

Linear Survey
Field Book
No. 1

#109

K&L
MINING
TRANSIT BOOK
363 A

Cal.

CCC #84
found sept. 1986

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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 SINGLE TRACK EXCAVATION.

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	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 Tables see end of book.

Lat.
47° 42' 53"
Bass La Me L.O.

Lineal Survey
Field Book
No. 1

Camp F-12

Elev. of Lakes Cass Lake Area

		(ft.)
Cass Lake -	1300.0	Leach Lake 1295.0
Pike Bay	1300.0	
Rice Pond	1301.0	
Moss Lake -	1301.6	
Twin Lakes -	1302.0	
Lake 13 -	1302.9	
Big Lake -	1300.5	
Kitchi Lake -	1300.0	
Rice Lake -	1300.5	
Pimulche Lake	1312.3	
Popple Lake -	1326.6	
Big Moose Lake	1338.5	
Little Moose	1345.1	
Rabideau Lake	1317.9	(9)
Gilstead Lake	1326.75	(9)
Sugar Lake	1295.0	
Winnibigoshish L.	1291.5	
Sm. Lake North of Sugar	1295.5	
Island Lake	1228.2	

East Cors. of Sec. 25
Govt notes:
1/4 E. of Sec. 25
9000 chs. N. 26° A. Sec. 36
Poplar 4" S. 90° W. 990
W. Pine 6" S. 11 E. 510
MC 9850 N. of R. Sec. 36
N. Pine 20" S. 88° E. 145
" " 20" S. 8 W. 114

at N. G.L.O. Cement 5" }
W. Oak 10" S. 67° E. 827 Ks }
" " 10" S. 20° W. 198 1/2" } 39

at A. Sec. Cor. 36-31-30-25
Poster on old BT. old BT.
N. Pine 10" N. 10 1/2° W. 707 Ks
W. Oak 8" N. 10 1/2° E. 127 "
Birch 6" S. 29 1/2° E. 39 3/4 "
W. Pine 6" S. 47° W. 47 "

at i 1/4 cor. OK 2600 Ft
Poster
N. Pine 12" N. 86 3/4° E. 172 Ks
J. " 12" N. 73° W. 153 "

at C. Center Sec. 36 MKd
J. Pine 12" S. 2° E. 137 Ks

at 8-1/16 cor. MKd.
W. Oak 7" S. 55° E. 13 1/4 Ks.

at 1-1/16 cor. MKd. old BT.
N. Pine 16" N. 15° W. 15 1/4 Ks.
307 Ks. W. of Birch post.

at 5-1/16 cor. MKd.
J. Pine 6" S. 33° E. 18 1/4 Ks.

at 6-1/16 cor. MKd.
R. Oak 5" S. 3° W. 177 Ks.

at f 1/4 cor. MKd.
W. Oak 6" N. 51 1/2° W. 297 Ks

at 4-1/16 cor. MKd.
N. Pine 8 1/2° N. 99° E. 59 1/4 Ks.

at 9-1/16 cor. MKd
N. Pine 22" N. 32° E

at 12-1/16 cor.
Oak post 3"
N.B.Ts

at 11-1/16 cor. MKd.
N. Pine 18 3/5 S. 55 1/2° W. 249 3/4 Ks

at 16-1/16 cor. MKd.
N. Pine 12" N. 5 W. 55. Ks

at D. Sec. Cor. G.L.O. Cement
J. Pine 8" N. 32° W. 3027 Ks
N. " 18" N. 12° E. 333 "

at 13-1/16 cor. MKd.
N. Pine 22" S. 78° W. 217 Ks

at 15-1/16 cor. MKd
N. Pine 16" N. 54 1/2° W. 115. Ks

(For west Side Refer to Sec. 35)

Sec. 36-T145NR.31W. 2

Govt Notes
at f 1/4 cor. 4" Birch for Cor.
Birch 4" N. 54° W. 31
" 4" S. 14° W. 81
M.C. W. of f-1238
W. Pine 16" S. 24° E. 36
N. " 12" S. 12° W. 37

at R. Sec. Cor. 36-25-30-31
N. Pine 8" N. 12° W. 70 L
Birch 3" S. 73° E. 55
N. Pine 16" S. 50° W. 80 L



Govt Notes:
at D. SE. Cor. of 36
1/4 Pine 25" N. 20° E. 53
20" N. 44° W. 87
at 8 - So 1/4 Cor. of 36
1/4 Pine 30" N. 50° E. 29
30" N. 8° W. 151
M.C. 225 W. of i
W. Pine 35" N. 30° E. 85
B. " 14" N. 70° W. 65
M.C. 1300 W. of i
B. Pine 10" N. 50° E. 51
W. " 40" N. 93° W. 235

at 7th 1/4 sec. G.L.O.
 Brass Copied Iron Pp. 1' high
 N. Pin 10° N. 0° 30' W. 409 1/2 ft
 " " 20° 35' 59" W. 434 "

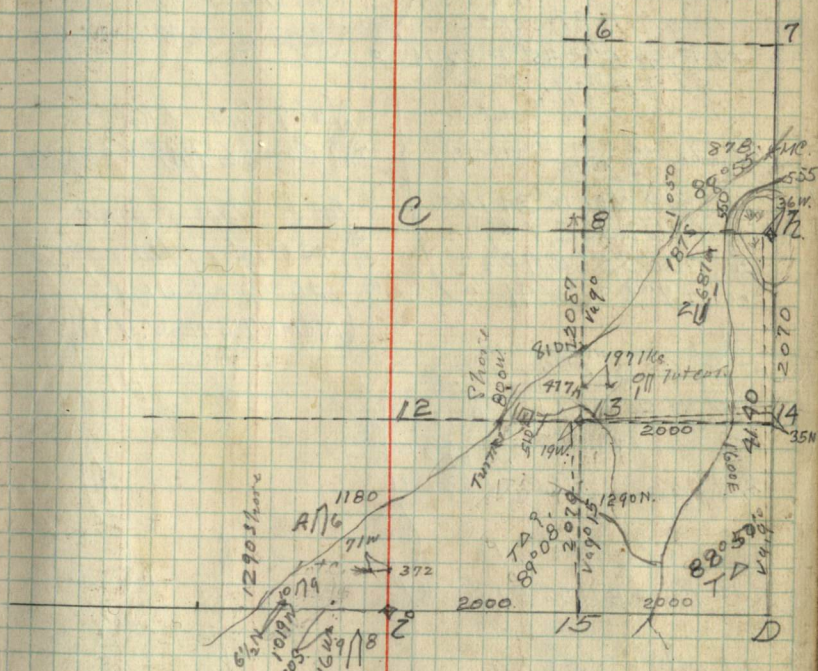
at 14-1/4 cor. M.K. Rd
 Aspen 8° S 2W. 8 1/2 ft

at 13-1/4 cor. M.K. Rd
 N. Pin 22° S 89° W 29 1/2 ft

Mar. 1873-34

Sec. 25 - T145N. R. 31W. 3

787
 13
 2087



941
 1200
 2141

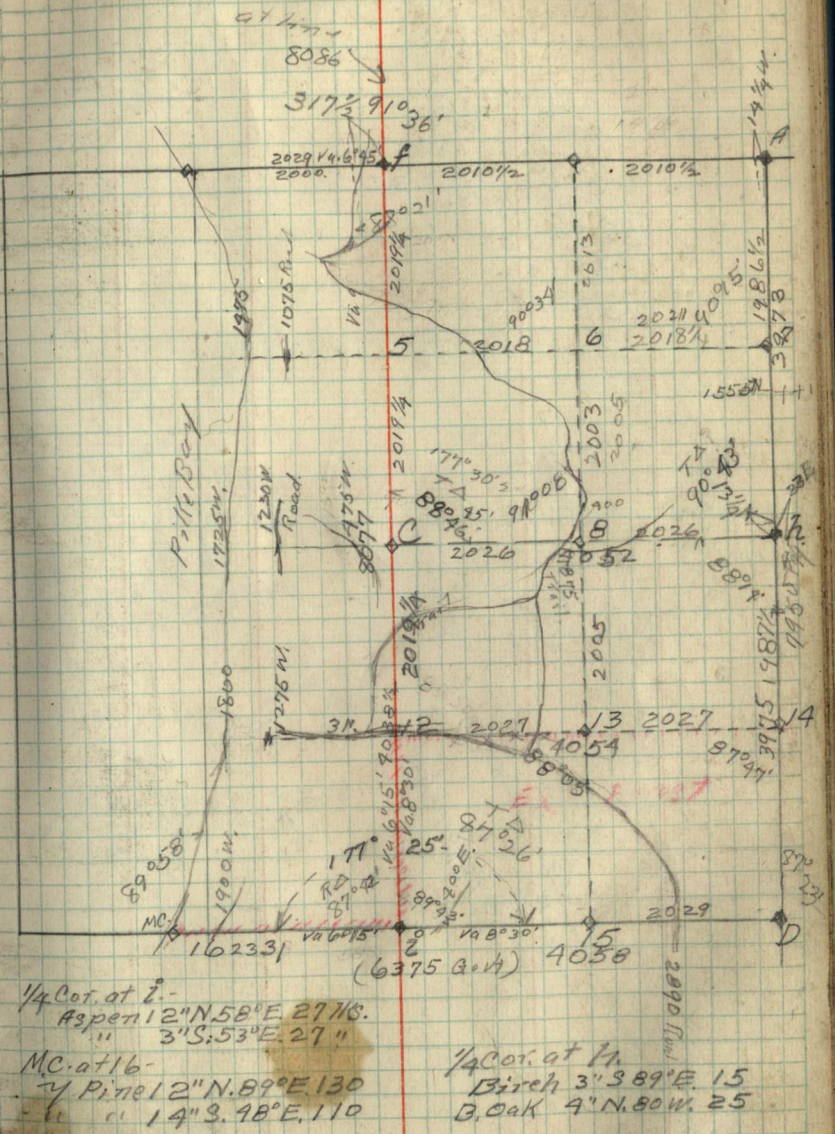
1/4 Cor. at 2 bdu 1930
 Brauped Iron 5 1/2 hgh.
 (319 / 4530)
 W. Pine 6" S. 54° W. 22 1/2 hgs
 " " 4" N. 53 E. 33 "
 at M.C. 3.31 west of 16.
 Old BT. Stumps OK
 N. Pine 5" S. 85° E. 32 1/2 hgs
 GLO. Blaze Face
 too much South.
 At D. See Cor. Cement.
 G.L.O.
 N. Pine 8" N. 75 W. 34 1/2 hgs
 W. " 6" N. 53 E. 13 "
 " " 10" S. 56 E. 40 1/4 "
 " " 7" S. 36 W. 41 "

Mar. 26
 at 8-1/6 cor MKd.
 Map 1. 6" N. 45 E. 10 1/2 hgs
 at 13-1/6 cor MKd
 Twin N. Pine 36" N. 19 E. 18 1/2 hgs
 at 14-MKd.
 Aspen 16" N. 49 W. 22 1/2 hgs

Mar. 28
 at 7-1/6 cor MKd
 Birch 6" N. 49 W. 33 1/2 hgs
 at 5-1/6 cor MKd
 N. Pine 10" N. 0° 30' W. 26 1/2 hgs
 at 6-1/6 cor MKd.
 R. Oak 7" S. 49 W. 14 1/2 hgs

at H. GLO. Br Caped Iron
 W. Oak 5" S. 14 1/2° E. 43 1/4 hgs
 R. " 12" N. 80 1/2° W. 24 1/2 "
 Old BT.
 Maple 7" S. 66 1/2 W. 69 "
 at C. 1/4 Center Sec. 19
 W. Pine 8" N. 55° E. 12 3/4 hgs.
 at 12 40° Old BT.
 W. Pine 34" S. 70° W. 63 1/2 hgs.
 at 16 1/6 cor MKd.
 J. Pine 5" S. 77° W. 23 1/2 hgs
 N. " 5" N. 42° W. 24 1/2 "

Mar. 29



1/4 Cor. at 2-
 Aspen 12" N. 58° E. 27 hgs.
 " " 3" S. 53° E. 27 "
 M.C. at 16-
 J. Pine 12" N. 89° E. 130
 " " 14" S. 48° E. 110
 See Cor. at D.
 Aspen 6" N. 70 E. 71 hgs.
 " 6" N. 75 W. 92 "
 " 4" S. 72 W. 74 "
 No other trees near.

1/4 Cor. at 14
 Birch 3" S. 89° E. 15
 B. Oak 4" N. 80 W. 25

90° 00'	90
84° 38'	50 12'
5° 22'	38

30° 33'	90 60
5° 22'	26° 11'
25° 11'	64° 49'

5° 22'

~~2/2/29~~
~~2/3/29~~

26
80
106

124

38

40
20
70
2/3/29 chg.

8100

49° 21'

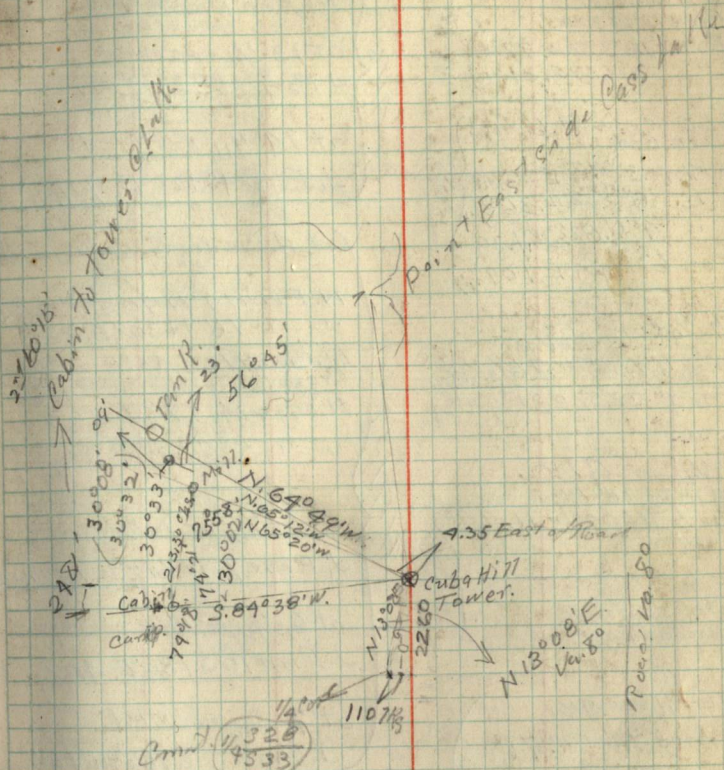
8400
1800
9600

18857-22

5

N. 65° 19' W

Cuba Hill Tower location



W. Pine 12° N. 3° E 77 1/2 ks
" " 14° S 10° E 54 "
Va. 8°

384° 35' W

March 22-34

at i. 1/4 cor. bldg 1045
Br. Caped Lion pipe
old Govt Bt.
B. Pine 10° S 20° W.
N. Pine 18° S 50° W. 77 1/2 Ks.
J. " 3° N 39° E. 31 "

at D. G.L.O. cement 6" high.
see Cor.
J. Pine 3° S 66° E 26 1/2 Ks.
" " 8° S 22° W. 36 3/4 " 39
" " 4° N. 82 1/2° W. 1.20 "
Aspen 6" N. 24° E. 1.09 3/4 "

at H. 1/4 cor. Govt Bt.
N. Pine 16° N. 15° W. 26 1/2 " 39
J. Pine 7° S 25 1/2° E. 31 3/4 " 39

at f. 1/4 cor. G.L.O.
Iron pipe 10" high.
J. Pine 5° N. 09° W. 160 1/2 Ks.

at 12-1/16 cor.
No trees near.
4" Poplar Post.

at 16-1/16 cor Mkd.
J. Pine 5° N. 85° W. 77 Ks.

at 11-1/16 cor Mkd.
J. Pine 8° N. 67° E. 34 1/2 Ks.

at 9-1/16 cor Mkd.
J. Pine 3° S. 42° W. 25 1/2 Ks.

at C. 1/4 Center Suld.
J. Pine 3° S 89° W. 89 1/2 Ks.

at 8-1/16 cor. Mkd.
J. Pine 3° S. 80° E. 31 Ks.

at 15-1/16 cor.
No trees.
Aspen Post 4" sq.

at 13-1/16 cor. Mkd.
J. Pine 3° S 24 1/2° E 17 1/2 Ks.

at 14-1/16 cor Mkd.
J. Pine 4° S 20° E. 9 1/2 Ks.

at A. Sec. Cor. G.L.O. (Pinned)
6" 7 1/2 "

N. Pine 14° N 90 1/2° W. 38 1/2

" " 16° N 30 1/2° E. 222

N. Pine 8 1/4° S. 45° E. 20 1/2
Gov. Bt. old.

N. Pine 14° S. 9 1/4° E. 263

" " 5° S 53° W. 33 1/4

at 7-1/16 cor. Mkd.
J. Pine 7° N. 61 1/2° E. 19 1/2 Ks.

at 6-1/16 cor. Mkd.
J. Pine 10° S. 18 1/2° E. 48 1/4

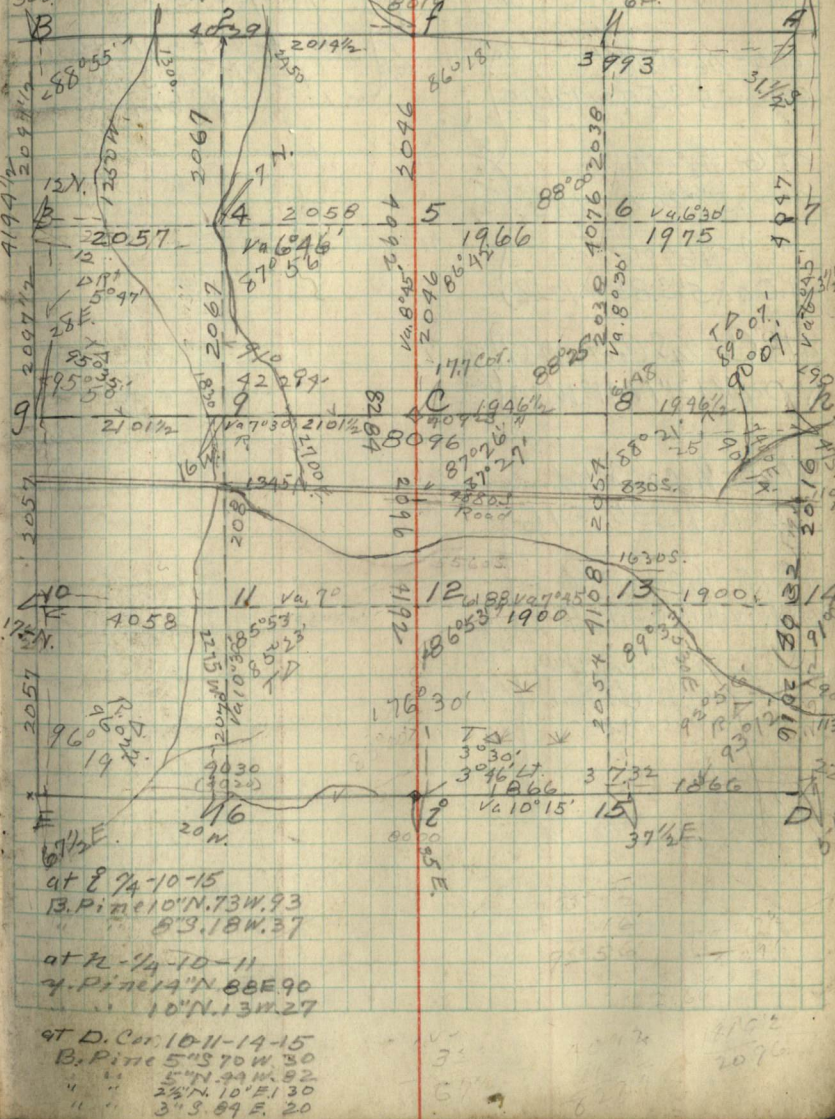
at 7-1/16 cor Mkd
J. Pine 3° S. 10 1/2° W. 16 3/4

at 5-1/16 cor. Mkd.
J. Pine 4° S 12 1/4° E 127 1/2 Ks.

at 2-1/16 cor Mkd
Aspen 3° S 34° W. 127 Ks.

at 4-1/16 cor Mkd.
J. Pine 3° N. 47° E. 67 Ks.

at f. 1/4 cor. 3-10
N. Pine 29° S 30° W. 222
" " 24° N. 89° W. 97
at A. Cor. 2-3-10-11
B. Pine 10° S. 89° W. 27
" " 10° N. 72° W. 29
" " 8° N. 22° E. 29
30 E. " 12° S. 47° E. 21



at-7.
 960
 Br. Iron Pipe 10" N. 20 W 5 1/2
 W. Oak 6" N. 20 W 5 1/2
 " " 5" S. 24 E 56

at 7-1/6 cor. MKd
 Aspen 7" N. 62° E 11 7/8

at 5-1/6 cor. MKd
 Poplar 5" S. 50° W. 12 1/8

at 6-1/6 cor. MKd
 Aspen 5" S. 20° E. 19 7/8

at 4-1/6 cor. MKd.
 R. Oak 5" S. 85° W. 12 1/8

at C-1/4 S. Center MKd
 R. Oak 12" N. 41° W. 14

at 8-1/6 cor. MKd.
 W. Oak 7" S. 35° E 16

at 15-1/6 cor. MKd.
 Twin R. Oak, 14" South 4 1/2

at 13-Set Birch Stake
 33 1/2 Ks. S. of S. Rail
 300 Line.

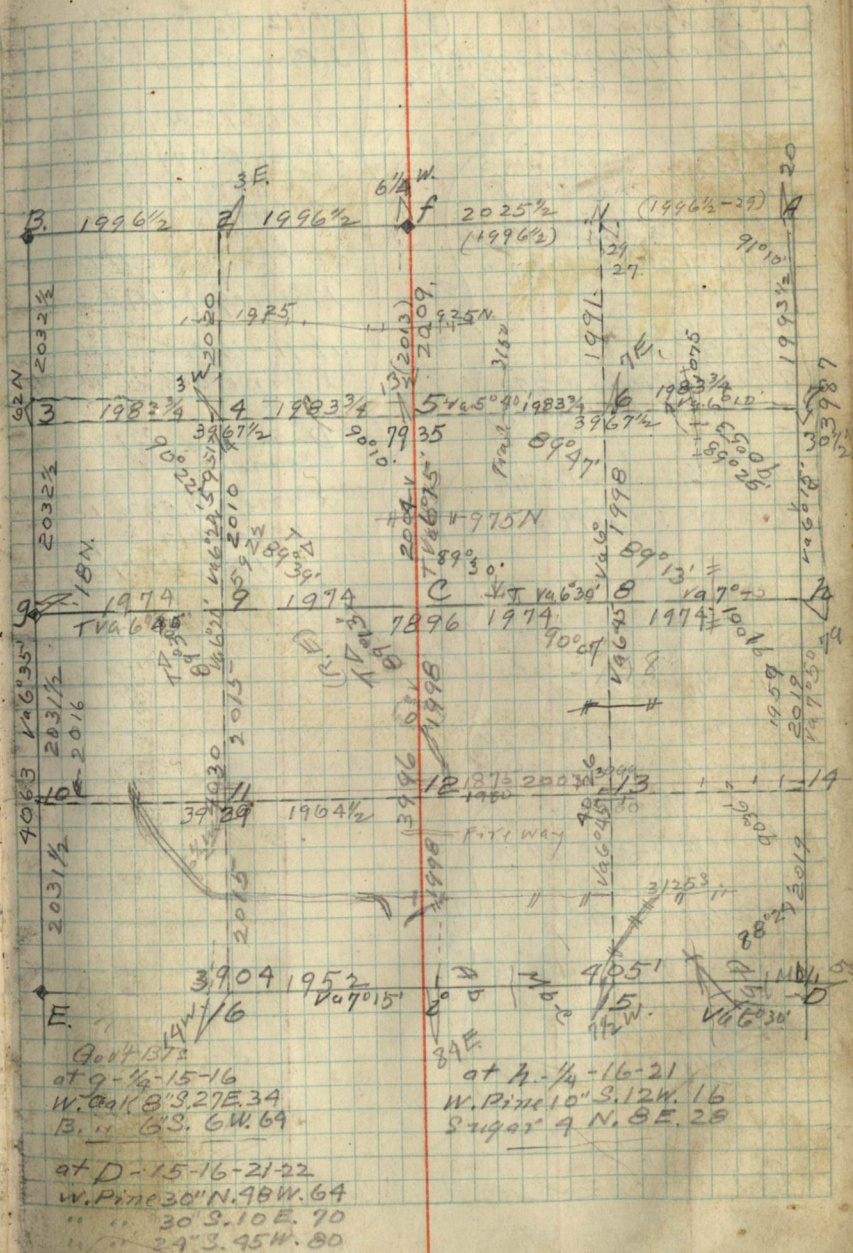
at 12-1/6 Cor.
 Set oak Post.
 15 1/8 Ks. So. of S. Rail
 300 Line

at 1-15 fur Su 9.
 J. Pine 6" N. 43° E 11 1/8

at 9-1/6 cor. MKd
 Aspen 7" S. 5° W. 22

at 11-Set oak Post
 15 1/8 Ks. S. of S. Rail
 300 Line track.

Sec. 16 - T145N R30W.



at \bar{i} $\frac{1}{4}$ cor. G.L.O.
 Iron pipe 8" hi.
 N. Pine 14" N. 40° W. 39 $\frac{1}{2}$ Ks. } 34
 J. " 10" S. 66° E. 20 $\frac{1}{2}$ " }

at f. G.L.O. $\frac{1}{4}$ cor.
 Di. Iron Pipe 6" high
 N. Pine 12" S 52° W. 19.1 Ks. } 41
 " " 12" S 46° E. 60 " }

at h. $\frac{1}{4}$ cor. G.L.O.
 Di. Iron Pipe 6" hi.
 N. Pine 14" N. 86° W. 270 } 34
 " " 16" N. 84° E. 159 " }

at C. $\frac{1}{4}$ sec. Center M.R.D.
 N. Pine 18" N. 44 $\frac{1}{2}$ ° E. 13 $\frac{1}{2}$ Ks. } 41
 " " 18" N. 44 $\frac{1}{2}$ ° E. 13 $\frac{1}{2}$ Ks. }

at 8 $\frac{1}{16}$ cor. M.R.D.
 J. Pine 8" S. 18° E. 81 Ks. } 39
 " " " " " " " " " " " " }

at 1 - $\frac{1}{16}$ cor. M.R.D.
 J. Pine 5" S. 85 $\frac{1}{2}$ ° W. 32 $\frac{1}{2}$ Ks. } 41
 " " " " " " " " " " " " }

at 5 - $\frac{1}{16}$ cor. M.R.D.
 N. Pine 8" N. 28° E. 277 Ks. } 41
 " " " " " " " " " " " " }

at 6 - $\frac{1}{16}$ cor. M.R.D.
 J. Pine 5" S. 44° W. 127 Ks. } 39
 " " " " " " " " " " " " }

at 2 - $\frac{1}{16}$ cor. M.R.D.
 N. Pine 14" S. 3° W. 40 $\frac{1}{16}$ Ks. } 41
 Stump " " " " " " " " " " " " }

at 12 - $\frac{1}{16}$ cor. M.R.D.
 J. Pine 8" N. 53° E. 23 $\frac{3}{16}$ Ks. } 34
 " " " " " " " " " " " " }

at M.C. 16.86 East of \bar{i}
 J. Pine 8" S. 74° W. 59 $\frac{1}{2}$
 N. " 22" N. 79° W. 98 $\frac{3}{4}$
 old Gov't B.T. }

at 16 - $\frac{1}{16}$ cor. M.R.D.
 J. Pine 9" N. 6° W. 32. } 34
 " " " " " " " " " " " " }

at 11 - $\frac{1}{16}$ cor. M.R.D.
 J. Pine 10" S. 26° W. 24 $\frac{1}{2}$ }

at D. sec. Cor. G.L.O.
 cement 3" high
 W. Pine 8" N. 57° W. 106.
 " " 14" N. 13° E. 129 $\frac{1}{2}$
 " " 18" S. 28° W. 136
 old Gov't B.T.
 Tern. 14" N. 80° E. 20 }

49.10
 $\frac{500}{071}$
 $\frac{51}{3}$
 $\frac{24}{3}$
 $\frac{14}{215}$
 $\frac{242}{22}$

Sec 2 T144R31

8



at B. Sec Cor.
 GLO Br Iron 1'
 Cedar 5" S 72° E 60 1/2
 " 12" N 23° E 22 5/8
 " 8" N 37° W 17 1/2
 " 6" S 39° W 9 1/2

MC. N. of 3.
 GLO. Iron Br.
 Cedar 8" N 57° E 12 1/8
 (225 526) (Wrong)
 MC.

at f. 1/4 cor
 GLO. Iron Br.
 N. Pine 22" N 67° E 49 1/2
 " 12" S 82° E 66
 (524)
 (4925)

at 2-1/16 cor MKd
 J Pine 3" S 58° E 17 1/8

at C. 1/4 Center Sec 25
 GLO. Br Iron (24923)
 J. Pine 16" S 57° E 83 1/2
 at ME. (5125) GLO Iron Br.

W. Pine 24" S 53° E 27 1/8
 " 22" N 82° E 61

at 9-1/16 cor MKd
 J Pine 6" S 31° E 14 1/2

at 4-1/16 cor MKd
 J Pine 12" N 37° E 35 1/8

at 7 1/16 cor.
 GLO. Br Iron 1'
 8" Aspen N 74° E 65 1/2
 6" Elm N 37° W 47 1/4

at 14 1/16 cor
 GLO Br Iron 1"
 8" Aspen N 70 1/2° W 33
 6 Elm N 77 1/4° E 11 1/2

at D. Sec cor.
 GLO Br Iron 2"
 1" Birch S 61° W 12 R 9 1/8
 6" Aspen Sp. N 51 1/4° W 32 3/4
 6" Aspen N 9 1/2° E 18 1/4
 6" Aspen S 68 3/4° E 13

at 15 1/16 cor
 GLO Br Iron 1"
 10" W Oak S 38° W 92.2
 6" Aspen N 21 1/2° W 13 1/2

at 7-1/16 GLO. Br Iron 1" x 5"

at 8-1/16 cor MKd
 Aspen 9" N. 85° W. 28

at 13-1/16 cor MKd
 W Oak 6" S 85° W 15.

at 12- GLO 1/16 S 1/2 (529)
 Aspen 6" S 25° E 13 (17)

at 2-1/4 cor GLO (526)
 Aspen 9" N. 14° W. 10 (34)

N 1/16
 525 530
 34

S 1/16
 525 530
 39

525 530
 536 531

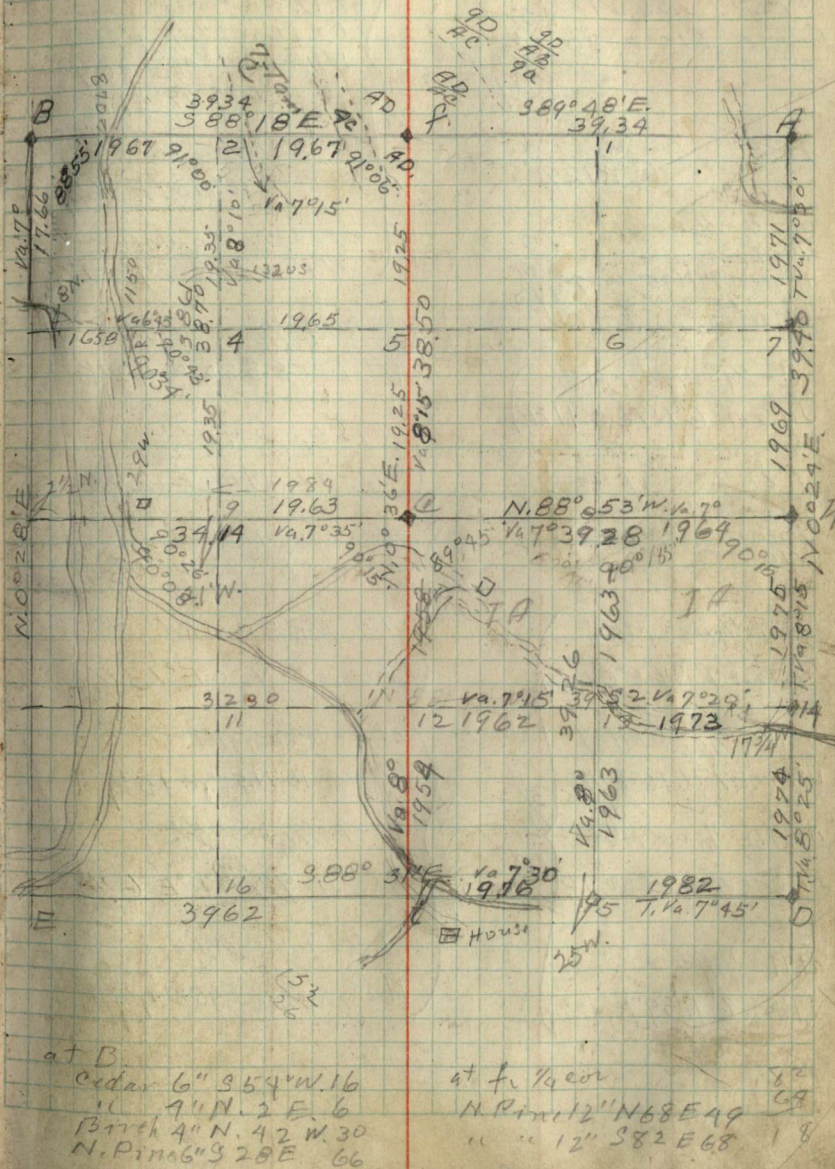
S 1/16
 525 536

8
 10
 34

529
 66
 8
 17

526
 4336
 34

9
 Sec. 25 T144N.R.31W.



at B.
 Cedar 6" S 54° W 16
 " 7" N. 2° E 6
 Birch 4" N. 42° W 30
 N. Pine 6" S 28° E 66

at f. 1/4 cor
 N. Pine 12" N 68° E 49
 " " 12" S 82° E 68

1971
 1971
 1969
 1976
 1974
 1974
 1974

at A. Sec. cor.
of 1-6 G.L.O.
B. Pipe 3" dia. 6" high
Aspen 7" S. 58° W. 13 3/4
E 115" S 14° E. 30

at F. 1/2 cor. G.L.O.
B. Iron 1 1/2" dia. 1' high.
N. Pine 10" S 66° W. 12 3/4

at 7-1/4 cor. G.L.O.
B. Iron
Aspen 9" N 45° W. 14 3/4
11 10" S 55° E 1 1/2
Nailed Posters

C-1/4 S center MKd.
J. Pine 6" N 76° W. 11 1/4

at 8-1/4 cor. G.L.O.
B. Iron 1" 8" high.
in open Swamp.
No B.T.s.

at 9-1/16 cor. MKd.
J. Pine 7" S 68° E. 10 3/4

at 16-1/16 cor. MKd.
W. Pine 7" N. 16° E. 60.

at 12-1/16 cor. MKd.
J. Pine 6" S. 35° W. 18

at 11-1/16 cor. MKd.
J. Pine 6" N 59° E. 12 1/4

at 8-1/16 cor. MKd.
N. Pine 6" N. 58° W. 13 1/4

at D. Sec. Cor. G.L.O.
B. Iron 2" dia. 1' high.
Birch 8" S 48° E. 10 7/2
" 6" N. 77° E. 14 5

at 15-1/16 cor. MKd.
W. Pine 10" N 37° E. 16 1/4

at 13-1/16 cor. MKd.
W. Pine 10" S 23° E. 21 1/4

at 14-1/16 cor. MKd.
Aspen 8" S 20° W. 4 2 1/4

at 1-1/16 cor. MKd.
Aspen 7" S 42 1/2° E. 27 1/4

at 6-1/16 cor. MKd.
J. Pine 5" S 23° W. 20 1/2 1/4

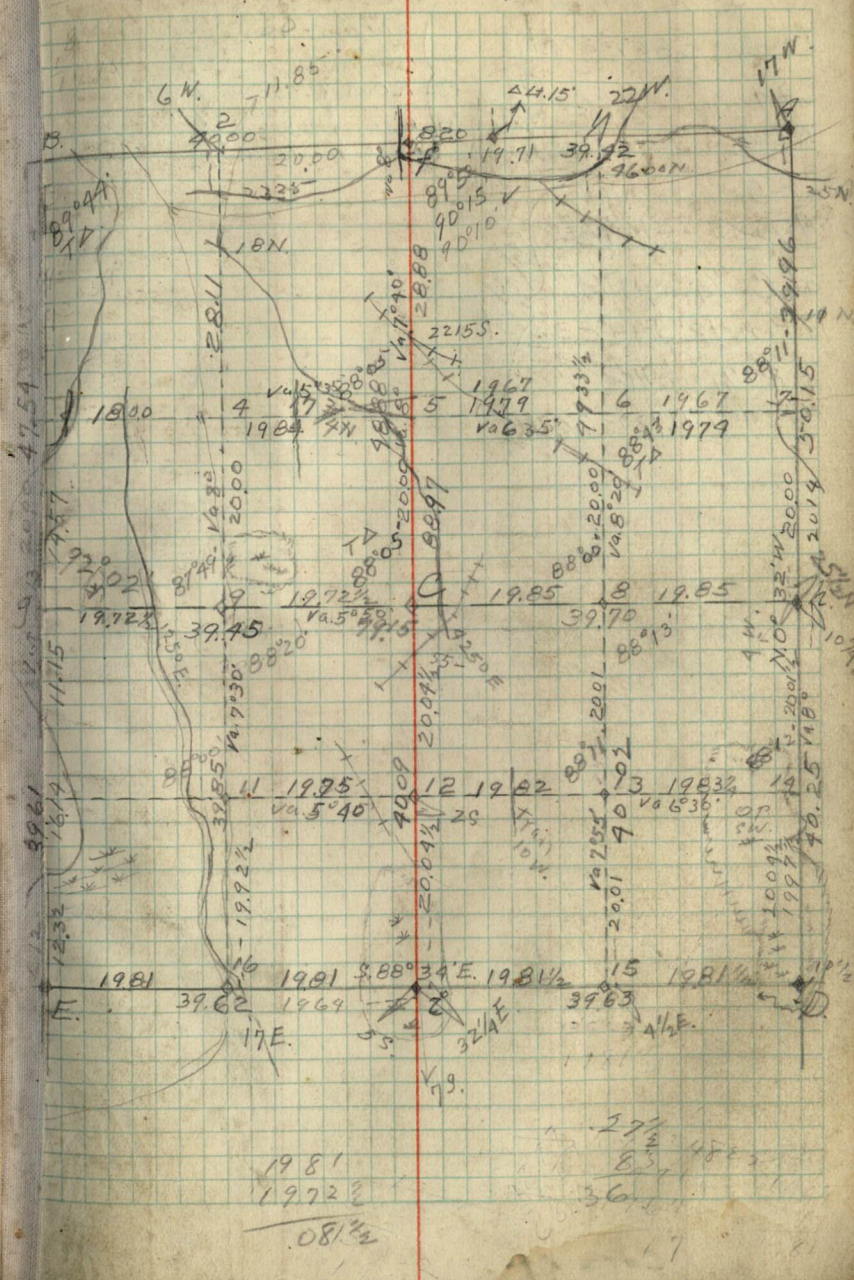
at 5-1/16 cor. MKd.
J. Pine 4" N. 26° E. 13 7/16

at 7-1/16 cor. MKd.
Aspen 10" N 52° W. 15 3/4

at 4-1/16 cor. MKd.
J. Pine 9" N. 40° E. 6 1/4

at 2-1/16 cor. MKd.
N. P. m. 30" S 45° W. 7 1/4 1/4

Sec. 1 - T144N. R. 31W. 10

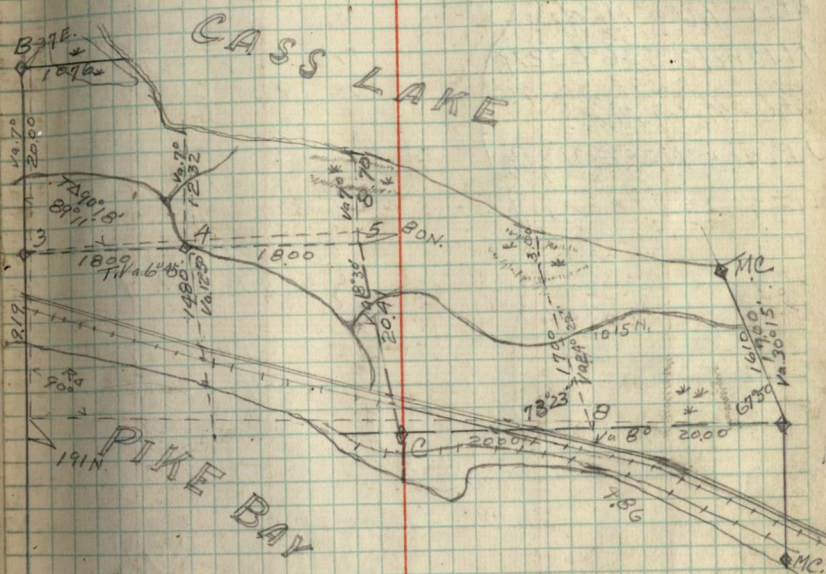


Corner forms copied up to date
5/12/34.

at 3- $\frac{1}{16}$ cor MKd
 1. Pine 3° S 85° E 27 1/2 Ks } 5/18
 at 4- $\frac{1}{16}$ cor MKd } 17/34
 R. Oak 3° S 26° E 43 1/2 Ks } 34

at B. Sec. Cvi 11-12-13-14
 Found old STs OK and
 old post down but
 Hole in ground OK.
 Set New Oak Post MKd.
 R. Oak 4° N 55° W 7 Ks.
 W. " 4° N 60 1/2° E 37 "
 P. " 4° S 88 1/2° E 39 "
 P. " 4° S 12° W 29 1/2 "

at 5- $\frac{1}{16}$ cor MKd } 5/21
 Aspen 3° S 2° W 4 1/2 Ks } 34
 at C- $\frac{1}{4}$ sec MKd }
 N. Pine 12° S 48° E 3 1/2 }
 at 8- $\frac{1}{16}$ cor MKd }
 N. Pine 7° N 72° E 3 3/4 Ks }



at f. $\frac{1}{4}$ cor.
 Found old post
 and Oak, BT. west 18 } 5/
 Aspen 6° S 17° W. 33 1/2 } 22/
 } 34
 at 1- $\frac{1}{16}$ cor. MKd.
 N. Pine 2° S. 36° E. 22 1/2
 at 6- $\frac{1}{16}$ cor. MKd.
 J. Pine 5° N. 28° E. 31 $\frac{3}{4}$ 1/2

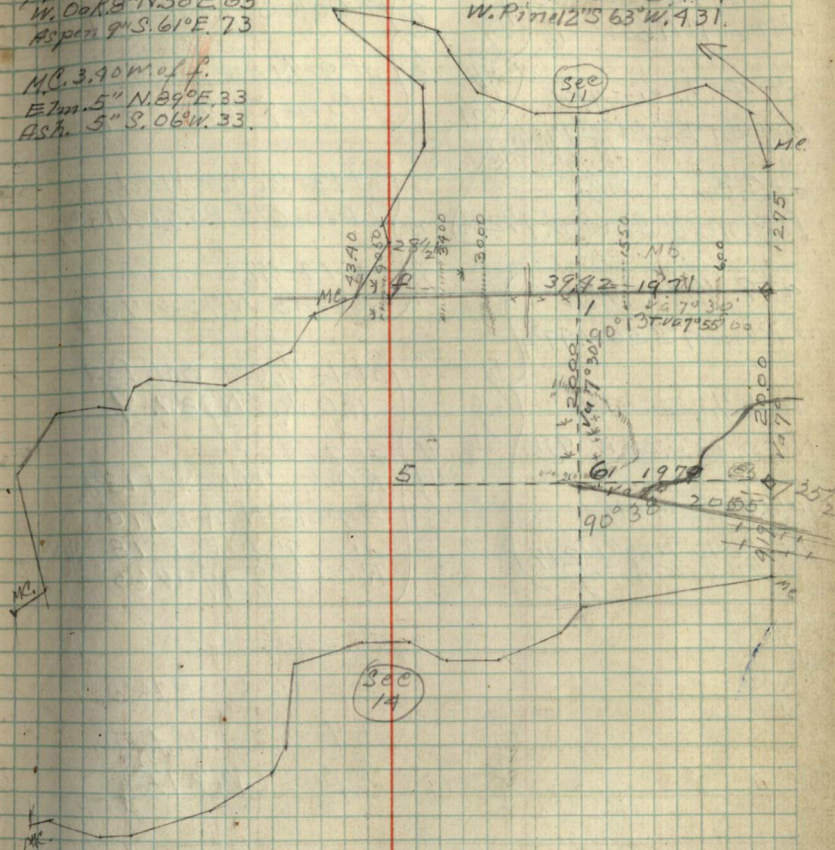
Original Notes

$\frac{1}{4}$ cor. of f.
 W. Oak 8° N. 58° E. 63
 Aspen 9° S. 61° E. 73

M.C. 3.90 m. of f.
 Elm. 5° N. 89° E. 33
 Ash. 5° S. 06° W. 33

Sec. 14 - T145N, R. 31W.

M.C. 800 ft. BTs
 W. Oak 6° S 30° E 424
 W. Pine 2° S 63° W. 431.



S3/32 N. 10° 41'

at f. 1/4 Sec. GLO.
Brass. Cap. Iron 1"
W Oak 6" S 33° W. 33
Aspen 4" N 83° W. 6

at 1/4 cor. GLO
N. Pine
St. Old 17 S 67° E 14 1/2 LKs
W Oak 5" S 9° W. 36 1/4 "

at 5-1/16 cor. MKd.
Aspen 4" S 81° E. 17 1/2

at 8-1/16 cor. MKd.
J. Pine 7" S 85 1/2° W 58 1/4

at C. Center. MKd.
N. Pine 16" S 86 1/2° W. 47 2/3

at 13-1/16 Cor. MKd.
J. Pine 6" S 85 1/2° W 113 3/4

at 9-1/16 cor. MKd.
J. Pine 9" S 50° W. 49 3/4

at 14-1/16 Cor. MKd.
Aspen 3" N. 75° W. 73 1/2

at 11-1/16 cor. MKd.
N. Pine 3" S. 38° W. 9 1/2

at 1-1/16 Cor. Oak Post
R. Oak 5" N 38° W. 9

at 12-1/16 cor. MKd.
J. Pine 10" N 89 1/2° W 27 1/2
57 1/2 line west

at A. - Sec. Cor.
R. Oak 6" N. 52° W. 113 1/2
Aspen 6" N 24° E 110
" 9" S 23 1/2° E 18
R. Oak 6" S 47° W 65

at 1/4 cor. GLO.
Post
Aspen 6" S. 52° E. 16 1/4

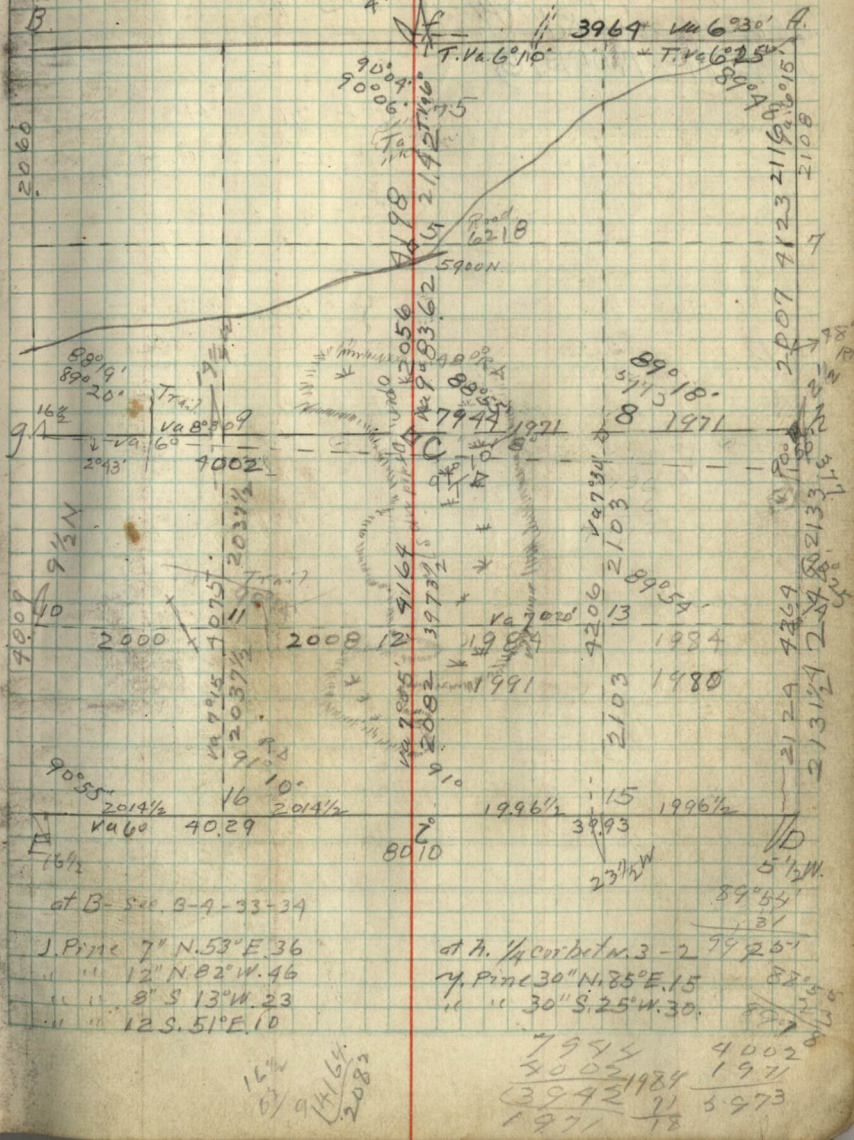
at 7-1/16 cor. MKd.
Aspen S 64 1/2° W 12 3/4

19 7/8
39 4/8
39 6/8
18
90° 06'
18
44 1/2

Sec. 3-T. 145 R. 30

at A. Sec. Cor. 2-3-34-35
Bl. Oak 6" N. 74° E. 31
W. Pine 10" N. 88° W. 96
" 24" S. 67° W. 72
E. Iron 7.8 89° E. 80

at f. 1/4 cor. betw. 3-34
N. Pine 24" N 51° W. 121
" 24" S 80° W. 80



at B - Sec. 3-4-33-34
J. Pine 7" N. 53° E. 36
" 12" N 82° W. 46
" 8" S 13° W. 23
" 12" S. 51° E. 10

at A. 1/4 cor. betw. 3-2
Y. Pine 30" N. 85° E. 15
" 30" S. 25° W. 30.

7994 4002
4002 1984 1971
3992 21 5973
1971 18

16 1/2
9 1/2
14 1/2
20 1/2

MC at 3831 W. ³³³ MC 34 ^{Grass} 1/2" pipe
 N. Pine 20" N 89 1/2° E 717 K ^{5 1/2} 1/34

at 1 - 1/16 cor. MKd.
 R. Oak 6" N 85° E 13 1/4 1/61

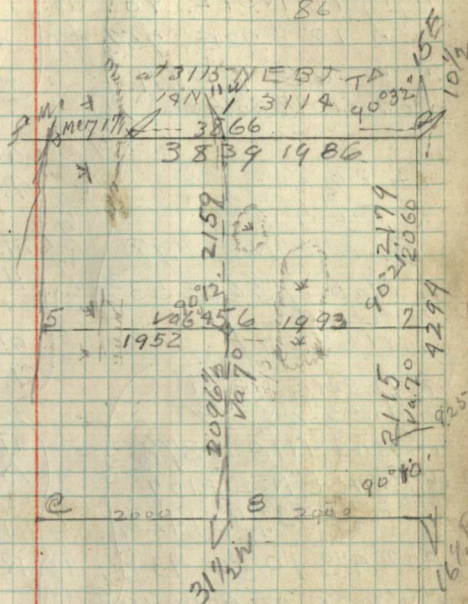
at 6 - 1/16 cor. MKd. ^{1/34}
 J. Pine 12" N 01° E 16

3866
 720
 3146
 3831
 3114
 717

Sec. 4-T145R30

14

Govt BT.
 MC
 J. Pine 10" S 89° E 920
 N. " 12" N 87 1/2° E 725 717
 86



2159
 2097
 4236
 2128
 2097
 2031
 90° 10'

3839
 1986
 1853

214015
921122

GLD Cement 3' 8" M/Kd
at E. Sec. 3 15-16-21-22
R. Oak 14" N. 33° W. 101.
" " 10" N. 51° E. 98
" " 12' S. 72° E. 75 1/4
" " 6' S. 7° W. 11.
Post on Aspen 3"

at 1/4 Cor GLD
Iron 1" 8" M/Kd
Birch 6" N. 88° W. 18
H. Maple 9" S. 68° E. 53 3/4
Post on Aspen 6"
N 65° E 7 1/2

at D. Sec. 2
Cement 5" 6"
Aspen 4" N. 18° W. 39 1/2
W. Pine 8" N. 22 1/2° E. 107
" " 18" S. 75° E. 142 3/4
ASH A'S 10 1/2" W. 43
Post on Aspen 10"
N. 14° E. 22 1/2

at N. GLD 1/4 Cor
B.C. Iron Pipe 1" x 8"
Tw. W. Oak 7" N. 44° W. 21
" " 7" N. 88° E. 41
Post on N.W. Bit

at 14-1/16 Cor
No Trees
Post on Tot. Pole
4 1/2 Ks west
Set 3" Willow Post

at 9-1/16 Cor M/Kd
W. Oak 6" S. 40° W. 5 1/4
at 4-1/16 Cor M/Kd
Aspen 5" N. 48° E. 13
at 5-1/16 Cor M/Kd
J. Pine 4" S. 73° W. 10 3/4

at 8-1/16 Cor M/Kd
Aspen 5" S. 29° W. 8 3/4
at C-1/4 Cor Center M/Kd
Aspen 3" N. 33° W. 17 1/2
at 6-1/16 Cor M/Kd
J. Pine 5" S. 25° W. 21

at 7-1/16 Cor M/Kd
N. Pine 16" S. 01° W. 72 1/4

at 15-1/16 Cor M/Kd
R. Oak 5" N. 40° W. 19

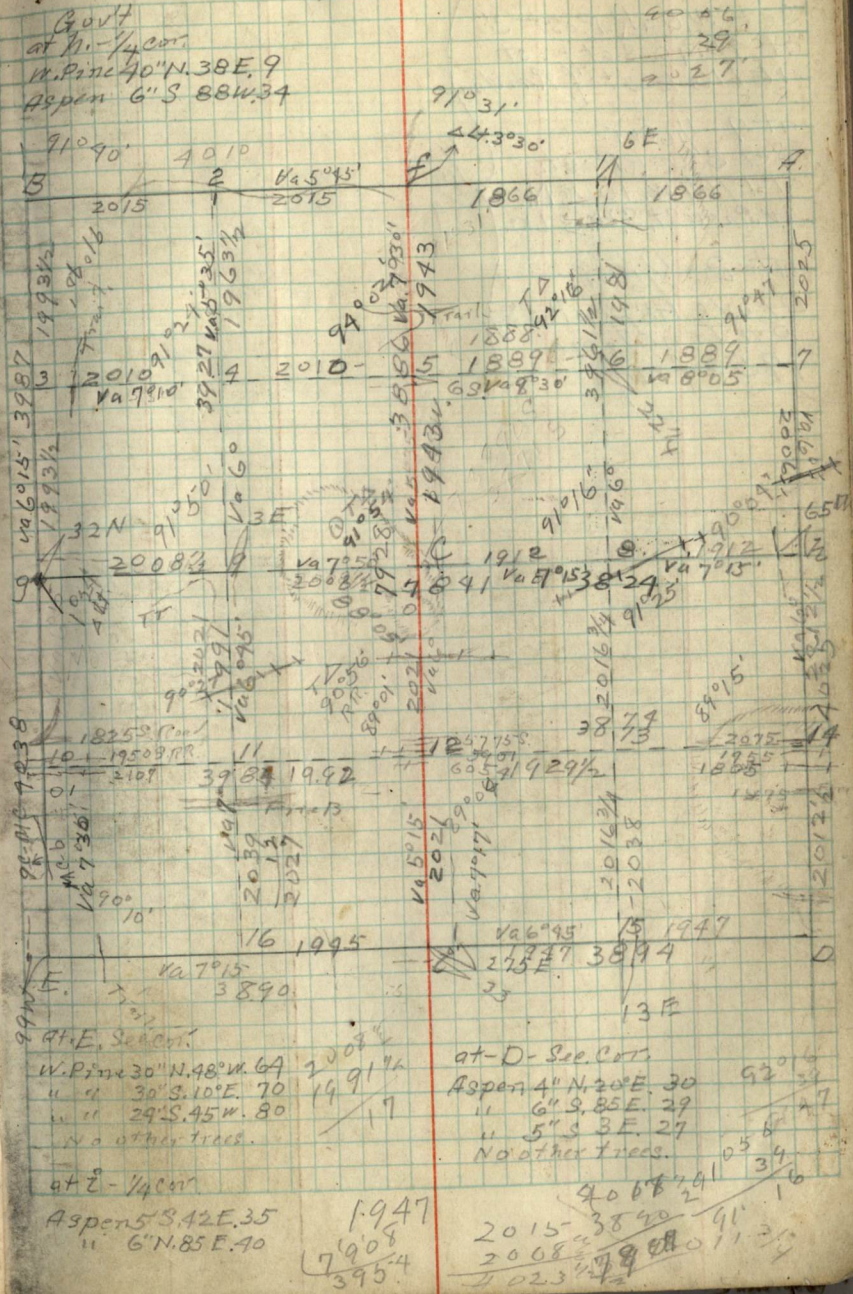
at 13-1/16 Cor
Set Bark Post 3"
3 1/2 Ks. N. of 300' Track

at 16-1/16 Cor M/Kd
W. Oak 14" N. 30° E. 19 1/4

at 11-1/16 Cor
Set Oak Post
29 Ks. So. of 300' Track

at 10-1/16 Cor
Set Aspen Post 3"

Sec. 15 - T. 145 R. 30



Bovt
at N. 1/4 Cor
W. Pine 40" N. 38 E. 9
Aspen 6" S. 88 W. 34

710 90' 4010
5 2015 2 2015 Va 5° 45' 1966 1866

1993 1993
3 2010 Va 9° 10' 39 21 1963 1963
4 2010 5 1889 1889
6 1993 7 1889 1889

9 2008 10 1825 1950 1992
11 12 2027
12 2015 13 1947
14 2015 15 1947
16 1995 17 1947

18 2015 19 1947
20 2015 21 1947
22 2015 23 1947
24 2015 25 1947

26 2015 27 1947
28 2015 29 1947
30 2015 31 1947
32 2015 33 1947

34 2015 35 1947
36 2015 37 1947
38 2015 39 1947
40 2015 41 1947

42 2015 43 1947
44 2015 45 1947
46 2015 47 1947
48 2015 49 1947

50 2015 51 1947
52 2015 53 1947
54 2015 55 1947
56 2015 57 1947

58 2015 59 1947
60 2015 61 1947
62 2015 63 1947
64 2015 65 1947

at C - Center of Sec

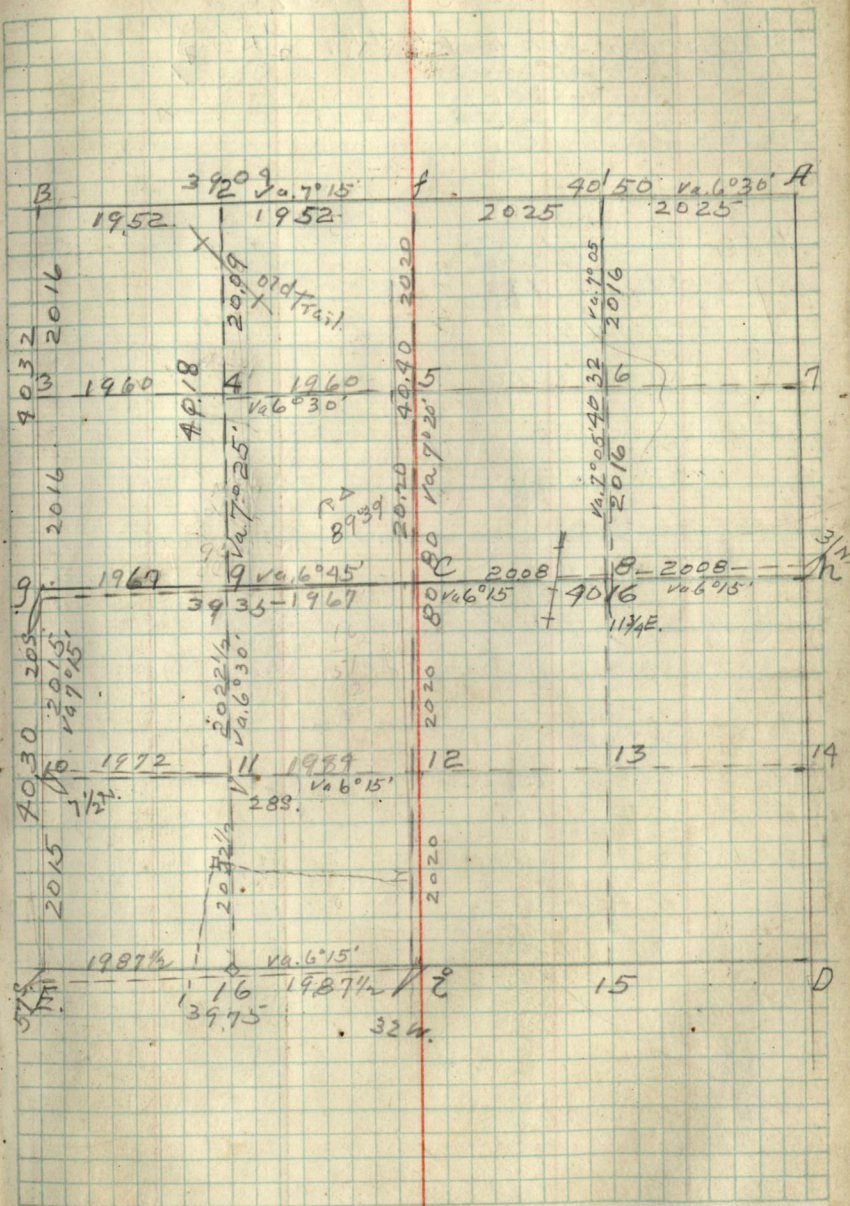
Set W. Oak Post 3"
at 40.40 Set post
16 Lks East of Random.

at 9 - 1/16 cor.
Set 3" Oak Post
at 1967 W. 16 Lks N.
W. Pine St. S.W. 3 Lks.

at 2 - 1/16 cor.
Drove Aspen P. 3" sq.
on Truetime
1952 f.m.f.

at f. - 1/4 cor.

Sec. 21-T145 R30



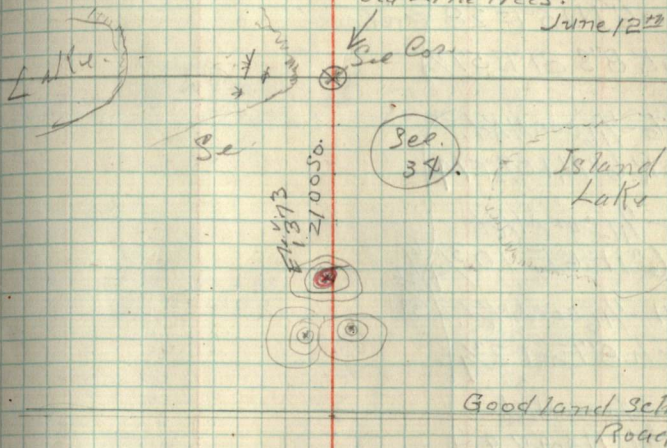
N. 1/2 Sec. 34 T. 17 N. R. 29 W.

3885 9 1/2 LKs.

T. 17 N. R. 29 W. 17

Found 1 old BT. MKd. S. 34-BT.
Birch 6" S. 88° E. 9 1/2 LKs.
set stake at intersection of
old Line Trees.

June 12th 1934



at-2 1/4 cor.
G.L.O. Br. Iron
1" X 10" high (1820)
4329

Aspen 6" N. 15° E 28
W. Oak 8" S. 81° E 57 3/4

at-16 1/16 cor. MKd.
W. Oak 6" N. 10 1/2° E 14

at-9 1/16 cor. MKd.
Ash 6" N 36° E 10 3/4 22

at-11 1/16 cor. MKd.
Birch 8" East 2 3/4 31

at-12 1/16 cor. MKd.
Birch 6" N 40° W 9

at-C 1/4 Center MKd.
Aspen 6" S 45° E 5 1/4 25

at-5 1/16 cor. MKd.
Basswood 12" N 25° W 7 1/2

at-4 1/16 cor. MKd.
Birch 4" S 40° E 8 1/2 26

at-6 1/16 cor. MKd.
Aspen 9" S 67° W 17 34

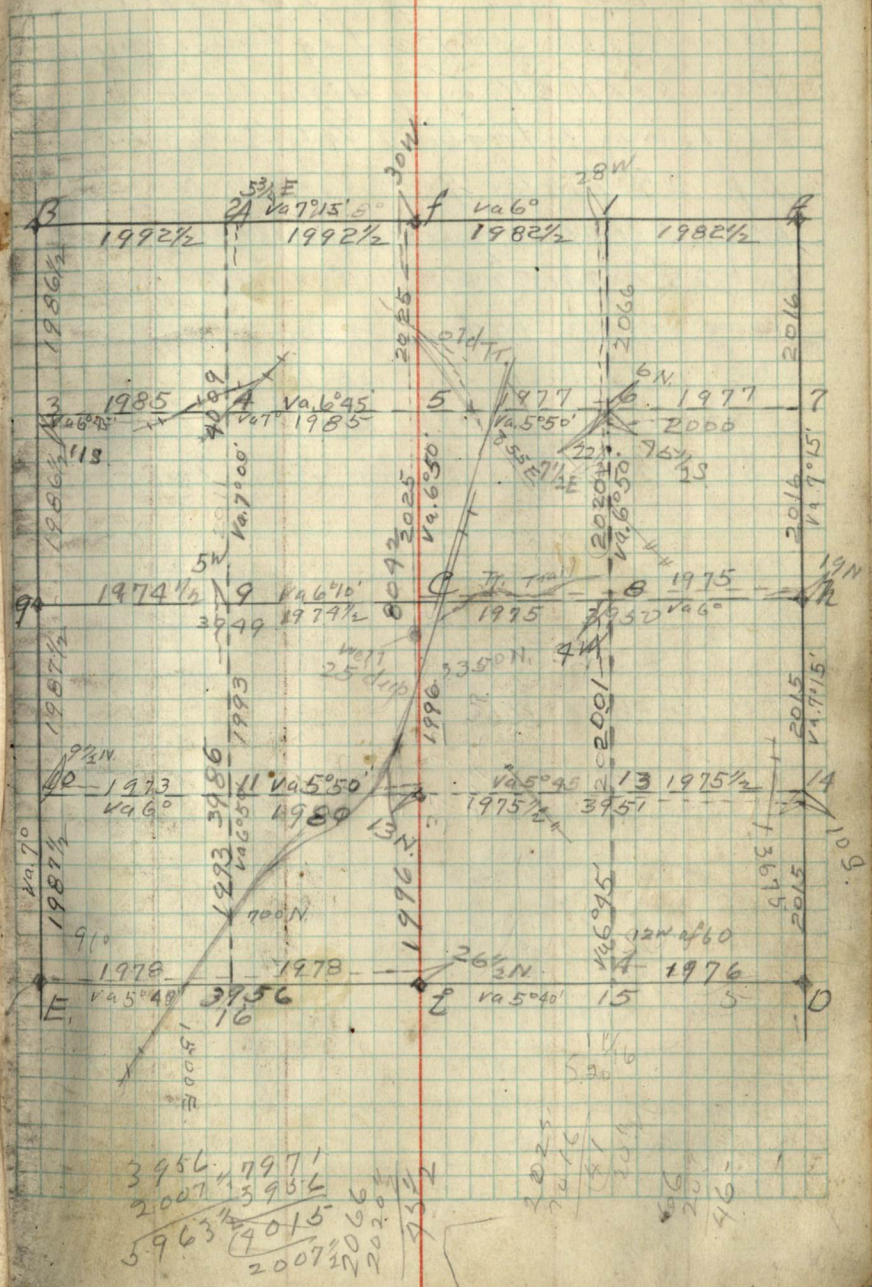
at-14 1/16 cor. MKd.
W. Oak 6" N 4° W 20

at-13 1/16 cor. MKd.
R. Oak 14" N. 46° E 22 1/2 21

at-8 1/16 cor. MKd.
R Oak 12" N. 89° E 26 1/4 34

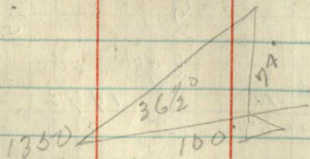
at-15 1/16 cor. MKd.
W. Oak 7" N 39° W 21

Sec. 20 - T. 145 N. R. 30 W. 18



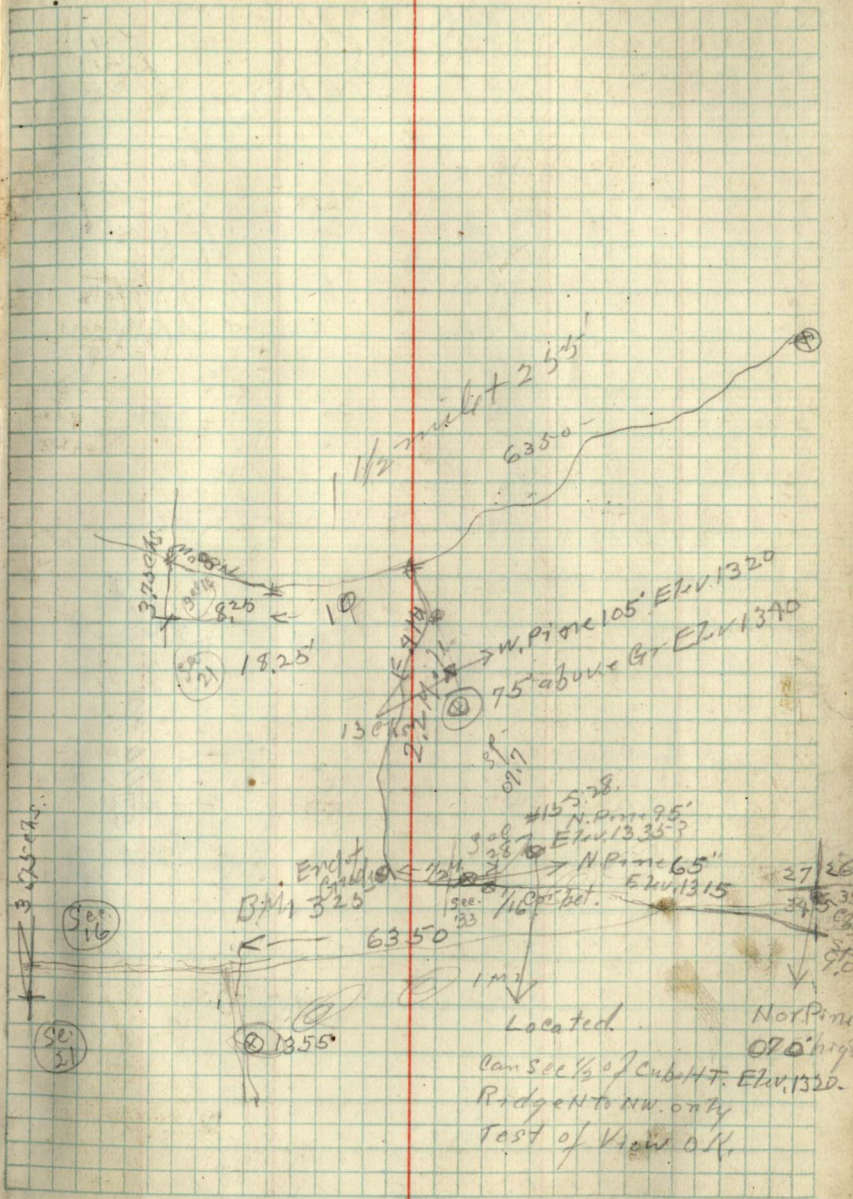
1:7714 E of So. Ridge extends N4S
 Blocks the S.W. part of Lakeview
 Can see N.O.K. only High Knoll
 at Tower site about 1/4 to 1/2 mile
 If 25' higher good view N., NE, NW
 only place in question west of S.W.
 but 25' higher may look over it.
 View South, Ridge 2 or 3 miles off
 obstructs view but 25' higher
 would clear it up. Center of Ridge
 is South 2-3 miles and about 1 mile long
 E-W

Tree 75' above 1355



1350
 75
 1425

1370
 80
 1450



Located
 Can see 1/2 of Cub HT. Elev 1320.
 Ridge to NW. only
 Test of view O.K.

Gravel Pit in
N.E. 1/4 of the SW 1/4 Sec 31
T145 R30
July 11-39

180 in
sand & clay
16 in
Fair Gravel

Sand & Clay

Fair Gravel

Fair Gravel
Average Striping
3-7

Fair Gravel

* 2+00

Sand & Clay

* 1+75

* 1+50

* 1+25

* 1+00

* 0+75 1000 cu yds taken out
pit
12-14
deep

* 0+50

* 0+25

* 0+00
11' open

N. 05° 45' W.
1/4 70

Sta.	+	H.I.	-	Elev.
0+00 B.M.	8.0	108.0		100.00
+25			7.8	
+50			5.4	
+75			5.2	
TP 1+00	5.4	108.8	4.6	103.4
1+25			4.9	
TP 1+50	5.4	111.2	3.0	105.8
1+75			4.0	
2+00			2.8	

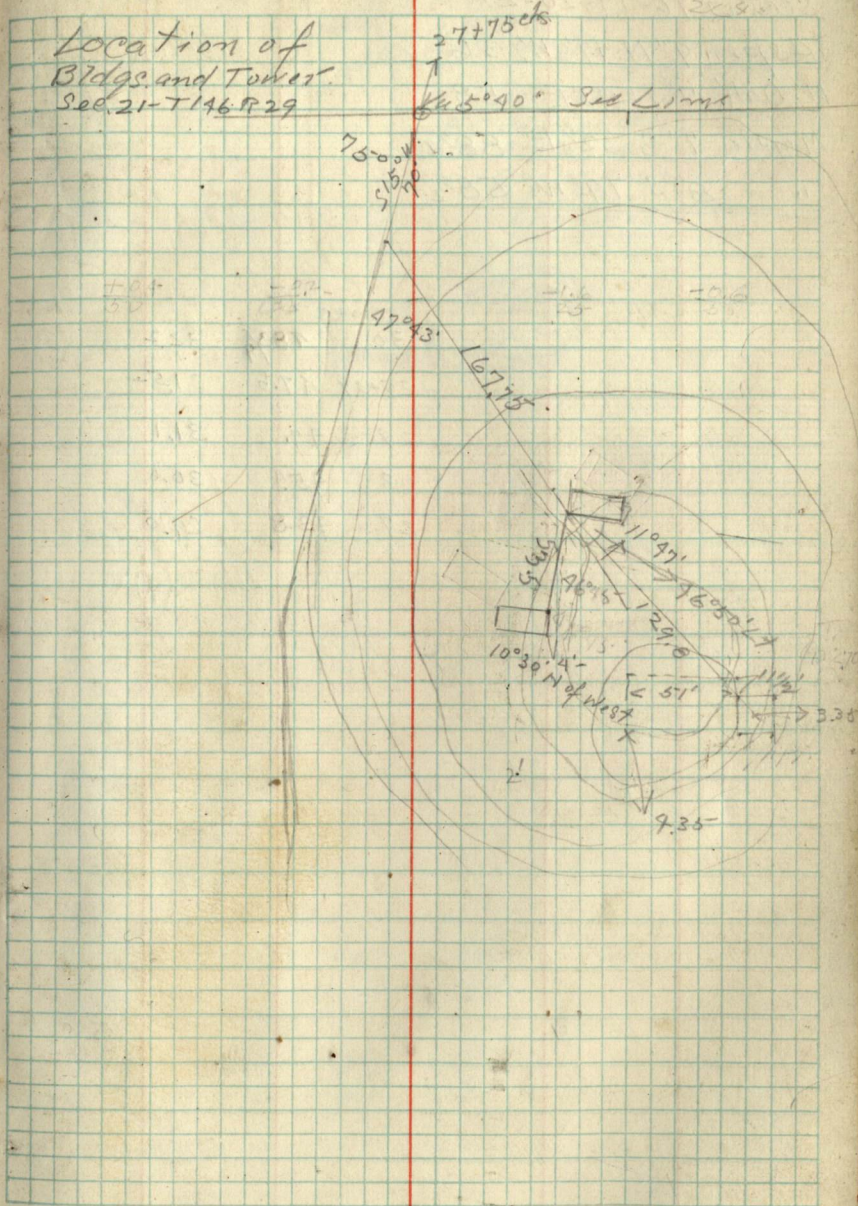
$$\begin{array}{r} 29. + 37.2 \\ 27. + 7.5 \\ \hline 146.2 \frac{1}{2} \end{array}$$

$$\begin{array}{r} 66 \\ 41.3 \\ \hline 107.3 \end{array} \quad \begin{array}{r} 500 \\ 47.6 \\ \hline 452.4 \end{array}$$

$$\begin{array}{r} 500 \\ 66 \\ \hline 264 \end{array} \quad \begin{array}{r} 25 \\ 34 \\ \hline 298 \end{array}$$

11 1/2 - 07

Lt. Rt. 21
 Location of Bldg. and Tower
 Sec. 21-T146 R29



T146-R.29 JAG Jelhang
8/6/34

Sec. Cor. 16-17-20-21

Aspen 9" N. 49 1/2 W. 36

W. Oak 7" N. 43 E 58

Maple 7" S. 32 1/2 E 88 1/4

" 8" S 79° W 58 1/2

	Lks	Ft.
30	48 3/4	32.2
29+37	47.6	31.5
29	47.	31.1
28	45.9	30.0
27	43.8	29.0

Sec. 21-T146-R.29

3/1 Ks. N. of old of 19. Oct 1922
38 Lks Co.
13-9 W. Pine 11 1/2 on S. side
8/15/34

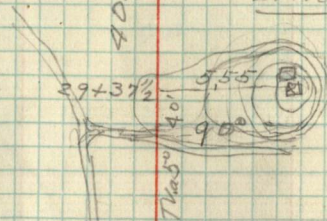
Gov. Notes: 4037 lks.

18" W. Pine 9" N. 27° E. 33 3/4

Rotten Aspen 14" S 9° W. 30

Going East. Int. 10 Lks So.

of Sec. Cor. Run True
Line West



$$\begin{array}{r}
 5.16 \times 4 \text{ (21)} \\
 5.55 \\
 \hline
 48 \\
 5.07 \\
 \hline
 27 \\
 4.85
 \end{array}$$

$$\begin{array}{r}
 5.00 \\
 476 \\
 \hline
 4.524
 \end{array}$$

4.85

Sec 16

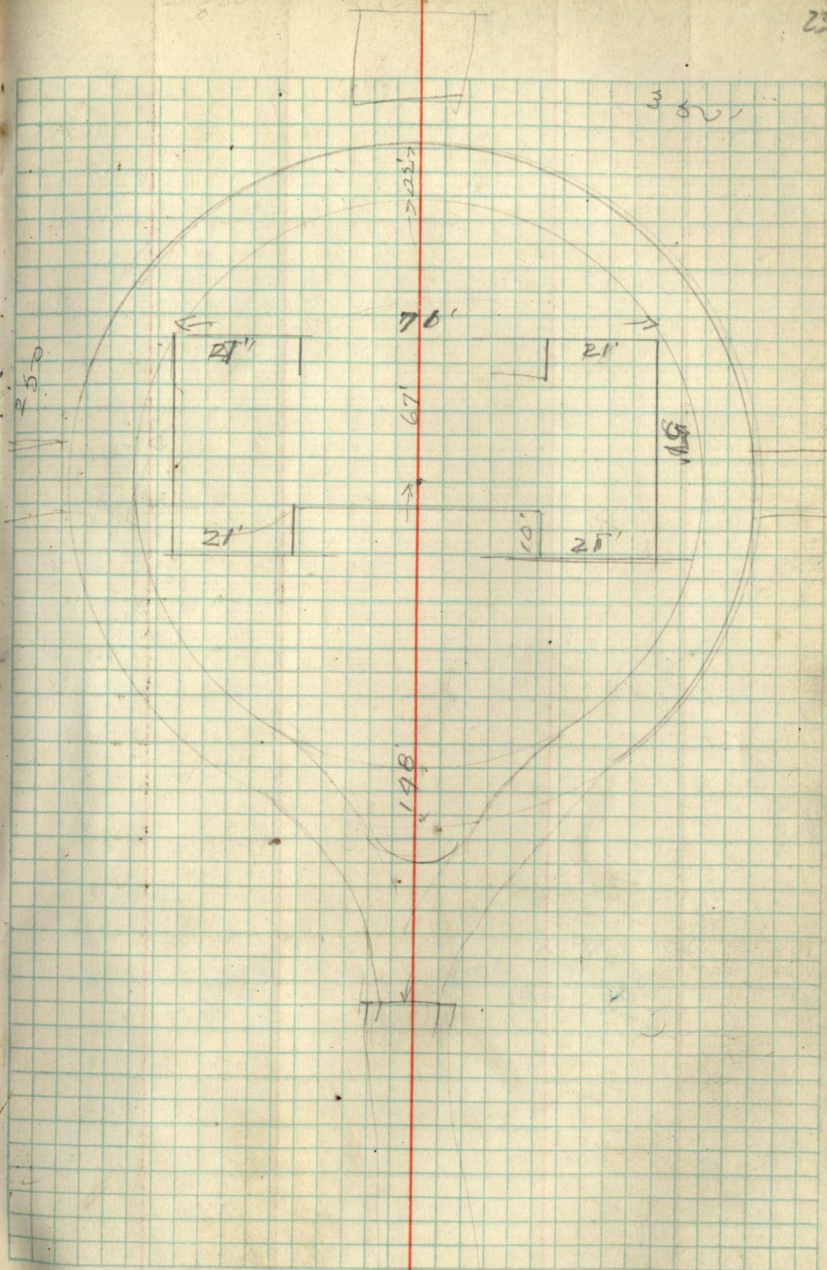
Sec 21

Sec 17

Sec 20

Sta.	+	H. I.	-	Hs. Sta. Rt.	802-d Gr. Stat.
0+00	5.20	105.20		4.10.00	4.20
0+50	5.25			4.15	4.30
1+00				4.20	4.38
1+50				4.25	4.45
2+00				4.30	4.52
2+50				4.35	4.53
3+00				4.44	
				4.55	
Steps of Bldg.	4.45				
		4.55			
		4.50			
		3.5			
Ord. Elev. 5+00	0.25			Elev.	100.00
	3.27	103.27			

T.P



Sec. 31-T149R 30 24

Lot 4

3000 x me Laki
37.95

#3 Bottom of old Pit.

10' - 10-10.5' Clay

10.5-12.5 Gravel

12.5-13. Clay

13-14 Gr. 14.5-9 ft.

14-14.5 Clay

#4 3' Strip Sandy Gr. & Fair Gr. to 5'

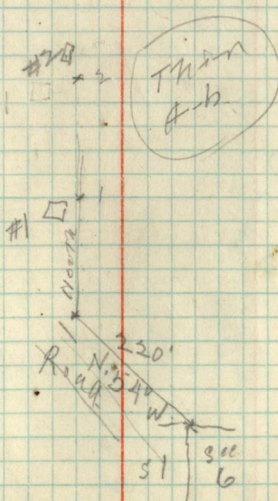
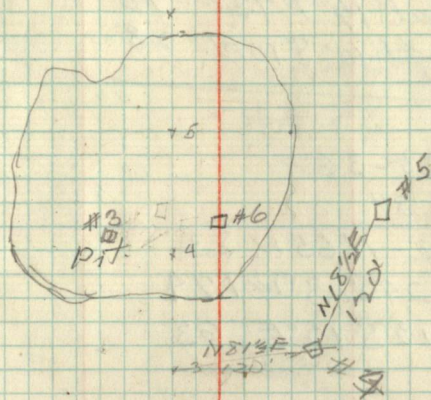
#6 3' " Sand - No good Gr. 5'

#1 3' Sandy Loam 3-5' Sand

#2 3' " " 3-5' Fair Gr.

#6 5' Fair Gravel & more

Swanson
Fudge
Cuthbertson } 1965
R. G. D. + W.
T. Dr. H. Robinson
705



Su 29-303132

Fite. 6" N. 50 W. 28

" 5" S 60 W 20

Maple 4 S 25 E 39

Birch 4 N. 50 E 32

1/4 000. Oak 14" N. 73 W 40
Maple 10' S 10 W. 28

21. 30-31-25-36-

Birch 3"

N. Pine. - N. 65 W. 83

W. " 24 S. 30 W. 174

N. " 12 S 12 E 63.

396
24
420
402
13

174
60

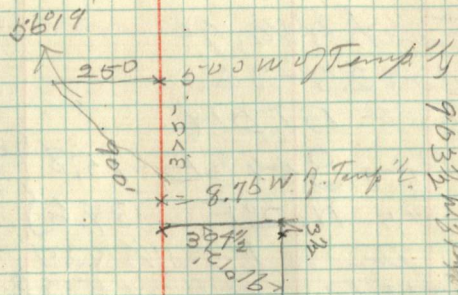
Linu bitu 30-31

26

Tang 5677 = 10,176202

2,397940

2574192 - 3,751



Lot 4

2716

Lot 1

Sec. 25-26-35-36 1/2 x 24 Pipe

N. Pine 11.53 E 58'

Mkd. Pine 18" N 10 W 55.5

East. P. Va. 90

1/4 Cor 25-36

427932

2 Cor 137 018

N. Pine S 64 1/2 E - 15.8 } Orig. Cont. BT's
1/2 Cor 25-36
T 147-1231

" " N. 2° E 39.6

Draw Pipe 1/2 x 24" 497+168

Mkd N. Pine 10" S 25 E 28.2

Mkd N. Pine 10" S 25 E 28.2

25-30-31-36 470.626

Come 75.680.

Post. 728 ft. marked on former

Survey

N. Pine N 38° E 46'

W 11 S 51 1/2 W 45'

Draw Pipe 1/2 x 20" Oak Post.

Mkd. N. Pine 18" S 57 E 87.9

1/4 Cor 30-31 Va. 6° Trm 11° 15'

So. 151.2'

Found. Gas Pipe 429 ft. O.P.

Maple S 48° W 75.8 (S 50 1/2 W)

Asp. S 47° E 54.3 (S 39 1/2 E)

River 484+60 494+44' Pines

233' =

1/4 Cor. 30-31 7147-30

Certified Notes. — Oak 14" N 73 E 40
(Orig. notes) Maple 10" S 10 W 18

1/4 Sec. Cor.

Now a Pine snag w/scribe W BT visible 5-25-66-jtk

Now a Stump w/scribe BT visible 5-25-66-jtk

Random East 9030'

Fell So. 161.2

T. Va. 11° 15'

Found 2 BTs at 1/4 cor. B. & W. S. 30-31-7147730
As 7.9" S 39 1/2° E 54.2 Va. 7°
Map to 14" S 58 1/2° W. 75.8

Found Rotten hole of old post.
+ hole close 2" looks like pipe pulled out.
set new post. MKd

Pine St. Pt. 95° 7 1/2' W 45 1/4' 17.850.
" " S 55 3/4' W 87.7

140	30	28
20		
21	257	
	210	
	47	
	30	35
	70	35
	11	10

3164
1411015
1327
1842

set. 1/16 cor. at 1327 W.
Cedar Post. 3' x 4'

7147730

See
30

See
31

27
41
67
11

207 x 121

4133 East

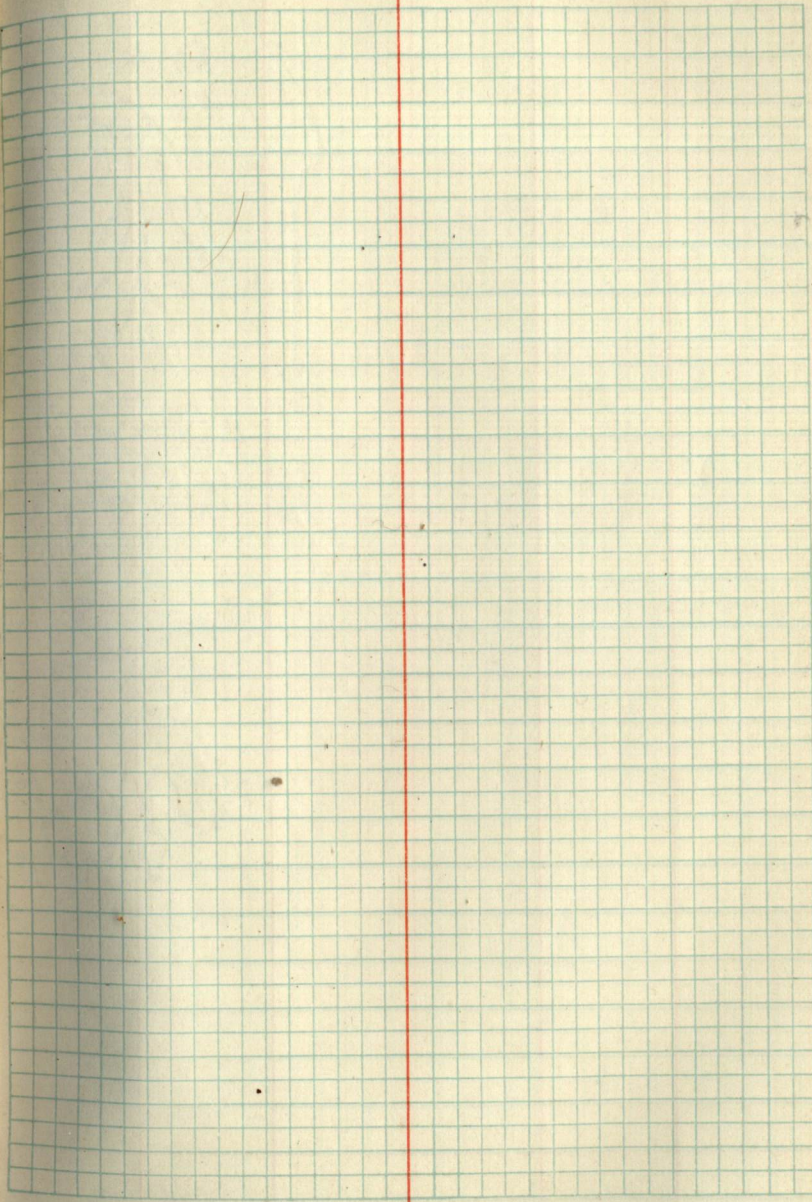
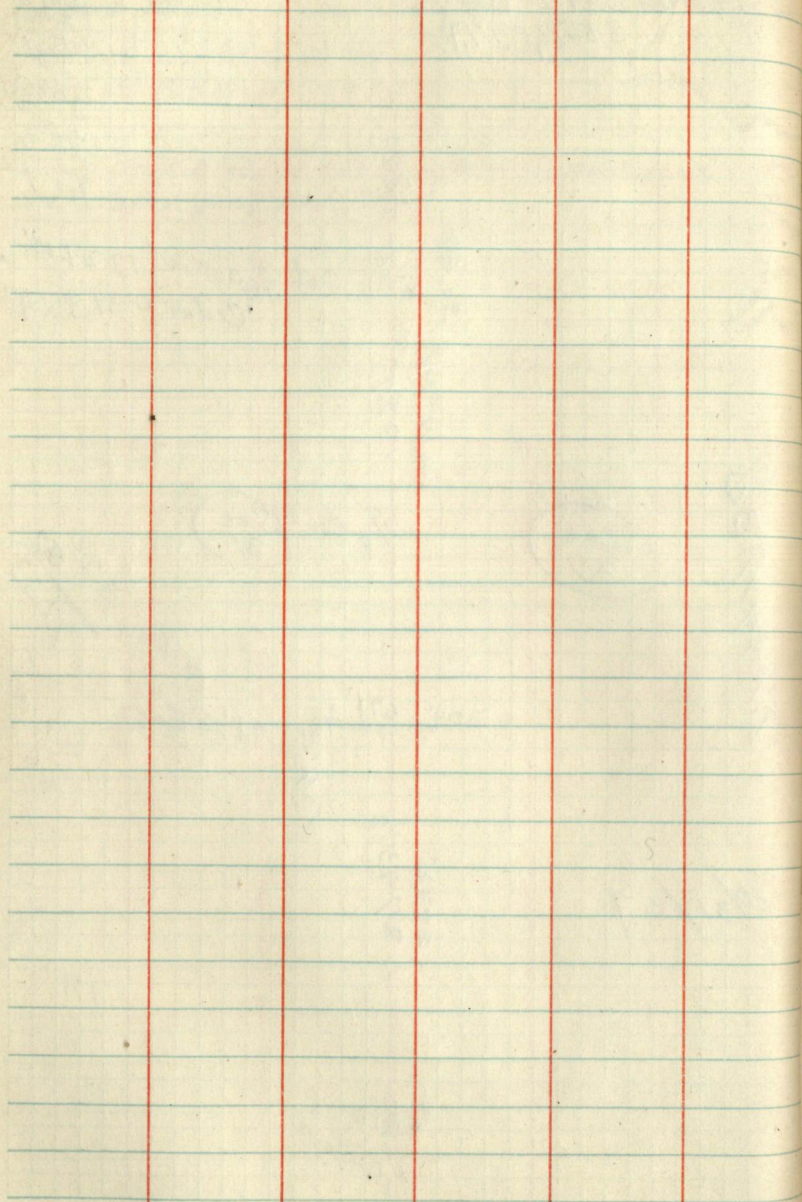
44
106

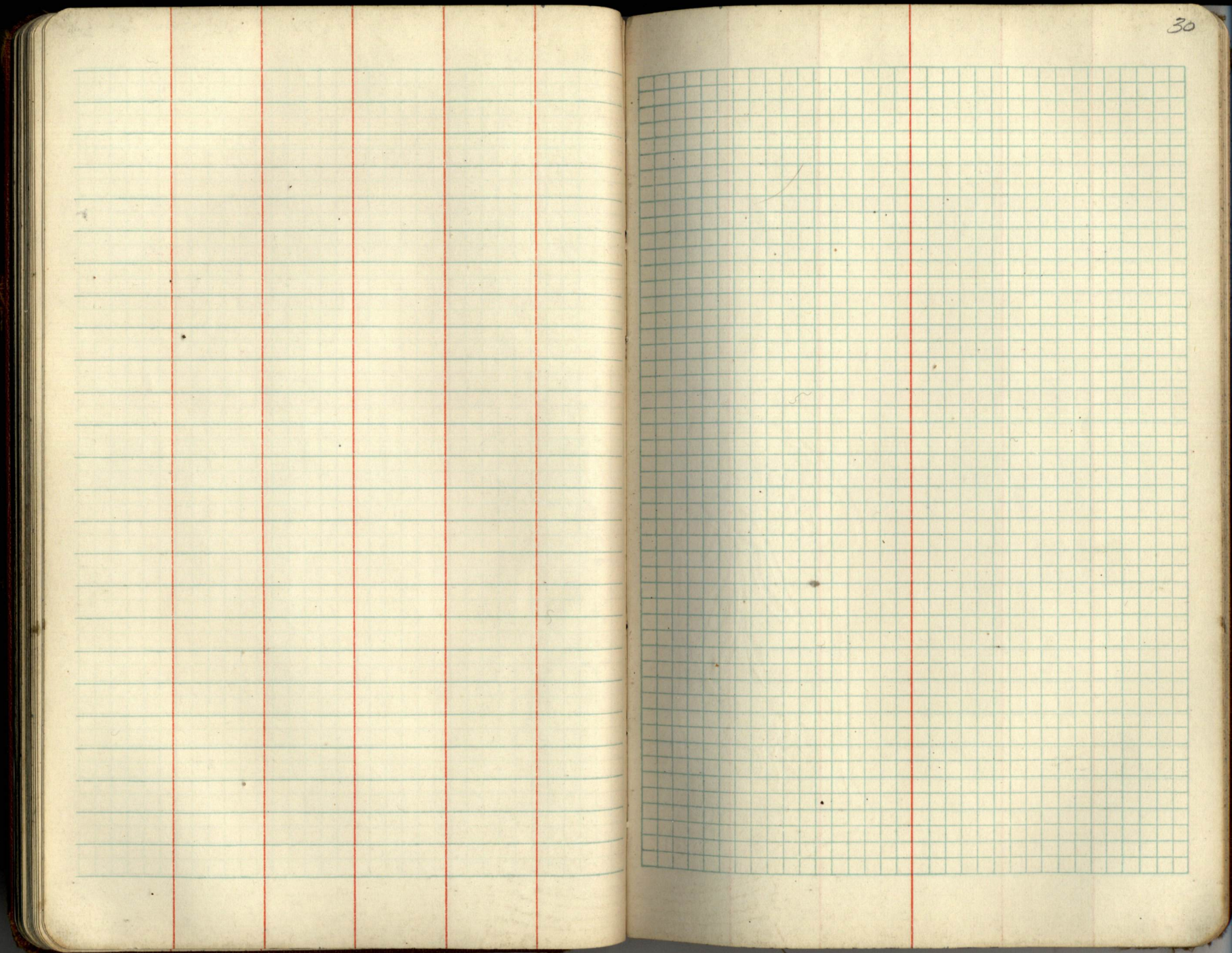
10/31/39

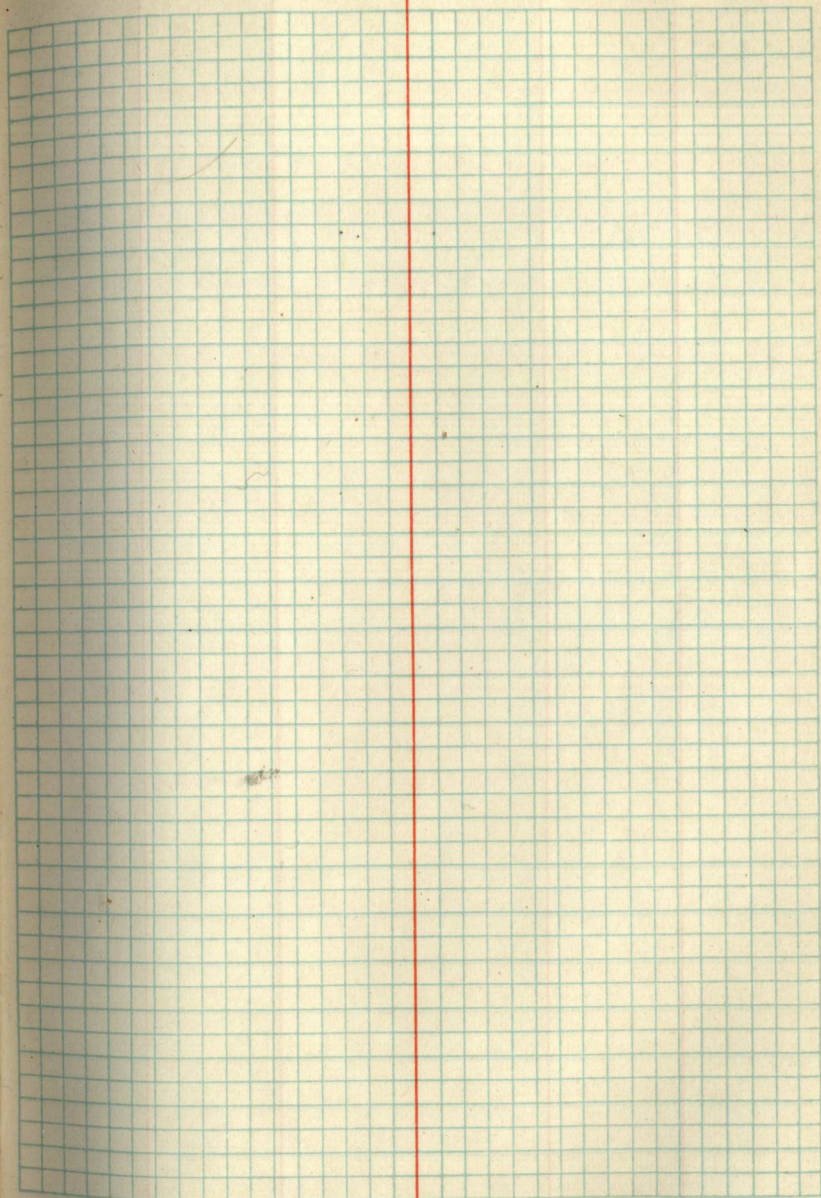
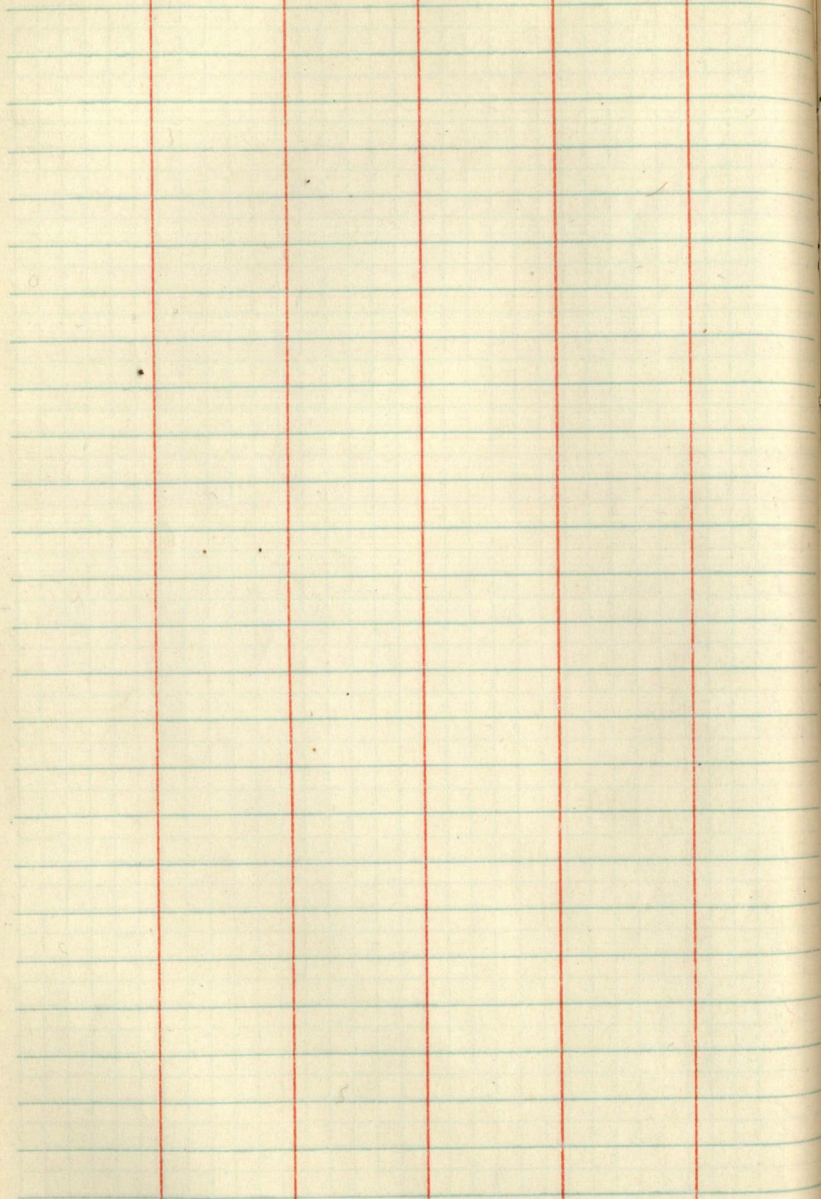
2733
2745 1/2

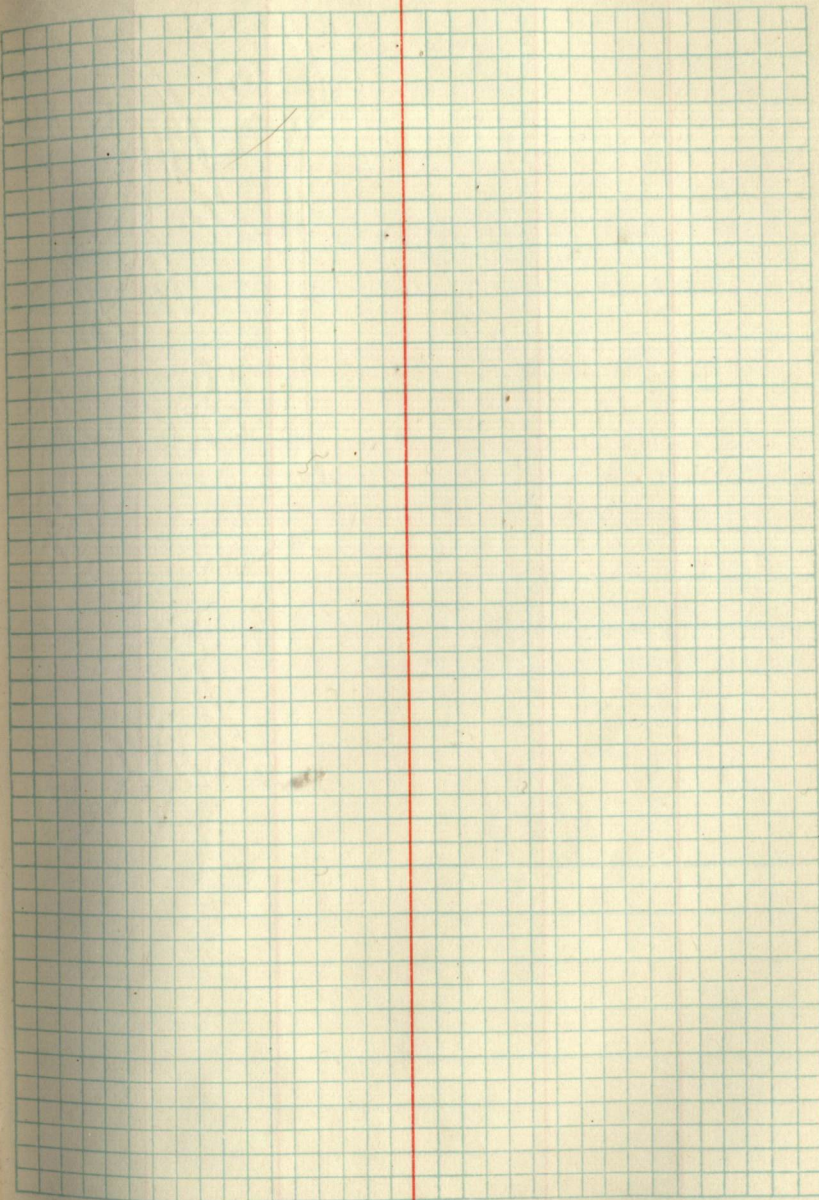
old
x old door

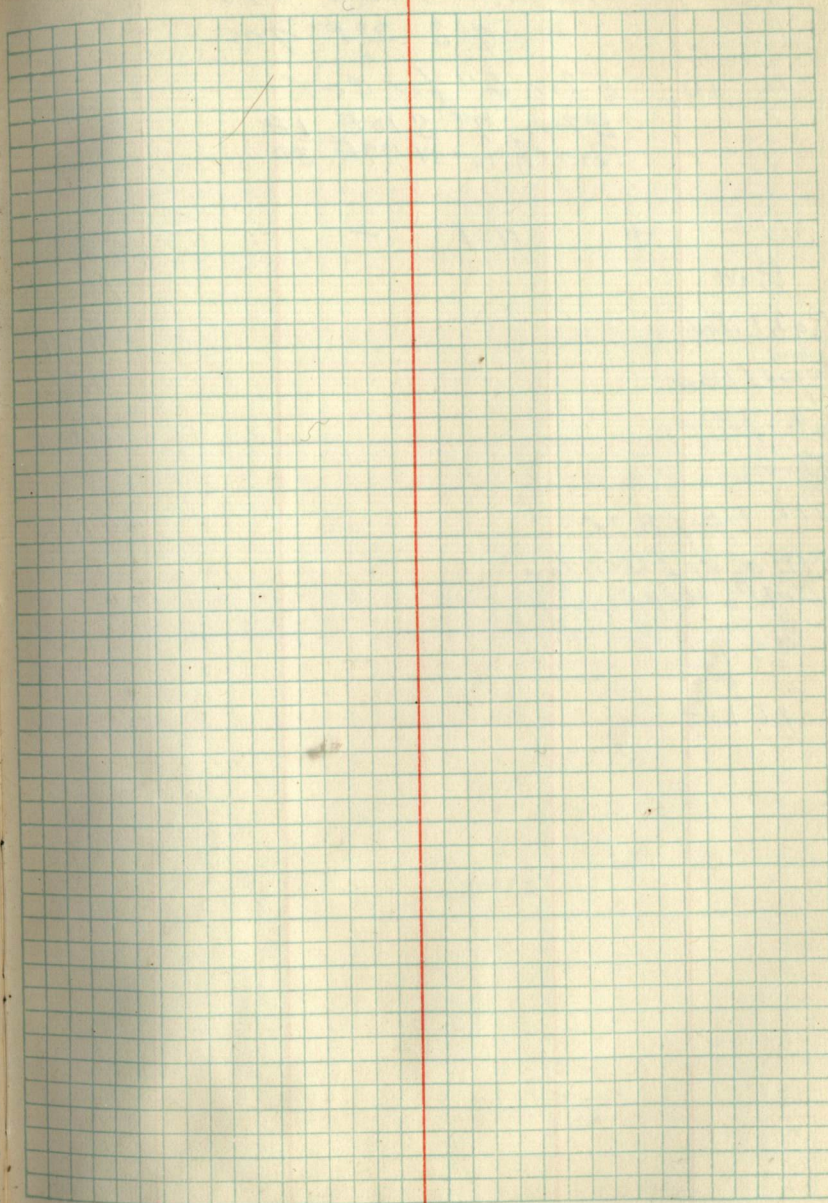
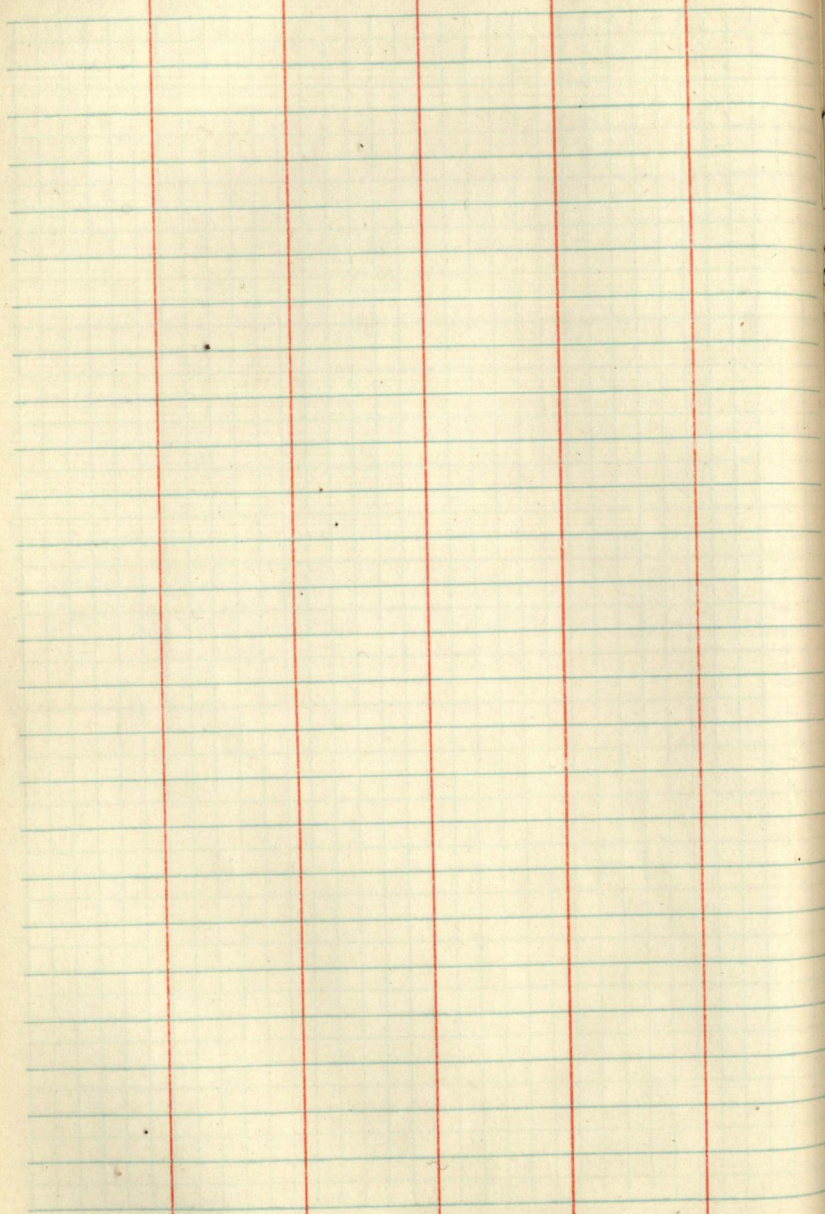
17











MC. 9 - Tam. 4" S 16W 375-

" 4" S 2° E. 900

" 10 Elm 6" for cor.

Elm. 7" S 10 E 18

Br. 10" N 14 77 E. 30

	+	H. I	-	ELV
BM				100.00
Rab. L. Lev.				94.9
Top of Dam				95.6
Water below Dam				94.4
BM. Top of Bolt				101.20
S.E. cor. of Bridge				
1367 Co. Highway				
	94.4			
	6.8			
	101.2			

Rabideau Lake

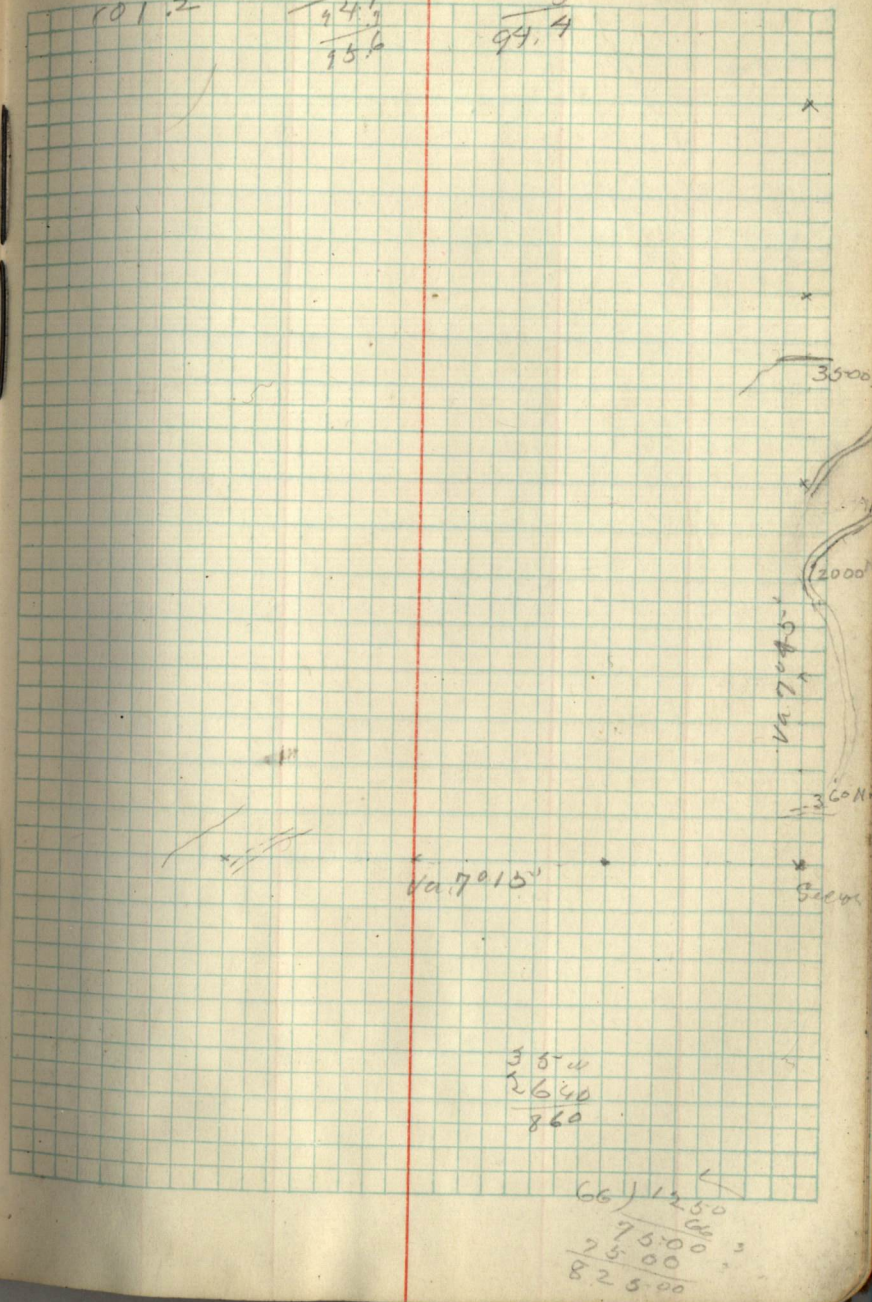
34

94 9 Nov. 7-8-9-1934

94.4
6.8
101.2

100.0
3.1
94.9
94.9
95.6

94.4
3.
97.4



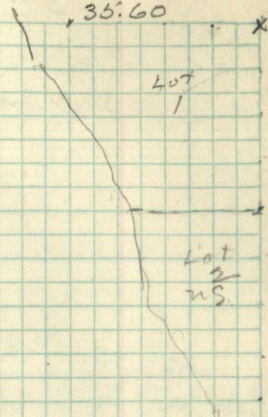
Sec. 24-T146-R29 35

35.60

Lot
1

Lot
2
NS.

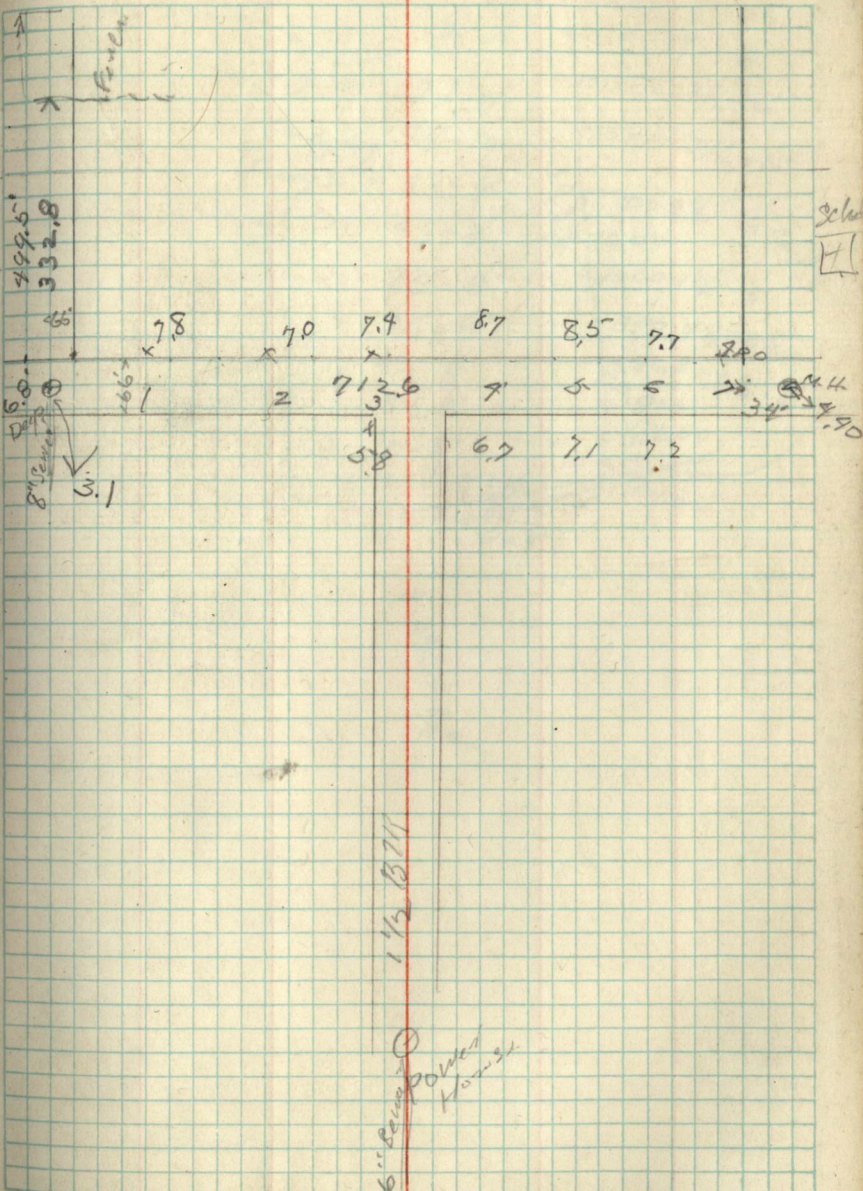
0
0
0
0
8



S W 1/4 SW 1/4 Sec 10
 Part of area -
 500 Lane P.R. of way

1899779

36

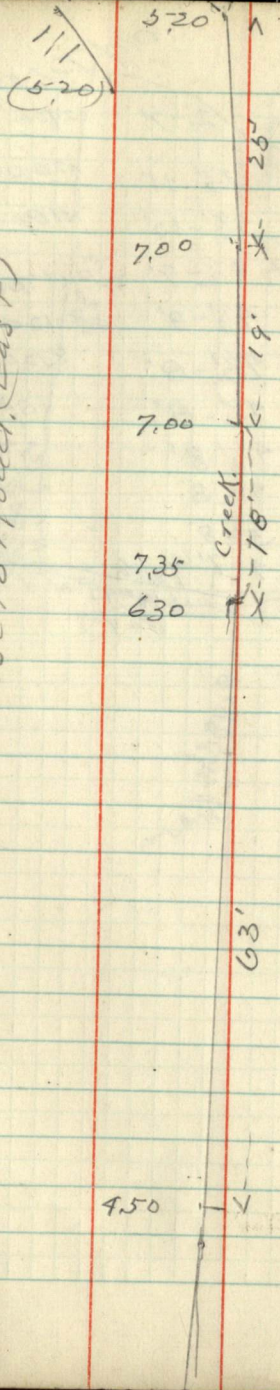


Old Tel. Poles

Sandy	2'-7"	x2400	2'-6"
Sandy	3 1/2'-11'	x20.00	3 1/2'-6'
Sandy	4 1/2'-10'	x1800	3 1/2'-6'
Sandy S. 17	4 1/2'-9'	29 x 1900	4 1/2'-6' Sandy
" "	4 1/2'-8'	33 x 1200	
" "	4 1/2'-8'	x1000	4 1/2'-6'
" "	4 1/2'-8'	x800	4 1/2'-6'
" "	4 1/2'-8'	x468	4 1/2'-6'
" "	4 1/2'-8'	x900	
" "	5'-8'	x8.200	
" "	7'-7'	1296	
		571.45 W	21.00
		(Va. 7°)	

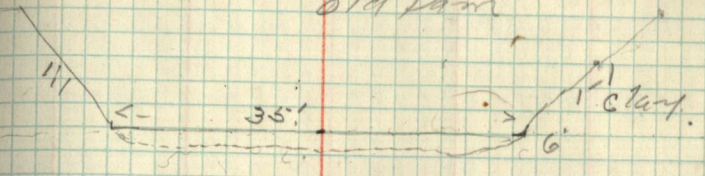
S. H. Smith
4.10.50

Xsection out to Pimusha
Close to Road (East)



Feb 1st 1935

Pimusha
Xsection just above
old Dam



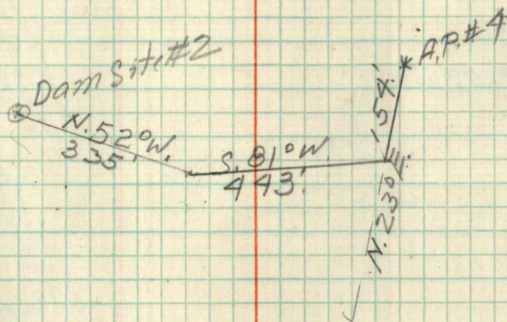
420 5.15
↓
↓ 63

630 7.35 7.00 5.20 1.20
↑ 18' ↓ 19' 2.25 ↓ 10'

1073.5 ft.
12548. BM
on 7.12.35
30' west
of road
50' from
Creek

Feb. 4-1935

Moose Lake



N.59°00'E

13+00 L#5

S.81°00'E

7+03 L#9

N.23°00'E

4+71 L#3

N.23°00'W

4+50 L#2

N.07°00'E

16+39

16+00

6+50

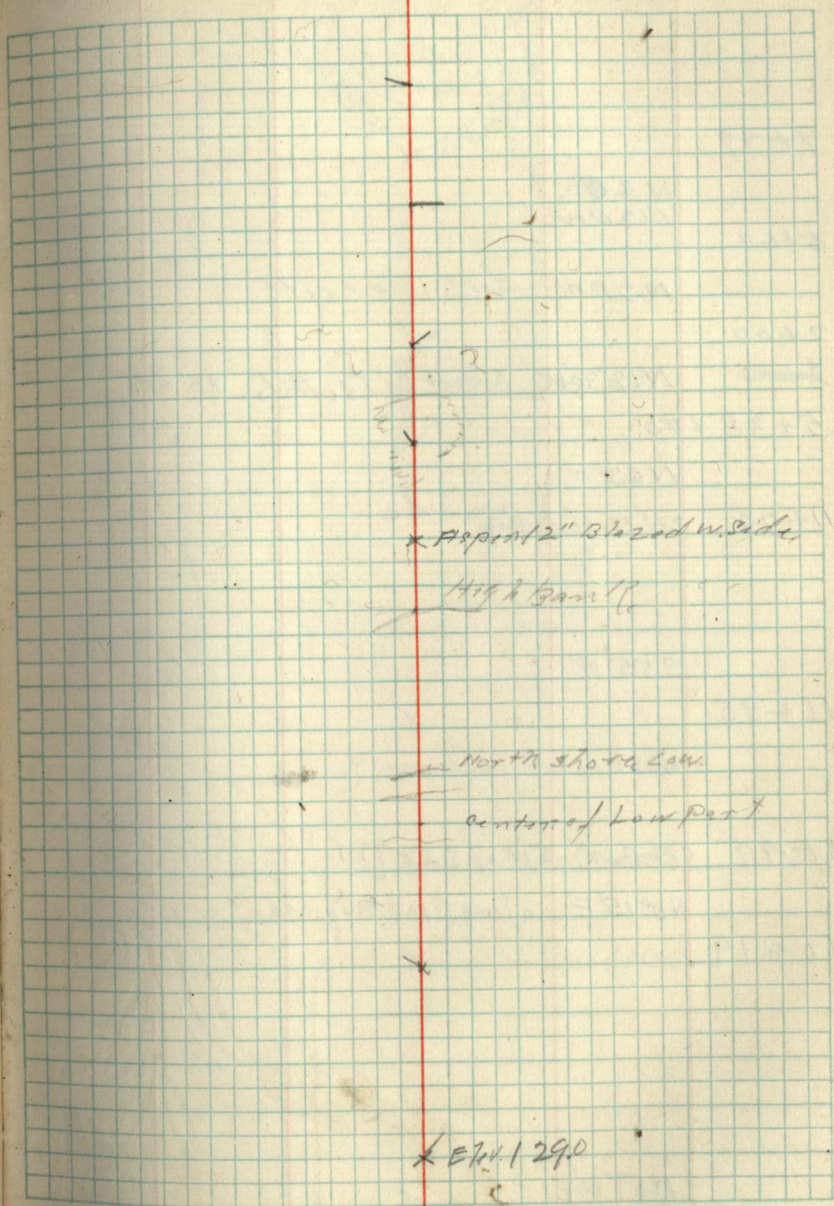
5+00

N.0°30'E

4+67

N.18°45'E

Elev. 129
of 100



x Report 2" Blazed inside

High 2 1/2 ft

North Shore Low

center of Low Part

x Elev. 129.0

9+49

N.30°W
N30°W

5+64

N.21°W. Followed R

2+00

~~2+00~~ N17°30'W, Dam site, #1. 30' Lt.

5+38 L#5

N63°W

11+79 20' N. of L#4

S55°W

11+95

West on Sec Line?

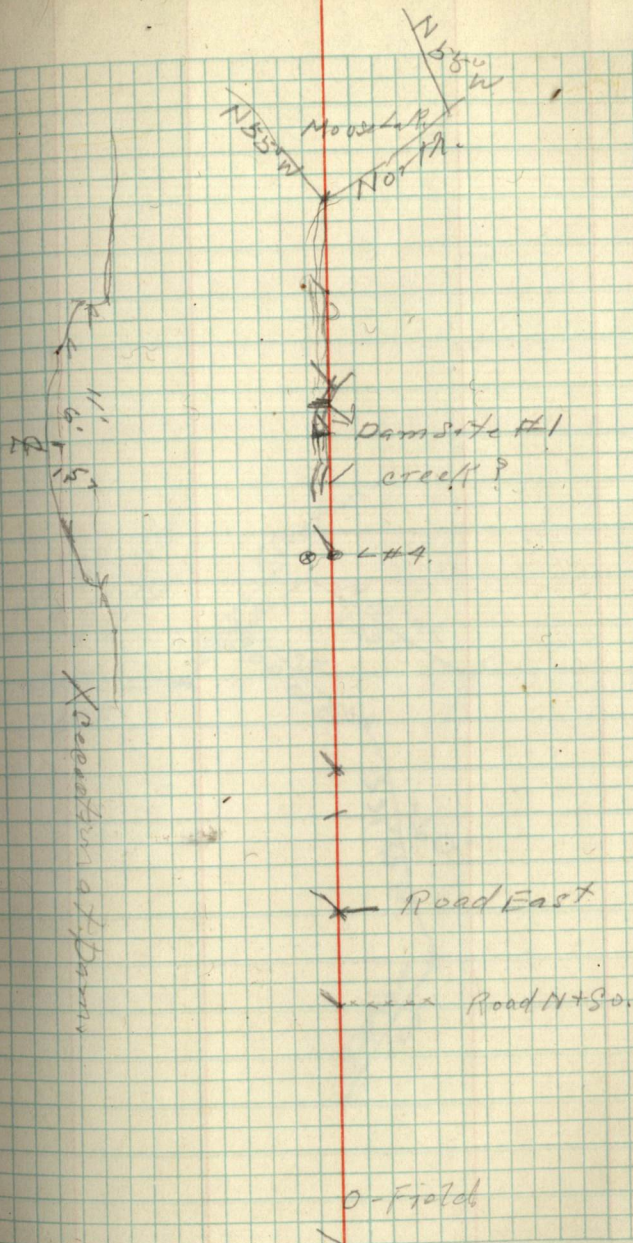
3+49 see Cor. SW. of S.23(?)

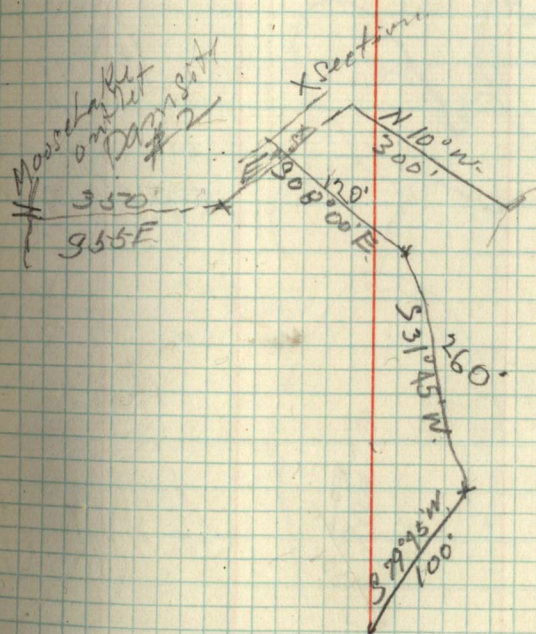
N0°15'E. along Road + Fence

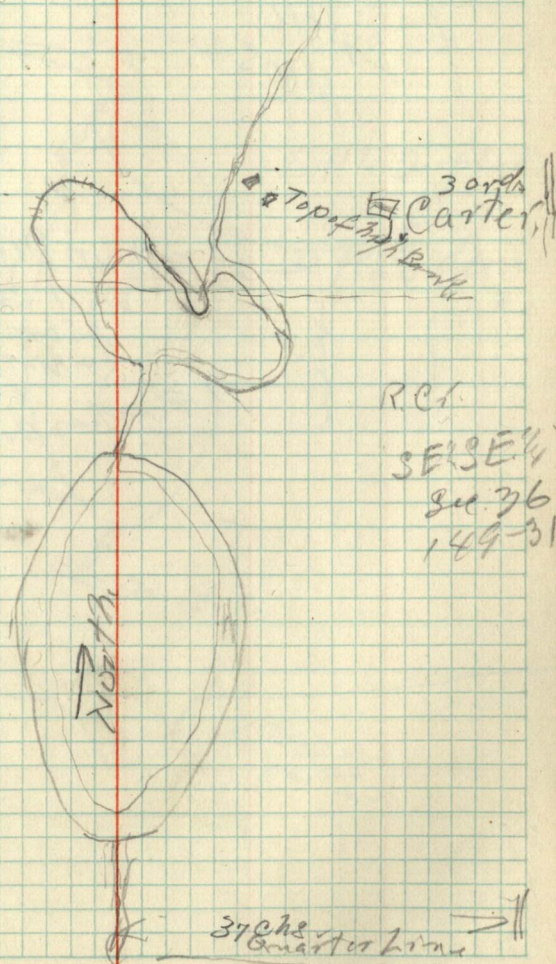
10+14

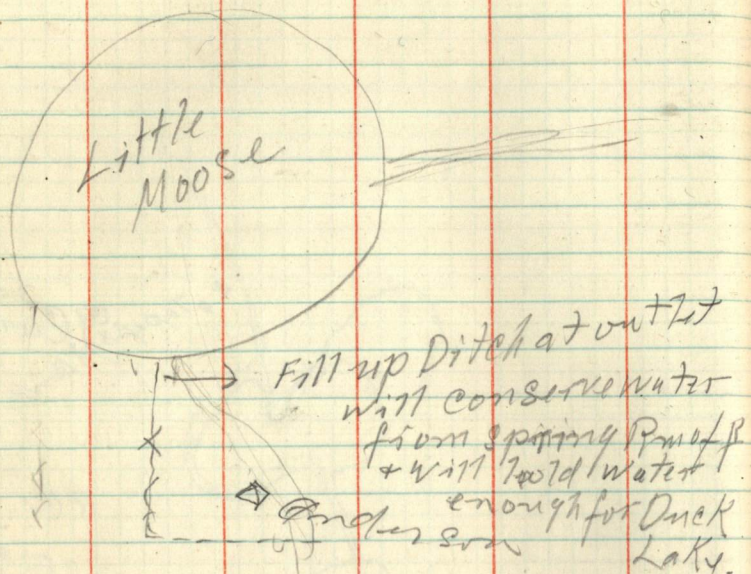
N59°00'E

13+00 L#5



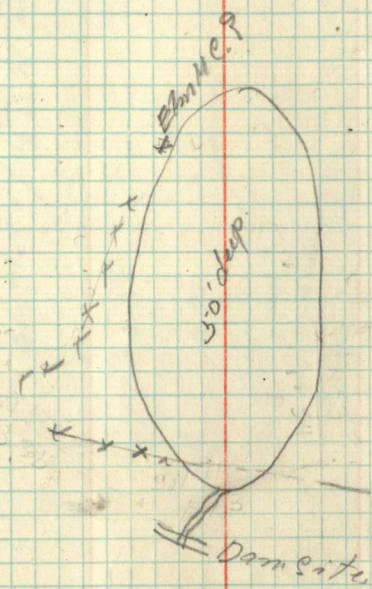






Fill up Ditch at outlet
will conserve water
from spring P. w. P.
+ will hold water
enough for Duck
Lake.

Feb. 11th 1935
JAG



Little Deep Lake
N.W. of
Rabideau
Lake.

X outlet
outlet

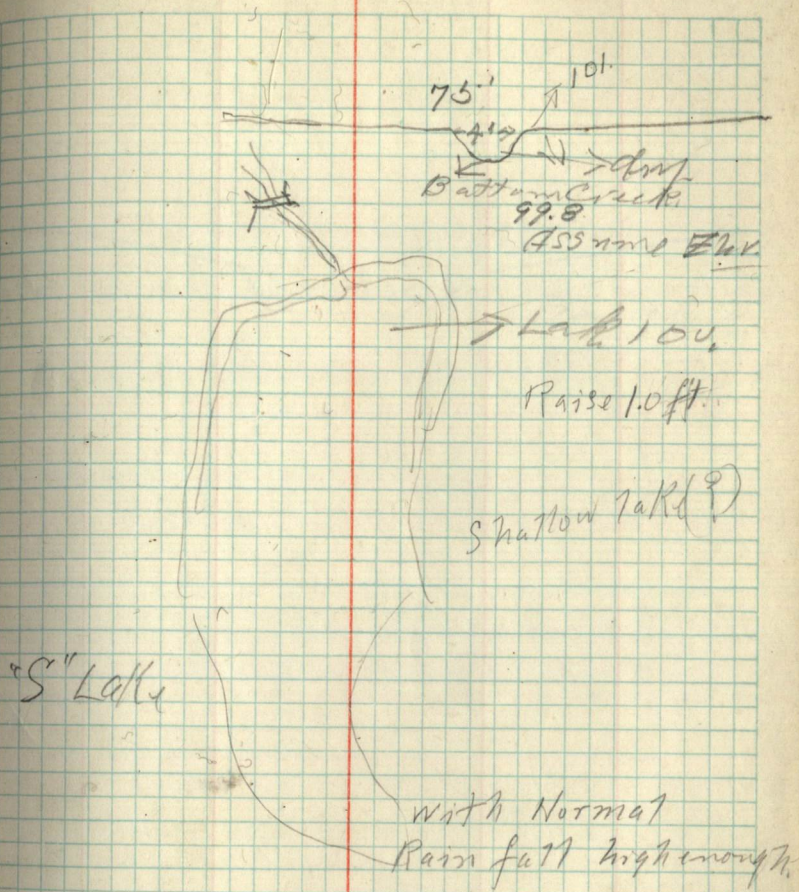
Outlet of Bull Lake

130'

22'

→ 2' water

6' something





Broadleaf

Sta + H.L. - Moss Lake Elev. Pond
 13M. 10 Pans. S. side of line East of Moss Lake - 109.06 (100.98)

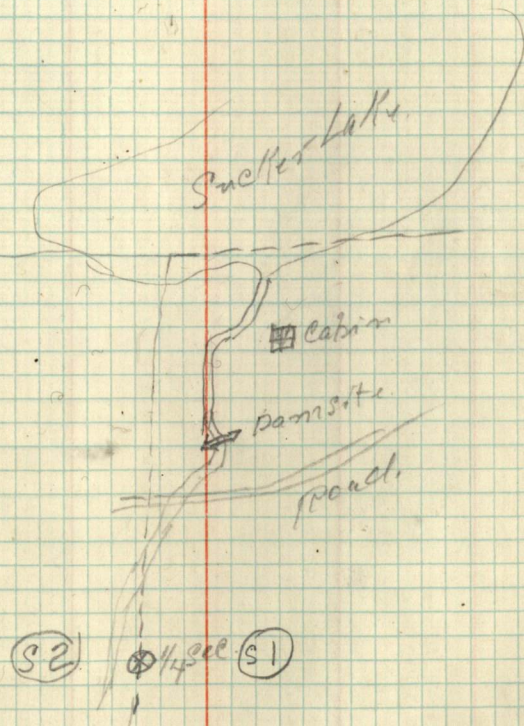
Lake 13 -			Elev.	
12.90	112.90		100.00	
T.P.	4.93	114.08	3.75	109.15
T.P.	2.50	110.14	6.44	107.64
Twin Lakes		11.03		99.11

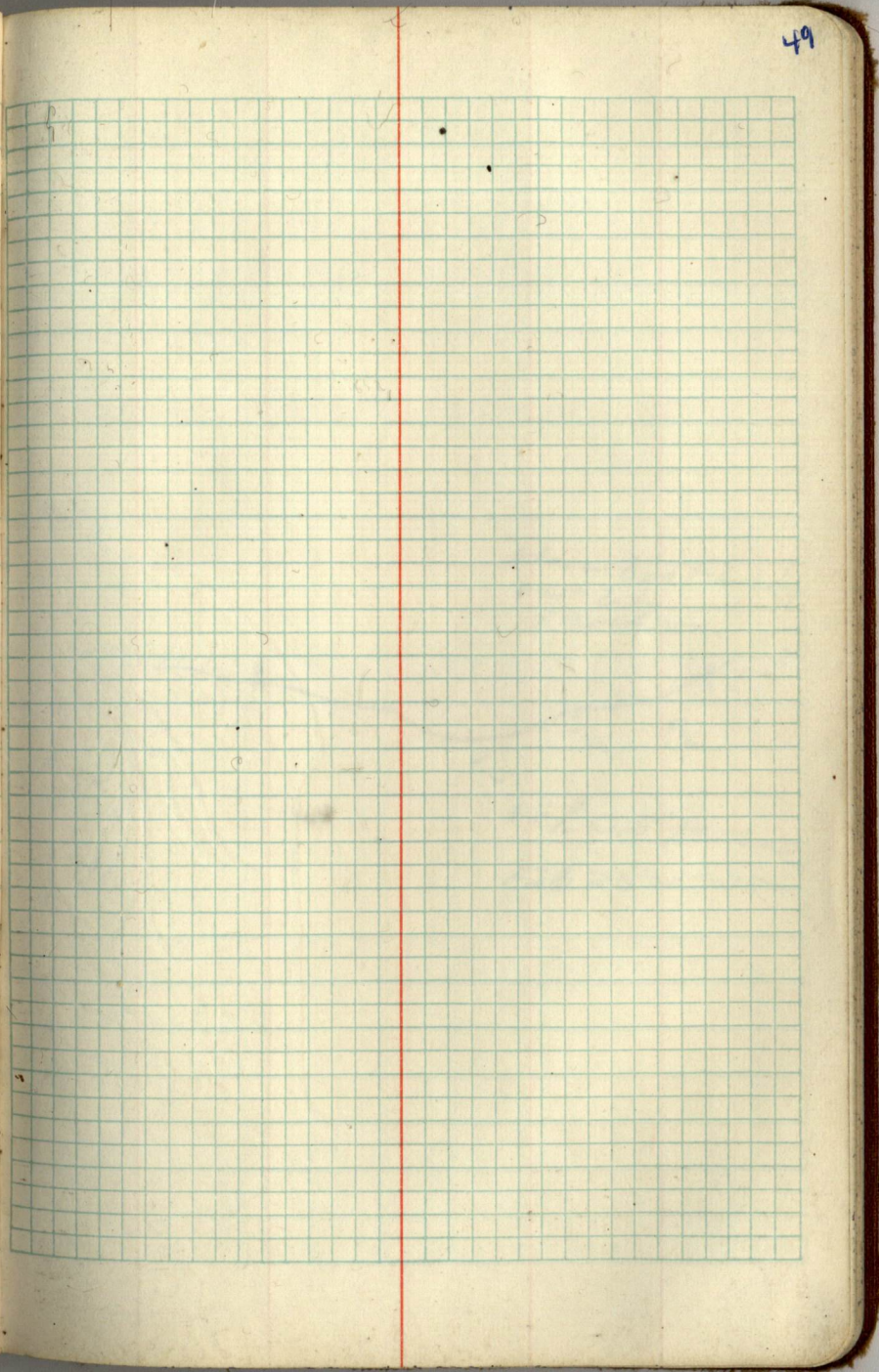
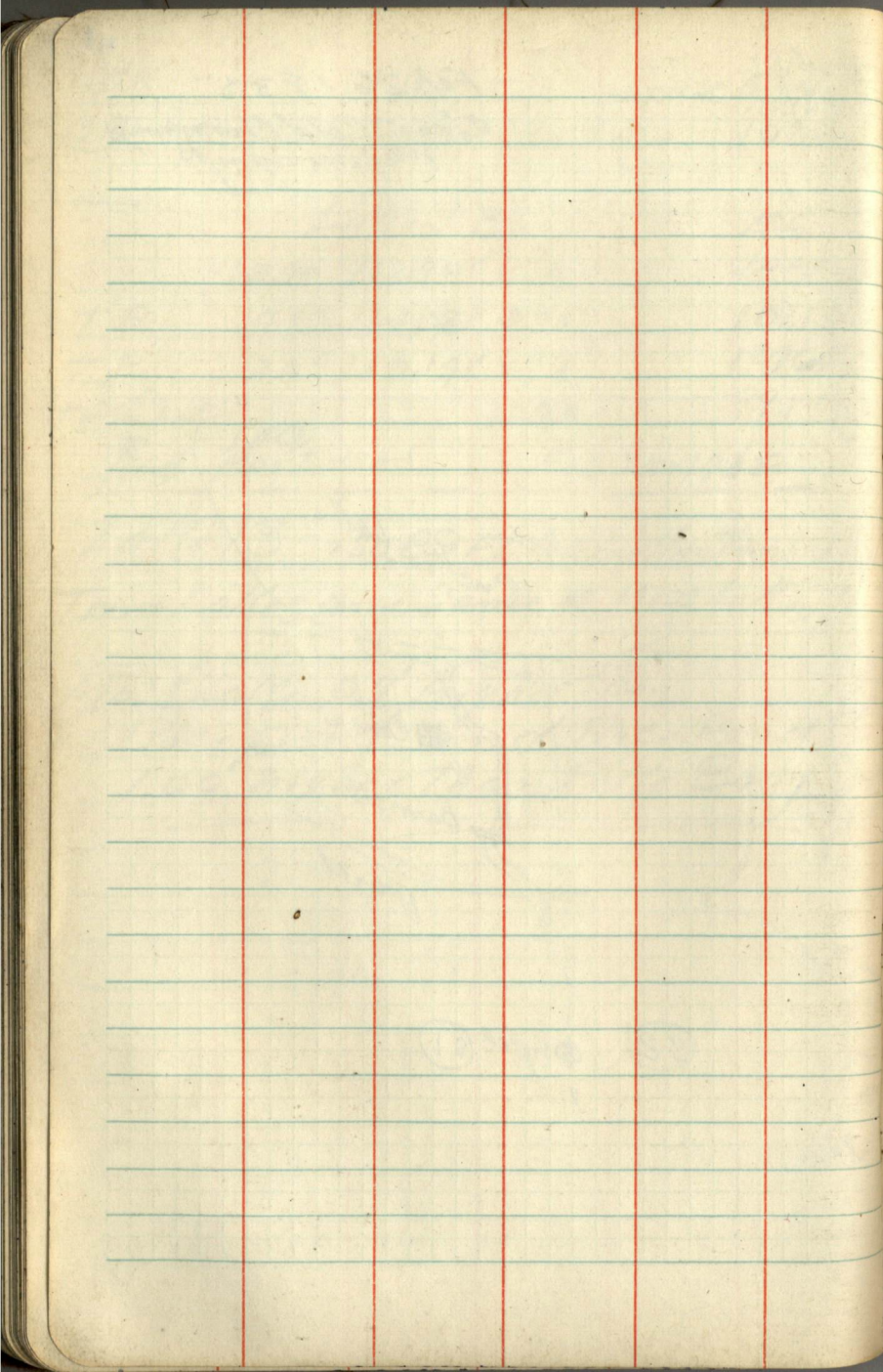
1935
 Rod Martinson Feb 25-1935

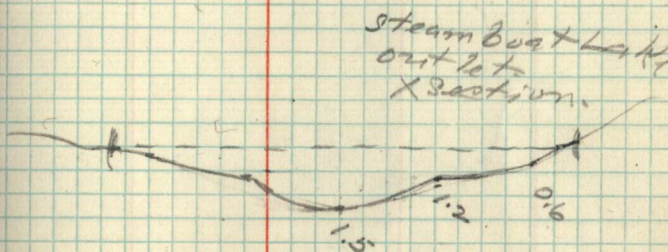
Lake 13 - 150.89 Ft. higher than Twin Lakes
 Twin Lakes are same as Moss Lake.

Moss Lake 0.7' higher than
 Rice Pond and Rice Pond
 1.00' higher than Pike Bay.

Feb. 26. 1935
 Clear Cold Morning
 warming up.







Vel. 0.5' per sec.
Feb 25-1935

Levels for Sewer Administ.

100.00
56.5

+ H 1 -

94.35

Exp
100.00
10.00

M H. 6.25 106.25

St. 5.0 101.25

TP 3.98 107.88 235 103.90

top of cement wall SE cor. 5.70 102.18

Cass Lake. Mar 5th 1935
Dist. about 1000 ft

giving 3' drop in 900 ft. = 4.8' below top of cement wall

102.18

7.3

1460
1275
185

94.35
10.00
4.8

4.8
2.5

Lake
1275

1300 1315

1460
1275
185

1430-1440
1441 1445

1456

1435

1460

1480

Noon.

at X Road 1433' 1440 1430

at Car 1425 1430

Shingobee Riv. 1307
at bridge

Road X West 1410
of 134

B.M. 1405-1410 ✓
(1408.79)

Shingobee Lake 1325.

" River 1/2 way down 1305

A possible 20' Head the most.

14 sq. Miles of watershed the most

with 18" Rainfall per year

over absorption and evaporation,

which is possible only in
extraordinary wet years.

will produce 18.4 C.F.S.

The Shingobee River now (Mar. 13-35)
passes 14.5 C.F.S. which is mostly
from springs.

Figuring then 32.9 C.F.S. with a
20. Ft. Head, this is taking the
most favorable conditions
possible in consideration
would produce only 67. H.P.
on the average for the year.
89.6% Eff.

Mar. 13-35

53

35' in. 60" at X section

Shingobee River
below Leach Lake

X Section. 25 sq. Ft. C.F.S. = 14 1/2
with 28' Head would produce 35 H.P.

Mar. 14-

Longville. Elev. 1330-1350

River above dam 1335 (1330)

" below " 1330 1325

End of trail Lake 1312

Boy River Dam Project; -

Elevation of Leach Lake 1295.

" " " Boy River where
it crosses T.H. #34 in

Sec. 9-T. 141 N. R. 27 W. is 1301

Elev. of Inquadama Lake is 1311.

" " Creek below dam
at Longville 1325

Elev. of Girl Lake - 1330. } Dam. 5 Ft.

Creek below dam Dry.

Water taken up by absorption
and Evaporation

Dam Fair condition Private.
Part Cement.

54
 Old Nursery Tel. Pole Line
 Mar. 18-1935

1232
 154
 1386
 91
 1295

2 in

4600

1386
 154
 1540

3960
 6000
 4560

154
 8
 123234

154
 7
 10783

154

924

154

770

154

616

154

462

154

108

3154

154

360

19- x x x x □
 17

2800' of
 wire

154
 14
 616
 154
 2206
 2251
 462
 2713

10	1570	x	
9	1386	x	
5th 8-	1295	x	Francis Co.
	1230	x	
		1/3	
7	154	x	9-29-
6	308	x	25+521.25
5-	462	x	1.6+
4	616	x	2.0-
3	770	x	2.4-
2	924	x	2.75
1	1078	x	3.1
0	1232	x	3.5

5 1/2 @ 4000

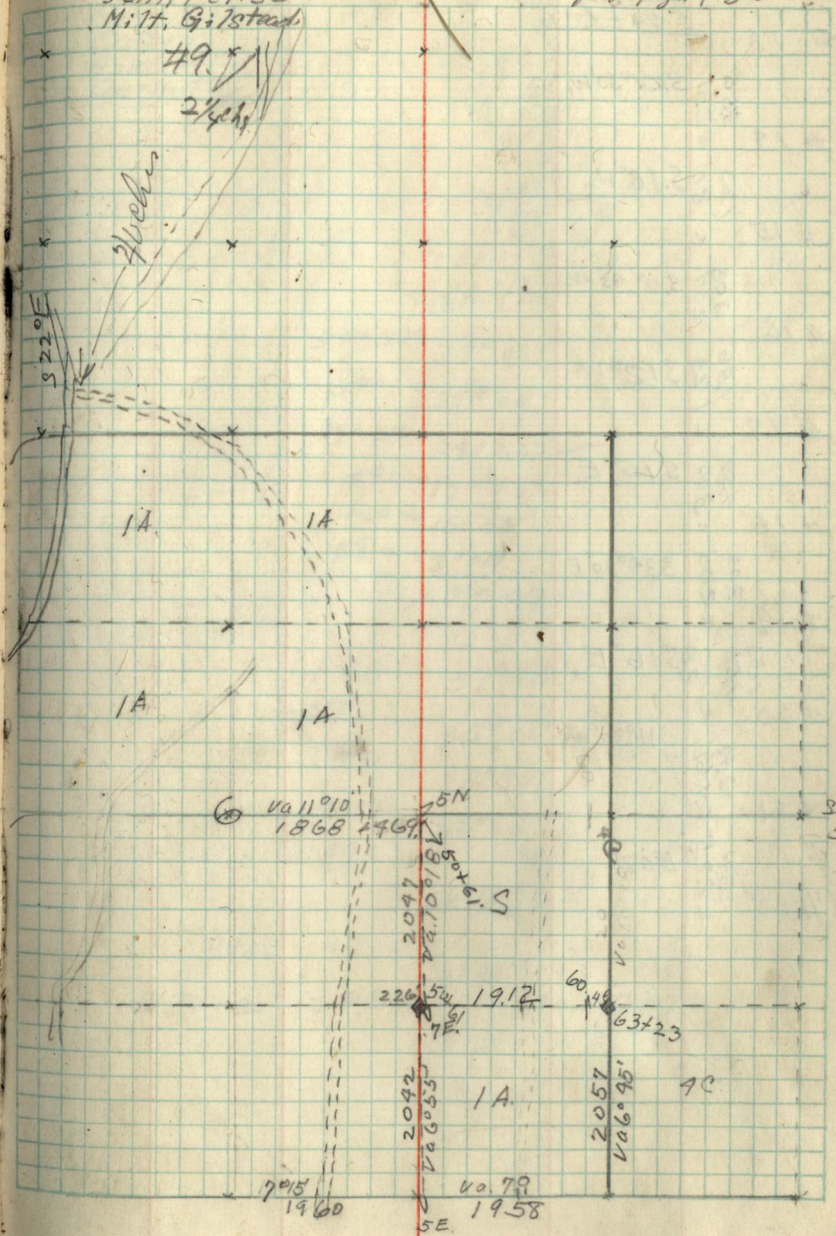
312 cor.

Sta.	Course	Logcos.	Logsin	Lat. S+ N-	Dep. E+ W-
0	S 90° 15' E	5.62049			
	S 90° 16' E	5.71141			
L #1					
	S 32° E.	5.83			
#2	S 25° E	4.54			
#3	S 42° 45' E	4.54			
#4	S 31° 30' E.	4.06			
#5	S 63° 15' E.	5.31			
#6	S 78° 45' E.	2.63			
#7	S 60° 30' E.	4.02			
#8	S 68° 30' E.	3.03			
#9	S 49° E.	1.51			
#10	S 126° E.	5.75			
#11	S 16° W.	4.54			
#12	S 36° 45' W.	1.62			
#13	N. 86° E				

Fill.
Lows water.
cutvert.

John Peitso
Milt. Gilstead

T 643 0730



Sta.	Dist.	Bearing	Log Cos.	Log Sin.
# 13	14 L ^{me}			
# 14	350 123 81	S. 01° 30' W.		
# 15	123 81	S. 18° W.		
# 16	309 200	S. 0° 45' W.		
# 17	186 123	S. 12° W.		
# 18	159 300	S. 15° E.		
# 19	303 200	S. 34° 30' E.		
# 20	133 151 188	S. 16° E.		
# 21	244 225	S. 11° 30' W.		
1/160	391 225	East		

Mar. 20-

E. Martinson.
N. Olsen
D. Anderson
S. Demuth.

1868
5061
9.29

1320

1234

5061
295
295

18' N. of 1/16 L^{me}.

250

50750

38° 05'

140

50

31° 05'

70

49750

24° 05'

49

17° 05'

+60

10° 05'

48

3° 05'

x Pc. 47+78

70

+68

37° 15'

10 05'

+50

35° 00'

250

50

28° 45'

22

450

22° 30'

100

49

16° 15'

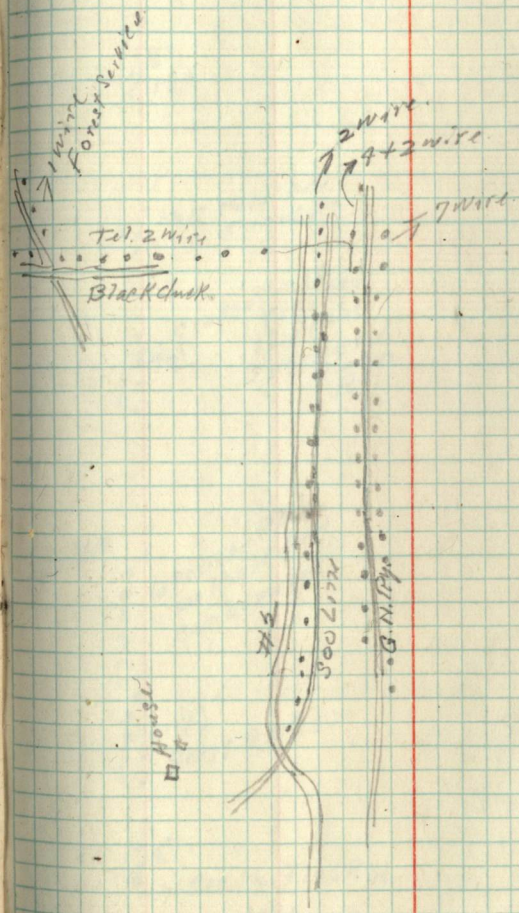
28

3.08

Sta. 48 =

#20-20' = P.C. x Sta. 47+70

Improvements along U.S. #2
and Blackduck Road.
Mar 22 - 35
weather cloudy



Tel. Po. to line to
Bama.

8
14.0 M.

8
13.6

8
13.1

120 Poles
T145R30

Center Sec. 14
T145R30
12.3 Miles
Just passed
center
RT.

Blackhand
6 poles of R. 14
on P. 19 at way
can be moved.

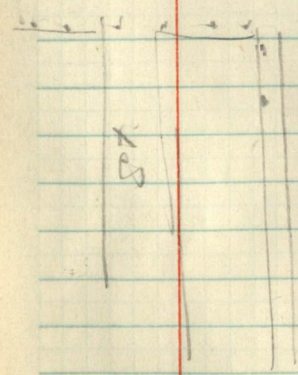
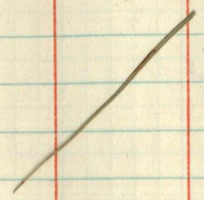
11 1/2
Sec. 17 T145R30

10 8
16
Sec. 13 T145R31
RT

8
17.9

16.0

Part A



Starting

Point
2 1/2 chs. on 1/16 line E. of S.E. cor. Lot 4 Sec 6. T193R30

(Va. 70)

0
0.62 chs. S 54° 30' E

1
1.09 x S 65° 15' E

2
1.57 S 85° 15' E

3
1.71 N 48° 15' E

4
1.17 x N 40° 30' E

5
0.97 N 71° 30' E

6
2.69 x N 52° 15' E

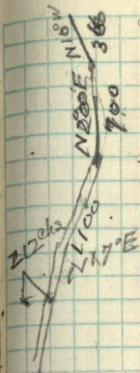
7
2.84 N 33° 30' E

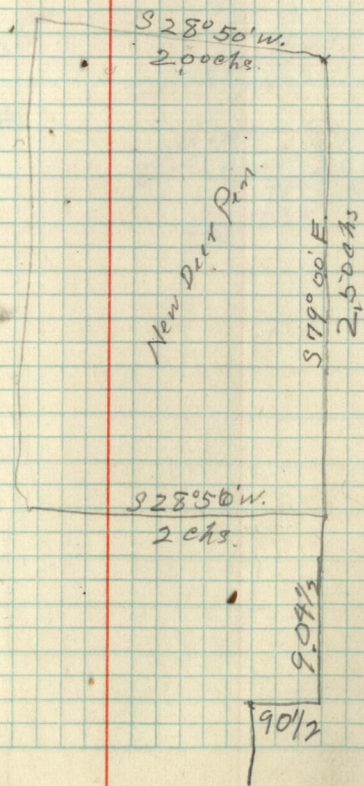
8
1.72 N 76° 30' E

9
1.97 S E of old # 3

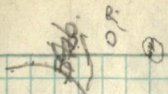
old # 3
1.53 S 47° 30' E

May 14-35 Carl Ramstead. P. Morley
(E. LaChapelle)





US



0.1
US

0.5-6
17.11

63
Sec. 9 T149R.26

US

Sec. 1

AB

U.S.

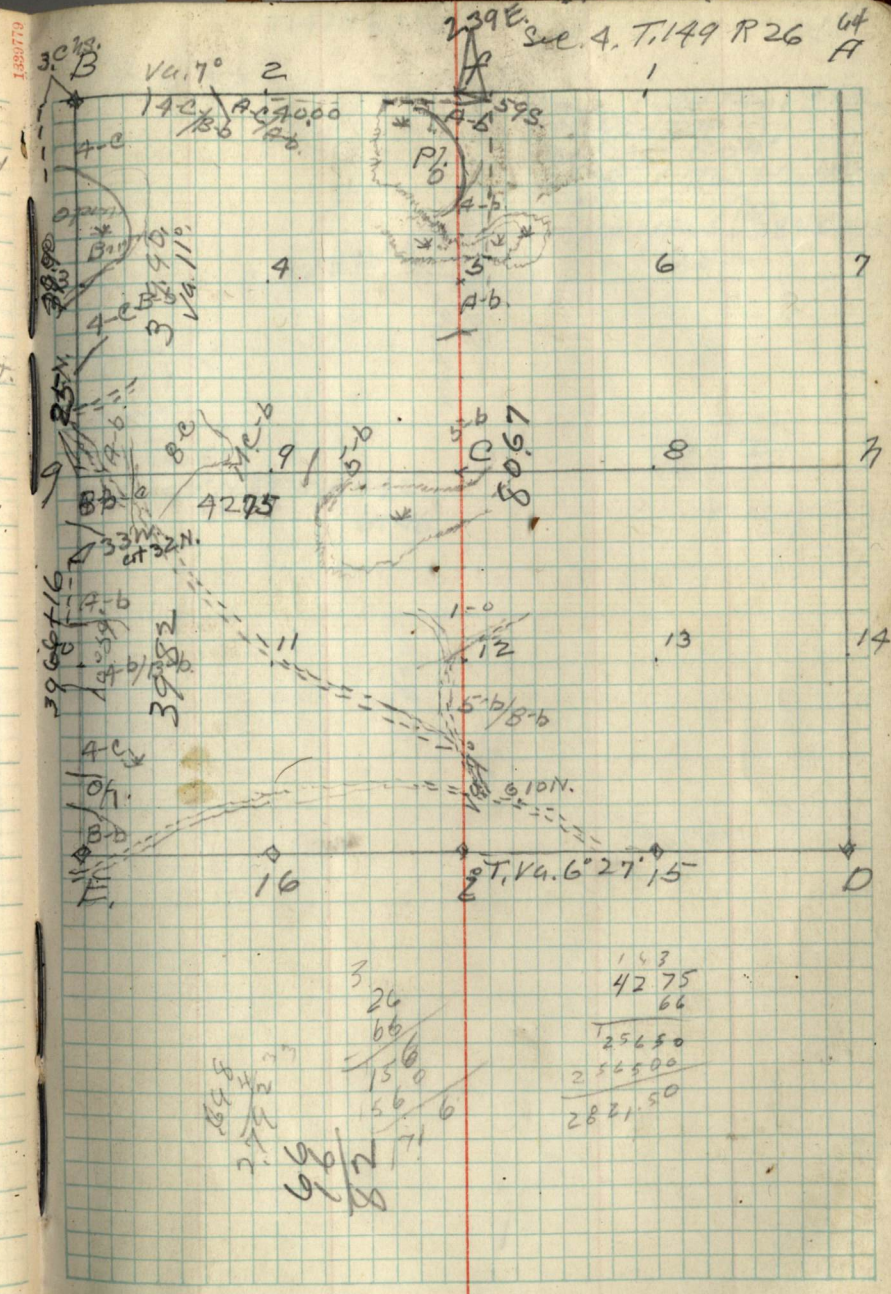
US

Corner Notes

Cor. Pt.	Spec.	Dir	Bear.	Dist.	Remarks
g.	Bark	17°	S 64° W	26	old Bt. Post. Head
	Spr.	6°	S 53° W	16 1/2	→ Placed Post.
B	Cedar	10°	N 40° W	26	old Bt.
	"	5°	S 70° W	6	Post. Placed 4" Cedar Post.
f.	N Pine St	10°	N. 30° E	13	Found 28750 ft.
	"	10°	S 9° E	8 1/2	N Pine St Cor.

33
 16.5
 66
 1990
 9900
 10890

Benton.



3.26
 66
 156
 560
 716
 153
 4275
 66
 25650
 256500
 282150

2873
2670

1939779

T147N R30W

8/27/35

Canto Road

65

Found old Pine St. Bur.
Checked Off.
N. 62° E 55.4'
Planted 130' W. 16' x 10'
Point up to
Mtd. N. Pine S. 80° 15' E. 156.3
Va 8° 30'

12' E to C. P. Road

148° 30'
26596.6

(S 11)

NK 1/4 NW 1/4
Poplar 12° N. 87° 15' W. 44.2'
Va. 9° 67.46.

132 1/2

(S 12)

T147 R30

N 10° W
2636

Va. 50'

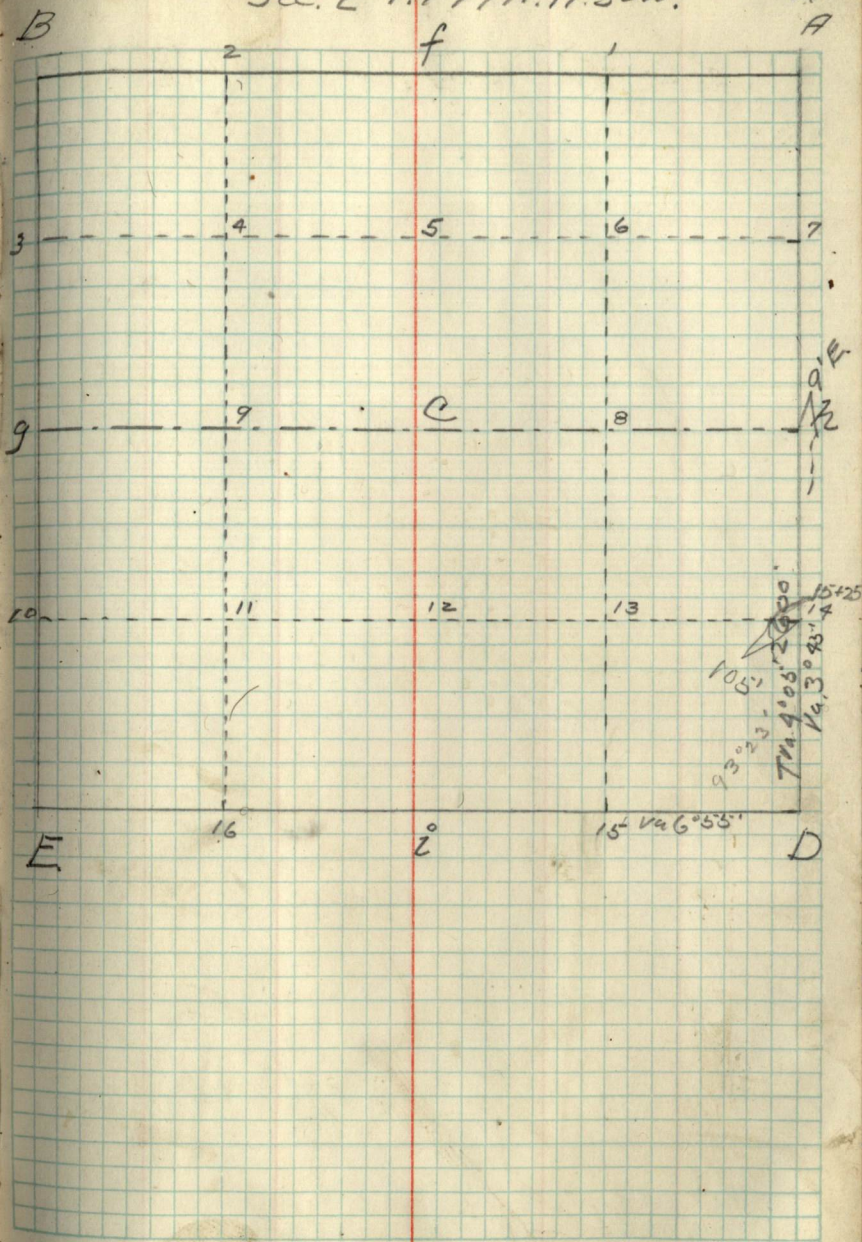
Va. 7° 50'
2675

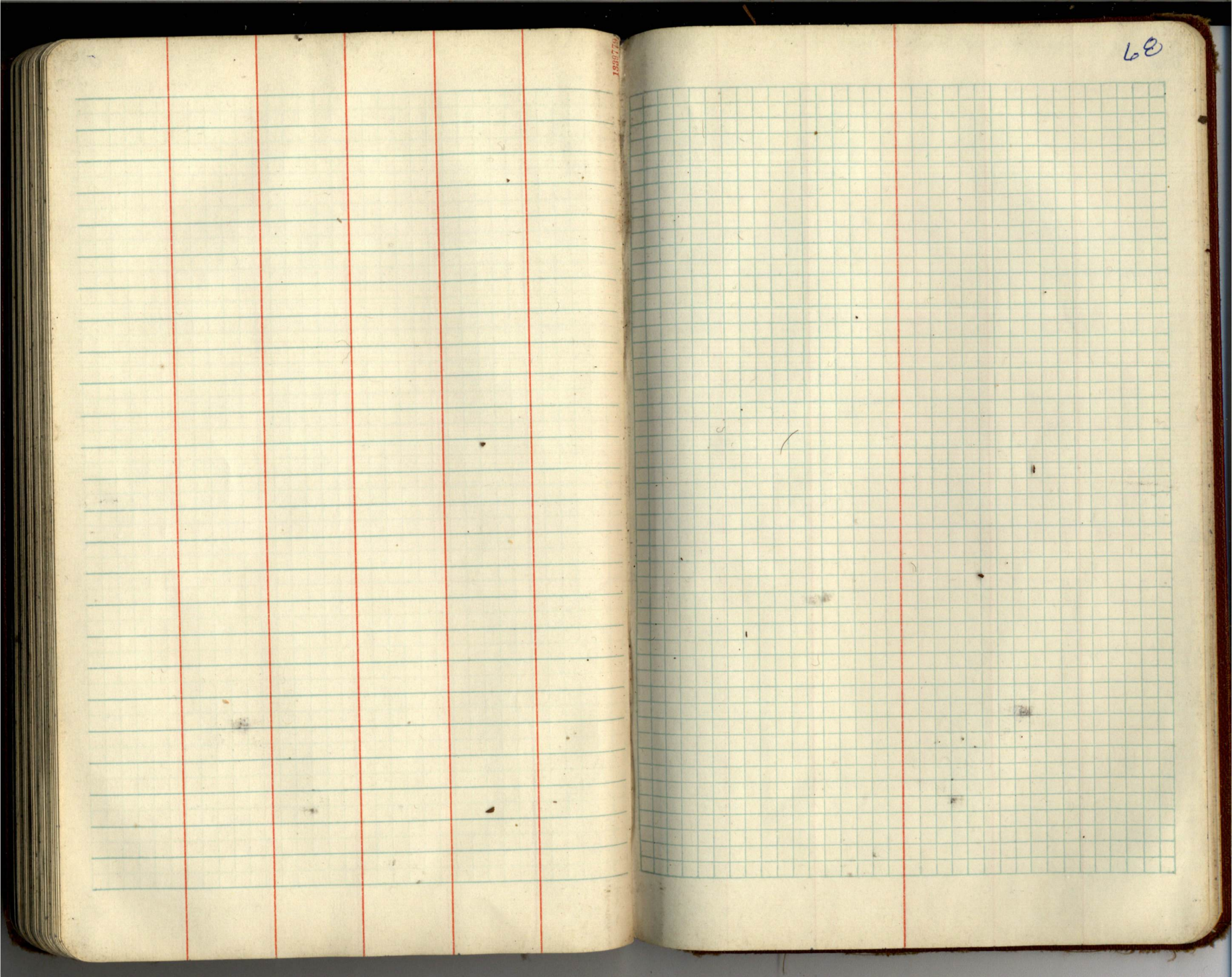
Corner Notes.

Cor. At.	Spec.	Dir.	Bearing	Dist	Remarks
7					
7	Aspen	8"	S54°40'E	85.3'	Found old Va. 70 post + B.T.O.N.
7					

Sec. 2 T. 147 N. R. 30 W.

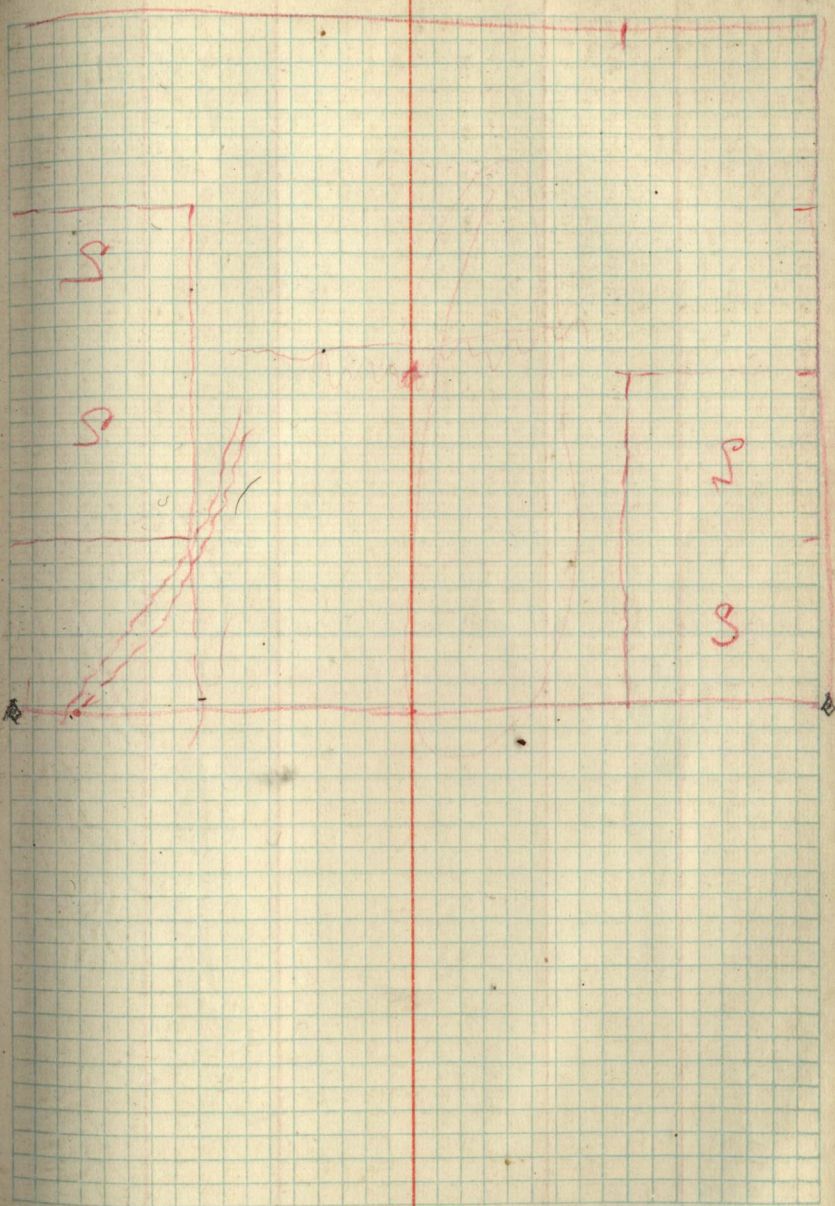
4
A





68

Sw 24 7147930 69



1

70

Sec. 3-T/45 R. 30 72

~~A-b~~ ~~M-b~~ ~~M-b~~ ~~M-b~~ ~~M-b~~ ~~M-b~~ ~~M-b~~

M-b

M-b

A-b

M-b

74
ST

Levels for Camp

+ H.I. -

Gr. Tr. 7.70 107.70

1 30' 3.63
2 100' 6.13
3 66' 5.05

EM
10000
104.07
101.57
102.65

$\frac{10}{4} = 2 \frac{1}{2}$

Sum
5736
11478
5736
6888
81915
163830
81915
982980

855° W

Natural Trigonometrical Functions.

Angle.	Sine.	Tan.	Sec.	Cosec.	Cotg.	Cosine.	Angle.	Sine.	Tan.	Sec.	Cosec.	Cotg.	Cosine.
0°	0	0	1.	∞	∞	1.	90°	1.	∞	∞	0	0	0
10	.0029	.0029		343.8	343.8	1.	50	.1392	1.405	1.0098	7.185	7.115	.99027
20	.0058	.0058		171.9	171.9	.99998	40	.1421	1.435	1.0102	7.040	6.968	.98986
30	.0087	.0087		114.6	114.6	.99996	30	.1449	1.465	1.0107	6.900	6.827	.98944
40	.0116	.0116	1.0001	85.94	85.94	.99993	20	.1478	1.495	1.0111	6.766	6.691	.98902
50	.0145	.0145	1.0001	68.76	68.76	.99989	10	.1507	1.524	1.0115	6.636	6.561	.98858
1	.0175	.0175	1.0002	57.30	57.29	.99985	89	.1536	1.554	1.0120	6.512	6.435	.98814
10	.0204	.0204	1.0002	49.11	49.10	.99979	50	.1564	1.584	1.0125	6.394	6.314	.98769
20	.0233	.0233	1.0003	42.98	42.96	.99973	40	.1593	1.614	1.0129	6.277	6.197	.98723
30	.0262	.0262	1.0003	38.20	38.19	.99966	30	.1622	1.644	1.0134	6.166	6.084	.98676
40	.0291	.0291	1.0004	34.38	34.37	.99958	20	.1650	1.673	1.0139	6.059	5.976	.98629
50	.0320	.0320	1.0005	31.26	31.24	.99949	10	.1679	1.703	1.0144	5.955	5.871	.98580
1	.0349	.0349	1.0006	28.65	28.64	.99939	88	.1708	1.733	1.0149	5.855	5.769	.98531
10	.0378	.0378	1.0007	26.45	26.43	.99929	50	.1736	1.763	1.0154	5.759	5.671	.98481
20	.0407	.0407	1.0008	24.56	24.54	.99917	40	.1765	1.793	1.0160	5.665	5.576	.98430
30	.0436	.0437	1.0010	22.93	22.90	.99905	30	.1794	1.823	1.0165	5.575	5.485	.98378
40	.0465	.0466	1.0011	21.49	21.47	.99892	20	.1822	1.853	1.0170	5.488	5.396	.98325
50	.0494	.0495	1.0012	20.23	20.21	.99878	10	.1851	1.883	1.0176	5.403	5.309	.98272
1	.0523	.0524	1.0014	19.11	19.08	.99863	87	.1880	1.914	1.0181	5.320	5.226	.98218
10	.0552	.0553	1.0015	18.10	18.07	.99847	50	.1908	1.944	1.0187	5.241	5.145	.98163
20	.0581	.0582	1.0017	17.20	17.17	.99831	40	.1937	1.974	1.0193	5.164	5.065	.98107
30	.0610	.0612	1.0019	16.38	16.35	.99813	30	.1965	2.004	1.0199	5.089	4.989	.98050
40	.0640	.0641	1.0020	15.64	15.60	.99795	20	.1994	2.035	1.0205	5.016	4.915	.97992
50	.0669	.0670	1.0022	14.96	14.92	.99776	10	.2022	2.065	1.0211	4.945	4.843	.97934
1	.0698	.0699	1.0024	14.34	14.30	.99756	86	.2051	2.095	1.0217	4.877	4.773	.97875
10	.0727	.0729	1.0027	13.76	13.73	.99736	50	.2079	2.126	1.0223	4.810	4.705	.97815
20	.0756	.0758	1.0029	13.23	13.20	.99714	40	.2108	2.156	1.0230	4.745	4.638	.97754
30	.0785	.0787	1.0031	12.75	12.71	.99692	30	.2136	2.186	1.0236	4.682	4.574	.97692
40	.0814	.0816	1.0033	12.29	12.25	.99668	20	.2164	2.217	1.0243	4.620	4.511	.97630
50	.0843	.0846	1.0036	11.87	11.83	.99644	10	.2193	2.247	1.0249	4.560	4.449	.97566
1	.0872	.0875	1.0038	11.47	11.43	.99619	85	.2221	2.278	1.0256	4.502	4.390	.97502
10	.0901	.0904	1.0041	11.10	11.06	.99594	50	.2250	2.309	1.0263	4.445	4.331	.97437
20	.0929	.0934	1.0043	10.76	10.71	.99567	40	.2278	2.339	1.0270	4.390	4.275	.97371
30	.0958	.0963	1.0046	10.43	10.39	.99540	30	.2306	2.370	1.0277	4.336	4.219	.97304
40	.0987	.0992	1.0049	10.13	10.08	.99511	20	.2334	2.401	1.0284	4.284	4.165	.97237
50	.1016	.1022	1.0052	9.839	9.788	.99482	10	.2363	2.432	1.0291	4.232	4.113	.97169
1	.1045	.1051	1.0055	9.567	9.514	.99452	84	.2391	2.462	1.0299	4.182	4.061	.97100
10	.1074	.1080	1.0058	9.309	9.255	.99421	50	.2419	2.493	1.0306	4.133	4.011	.97030
20	.1103	.1110	1.0061	9.065	9.010	.99390	40	.2447	2.524	1.0314	4.086	3.962	.96959
30	.1132	.1139	1.0065	8.834	8.777	.99357	30	.2476	2.555	1.0321	4.039	3.914	.96887
40	.1161	.1169	1.0068	8.614	8.556	.99324	20	.2504	2.586	1.0329	3.994	3.867	.96815
50	.1190	.1198	1.0072	8.405	8.345	.99290	10	.2532	2.617	1.0337	3.949	3.821	.96742
1	.1219	.1223	1.0075	8.206	8.144	.99255	83	.2560	2.648	1.0345	3.906	3.776	.96667
10	.1248	.1257	1.0079	8.016	7.953	.99219	50	.2588	2.679	1.0353	3.864	3.732	.96593
20	.1276	.1287	1.0082	7.834	7.770	.99182	40	.2616	2.711	1.0361	3.822	3.689	.96517
30	.1305	.1317	1.0086	7.661	7.596	.99144	30	.2644	2.742	1.0369	3.782	3.647	.96440
40	.1334	.1346	1.0090	7.496	7.429	.99106	20	.2672	2.773	1.0377	3.742	3.606	.96363
50	.1363	.1376	1.0094	7.337	7.269	.99067	10	.2700	2.805	1.0386	3.703	3.566	.96285
							82	.2728	2.836	1.0394	3.665	3.526	.96206

Cosine. Cotg. Cosec. Sec. Tan. Sine. Angle. Cosine. Cotg. Cosec. Sec. Tan. Sine. Angle.