood Box 16' long Flow Rt. clean outlet — 1+20 →




Prob. Lot line
17+51
17+27
5½ x 3 Stone Box
Culv. 19½" long in good
condition Flow Rt
16+75
12+56

sidestakes set 30' Rt Sta { 36 / 38 / 40

NOTE: SEE FB 141 pg 60 FOR 1983 WORK BY J. P. RUSSELL

Sta. 26+52.88 POT Pipe Found

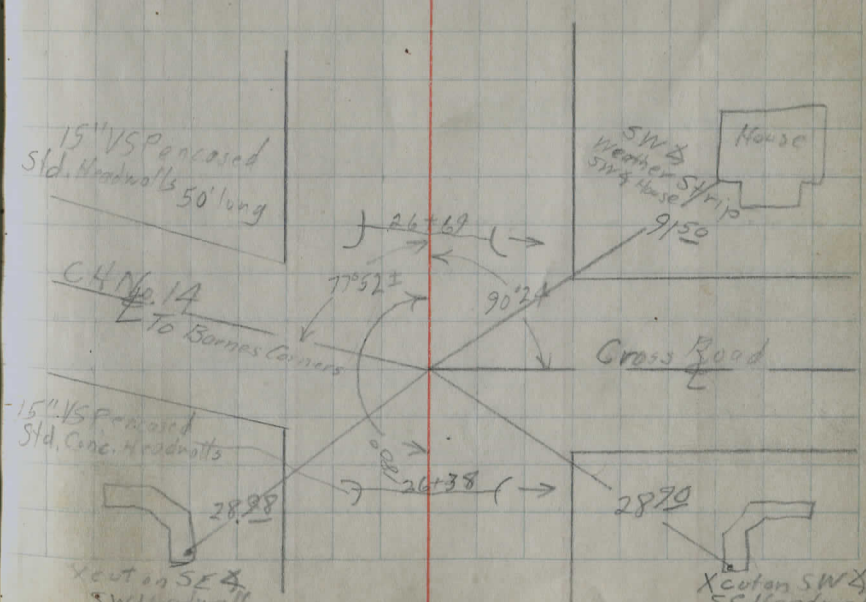
This point set in Dec. 1233 from references furnished by Abstahula Co. Surveyor. Their point could not be found.

40+18

39+18

12" CIP good condition flow Rt. 33+95 8 8 →

14" CIP 16' long good condition 29+80 →



1" Cor I P — 56+53 →
16' long
fair condition
8" Fill
[illegible] 1/2 rusted

10" Cor I P in poor condition Flow Rt — 50+75 →
16' long
6" Fill

12"

55+25

52+69

52+18

5' x 1½'
Plank Bridge — 43+03 →
16' long Flow Rt.
poor condition
Timber walls

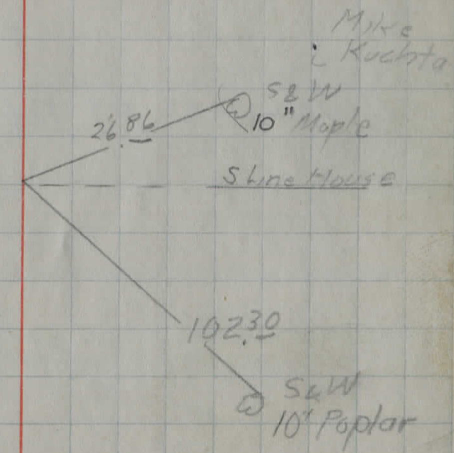
Sta 61+21.65 POT Pipe Set

Sidestakes 30' Rt Sta {56 {58

12" Fill
18" VSP 16' long
good condition
Flow Rt

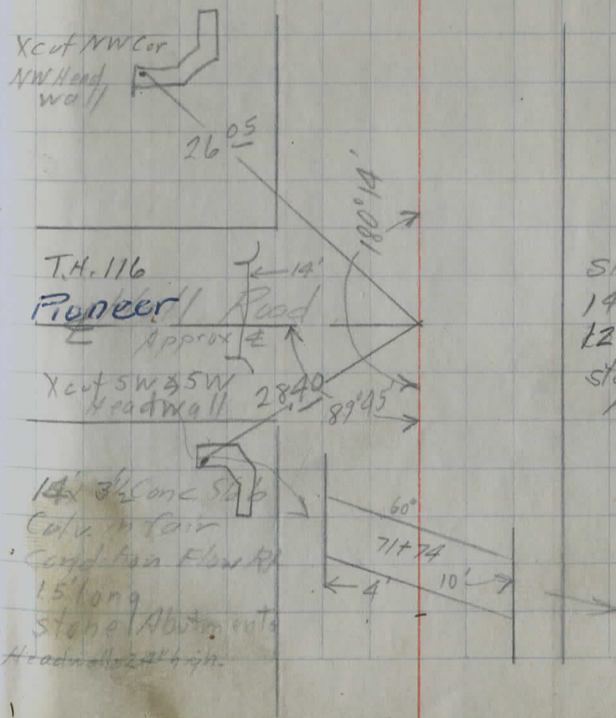
69+05 →

62+63 × ×



Sta 74 + 43.65	P.O.T.		Pipe Set
Sta 72 + 40.28	PI	Def Rt 0°14	Pipe Set

Stake □ — 30.00 — 30.00 — Δ Stake
90°± 90°±



Sideroad culvert
14' Lt ℄
12" Cor.I.P. 40' long
std. concrete headwalls
Flow South

6" Fill.
18" Cor I P — 103+77 →
18' long Flow RT
good condition

~~Replace~~
1x1 wood box Culv. — 95+10 —
poor condition
Flow RT 3' Fill
now 18' 12" C I P.

extend salvage 12'
~~12" CIP poor~~ — 88+21 →
~~condition~~
~~16' long Flow RT~~
sectional
now 20' 12" CIP.

X X — 87+72

Sta 81+50 culvert — — — —
required
unless drainage can
be carried South
drain South

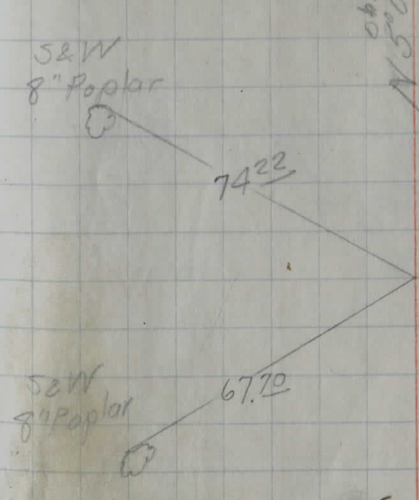
77+23 Prob prop Line

Sta 106+19.18		POT	Pipe Set

3"Fill
Set iron pipe
18'CIP fair condition
16' long Flow Rt
clean outlet.

114+21 →

—x———x—— 111+82

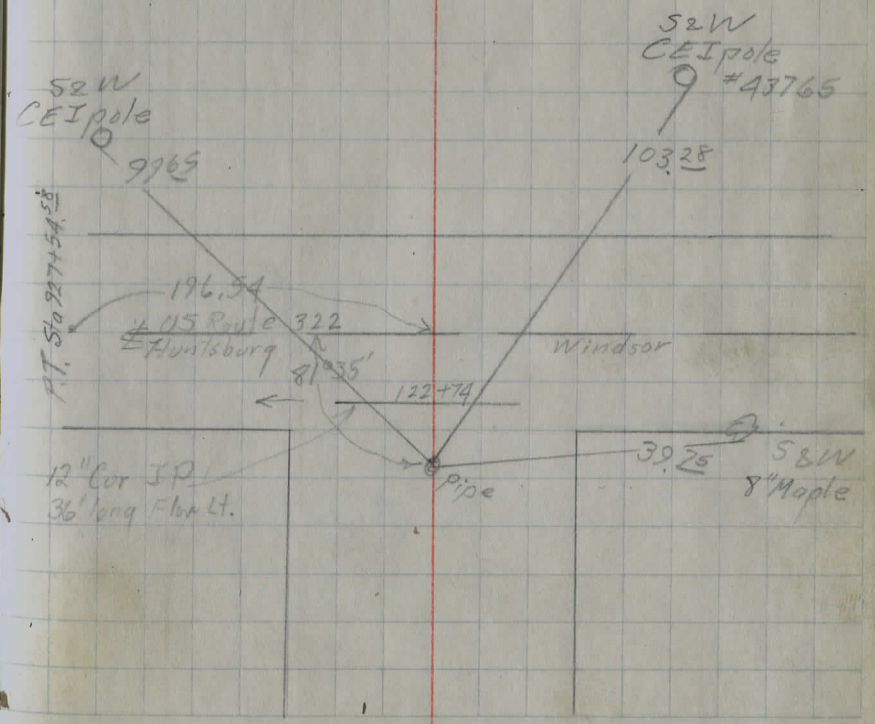


$$
\begin{array}{r|l}
 & 2.33 \\
\hline
528 & 1229.0 \\
 & 1056 \\
\hline
 & 1730 \\
 & 1584 \\
\hline
 & 146.0
\end{array}
$$

Sta 122+90 End of Imp ℄ Mayfield Rd

Sta 122+64 ℄ P.O.T → Pipe Set

℄



(Spencer st.)

County Highway No 45

Pomfrets Corners to Spencer School House

Note: Sidestakes set 30' Rt or East

Sta 0+15 = Edge of Pit

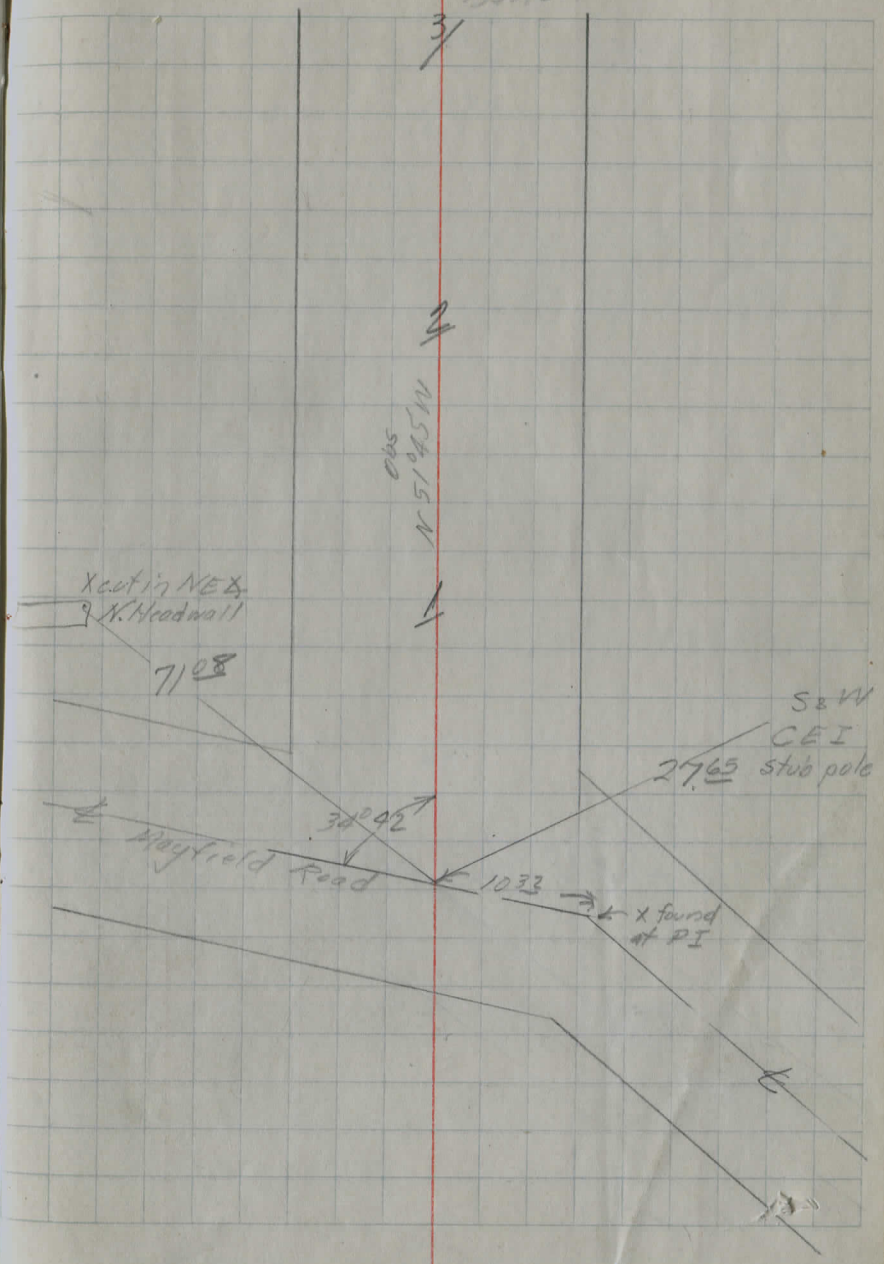
Sta 0+00

X cut in Concrete

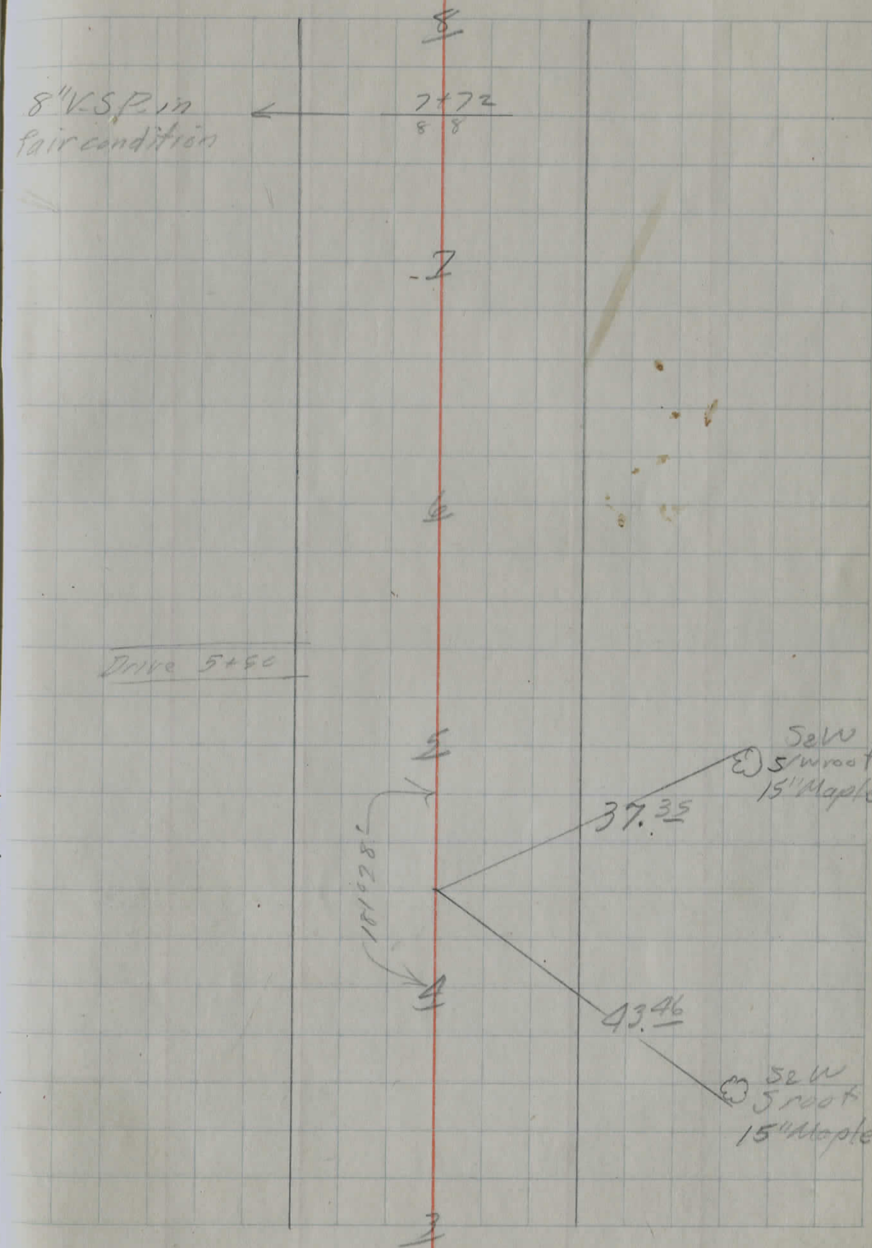
4/22/31

Richey
Merrill
Barton

29



Sta 4+28.39 Def Rt 1°28' Iron Set



13

12

11

10

9

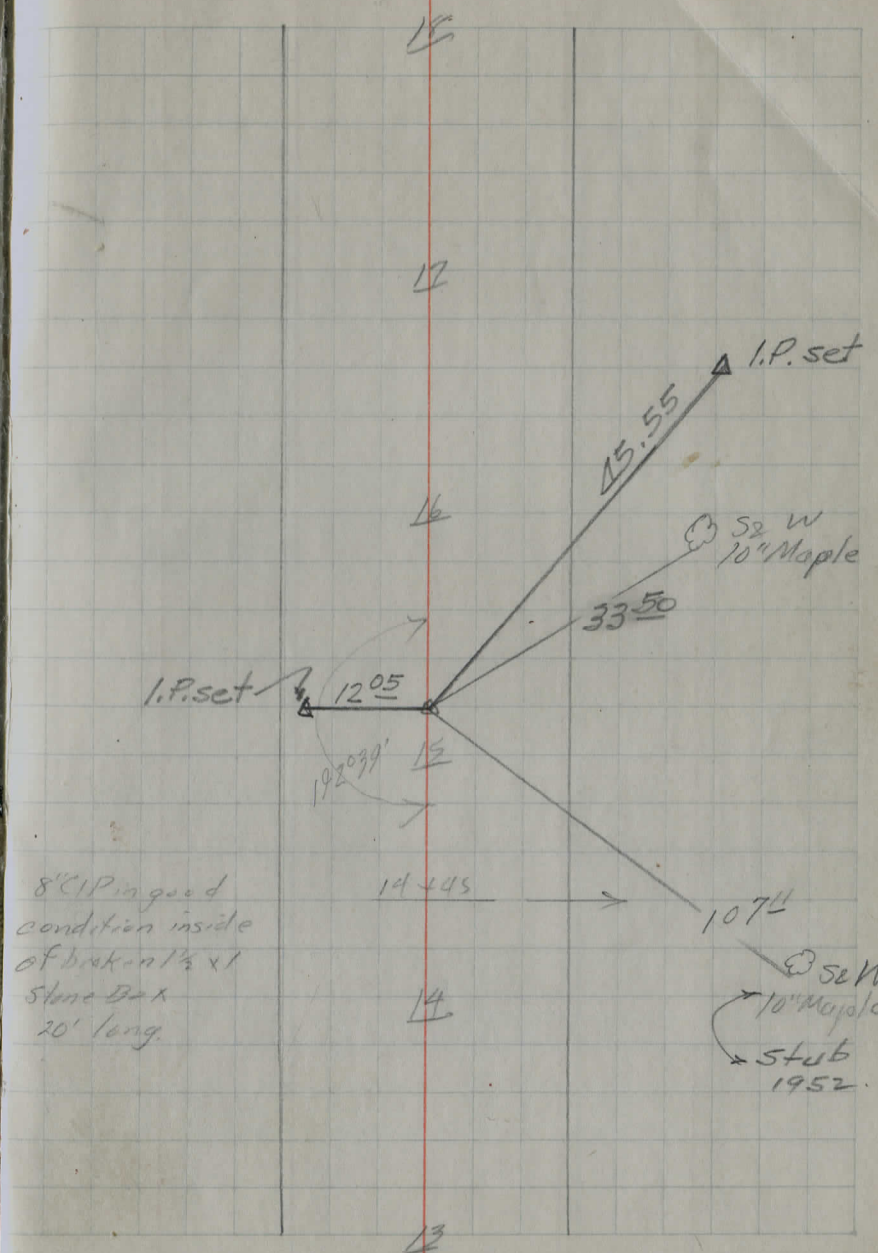
8

Sta 15+05.52 Def Rt 12°39' P.I. 09 Set

Fd 5-13-52
10" under

Δ = 12°39'
D = 4°
T = 158.28
E = 8.15
L = 316.25
PC = 13+46.74
PT = 16+62.99

14 - 2.26
14+50 - 5.73
15 - 8.50
15+50 - 7.78
16 - 2.22



23

2x1 Stone Box Culv. good condition Conc. Slabs & Curbs

22+75
9 13

23

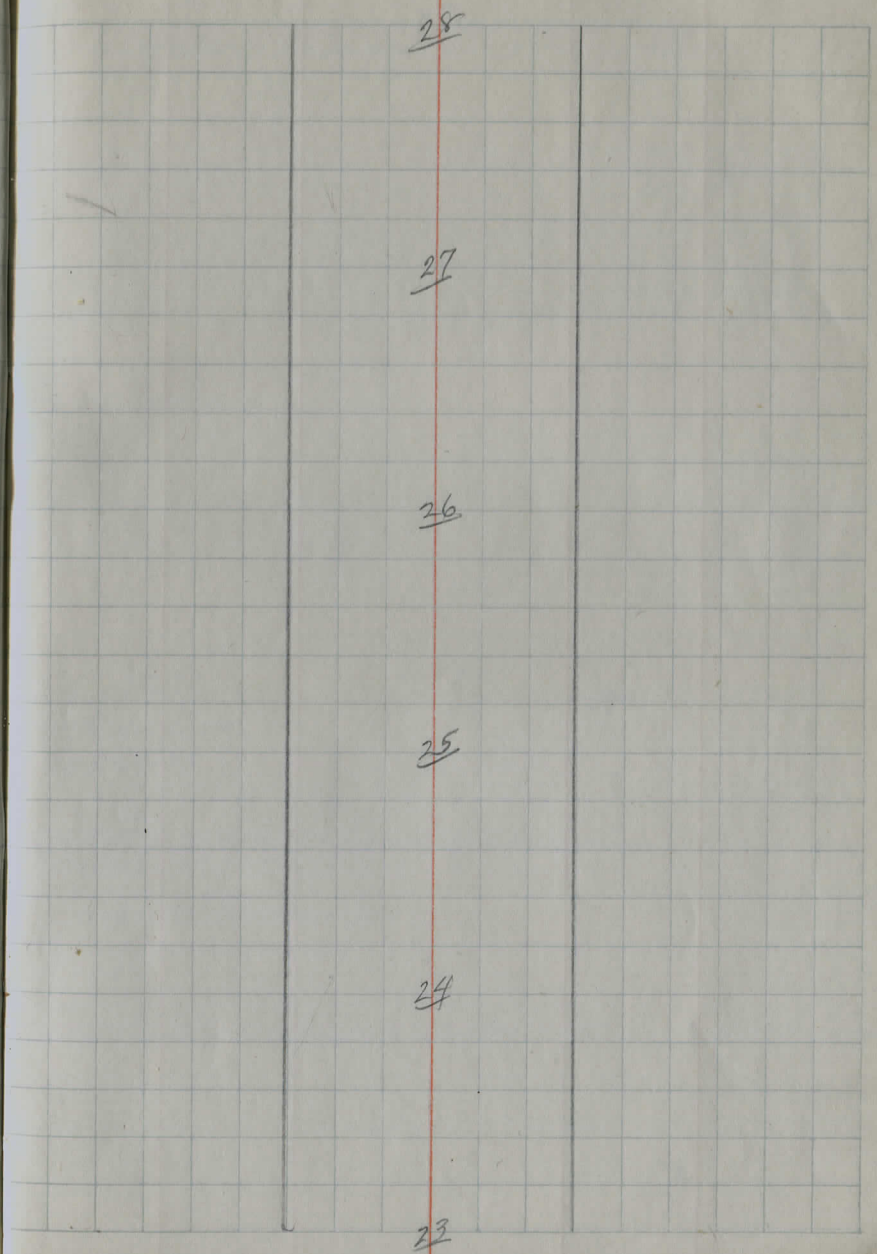
21

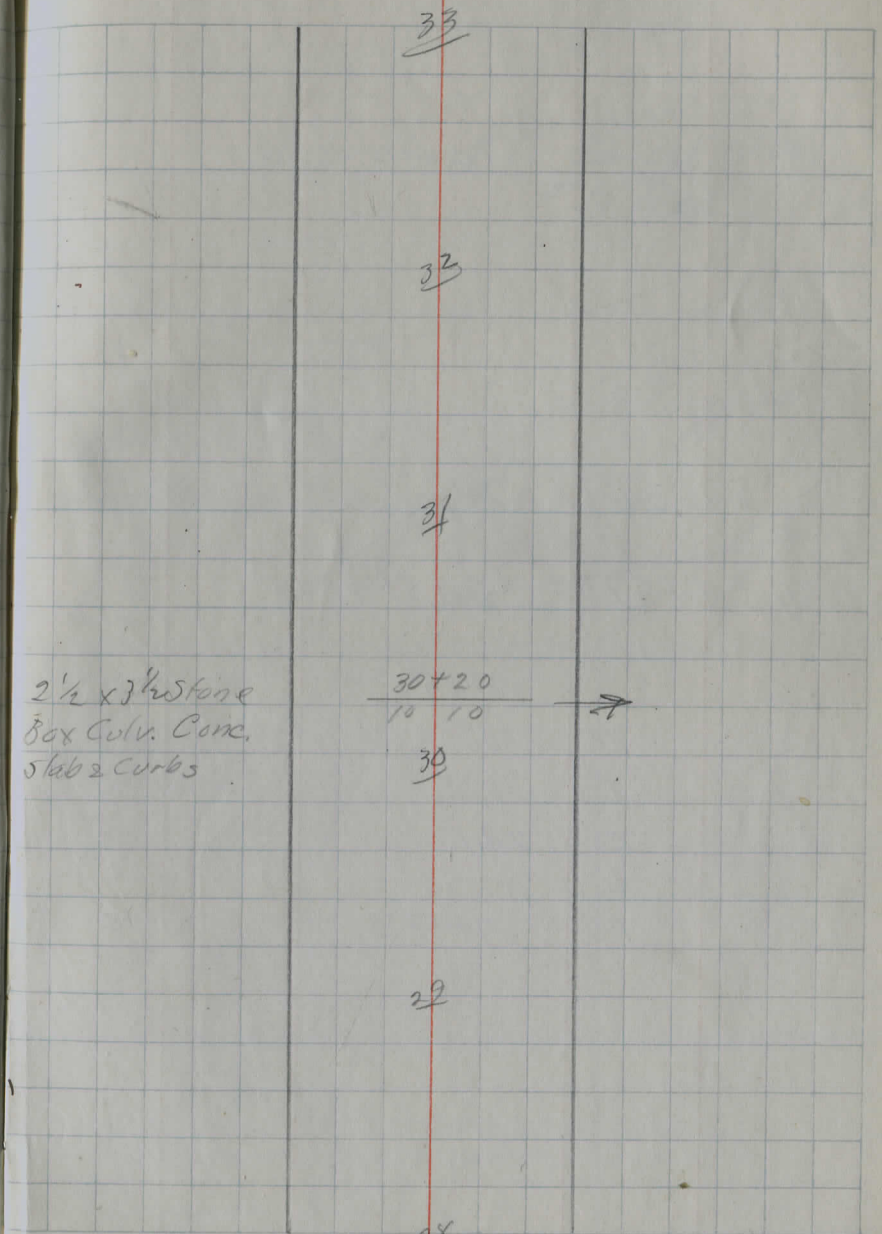
Drive 21+00

20

19

18


28
27
26
25
24
23


33
32
31
2½ x 3½ Stone
Box Culv. Conc.
Slab & Curbs
30+20
10 10
30
29
28

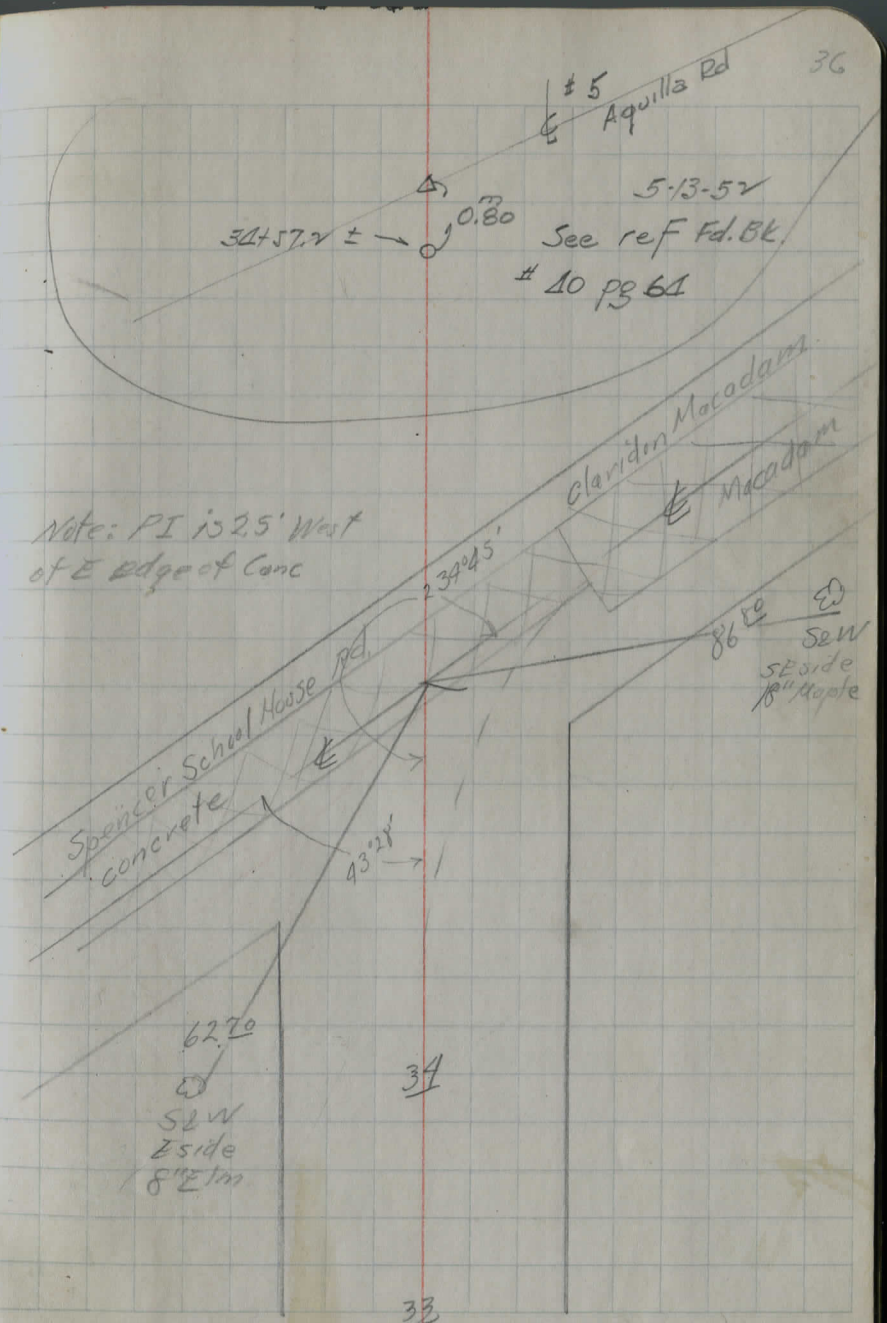
34+82
0+15
5280 | 3467 | .657 miles

Sta 34+82 = Edge of Pvt. measured on curve

Sta 34+57.2° Def Rt 54°45' Spike Set in Concrete

Δ = 54°45'
D = 30°
I = 98.2°
E = 24.1
L = 182.50
PC = 33+58.2°

34 - 10.18
34+57.2 - 2240



County Highway #45 Profile Levels

BM #1	306	1141.6 S			1138.59	X cut S side E abut. of Bridge 150' SE of Sta 0+00
0			4.1			
1			5.1			
2			2.3			
	11.99	1151.64	2.00	1139.65		
3			7.6			
4			0.5			
	4.01	1154.72	0.93	1150.71		
5			2.6			
6			6.5			
BM #2			4.19		1150.53	Spike W. root 18" Maple 35' Rt ℄ Sta 6+40
7			9.5			
	4.88	1148.97	10.63	1144.09		
8			4.3			
9			3.0			
10			5.3			
11			7.6			
12			9.0			
BM #3	4.01	1143.01	9.97		1139.00	Spike W. root 24" Maple 22' Rt ℄ Sta 12+95
13			3.7			
14			4.6			
15			4.2			
16			3.5			
17			2.8			

		1143.01				
18			2.3			
	7.52	1148.37	2.16	1140.85		
19			7.0			
20			5.9			
21			4.7			
Bal #4			3.66		1149.71	Spike W root 18" Maple 30' Rt ℄ Sta 21+30
22			3.3			
23			2.3			
24			0.9			
	8.63	1156.50	0.50	1147.37		
25			6.8			
26			4.9			
27			4.0			
28			3.8			
29			4.0	52.5		
	5.04	1161.57	4.77	1151.53		
Bal #5			3.16		1153.41	Spike E root 18" Elm 22' Lt ℄ Sta 28+70
30			4.1	52.5		
31			2.4	54.2		
	12.25	1168.78	0.04	1156.53		
32			1.1.0	57.8		
33			6.7			
Bal #6			1.59	1167.19	1167.20	Spike W root 10" Maple 30' Lt ℄ Sta 33+60
34			3.1	65.7		
34+57			-0.2	69.0		

Drainage Ditch Location
Spencer School House Cut Off (CH No 45)
Southeasterly to Mayfield Road.

Note Sidestakes are set 6' Lt or East

Sta 10+58 End of Imp. = N end culvert
600' West of Danforths corners

Sta 5+50 Def Lt 32°57'

See Pg 41 for Elev's

Sta 0+00 Beginning of Imp. =
N end of culvert Sta 14+45 on CH No 45

Dec 1933

℄ Mayfield Road

S 47 E

147°03'

Δ = 31°45'
T =
E = 7.0

℄ County Highway #3

S 15°15' E

North

Levels on Drainage Ditch

BM#3	3.98	1142.98			1139.00
		+30			
0+00			62	36.78	
1			36	39.4	
2			38	39.1	
3			41	38.9	
4			40	39.0	
5			47	38.3	
6			57	37.3	
	153	1140.22	421	1138.67	
7			40	36.2	
8			46	35.6	
9			52	35.8	
10			55	34.7	
10+58			81	32.1	
BM	5.22	1141.51	393		1136.29
BM#1			290	1138.61	1138.59

CH#45 from culvert at Sta 14+45 (21"?)

Spike W root 15" Maple 22' Rt Sta 12+25 of County Highway #45

Flow of culvert

See Pg 46 herein for const. stakes

Flow of culvert

NW ∠ W Headwall of culvert 600' W of Pontiac ∠ s.

X cut SE ∠ Cuyahoga River Bridge

X Sections County Highway No. 45

BM#1	5.46	1144.05			1138.59
0+00			6.6	37.5	
1			7.6	36.5	
2			4.6	39.5	
	12.37	1155.59	0.83	1143.22	
3			11.6	44.0	
3+50			8.0	47.6	
4			4.5	51.6	
4+50			2.9	52.7	
5			3.4	52.2	
6			7.6	48.0	
BM#2	0.52	1151.05	5.08	1150.51	1150.53
7			6.0	45.1	
8			6.6	44.5	
9			5.1	46.0	

12/10/34 Richey Dietz

X cut in S side ℄ N out of Bridge 150' SE of Sta 0+00

— –23/74 —16– 10/84 10/8.2 12/79 17/8.4 –22/— 26/7.0 —

–23/30 19/6.1 11/57 9/50 10/54 14/6.5 24/20 —

— –22/89 16/12.8 7/11.9 8/11.8 11/12.6 20/89 30/95

30/3.6 22/40 16/48 8/92 6/83 9/82 11/91 20/43 30/46

30/1.5 22/20 11/38 8/5.2 6/4.7 10/47 12/56 17/40 24/30 30/26

30/2.5 20/— –13/21 9/40 7/33 9/33 11/4.1 16/23 23/1.0 —

— –14/25 9/44 7/39 9/3.6 11/42 14/29 23/17 30/1.9

25/74 12/79 10/87 7/7.9 8/77 10/8.9 24/34 30/3.0

Spike W. root 18" Maple 35' Rt ℄ Sta 6+40

— 30/97 10/69 7/62 9/62 11/67 21/69 25/56

30/83 13/— –12/77 10/7.0 6/6.9 8/73 21/69 —

30/6.2 15/60 13/67 9/5.5 7/5.4 9/62 12/54 25/43 —

		115105			
10			7.4	437	
11			9.7	414	
	2.74	1142.79	10.50	1140.55	
12			30	398	
BM #3	3.76	1142.76	3.76	1137.03	1139.00
13			4.0	388	
14			4.6	382	
15			4.0	38.8	
16			3.7	391	
	6.96	1146.81	2.91	1139.85	
17			6.9	39.9	
18			6.3	40.5	
19			5.5	413	
20			4.6	422	
21			3.6	432	
BM #4	2.12	1146.83	2.12	1144.69	1144.71
22			2.3	445	

$\frac{-24}{25}$ $\frac{13}{76}$ $\frac{11}{86}$ $\frac{8}{76}$ $\frac{8}{78}$ $\frac{10}{87}$ $\frac{14}{71}$ $\frac{19}{52}$ —

— $\frac{-14}{16.3}$ $\frac{11}{11.1}$ $\frac{8}{10.0}$ $\frac{9}{10.2}$ $\frac{11}{11.0}$ $\frac{15}{10.6}$ —

— $\frac{-14}{39}$ $\frac{11}{42}$ $\frac{8}{33}$ $\frac{10}{31}$ $\frac{13}{41}$ $\frac{16}{35}$ $\frac{25}{29}$ —

Spike Wroot 21" Maple 25' Rt & Sta 12+95

— $\frac{-13}{48}$ $\frac{10}{53}$ $\frac{7}{41}$ $\frac{11}{42}$ $\frac{15}{54}$ $\frac{17}{47}$ —

$\frac{30}{45}$ $\frac{12}{49}$ $\frac{10}{36}$ $\frac{8}{48}$ $\frac{12}{48}$ $\frac{14}{51}$ $\frac{16}{46}$ $\frac{30}{48}$

— $\frac{-13}{45}$ $\frac{9}{49}$ $\frac{7}{40}$ $\frac{9}{43}$ $\frac{10}{51}$ $\frac{13}{42}$ $\frac{23}{47}$ —

$\frac{30}{34}$ $\frac{16}{42}$ $\frac{12}{45}$ $\frac{10}{35}$ $\frac{6}{39}$ $\frac{8}{46}$ $\frac{11}{37}$ —

$\frac{30}{6.6}$ $\frac{15}{74}$ $\frac{12}{82}$ $\frac{9}{72}$ $\frac{6}{72}$ $\frac{9}{80}$ $\frac{12}{75}$ —

$\frac{30}{53}$ $\frac{14}{68}$ $\frac{11}{77}$ $\frac{9}{66}$ $\frac{7}{68}$ $\frac{9}{75}$ $\frac{12}{66}$ —

$\frac{30}{47}$ $\frac{13}{60}$ $\frac{11}{71}$ $\frac{7}{57}$ $\frac{8}{60}$ $\frac{11}{68}$ $\frac{14}{60}$ —

$\frac{30}{41}$ $\frac{12}{50}$ $\frac{2}{39}$ $\frac{6}{46}$ $\frac{9}{51}$ $\frac{11}{61}$ $\frac{13}{50}$ $\frac{18}{48}$ $\frac{30}{42}$

$\frac{30}{26}$ $\frac{12}{40}$ $\frac{2}{49}$ $\frac{7}{38}$ $\frac{10}{38}$ $\frac{13}{49}$ $\frac{16}{41}$ $\frac{30}{37}$

Spike Wroot 18" Maple 30' Rt & Sta 21+30

$\frac{30}{12}$ $\frac{14}{29}$ $\frac{11-2}{36}$ $\frac{6}{25}$ $\frac{10}{27}$ $\frac{12}{32}$ $\frac{14}{25}$ $\frac{21}{38}$ —

		1146.83			
	9.00	115517	0.66	1146.17	
23			9.2	46.0	
24			8.3	469	
25			6.5	487	
26			4.0	512	
27			3.3	51.9	
28			2.6	526	
	4.87	115714	290	115227	
BM#5			3.72	115342	115341
29			4.8	523	
3					
30			48	52.3	
31			3.2	540	
	1164	116718	1.60	115554	
32			86	586	
33			45	627	
	8.60	117218	3.50	116368	

$\frac{-19}{102}$ $\frac{10}{95}$ $\frac{8}{103}$ $\frac{6}{95}$ $\frac{9}{94}$ $\frac{13}{101}$ $\frac{18}{101}$ $\frac{30}{106}$

$\frac{-23}{72}$ $\frac{7}{86}$ $\frac{6}{89}$ $\frac{3}{85}$ $\frac{11}{84}$ $\frac{14}{93}$ $\frac{18-}{87}$ —

$\frac{30}{35}$ $\frac{7}{65}$ $\frac{4-3}{76}$ $\frac{2}{66}$ $\frac{3}{62}$ $\frac{12}{65}$ $\frac{14}{70}$ $\frac{16}{63}$ $\frac{22-}{60}$

$\frac{30}{26}$ $\frac{8}{44}$ $\frac{6-5}{52}$ $\frac{9}{41}$ $\frac{4}{38}$ $\frac{12}{44}$ $\frac{15}{51}$ $\frac{16-}{45}$

$\frac{30}{22}$ $\frac{9}{34}$ $\frac{6}{39}$ $\frac{5}{35}$ $\frac{4}{31}$ $\frac{11}{35}$ $\frac{13}{38}$ $\frac{18-}{39}$

$\frac{30}{20}$ $\frac{17}{30}$ $\frac{12}{40}$ $\frac{9}{27}$ $\frac{8}{29}$ $\frac{11}{40}$ $\frac{12-}{37}$ —

Spike Root 18" Elm 22' Lt & Stg 28+70

$\frac{30}{40}$ $\frac{20}{50}$ $\frac{16}{62}$ $\frac{12}{55}$ $\frac{10}{61}$ $\frac{7}{50}$ $\frac{7}{52}$ $\frac{9}{57}$ $\frac{10}{56}$ —

— — — $\frac{-11}{67}$ $\frac{7}{51}$ $\frac{7}{50}$ $\frac{12-}{62}$ — $\frac{30}{70}$

— $\frac{-12}{38}$ $\frac{10}{40}$ $\frac{7}{35}$ $\frac{8}{37}$ $\frac{17}{34}$ $\frac{30}{15}$ —

$\frac{-26}{78}$ $\frac{18}{68}$ $\frac{11-10}{100}$ $\frac{8}{88}$ $\frac{7}{82}$ $\frac{10}{98}$ $\frac{13}{85}$ $\frac{27}{59}$ $\frac{30}{57}$

$\frac{30}{20}$ $\frac{15}{37}$ $\frac{8}{55}$ $\frac{5}{46}$ $\frac{9}{49}$ $\frac{10}{52}$ $\frac{14}{41}$ $\frac{30}{32}$

		1172.18			
34			7.0	65.2	
34+57			38	684	
84*6			5.00	1167.18	1167.20
	5.00	1171.18			
	1.29	1163.97	8.50	1162.68	
			*43		55.54

— $\frac{23}{50}$ $\frac{19}{69}$ $\frac{10}{77}$ $\frac{7}{74}$ $\frac{8}{82}$ $\frac{11}{67}$ $\frac{30}{57}$

$\frac{100}{6.5}$ $\frac{100}{0.9}$

Spike Wroot 10" Maple 30' Lt ℄ Sta 33+60

	Hub Stakes		for Ditch		Spencer
BM #3	4.23	1143.23			1139.00
From 0+00			6.3	36.3	Grades
0			4.58	38.65	35.00
1			3.74	39.49	34.72
2			4.20	39.03	34.43
3			4.57	38.66	34.15
4			4.28	38.95	33.86
~~5~~	0.66	140.11	3.78	39.45	~~33.8~~
5			1.87	38.24	33.58
6			2.87	37.24	33.29
7			3.85	36.26	33.01
8			4.72	35.39	32.72
9			5.29	34.82	32.49
10			5.54	34.57	32.15
10+58 BM			3.83	36.28	1136.29
From 10+58			8.1	32.0	
100' South			89		

4/5/35 Richey Rand 46

Shed Cut off C&H No 45 from Sta. 14+45

Cuts from bug

Cut 3.65
4.77
4.60
4.51
5.09

4.66
3.95
3.25
2.67
2.38
2.42

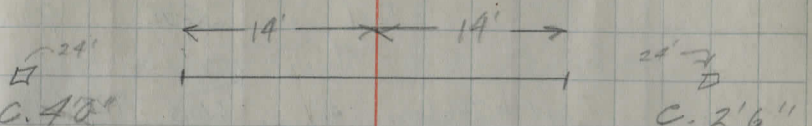
Selected herein for surface elevations

12" tile from Sta 14+45 (Spencer St #45) 5th. easterly to Mayfld Rd

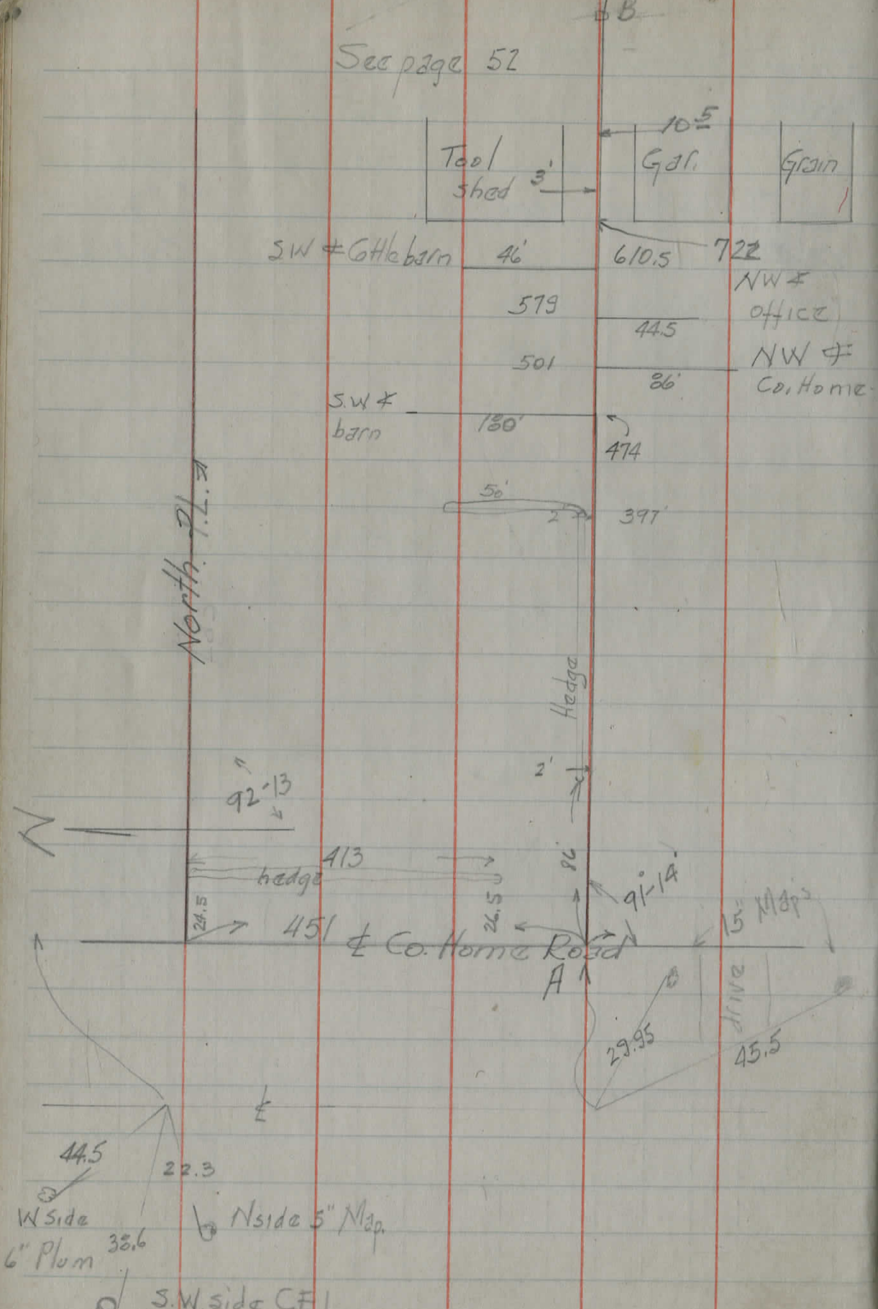
Grades for culvert Sta 14+54

BM #3	4.83	43.83			113900
℄ Road			5.1	38.7	
Grade R			7.83	1136.00	
Stake R			7.66	5.16	C2.5
Grade L			8.33	1135.50	
Stake L.			8.50	4.50	C4.0
Present Flow			6.7		
Channel 100' Rt.			7.4	6.4	

County Highway #15

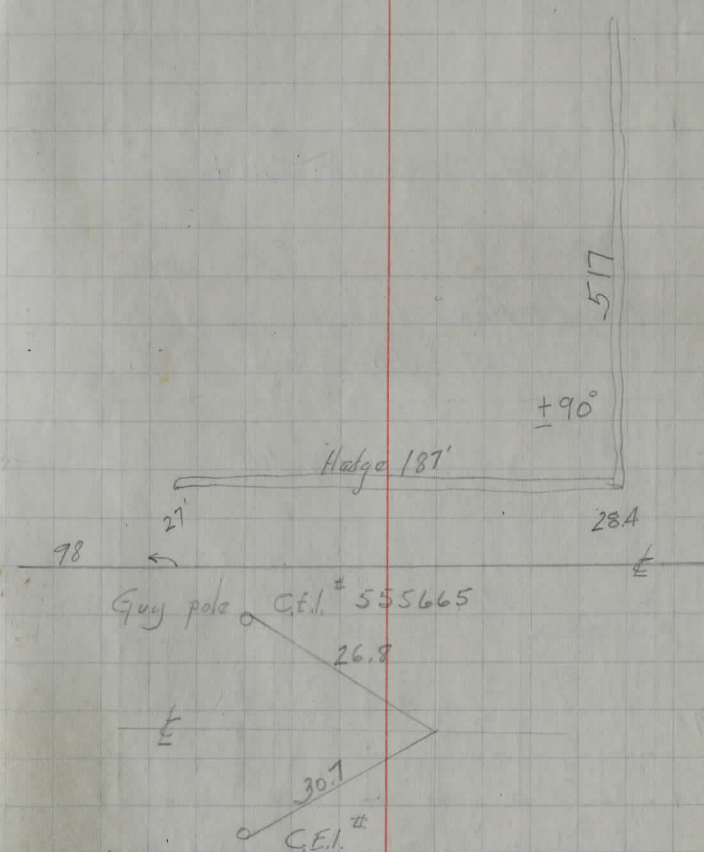


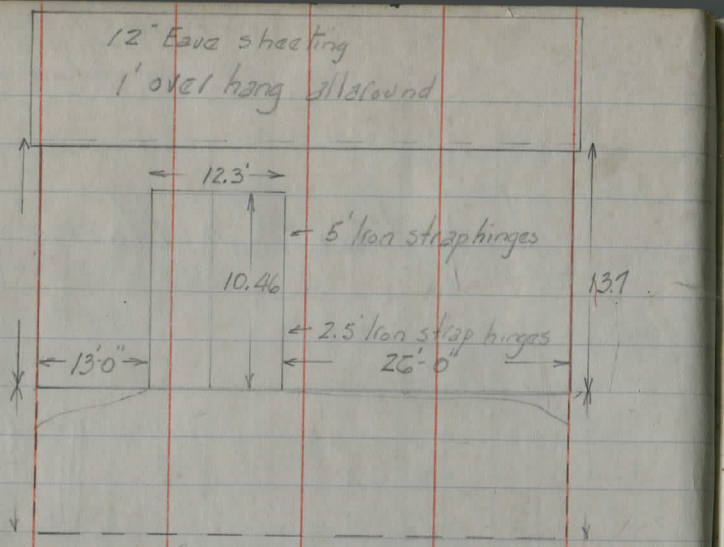
See page 52



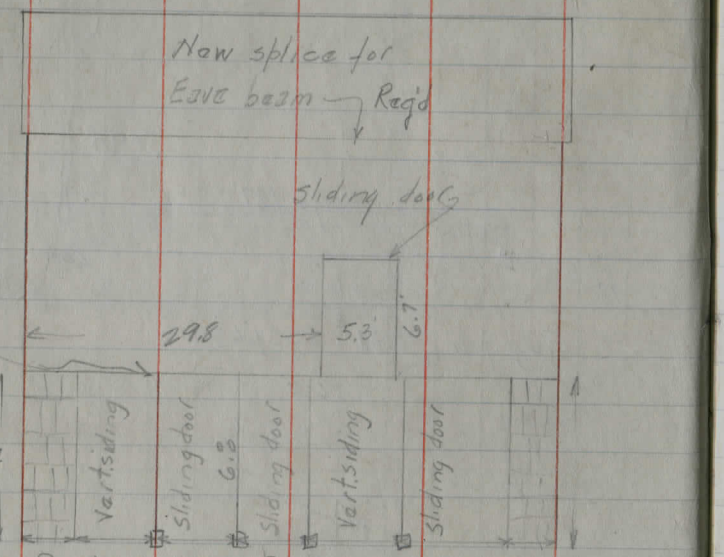
2/29/40 Pomeroy Richards clause

Location Co. Home





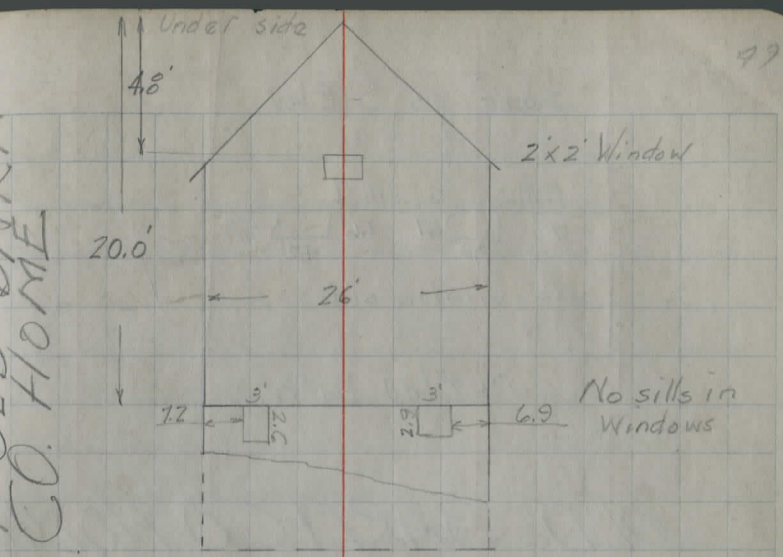
West Elevation Barn



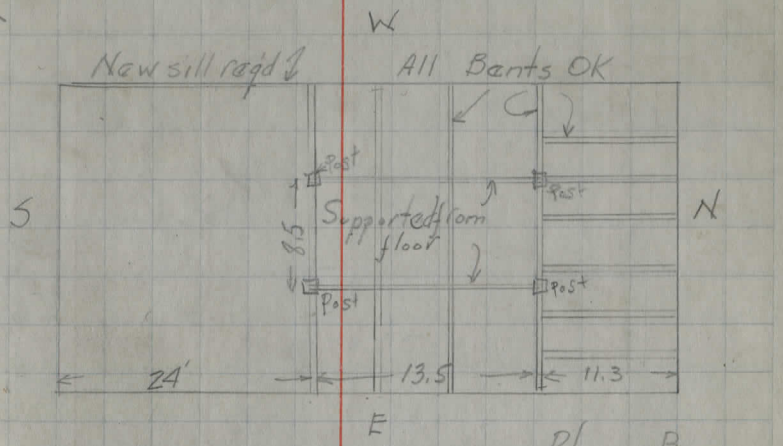
East Elev Barn

Sliding door hangings can be salvaged

PLAN OLD BARN CO. HOME



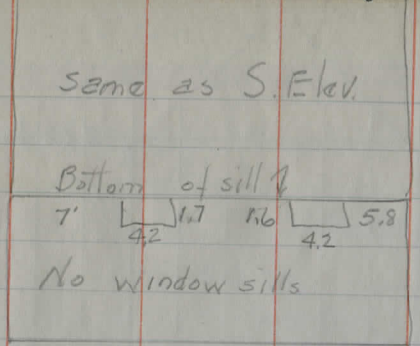
South Elev. Barn



Plan Barn

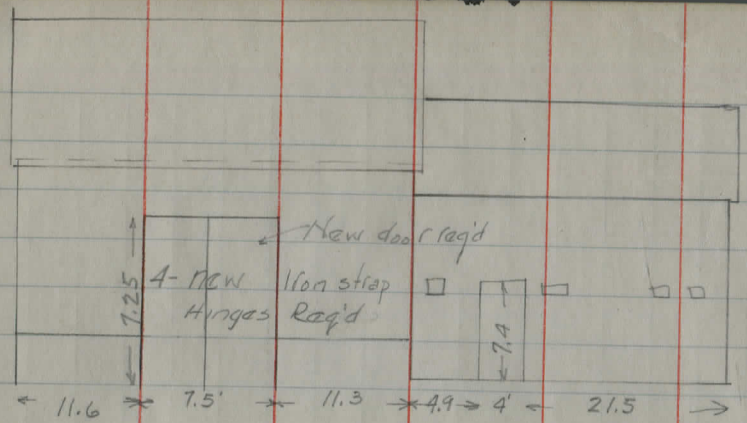
Relay all of S & W foundation
" 6' " N "
4 new supports for E sill needed
6"x6"x6.8'

Double Flooring = poor.
Eside bulges out in center

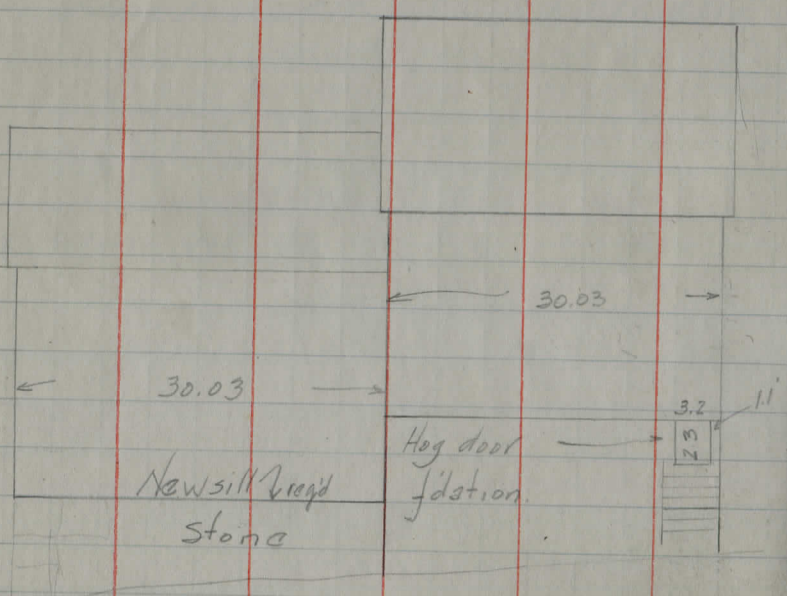


N Elev Barn

OLD BARN CO HOME

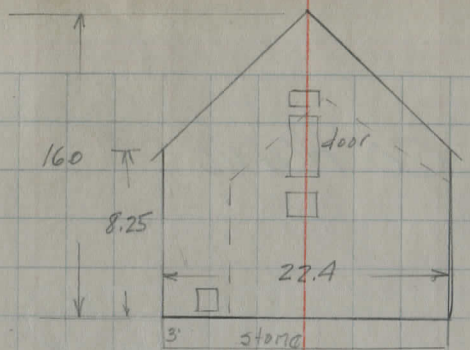


West Elev Pig Pen & C. House

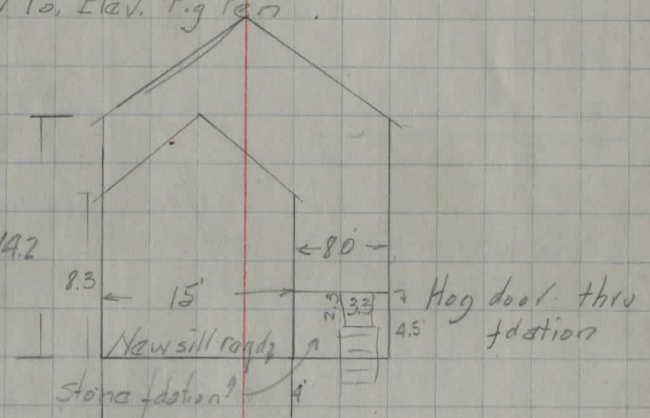


East Elev.

PIG PEN & CHICKEN HOUSE CO HOME



No. Elev. Pig Pen.

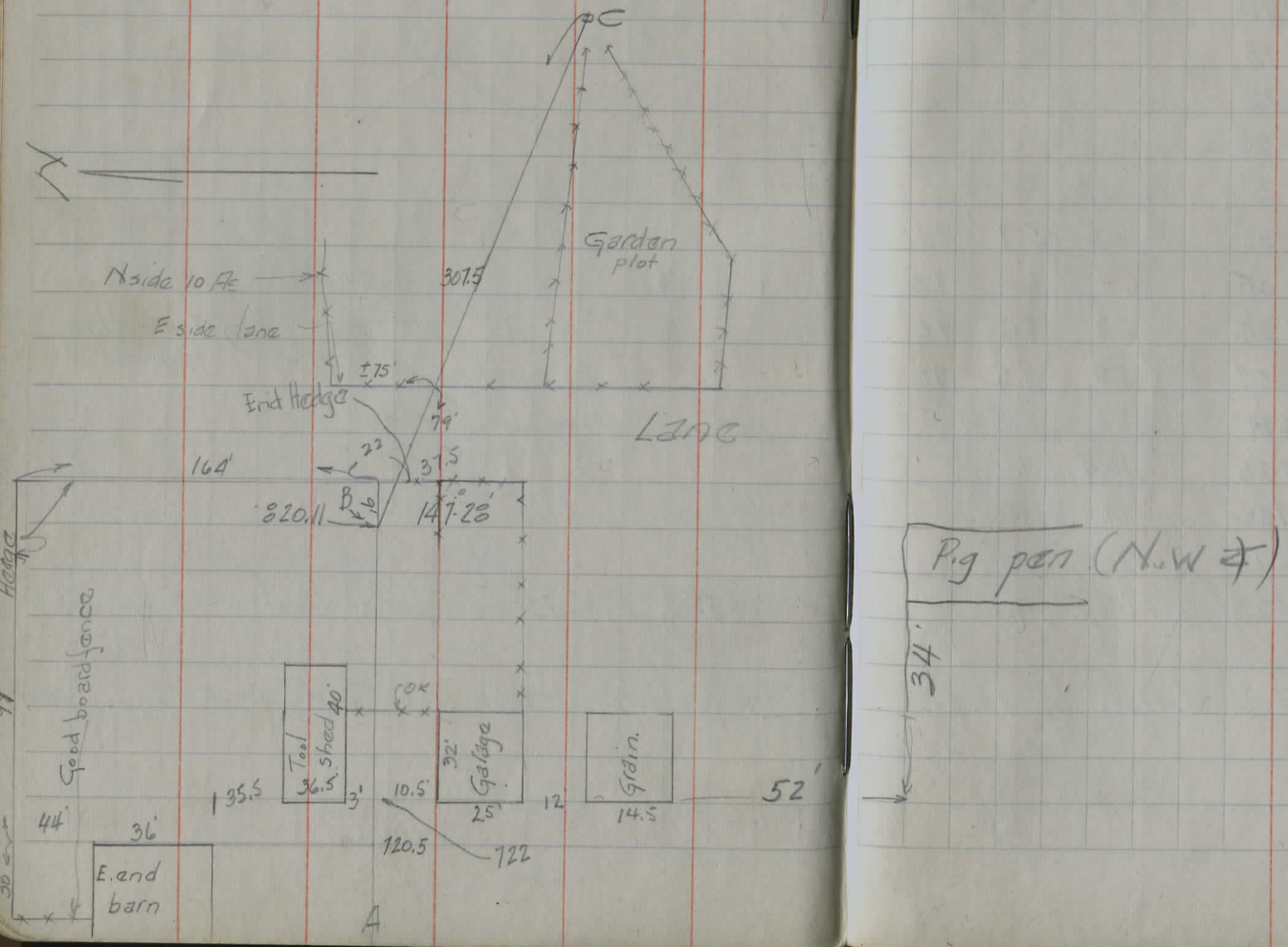


So Elev

Relay all f'dation except West.

2 partitions taken out to lay floor in pig pen

LOCATION CO. HOME



BM	0.51	122.20		121.69
			6.33	
T.P.	0.00	118.63	4.17	118.03

Note. Transit set at point "C". All angles turned from point "B" to the left.

Angle	Distance	Rod 25'E	Rod ℄	Rod 75'E
0°-0'	11'			
32-04	193'			
54-25	213			
59-01	172'			
63-32	186			
59-15	5'			
121-05	32'	6.5	5.7	8.1
143-17	165	6.4	6.0	7.8
141-15	186	8.2	7.6	9.6
148-31	267	8.9	8.5	9.8
149-12	286			
150-07	425	10.4	9.8	
150-36	700	14.5	14.0	
150-30	618	13.3	13.2	
150-15	523	9.6	9.6	

Fence ℄ proposed ditch location

= BM #2 Page 14
F.L. 8" Farm tile inlet

Co. Home

NE ℄ Garden
NW " "
SW " "
Angle in S. line garden
Inlet 8" Farm tile
SE ℄ Garden

See preceeds Pg

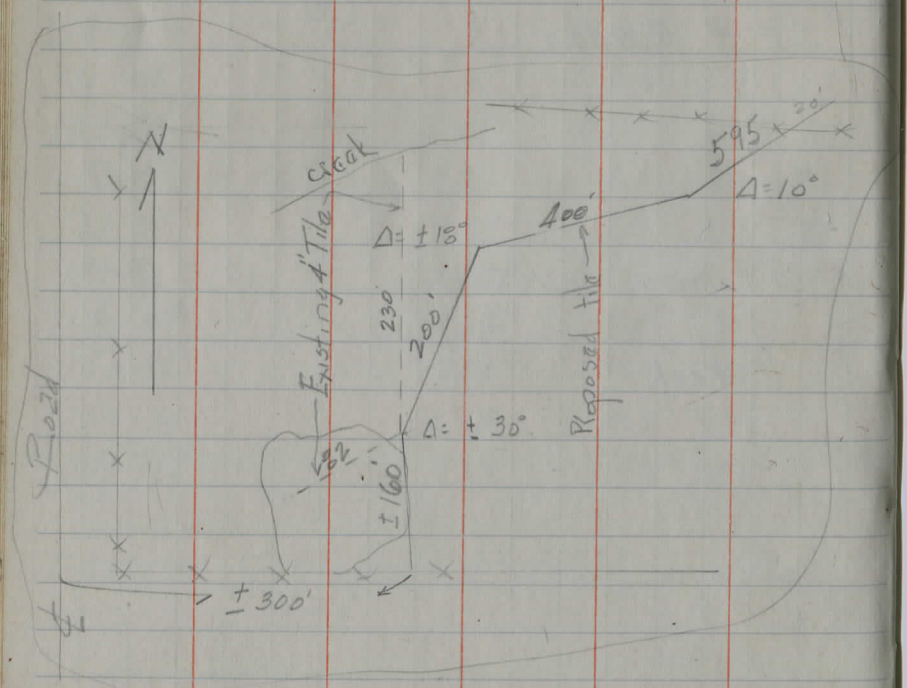
S Fence to AE

Creek

Pope

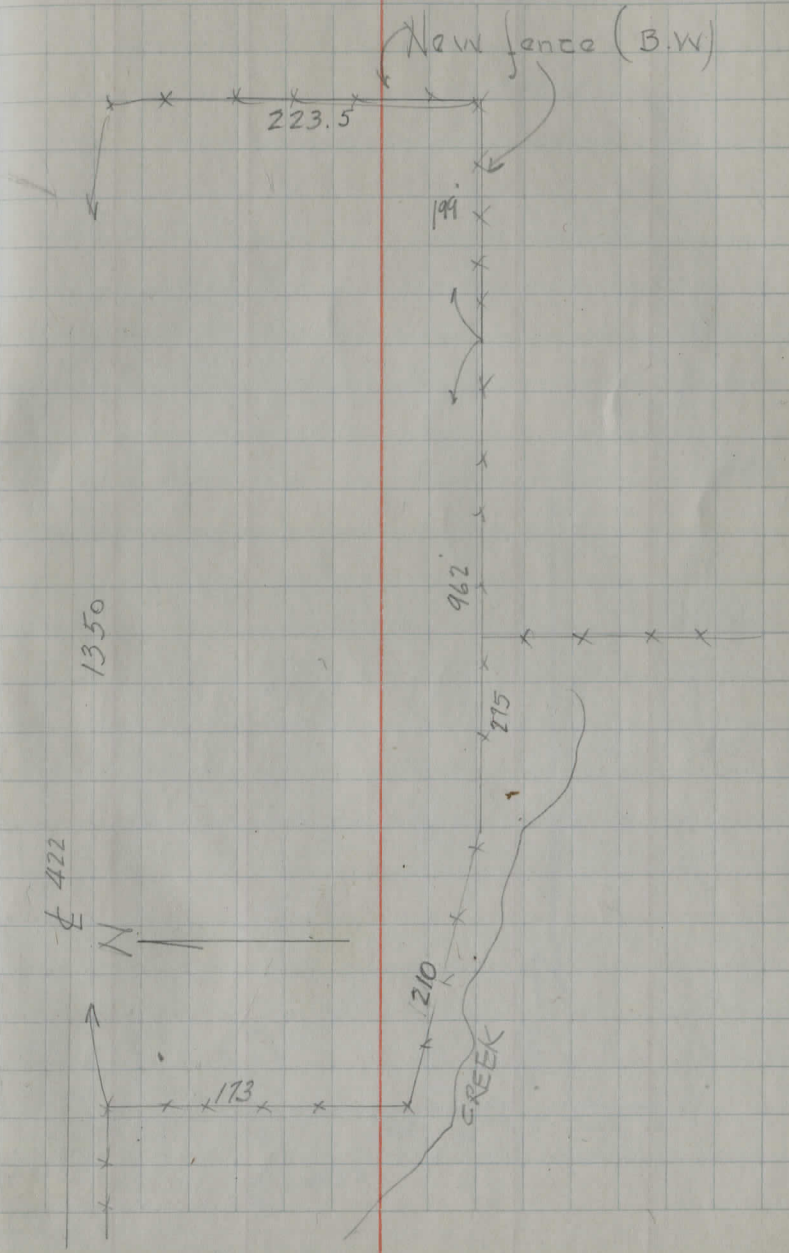
So. fence line

Co. Maintains from flats halfway to Road & from flats half way to River. Good woven wire fence from flats to road. Fence on flats rigid to be rebuilt each spring.

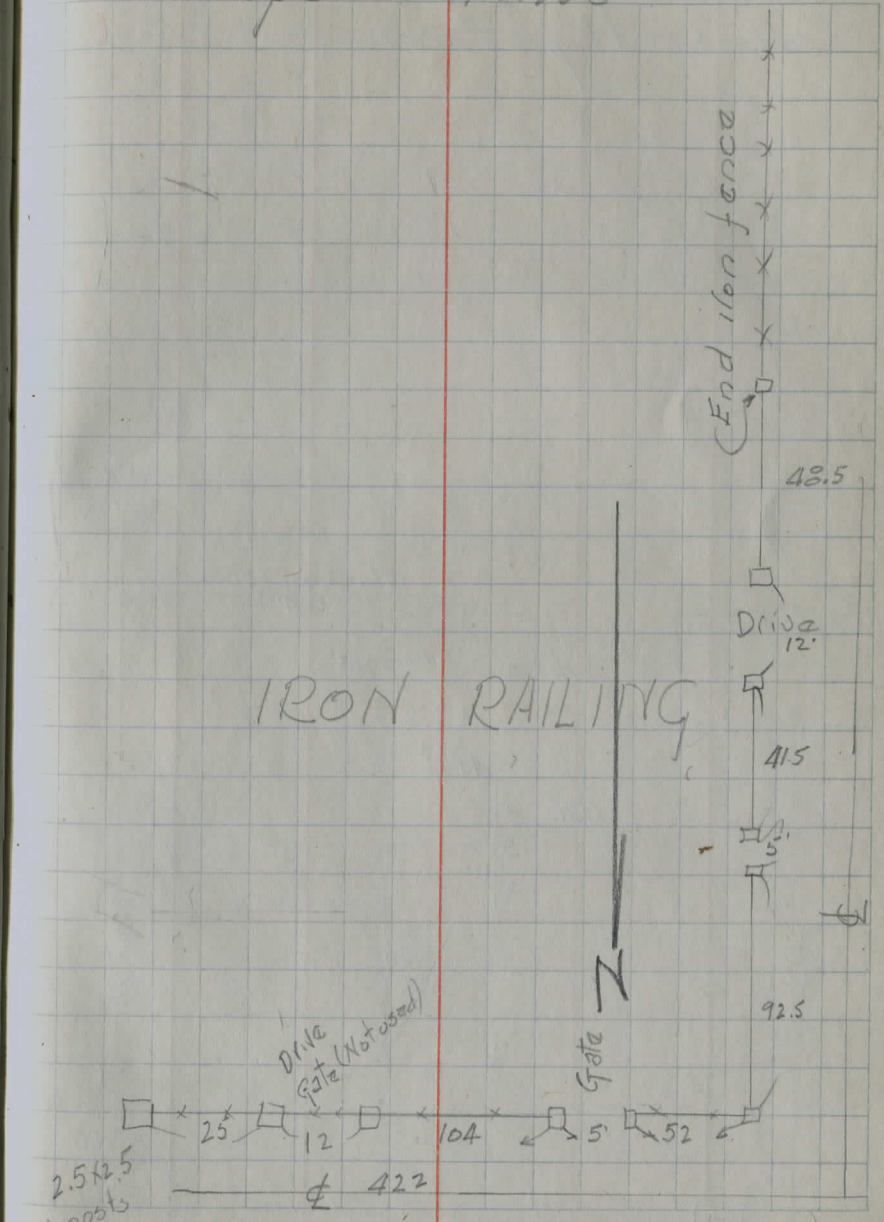


Home

54

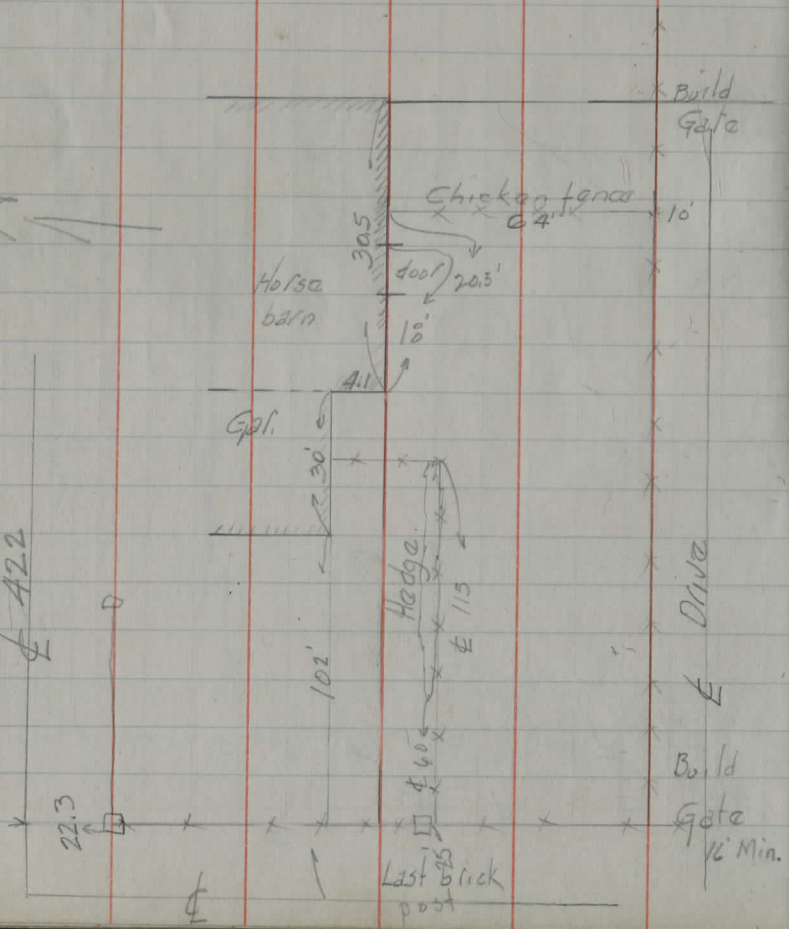


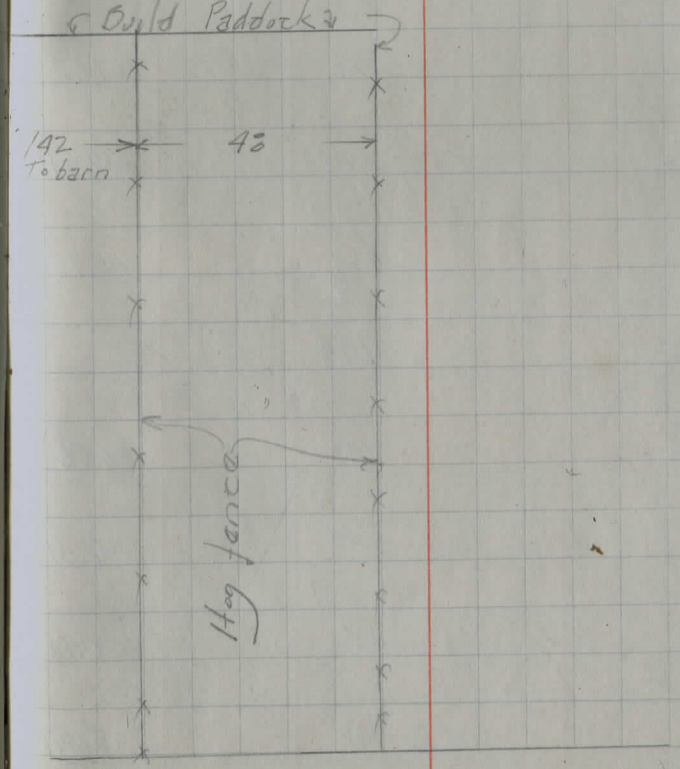
Pope Home


(End iron fence)
48.5
Drive 12'
IRON RAILING
41.5
5'
92.5
N
Drive Gate (Not used)
Gate
25'
12
104'
5'
52'
2.5x2.5 brick posts
℄ 422

190
45
142

Location for proposed Paddock - Rope farm





11/7/40
Pomeroy
Richards

Levels for drain tile Co. Home

					Grade
BM	0.41	122.10		121.69	
T.P.	1.72	113.61	10.21	111.89	
F.L. 2-6 tile			3.8		108.81
Ground			2.00		
0+50			1.72		108.43
1+0			1.38		108.06
+50			2.42		107.68
2			3.20		107.31
+50			4.06		106.93
+70			4.24		
3+0			3.93		106.56
+50			3.49		106.31
4			4.35		106.06
+50			4.12		105.81

Spike N.W. side 18" Walnut.

	Ground	
		4.80 .8 C 4.0
2.9		5.18 1.68 ✓ C 3.5
2.65		5.55 1.55 C 4.0
3.9		5.93 2.43 ✓ C 3.5
4.6		6.30 3.30 C 3.0
5.3		6.68 4.18 C 2.5
5.5		6.90 4.40 C 2.5
5.1		7.05 4.05 C 3.00
5.1		7.30 3.80 C 3.50
5.8		7.55 4.55 C 3.0
5.8		7.80 4.30 C 3.5

0 to 1.3+0 0.75 % Gr.
3+0 to 7+0 0.50 % "

113.61

5	4.66	105.56
+50	5.47	105.31
6	7.49	105.06
+50	8.13	104.81
7	8.55	

6.3	8.05 5.05 C 3.0	.57
7.1	8.30 5.80 C 2.5	.83
8.6	8.55 7.55 C 1.00	.46
9.5	8.80 8.30 C 0.5	.47
9.6	9.05 8.55 C 0.50	✓

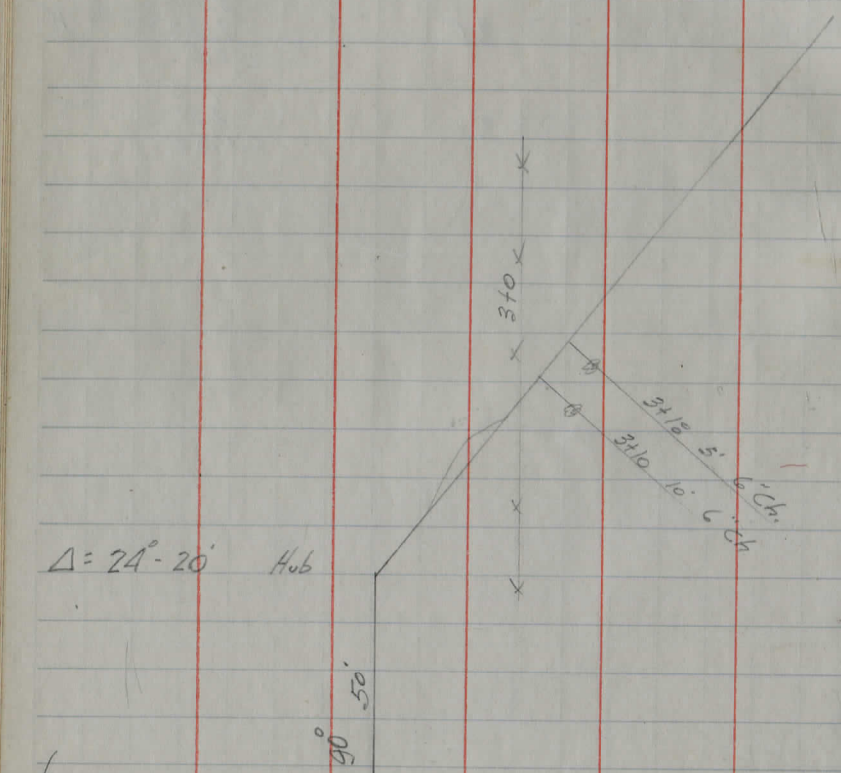
12-2-40

Pomeroy Richards proposed new drive for Co. Home

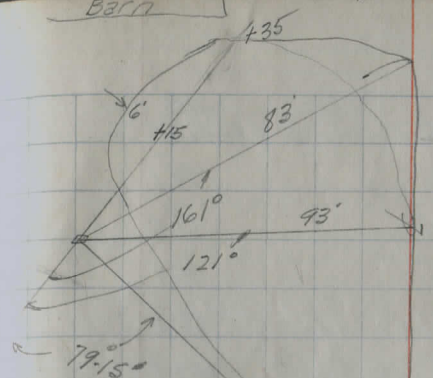
Hail

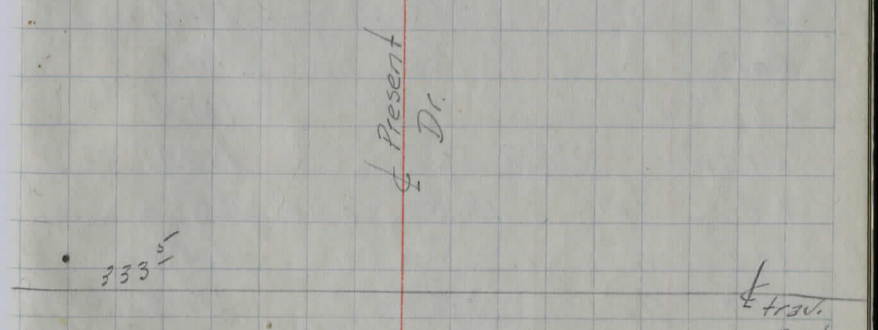
6+07

6+0



Barn





BM.	4.58	104.58		355, 100.00
6+0				98.1
6+35				97.0
6+83				95.7
6+07				98.4
7+19				102.8
T.P. #1			0.69	103.89
5+0				98.5
T.P #2			1.75	
T.P. #1	12.73	116.62		103.89
100 = 8+19				109.1
200				115.9
T.P.	12.47	128.50	0.59	116.03
300				122.3
T.P.	11.79	140.16	0.13	128.37
400				130.4
+ 60				134.6
4+83				140.1
0+0				131.4
0+50				128.9
T.P	1.07	130.33	10.90	129.26
1+0				124.2
2+0				116.5
T.P.	0.18	118.41	12.10	118.23
+22				113.9
+50				116.0

S.E. ∠ of So. end Conc. abut. for barn approach

	6.5
	7.6
	8.9
	6.2
	1.76
	6.1
	7.5
	0.7
	6.2
	9.8
	5.6
	0.10
	8.8
	11.3
	6.1
	13.8
	4.5
	2.4

		118.41			
3+0				113.6	
+50				108.5	
4+0				107.5	
T.P.	2.14	107.83	12.72	105.69	
5+45				95.2	
B.M.			7.90	99.93	(100.00)

X Sections

BM.	7.60	107.60		100.00	
5+50				95.1	
5				98.4	
T.P.	11.79	117.55	1.84	105.76	
4				107.55	
3+50				108.25	
3				113.75	
2+35				116.15	

7.8
9.9
10.9

12.6

SW				HE		
96.2	11.4	11.8	12.5	12.5	12.8	94.6
	15	10		10	15	
99.9	7.7	9.2	10.9			96.7
	15		15			
108.0	9.5	10.0	10.4			107.1
	15					
109.0	8.5	9.3	10.0			107.5
	15		15			
114.6	2.9	3.8	6.0			111.5
	15		15			
117.1	0.4	1.4	3.6			114.0
	15		15			

		117.55			
2+25				114.05	
T.R	12.91	129.31	115	116.46	
2				1165	
1				124.2	
0+50 New				128.8	
			+0.01	129.32	129.26

	SW			NE	
	116.0	1.5	3.5	4.9	112.6
				15	
	116.5	12.8	12.8	13.5	115.8
		15		15	
	125.1	4.2	5.1	6.1	123.2
		15		15	
	127.8	1.5	0.5	0.5	128.8
		15			

Grd level 5' up from basement floor

1st floor window 4.4' above ground level

Front porch 2' up from gd

Porch width 10'

Porch set in 1.5' from N.W + house

House to panel fence = ± 40'

grd level at fence ± 2' above road.

Levels for Proposed Channel S. pasture

B.M.	3.61	203.61		200.00	BSS.
0 to	Gd		6.8	196.81	
	Stk		5.20	198.41	
1 to	Gd		7.3	196.31	
	Stk		6.11	197.50	
2 to	Gd		7.7	195.91	
	Stk		6.35	197.26	
+50	Gd		8.7	194.91	
	Stk		7.44	196.17	
3 to	Gd		9.7	193.91	
	Stk		8.44	195.17.	
+35			11.2	192.41	

Sharp break here to creek

W. Root 16" Ash 5' S. of pasture fence

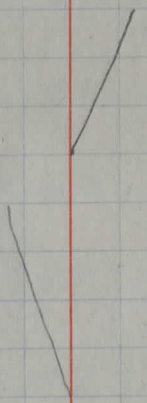
2-11-41
Forn.
Rich.

4-8-41
Pomeroy
G. Hosford

Proposed Water Storage Basin

3+45 W. end 30" Corr. I.P. at drive

Δ = 21-33 R



2+60 Δ = 16-37 L

0+0 E. end 30" Corr. I.P. at road

B.M.	1.25	101.35		100	Assumed
0+0	F.L.			94.50	
1+0				93.75	
2+0				91.75	
2+60					
T.P.	3.05	94.63	9.77	91.58	
3+0				877	
3+45				85.33	
3+53	drive				
3+61	F.L.			84.93	
4+0				85.3	
4+30	Dam · here or at drive 83.9				
	Spring just E of drive				
5+0					

N 5

N.E. & E. conc. Hdwall.

6.85

7.6

6.7 7.2 9.6 7.6 9.5 8.3 7.3
35 24 20 E 25 34 46

8.2 9.0 11.0 12.7 11.2 11.4 11.1 12.5 10.1 8.9
55 45 40 25 Ch. 18 E 9 12 16 27

2.4 5.4 6.9 7.5 5.9 4.0 2.9
58 50 E 10 11 18 26

9.3
FL

2.0 2.9 5.4 6.4 3.5 2.6
90 73 48 30 40

9.7

3.7 4.4 7.6 10.2 9.3 7.1 5.2 2.1
61 58 50 4 Ch 8 15 31

4.4 4.8 8.4 10.0 11.1 10.7 9.4 7.6 6.4 3.7 1.5
57 47 38 11 6 Ch. 6 12 17 23 39

6.6 7.5 8.9 11.4 11.1 12.1 12.4 11.4 8.4 6.5 4.4
60 50 40 31 5 E 3 Ch. 8 16 23 42

		94.63			
T.P.	10.02	101.60	3.05	91.58	
B.M.			1.62	99.98	100.00

Proposed H_2O Storage

B.M.	0.97	100.97		100.00	ass.
T.P.	1.03	89.22	12.78	88.19	

Note: Base line is straight line

0-50				
0+0				82.02
+50				
+90				
1+15				
	5.00	87.02		82.02
0-20				
0-20				
0+0				

solid Rock in Channels

S H

County Home Clariden

S.E. ∡ of S. end conc. abut. to barn approach

8.7/65 9.4/46 14.8/32 15.0/20 13.4/14 15.2/6 16.6/10 (channel) 15.7/17 14.9/31 7.4/53 4.2/79

4.9/14 11.2/39 50 9.6/33 7.0/6 7.2/00 12.7/15 12.5/34 (channel) 12.8/40 11.0/42 9.7/48 8.1/55 6.1/74 2.6/100

4.9/13 6.4/31 45 5.4/19 7.7/00 10.1/6 19 9.3/23 10.8/32 (channel) 8.9/41 5.8/63 6.7/79 4.6/100

2.3/11 3.5/53 3.3/30 4.5/20 5.1/00 7.0/29 6.6/54 5.4/63 4.1/77 5.3/91 5.3/99 (channel) 4.4/106 2.4/115

0.1/34 2.5/27 3.1/2 2.1/6 0.0/41 0.6/69 1.6/88 3.3/101 3.1/118 0.0/126

79.5 80.9 75.8 75.1 75.4 76.4 80.8 83.0

7.5/24 6.1/5 00 11.2/10 11.9/14 11.6/25 10.6/37 6.2/50 4.0/63

Rock ↓

12.9/10 12.7/14 14.1/25 15.6/28 13.4/32 11.4/37

Rock ↓ 4' down on Rock

2.0/15 /35 3.5/34 /40

County Home Dam

Length = 54'

Sta 0-20

stk. set 3' off end DAM

5-10-41

Water Storage Pope Home

F.L. 6.86 91.79 84.93

H_2O Level = 84.93 + 1.00 = 85.93 Top dam = 85.93 +

0 to C 1.0 88.49

0 to C 0.5 88.00

0 to

0 to

+ 50

+ 50

1 to

6.88. ck Fl.

1.5' = 87.43

Stk Lt (S) 3.30

" Rt (N) 3.80

88.0 85.8 82.5 81.9 83.2 82.7 93.0 85.5 86.5 87.8

3.8/30 6.0/19 9.3/15 9.9/9 8.6/3 9.1/17 8.8/21 6.3/30 5.3/36 4.0/47

channel

South 81.3 80.9 82.0 81.3 81.3 North

Rock

10.5/15 10.9/9 9.8/3 10.5/17 10.5/21

86.5 83.3 83.3 84.0 83.9 85.0 87.6

5.3/18 8.7/12 8.5/8 7.8/3 7.9/15 6.8/30 4.2/37

channel

82.1 82.6 Rock 82.9 83.4

9.7/8 9.2/3 8.9/15 4.4/30

87.2 84.8 84.3 85.4 87.4 90.3

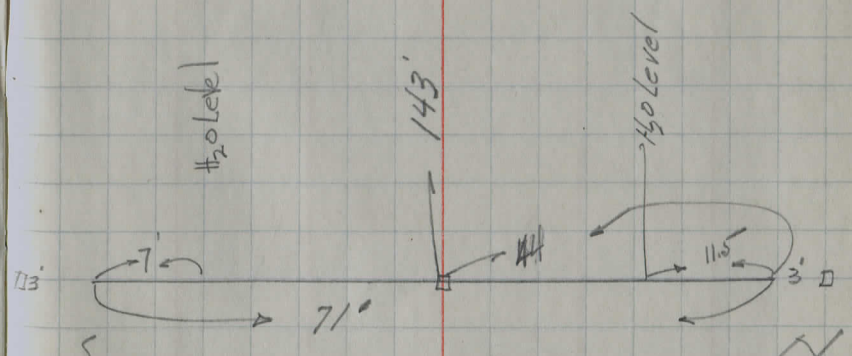
4.6/11 7.0/6 7.5/4 6.4/9 4.4/50 1.5/58

channel

83.8 83.8 83.6 84.8

8.0/6 8.0/6 8.2/9 7.0/50

E end Dr pipe



10.5
10.5
525
105
110.25
12
22
11
231) 1320
0034
526
396
4.4860

7854
110
7854
7854
8.6394

86.4
12
1728
864
231) 1036.8 (45
924
1128
1155

County Home Spring Levels

B.M.	7.46	107.46	-	100.00	
Swale 150' N of BM			12.5	95.0	
Gr at Ram	3±		10.1	97.4	7.6 below Spring 250' N20W of Spring
High Gr. 150 N of Ram. Sta 1+50			3.8	03.7	
Gr 250' NE of Sugar house Sta 4+40			4.0	03.5	
T.P.	9.98	115.74	1.70	105.76	
Top Hill in saddle 200' E of Sta 10			5.5	10.2	
T.P.	6.73	115.97	6.50	109.24	
Sta 8			2.2	13.5	
Swale 14 H_2O			9.8	06.2	
Bridge H_2O Sta 14			8.0	08.0	
Top Hill same as 6 lines above			5.7		
TP	13.14	124.56	4.55	111.42	
Sta 18			12.5	120	
	12.57	134.57	2.56	122.00	
	10.55	145.12	0.00	134.57	
X on foundation			2.02	143.10	143.31 E.A.F.
Gr	4.8	40 57			
Gr	2.2				
		106.35			
Swale N10°E 300'			13.1	93.2	
" N10°E 300			9.7	96.6	
H_2O	5.6	11.6		06.0	

N'ly root 12" Apple 200± E'ly of Spring on N Bank.

Ram = 0+00
3+25 → N 20 E to ram
4+00 → N 70 W
5+70 → N 10 W is 50' NE of Bridge
7+00 North

Level Sta 7+00

Stake in Road = 12

Sta 12 N25W

Sta 18 = fence   Sta 19 Angle N50W

Sta 20 - X creek

Sta 21 = cross Lane

23+65 = tank

25+80 = circuitous route

℄ location of Water Supply
County Road
sideshakes set 3' Rt or east.

Sta 24+67 = End of Boiler

N60°40' W

20+53 Def Lt 26°45' N.b Set

Δ = 26°45'
D = 12
T = 113.53
L = 222.92
PC = 19+39.47
PT = 21+62.39
E = 13.3

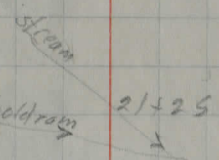
20 = 3.7
20+30 = 12.4
21 = 3.9

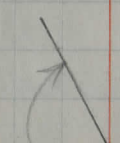
Sta 2+80 Ram N34°15 W

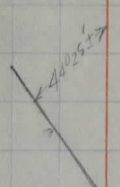
Sta 2+70 Standpipe

Sta 0 Dam N10°10 E

7/18/35 Richey Rand 72







Levels in Water Supply for County

BM#1	10.37	110.37			100.00
H_2O Level			3.39	106.98	
0+50			0.57		C. 2.82
1+00			2.60		C 0.79
2+00			5.70	04.67	F 2.31
	2.49	105.43	7.43	102.94	
2+80			9.43	96.00	3.96
swamp at 5+50			7.0	98.4	
Outlet to ram			9.9	95.5	7.5
3				96.05	
4			9.13	96.30	3.25
5			8.88	96.55	5.15
6			8.63	96.80	5.47
	10.46	112.47	3.42	102.01	
7			15.42	97.05	10.46
8			11.21	01.26	7.58
9			9.07	03.40	5.70
10			8.97	03.50	3.45
11			8.87	03.60	2.13
12			8.77	03.70	1.28
13			8.67	03.80	2.72
	4.69	114.44	2.72	102.75	
14			10.54	03.90	7.46
15			10.44	04.00	7.96

Home

Spike North 12" Apple 200' Rt Sta 2+00

Spring Sta 0+00

H_2O level at Standpipe

C 5.47 Flow of ram 11' below H_2O level in spring

C 2.4 +0.25%

C 5.88

C 3.73

C 3.16

C 4.96 7+00

C 3.67 +4.18%

C 3.37 8+50 3.4½ 3.7½

C 5.52

C 6.74

C 7.49 +0.10%

C 5.95

C 3.08

C 2.48 15+00

15		114.44				
16			7.04	07.40	4.79	C2.25
17			6.24	0820	356	C2.68
18			5.44	09.00	2.61	C2.83
19			4.64	09.80	0.53	C4.11
	12.17	126.08	0.53	113.91		
20			13.49	12.65	9.22	C4.21
20+50			12.01	14.07	7.43	C4.58
21			10.58	15.50	7.24	C3.34
22			6.91	19.17	3.98	C2.93
22+50			5.08	21.00	2.55	C2.43
BM#2			4.39	121.69		
BM#3				143.10		
Floor			7.5			
24					4.0	C3.5

15
+3.40%
16
+0.80%
19
+2.85%
21
+3.67%
22+50 20'NE of old ram

Elev. 16.00 in channel of ram at 5+a 21+20

Spike NW side 18" Walnut + 30'Lt & 5+a 21+20

X on foundation of house

9+15	✓		14+15	− 2	+1
+35	−01		+35	− 3	+1
+55	− 1		+55	− 1	+1
+75	− 1		+75	− 1	
+95	+ .4		+95	✓	
10+15	+ ~~X~~	3	1		
35	+ 3	3			
55	+ ~~6~~	+3			
75	− ~~4~~	+3			
95	− ~~2~~	+2			
11+15	✓	+3			
+35	✓	+3			
+55	+ 3	+3			
+75	+ 7	+2			
+95	− 1	+2			
12+15	✓	+2			
+35	+ 9	+3			
+55	+ 2	+2			
+75	+ 2	+3			
+95	+ 4	+2			
13+15	+ 4	+2			
+35	+ 1	+2			
+55	− 2	+2			
+75	+ 1	+2			
+95	+ 2	+2			

$$D = \frac{V \times F \times 40}{E}$$

V = gal/m supply
F = Fall in ft.
E = Volt Elev. brake
D = gal delivered

$$\frac{30 \times 11 \times 40}{95}$$

1200
11
12
95 | 13200 | 140
95
370

140
24
56
95
3360

Stakes for Dam Co. Home

6/12/41 Hosford. Richards

Sta. 0-20 Stakes Set 3' off and
Dam
Ground to S ½' ft Higher than Crest of Dam
Length of Dam 54'

070	2.54	84.56	.8202

Gr. Elev. at N end Dam

Gr. Elev. 2 ft and Dam
4.85 +3' S of Dam 5.35

Stk. Gd. to 1.85 C-3.0'

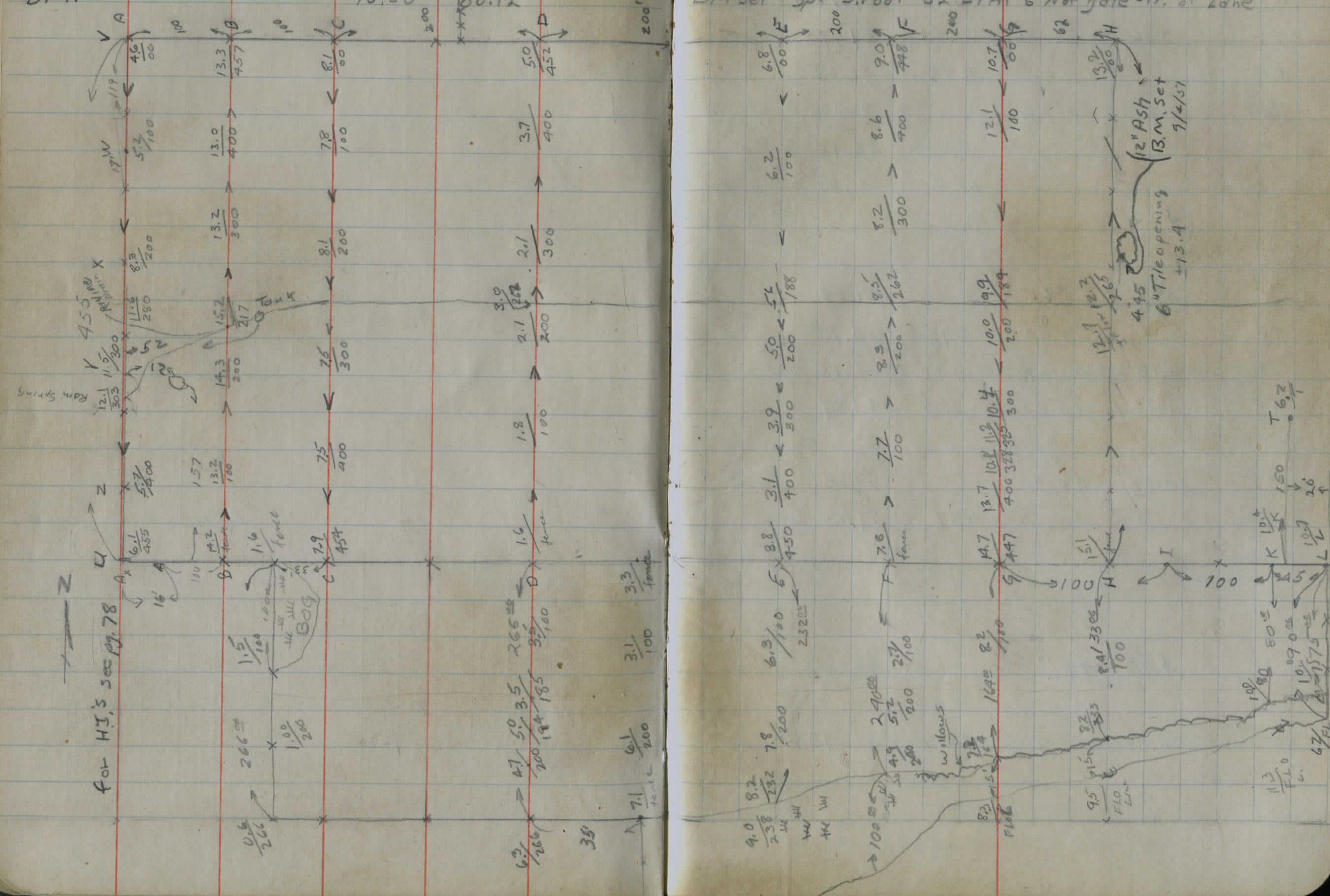
Stk. Set for Q only

Stake Gd. to 3.35 C-1.5'

5-23-51 COUNTY HOME CH'G Topo of Divided Field East of House — Cloudy & Cool

Menyard
Temple
Bender

	BS (+)	HI	FS (−)	
B.M.	2.98	102.98		100.00 Assumed Portage Co. West Face Big Barn
T.P.	0.22	90.62	12.58	90.40
B.M.			10.50	80.12 BM set - spk S. root 32" Elm 6' N of gate - W. of Lane



Sta	+ BS	HI	- FS	Elev.
BM.	0.17	80.29		80.12
T.P.	2.83	72.20	10.92	69.37
T.P.			3.10	69.10
T.P.	2.56	62.26	12.50	59.70
T.P.			9.58	51.68
BM	0.18	80.30		80.12
*			8.20	72.10
			15.20	65.10
T.P.	3.97	55.65		51.68
T.P.	8.65	63.40	0.95	54.75
T.P.	4.13	50.29	9.49	46.16
T.P.	4.16	65.53	2.03	61.37
T.P.	4.62	56.30		51.68
BM			4.87	51.43
T.P.	3.52	49.68		46.16
			10.95	38.73

8-23-51 Maynard Temple Bender 78

This HI - AV to BV thru AU

" " - CV to CU thru CX

TP Top of fence Post G 2+00 in S fence line

This HI - DU to HV thru FU

T.P. Top of fence post G-10+00 in S. fence line

* Reading on NW 30" Walnut (see pg 74)

Flowline in Tank

9/4/51 Maynard Bender

This HI for "F" thru "L"

(Near E) This HI for "D" thru "E"

(Near H) This HI for flow line of chnl @ "L" & pt "T"

This HI for W. fence line

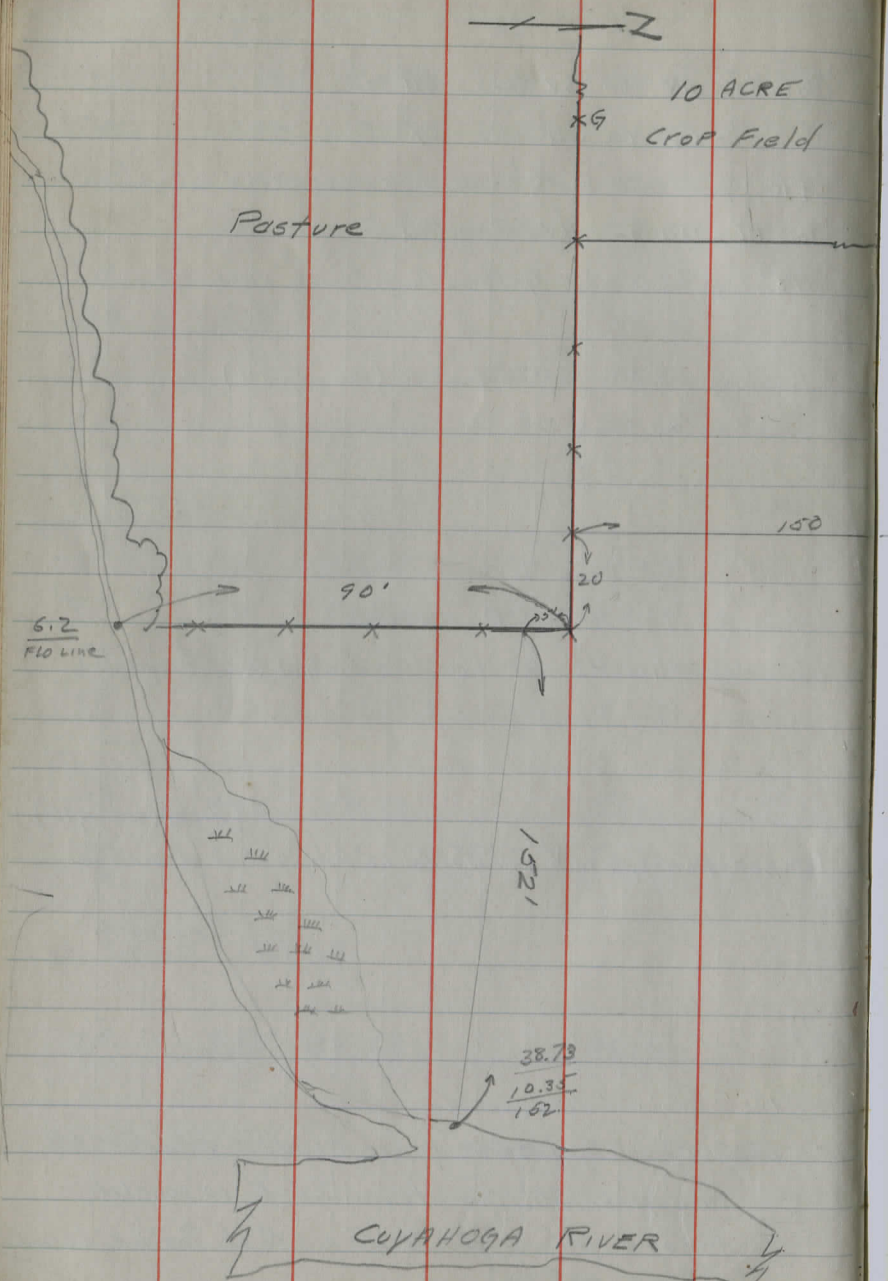
[ditch (see pg 76)]

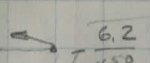
BM set Hor. Spk in "V" in S. Side 12" Ash 6' N. of drainage

9/5/51 Maynard Bender

152' From E. Pasture Fence to outlet Willow Creek in approx. Str. line from S.E. & 10 Acre Lot thru a pt. ± 5' S of NE & of Pasture Fence

(See pg "79)


Z
10 ACRE
Crop Field
G
Pasture
150
20
90'
6.2
Flo Line
1521
38.73
10.35
162
CUYAHOGA RIVER


6.2
T 150

KEITH'S RAILROAD CURVE TABLES.

Published by KEUFFEL & ESSER CO., New York.

HOW TO USE KEITH'S TABLES.

EXAMPLE.

Wanted a Curve with an Ext. of about 12 ft. Angle of Intersection or I. P.=23° 20′ to the R. at Station 542+72.

Ext. in Tab. IV opposite 23° 20′=120.87
120.87÷12=10.07. Say a 10° Curve.

Tan. in Tab. IV opp 23° 20′=1183.1
1183.1÷10=118.31.

Tab. V. correction for A. 23° 20′ for a 10° Cur.=0.16
118.31+0.16=118.47=corrected Tangent.

(If corrected Ext. is required find in same way)
Ang. 23° 20′=23.33°÷10=2.3333=L. C.

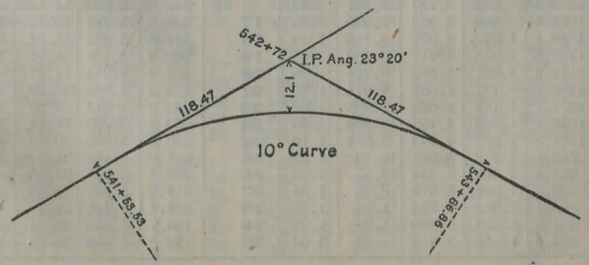
2° 19½′=def. for sta.	542	I. P.=sta.	542+72
4° 49½′= " " "	+50	Tan.=	1.18.47
7° 19½′= " " "	543	B. C.=sta.	541+53.53
9° 49½′= " " "	+50	L. C.=	2.33.33
11° 40′= " " "	543+	E. C.=sta.	543+86.86
	86.86		

100—53.53=46.47×3′(def. for 1 ft. of 10° Cur.)=139.41′=
2° 19½″=def. for sta. 542.

Def. for 50 ft.=2° 30′ for a 10° Curve.

Def. for 36.86 ft.=1° 50½′ for a 10° Curve

(These tables are published in Field Books of KEUFFEL & ESSER Co., New York, N. Y.)



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

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

ROADWAY 24 FEET WIDE. SIDE SLOPES 1½ TO 1.
FOR SINGLE TRACK EMBANKMENT.

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

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

MADE IN GERMANY.

R.