

Dist Az Description

Inst at G

- | Dist | Az | Description |
|------|------|--------------------------|
| 1 | 42' | 256-10 Fence on Lt. Cor. |
| 2 | 35' | 218-35 Fence RT. |
| 3 | 38' | 55-30 " RT. COR |
| 4 | 90' | 15-30 " RT. COR |
| 5 | 128' | 2-20' " Lt in corner |

Ex 8.0'

Ex 1.0'

Dist Fence Lt 23'

Dist Fence RT 18'

Dist Fence Lt 27'

Dist Fence RT 5'

Ex 6.6'

H

(G)

T

P

D.

Az 042-09' 1 Az 50-08' 1 Az 47-47' 1 Az 10-13' 1
 355.80 530 213.40 316 → pipe culvert

Fence at 26

Ex 40'

Ex 4

Fence 26' R+

Fence 8' ht.

780 *ed.*

20' Fence L

Ex. 2.0

15' Lt to Fence

~~16' RT to Fence~~

$$Ex = 0.6'$$

~~Inst. at [H]~~

0.5 A₂
23 160°-10°

Description

~~coron fence~~

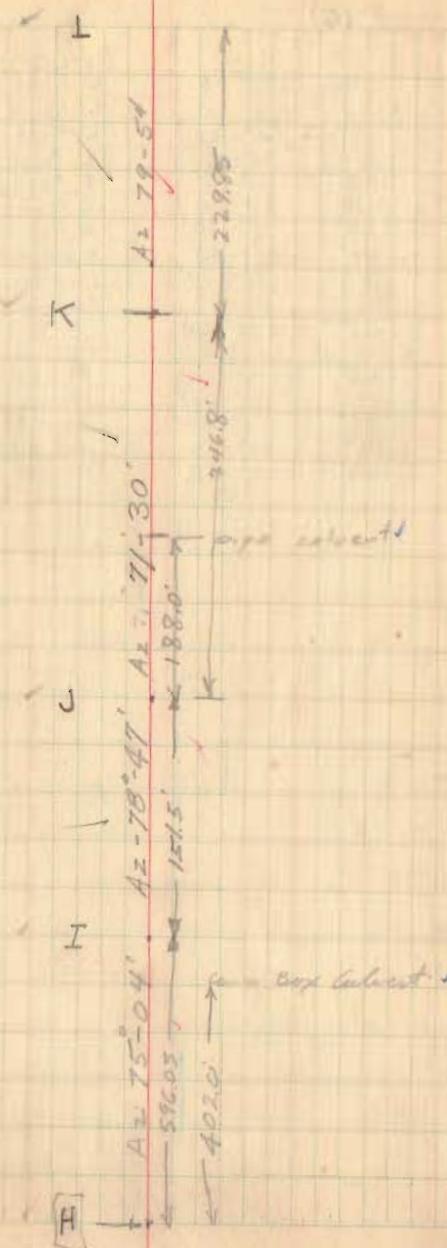
1 27

Geographia

3 64' 86-40

Feasible RT

二十一



Inst at (O)

DIST	AZ	Description
1 62'	255°-25'	E Road
2 26'	262°-15'	E Road
3 12'	4°-30'	E Road
4 51'	27°-30'	E Road.
5 82'	21°-15'	E Road
6 103'	16°-40'	E Road
7 138'	9°-20'	E Road
8 30'	207°-40'	Fence Rt.
9 89'	36°-20'	Fence Rt.
10 121'	21°-50'	Fence Rt.
11 69'	271°-10'	Fence Lt.
12 18'	342°-10'	Fence Lt.
13 34'	13°-30'	Fence Lt.
14 61'	21°-00'	Fence Lt.
15 98'	12°-30'	Fence Lt.
16 86'	203°-05'	cor of House North Cor
17 165'	241°-45'	Cor of Barn.

Fence 21 Lt

Fence 26 Rt

Ex. 0.5'

Fence 21 Lt

Fence 21 Lt

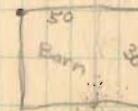
Ex. 20

(Note - Road should be kept
to Lt. of Present &
around this curve.)

V (O)



Twin pipe culvert +



446.30'

347.81'

446.30'

N S V

M

A = 67.27' A = 76°-21'
= 111.30' = 109.60'

L

Inst. at (R)

Dist	Az	Description
1 34'	180°-35'	Fence Right
2 30'	28°-25'	" "
3 106'	17°-50'	Corner Fence RT.
4 105'	8°-45'	E Road
5 59'	6°-25'	" "
6 91'	0°-20'	" "
7 31'	201°-50'	" "
8 64'	202°-35'	.
1 74'	263°-40'	Corner of Church
2 45'	275°-35'	" "
3 70.5'	307°-10'	" "

Inst. at (Q)

Dist	Az	Description
1 53'	125-35	Fence RT.
2 40'	57-55	Fence RT.
3 82'	33-20	" RT.
4 79'	22-35	E Road.
5 33'	24°-05	E Road.
6 46'	159°-45'	E Road
7 34'	180°-50'	Fence LT
8 40'	343°-30	Fence 90° = straight on Past south side of Ch.



(Q)

P

O

Az 27°-51' Az - 343°-03' 22°-31' 219.7' 87.5' S

Ex 12'

Fence 2' L

Fence 27' RT

Inst of (S) Dist	AZ	Description
1	24'	182°-05' 2 Road
2	9'	69°-20' "
3	42'	71°-25' Fence Right
4	43'	162°-35' " "

Ex. 1

Fence Begin Left Rnd



Inst at (Z)

	Dist	Az	Y
1.	54'	245-30'	Fence Pt.
2.	19'	220-30	" "
3.	98'	130-10	" "
4.	83'	122-50	d Road
5.	48'	121-40	" "
6.	9'	149-20	" "
7.	20'	249-40	" "
8.	52	272-35	Fence Lt.
9.	11	357-05	" "
10.	55	111-30	" "

Fence Pt 10.5'

" Lt. 15'

Ex = 1.0'

Ex 2.0' Dist Az Desc

Inst at (X) 24 243-20 Fence Pt Beginning

1.	14.5	148-55	" Pt
2.	2.8	126-25	" Lt
3.	34'	62-15	" Lt + cov of Bridge
4.	23'	294-05	(?)

(W)

Fence Lt 8'
Ex = 3.0'

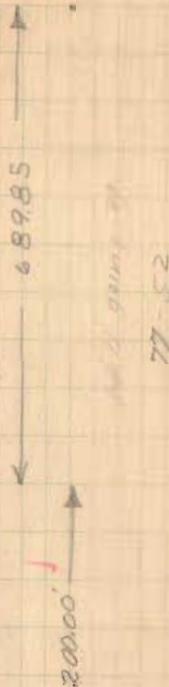
Fence Pt. 17'

Inst at (X)

Di's Az Desc

1.	29'	66-00	End Fence Pt
2.	29'	85-15	Gr Bridge
3.	26'	107-25'	(?)

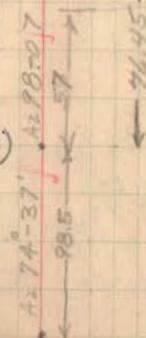
(Z)



(X)

Bridge?

(W)



(V)

Ex = 4.0'

Fence R + 9'

" Lt. 17

Fence R + 17

" Lt 13

Ex = 2.0'

inst at (A)

1. 13' 254-50' fence ret.

Ex = 6.0'

2. 24 114-53"

3. 12 75-00 2 ends

4. 13 314-41 2 "

5. 21 346-25 fence Lt

6. 43 72-45 "

7. 01 72-45 "

Fence goes back on Left Drive

T

D

C

B

A

Z

AZ 101:33'
AZ 101:36'
AZ 101:35'
AZ 101:36'
AZ 101:35'

AZ 105-53
AZ 105-53
AZ 105-53
AZ 105-53
AZ 105-53

AZ 109-51
AZ 109-51
AZ 109-51
AZ 109-51
AZ 109-51

80.0 Drive Left
80.0 Drive Left

AZ 122-55'
AZ 122-55'
AZ 122-55'

Inst. at (H) I

Dist.	Az
1. 60'	20° 35'
2. 44'	232° 50'
3. 45'	47° 30'
4. 45'	35° 25'
5. 57'	56° 30'
6. 96'	53° 25'
7. 96'	46° 40'

Ex = 5.0'

Inst. at J

Dist.	Az
1. 78'	227° 20'
2. 49'	216° 50'
3. 49'	243° 45'
4. 32'	197° 50'
5. 20'	272° 50'
6. 24'	93° 51'
7. 59'	36° 18'
8. 43'	65° 15'
9. 97'	78° 00'

Ey = 12.0'

Inst. at G H

Dist.	Az
1. 147	252° 15'
2. 97	252° 00'
3. 89	261° 10'
4. 27	11° 45'
5. 83	25° 40'
6. 97	10° 05'
7. 45	275° 40'
8. 50	268° 30'
9. 50	244° 35'
10. 29	109° 15'

E Road

Fence LT

" " Corner

Fence Eight

Fence LT outside
straight on chain
follow Rd.

Ex = 0.0

R.Fence 8'

L 11 15

Ex 8'

R.Fence 15'

L.Fence 27'

J, (H)

Az = 47° 20'
195.7' /

I,

Az = 26° 26'
200.0

H,

Az = 72° 53'E
137.7'

M

Az = 72° 53'E
691.2'

Sta A+00
B+34 Sides Ed R.

Fence 18' Rt

" 14 Lt.

Ex = 3.0'

Fence Rt 14'

" Lt 16'

Ex = 1.0'

- 18' Rt Fence

" Lt. Fence

at Road 1' Lt. of PI.

Fence ret 13'

" Lt. 20'

No External

Z

AZ = 74-03-1
42 = 60.0'
60.0'

M

Az - 25-50-
156.7' X
94' Δ Bridge

L

AZ - 73-13-
222.4' X

X

AZ - 75-00-
860.9' X

C

Inst. at (Q)

1. 90	82-20	Fence RT.
2. 94	61-00	Fence LT.
3. 89	69-35	E Road.
4. 45	64-50	E Road.
5. 14.5	34-00	E Road.
6. 13	342-00	E Road.
7. 34	305-00	E Road.

Inst. at P.

Dist	AZ	Desc
1. 59	251-25	E Road.
2. 22	339-30	E Road.
3. 28	145-30	Confence RT.
4. 56	226-25	Fence RT.
5. 32	125-45	E Road.
6. 101	156-55	Cor fence RT.
7. 120	137-05	Fence RT.
8. 109	112-10	Cor fence LT.
9. 13	21-35	Beg fence LT.

Ex. 2.

R.Fence 10'

Ex. 2.'

R. Fence 18'?

L.Fence 12'

Fence 22 ft.

P.

Fence +7' RT.

E = 1.5'

✓ ✓

P.

(P)

O

N

N

0.7P 2+70'

Cor Pipe 1+6.8'

✓ ✓

P.

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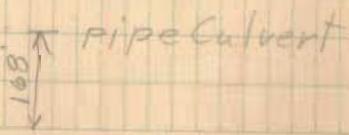
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P.</div

73° 18'
~ 2600' 
168' 

End

3-30-36

FUIT
Howell
Gashneau
Young
Smith
Sheedy

$$\phi + \frac{B_4}{T^4} = \text{constant}$$

P.I.
+23.37

4



$$\Delta = 14^\circ 42'$$

$$D = 5^{\circ} 00' R$$

$$T = 147.87^{\circ}$$

D PC : 2+75.5

~~PI = 4 + 23.37~~

$$PT = 5 + 69.5$$

~~1-294.00~~

卷之三

B 24.45
PC.
SP K
20.00

2

8" oak +⁸⁹₁₇

$$x - x - x + 104$$

eter

+ on Tie

on file
Hub Tickets # 1500-25

Hub with Fan

~~Speed~~ - 25 ft 125

-X- 23° N 58°

30
R

PI.
+45.48

$$\Delta = 11^{\circ} 28' \text{ RT}$$

$$D = 6^{\circ} 00'$$

$$T = 95.88$$

$$PC = 8+49.6$$

$$PI = 9+45.48$$

$$PT = 10+40.6$$

$$L = 191.00$$

19

(2)



18

17

16

15

+90 Drive

Drive
+88 8" stump
15

+90

$\lambda +79$
11

8" stump $\lambda +79$ 0

$\lambda +78$ 8" stump
12

12" stump $\lambda +79$ 0

$\lambda +79$
11
 $\lambda +78$ 8" stump
12

$\lambda +79$
11

another page

$$\Delta = 13^\circ - 43' L$$

$$D = 5^\circ - 06' L$$

PC + 06.63 spike

14

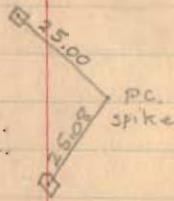
$$T = 137.86'$$

$$L = 274.33$$

$$P.C. = 14 + 06.63$$

$$P.I. = 15 + 44.49$$

$$P.T. = 16 + 80.96$$



13

PT + 88.32 spike



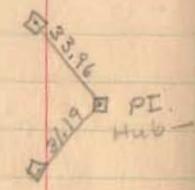
12

PT + 89.09 - Hub A > 11° - 57' L

$$D = 6^\circ - 00$$

$$L = 199.17'$$

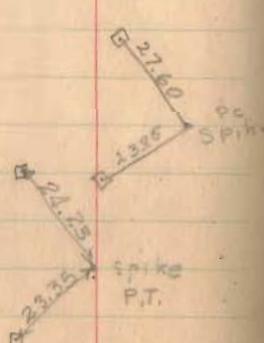
(3) $T = 99.94'$



11

PC + 89.15 spike P.I. = 11 + 89.09

$$P.T. = 12 + 85.32$$



PT + 40.60 Spike

10

+30
15

10" stump +27
10

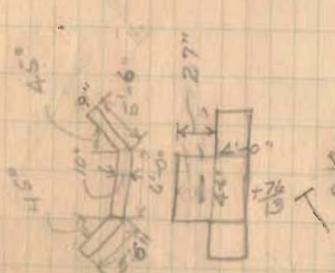
0 +35
10 15" stump.

0 +47
12 20" stump

0 +57
12 22" stump

0 +40
12 20" stump

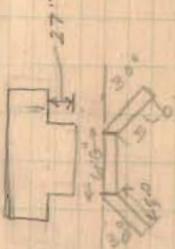
+61
23



Rambaray 18'-4"

4" X 4'-6" X 20'
Concrete Box
Very good.

0 + 86
14 20" stumps



24" stump +14
21

J 19

$$2-12'' \text{ stumps } +\frac{92}{19} \quad \frac{+92}{11} \oplus \oplus \quad \nearrow +\frac{85}{09}$$

J 18

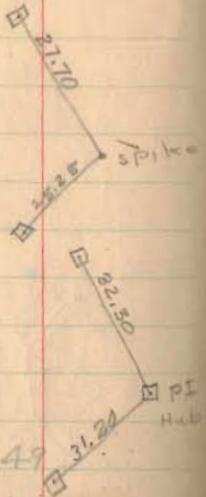
$$0+\frac{27}{19} \quad 12'' \text{ stumps}$$

(Recommended 18" at least)

 12" X 16' C.M.P.
 Good

J 17

PT +80.96 spike



J 16

PI +44.49 Hub

PI 15 + 44.49

$$\Delta = 13^\circ - 43' L$$

$$D = 52^{\circ} 00'$$

$$T = 137.86$$

$$L = 274.33$$

$$PC = 14406.63$$

$$PT = 16 + 80.96$$

9" Tree $\frac{+13}{20} \oplus$

$$0+\frac{61}{19} \quad 16'' \text{ stumps}$$

$$\nearrow +\frac{06}{09}$$

27" Tree $\frac{+13}{20} \oplus$

28" Stump $\frac{+05}{20} \oplus$

29" Tree $\frac{+03}{19} \oplus$

5-31-36

Fultz
Gastineau
Howell
Young
Smith,
sheedy

Station 68.47

$$\Delta = 25^{\circ} - 00' R$$

$$TPI = 25 + 86.47$$

' 24

$$D = 5^{\circ} - 00'$$

⑤ $T = 254.12'$

$$L = 500.00'$$

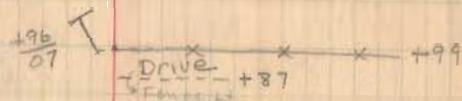
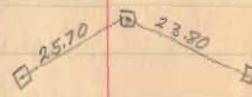
$$E = 27.82'$$

$$PC + 14.35$$

' 23

$$PC = 23 + 14.35$$

$$PT = 28 + 14.35$$



' 22

' 21

' 20

10" stamp $\frac{+16}{21}$ ☺

$\frac{+55}{01}$

12" stamp $\frac{+27}{22}$ ☺

$\frac{+88}{15}$ 15" stamp

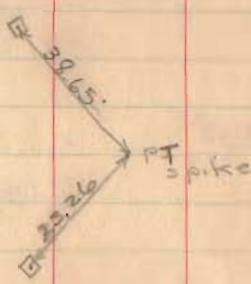
12" stamp $\frac{+34}{12}$ ☺

15" stamp $\frac{+31}{11}$ ☺

10" stamp $\frac{+18}{11}$ ☺

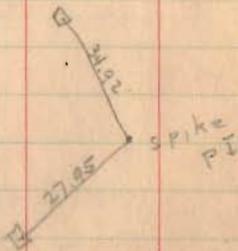
29

P.I. + 14.35 SPIKE
28



27

P.I. + 86.47
49.47



28

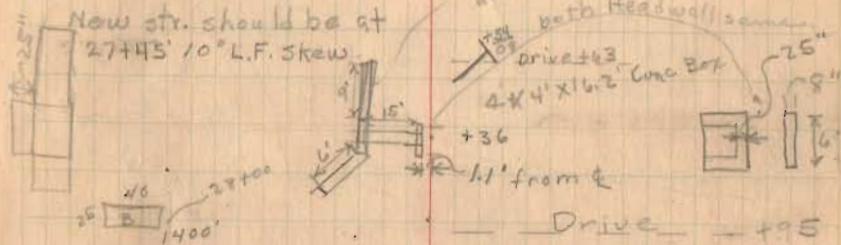
$\text{od} + \frac{32}{14}$ $\frac{+32}{16}$ 2-20" stumps
 $\lambda + \frac{4}{11}$

24" stump $\frac{+36}{18}$ 0

8" stump $\frac{+53}{16}$ 0

culvert very poor

New str. should be at
27+45' 10" L.F. Skew



Drive — +95

+49 Fence

R $\frac{+3}{0}$ 0
 $\frac{+3}{0}$ 0
1500'

+72 Drive

+67 Drive $\times \frac{50}{16}$ 0

4-1-36

+ H.10 P.T.
35

PI
+ 29.87 Hub with tank

PI 34 + 29.87

821.32
282.2 PI

34

A = 8° - 07' R

⑦

D = 5'-00'

T = 81.32

81.32
Spike PC

L = 162.55

33

P.T.
+ 13.65 Spike.

32

PI
+ 52.85 Spike.

PI - 31 + 52.85

A = 8° - 39' L

D = 8'-00'

T = 60.88

L = 121.67

82.32 Spike
PI

⑥

PI
+ 91.98 Spike

80

10" Tree $\frac{55}{19} \oplus$

30" Tree $\frac{12}{4} \oplus$

$\angle 60^\circ$
Drive + 48'
 $\frac{20+36}{27}$ 28" Tree

22" Tree $\frac{55}{19} \oplus$

Hail Box + $\frac{50}{19} \oplus$

18" Walnut $\frac{30}{19} \oplus$

$\lambda + \frac{50}{18}$

begin Drive + 22

36" Oak $\frac{100}{19} \oplus$

$\frac{2.5}{10} \oplus$ 12" x 20" C.M.P.
Good

10" stump $\frac{55}{12} \oplus$

$\frac{0+52}{18}$ 4" stump

40" Oak $\frac{128}{22} \oplus$

$\lambda + \frac{09}{13}$

$\frac{0+92}{19}$ 22" stump

X X X

X X X + 31

$\frac{0+9}{16}$ 30" stump

$\frac{0+100}{18}$ 30" stump

20" stump $\frac{140}{19} \oplus$

$\frac{0+55}{17}$ 10" Tree

12" Tree $\frac{131}{18} \oplus$

$\lambda + \frac{12}{9}$

PT + 36.50 Spike

39

PI + 79.30 Hub with Tack

PI = 39 + 79.30

$\Delta = 3^{\circ} - 26'$ R

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

T = 57.24

L = 114.44

(9)



PC + 22.06 Hub with Tack

38

PT + 39.41 Hub with Tack

37

+ 59.40 PI Tack in Hub

PI 36 + 59.40

$\Delta = 82^{\circ} 01' L$

D = 5°

T = 80.32

L = 160.33

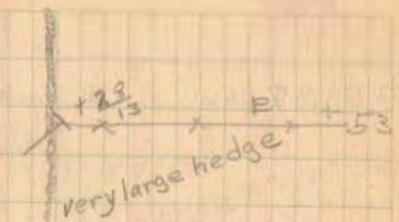
(8)



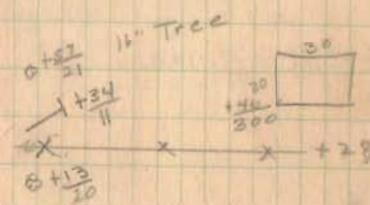
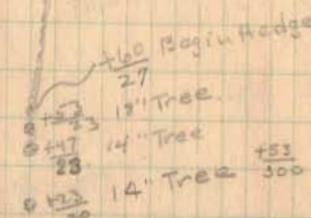
PC + 79.08 Spike

35

28" Tree $\frac{+97}{25} \Theta$



12" Tree $\frac{+79}{23} \Theta$



$\sigma + \frac{59}{18}$ 36" stump

18" cherry $\frac{+6}{15} \Theta$

16" tree $\frac{+16}{30} \Theta$

$\lambda + \frac{33}{15}$

P.T. 53.37 Hub with Tack

43.62

44.

43

PI + 75.75 Spike

PI 42+75.75

$$\Delta = 65^\circ - 06' \text{ LQ}$$

$$D = 16^{\circ} - 00$$

T = 22932

L-406.94

42

PT.7 53.37 Hub with Tack
44.

$$\begin{array}{r}
 \times 46 \\
 \hline
 12" stump + \frac{47}{12} 9 \\
 10" stump + \frac{28}{60} 0 \\
 12" stump + \frac{23}{60} 0 \\
 \hline
 0 + \frac{33}{11} 1/4" Tree
 \end{array}$$

41

PC.
+46,43 spike

10

spirit

24" Tree	$\frac{+32}{05}$	$\frac{+46}{38}$	End. H = 37
10" Tree	$\frac{+04}{19}$	$\frac{+02}{17}$	
22" Tree	$\frac{+88}{13}$		
18" Tree	$\frac{+04}{16}$		
30" Tree	$\frac{+26}{27}$	27	

P.L.
+23,20 hub

49

$$A = 67^\circ - 16R$$

11

$$D = 16^{\circ} - 00'$$

~~T=248.15~~

$$A = 143792$$

$$\angle = 432.92$$

48

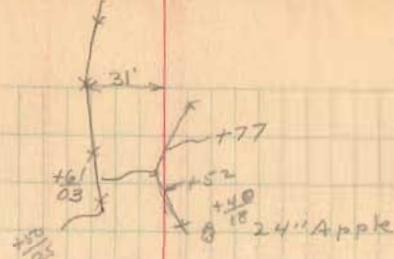
47

PC
+75,05

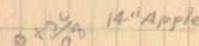
七

+67.8 point on Tangent

45



18' Tree $\frac{+89}{25}$ 0



Hu Dmrc

16° True
S 23° E

54-

53

52

P.T. +07.97

5/

50

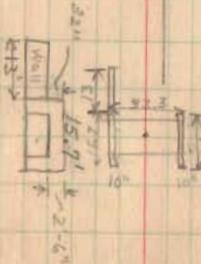
OK.
2418' 53400' P.T.
Cor. off H.W.

PL

15' Tree +76 07 115' +69 12" x 17" U.S.P.

should be larger size.

6.00 元



Good.
Conc Box 10' x 4.5' x 32.3
+80 ft Green Tangent +

59

P.T. 58
+82.73

PI +38.60

57

PC +94.40

56

55

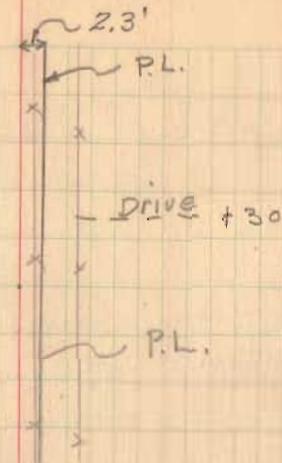
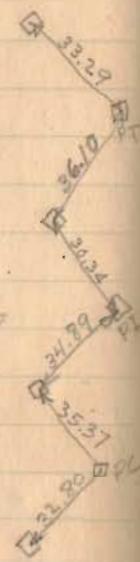
PI = 57 + 38.60

$\Delta = 4^\circ 25' R$

D = 5° 00'

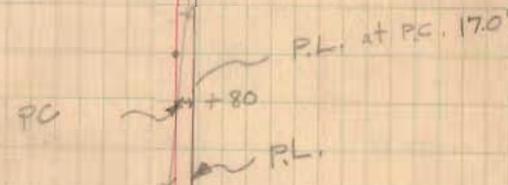
T = 44.20

L = 88.33



2- 15' Trees + 28.09 14
18 Tree + 66.0 14

see notes for site plan
PL at P.T. 14.95'



24' Tree + 66.0 14

PT +70.97 spike

64



PI +21.13 spike

63

(13)

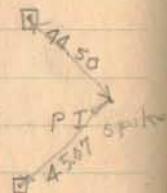
$$PI = 63 + 21.13$$

$$\Delta = 6^{\circ} 00' L$$

$$D = 2^{\circ} 00'$$

$$T = 150.16$$

$$L = 300.00'$$

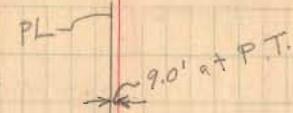


62

PCT +70.97 Hub

61

60



12"

12" cherry

12" Walnut

12" Tree Walnut

12" Tree Sugar

12" Tree "

Sugar 8 Tree +
" 16" Tree +
Cherry 14" Tree +
Sugar 14" Tree +

Drive in RT Fence
+ 30

8 + 9/10 8" Tree

PL at P.C. 77'

PI 20" Apple
8 + 9/10 12" Apple

PL ~

69

PI+32.16 Hub

68

PI = 68 + 32.16
 $\Delta = 32^{\circ} - 19^{\circ} R$
 (14) D = 6°-00'
 T = 276.86
 L = 538.61

67

66

P.C.
+55.30 spike

65

+00 06 Mail Box A $0 + \frac{48}{24} = 4^{\prime\prime}$ oak

B' Gravel +67 E Road -

+50 -x-x-x-

+51 -x-

+52 -x-

+53 -x-

+54 -x-

+55 -x-

+56 -x-

+57 -x-

+58 -x-

+59 -x-

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+365 -x-

+366 -x-

+367 -x-

+368 -x-

+369 -x-

74

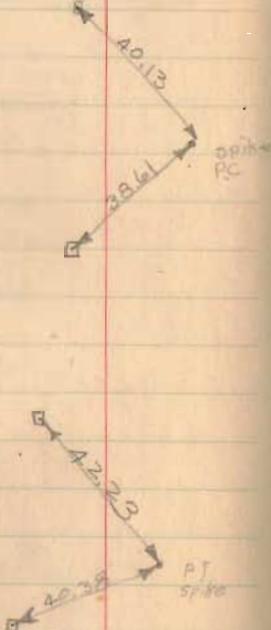
73

P.C.
+76.30 spike

72

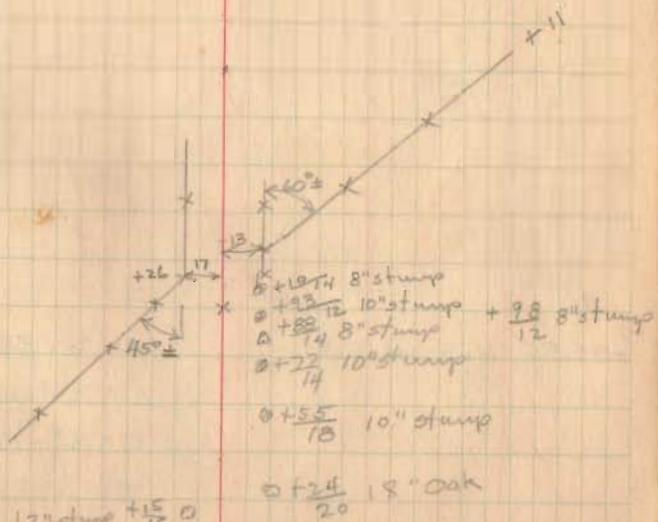
71
P.T. +93.91 spike

70



gir. walnut $\frac{12}{20}^{\circ}$

12" stump +15°



monroe topo

$$\begin{array}{r}
 79 + 00.00 \\
 78 + 72.97 \\
 + 29.03 \\
 \hline
 79 + 03
 \end{array}$$

79

PT + 72.97 spike



78

77

$$\begin{array}{r}
 78 \\
 77 \\
 \hline
 15
 \end{array}$$

76

PT + 84.86 Hub with Tack

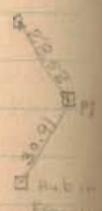
PI = 75 + 84.86

$\Delta = 35^\circ 48' L$

(15) $D = 6^\circ - 00'$

T = 308.56

L = 596.67



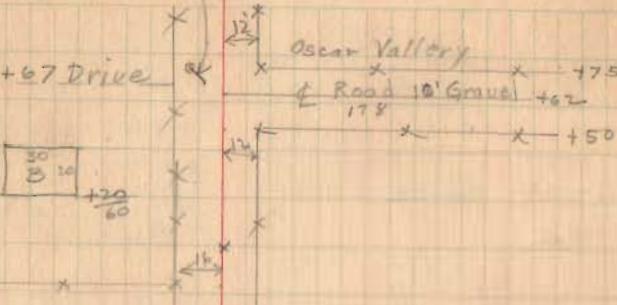
75

Mail Box + 57.70

+ 67 Drive

30	B 20
+ 20	
60	

+ 82



+ 28 — X — X — X — + 28 Lt fence touches 4

7d Apple + 09.63

P.I. +06.39 spike

84

spike in Root
14" Walnut
28.17
26.59 ft.
P. 84-100
stake

P.I. +20.90 Hub with Tack

83

P.I. 83 +20.90

$\Delta = 0^\circ - 48' L$

$D = 0^\circ - 28'$

$T = 85.71$

$L = 171.20$

PC
+35.19 spike

82

3
7
9
1
8
3

81

80

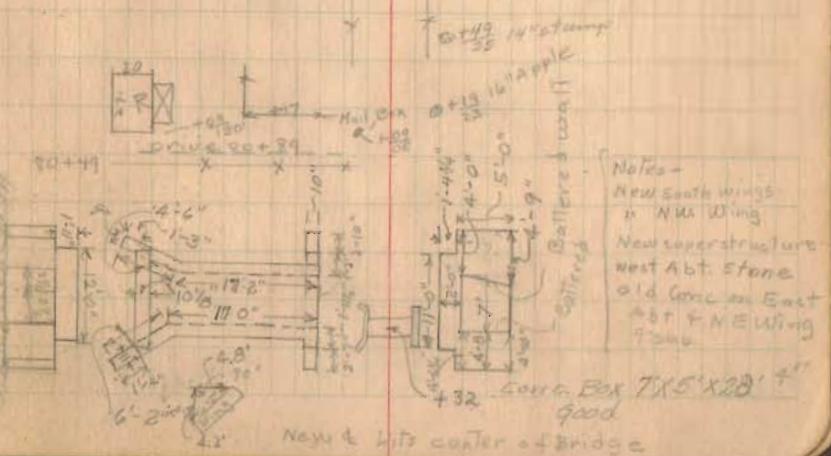
18" Maple +7 $\frac{1}{2}$ 0
18" Treenut 1 $\frac{1}{2}$ 0
12" Treenut 1 $\frac{1}{2}$ 0
14" Tree +1 $\frac{1}{2}$ 0
12" Tree +1 $\frac{1}{2}$ 0
12" Tree 1 $\frac{1}{2}$ 0
10" Tree 17 X
+67

10" Tree +7 $\frac{1}{2}$ 0

+05 Florence H. Negle
OSCAR 16" Walnut +01 0 X
Gallery

74

+76



89

88

87

86

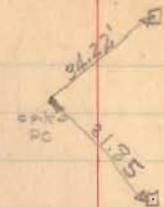
85

14" tree $\frac{10}{14}$ @

108 X X X

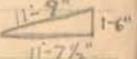
10°

PC + 8/62 spike
1339



94

93 + 93.4 Bridge Date
Skew R.F.



clear Span 19'-5"

span length 4 19'-10"

Roadway between curb = 10'-6 1/2" either

length 22'-0"

93

Length of Trusses 22'-0"

Batter at walls 3 1/2" to feet

length of Abts - 14'-0"

concr. Abt + wing

Good Condition

92

2-9" lower cords 2-5" top

steel Beams 4-9" I Beams

S.E. Wing length inside wing 3'-8" Top
1'-3" wide

skew wing 2-3'

N.E. Wing High 6.5
Length 8.5'
Width 8.0'
20"

skew 7 1/2

91

N.W. Wing skew 7 1/2

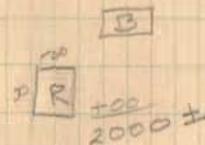


Plank Floor 2 1/2" X 9"

90

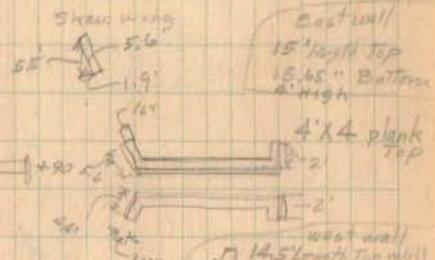
cloudy cold
4-6 - 36

Fultz
Gastineau
House
Young
Shady



160 - Drive

Mail Box 10 1/2 x 6 x



Concrete abut.

Note -
should have concrete
floor put in o.s.
Water is washing
dust from under
walls
Walls in Fair + cond.

Batter at walls 2" to 1"

99

P.C.
+64.10 spike



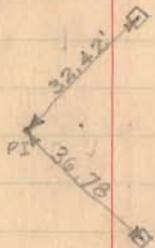
98

P.T. +61.10
SF 40 hub with Tack



97

P.I. +26.55 spike



96

$$\begin{aligned}
 P.I. &= 96 + 26.55 \\
 A &= 36^{\circ} - 30' L \\
 D &= 13^{\circ} - 00' \\
 T &= 144.93 \\
 L &= 279.48
 \end{aligned}$$

95

8" Tree $\frac{+67}{13}^{\circ}$
 10" stump $\frac{+64}{13}^{\circ}$
 8" Tree $\frac{+29}{13}^{\circ}$
 8" stump $\frac{+25}{13}^{\circ}$
 15 X +29
 15" Elm $\frac{-22}{13}^{\circ}$
 10" Tree $\frac{+35}{13}^{\circ}$
 15" Elm $\frac{+19}{13}^{\circ}$
 2 - 10" stump $\frac{+26}{20}^{\circ}$
 8" +67 8" Cherry
 8" Elm $\frac{-50}{13}^{\circ}$
 10" Elm

8" stump $\frac{+62}{14}^{\circ}$

24" sugar $\frac{+60}{17}^{\circ}$

$\frac{+27}{60}^{\circ}$ 30" sugar
Lt fence crosses E +19

18" stump $\frac{+18}{24}^{\circ}$

10" B +32 20" Walnut

104

15" Stump $\frac{+7.0}{24}$ 0

10" Walnut $\frac{+2.5}{25}$ 0

18" Walnut $\frac{+1.5}{23}$ 0

x 10" 3" Walnut
0 22

24" Stump $\frac{+3.0}{25}$ 0

103

14" Walnut $\frac{+2.5}{24}$ 0

30" Walnut $\frac{+2.5}{24}$ 0
21" Thorn $\frac{+2.5}{24}$ 0
10" Elm $\frac{+0.0}{11}$ x

102

Retake turned
102+00



PT + 52.31 Hub with Tack

101

PT 100+13.73

$\Delta = 37^\circ - 26' R$

$D = 13^\circ$

$T = 149.63$

$L = 288.21$

PT + 13.73 Hub with Tack

100



10" Walnut $\frac{+2.7}{19}$ 0

Drive — +20

12" Apple $\frac{+1.7}{24}$ 0

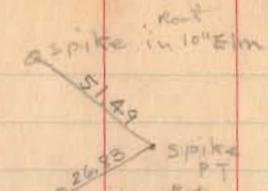
Oscar's Straight

+17 x x x

clump 10' Tree $\frac{+3.5}{11}$ 0

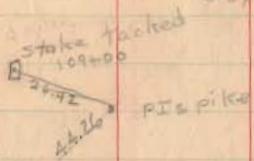
Florence Nagle

PT + 66.70



109

PI + 95.20. Spike



$$PI = 108 + 95.20$$

$$\Delta = 0^\circ - 40' L$$

$$D = 0^\circ - 28'$$

$$T = 71.35$$

$$L = 142.85$$

PC + 23.85 Spike

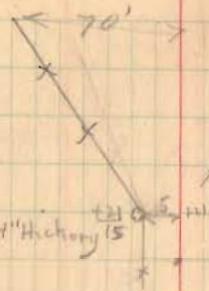
108



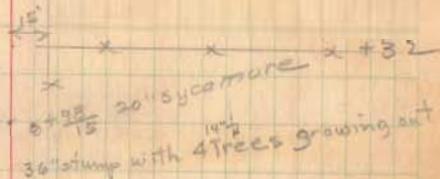
107

106

105



24" Hickory 15
+21.027 111



(No Res. in sight) 0+80
Mail Box + $\frac{42}{24}$ R

+16 — Drive —

o + $\frac{82}{21}$ 18" Tree

114

Elm
 9' Tree + 22 10
 8" Elm + 20 10
 9' Cherry + 21 10
 8" Elm + 22 10
 7" Elm 17

8" Cherry $\frac{45}{20}$ 10

X
 16" Elm $\frac{45}{17}$ 10

113

+40 Bridge Data
 Center Line hits center of Br 8.5
 Skew L.F. 13.7'

Length 21'-0"

Length of Rail 21'-0"

Clear span 15'-00"

span along t 18'-3"

Roadway 13.7'

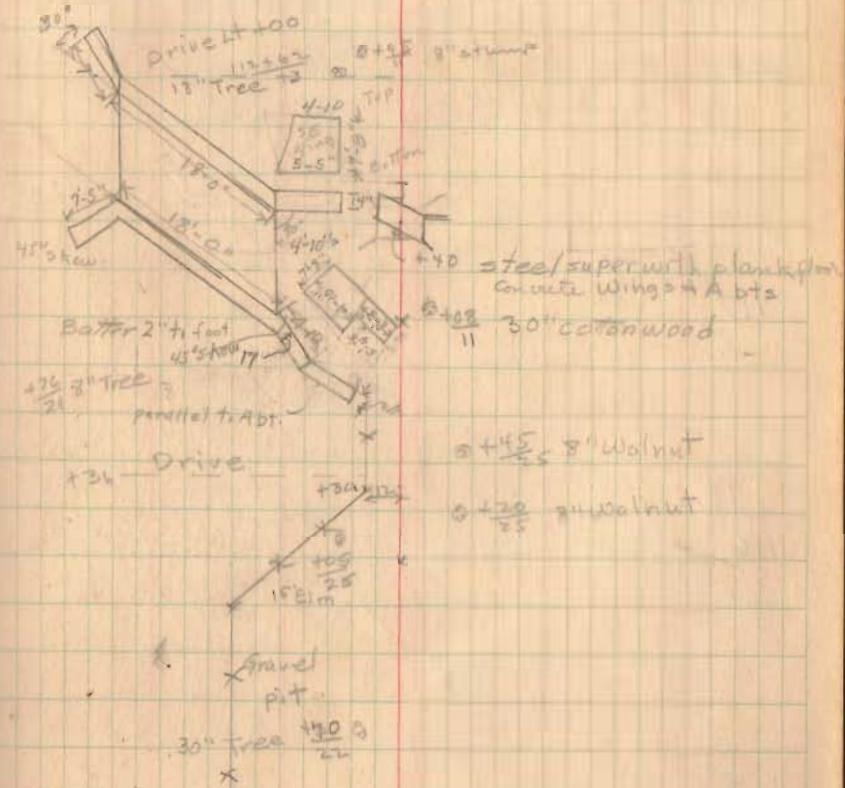
(Concrete spillway on Rt 15' +
 begins at end of Abt. extends 15' Rt.

5-i I Beam 2'-5" c.t.u.s

2-9" Lower cords

Floor plank 2 $\frac{1}{2}$ " x 8"

112

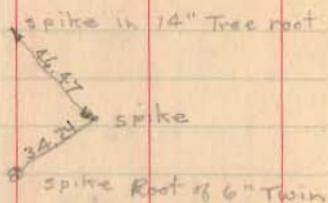


111

110

PC+0201

119



118

117

116

115

12" tree $\frac{+1}{2}$ D
12" tree $\frac{+1}{2}$ D
2-10" stumps $\frac{+2}{24}$ $\frac{+25}{24}$ D

18" Walnut $\frac{+1}{2}$ D

24" stump $\frac{+1}{2}$ D

12" Hickory $\frac{+1}{2}$ D
9" Elm $\frac{+1}{2}$ D
12" tree $\frac{+1}{2}$ D
14" stump $\frac{+1}{2}$ D
12" tree $\frac{+1}{2}$ D

$\frac{+1}{2}$ D 18" stump

$\frac{+1}{2}$ D 24" stumps

12" Tree $\frac{+1}{2}$ D
8" Elm $\frac{+1}{2}$ D
 $\frac{+1}{2}$ D 24" stumps
10" Hickory $\frac{+1}{2}$ D

30" Birch $\frac{+1}{2}$ D

10" Hickory $\frac{+1}{2}$ D

10" tree $\frac{+1}{2}$ D

16" Sycamore $\frac{+1}{2}$ D

12" tree $\frac{+1}{2}$ D

$\frac{+1}{2}$ D 12" stump

124

15" Tree $\frac{+19}{24} 0$

$\frac{+78}{19} 8$

30" Oak

123

12" stump $\frac{+16}{13} 0$

123 + 11 should be placed
at 12" pipe cut off

122

3 spike in Root 14" Tree
 37.95

PT. + 16.68 Spike

121

4 spike in Root 18" Elm
PI = 120 + 09.42

5 spike in Root 24" Oak

$\Delta = 5^{\circ} 22' R$

$D = 2^{\circ} - 30'$

T = 107.42

L = 214.67

PT + 09.42 Hub with Tack

120

3 spike in Root 30" Oak

Rt Fence crossed + 20
 $\frac{+73}{14}$
Rt Skew

14" Tree $\frac{+13}{23} 0$

12" Tree $\frac{+18}{23} 0$

Should be reduced

18" Tree $\frac{+20}{24} 0$

24" x 20' CMR Good

$\frac{+19.5}{20} 0$ Skew

R.F. Skew:

15" Tree $\frac{+17}{24} 0$

15" Tree $\frac{+17}{24} 0$

16" stump $\frac{+16}{24} 0$

129

PI + 96.70 Hub with Tank
 $\Delta = 5^\circ - 50'$
 $D = 2^\circ - 30'$

128

PC + 79.94 Spike

28.23 D Spike in Root 36" Beech
 also BM.
 PI 128 + 96.70
 $\Delta = 5^\circ - 50'$
 $D = 2^\circ - 30'$
 $T = 116.76$
 $L = 233.33$

127

126

125

14" Elm + 9 $\frac{7}{8}$ 0
 10" Elm + 9 $\frac{7}{8}$ 0
 $+ \frac{91}{17} 00$ \Rightarrow
 16" Elm + 76 00
 $20" \times 18' C M P$
 Good

30" Elm + 3 $\frac{2}{3}$ 00

$\frac{5+59}{25}$ 30" Beech

+ 50. X 1 $\frac{1}{2}$ "
 NW Mat Lining Co
 Oscar Straight X
 $\frac{9+91}{24}$ 12" Pear
 Ben A Green
 $\frac{1+77}{24}$ Fence crossed
 Oscar Valley X

134

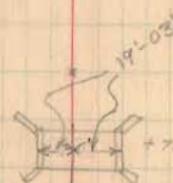
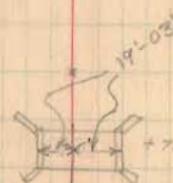
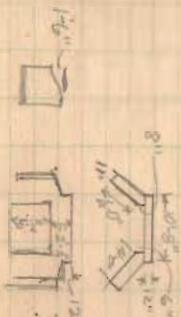
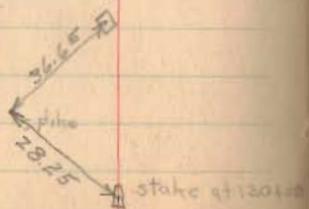
133

132

131

P.T. +13.27 spike

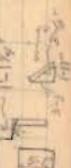
130



8'-11 $\frac{1}{2}$ " 7" Tree

Span along 2 = 8'-4 $\frac{1}{2}$ "
clear span 8'-3 $\frac{1}{2}$ "

Walls 20'-1" Long.
Roadway 17'-03"



139

$\frac{3+95}{15}$ 12" Walnut

138

*

137

136

30" Oak $\frac{+22}{21} \text{ D}$

*

24" stamp $\frac{+22}{25} \text{ D}$

24" stamp $\frac{+55}{25}$

$\frac{0+48}{15}$ 24 oak

$\frac{6+02}{13}$ 24 oak

135

PT + 52.21 spike

144
 PI + 98.65 Hub with Tack

PC + 45.08 Spike

143

142

141

140

$$\begin{aligned}
 \text{PI} &= 143 + 98.65 \\
 \Delta &= 0^\circ 30' L \\
 D &= 0^\circ 28' \\
 T &= 53.57 \\
 L &= 107.13
 \end{aligned}$$

Good (Needs Relaying)

18" Tree + 32" 12" Tree
 11" shrub 31" 10" Tree

9" 5 8" Tree
 8 + 9" 12" Tree
 0 + 9" 10" Tree
 0 + 9" 10" Tree
 0 + 9" 10" Tree

30" Beech tree
 18" sugar + 9" 10"

0 + 9" 30" Oak

149

148

147

146

145

Fence Ends Here
15' - 14' DRIVE X
 $\frac{21+18}{2}$

$\frac{5+7}{2}$ 8" Tree

$\frac{8+12}{24}$ 12" Tree

$\frac{8+28}{24}$ 9" Tree
 $\frac{8+63}{25}$ 3" Tree

+57.50 End spike int Roads

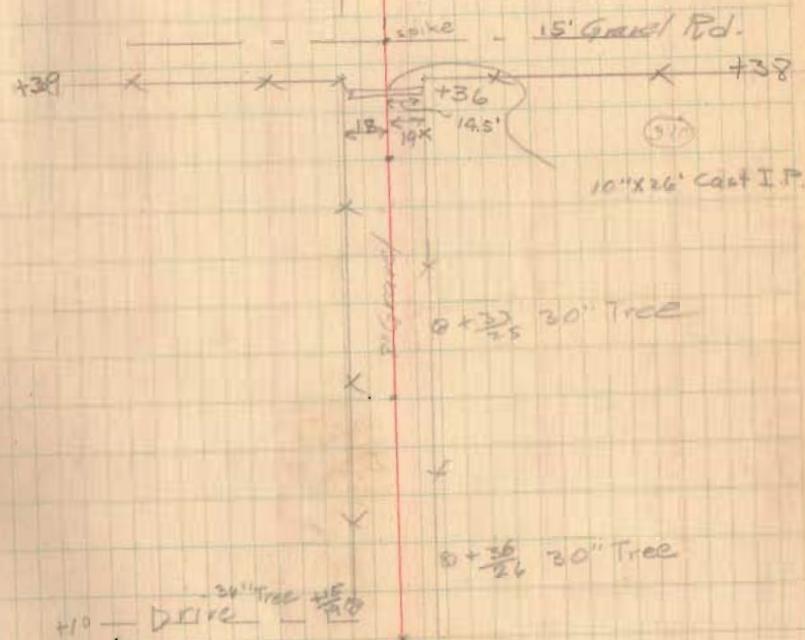


153

152

* 151

150



NE Cor. Survey 1889 in the center
of Mad River.

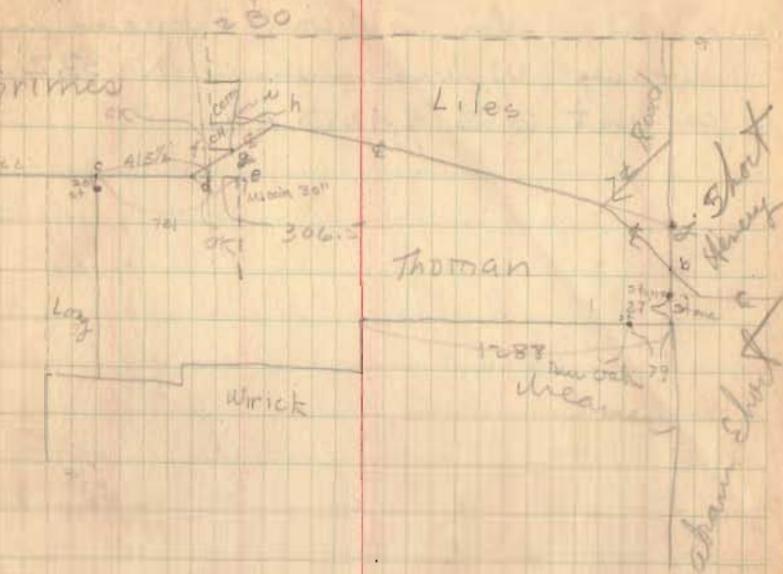
Beg. at a in the middle found
survey and in center of the south
line of Walters Woods Survey #9978
a lot of land now owned by A. Giles
bearing $569^{\circ}W$ from the line of said
survey 101 poles to two black oaks
north west cor. of said survey; thence
 $S 21^{\circ}E$ 54 poles to a stone. Thence
 $S 82^{\circ}E$ 14 poles and 11 feet to a
stone N.E. cor. of grave yard lot.
Thence $38^{\circ}W$, 10 poles to a stone.
Thence $S 84^{\circ}E$ 58 poles to a
stone in the center of County rd.
thence N on a straight line to the
place of Beginning Cont 4 8 $\frac{1}{2}$ Acres

Beg at 3 buckoress S E Cor. Walter Dunn
Survey #9878 in the line of Holland
Maney Survey 3774 thence
with said Holland Maney's line
 $S 21^{\circ}E$ 95 poles to County Rd
thence west with said road
to W. J. Long's S E Cor. at a Bridge
over ditch crossing said road ~~the~~
thence N 80 poles to the South
line of said Dunn's Survey
in the center of said line
to a 50 A tract of land owned
by W. A. Giles thence N $69^{\circ}E$
26 poles to the place of Beg.
Cont. 27 1

Field Book 492 Page 69 Logan Co.

- (1) Start at apparent east road and in line old fence N at NE corner survey 10091 = a S 24 1/4 E with public road at 106 cross bridge over small branch creek 1508 center of road running SE & NW from this point (b) which by measurement is the S.E. \angle W.A. Liles land.
- (2) start 20' N of stone in W line Thomas and at 110 thence 10' S of east road on top of hill and 60' Post of oak in line of a stone 4.75 1/4 E with road and Elsie's & Grimes land at 415' set T to Thomas 7' S.E. S Survey = d at 721'. W. C.R. 30' due at N.E. survey 4439 = e)
- (3) Run down start at 10' R. 4.415' of (2) = d
Elise's N. 13 3/4 W at 396' post in T = c at north fence SW of church lot = f fall 11' E of T at 396' dist. R = 1 Correct course N 10 3/4 W with S.E. = T 1.5W of stone for church N.E. 20' thence SW of church - 16' N and 16' E (11' to south side of church) from T = L Thomas and SW Cor. church lot
- (4) start at T 396 of 3 N 74 1/4 E. at 82 1/2 set T on public road & f and S.E. Cor. Ch. lot. with S.E. Cor. of church = N 84 1/4 W 46'
- (5) start at T 82 1/2 of 4 thence with Elsie Ch. lot N 5 1/4 E at 216' Cor. Post at T with fence S.E. T Cor. lot = h in W line Thomas at 264' set T S.W. on W.A. Liles and NW Cor. John Thomas in east line Cor. lot = i
- (6) start at T 264' of 5 thence with N line Thomas N 80 3/4 E at 200' enter public road at T 215' center of travel road on top of hill at 2100 leave public road at 2277 set T 3' S of line Thomas at 2296 strike line I at 1450 being 3' S of N.E. of Thomas

Engineers Office



- (7) start at T 2277 of (6) ad 3' S of N line of Thomas and 19' W of E line of Thomas (7' S 25 1/4 E 459') thence 7' S.E. at 432 post 25' E of stone S.W. Cor. of Robert James and N.W. Cor. of Abram. thence at 459' 7' S line of Thomas and 25' W of his S.E.
- (8) start at stone 3' W Cor. Henry thence S 25 1/4 E 27' + 9' S.E. Cor. Thomas and N 73 1/4 E 25' from T at 459' of 7
- (9) start at T 27' of 8 ad S.E. Cor. Thomas in E line Survey 10091 ad NE Cor. W.M. Weaver thence S 73 1/4 W Cor. Corne S 73 1/4 W at 79' small live oak old live tree ad west Thomas at 1788 strike R = N = 6' from Cor. post west fence NW Cor. Weaver

(10) start at stone SW cor of Thomas in
Weaver W line measure N 332' to
cor post 6's of 1288 of 9.

(20)

PI = 120+09.42 P.C. = 119+02.00 0°-00'
 $\Delta = 5^\circ-22' R$ +60 0-26
 $D = 2^\circ-30'$ 120+00 1-14
 $T = 107.4%$ +50 1-51
 $L = 214.67$ 121+00 2-29
 $PC = 119+02.01$ +1667 2-41
 $PT = 121+16.68$

21 PI = 128+96.70 PC = 127+79.94 = 0°-00'
 $\Delta = 5^\circ-50' L = 79.94$ 128+00 0°-15'
 $D = 2^\circ-30'$ +50 0-53
 $T = 116.76$ 129+00 1-30
 $L = 233.33$ +50 2°-05'
 $PC = 127+79.94$ 130+00 2-45
 $PT = 130+13.27$ +13.27 2-55

(22)

PI = 142+98.65
 $\Delta = 0^\circ-30' L$
 $D = 0^\circ-28'$
 $T = 53.57$
 $R = 171.10$
 $PC = 142+45.08$

4667 53.57
25 000
23 336
166 50
537 140 01
10714 2640
23 33
3136

15

(17)

PI = 96+26.55

Δ 36°-20'

D = 13°-00'

T = 144.93

L = 279.48

PC = 94+81.62

PT = 97.61

~~18.38~~
~~220~~
~~16470~~
~~5140~~
~~23282~~

PC = 94+81.62 = 0°-00'

95+00 = 1°-12'

+50 = 4-27'

96 = 7-42'

+50 = 10-57'

97+ = 14-12'

+6.10 = 18-10

(22)

PI = 100+13.73

Δ = 37°-26'

D = 13°-00'

T = 149.63

L = 288.21

PC = 98+64.10

PT = 101+52.31

PC = 98+64.10 = 0°-00'

99+00 2°-20'

+50 5-35

100+ 8-50

+50 12-05

101+00 15-20

+52.31 18-44

(23)

PI 108+95.104+67

Δ = 10°-40' L

D = 0°-28'

T = 71.35

L = 142.85

PC = 109+73+8E

PT = 109+66.70

(24)

PI

$$(15) \quad PI = 75+84.86$$

$$\Delta = 35^{\circ} 48' L$$

$$D = 6^{\circ} 00'$$

$$T = 308.56$$

$$L = 596.67$$

$$PC = 72+76.30$$

$$PT = 78+72.97$$

$$\begin{array}{r} 2370 \\ 120 \\ \hline 189600 \\ 227 \\ \hline 4200 \\ 413 \\ \hline 4600 \end{array}$$

PC	72+76.30	0°-00' L
	73+00	0°-43' L
	+50	2-13 L
	74+00	3-43-
	+50	5-13-
	75+00	6-43-
	+50	8-13-
	76+00	9-43-
	+50	11-13
	77+00	12-43-
	+50	14-13
	78+00	15-43-
	+50	17-13
	+72.97	17-54

$$PI = 83+20.90 \quad (16)$$

$$\Delta = 0^{\circ} 48' L$$

$$D = 0^{\circ} 28' D$$

$$T = 85.71$$

$$L = 171.20$$

$$PC = 82+35.19$$

$$PT = 84+06.31$$

$$\begin{array}{r} 1023 \\ 341 \\ \hline 1364067 \\ 1000 \\ \hline 35330 \\ 32609 \\ \hline 6610 \\ 4667 \\ \hline 9430 \\ 5334 \\ \hline 960 \end{array}$$

PC	72+76.30	0°-00' L
	73+00	0°-43' L
	+50	2-13 L
	74+00	3-43-
	+50	5-13-

(13)

$$PI = 63+21.13$$

$$\Delta = 6^{\circ} 00' L$$

$$D = 2^{\circ} 00'$$

$$T = 150.16$$

$$L = 300.00$$

$$PC = 61+70.97$$

$$PT = 64+70.97$$

$$PC = 61+70.97$$

$$= 62+00$$

$$0-00$$

$$= 62+00$$

$$0-17$$

$$= 63+00$$

$$1^{\circ}-17$$

$$+50 (1^{\circ} 13') 1^{\circ}-47$$

$$64+00 [43] 2-17$$

$$+50 (13') 2-47$$

$$+70.97$$

$$29-03$$

$$(14) \quad PI = 68+32.16$$

$$\Delta = 32^{\circ} 19' R$$

$$D = -6^{\circ} 00'$$

$$T = 276.86$$

$$L = 538.61$$

$$PC = 65+55.30$$

$$PT = 70+93.91$$

PC	65+55.30	-0°-00' V	10-10
66		1-20 V	14-50
	+50	2-50 V	13-20
67		4-20 L	11-30
	+50	5-50	10-20 V
68		7-20	8-50 V
	+50	8-50	7-20 V
69		10-20	5-50 V
	+50	11-50	4-20 V
70		13-20	2-50 V
	+50	14-50	1-20 V
70 + 93.91		16-10	V

B.S H.T F.S Elev

BM

1069.23

- 9'

$$PI = 49 + 23.20$$

$$\Delta = 69^\circ - 16' \quad 1$$

$$D = 16^\circ 00'$$

~~49.23.70
248.15
467.5.05~~

~~247.34
613.57.5~~

~~75
67
112~~

$$T = 248.15$$

$$L = 432.92$$

$$PC = 44 + 75.05$$

$$PT = 51 + 07.97$$

~~43.75
32.75
247.34
31
248.15~~

~~43.0
3.3
114~~

(2)

$$PI. 57 + 38.60$$

$$\Delta = 4^\circ - 25' R$$

$$T = 44.20'$$

$$L = 88.33'$$

$$PC. 56 + 94.40$$

$$P.T. 57 + 82.73$$

~~44.19
51220.9
20
20~~

~~44.18
73.33
514.4166
40
41~~

$$PC. 56 + 94.40 \quad 0^\circ - 00'$$

$$57 + 00 \quad 0^\circ - 08'$$

$$57 + 82.73 \quad 2^\circ - 12' 1/2$$

~~150
56
9.00
76
84.00
52.73
41.36
32.73
12.40 95.0~~

(10)

$$PI = 42 + 75.75$$

$$\Delta = 65^\circ - 06'$$

$$T = 229.32$$

$$L = 406.94$$

$$PC = 40 + 46.43$$

$$PT \quad 44 + 53.37$$

228.58

16 / 3657.2

32

45

32

187

128

92

80

120

74

229.32

$$(11) PI. 49 + 20.70$$

$$\Delta = 68^\circ - 40' R$$

$$T = 245.35$$

$$L = 429.16$$

$$PC = 44 + 75.35$$

$$PT = 51 + 04.51$$

244.5.5

16 / 3913.4

32

55.35

64

73

64

94

30

140

$$44 + 75.35$$

$$PC$$

$$0-0$$

$$47 + 00$$

$$+50$$

$$48$$

$$+50$$

$$49$$

$$+50$$

$$50$$

$$51$$

$$+50$$

$$+50$$

$$+50$$

$$+50$$

$$+50$$

$$+50$$

$$+50$$

$$+50$$

$$+50$$

$$32445.490$$

$$197200$$

$$9860$$

$$1183200.64$$

$$60$$

$$34.258$$

$$146$$

$$24.258$$

$$144$$

$$20.224$$

$$16$$

$$26$$

$$16$$

$$100$$

$$428$$

$$86$$

$$112$$

$$56$$

$$56$$

$$451$$

$$480$$

$$2400$$

$$1920$$

$$212480$$

(9) PI. 38+79.30

$$\Delta = 3^{\circ} 26'$$

$$I = 10^{\circ}$$

$$T = 57.24$$

$$L = 114.44$$

$$PC = 38+22.06$$

$$PT = 39+36.50$$

(10)

$$PI = 42+75.75$$

$$\Delta = 65^{\circ} 06' 4L$$

$$D = 16^{\circ} 00'$$

$$T = 229.29$$

$$L = 406.88$$

$$PC = 40+46.46$$

$$PT = 44+53.34$$

$$PC
40+46.46$$

$$0-00$$

$$+75$$

$$2-17$$

$$41$$

$$4^{\circ}-17$$

$$+50$$

$$8^{\circ}-17$$

$$42$$

$$12^{\circ}-17$$

$$+50$$

$$16^{\circ}-17$$

$$43$$

$$20^{\circ}-17$$

$$+50$$

$$24^{\circ}-17$$

$$44$$

$$28-17$$

$$+53.34$$

$$4-16$$

5724

31717

433

529

29

20

78

313437

70 20

5

36.50

328 50

86

328 50

86

328 50

86

328 50

86

328 50

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328 50

86

④

$$\Delta = 13^{\circ} 43' L$$

$$D = 5^{\circ} 00'$$

$$T = 137.86'$$

$$L = 274.33$$

$$PC = 14+06.63$$

$$PT = 15+44.49$$

$$PT = 16+80.96$$

$$PC = 0-00'$$

$$15 = 2^{\circ} 20$$

$$16 = 4^{\circ} - 50$$

$$+80.96 C - 51$$

27.82

5139.17

12.9

25.41

51270.20

25.41

51250.00

00

51250.00

2314.35

025412

256847

$$\Delta = 25^{\circ} 00' R$$

$$PI = 25+48.47$$

$$D = 5^{\circ} 00'$$

$$T = 254.12$$

$$L = 500.00'$$

$$E = 27.82$$

$$PC = 23+14.35$$

$$PT = 28+14.35$$

$$PC = 0^{\circ} 00$$

$$24 = 2^{\circ} 08' 30$$

$$25 = 4^{\circ} 38' 30$$

$$26 = 7^{\circ} 08' X$$

$$27 = 9^{\circ} 38' X$$

$$28 = 12^{\circ} 08' X$$

$$29 = 14^{\circ} 38' 22$$

$$30 = 17^{\circ} 08' 30$$

14.35

1.86

71.56

14.35

21.5250

0

25.65

1.86

428250

4525

12.84750

(3)

D 6° 0' 20'
 Δ 11° 57' 3' 2'
 T 99.94 5' 47'
 PC 10+89.15
 PI 11+89.09
 PT 12+88.32
 L 199.17

PC 11+89.09
 PT 12+88.32

(8)

~~3459.4~~
~~80.32~~
~~35+79.02~~
~~160.33~~
~~373 9.41~~
~~79.92~~
~~79.02~~
~~20° 2'~~
~~150~~
~~0 46.00~~
~~0 42~~
~~31 38.00~~
~~2~~
~~4 39.41~~
~~150~~
~~197 0.50~~
~~39.41~~
~~591.150~~

0° - 31'
 3° - 01'
 4° - 00'

(6)

PI 31 + 52.85
 Δ = 3° - 39' L
 D = 3° - 00
 T = 60.88
 L = 121.67
 PC = 30 + 91.98
 PT = 32 + 13.65

0° - 07'
 1° - 37'
 1° - 49'

① PI 34 + 29.87

Δ = 8° - 07'

T = 81.32

L = 162.55

PC = 33 + 48.55

PT = 35 + 11.10

1° - 17'

3° - 47'

4 - 03 1/2

$\frac{60.87}{26}$ $\frac{3182.6}{24}$ $\frac{6.5}{529}$ $\frac{3132.65}{536}$ $\frac{80}{1148}$ $\frac{144}{52.853-38}$ $\frac{60.87}{91.98}$ $\frac{91.98}{121.67}$ $\frac{213.65}{13.65}$ $\frac{8.02}{90}$ $\frac{32.85}{721.80}$ $\frac{2.2-34}{142.55}$ $\frac{81.32}{34.29.87}$ $\frac{38+48.55}{81.32}$ $\frac{162.55}{38+48.55}$ $\frac{35+11.10}{34.29.87}$ $\frac{11.10}{51.45}$ $\frac{150}{150}$ $\frac{257.250}{51.45}$ $\frac{6.5}{771.750}$
--

Curve #1

$$D = 5^{\circ} 00'$$

$$\Delta = 14^{\circ} 42'$$

$$T = 147.87$$

$$PC = 2+75.5$$

$$P.I. = 4+23.37$$

$$P.T. = 5+69.5$$

$$L = 294.00$$

$$PC \quad 0^{\circ} 00'$$

$$S + B = 0^{\circ} 32'$$

$$C - 0^{\circ} 00' \quad 5^{\circ} 07'$$

$$5^{\circ} 37'$$

$$C + 5^{\circ} 21'$$

(2)

$$\Delta = 11^{\circ} 28' \quad PC \quad 600$$

$$D = 6^{\circ} 00' \quad 9 \quad 1^{\circ} 30' \quad 180$$

$$T = 95.88' \quad 10 \quad 4^{\circ} 30'$$

$$PC \quad 8+49.6 \quad 400 \quad 5+99.7$$

$$PT \quad 9+45.48$$

$$P.T. \quad 10+40.6$$

$$L \quad 191.00 \quad 191 \quad 180$$

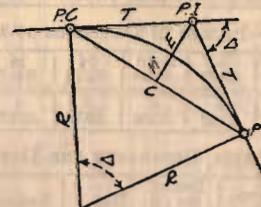
$$8+49.6 \quad 50.6$$

$$1+4 \quad 45.4$$

$$10.906 \quad 130.80$$

DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

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CURVE FORMULAS

$$\text{Radius} = R = \frac{50}{\sin \frac{D}{2}} \quad (1) \quad \text{Degree of Curve} = D \text{ and } \sin \frac{D}{2} = \frac{50}{R}$$

$$\text{Tangent} = T = R \tan \frac{\Delta}{2} \quad (3) \quad \text{Length of Curve} = L = 100 \frac{\Delta}{D} \quad (4)$$

$$\text{Middle ordinate} = M = R(1 - \cos \frac{\Delta}{2}) \quad (5) = R_{\text{vers}} \frac{\Delta}{2} \quad (6)$$

$$\text{External} = E = T \tan \frac{\Delta}{4} \quad (7) = R \div \cos \frac{\Delta}{2} - R \quad (8) = R \sec \frac{\Delta}{2} \quad (9)$$

$$\text{Long Chord} = C = 2 R \sin \frac{\Delta}{2} \quad (10) \quad \Delta = \text{Central Angle}$$

EXPLANATION AND USE OF TABLES

Stations.—Given P. I.=Sta. 161+60.35 to find Sta. of P. C. and P. T. $\Delta=62^{\circ} 10'$ $D=8^{\circ} 20'$. From Table IV for 1° curve $T=3454.1$ and $\div 8\frac{1}{3}=414.49$ ft. From Table V correction=−.36 or $T=414.85$ ft. P. C.=Sta. P.I.—T=157+45.50. Also from (4) $L=746.00$ and P. T.=Sta. P. C.+L=164+91.50.

Offsets.—Tangent offsets vary (approximately) directly with D and with square of the distance. Thus tangent offset for Sta. 158 on above curve is 2.16 ft. found as follows. From Table III tangent offset for 100 ft.=7.27 ft. Distance=158—Sta. P. C.=54.50, hence offset=7.27 $(54.50 \div 100)^2 = 2.16$ ft. Also square of any distance divided by twice the radius equals (approximately) the distance from tangent to curve. Thus $(54.50)^2 \div (2 \times 688.26) = 2.16$ ft.

Deflections.—Deflection angle= $\frac{1}{2} D$ for 100 ft., $\frac{1}{4} D$ for 50 ft., etc. For c ft. (in minutes) $.3 \times C \times 1^{\circ}$ or=defl. for 1 ft. from Table III $\times C$. For Sta. 158 of above curve=.3 $\times 54.5 \times 8\frac{1}{3} = 136.2'$ or $2^{\circ} 16.2'$, or= $2.50 \times 54.5 = 136.2'$ from Table III. For Sta. 159 deflection angle= $2^{\circ} 16.2' + 8^{\circ} 20' \div 2 = 6^{\circ} 26.2'$, etc.

Externals.—May be found in similar manner to tangents. Thus E for curve above is 91.37. For from Table IV for 1° curve $E=960.6$ for $8^{\circ} 20' = 360.6 \div 8\frac{1}{3} = 91.27$ and from Table V correction=−.10 or $E=91.37$ ft. Or suppose $\Delta=32^{\circ}$ and E is measured and found to be 42 ft. What is D ? From Table IV $E=230.9$ and $\div 42 = 5.5$ or $D=5^{\circ} 30'$.