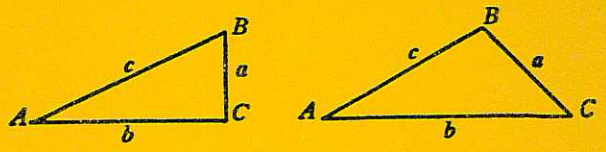
CR 301
South Canyon
TELEDYNE POST
P Line Book #1

COLLEGE
FIELD BOOK

48QC-65B

FORMULAE FOR SOLVING RIGHT TRIANGLES



$$\text{Sin } A = \frac{a}{c} = \text{Cos } B \quad , \quad \text{Cot } A = \frac{b}{a} = \text{Tag } B$$

$$\text{Cos } A = \frac{b}{c} = \text{Sin } B \qquad \text{Sec } A = \frac{c}{b} = \text{Cosec } B$$

$$\text{Tan } A = \frac{a}{b} = \text{Cot } B \qquad \text{Cosec } A = \frac{c}{a} = \text{Sec } B$$

Given	Required	Solution
A, c	B, a, b	$B = 90° - A, a = C \sin A, b = C \cos A.$
A, b	B, a, c	$B = 90° - A, a = b \tan A, C = \frac{b}{\cos A}.$
A, a	B, b, c	$B = 90° - A, b = a \cot A, C = \frac{a}{\sin A}.$
a, c	A, B, b	$\sin A = \frac{a}{c}, \cos B = \frac{a}{c}, b = \sqrt{(c+a)(c-a)}$
a, b	A, B, c	$\tan A = \frac{a}{b}, \cot B = \frac{a}{b}, c = \sqrt{a^2 + b^2}$

FORMULAE FOR SOLVING OBLIQUE TRIANGLES

Given	Required	Solution
A, a, b	B, c	$\sin B = \frac{b \sin A}{a}, c = \frac{a \sin C}{\sin A}$
A, B, a	b	$b = \frac{a \sin B}{\sin A}$
a, b, C	A, c	$A + B = 180° - C, C = \frac{a \sin C}{\sin A}$
a, b, c	Area	side $\frac{a+b+c}{2}$, area $= \sqrt{s(s-a)(s-b)(s-c)}$
A, b, c	Area	area $= \frac{bc \sin A}{2}$
A, B, C, a	Area	area $= \frac{a^2 \sin B \sin C}{2 \sin A}$

CR 301 South Canyon

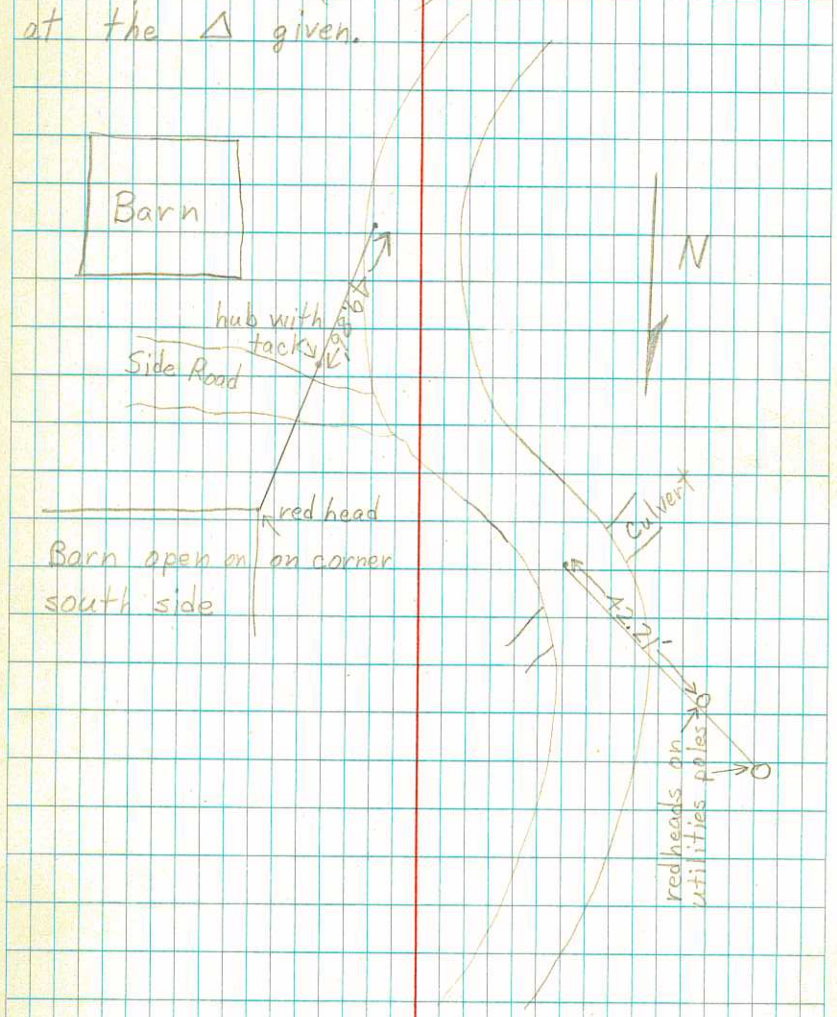
PLine Book #1

INDEX

For further portions see book #2 CR301 PLine

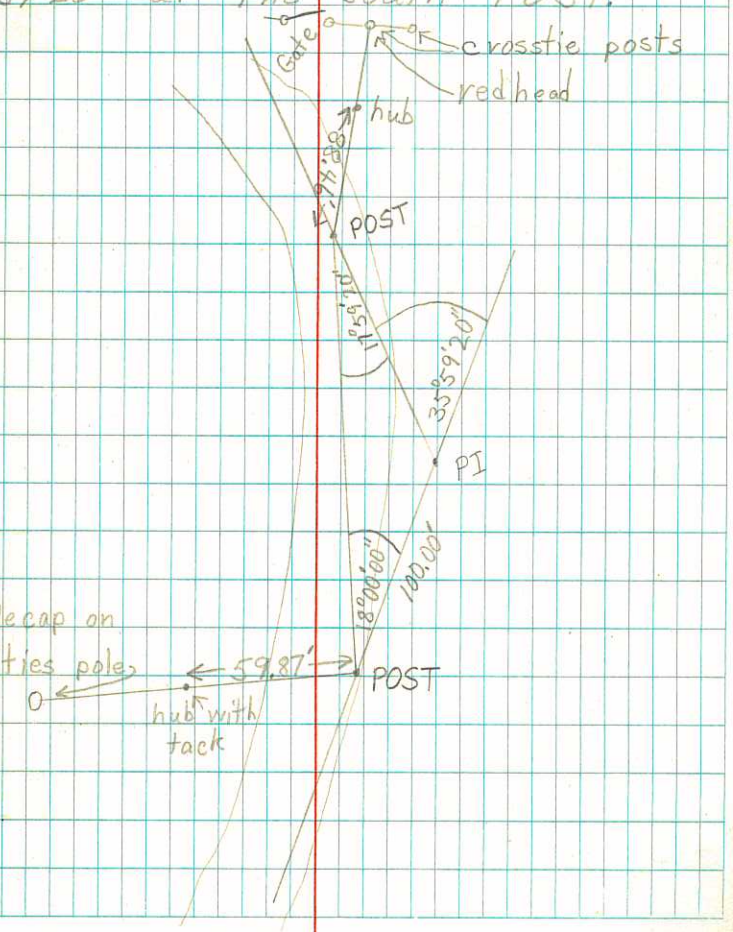
+50		
24+		
+50		
$23+26^{87}$	P.T.	PI→PI=123.95
		Δ=24°01'50" Right
23+		R=291.39'
		T=61.87'
+50		D=19°39'46"
		L=121.93'
$22+04^{94}$	P.R.C.	
		PI→PI 275.81
22+		Δ=9°22'30" Left
		R=754.20
+50		L=123.46
		T=61.87
21+		D=7°34'24"
$20+81^{48}$	P.C.	

All PI→PI distances are given from the previous (North) P.I. to the one at the Δ given.



+50		
29+10.96	PT	
29+		
		POST→POST 180.86'
+50		PI→POST 368.63'
		Δ=35°59'20" Left
28+		T=194.95'
		R=600.00'
+50		D=9°32'57"
		L=376.99
27+		
+50		
26+		
+50		
25+33.87	P.C.	
25+		

This PI was down the bank so two POST's were used. The POST's were placed 100.00' from the PI along each semi-tangent. The angles turned were 18°00'00" at the North POST and 17°59'20" at the south POST.



+50

34+

+50

33+

+50

32+~~18~~ 49.02 P.T.

32+ POST → PI = 337.~~34~~ 96

Δ = 39°44'10" Right

+50 T = 108.33'

R = 300.00'

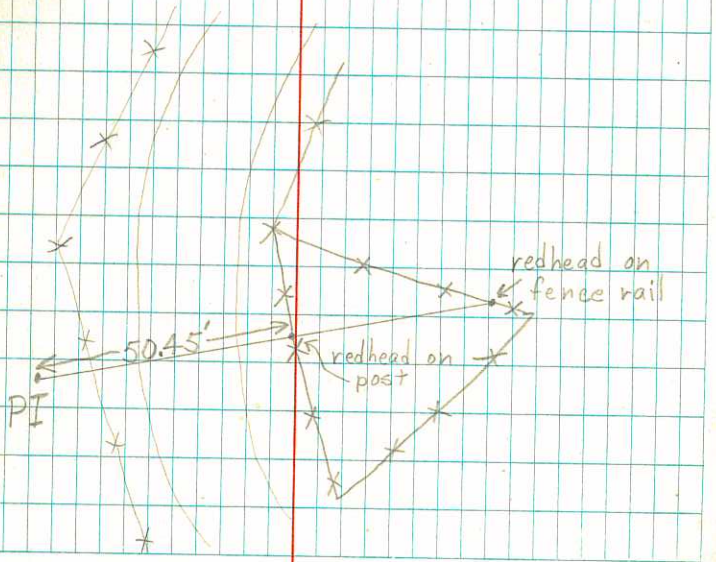
31+ D = 19°05'55"

L = 207.91

+50

30+~~40~~ 41.11 P.C.

30+



40+

+50

39+

38+85 P.C.

+50

38+

+50

37+

+50

36+

+50

35+

PI → PI = 807.03 ~~.24~~

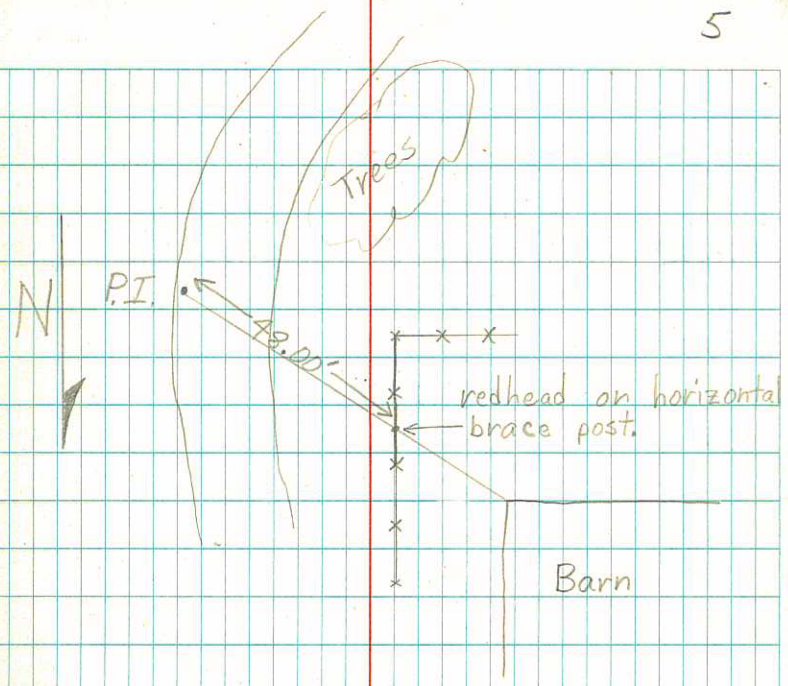
Δ = 14° 03' 15" Right

T = 61.80'

R = 500.00'

D = 11° 27' 33"

L = 122.97



44+

43+52.55 P.T.

+50

308.82
PI → PI = ~~309.06~~

43+ Δ = 16°40'00" Left

T = 131.73

+50 R = 900.00

D = 6°21'58"

42+ L = 261.60'

+50

41+

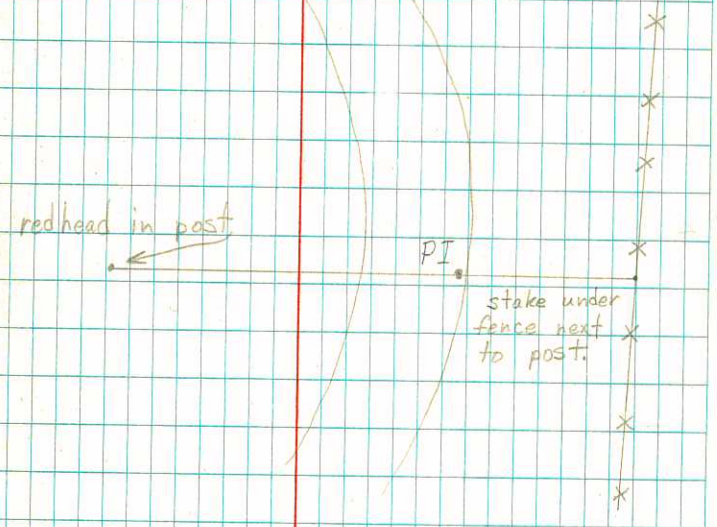
40+90.25 P.C.

+50

40+00

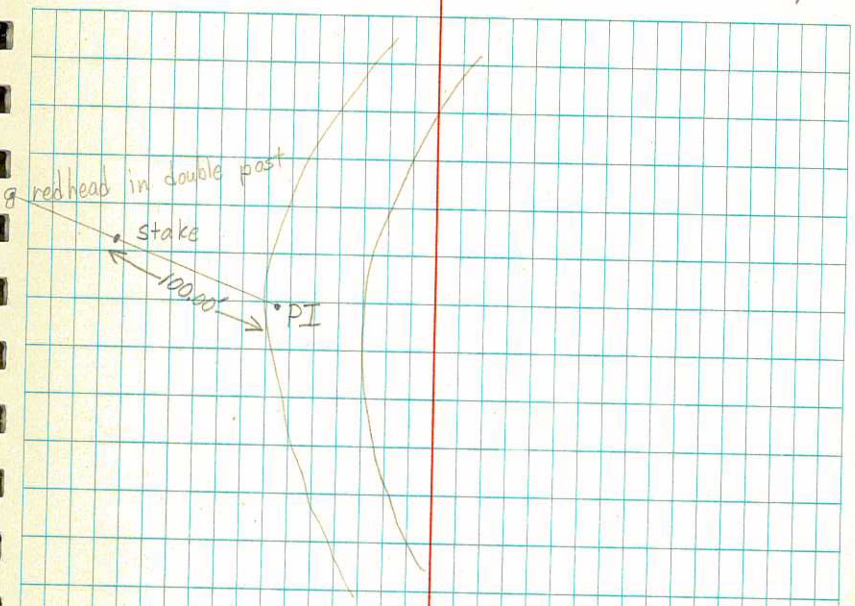
(39+~~75.66~~ 75.66) See opposite page

Eq. 40+~~00.00~~ 08.91 P.T.



By changing these curves we changed the length of the line requiring an equation here. To each station past here add ~~2.34~~ 33.25 to obtain the ~~so~~ true stationing.

49+		
		PI → PI = 617.87
+50		Δ = 22°18'00" Right
		T = 177.52'
48+		R = 900.00'
		D = 6°21'58"
+50		L = 350.55'
47+		
46+61.38	P.C.	
+50		
46+		
+50		
45+00		
44+94.27	Property tie	
+50		



A stone with a ¼ chiseled in it lies under the fence 542.25' west of 44+94.27. The angle turned to the south P.I. is 99°59'00".

+50

53+

52+97.05 P.T.

+50

52+

+50

51+

50+52.66 P.C.

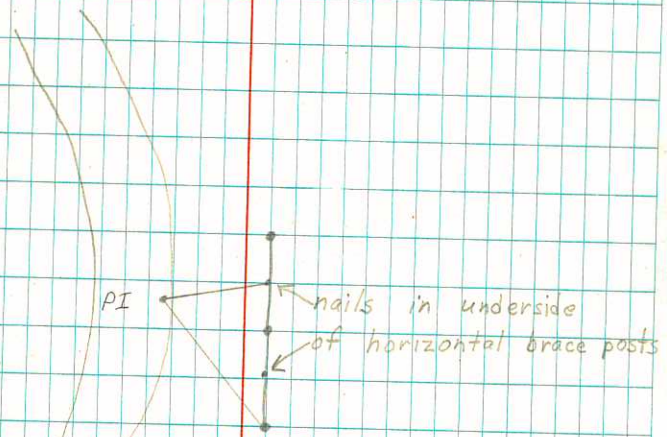
+50

50+11.93 P.T.

50+

+50

PI→PI=342.07
Δ=23°20'00" Left
T=123.91
R=600.00'
D=9°32'57"
L=244.39



+50

59+

+50

58+

+50

57+

+50

56+

+50

55+

+50

54+

65+

64+50

64+20.34 P.C.

64+

+50

63+

+50

62+

+50

61+

+50

60+

+50

70+

+50

69+

68+69.42 P.T.

+50

PI→PI 1487.89'
Δ = 51°29'00" Right
T = 240.95'
R = 500.00'
L = 449.06
D = 11°27'33"

68+

+50

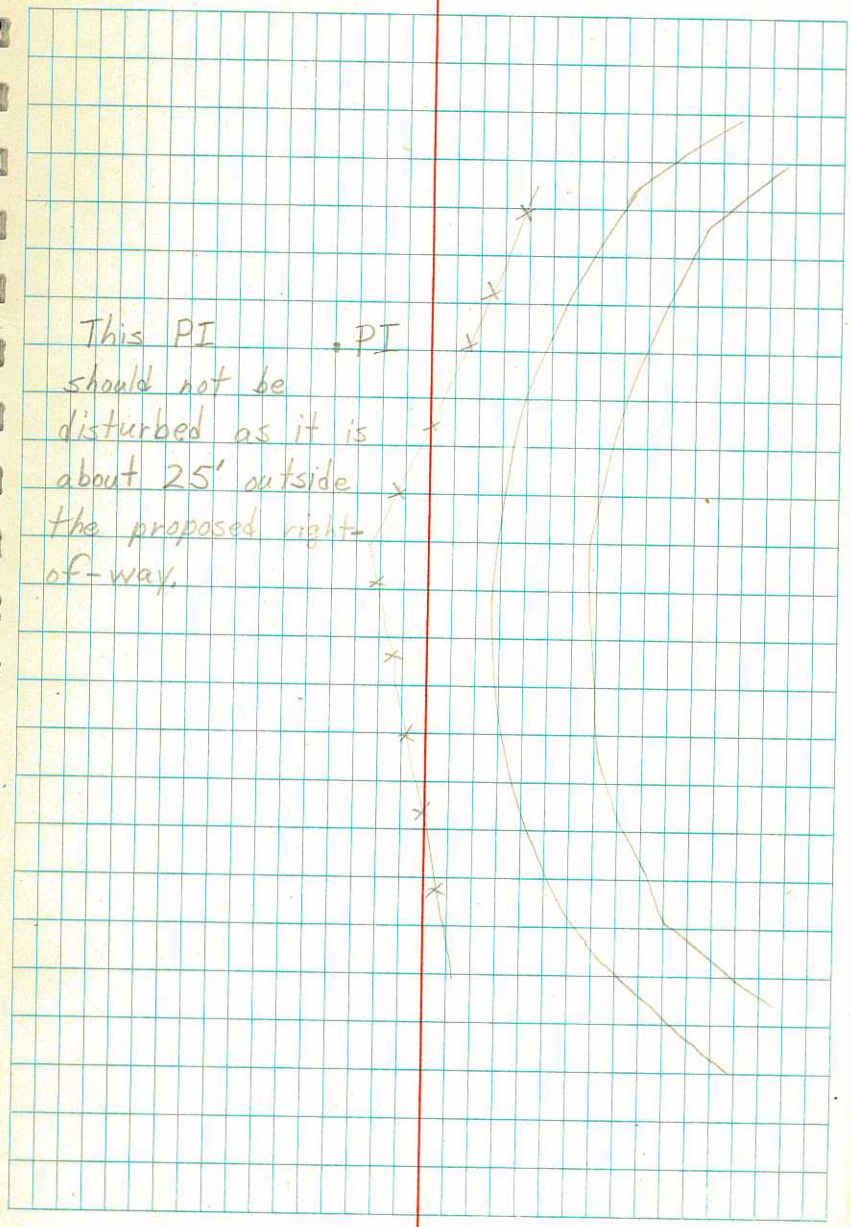
67+

+50

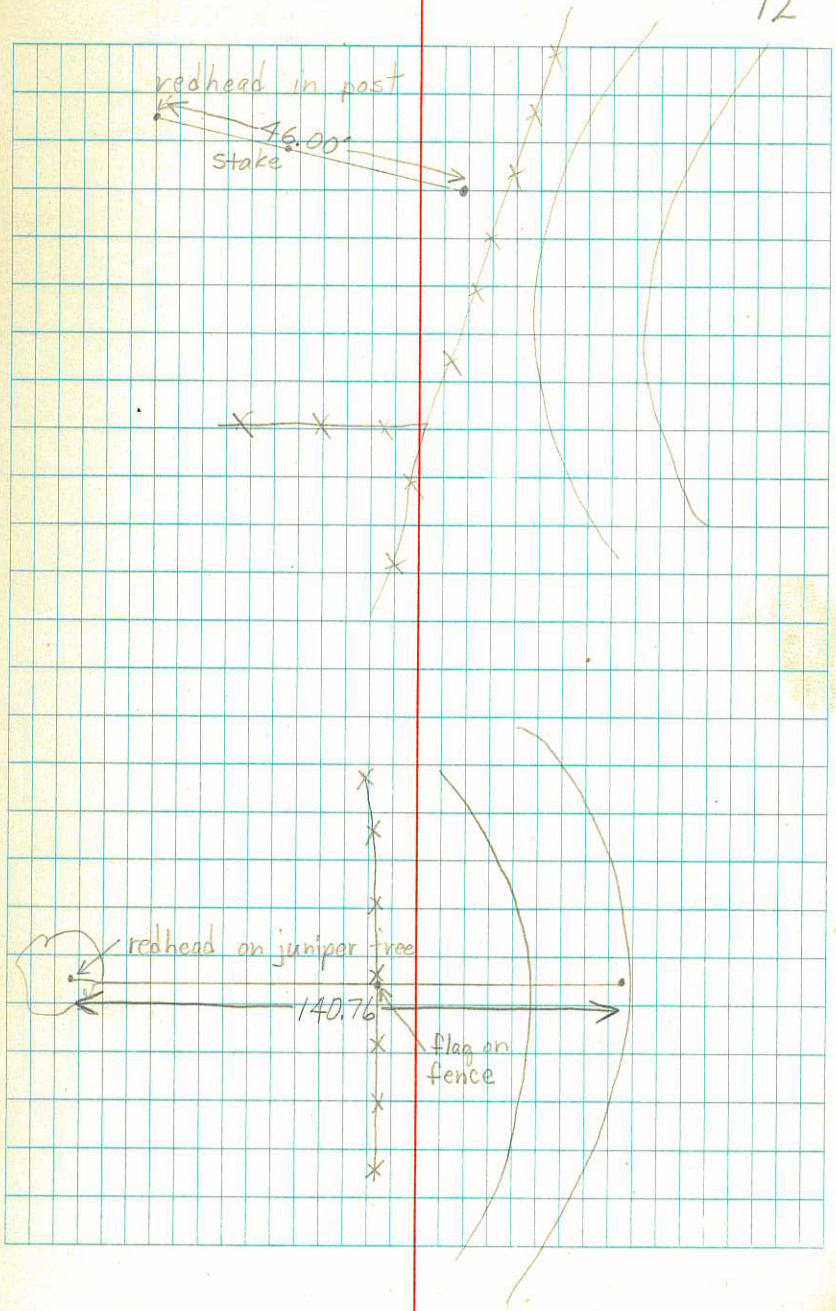
66+

+50

This PI . PI should not be disturbed as it is about 25' outside the proposed right-of-way.



		PI→PI=309.66
		Δ=39°27'05" Right
75+		T=179.41'
		R=500.00'
+50		L=344.51
		D=11°27'47"
74+		
+50		
73+05.84	P.C.	
73+		
72+94.74	P.T.	
+50		PI→PI=558.18
		Δ=43°45'15" Left
72+		T=119.86
		R=300.00'
+50		L=228.06'
		D=19°05'55"
71+		
70+66.68	P.C.	



+50

80+

+50

79+

+50

78+

+50

77+

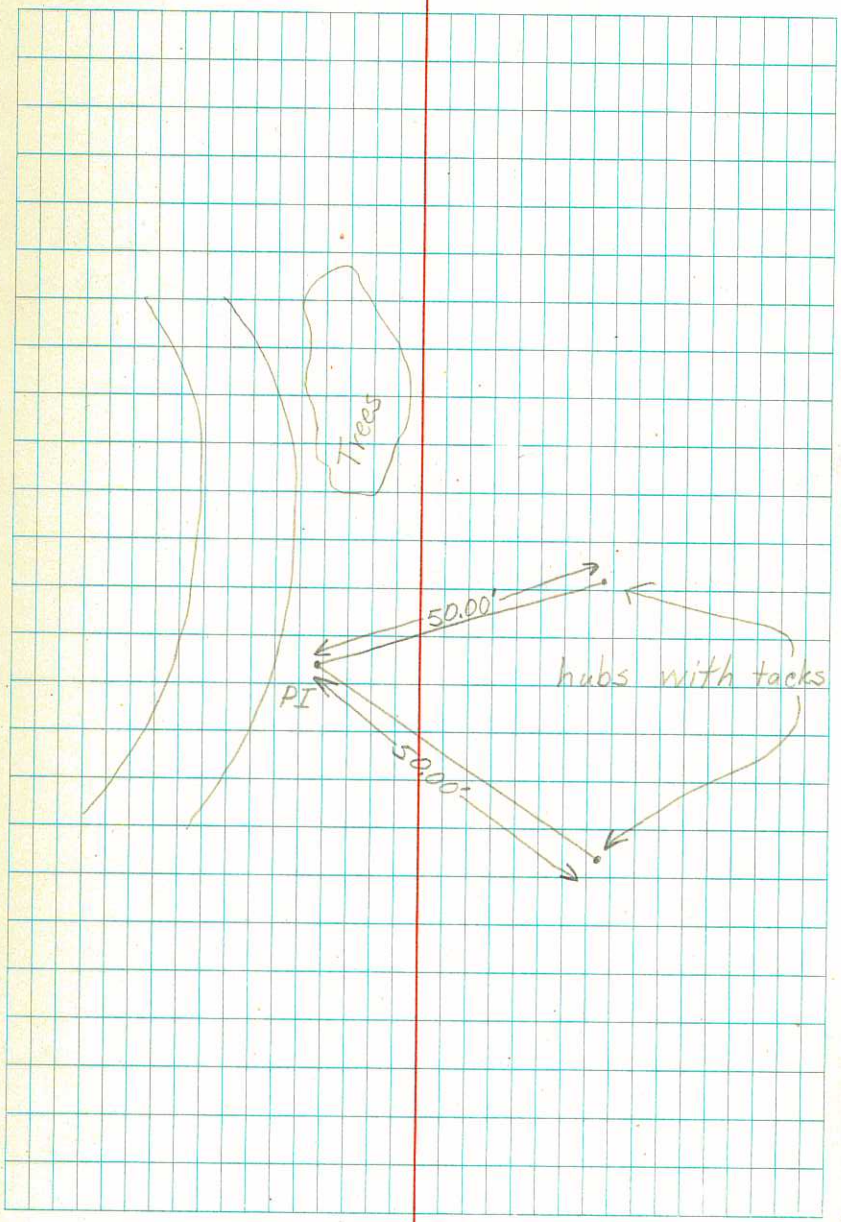
76+50 35 PT

+50

76+

+50

+50		
85+		
84+79.31	P.T.	
		PI ⇒ PI = 901.05
+50		Δ = 25°01'35" Left
		R = 500.00'
84+		T = 110.85'
		D = 11°27'33"
+50		L = 218.17'
83+		
82+61.14	P.C.	
+50		
82+		
+50		
81+		



+50

90+

+50

89+

Eq (88+73.17)

88+68.18 PT

PI→PI=455.81

Δ=10°07'40" Left

+50

R=500.00'

T=44.31'

88+

D=11°27'33"

L=88.38'.

87+79.80 P.C.

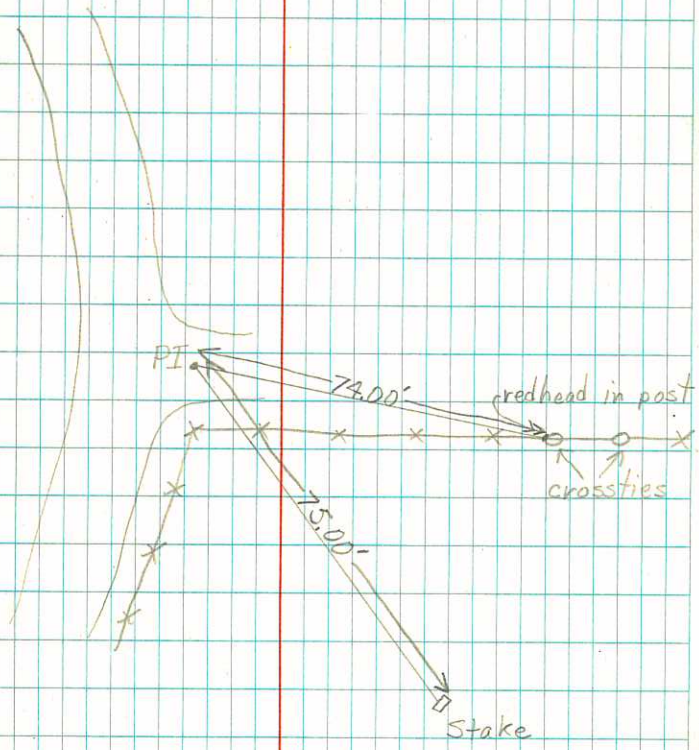
+50

87+

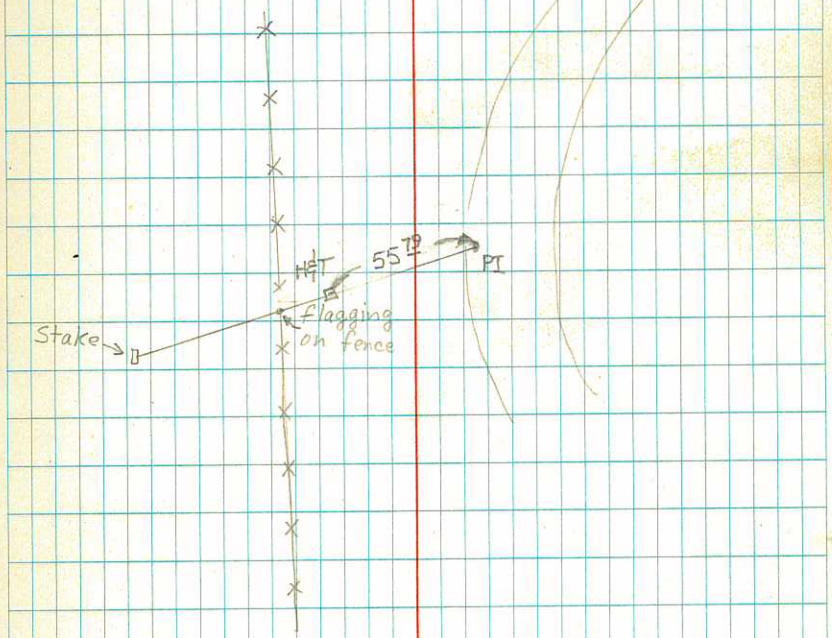
+50

86+

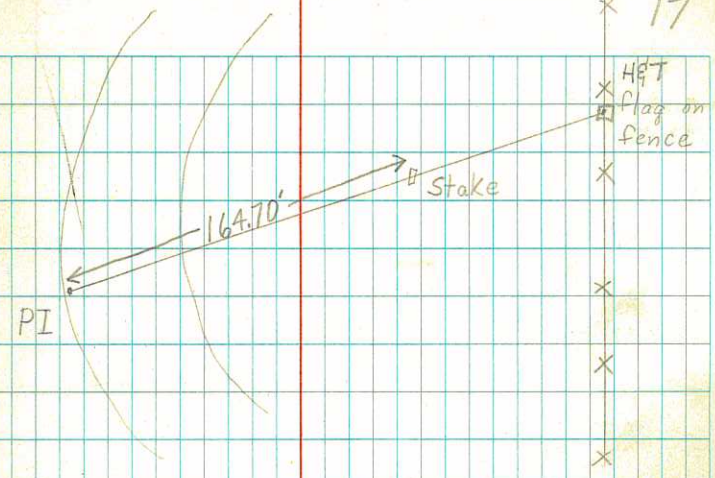
At station 88+68.18 an equation subtracting ~~adding~~ 4.99' from all following stations is required



1+50		
95+		
94+85.25	P.T.	
		PI→PI 584.76'
1+50		Δ=14°25'00" Right
		R=572.96'
94+		T=72.47'
		D=10°
1+50		L=144.16'
93+41.09	P.C.	
93+		
1+50		
92+		
1+50		
91+		

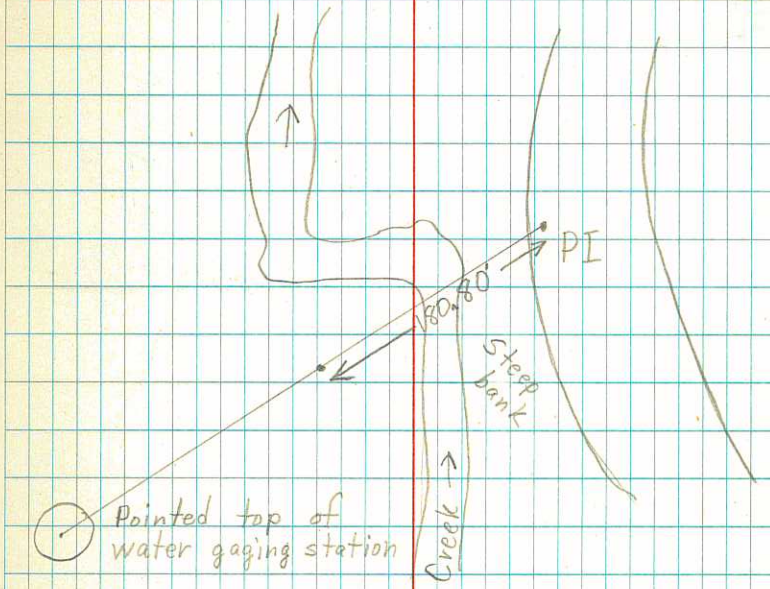


+50				
100+				
99+88.89	PT			
+50		PI → PI = 480.23		
		Δ = 19°14'25"		
99+		R = 572.96	Lt	
		T = 97.12		
+50		D = 10°		
		L = 192.40		
98+				
97+96.49	P.C.			
+50				
97+				
+50				
96+				



SLP Dis	V∠	Hor Dist
165.43	104°13'05"	160.36

105+		
104+97.74	P.C.	
104+97.03	PT	PI ➔ PI = 533.08
		Δ = 14°30'45" ~~Right~~ Lt
+50		R = 572.96
		T = 72.95'
104+		D = 10°
		L = 145.13
103+51.90	P.C.	
+50		
103+		
+50		
102+		
+50		
101+		



109+65.56 P.T.

+50

109+

+50

108+

+50

107+46.89 P.C.

107+11.61 PT

107+

+50

106+

+50

PI → PI = 254.15
Δ = 21° 52' 00"
R = 572.96
T = 110.68
D = 10°
L = 218.67

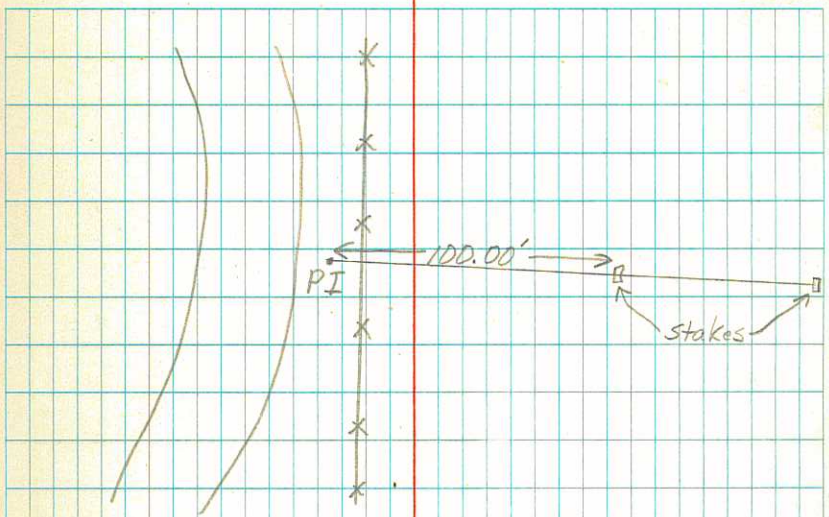
PI → PI = 181.85
Δ = 21° 23' 13"
R = 572.96
T = 108.19
D = 10°
L = 213.87

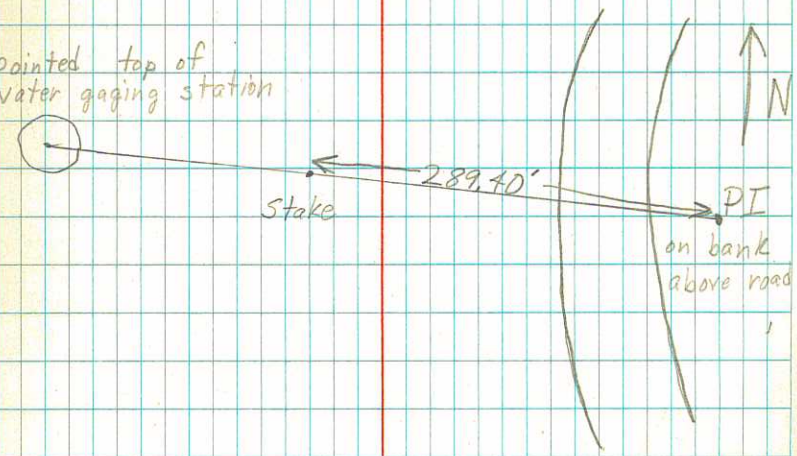
? Lt

Rt

Rt

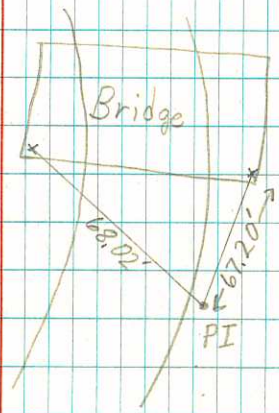
*





114+		
+50		
113+		
+50		
112+17.83	P.C.	
112+		
+50		
111+28.43	P.T.	
		PI→PI=197.93
111+		Δ=15°13'30"
		R=572.96
+50		T=76.58'
		D=10°
110+		L=152.25'
109+76.23	P.C.	

distances are to small X's on the corners.



+50

119

+50

118-

+50

117

+50

116+17.70 P.T.

PI→PI=374.20

116+ Δ=40°01'55"

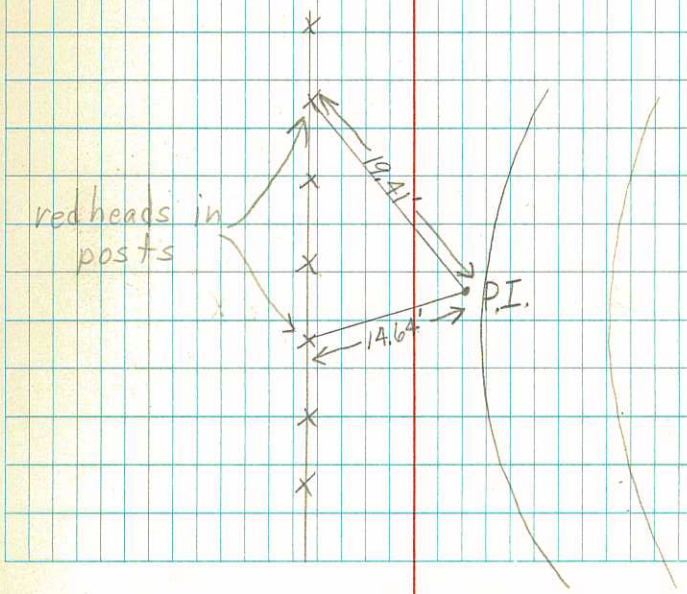
R=572.96

+50 T=208.72

D=10°

115+ L=400.32'

+50



123+23.42 PT

123

+50

122

+50

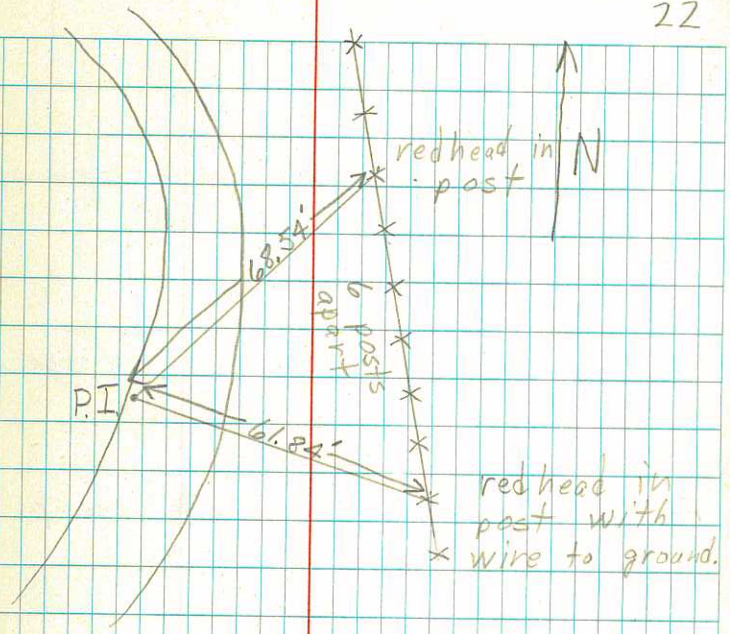
121

+50

120

119+53.42 PC

PI>PI=738.37
Δ=36°30'05"
R=572.96
T=188.94
D=10°
L=365.01'



For detail on this mile see p. 24

For details on this sec. tie see p. 25

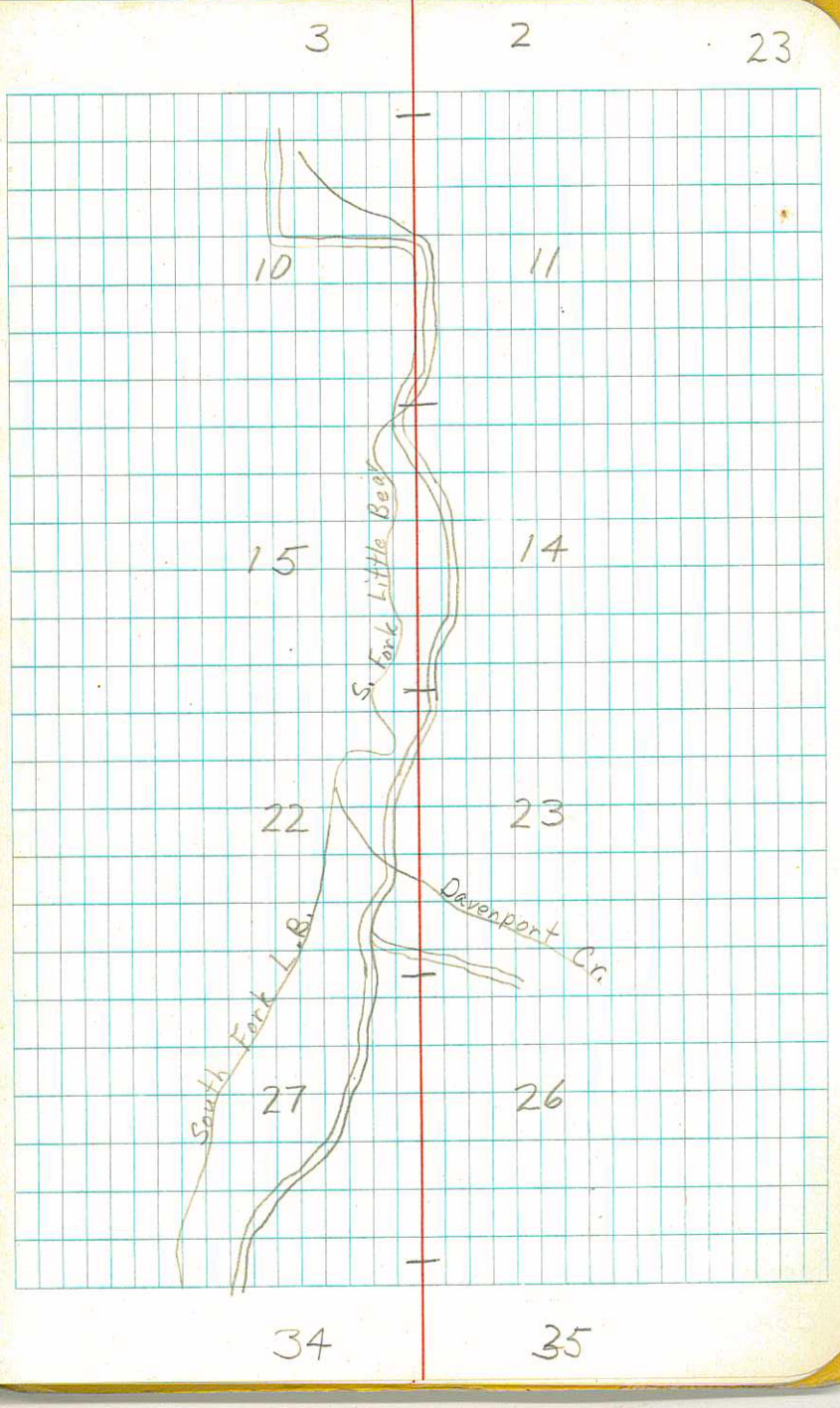
For details on this mile see p. 26

For details on this sec. tie see p 27

For details on this mile see p 28

For details on this sec. tie see p. 29

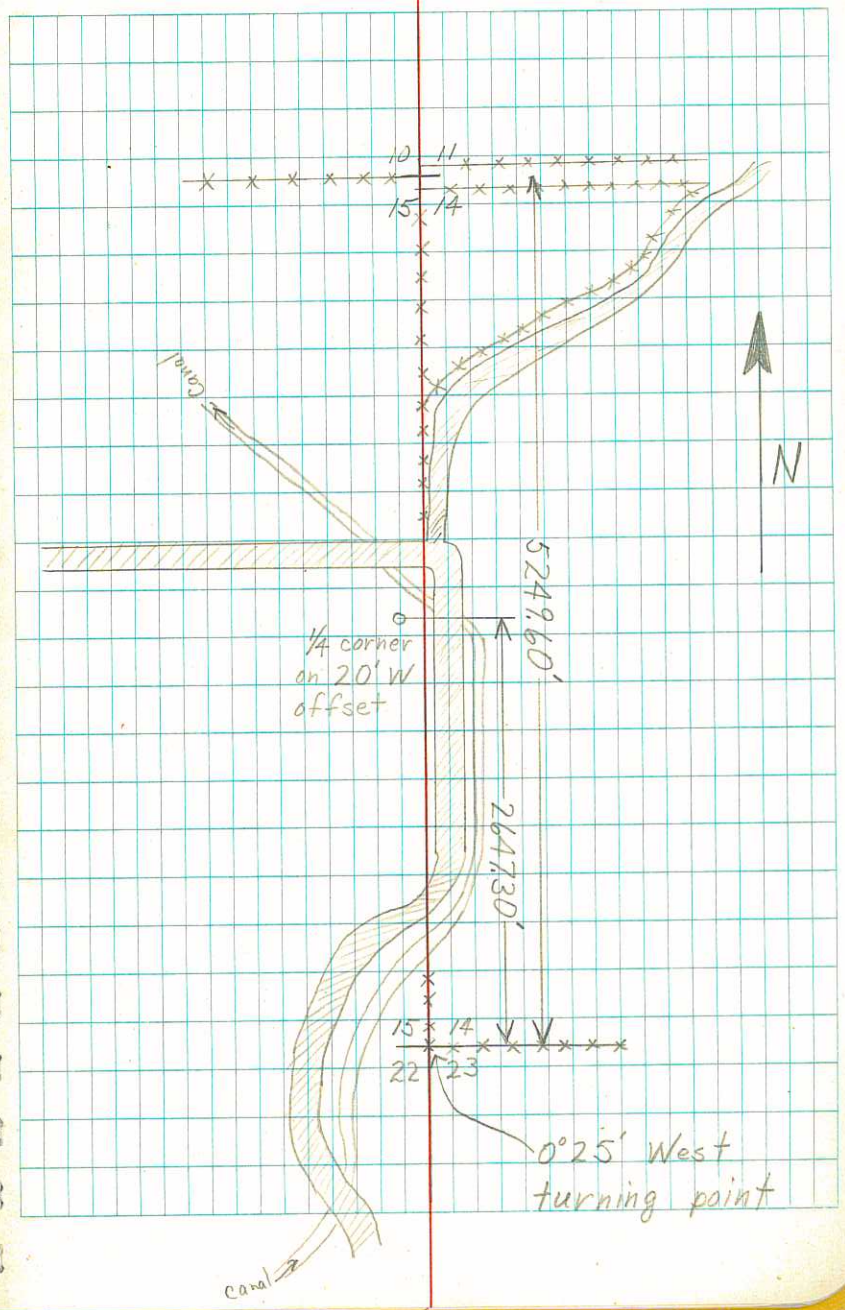
For details on this mile see p. 30



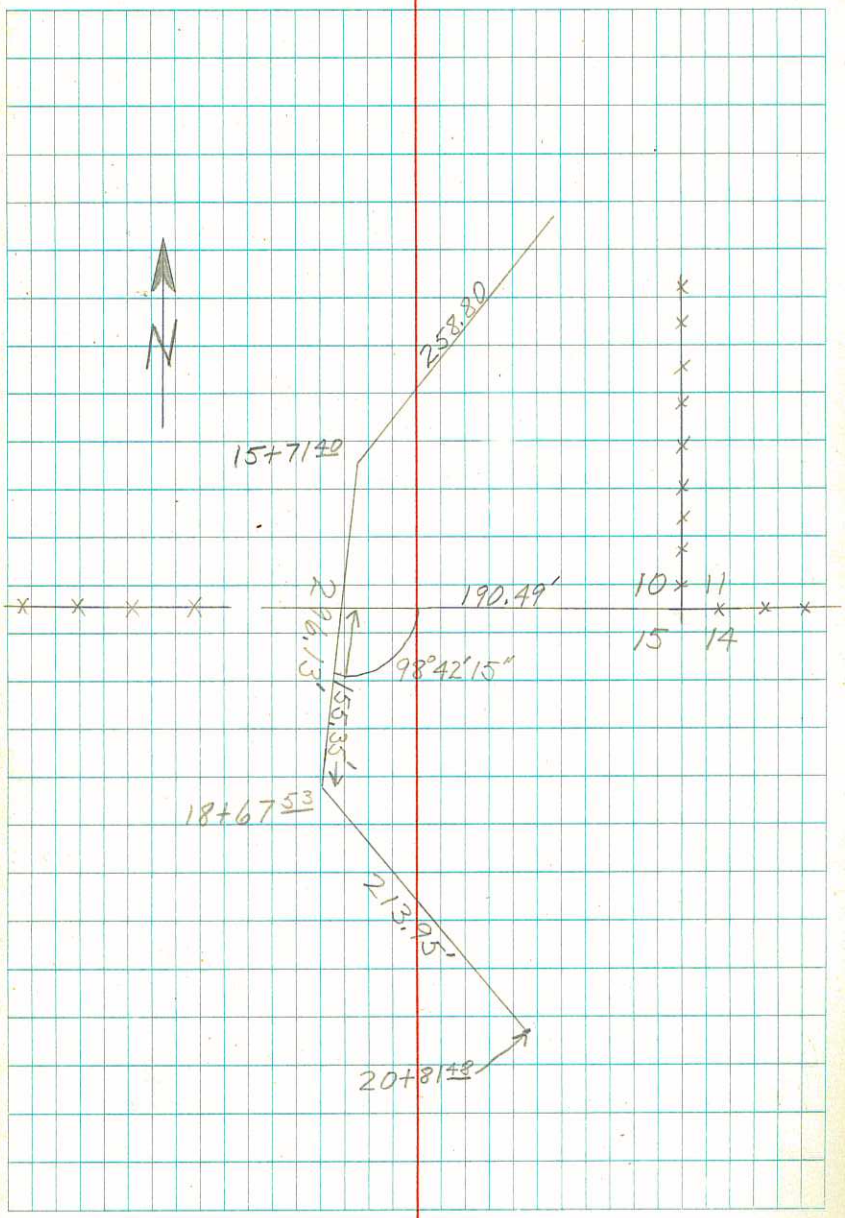
We assumed the section corner here to be the large cedar cornerpost of the fence that runs west from this point.

This 1/4 corner is on a 20' offset to the west. It is under the front yard fence of George Nuhn and was identified by him.

We set the assumed corner here on a 2"X2" hub and tack at the corner post of the fence on the hill top. There is a 0°25' westerly turning point to the corners south on this corner.



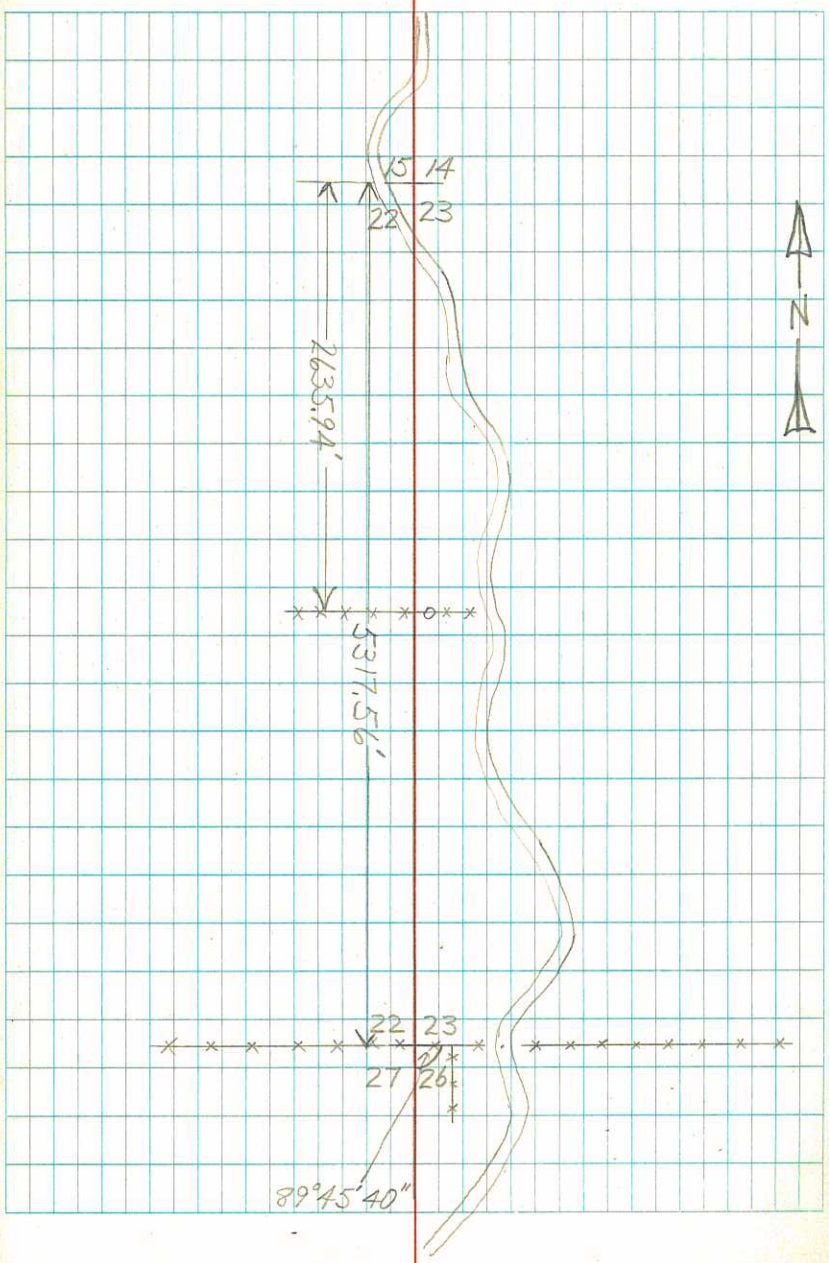
Set instrument on fence corner. Assumed corner is 2"X2" hub with tack at base of cornerpost. 10/15 11/14
Line westerly along fence line and set straddlers across ℄.
Set on Sta 18+67.53, sight on 15+71.40 and set Sta 17+12.18.
Set on 17+12.18, sight on sec. corner and turn an angle to the right of 98°42'15".



Same as described on pp. 24 and 25.

This 1/4 corner is an old stone under the fence 541.97' from Sta. 45+05.25 on the centerline of the road. It is 10.64' east of the line running between section corners. See CR 301 P Line for further details.

This corner is a stone identified by George Nuhn as a section cornerstone. It lies under the fence and <u>not</u> on a fence corner.

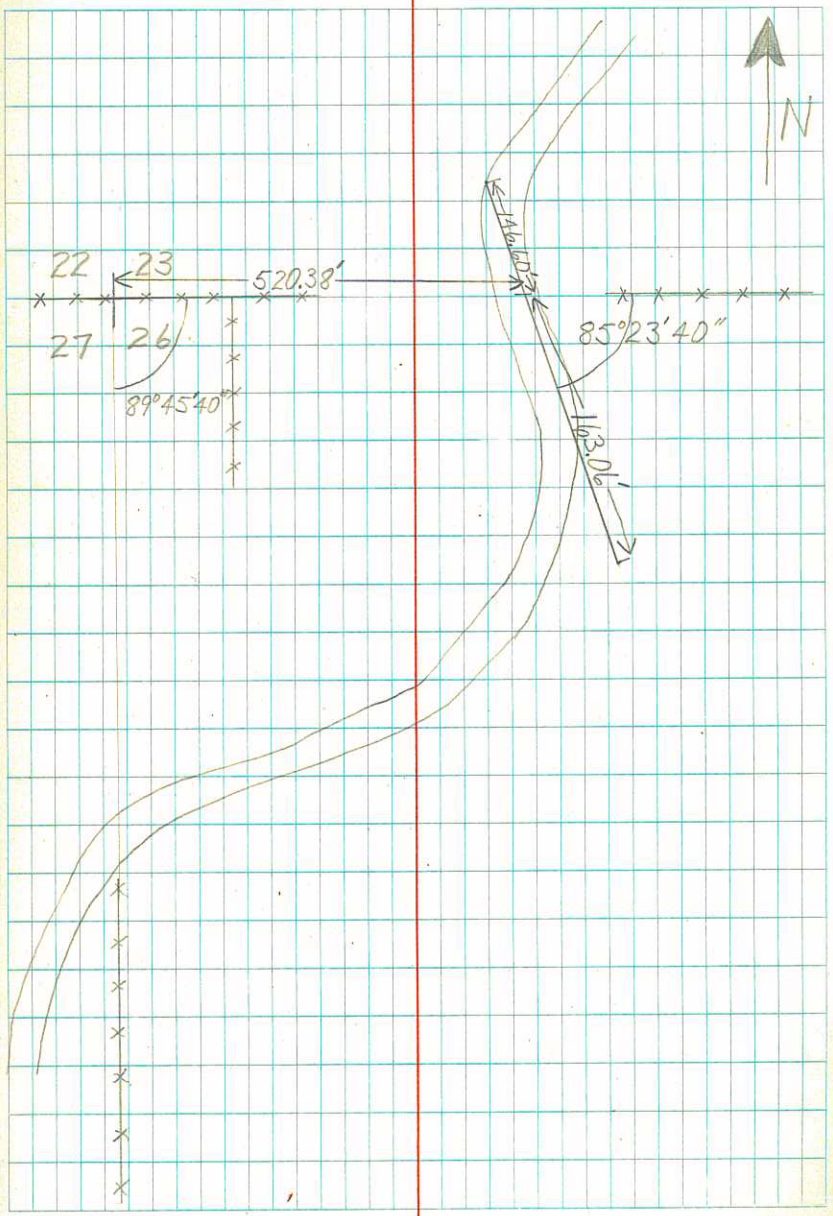


To establish this corner we set the theodolite on the fenceline south of the corner and sighted on a line with sec. corner $\frac{15|14}{22|23}$. On this line we uncovered a stone which George Nuhn identified as the old section corner.

We then sat on this corner and turned an angle of 89°45'40" to the fenceline across the road. We also shot a distance of 593.14' to a point on the fenceline.

We then sat on the point on the fenceline and set straddlers across the ℄. We then measured the distance to the ℄ as 72.76'

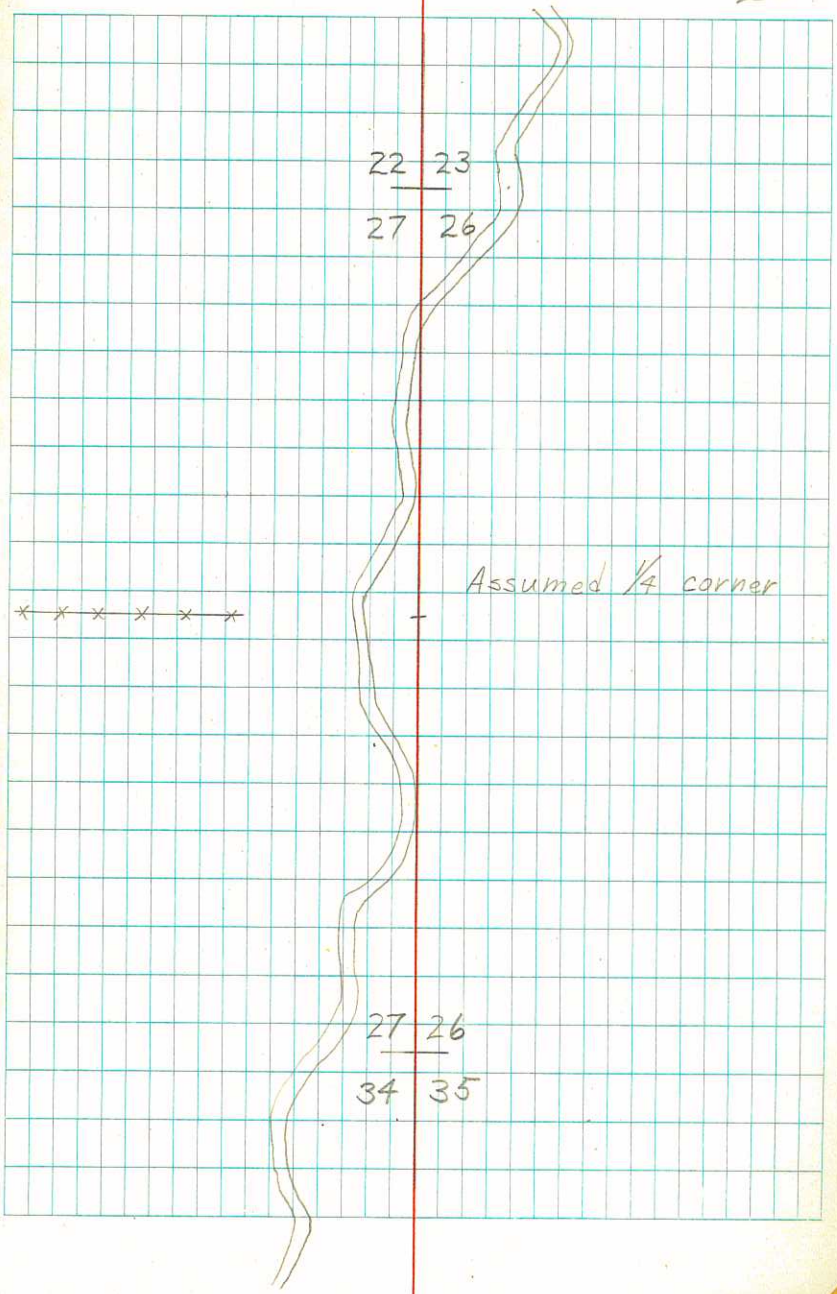
We then sat on the intersection of the sec. line and the ℄ and measured the angle between them of 85°45'40". The intersection is Sta. 73+21.48.



Sec. corner described on pp 26 and 27.

The ¼ corner here was unmarked but was on line with the fence across the valley. We tied flagging on the fence and set a redhead here. There was a T.P. here of 0°10'50" E.

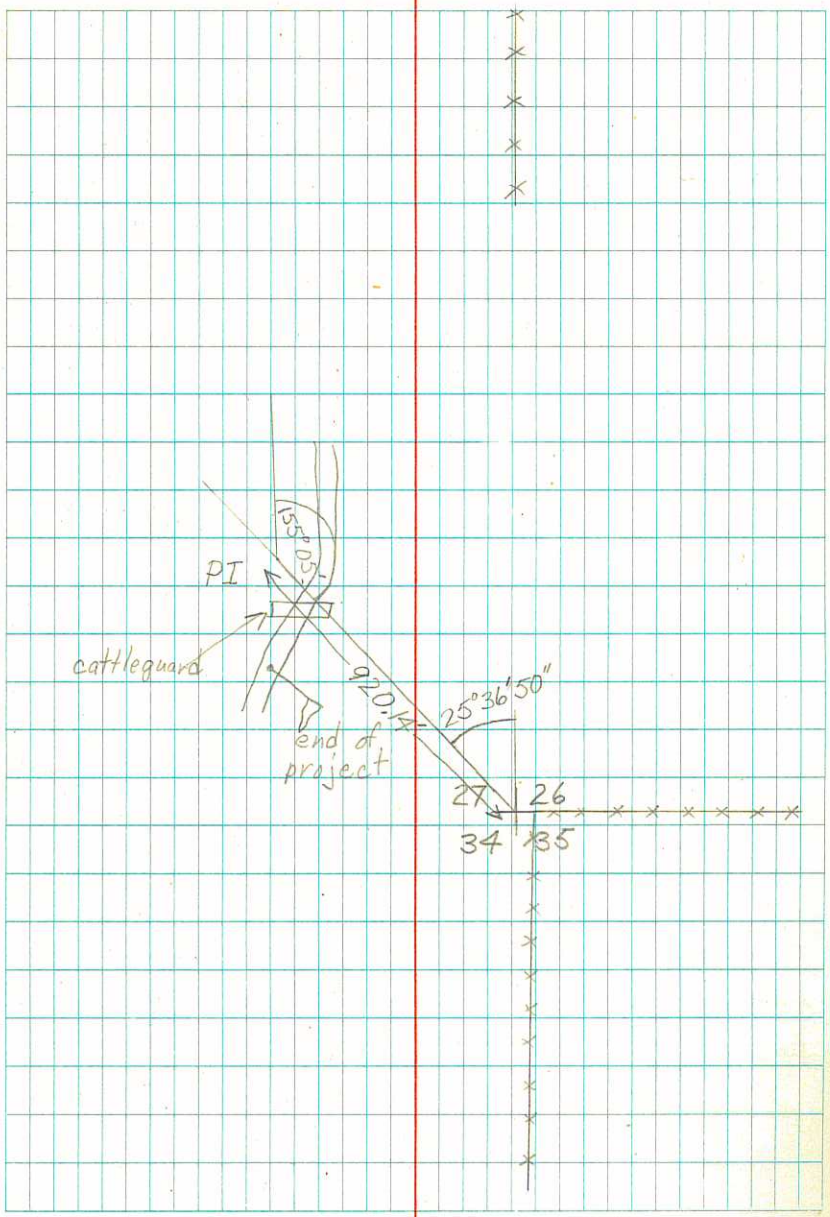
This is an assumed corner set on the corner post of the old fence. The new fence starts on about a 15' east offset.



The assumed section corner is an old corner post about 15' west of the new fence line.

Here we sat on the PI just north of the cattleguard and turned an angle of 155°05' from the P.O.T. to the north to the section corner on the hill. We also shot the distance as 920.14'.

We then moved up and sat on the assumed corner (a PK nail in the lower south side of the cornerpost) and turned an angle of 25°36'50" from the PI to the 1/4 corner on top of the hill to the north.



Probable ¼ corner old post by itself

Sec. cor. described on p. 29.

Probable ¼ corner old cornerpost located on old fence.

Located ¼ corner stone under fence.

Probable sec. cor. at fence intersection