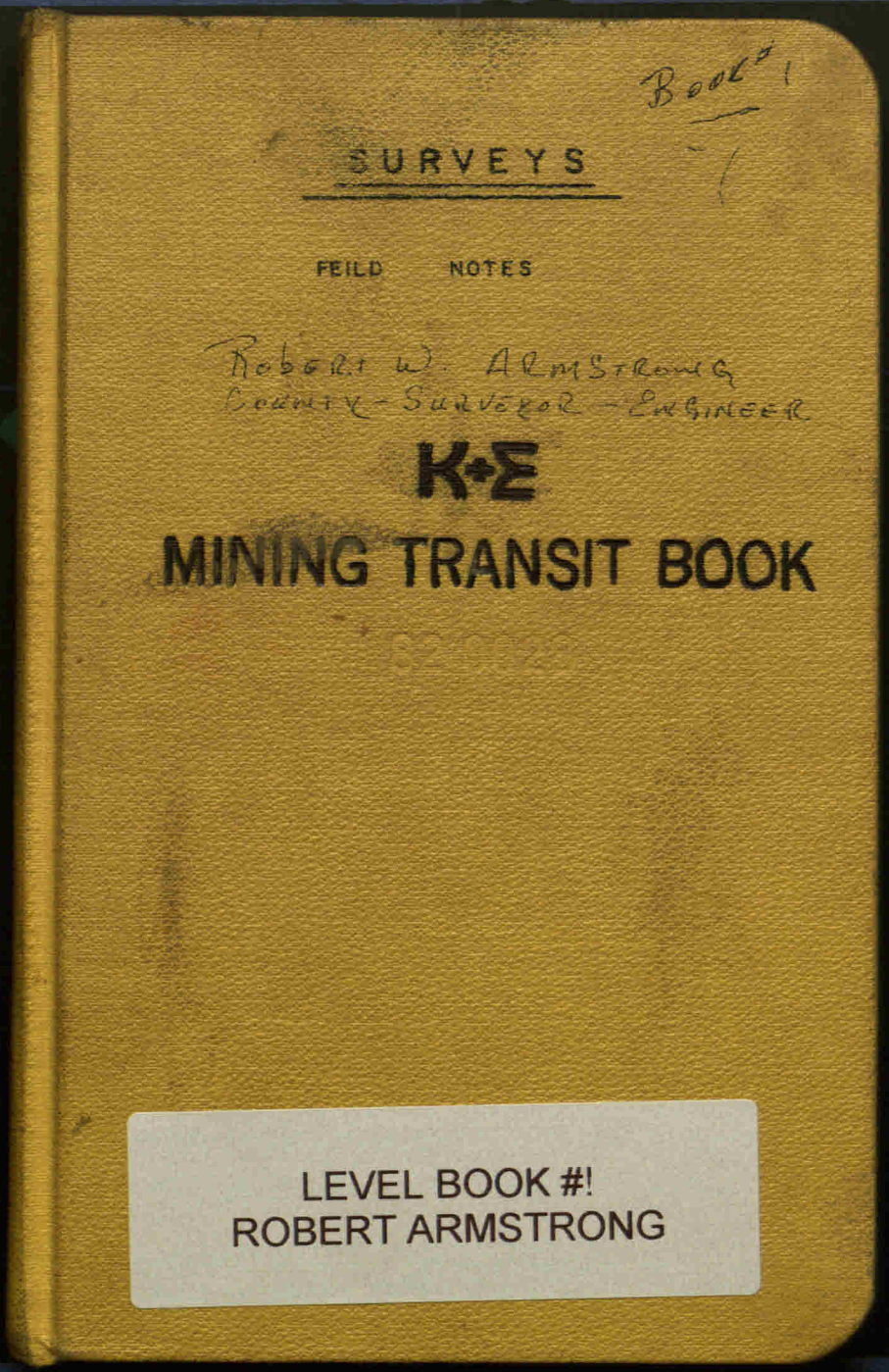
Book 1
SURVEYS
FEILD NOTES
Robert W. Armstrong
County - Surveyor - Engineer
K+E
MINING TRANSIT BOOK
LEVEL BOOK #!
ROBERT ARMSTRONG

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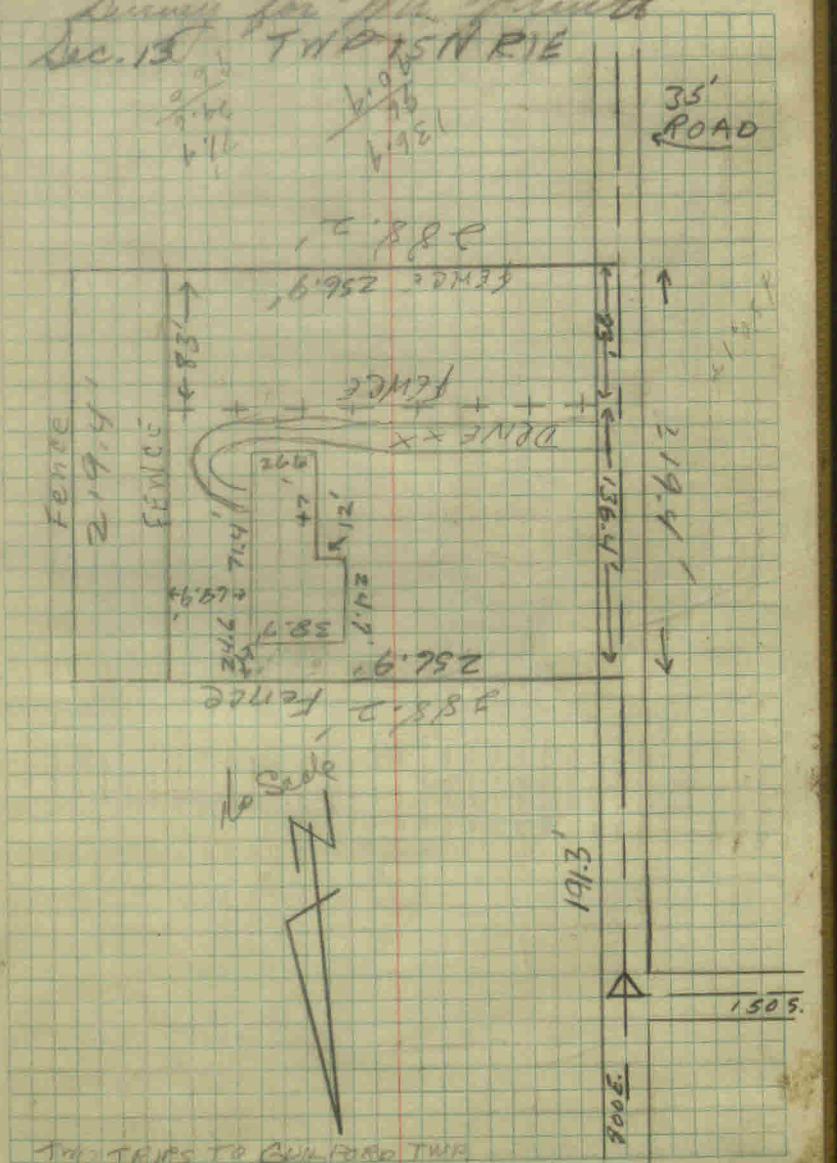
#1

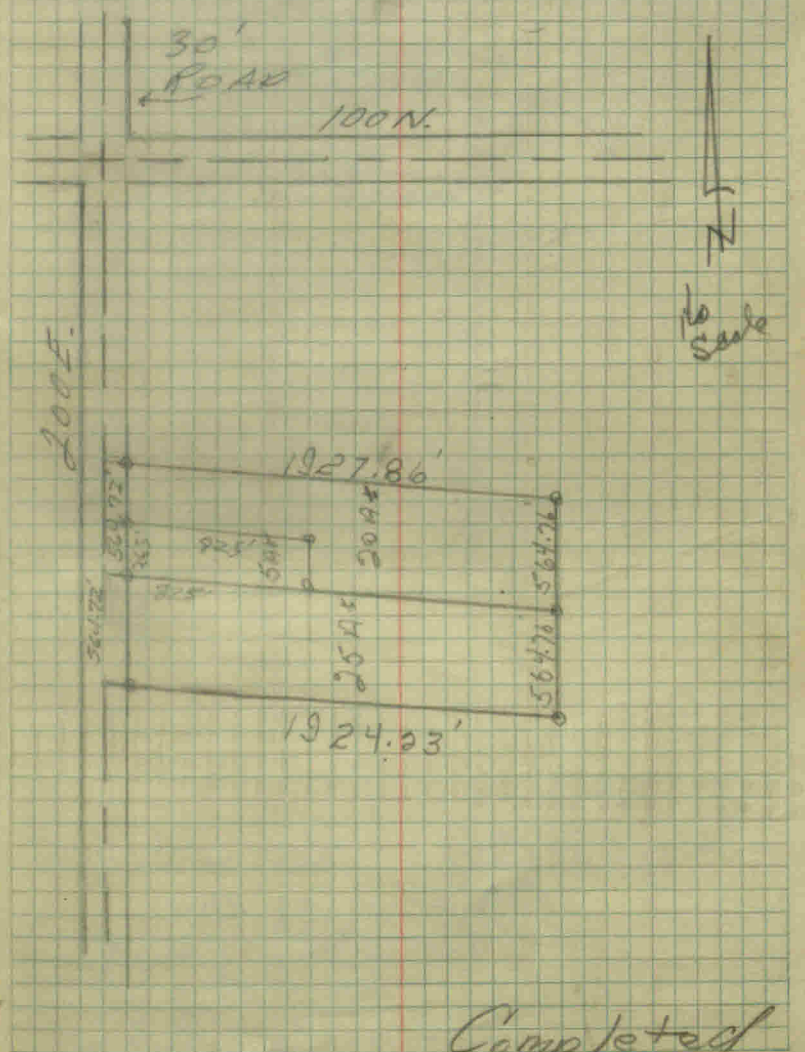
10-18-65

Survey for Wm. Hewitt

Sec. 13 TWP 15N RIE

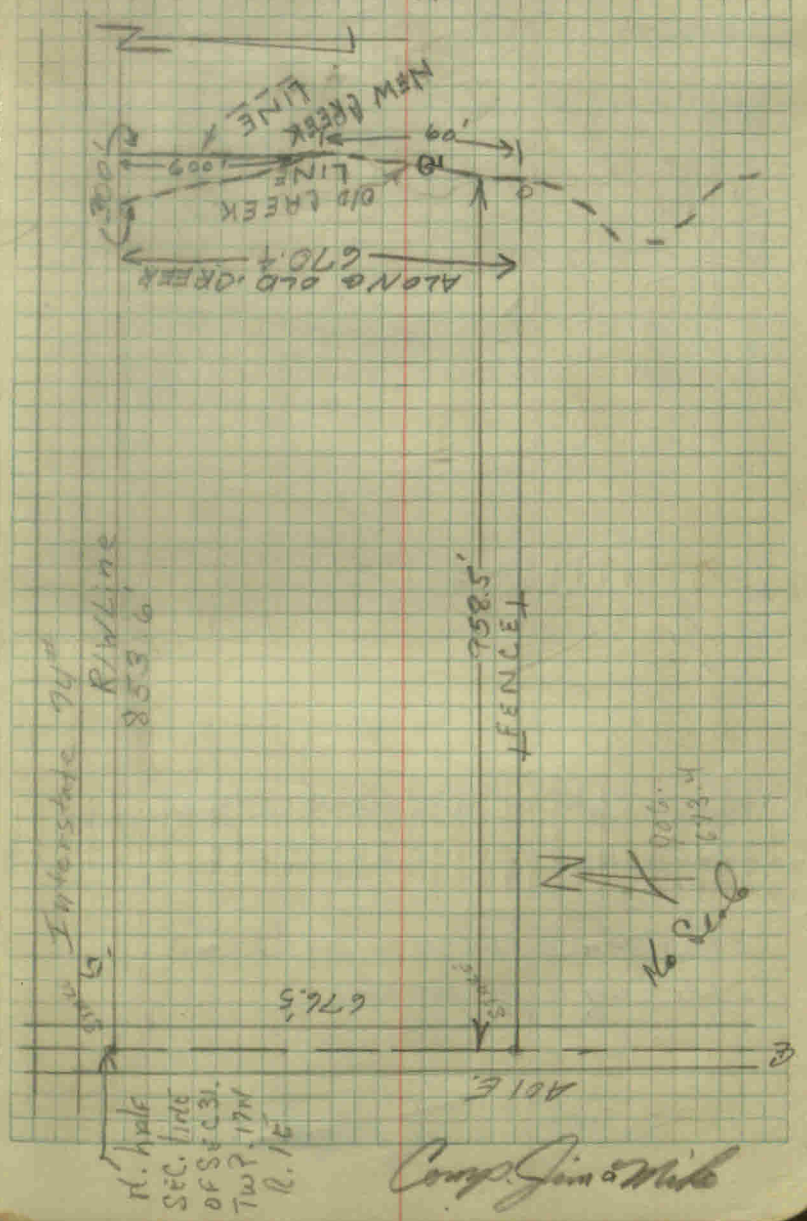

35' ROAD
1319.4'
1505.
300E.
1913'
256.9'
3884.2'
Fence
Fence
Fence

Survey for Joe Rankin
Sec. 9 Twp. 15 N. R 1 W


30'
Road
100 N.
N
To Scale
2004'
1927.86'
1924.23'
564.72'
564.72'
564.72

Survey for Wildox Acres
Sec 31 T17N R1E 10-26-65

142
16.5
158.5'



STAKES ARE SET AT EDGE OF BANK

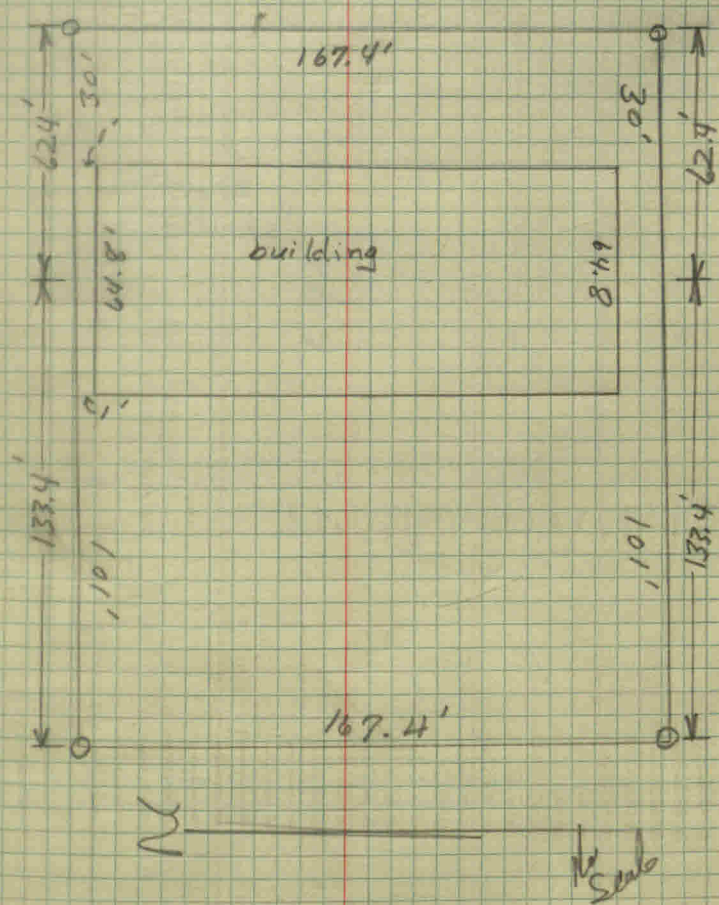
Notation 33' R/W
Notation - 60' from S.L. New Cr. beg.
Notation - 786.5' to fence on
Notation - 917' to fence at edge of creek bank.

133.4
62.4
195.8'

NOTATION - 50' from edge of grass to E. EDGE OF BUILDING

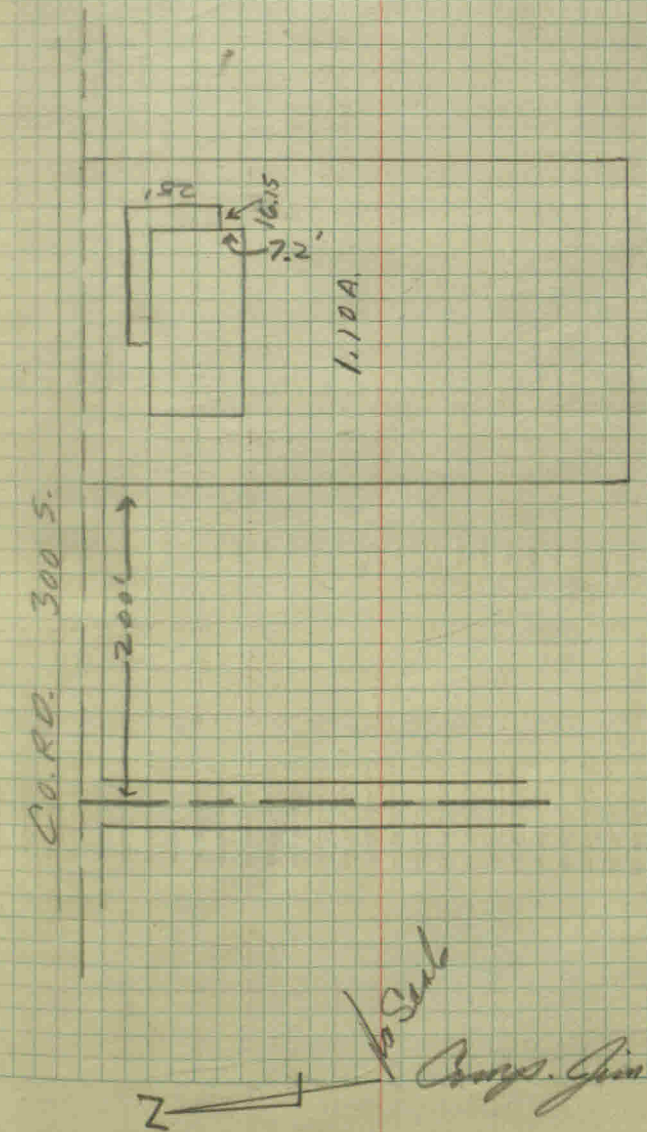
134' FROM E. EDGE OF BUILDING TO W. EDGE OF GRASS

Survey for Id. Muncie
Sec. 11 T15N R1E 10-26-65



Comp. Jim & Mike

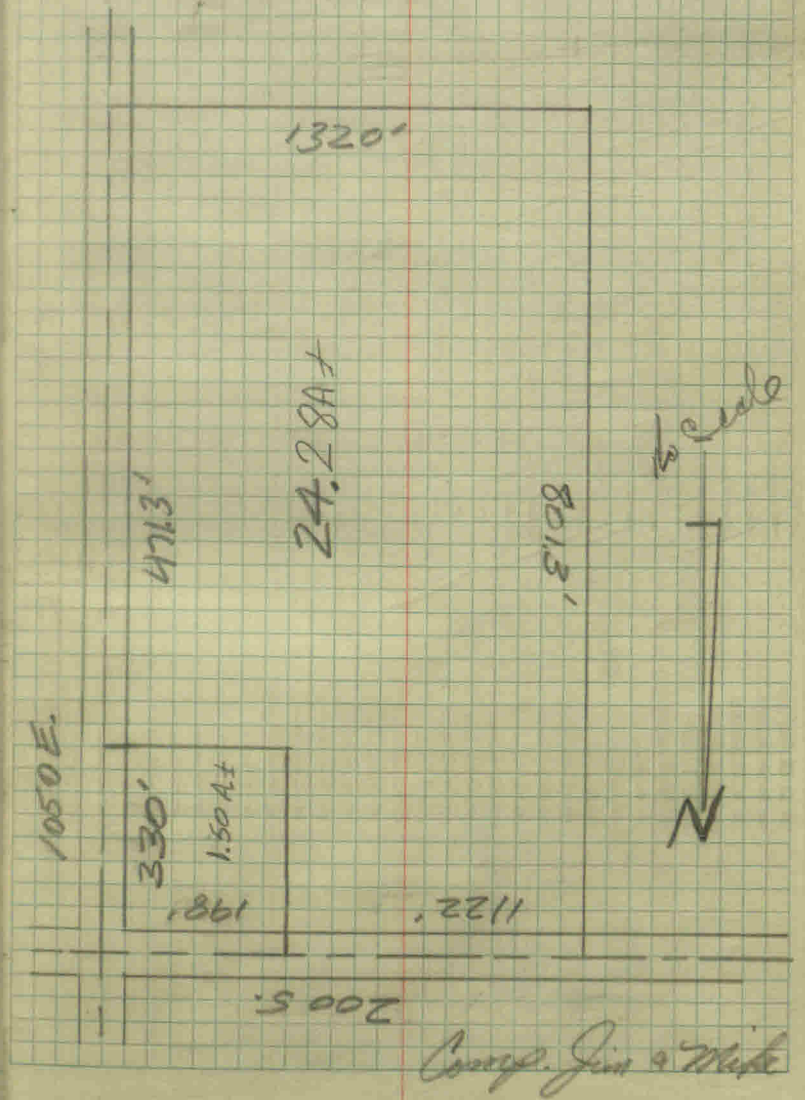
Survey for Mr. Bernard Trant
Sec. 27 T. 15 N. R. 1 E. 10-29-65



Notation - Drive 20' wide

Survey for Ralph Poland

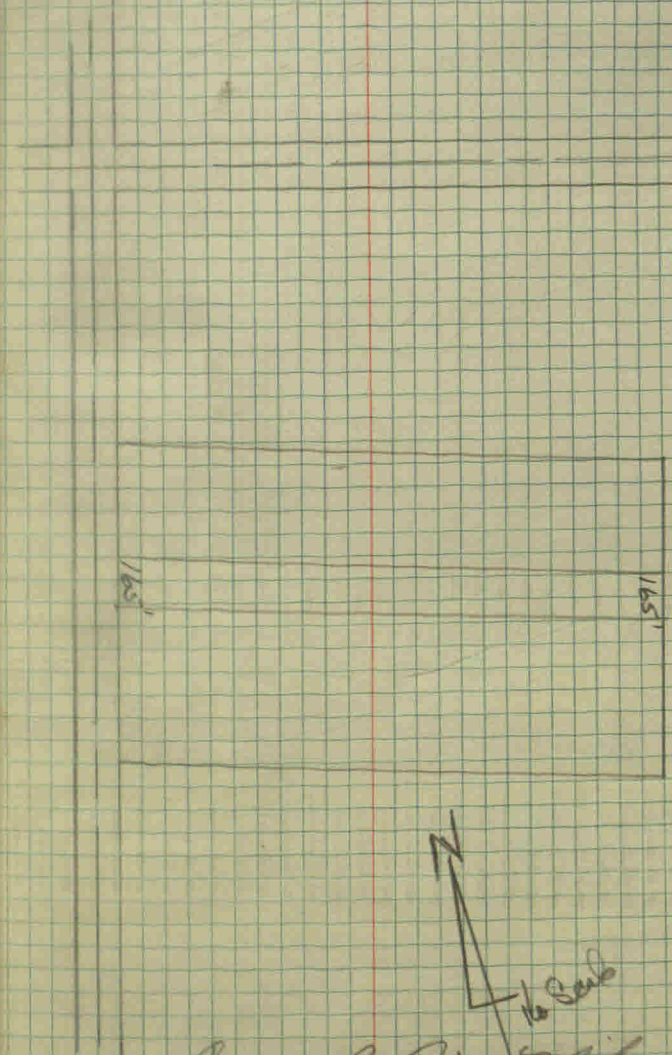
Section 20 T 15 N R 2 E 11-1-65



George, Jim & Mike

Revised Survey for Joe Rankin

Sec. 1 T15N R1W 11-3-65



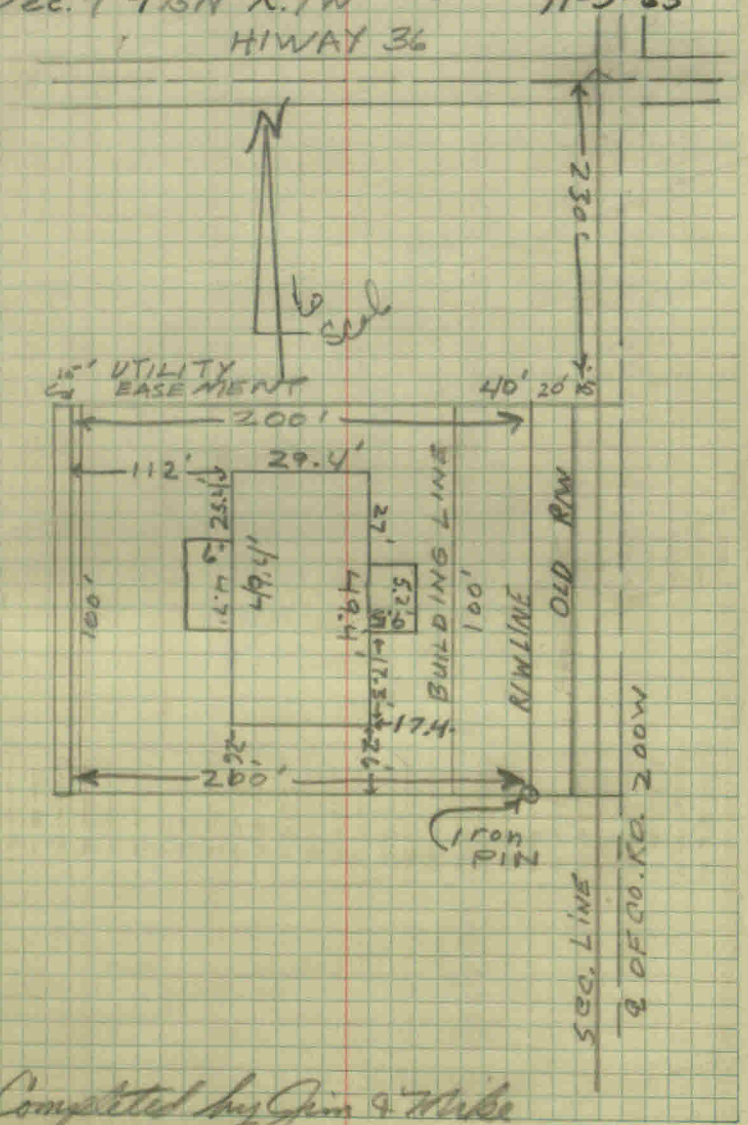
Comp. By Jim & Mike

Jim

8

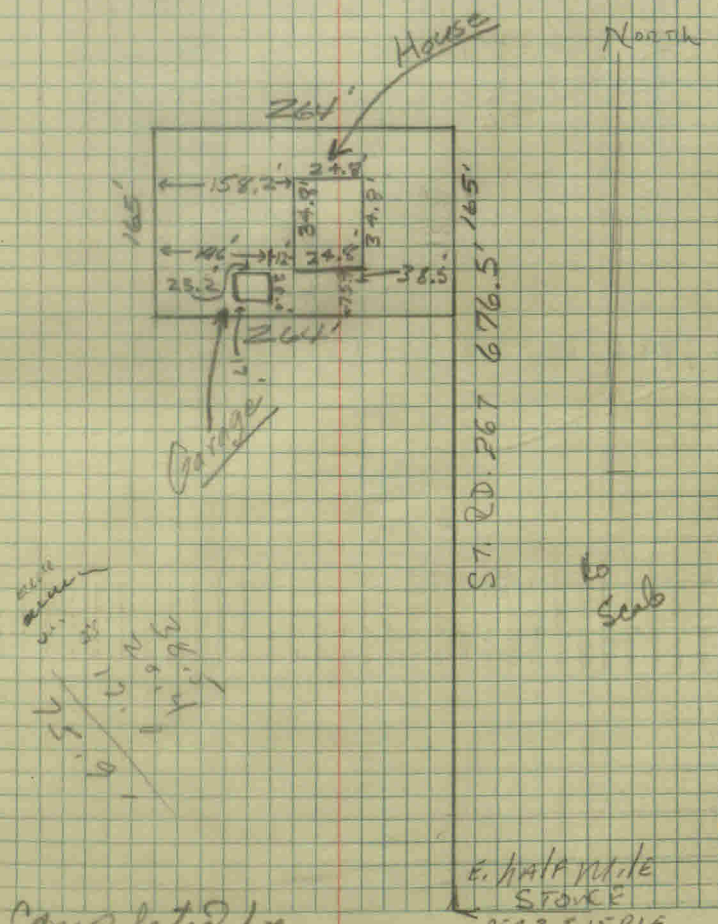
Survey for Mr. Ray Hill

Sec. 7 T 15N R. 1W 11-5-65



Completed by Jim & Mike

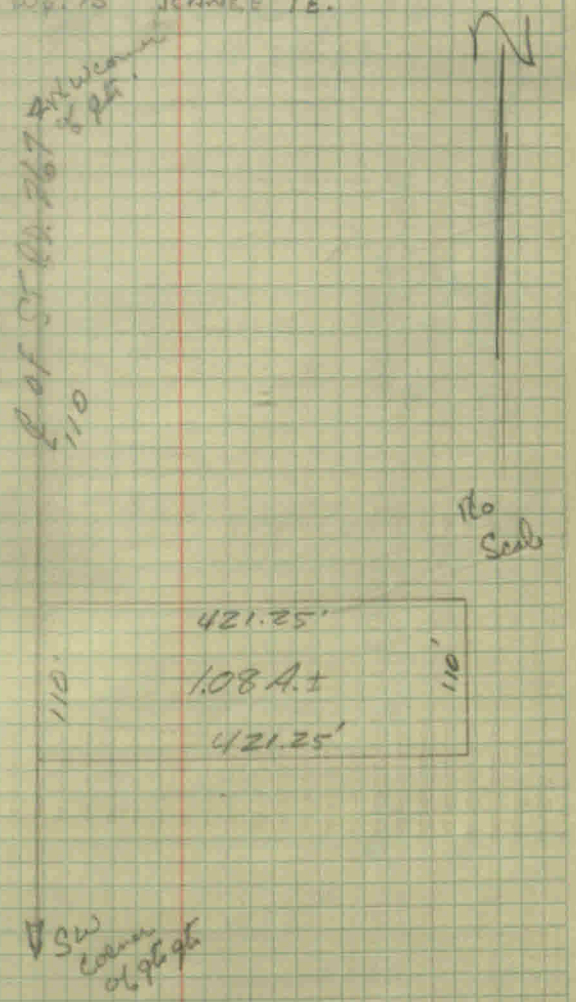
SURVEY FOR Mr. La Fee
SEC 3 TWP 15 N. R. 1 E.
11-9-65



Completed by
Jim & Mike

Survey for Mr Chas C. Pope

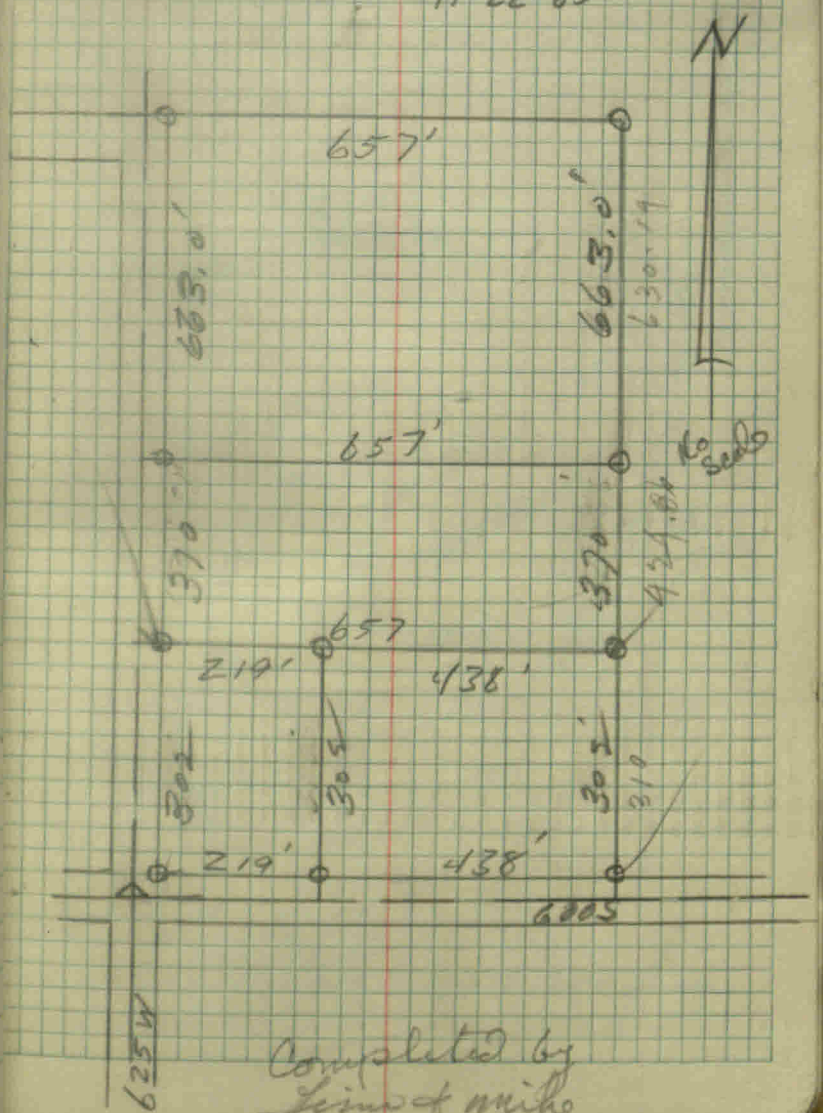
Sec 23 Twp. 15 Range 1E.



Completed by
Sims & Mills

424
370
54

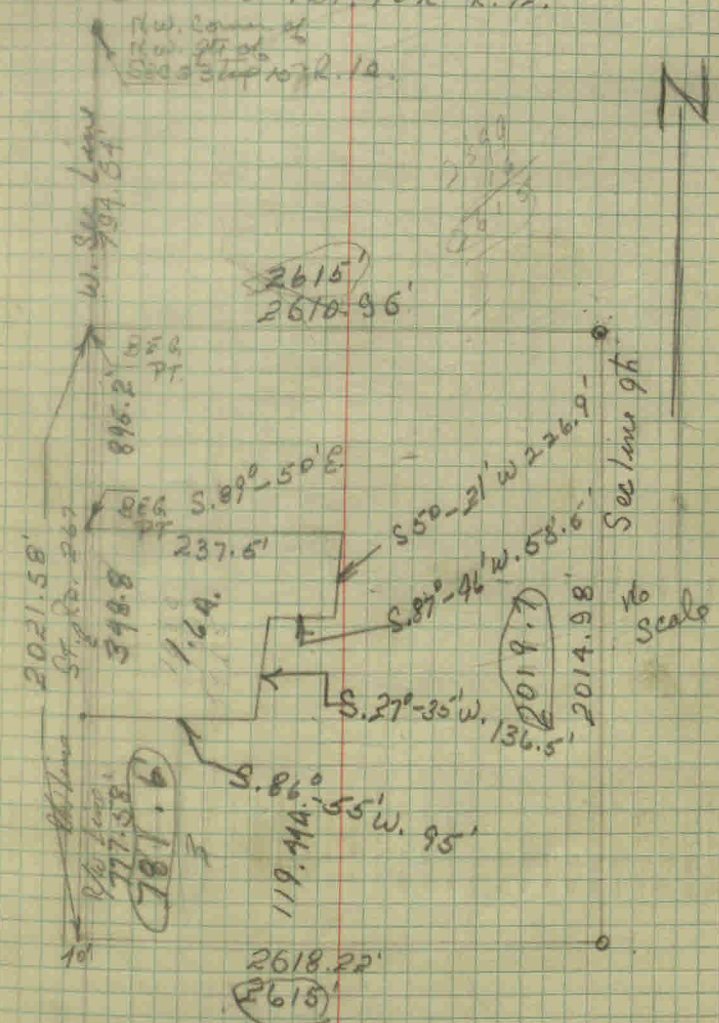
Survey for Paul Crews
Sec. 4 Twp. 14 N. Range 2W
11-22-65



Completed by
Lisa & Mike

Survey for Mr. Carl Cross 12

Sec. 23 TWP. 15N R. 1E. 12/14/65

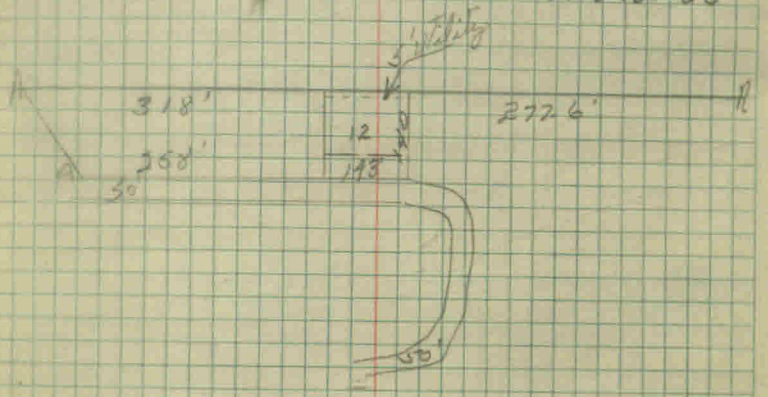


Completed by Bob + Mike + Jim

Survey for Mrs Louise Davis

Completed by Jim & Mike

12-22-65



SEC. 19 - 17 - 2 E.

Stake 550 S. Temp. 31°

Temp. 32°

Dec. 21, 1965

SEC. 16-14-12E.

850 E

Fence

Stake

Fence

STAKE

550 S

N

Fence

Stake

House

Fence

Dam

Stake

House

Fence

Stake

Fence

Stake

Fence

Stake

Fence

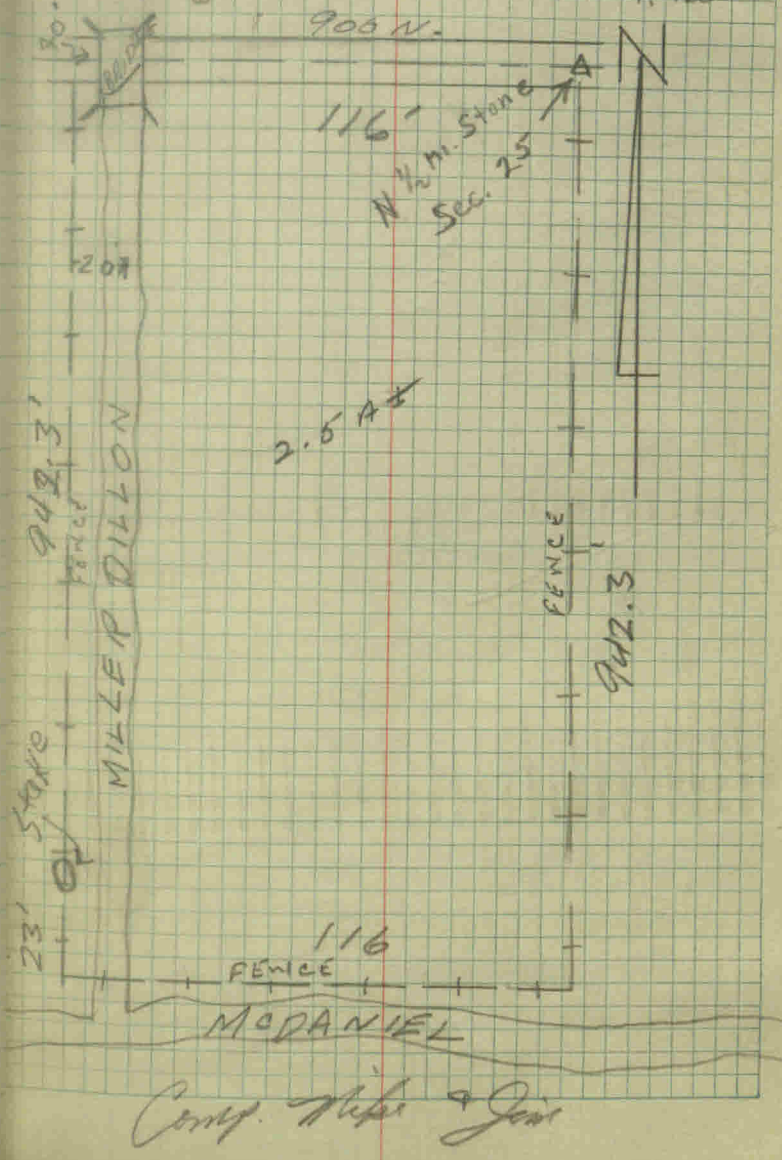
Completed by Jim & Mike

temp. 27°

15

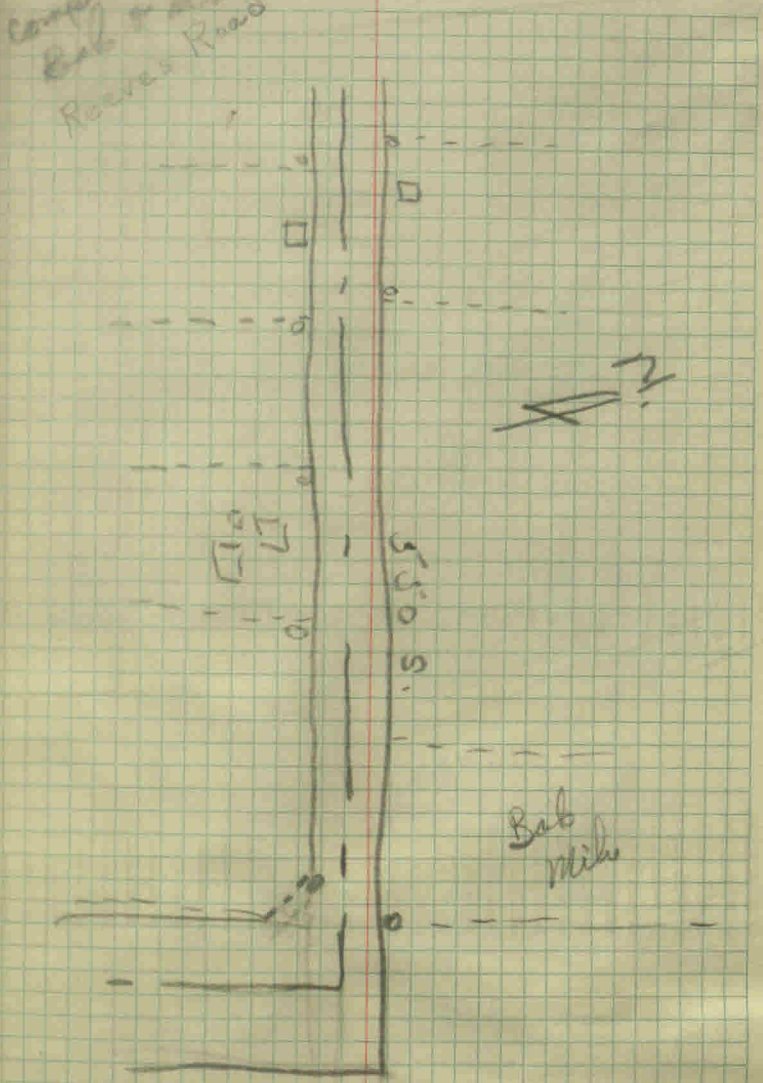
Survey for Raymond Alexander

1-7-65 Sec. 25 T17N R1W



Comp. Mike & Jim

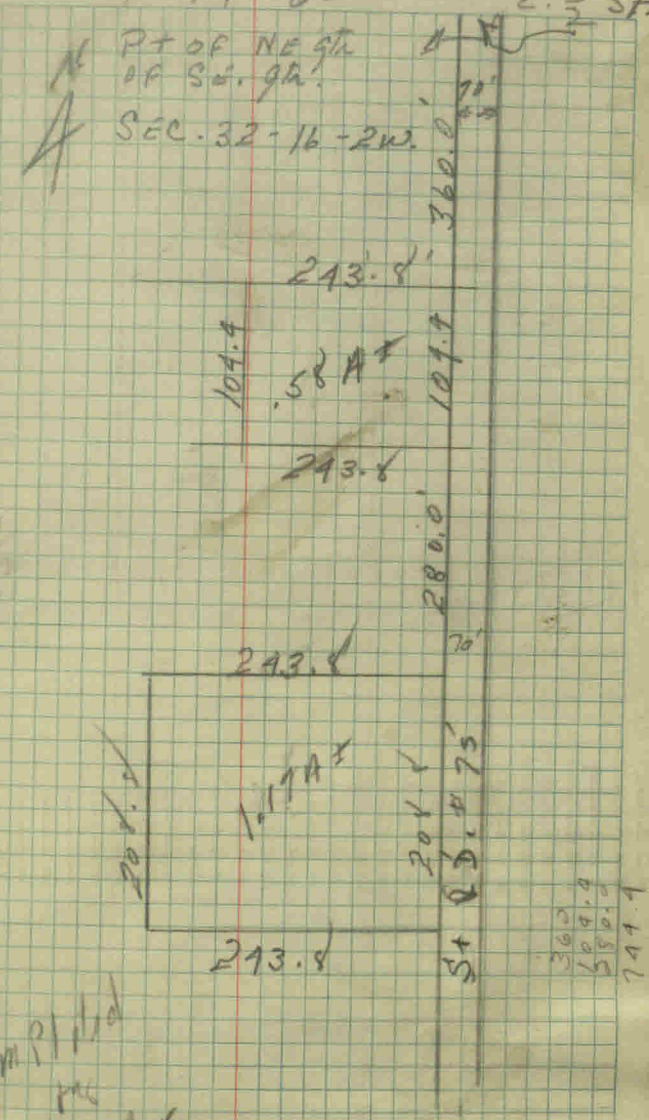
TEMP 27° 16



Survey for Marion Shearer 17

1-14-66

E. ½ St.

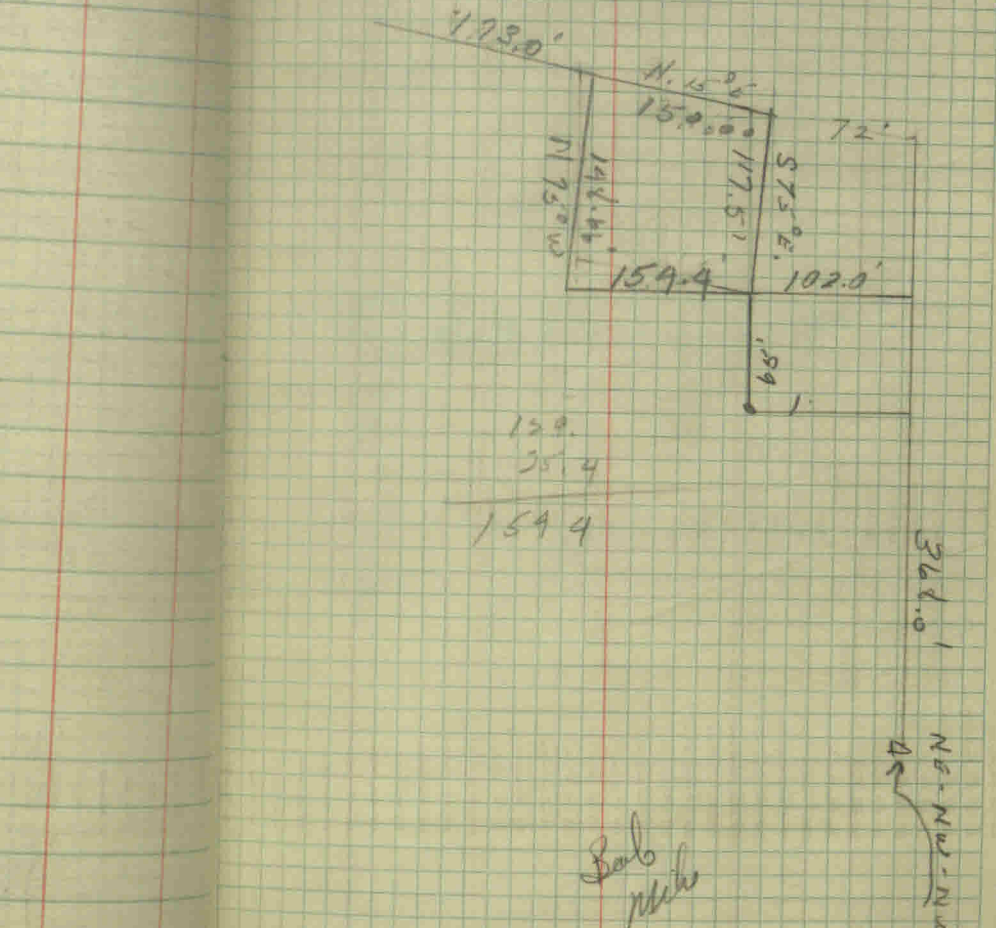


Completed
the
BOBX
Mike

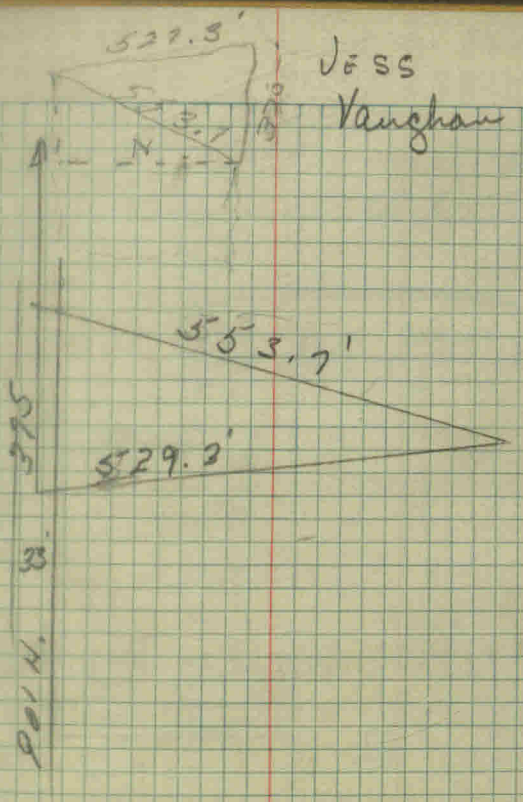
JESS - VAUGHN

SEC 28-17-1W

16

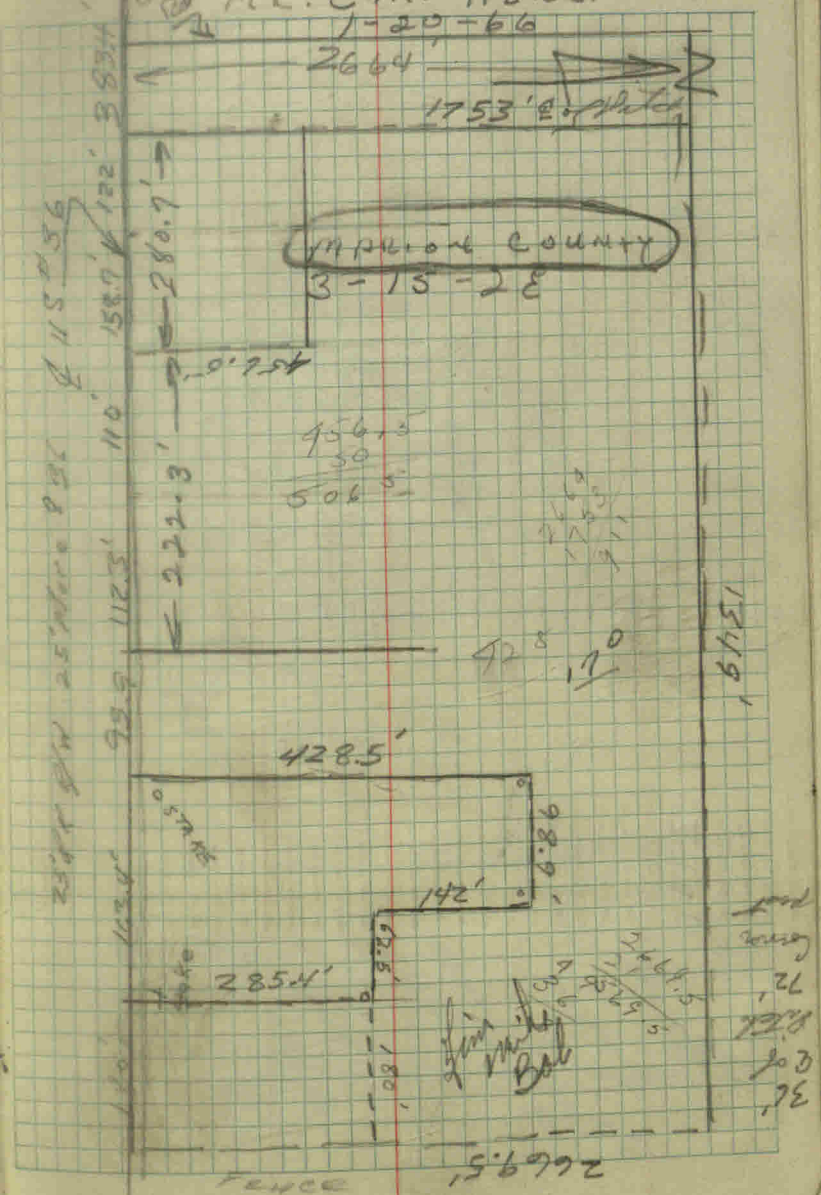


Jess
Vaughan



Bob Nick

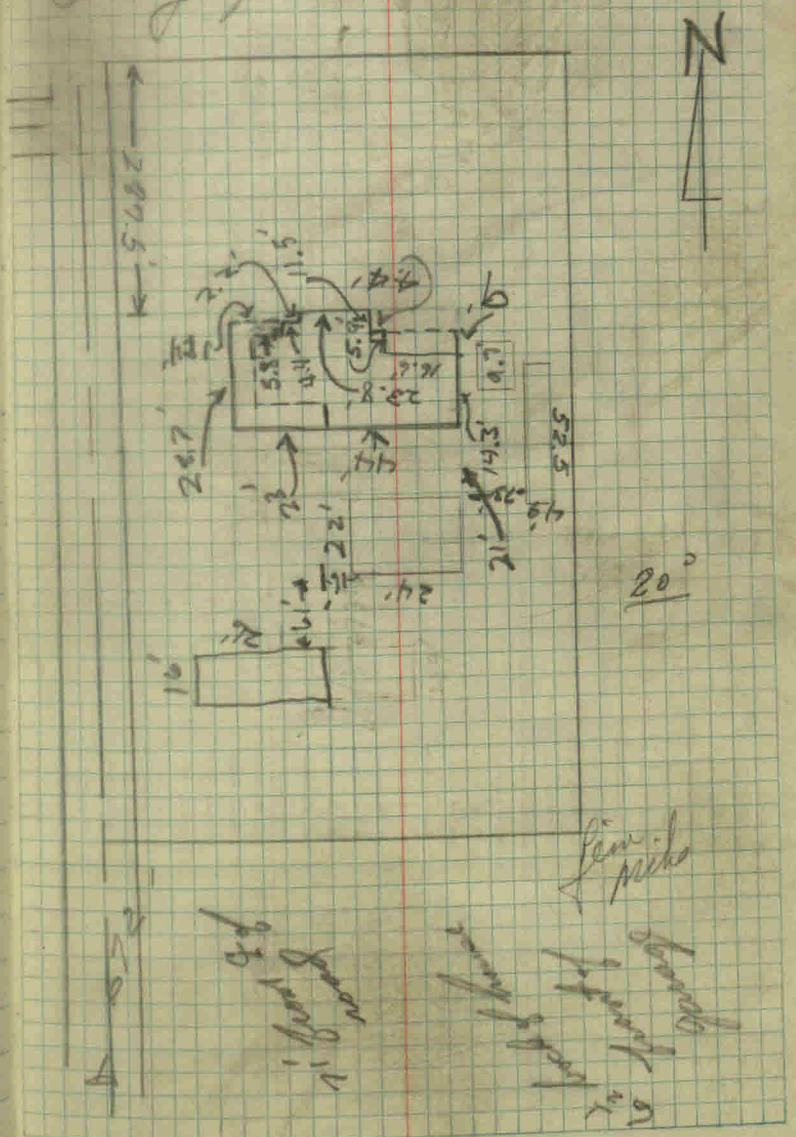
SURVEY FOR
MR. C.M. HERRIMAN



2-3-66

21

Survey for Mr. Frank Ellis



Survey for Mrs. Henry Huggler

2-10-66

Wat 60°

410.4
251.
159.4

Sec 1 twp 14 R1E.

125.5
2) 251
2
0
4
11
24.2
10
10

Center sec.

Beg pt

550 S.

90'

438.6

600.9'

255'

291.6'

850 E.

419.4'

593'

FENCE

146.1

90' 410.4
251.0
159.4

255'
4
2) 251'
145.5

620.9

$16.0
10.8
789.2

340.8
77.0
417.8
926.0
1343.8

Survey for Harry Lilbert 23

A Ptr. NE. qtr of Sec. 29-15-2E.

3-4-66

42°

N

Rd 20'

1250 E.

Beg. Pt.

1343.8'

789.2'

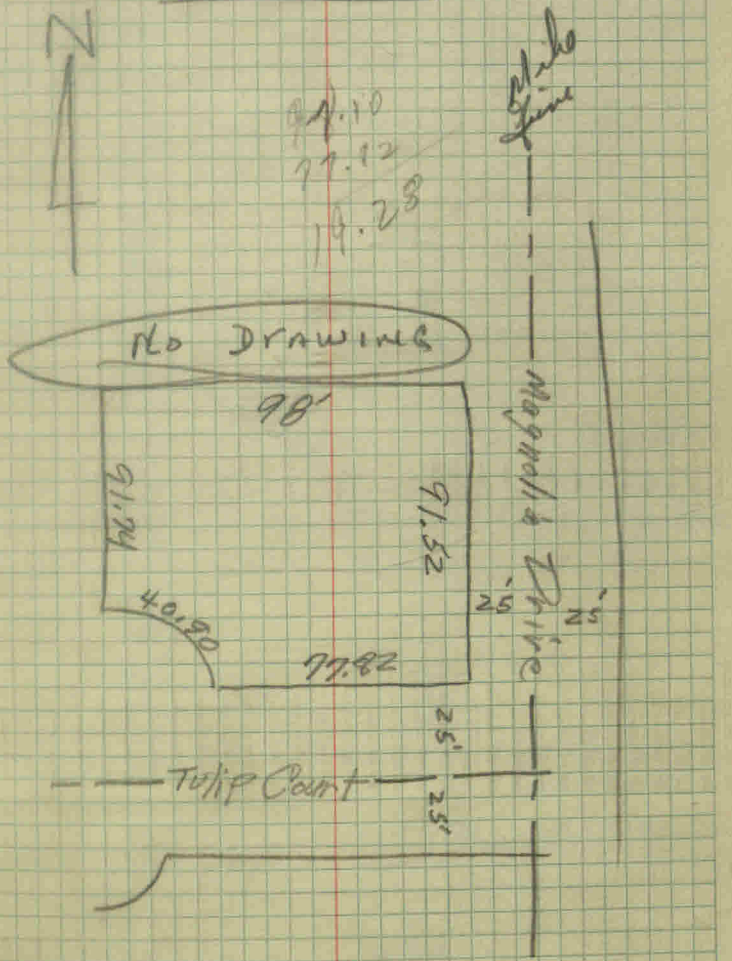
Center of 29

Mike Lewis

Survey for Harold Spannaus 24

2-19-66

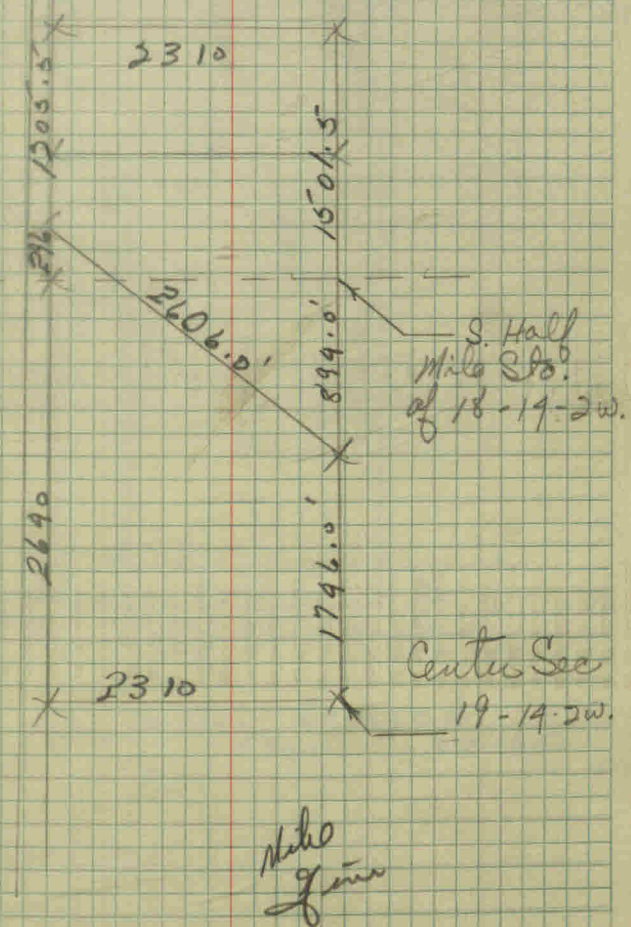
Sugar Grove
Subdivision



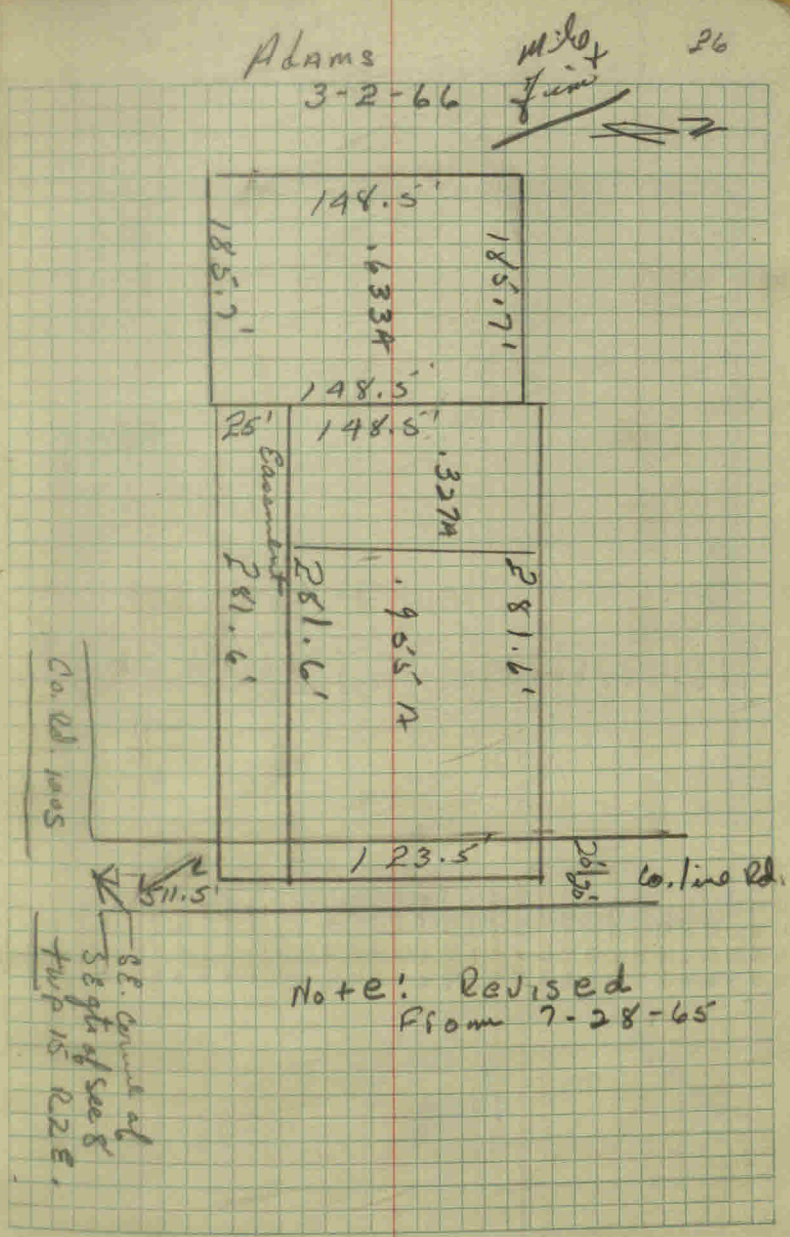
Survey for
F. Elrod

Sec 18 + 19 14. - 2W

3-4-66



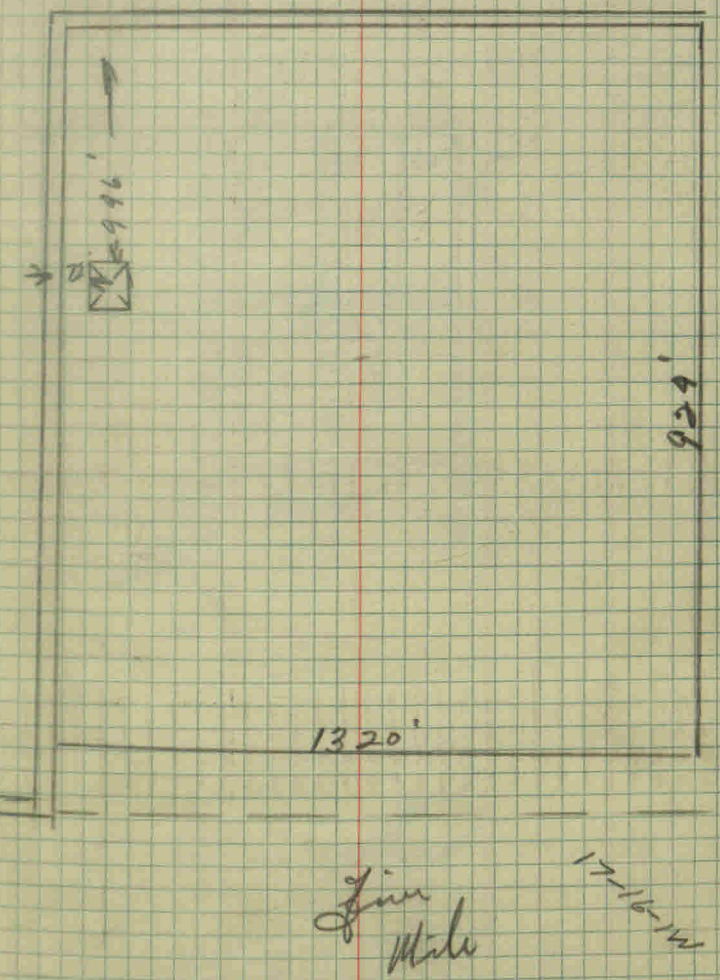
Adams
3-2-66



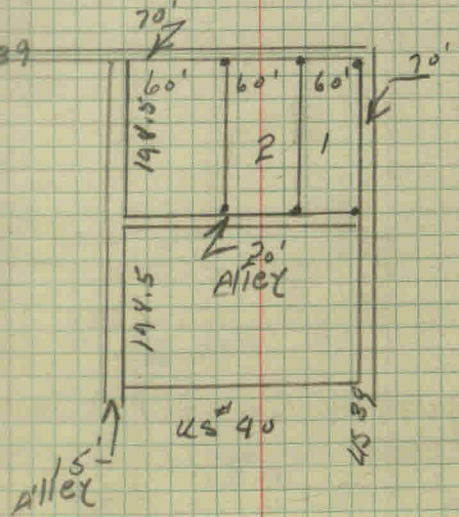
Note: Revised From 7-28-65

Survey for John Kendall

3-3-66

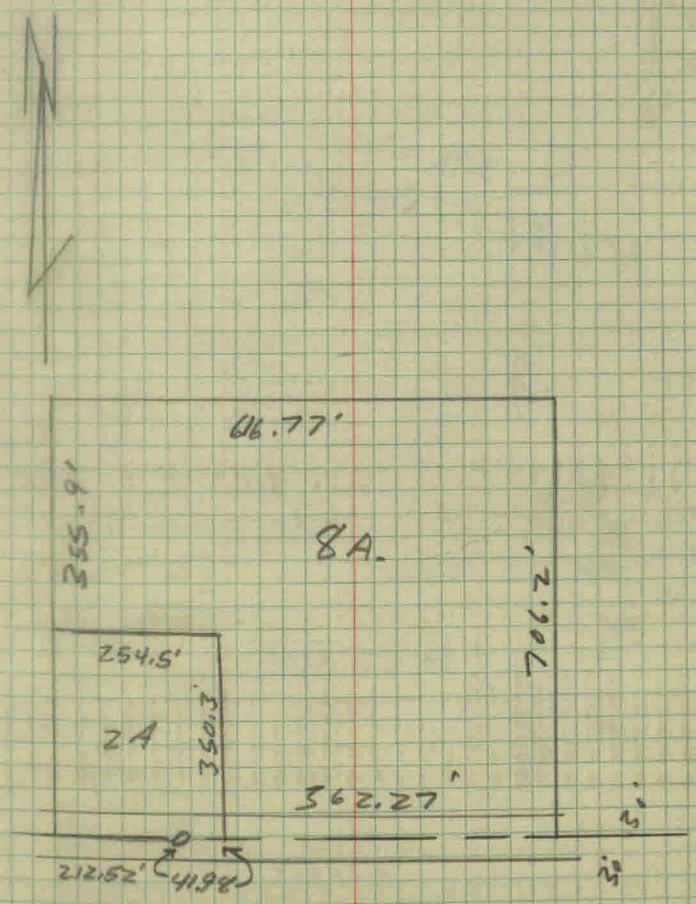


Mr John Allen
3-9-66
Block #5 Lots #1 And 2



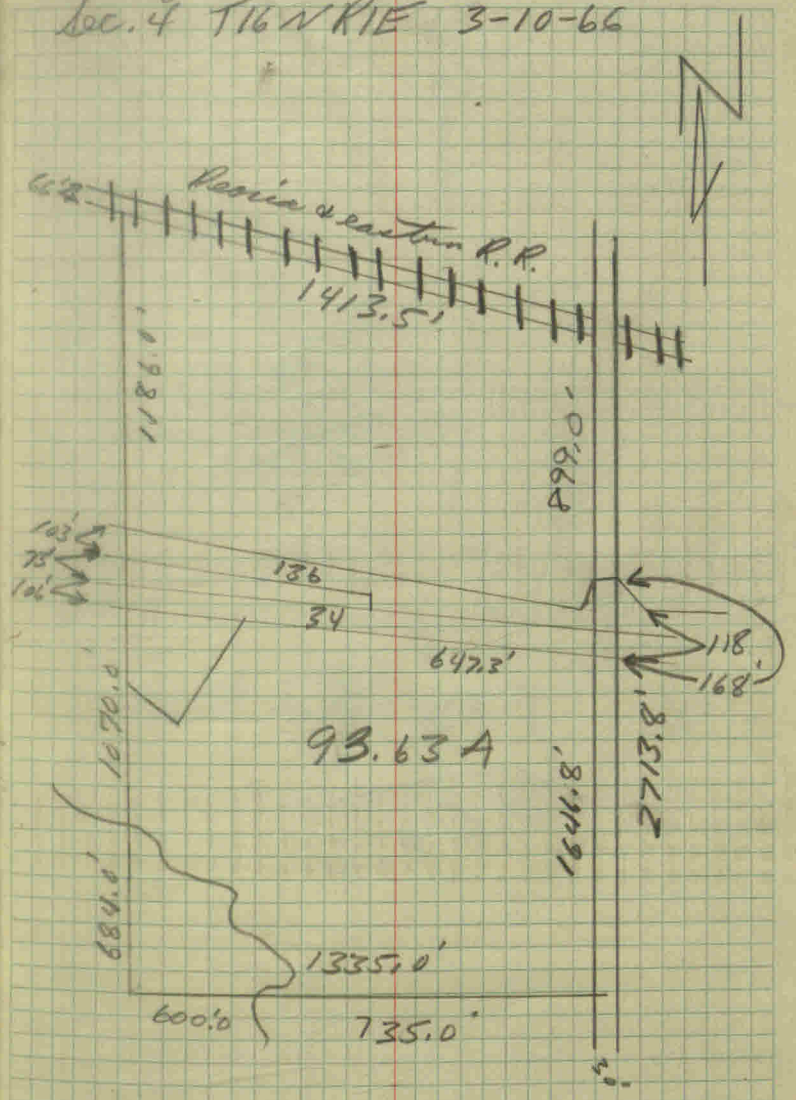
Survey for Enver Shaw

Sec. 6 T15N R1W 3-15-66



Survey for C. Schier

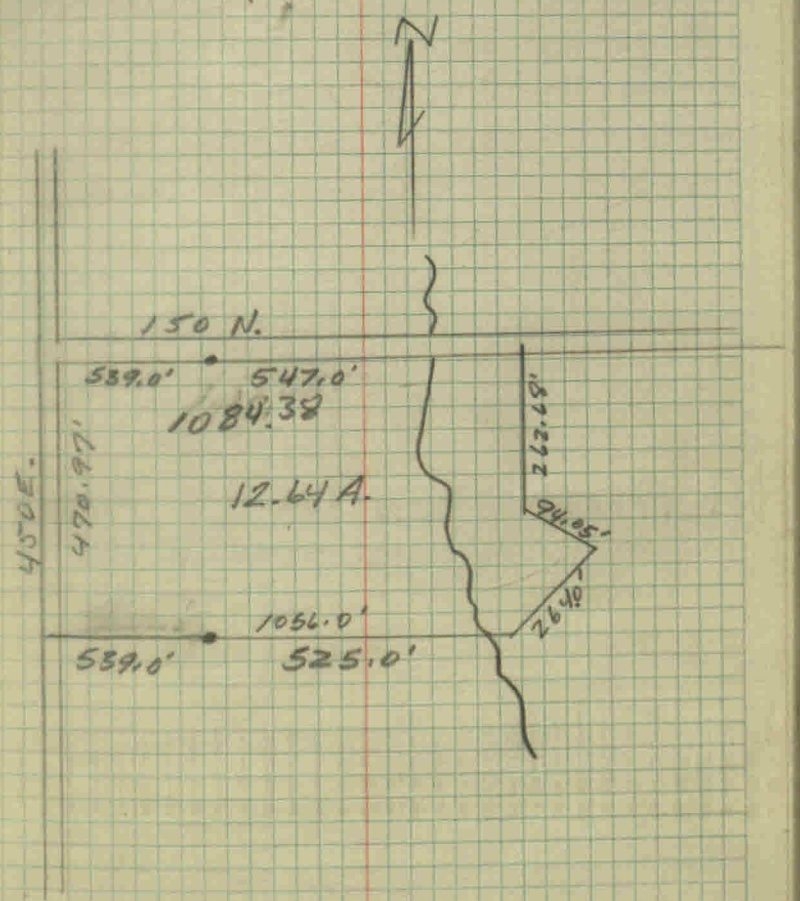
Sec. 4 T16N R1E 3-10-66



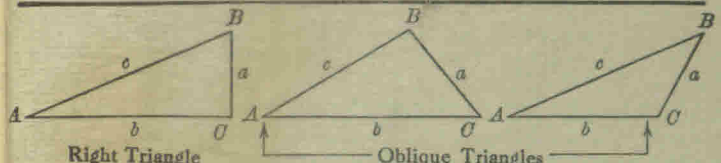
539.0
547.0
1086.0

539.0
525.0
1064.0

Survey for Morris Money 31
Sec. 32 T16N R1E



TRIGONOMETRIC FORMULÆ



Right Triangle — Oblique Triangles

Solution of Right Triangles

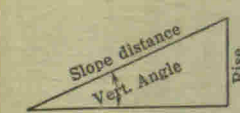
For Angle A. $\sin = \frac{a}{c}$, $\cos = \frac{b}{c}$, $\tan = \frac{a}{b}$, $\cot = \frac{b}{a}$, $\sec = \frac{c}{b}$, $\operatorname{cosec} = \frac{c}{a}$

Given	Required	
a, b	A, B, c	$\tan A = \frac{a}{b} = \cot B, c = \sqrt{a^2 + b^2} = a\sqrt{1 + \frac{b^2}{a^2}}$
a, c	A, B, b	$\sin A = \frac{a}{c} = \cos B, b = \sqrt{(c+a)(c-a)} = c\sqrt{1 - \frac{a^2}{c^2}}$
A, a	B, b, c	$B = 90° - A, b = a \cot A, c = \frac{a}{\sin A}$
A, b	B, a, c	$B = 90° - A, a = b \tan A, c = \frac{b}{\cos A}$
A, c	B, a, b	$B = 90° - A, a = c \sin A, b = c \cos A,$

Solution of Oblique Triangles

Given	Required	
A, B, a	b, c, C	$b = \frac{a \sin B}{\sin A}, C = 180° - (A + B), c = \frac{a \sin C}{\sin A}$
A, a, b	B, c, C	$\sin B = \frac{b \sin A}{a}, C = 180° - (A + B), c = \frac{a \sin C}{\sin A}$
a, b, C	A, B, c	$A + B = 180° - C, \tan \frac{1}{2}(A - B) = \frac{(a-b)\tan \frac{1}{2}(A+B)}{a+b}, c = \frac{a \sin C}{\sin A}$
a, b, c	A, B, C	$s = \frac{a+b+c}{2}, \sin \frac{1}{2}A = \sqrt{\frac{(s-b)(s-c)}{b\,c}}, \sin \frac{1}{2}B = \sqrt{\frac{(s-a)(s-c)}{a\,c}}, C = 180° - (A+B)$
a, b, c	Area	$s = \frac{a+b+c}{2}$, area $= \sqrt{s(s-a)(s-b)(s-c)}$
A, b, c	Area	area $= \frac{b\,c \sin A}{2}$
A, B, C, a	Area	area $= \frac{a^2 \sin B \sin C}{2 \sin A}$

REDUCTION TO HORIZONTAL



Horizontal distance = Slope distance multiplied by the cosine of the vertical angle. Thus: slope distance = 319.4 ft. Vert. angle = 5° 10′. From Table, Page IX. cos 5° 10′ = .9959. Horizontal distance = 319.4 × .9959 = 318.09 ft.

Horizontal distance also = Slope distance minus slope distance times (1 — cosine of vertical angle). With the same figures as in the preceding example, the following result is obtained. Cosine 5° 10′ = .9959. 1 — .9959 = .0041. 319.4 × .0041 = 1.31. 319.4 — 1.31 = 318.09 ft.

When the rise is known, the horizontal distance is approximately:—the slope distance less the square of the rise divided by twice the slope distance. Thus: rise = 14 ft., slope distance = 302.6 ft. Horizontal distance $= 302.6 - \frac{14 \times 14}{2 \times 302.6} = 302.6 - 0.32 = 302.28$ ft.

MADE IN U. S. A.