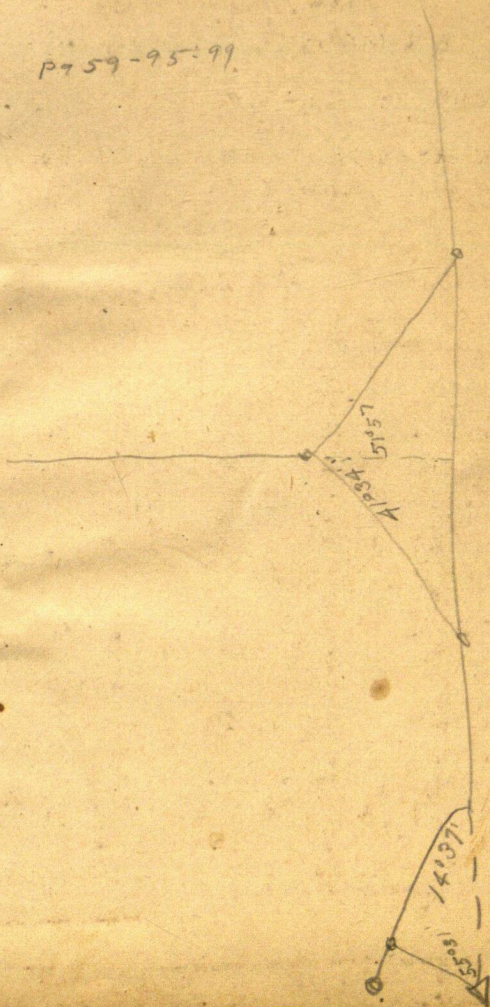


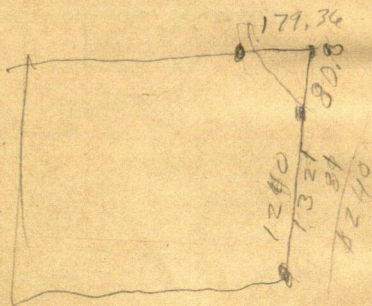
64.

MINING  
TRANSIT BOOK  
363

p 59-95-99







# Index.

## Pages

Scott in sec 20-139-31. 1 to 18.

1914 Horst on Twp roads 137-30: 18 " 22.

1916. " " " " " 22, 39.

1916/1917 Horst on Cobbans lots 135-29-42 to 63

Horst on Co road 136-30-1917-64 to 90

Cobbans, Lots again 135-29.5-29-1917 92 to 100

142-31 Curo Road N. from H. 21/20 39-40

17-139-31 Horst & Farrelly

17 139-31 Horst

Curo 1917 Pg 127

Plats



-1-  
Monday Sept. 20, 1915. 1

Baldwin + Scott. get big Motor  
boat + go to O. Connells. I get  
H. + B. Transit, 100' chain, flag,  
+ axe. Baldwin remains. I  
return to Walker. And go to  
Cord's office where we look  
over notes on Sec 20, 139-31  
take 9.27 A.M. Train for Backus.  
Where I am to meet Geo.  
Thompson who will take  
me to John Luitens.

Mr. Thompson arrives in P.M.  
have dinner at Fairview  
Hotel (35cts)

P.M. go to G. Luitens. to  
board, arrive too late to go  
into field.

Boat Hire accrost Leech  
Lake \$2.00

The whole day has been  
rainy with heavy wind

Railroad fare to Backus \$1.49.

J. M. Scott.

Tuesday Sept. 21<sup>st</sup> 1915Clear, cool, & windy.  
Breakfast 7 A.M.Record No.  
2  
496

P.M. Scott. H + B Transit

J.C. Compton Axe

E. Luiten Axe

L. Holden. Flag + Chain.

We go to N.M. S.W. cor Sec.

- (177) (27) Set by John W. Curo.  
and start South random.  
line running east. On 10°  
variation. Chaining with  
100' steel tape.

1452.2 Hub.

2341.2 Hub.

3000.3 Hub.

3952.1 Hub.

4324.5 Hub.

4765.0 Hub.

5098.5 Hub.

Could not locate  $\frac{1}{4}$  cor.Cruised for N.E. Sec cor. but  
think B.T.s have been re-  
moved by fires. as all stump  
s. are badly burnt.

P.M. Scott.



# Time Sheet for Dec 20-139-31

	20	21	22	23	24	25	26	27	28	29	30	31
September												
P.M. Scott.	1	1	1	1	1	<sup>PM</sup> 1 1/2	1	0	0	<sup>PM</sup> 1/2	1	
L. Holden.	0	1	1	1	1	0	1	0	0	1/2	0	
E. Luiten.	0	1	1	1	1	1/2	1	0	0	1/2	1	
J.C. Canotad.	0	1	1	1	1	0	0	0	0	0	1	
Gert Luiten.	14	14	1	1	1	1	1	1	1	1	1	
Board	143M		3	3	3	3	3	3	3	3	3	
Chw Curo												

Adgings  
Heals

- 5 -

#

-4-

Wednesday Sept. 22<sup>nd</sup> 1915

Breakfast 7 A.M.

Clear, Cool, + windy.

Scott H + B. Transit + chain

Holden Axe, Flag + chain.

Luiten Axe

Campton Axe.

We start at N.W. Cor. 1/4 Sec.

20-139-31, run east

at 10°15' var chaining with

100' steel tape.

1063.4 Hub.

1810.5 ✓

3303.7 Hub

4248.4 Hub.

Cruised for 1/4 C. or but  
could find no evidence of  
bearing trees

Quit for night

Note. Heavy growth of fireweed Jack.  
pines, + heavy brush.

P.M. Scott.



- 5 -

5

Thursday Sept 23<sup>rd</sup> 1915

Breakfast 7 A.M.

Clear + warm.

Scott H + B Transit. + Chain.

Holden Axe + Flag.

Luiten Axe.

Campton Axe.

We continue running east on  
N. random. Brush heavy.

4344.3

Hub.

5050.7

Hub.

5338.4

Hub.

P.M.

Same Party + Tools.

We go to E. 1/4 1.M. (set by curo). of

Sec 17-139-31 run So on 9° Var.

1083.9

Hub.

1858.9

Hub.

quit for night

P.M. Scott.

6

-6-

Friday Sept. 24<sup>th</sup> 1915

Breakfast 7 A.M.

Threatening rain, windy

Scott. H &amp; B. Transit &amp; Chain

Holden axe &amp; Flag &amp; Chain

Campton axe

Luiten Axe.

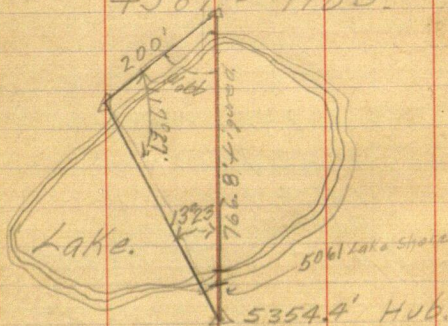
We continue running So. on  
C/2 of Section 7-139-31

2224.9 Hub.

3864.0 Hub.

4384.5 Hub

4587.6 Hub.



Rain 4 P.M.

Quit for night

I find one B.T. for N. E. cor. 20-139-31

P.M. Scott



-7-

Saturday Sept. 25, 1915

Breakfast 7 A.M.

Rainy all A.M.

No Work.

P.M. Threatening rain

Call up Ed Luiten and altho  
rainy he is in favor of cruising  
for B.Ts of S. Ecor of 20-139-31  
We look all P.M. for same  
but are unable to locate  
any. Stumps are badly burned.  
quit for night 5.30 P.M.

J.M. Scott.

8

8

Sunday Sept. 26<sup>th</sup> 1915

Breakfast 7 A.M.

Clear + Cool

P.M. Scott. H + B. Transit.

E. Holden Axe + Chain

E. Luiten. Axe + Flag.

We continue running So  
on E random Line Sec 20-13931

6556.8 Hub.

We cut line until we inter-  
sect So random line quit for  
night.

P.M. Scott.



9-

9

Monday Sept. 27<sup>th</sup> 1915

Breakfast 7 A.M.

Rain all day.

No work.

P.M. Left.

(12)

- 10 -

Tuesday Sept 28<sup>th</sup> 1915

Breakfast 7 A.M.

Rain all day.

No work.

P.M. Luth.



- 11 -

11

Wednesday, Sept. 29<sup>th</sup> 1915

Breakfast T.A.T.

Rain A.M. Cloudy P.M.

No work. A.M.

P.M.

P. T. Scott. H + B. Transit.

Holden Flag, chain, + axe

Luiten. Axe

So. H + Holden chain the remainder of East random

7396.8 Hub.

We then continue running on So random going east. Starting our chainage from  $\Delta 5098.5$

5590.7 Hub.

P.M. Scott.

12

12  
Thursday Sept. 30<sup>th</sup> 1915

Breakfast 7 AM.  
cloudy & Cool

Scott H + B Transit.  
Holden Axe. (Fails to come to work)  
Compton. Chain + Axe  
Luiten. Axe + Flag

We continue running East  
on So. Randem. Triangulate Lake  
as follows.

$$\text{Sine A} :: \text{Sine C} :: 150 :: C.$$

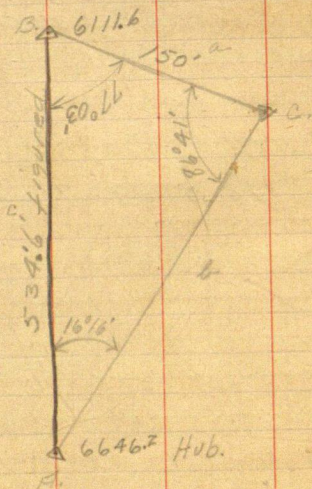
$$28011 :: 99833 :: 150 :: C.$$

$$\therefore \frac{99833 \times 150}{28011} = C$$

$$\begin{array}{r} 99833 \\ 150 \\ \hline 4991650 \\ 99833 \\ \hline 28011 \end{array}$$

$$\begin{array}{r} 28011 \quad 4991650 \quad 1534.6 \\ 120035 \\ \hline 96945 \\ 89833 \\ \hline 129120 \\ 112044 \\ \hline 170760 \\ 168066 \\ \hline \end{array}$$

$$\therefore C = 534.6$$



$$\Delta 67939 \text{ Hub.}$$

B.M. Scott.



J. M. Scott.

-14-

Friday Oct. 1<sup>st</sup> 1910

Breakfast 7 A.M.

Rain 7 A.M. Cool P.M.

P.M. Scott. H+B. Tronbit.

E Luiten. Axc. + Flag.

Id checking Gov. chainage etc

find that they have 5289.9

for So Boundary of Sec 20-139-31

and the  $\sqrt{2}$  of S. Boundary of

Sec 21-139-31 = 2640

our chainage of S.M.C. = 7980.3

$\therefore 7980.3 = 7929.9$

at 7980.3 Temp  $\frac{1}{4}$  cor sets N. 62'

soot 5323.5 The Temp S, E cor

Sec 20-139-31 sets N. 41'

We set Temp Sec cor.

At 90° from Ea random

line sta. 7909.8 Temp Sec

Cor sets West 50'

We then go to N. East

cor. of Sec. 20- and from

B.T.s. which are as follows.

Tan. 6 N 60 W 59

8588 E 56

W. Pine 76 22  $\frac{3}{4}$  E 79

Aspen 76 3  $\frac{1}{4}$  W 29

P.M. Scott.



Friday Oct. 1st Cont.

The B.T. shows plainly on 6" Tamrack, and from this we find remains of other bearing trees. Set Cor (Temp) with flat chain distances check out. alignment good.

We find that Temp sec Cor sets 109.0' South of North random. at  $90^\circ$  Sta. 5334.3  
 $90^\circ$  from E. random. Sta. 2647.8  
 Temp sec Cor sets w/ B.B.

If Cor sets 50  $109^\circ$  at 5334.3  
 Then At Hub. 1063.4 Line runs 50  
 21.7'

At 1063.4 of N. Random.  $90^\circ$   
 50 21.7 we place a hub.

With Hub as transit pt.  
 and True N.E. 1/4 of sec 20  
 as B.S. we start running.  
 Correction line East to  
 Temp Sec. Cor. cutting  
 brush + hubbing.

P.M. Scott.



-16-  
Saturday Oct. 2nd 1915

Breakfast 7.30

Rainy A.M. Threaten rain P.M.

'South. H. & B. Transit.

Luiten. Aret. Flag.

Holden Axe.

C. Seward Axe.

F. Seward Axe.

We continue running  
east on N. Correction Line  
Brushing & Setting hubs.

Find Temp sec. cor. sets  
North 0.5 ft.

At the request of J. Luiten  
I make statements, as to  
cost of Survey. The  
Board meets. And receive  
compensations to date.

Return to Walker in P.M.

P.M. Luit.

Record No.  
496.

# Time sheet to October.

Dec 20-139-31

October	1	2
P. M. Scott	1	1
Ed. Luiten	1	$\frac{1}{2}$
L. Hatten	0	$\frac{1}{2}$
cl. Compton	0	0
Frank Edward	1	$\frac{1}{2}$
Gert Luiten Board	3	
Chas. Edward	0	$\frac{1}{2}$



18

Twp roads 137-30.

Thursday, May 4th 1916.

J.W. Curo and E.B. Horst all day  
Looking thru record book and sketching  
Plats, also get U.S. Plats & copy  
necessary field notes of previous  
surveys in Walden Twp (137-30)  
Working for Walden Twp board  
to make a survey of several roads  
as per their order. Notes of surveys  
on pages following

E.B. Horst.

264

264

Swamp roads 137-30.

264 - 19

Friday, May, 5 - 1916.

Curo and Horst get survey instruments and leave Walker for Pine River on 9-28 train. R.R. fare each. \$0.67 cts

at Pine River Curo orders a car from the Andrews (Lagoff) to drive us to Ole Haugen's farm. Curo takes me to sec cor of 2-3-10+11 which is the starting pt of the road to be surveyed and returns to Pine River with car. Ole Haugen who is to help me on survey is not at home so I walk to J. D. Thompson's to telephone to Alf Olson in regard to iron monuments for established corners along road route but Olson is not at home. I return to Haugen's and wait until 6 P.M. to call Olson again.

I had dinner at Ole Haugen's auto livery from Pine River to Haugen's \$1.50

E. B. Horst.

264



264

Saturday, May, 6th. 1916.

Forest engineer with instruments and Mr Ole Haugen chain & axe begin work on the Haugen road to begin at cor to 2-3-10-11 and run S 8 ords more or less to connect with E+W road known as the Pine River road.

We begin at cor to sec 2-3-10-11 where we find a large post set by Curo in 1908 June 18 and find same to check with stumps of B's and his notes.

We run line S and chain at  
at 10 ft S enter Tamek swamp

" 470 " " leave " "

" 1135 " " enter creek bottom

" 1235 " " center of 5 foot creek

" 1265 " " leave creek bottom

" 1363.75 " " I find to cor <sup>Post</sup> set by Curo which is in center of graded

E+W road and at N end of a graded road running S we continue line S at

" 2268.5 " " set W. Pine Hub

" 2727.5 " " find to cor set by

264 Curo

137-30.

264

21

Saturday May 6, 1916. Continued  
Continue S and find point of a post **264**  
(on line and at 5455 ft S as shown  
by Curo's notes) set by him as cor to  
Secs 10-11-14-15

P.M. Anton Haugen brings a sack  
of cement and box in which to mix  
same we set 8 in cement cor 3 ft  
long in ground at Pt for cor to Secs  
2-3-10-11 putting a small stone in  
top for true pt driving to N to we  
set another cement cor the same way  
also at  $\frac{1}{4}$  cor and at cor to sections  
10-11-14-15 which concludes this  
survey

at 6 P.M. P.O.M. Andersson comes  
with team and takes me and  
outfit to his place in Sec 32-137-30  
where I get supper and stay  
over night

E.B. Horst.

264



22

Lindfors road 137-30

320

Sunday May 7-1916.

cool and windy  
at R.O.M. Andersons place  
all day no work.

E.B. Horst.

320

Lindfors Swamp road 197-30. 23  
Monday. May-8-1916. 320

Horst, Transit, and P.O.M.

Anderson go to cor of Secs 17-18-19  
20 with outfit where we meet  
Ole Hopfen and Werner Lindfors  
apemen I set transit over a post  
O.S. Notes Call for

OW. Birch 16 N 11 W 57. = 37.62

" " 8 N 59 E 14. = 9.24

" " 7 S 73 E 11. = 7.26

Lind 7 S 80 W 54. = 35.64

the landowners tell me this is the  
Pt where the old cor was so I take  
the course and distance of the S-W Lind  
tree and find the stump at exact pt  
also stump of N.W. birch at exact pt  
I consider this sufficient evidence  
with the testimony of the landowners  
the other trees are gone entirely

Run line N from this cor at 8-30 Var  
Chaining + setting hubs

run thru open field at edge of bush  
at 330.5 <sup>English</sup> ft N set Hub

" 999. " " " "

" 2201. " " " "

over

E.B. Horst.

320



Monday. May. 8-1916.

at 2614.6 ft N set Hub

I take transit to Bt and set  
Post from U.S. B.T.S Both plainly  
marked one laying flat on the  
ground the other a snag remains  
W. pine 7562 W 8. = 5.28

" " 12561 1/2 E 7. 462

at 2614.6 ft N true  $\frac{1}{4}$  cor sets W

33.6 ft. from random line  
we continue same line N but use  
Hub 2614.6 ft N as sta 0.0

at 466.3 ft N set Hub

" 684. " " enter slew

" 820. " " leave "

" 974.4 " " set Hub

" 1065.0 " " enter creek bottom

" 1115.0 " " small creek

" 1175.0 " " leave bottom

" 1380.0 " " cross old wagon rd.

" 1651.7 " " set Hub

" 2141.7 " " " "

" 2647. " " " " cor to

Secs 7-8-17-18 set by Euro old Bts  
still there I drive new post and

E.B. Horst.

Lindfors Imp road bet. Secs. 17+18.

320<sup>25</sup>

Chain from cor to Hub 2647 on random  
distance = 43 ft. true cor sets W of random  
correcting back and setting road center

Sine of  $N. \frac{1}{2}$  mile bet 17 & 18 = .0035512

" "  $S \frac{1}{2}$  " bet 17 & 18 = .0124687

Hub 2141.1 ft N goes N 41.2 ft

" 1651.7 " " " 39.46 "

" 974.4 " " " 37.06 "

" 466.3 " " " 35.25 "

$S \frac{1}{2}$  mile

Hub 2201. ft N goes W 27.44 ft = 28.29

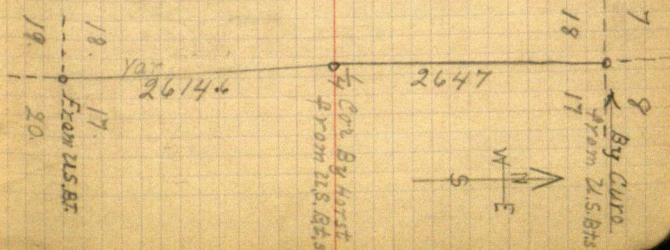
" 999. " " " 12.45 " = 12.84

" 330.5 " " " 4.12 " = 4.25

we start for Mrs Andersons place  
and leave outfit at S.E. cor of sec 20  
where we will begin in the morning  
quit for night

E. B. Horst.

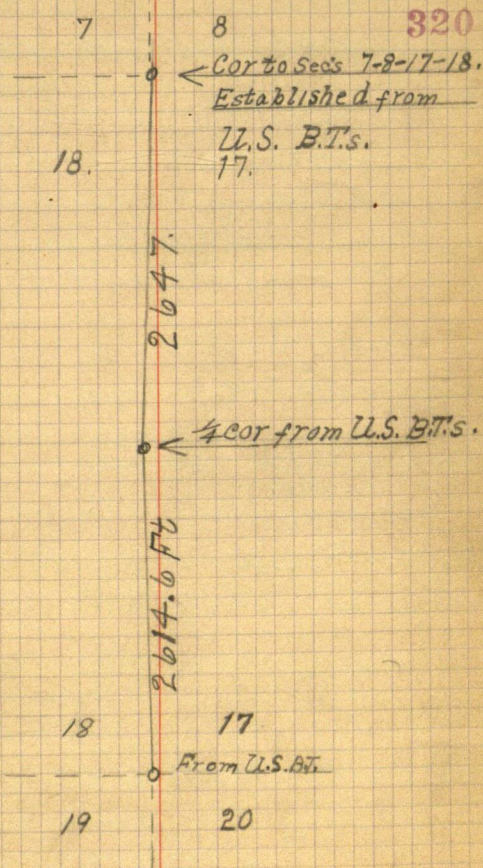
320





Trpk road between Secs 17+18-137-80<sup>27</sup>

Diagram of Lindfors road



E.B. Horst

28. The Bark road 137-30

320 Tuesday, May, 9, 1916.  
Forest, Transit, Peter Anderson Chain  
Ole Hoplin & John Johnson are

beginning at cor to Secs 20-21-28-29  
I.M. set by Hornum  
we begin random line on road  
route road to run W to Twp line  
a distance of 2 miles from above cor.

Run W at  $90^{\circ}30'$  Var

at 500. ft W set Hub

" 650. " " enter Gamek swamp

" 1000. " " set Hub

" 1425. " " leave swamp

" 1500 " " set Hub

" 1697.0 " " " "

" 2400.0 " " " "

" 2734.7 " " " "

" 3714.5 " " " "

" 4000.0 " " stake marked 40

" 4450. " " Hub

" 4870. " " cross small creek

" 5252.4 " " set Hub.

We look for B.Ts in this vicinity but  
every thing is burned out.

U.S. Notes at cor to 19-20-29-30 call for

N.P. 17 N 50 E 26 - W.P. 8 N 42 W 120.

N.P. 18 S 76 W 190 - N.P. 20 S 31  $\frac{1}{2}$  E 70.

E.B. Horst.



The Bark road - 137-80 **320** 29

Tuesday, May, 9, 1916. Continued  
We continue random line W.  
at 5439.5 ft W set Hub.

"	5850.4	"	"	"	"
"	5950.	"	"	enter	field.
"	7000.	"	"	set Hub	leave field.
"	7275.	"	"	enter	swamp
"	7325.	"	"	leave	" "
"	7500.	"	"	enter	" "
"	7565.	"	"	leave	" "

Quit for night

E.B. Horst.

Strong winds with a little rain

320

Wednesday May 10-1916

Horst &amp; same crew continue

Random line W from Hub 7000  
at 7871.0 ft W set Hub.

" 7920.0 " " Cross wire fence

" 9240.0 " " enter field.

" 9800.0 " " set Hub leave field

" 9900.0 " " enter field

" 10360.0 " " leave " "

" 10696.0 " " set Hub cor to

Sec's 19-30-137-30 &amp; Sec's 24-25-137-31

Sets N 112 ft <sup>(from settling evidence)</sup>  
(used by A.K. Mowister.)

To locate cor of 19-20-29-30 we go

To cor of 29-30-31-32 and run line  
set formal <sup>US B-3</sup>

N at 8°30' var P.M. A.J. Bark joins crew

at 158.6 ft N set Hub

" 500.0 " " enter swamp

" 650.0 " " leave " "

" 934.0 " " set Hub

" 1422.4 " " " "

" 2524.5 " " " "

" 3106.0 " " " "

" 3262.5 " " " "

" 38 to 39 small ravine E &amp; W

" 4000.0 " " set Hub

" 4223.0 " " Cross creek 5 ft wide

over

320



## Continued

at 5152.0 ft N set Hub

" 5203.0 " " Intersect E + N random

see line at Sta 5228.0 ft W SE. angle = 90° <sup>of random</sup>

Continue line N bet sees 19 + 20 about  
 $\frac{1}{2}$  mi and quit for night

E. B. Forest.

(High winds + clouds of dust  
 with a little rain + hail)

Thursday May 11-1916.

Forest and same crew continue  
N between secs 19 & 20. from Sta 5203.  
at. 5731.8 ft N set Hub

" 6000.0 " " cent of road. NESW

6022.6 set Hub

6492.8

6605.0 " " cross creek 3 ft wide

7025.0

7166.0 " " set sub

11	7428.5	11	11	11	11
----	--------	----	----	----	----

8300.0 " " " " House on

line offset E 15 ft

" 8492.8 " N <sup>about 1/2</sup> <sub>cont. W</sub>

"	8992.3	"	"	Hut N
---	--------	---	---	-------

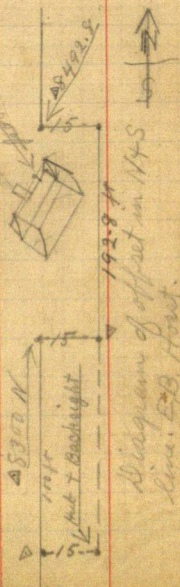
" 9958.0 " " set 1/16"

" 10574.5 " " "

Cor to Secs 17-18-19-20 site  
W 117.5 ft.

quit for dinner

Old Hoplon leaves crum-





137-30.

320<sup>93</sup>1916  
May 11. continued.P.M. I find a stone mound and stump  
of U.S. B.t.s at  $\frac{1}{4}$  cor bet Secs 19-20I set  $\frac{1}{4}$  cor from N.P. 8 N 74 E 85.N.P. 12 N 52  $\frac{1}{2}$  W 44.which check for course & distance with  
stone mound. $\frac{1}{4}$  cor sets W of random line at Sta 7910  
ft N. N  $\frac{1}{2}$  mile = 2664.5 ft }S  $\frac{1}{2}$  mile bet 19 & 20 = 2636.8 ft }N  $\frac{1}{2}$  is bucked out and used for roadI figure correction = .010706 for S  $\frac{1}{2}$  and  
set road center.010706 =  $\tan 70^{\circ} 31'$ 

Hub 7428.5 ft N goes W 74.84 ft.

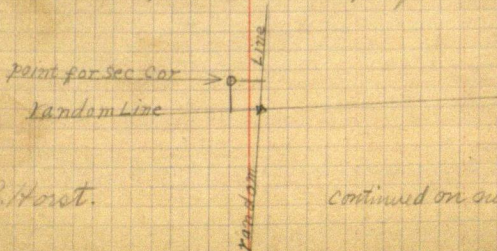
S  $\frac{1}{2}$  cor at 6592. ft N goes W 65.88 ft

Hub 5731.8 ft N goes W 56.67 ft.

cor lines 19-20-29-30 at Sta 5273.6 N  
and 5279.77 ft W sets W of R.I. Hub

51.77 ft + N of R.I. Hub 70.6 ft

I drive New post at above pt for sec cor



E.B. Horst.

continued on next page.

320

137-30

Continued from preceding page

Thursday, May 11, 1946.

I take crew West on line between 19430  
and begin at W. end of line and set  
road centers on true section line  
Correction = .00777 =  $\frac{1}{2}$  in of 5' 27"

Hub 9800. ft W goes N 105.72 ft

W to Cor #9262. " " " " 101.54 "

one ft U.S. Chain = 100.5613 ft my chain.

$\frac{1}{4}$  cor between Secs 19430 at Sta 7934.58 ft W  
goes N 91.23 ft

Hub 7000. ft W goes N 83.96 ft

" 5850.4 " " " " 75.03 "

quit for night

High winds all day

E. B. Horst.



137-30

35

Friday - May - 12 - 1916.

320

Cold and windy.

Horst. transit. Peter Anderson flag & chain  
John Bark and John Johnson, Apmen.We began at Cor to Secs 19-20-29-30 and  
Correct back on sec line bet Secs 20 and 29

Correction = .0133717. 1 ft U.S. chain = 1.005613 ft any chain

Hub 4450.0 ft W goes N 59.50 ft

" 2734.7 " " " " 36.57 "

 $\frac{1}{4}$  Cor at 2639.885 " " " " 35.30 ft

Hub. 2400.0 " " " " 32.09 "

stake. 1500.0 " " " " 20.06 "

 $\frac{1}{6}$  Cor at 1319.94 " " " " 17.65 "

stake " 500.0 " " " " 6.68 "

we return to Hub 4000 ft N on N+S random  
line between Secs 29 and 30 and set road

center on true line Correction = .0098168. Time 0:34'

Hub 4000.0 ft N goes W 39.27 ft

" 3262.5 " " " " 32.03 "

 $\frac{1}{4}$  Cor at 2636.8 " " " " 25.885 "

Hub 1422.4 " " " " 13.96 "

Quit for dinner

E.B. Horst.

Continued on next page

320

320

Friday, May. 12-1916.

P.M. John Bark brings team and wagon with tools cement & sand to make permanent cement corners we make them 8 in. in diameter by 3 ft. long putting a 4 in spike in center for true point. beginning at cor to 29-30-31-32. we set following cement corners.

at N.E. Corner Sec 31.

"  $\frac{1}{4}$  " bet " 29 and 30.

" N.E. " " 30.

"  $\frac{1}{4}$  " bet " 19 and 20.

" N.E. " " 19.

"  $\frac{1}{4}$  " bet " 17 and 18.

" N.E. " " 18.

returning South we set a cement cor at  $\frac{1}{4}$  Cor between Secs 19 & 30.

at N.W. Cor to Sec 30 on Rge line

we set 2 in x 4 ft I.M.

we also set an I.M. at  $\frac{1}{4}$  Cor between Sec's 20 and 29 as it is impossible

to drive to this place with team

this concludes survey for Walden

Twp. all corners set being in 137-30-2

Went for night

E.B. Horst.

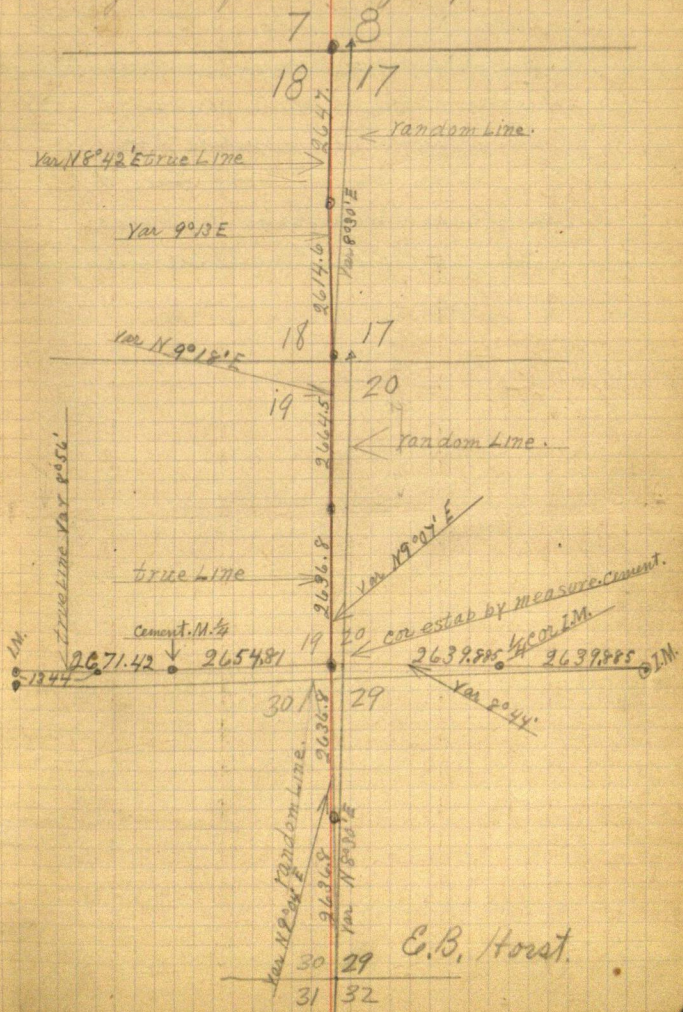


137-30

37

Surp

Diagram of 5 miles of Surp road in Warden



E.B. Horst.

320 Saturday, May 13, 1916.

Peter, C. M. Anderson with team  
takes me and survey instruments  
to Pine River begins to rain at 10-30

I take dinner at Travelers Hotel

dinner \$0.25

P. M. I take 3:44 train to Walker  
at J. W. Curo's for supper and night

E. B. Horst.



142-31

White City Co road Sept 18-1916

Copy necessary records of old  
survey in AM and in PM.

Knut Rummestad, John W Curo  
and J B Spencer go with Fred  
Grindall and auto to Sec 22-  
142-31. Spencer & Grindall  
return to Walker. Knut Rumm-  
estad and Curo

Beg @ 1/4 cor bet Secs 21 &amp; 22

142-31 at new E &amp; W graded

State Highway No 82

Chain North along newly graded  
road at 215 ft an old road  
bear NE and SW at 290 old rd  
NW & SE

300 start down hill

520 W. bend of old rd is E. 15 ft (W)  
runs S. 13 ft then SE

it runs N 10 ft then NE 50 ft then (NW)  
at 650 foot of hill.

660 cor of old road NW & SE 50' by  
700 cor of old rd S 20° W - 750 rd N 80° E

838, 93. Look for old hut sett on  
former road survey

John W Curo

142-31 Sept 18-1916 continued  
White City Canal 7' 21-22

Reg at Cen of land out trap  
rd at about 838.93 ft N of 1/2  
bet 21 & 22 run

N 45° 40' E 258 to West bdy  
of R & W of G N Ry: thence

N 76° 20' E 158 ft to N & S

Brick yard road on E side  
of R & W of M & J Ry

U 17° Compare to 100 ft ca



42

Cobbans Lots 135-29.  
Friday Dec 22-1916

E. B. Horst working for  
W. H. Cobban.

I leave Walker at 12-30 PM.  
on M+I freight for Pequot  
R.R. fare \$0.85 cts.

arrive at Pequot 630

I go to Will Anderson's  
Hotel for supper & overnight

E. B. Horst.

354

Saturday Dec 23-1916

Pay Hotel bill at Piquet  
= \$1.00 and hire Ray Anderson  
with auto to take me and  
outfit to Rocky Point Resort  
where I board while working  
for W. H. Cobban.

P.M. I take transit and 100 ft  
steel tape and Chas Anderson  
and correct Hube from random  
S boundary of sec 29-135-29  
S to true line as follows

Hut at 109.8 ft E goes S 1.30 ft I  
set transit over 1 M. at cor to sec  
29-30-31-32 and quit for night.

E. B. Frost.



135-29

Sunday Dec 24-1916

Horst transit, Chas Anderson  
flag + eye Fred Reynolds ay  
We begin at cor to sees 29-30.

31-32 sight E on true south  
line of sec 29 and turn N.E.  
angle of  $90^{\circ}22'$  and run  
line N. Needle shows  $8^{\circ}$  Var

We cut line N to I.M. at cor  
to sees 19-20-29-30 cor sets  
E of random line 3.6 ft.

From a point 36 ft W of I.M. turn S.E.  
angle  $90^{\circ}$  and cut line E to

~~West Branch~~ lake, quit for night  
no chaining today.

E B Horst. 354!!

Lake Margaret.

# Time Sheet Survey of W.H. Cobbans. Lot's. 1916

Noe 1916	22	23	24	25	26	27	28	29	30	31
E.B. Horst	1	1	1	2	0	1	1	1	1	0 = 7 1/2
Fred Reynolds	0	0	1	2	0	1	1	1	1	0 = 5 1/2
Chas Anderson	0	1/2	1	0	0	0	0	0	0	0 = 2
Herbert Anderson	1/2	0	1	1	1	1	1	1	1	0 = 4

## 1917 January

E.B. Horst	1	1	1	1	1	=
Fred Reynolds	1	1	1	1	1	= 4 x 5 1/2 = 9 1/2 days
Herbert Anderson	1	1	1	1	1	= 4 x 4 = 8 days

89  
54



Monday Dec 25-1916  
 Forst and Reynolds chain  
 Anderson, a German.

We begin chaining at S.W. cor  
 of Sec 29 and chain W boundary  
 at 670.5 ft N nail in Tam log

" 1116.0 " " " " "

" 1320.0 " " set temp  $\frac{1}{4}$  cor

" 2068.1 " " nail in Tam log

" 2400.0 " " enter open swamp

" 2640.0 " " set temp  $\frac{1}{4}$  cor

" 3442.0 " " Channel of Gull river

" 3533.0 " " " " "

" 3948.0 " " wet swamp

" 3960.0 " " set temp  $\frac{1}{4}$  cor

" 4431.0 " " leave swamp

" 4632.0 " " enter meadow

" 5304.0 " " S edge of road (West)

" 5316.0 " " I.M. at Cor to sec

19-20-29-30 sets E 3.6 ft

at I.M. we chain E on cut out  
 line at 6.0 ft E leave N road  
 and enter swf

at 300 ft E leave swamp

" 374.5 ft E nail on top of  
 hill in line, with random

Dec 25-1916 continued.

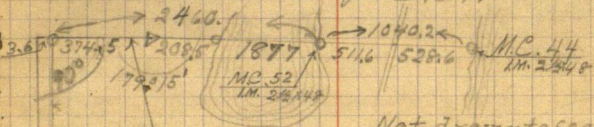
line E of lake between sec 20 & 29  
and between M.C. No 44 and 52.  
run East summer.

at 583 ft E enter West Branch lake

at 2457 ft E leave " " "

at 2460 " " I.M. at M.C. No 52.

quit for today E of forest.



Not drawn to scale.

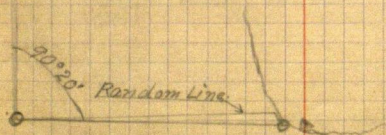
Note  
Random Line.  
True Line.

The true line was  
run later at this pt  
and a M.C. established  
564.30 ft E of sec cor.

Sec 29  
135-29

354

5316





42

135-29.

Tuesday Dec 26-1916

We are unable to work  
on account of a terrific  
Wind and Snow storm  
slightly wet.

E.B. Horst.

354

$$\begin{array}{r}
 1775 \\
 1566 \\
 \hline
 189 \\
 1615 \\
 \hline
 1725
 \end{array}$$

Wednesday Dec. 27-1916 <sup>354</sup>.

Horst. Reynolds and Anderson  
go to Ht 1320 Non random  
N boundary line <sup>in swamp</sup> and chain  
N to sta 1329 where I set Hub  
on random and turn N.E. angle  
90°35' and run S  $\frac{1}{16}$  line E  
at 538.0 ft E leave swamp

" 634.1 " " Winter Hub.

" 1081.3 " " set " " and  
turn 0°26' Right to miss some  
large Oak trees

at 1586.0 ft E Center line of New  
Twp road 9.8 ft N of sta 7.

at 1775.0 ft E set temp M.C. 10 ft  
W of high water mark (Gull lake.)

We go W to see line and N to  
sta 2658 where we set Hub on  
random line and turn N.E. angle  
of 90°30' and  $\frac{1}{4}$  line E

at 1320 set temp  $\frac{1}{16}$  cor

at 1378 ft E leave swamp

at 1524.7 set winter Hub.

Quit for night

E.B. Horst.



Thursday Dec 28-1916

Horst and same crew

continue  $\frac{1}{4}$  line E to Gull Lake  
at 1663.0 ft E about center line  
of New Jump Road Sta 13.

at 1762.0 ft E enter pond

at 1983.0 " " leave "

354

at 2005.0 ft E set temp M.C.

18 ft W of high water mark on  
shore of Gull Lake.

We walk E on Gull Lake where  
I set transit on line between  
M.C. No 44 and  $\frac{1}{4}$  cor set in  
lake last summer being  $\frac{1}{2}$  between  
secs 29 & 32.

We go to M.C. 44 and chain S  
to  $\frac{1}{4}$  cor distance = 5327 ft  
I do this to check the E and W  
lines and find the S  $\frac{1}{16}$  line O.K.  
but the  $\frac{1}{4}$  line is 14 ft N

due to a mistake of calculating  
angle which should have been  $90^{\circ}46'$

I set temp M.C. 59.3 ft  $2 \times 48$  I.M.  
Temp M.C. on S  $\frac{1}{16}$  line goes N 2.0  
ft being correction for 26' angle.

Set  $2 \times 48$  I.M. M.C.

Quit for night

E.K. Horst.

Friday Dec 29-1916 854

Horst and same crew begin at a point on lake Margaret Lake shore 10 ft N.W. of frame building and run South easterly 280.1 ft to a point 15 ft S of a frame building where we set a  $\frac{3}{4} \times 36$  in iron pipe (also one at place of beginning) thence Left  $17^{\circ}30'$  this course bears  $S 85^{\circ}20'E$  at  $8^{\circ}$  variation

at 332.2 ft E set Hub  
 " 418.2 E Center of New Trwp road. <sup>→ true line</sup> N.W. ang =  $98^{\circ}08'$   
 " 576.5 ft E set Hub,  
 at 758.3 " " " Hub, designated

point we run for sets  $S 8.8$  ft  
 Correction = .0116 of a foot S for each foot E I set Hub 576.5 ft E  $S 6.7$  ft and set transit over on designated point backsight on Hub at 576.5 on true line and run true line E 35.0 ft or sta 793.3 E and set a  $\frac{3}{4} \times 36$  inch Iron pipe 18 ft W of Waters edge of Bull Lake (steep Bank)

I set Transit on true line at edge.

E. P. Horst.



See 29-1916 continued  
of lake and turn N.W. angle  
of  $109^{\circ}$  and run N 62.5 ft and  
set hut on lake shore.

We return to hut 332.2 on  
random line and set a hut  
3.65 ft S on true line.

angle at 280.1 ft from point  
of beginning now =  $16^{\circ}50'$  Left  
at point of beginning I sight  
E to I.M. 280.1 ft E and turn  
N.E. angle  $57^{\circ}15'$  and run along  
lake shore 174.5 ft set nail on  
ice thence Left  $3^{\circ}06'$

500 ft and set Nail on lake  
shore.

Required an E and W line  
parallel to longest part of  
line run E and W from point  
of beginning and far enough  
N to include between said  
lines 10 acres

I now calculate required  
width of tract

Quit for night

E. B. West.

854

Saturday Dec 30 - 1916.

Horst and same crew begin at  
 Gull Lake on meander course  
 run last night. 530 ft from E + W line  
 I turn  $109^{\circ}$  S to E and set a nail in  
 ice on Gull Lake 175 ft E of transit  
 I move transit to this point and  
 run line W parallel to the one  
 550 ft S. On edge of high bank  
 I set a  $\frac{3}{4}$  x 36 in iron pipe 12 ft W  
 of lake shore  
 at 43.6 ft W set nail

" 280.8 " " " " " Kub.

" 473.0 " " " " " cross center line of road

" 656.4 " " " " " set Huit.

" 913.0 " " " " " set a  $\frac{3}{4}$  x 36 in I.M. &  
 ft E of Lake Margaret. from this  
 point I turn E to N  $70^{\circ}07'$  - 279 ft  
 thence Left  $22^{\circ}06'$  - 430 ft to M.C.

No 52 I back sight to last point and  
 turn S.E. angle to true sec line =  
 $105^{\circ}14'$  we walk E and chain  
 from M.C. 44 S along lake shore to line  
 just run distance = 1014 ft.

Quit for night. E. Horst.



354.1

M.C. 53

M.C. 44-2 1/2 x 48 I.M.

M.C. 52

2 1/2 x 48 I.M.

564.30

1895.7

1/4 Cor 174.3 FE

546.6

528.6

Lake Margaret

899.2

1329

900.0

1329

1320.

1330.5

Road in BK 66

1329

900.0

1329

900.0

1329

900.0

1329

900.0

1329

900.0

1329

900.0

1329

900.0

1329

900.0

I.M. Sec Cor

1328.58

1909.7

2477.8

W 1/4

1149.22

Road

179.32

M.C. No. 75.

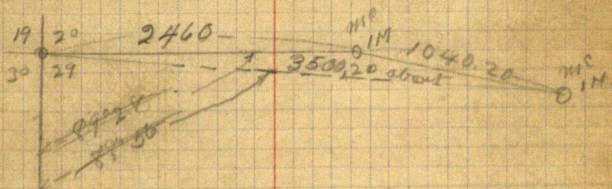
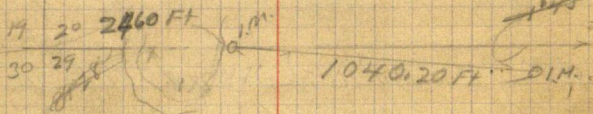
2 x 48 I.M.

Sunday Dec 31-1916. 354

No field work. I cant get anyone to help me.

I work on calculations in AM.  
at Rocky Point Resort all day

C.B. Forest.





Monday Jan 1st, 1917.

Horst, Transit, and chain

354.4

Fred Reynolds axe + chain

Herbert Anderson axe + flag

We begin at P.I. of S line of 10 acre tract (in Govt Lots 1 and 2) and Center line of New Trp road

S.E. Angle =  $98^{\circ}26'$

S.W. angle of S line to shore line =  $75^{\circ}30'$

Using the E side of road 16.5 ft from Center as a base line line we set a 2x48 in I.M. for N.W. cor of block

we chain 584.3 ft. for rear of lot 1 all the succeeding lots are 102.5 ft at rear

We chain out 10 Lots and set 2x48 ft I.M.,

Going to lake shore at N.E. cor of block and chain 3 lots each 103.3 ft then

I turn  $6^{\circ}10'$  Left and chain 101.0 ft each for the remaining 7 lots

at S.E. Cor of Lot 10 I stake Rte.

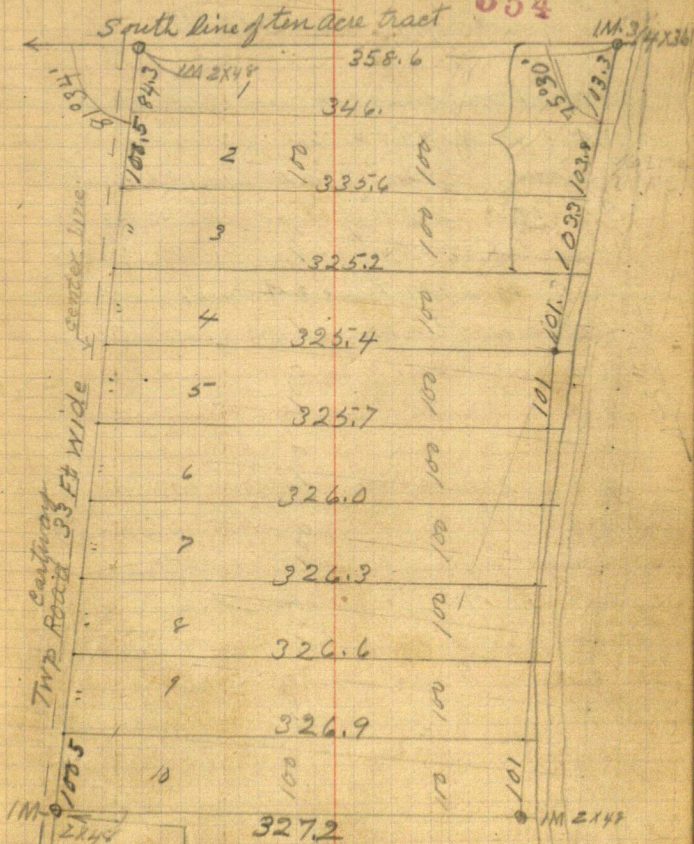
and set I.M. ELM 3x14.4 ft

Oak 5x8.6 ft.

Quit for night.  
E.B. Horst.

354

South line of ten acre tract



Note: this diagram is out of shape  
E.B.H.



Tuesday Jan-2-1917

Horst & same crew begin at  
M.C. (1M) on E+W  $\frac{1}{4}$  line and sight  
S along lake shore to M.C. (1M) at  
S  $\frac{1}{4}$  line using this line as a  
base line & subdivide the shore  
line of Govt Lot 4 into Lots  
as per diagram on following  
page.

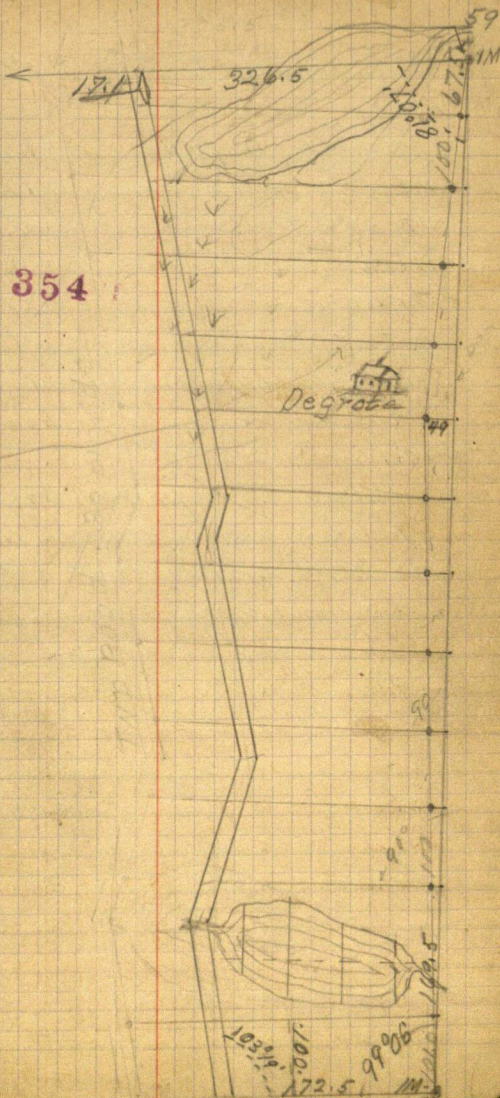
354

Twp 135 Rge 29, Sec 29.

Lake Shore Lots in, Govt. Lot No. 4

Not drawn to scale

354





Wednesday Jan. 3, 1917.

Forest and same crew.

Continue lots in Gort Lot 4

as per diagram on page 59.

at SW. Cor of South Lot 1 set 2x4 8 in. I.M.,

at Sta 2005.6 E on E + N  $\frac{1}{4}$  line

I chain E on lake 590.7 ft and

set a nail on ice I set transit

over this point sight S to  $\frac{1}{4}$

cor post on S side of see ~~354~~ <sup>354</sup> id

S.W. angle =  $92^{\circ}20'$

Inverse telescope and run N 1170.0

ft and set a 2x4 8 in. I.M. for M.C.

on N + S  $\frac{1}{4}$  line 12 ft N.W. of water

edge and 2 ft S.E. of lot base line

along lake shore and 146 ft N of

S line of lot 2 S.W. angle to base

line of lots =  $36^{\circ}23'$

Quit for night

E. R. Horst.

Thursday Jan 4 1917.

Horst and same crew go to point  
for  $\frac{1}{4}$  cor on N side of sec 29  
and set a 2X48 in I.M. on true  
sec line 174.3 ft E of M.C. No 52.  
with following B.T.c. **354**

Bass Wood 5 N 12° W 23.7 ft.

Iron Wood 9 S 71° W 9.4 ft.

We walk to sta 3987 N on West  
line of sec 29 and set a 2X48 I.M.  
2.7 ft E of random line for N  $\frac{1}{16}$  cor  
cor sets 8 ft N of an old channel of  
Home Brook in swamp.

I turn 90° 33' N.E. angle and run  
E 1320.00 ft and set a 2X48 in I.M. for  
center of NW  $\frac{1}{4}$  at 985 ft E to swp.

We walk to point for center of W  
 $\frac{1}{2}$  of sec 29 and set a 2X48 in I.M.  
at sta 1322.80 E on true  $\frac{1}{4}$  line.

This concludes this survey

I return with outfit to Chas E  
Andersons (Rocky Point Resort)  
and get outfit ready to go to  
Walker from Nisswa

E. B. Horst.



133-29- See 29

Friday Jan 5-1917

Herbert Anderson with horse  
and sleigh takes me to Nisswa  
where I take train for Walker  
we leave Andersons at 12-30 P.M.  
Livery charges \$2.00 (not pd)

I work in A.M. checking calculations  
and I and Chas Anderson walk  
to Sandy Point, where Anderson  
says there is just one old B.T.  
left to crop sec 32 + 33-133-29  
and sec 4 + 5 T 134 R 29

where U.S. Notes call for following  
Iron Wood  $7 N 43^{\circ} E 41 = 27.06 ft$

" "  $6 N 50^{\circ} W 46 = 30.36 ft$

Sind  $8 S 10^{\circ} W 7 = 4.62 ft$

"  $8 S 80^{\circ} E 33 = 21.78 ft$

The S.E. B.T. stub still remains  
showing a few scribe marks

the dotted stump check for course  
and distance I set a 2x4x1M.

with New B.T. s Maple  $8 N 88^{\circ} E 26.7 ft$

ELM  $9 N 49^{\circ} W 11.5 ft$

Maple  $12 S 46^{\circ} W 48.5 ft$

ELM  $11 S 47^{\circ} E 30.3 ft$

E.B. Horst.

135-29 see 29

63

Jan 5-1916 continued  
Make train at Kissa for  
Walker R.R. fare .97 cts  
arrive at Walker 6:30 P.M. (late)  
stay at J.W. Curo's overnight  
E.B. Horst.

Balance of this survey begins  
on page 92 of this book.

854



64 Survey No. 136-30 Co. road.  
403. Book C.

Monday Jan 8-1916

E.B. Horst, working for  
Case County.

I get Notes, Plats and survey  
outfit and leave Walker  
for Peguot. R.R. fare  $\$0.85$  etc  
I get dinner at Anderson  
Hotel  $\$0.35$ .

P.M. I call J.K. Hanna to  
find a place to board and  
make arrangements to board  
with E.H. Grimm.  
in sec 11 136-30 (No telephone)  
but J.K. Hanna just across  
the road has a phone.

I telephone from Hanna's  
place to get some one to  
help me on survey.

Grimm. was in Peguot and  
brought me and outfit to  
his place. Charges  $\$1.00$ .

E.B. Horst.

Tuesday Jan 9-1917.

Horst. transit and chain  
 Carl Sarson axe flag & chain  
 We walk to cor of secs 2-3-10-11  
 (marked by a  $2\frac{1}{2} \times 48$  in 1M) and  
 look for 1M. which was covered  
 in grading State Rural Highway  
 we find same and take New B.T.s

Jack pine.  $6N54^{\circ}45'W$  59.1 ft.

Jack pine.  $7S39^{\circ}W$  49.2 ft.

as I am unable to run E from  
 corner without affecting D & E  
 on an old road to  $\frac{1}{4}$  corner bet  
 secs 2 & 11. where 22 S Notes call for  
 Norway pine  $20N43^{\circ}E$  80.55-2.80  
 " "  $20S48\frac{1}{2}^{\circ}E$  133.102.30

I find N.E. B.T. green and plainly  
 marked also 3 foot stump of  
 S.E. B.T. plainly marked the stump  
 does not check well for course but  
 the measurement brings cor  
 in line with aged hill tree so  
 I set post for true cor New B.T.s  
 N.E. N. Pine. Remarkd  $28N53^{\circ}E$  52.80 ft  
 Jack pine  $10S48^{\circ}20'E$  65.3 ft  
 quit for night C.B. Horst.



13630 Co road.

Wednesday Jan 10-1917

Horst with same crew  
 I set transit over  $\frac{1}{4}$  cor. bet  
 secs 2+11-136-30 and sight  
 W to S.R.H. to a point 3.6 ft N  
 of cor to secs 2-3-10-11 to avoid  
 cutting brush and running line  
 along a crooked fence + telephone line  
 we then chain line E from cor  
 to 2-3-10-11

at 33.8 ft E cross fence enter field  
 at 1320 " " set stake temp  $\frac{1}{16}$  cor  
 at 2650.4 " " true  $\frac{1}{4}$  cor. 2+11  
 $3.6 \div 2650.4 = .00136 \text{ ft} = 0^{\circ}05'$

at  $\frac{1}{4}$  cor I reverse telescope  
 and sight E turn Left  $45^{\circ}$   
 and run E at  $9^{\circ}20'$  var. (timber)

at 83.4 ft E set spike  
 at 1263.5 " " " in pine stump  
 " 1878.8 " " " tack (Winter Hub)  
 at 2629.6 " " set spike and  
 quit for night

E. B. Horst.

Thursday Jan 11-1917

36° below 0. snow 1 ft deep

Horst and Carl Larson go  
to Hub 2629.6 E near Cor to  
secs 1-2-11-12 where U.S. Notes  
Call for

Pine 8. N 57° E 138 = 91.08 ft.

" 6. N 72° W 36 = 23.76 ft.

" 6. S 58½° W 102 = 67.32 ft.

" 7. S 45½° E 51 = 33.66 ft.

we find N.W. B.T. stump and  
rotted stumps of the other B.T.s  
N.W. stump still bears scribe marks  
from this I set a spike for true  
sec cor to 1-2-11-12 with New B.T.  
Jack Pine 9 N 44° 30' E 45.4 ft.

" 9 N 50° 50' W 49.6 ft.

" 10 S 34° 00' W 53.6 ft.

" 8 S 44° 20' E 59.9 ft.

I set transit over Hub 2629.6 E  
at sta 2631.6 ft E Cor to secs 1-2-11-12  
sets N 14.6 ft

$14.6 \div 2631.6 = .00555 = \text{correction N.}$

setting transit over true cor I  
run E at 9° 45' var.

EB Horst.



Jan 11-1917. continued

- at 656.6 ft E set spike in stump  
 " 1252.6 " " set spike.  
 " 1260.0 " " center of N+S road  
 " 1300.0 " " enter spruce lowland  
 " 1333.9 " " spike in 4 in birch  
 " 1741.0 " " center of creek 4 ft <sup>stump</sup> wide  
 " 2110.0 " " leave lowland  
 " 2234.0 " " set spike.  
 " 2573.6 " " set spike in stump

We look for B.T.s to  $\frac{1}{4}$  cor between  
 sec 1 and 12. Notes call for

Jack pine 4 N  $7\frac{1}{2}$  E 60 = 39.60 ft

" " 5 S  $44^{\circ}$  E 96 = 63.36

we find both green and plainly  
 marked also a post set for cor  
 which checks for distance but  
 not for course post sets O.K.  
 by flat chain their stand as  
 follows being old B.T.s

J-Pine - 10 N  $10^{\circ}45'$  E 39.6 ft.

J-Pine - 10 S  $47^{\circ}30'$  E 63.4 ft.

quit for night

E.B. Horst.





Friday Jan 12-1917.

Horst transit Carl Larsson  
eye flag + chain

I set transit over spike  
2573.6 ft E and turn  $90^\circ$   
angle to cor.

Got sta 2572.0 ft E true  $\frac{1}{4}$   
cor between secs 1 and 12  
sets N 14.0 ft

14. ft  $\div$  2572. ft = .00544 = cor. N.

I set transit over true cor and  
run E at  $10^\circ$  Variation  
we cut  $\frac{1}{2}$  mile to N + S road  
on Rge line between  $\frac{1}{4}$  29 + 30  
and set spike in center of road  
we hunt about an hour for  
the M. at cor to secs 1-6-7-12  
but are unable to find it.

quit for night

E. B. Horst.

Saturday Jan 13-1917

Horst and Garrison begin to chain at true  $\frac{1}{4}$  cor between sec 1 and 12 and chain E.

at 190.0 center of creek 2 ft wide

" 258.0 E Cross Wire fence N+S

" 1136.2 E set spike

" 1320.0 E set stake

" 1941.0 " Cross fence center field.

" 2173.7 " set spike in field

" 2695.0 " set spike in center

of N+S road being on Range line between Trps 136 Rges 29+30 we dig up the frozen ground until noon. no cor yet.

→ we build a large fire in center of N+S road and road running E P.M. We dig up thawed ground and find Cor E of cent of N+S road I take following bearings

4x4 post S.E. 86.5 ft. } chain

3 inch post N.E. 61.6 ft. } only

at sta 2697.2 true cor sets S

17.0 ft. correction = .006303 =  $0^{\circ}22'$

correcting back, over

E. B. Horst.



Jan 13, continued 1917.

at sta 1348.6 ft E and  $8\frac{1}{2}$  ft  
South of random line we  
set a 2x48 in I.M. for true  $E\frac{1}{6}$   
corner between secs 14/12.

at point located from U.S. B.T. we  
set 2x48 I.M. for true  $\frac{1}{4}$  cor  
bet secs 14/12. 136-30

at sta 1286.0 ft E of S.W.  
cor of sec 1 and 7 ft N of random  
line we set 2x48 I.M. for true  $W\frac{1}{6}$  cor  
At point located from U.S. B.T.  
for cor to secs 1-2-11-12  
we set a 2x48 I.M.

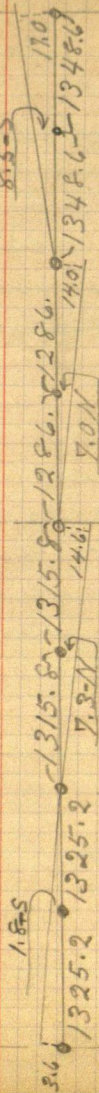
quit for night.

E. B. Horst.

County Road. T/36 Rge 30.

Sec. 2.

Sec. 1.



Sec. 11.

Sec. 12.



Sunday, Jan. 14 - 1917.

Horst and Larson correcting  
back, setting I.M.s  
at sta 1315.8 ft E of  $\frac{1}{4}$  cor  
between secs 2 and 11 and  
7.3 ft N of random line  
we set a 2x48 I.M. for true  
E  $\frac{1}{4}$  cor

at point for true  $\frac{1}{4}$  cor between  
secs 2 and 11 located from U.S.  
B.T.s we set a 2x48 I.M.

At sta 1325.2 ft E of corner  
to secs 2-3-10-11 and 1.8 ft S  
of random line we set a 2x48  
in I.M. for true N  $\frac{1}{4}$  corner.

this concludes survey of  
this county road.

all I.M.s set in this survey  
are marked by a large guard  
stake.

E. B. Horst.

recorded  
end

T 136 - R 29  
Survey of the Mayo Brook Co road. 15

Monday Jan. 15. 1917.

I hire E.H. Grimm with team to  
take me and survey outfit to  
Fred Hansens farm. Charge \$1.50  
P.M. Set transit Tobias Bye  
and Fred Hansen axemen + flagmen

I send a man to  $\frac{1}{4}$  cor<sup>W</sup> between  
secs 7 & 18 and one to 1 M. at cor to  
secs 7-12-13-18 T 136 R 29 & 30

I set transit on line between these  
corners (on a hill in front of the  
Norwegian Church in sec 7) the  
Needle shows  $8^{\circ}45'$  Variation

This is a graded road for 2 miles E

I send a man to 1 M. at cor of secs  
7-8-17-18 and I set transit over

$\frac{1}{4}$  cor between 7 & 18 sight W on  
true line reverse telescope and  
turn same to Right  $1^{\circ}00'$  (or  
 $7^{\circ}39'$  variation) to cor of 7-8-17-18.

we walk to  $\frac{1}{4}$  cor between secs  
8 & 17 where U.S. Notes call for  
B. Pine.  $8 N 36^{\circ} E 7 = 4.62$  ft

B Pine.  $8 S 20^{\circ} W 18 = 11.88$  ft. over

E.B. Hunt.



Jan 15-1917 continued.

the stump of the S.W. B.T. still stands but the marks are worn off, Fred Hansen and Tobias Bye identify this as the old B.T. and I set a spike at true point for corner with following New B.T.s.

Jack pine 5 S 5° E 28.5 ft  
Fence post N 36.0 ft.

I set transit over cor to 7-8-17-18  
backsight to 1/4 cor between 7+18  
reverse Telescope and turn Left  
1° 20' to 1/4 cor between 8+17  
variation = 8° 59'

I move up to 1/4 bet 8+17 and  
backsight W to cor of 7-8-17-18  
foresight E to cor of sec 8-9-16-17.  
angle to Right = 6° 13' or 8° 46' var.  
Quit for night

E B Horst

Tuesday Jan 16-1917.

Horst and Tobias Bye begin at  
cor to Secs 7-12-13-18 on Range line  
and Chain E on graded road.

at 1036.0 ft E spike on hill at church  
at 2524.5 " "  $\frac{1}{4}$  cor 1 M. bet Secs 7-18

" 5170.2 " " 1 M. cor to 7-8-17-18

" 5834.8 " " spike on true line  
at 7810.0 " " spike at  $\frac{1}{4}$  cor between  
secs 8+17.

at 9209.0 ft E bridge over Mayo  
Brook sets N 4 ft.

at 10441.0 ft E Cor to Secs 8-9-16-17

T 136-R 29

Sec. 7.

Sec. 8.

Var 8°45' 2524.5    Var 7°39' 2645.7    Var 8°59' 2639.8    Var 8°46' 2631.0

Sec. 18.

Sec. 17.

{ W  $\frac{1}{4}$  cor on S side of Sec 7 goes at }  
{ Sta 1175.22 ft E }

P.M. Fred Hansen helps and  
we start line E from cor of 8-9-16-17.  
at 9°31' var. we cut about 2000 ft  
and quit for night C.B. Horst.



T. 136. R. 29 E. road  
Wednesday Jan 17-1917.

Horst and Hansen claim  
E on line from cor of 8-9-16-17  
at 5-13.6 ft E tack in log  
" 1320.0 " " set stake  
" 1584.5 " " set Hub  
" 1646.0 " " enter creek bottom  
" 1712.0 " " cent of creek 12 ft wide  
" 1976.0 " " cent of creek 15 ft wide  
" 2021.0 " " set spike  
" 2230.0 " " " " 12 ft wide  
" 2421.0 " " old channel  
" 2429.0 " " leave creek bottoms  
" 2664.1 " " Hub spike in ground  
we see nothing of  $\frac{1}{4}$  cor so  
we continue line E

A. Mr. Newman shows me  
an old B.T. to  $\frac{1}{4}$  cor between  
secs 9 & 16 Notes call for  
B. Pine 75  $34^{\circ}$  W 35 = 23.10 ft  
B. Pine 8 N  $63^{\circ}$  E 45 = 29.70 ft  
N.E. B.T. is lying down but  
shows marks plainly  
S.W. B.T. is gone

I set post for cor from N.E. B.T.

# Time Sheet for survey of Mayo Brook Co. Road.

January. 1917. 15 16 17 18 19 20 21 22 23 24 25

E. B. Hunt. 1 1 1 1 = 4 days

Tobias Bye.  $\frac{1}{2}$  1  $\frac{1}{2}$  1 = 3 days

Fred Hansen.  $\frac{1}{2}$   $\frac{1}{2}$  1 1 = 3 days



Jan 17-1917, cont.  
 at Hub 2664.1 ft E & right  
 W on line cor sets Right 19° 10'  
 25.8 ft

at sta 2639.7 ft E  $\frac{1}{4}$  cor  
 sets N 8.47 ft.

Correction  $N = .00321 = 0^{\circ} 11'$   
 Tobias Bye 1/2 day. E. B. Horst.

136-29. Eo road.

91

Thursday, Jan. 18-1917.

Horst, & same crew continue  
E between secs 9 & 16

at 3105.8 ft E set spike and  
turn Right  $0^{\circ}27'$  and follow  
a fence line

at 4156.0 ft E set spike

" 4164.0 Center of private road

" 4934.5 ft E set spike

" 5080.7 " " set spike and

look for B.T.s to Mc. No. 25.

N. Pine. 14  $N 51^{\circ} W 46 = 30.86$  ft.

N. Pine. 20  $S 77^{\circ} W 62 = 48.92$  ft.

after chaining from Mc. 24 S at  
 $9^{\circ}$  var 132 ft & turn  $90^{\circ}$  angle W  
distance to shore = 147 ft

We look for U.S. B.T. at this point  
we find stump of S.W. B.T. with  
only the upper  $\frac{1}{2}$  of the B.T. visible  
a Mr. Olet identifies this as  
an old bearing tree

I find that Mc. No 25 falls in  
lake several feet. Setting transit  
on Hub 5080.8 and turn Telescope  
to point for Mc. No 25 at sta  
5167.5 ft E Mc. sets  $N 134.7$  ft. over  
E.B. Horst.



136-29 20700d

Jan 18 1917 continued

figuring a straight line at Hub  
3105.8 random would start  
from a point 4.8 ft S of  $\frac{1}{4}$  cor  
 $134.7 - 4.8 \div 25 = 27.8 = .05138 N = 2952'$   
+ 4.8 ft at each Hub.

at sta 5134.5 E or 2494.8 ft  
E of  $\frac{1}{4}$  cor. Wit. corner sets N 133.5 ft.  
Hub 2294.5 ft E of  $\frac{1}{4}$  cor goes N 122.7 ft.  
" 1516.0 " " " " N 82.7 ft.  
" 466.0 " " " " N 28.7 ft.

at Wit cor to M.C. 25 we drive  
a 2X4 8 in I.M. with New B.T. &  
Red Oak 5 N 30° W 41.0 ft.  
Jack Pine, 6 S 45° W 35.7 ft.

at  $\frac{1}{4}$  cor between secs 9 & 16  
we set a 2X4 8 inch I.M.  
correcting back on sec line  
W of  $\frac{1}{4}$  cor

Hub 2021.0 ft E goes N 6.5 ft  
" 1584.5 " " " N 5.1 ft  
stake 1320.0 " " " N 4.2 ft  
" 513.6 " " " N 1.65 ft

at  $\frac{1}{4}$  cor between secs 8 & 17  
we set I.M. with New bearings

136-29. 00 road.

Jan. 18. - 1917.

Jack pine 55° E 28.5 ft.

Gravel Post N 36.0 ft.

Sec. 9.

⊙ var 8° 57' 2639.7 ft.

⊙ var 11° 40' 2494.8 ft. ⊙ 234

Sec. 16.

T 136 R 29.

E B Horst.



84

136-30

Friday Jan 19-1917.  
A.M.

Forst and Mads C. Anderson  
son-in-law begin at S.W. cor  
of sec 9 and chain W  
boundary at 1195.0 ft N  
center of creek. Bridge sets E  
of road line at an angle to road.  
N.W. cor post of bridge is at  
sta 1197.0 ft N  
at 2726.0 " " center of an  
E + W road running E thru sec  
9.

at 5346.0 ft N I.M. at N.W. cor  
of sec 9. No charges made.  
CB Forst.

and

recorded

Sec. 14. T136-Rge 30.

85

Friday Jan 19-1917

Henry Hansen with team takes  
me and survey outfit to W. H. Clouds  
farm where I am to run  
E + W 1/4 line thru sec 14.  
We arrive at 4-30 P.M. Charges \$0.75-  
at Roy Hersbye for supper  
and overnight O. B. Horst.



136-35.5.14.

Sat. Jan. 20, 1917.

Horst transit, Carl Larson,  
axe + flagman

We walk to point for 14 cor  
on W side of sec 14 where

Z.L.S. Notes call for post and  
B.T. c Aspen 14 S 52° E 15 = 9.90 ft

Black Oak 9 S 31° W 12 = 7.92 ft.

both have been grubbed out  
in building the S.R. H. No. 80.

This cor has been established  
previous to survey for the  
S.R. Highway and marked by  
a 2 1/2 x 48 inch I.M.

we find I.M. with following  
bearings. Fence post N.W. 44.0  
ft. Fence Post E 29.9 ft

I remark there and start  
line E thru sec 14 at 9° 15' var  
we cut line and set spikes  
about 3/4 mile and quit  
for night

E.B. Horst.

136-30 Sec. 14.

Sunday, Jan. 21, 1917.

The day dawns with a  
terrific Blizzard raging.

Worst at Roy Hershey's  
place all day. no work.

6 P.M. Blizzard still continues  
thermometer at  $22^{\circ}$  below 0.

E. B. Moret.



136-30-see 14.

Monday Jan 22, 1917.

40° below 0 Fahr.

Forest, transit, chain & axe.

Roy Hershey Chain flag & axe  
we begin at 1.M. 1/4 cor between  
secs 14 and 15-136-30 and  
Chain E on E + W 1/4 line  
at 939.6 ft E spike.

" 1377.5 " " spike.

" 2626.0 " " N + S fence

" 2937.4 " " set nail

" 3436.4 " " " "

" 3992.2 " " set winter hub

" 4284.9 " " set spike. Begin

Cutting line again

at 5275.6 ft E set spike

a 4x4x36 in Oak post sets

S 21.8 ft. Set transit over

this post 22.5. Notes call for

B. Oak 12 N 75° W 36 = 23.76 ft.

W. Pine 30 N 28° E 50 = 33.00 ft.

stumps of both remain and  
have been remarked post sets

at true point for corner

at 5275.6 ft E true 1/4 cor between  
secs 13 + 14 sets S 21.8 ft.

E. B. Horst.

136-30-See. 14.

Monday Jan 22. 1917. Cont.

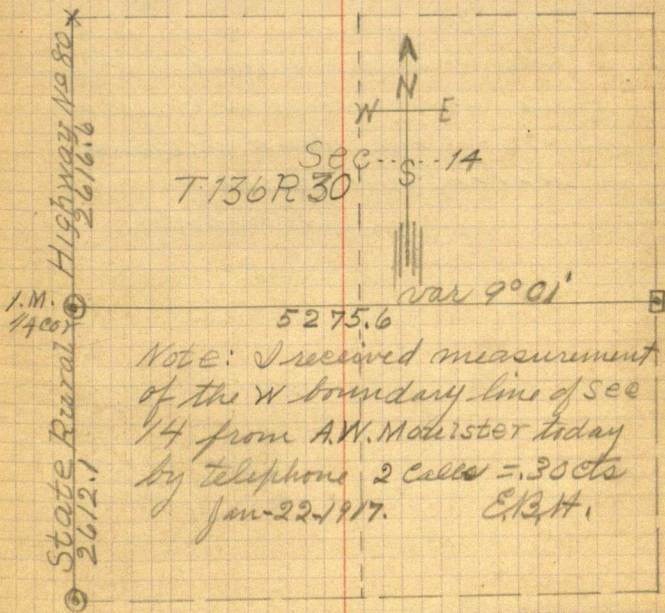
Correction =  $21.8 \div 5275.6 = .004132$   
south =  $0^{\circ}14'$ .

Hizz 939.6 E goes S 3.88 ft.

" 1377.5 " " S 5.69 ft.

at 2626.0 E " S 10.85 ft.

Quit for night. E.B. Horst.





136-30-See: 14.

Tuesday Jan 23-1917.

I take a sledge, a Mattress and  
some  $2 \times 4 \times 36$  in stakes  
and dig them into the ground,  
on true E+W line at following  
stations

939.6 ft E 1377.5 ft E and  
Sta 2626.0 ft E (under wire fence)

P.M. Roy Hershey with team  
takes me and outfit to Regnot  
I see W.H. Cloud he pays me  
\$15 for 3 days and I return  
to Walker. (at Curors.)  
E.B. Horst.

T. 135-Rge 29. Sec. 29.

Tuesday, Feb 13-1917

Horst Calls Mrs. Mary  
Carson at Gull Lake (Piquet)  
by Phone and make arrangements  
to board there for a few days  
also for J. C. Carson to meet me  
at Piquet with team.

Called from Walker 3 P.M.  
Charges \$0.40 P.M. E. B. Horst.

Beginning of this survey begins  
on page 42 of this book.

354



Wednesday Feb 14 - 1917 <sup>354</sup>

Horst with survey outfit  
leave Walker for Peguot on  
9-28 A.M. train to get some  
angles and measurements need-  
ed for platting Coburns lots.  
R.R. fare = \$0.85. Meet J.E. Carson  
at depot and drive out to Carsons  
for dinner.

P.M. Horst + J.E. Carson walk to  
N.W. Cor of Sec 29 where we chain  
E 564.3 ft and set stake <sup>mark</sup> for U.S.  
M.C. No. 53. at proper distance.

We then walk E to New Trp road  
and S to N line of ten Acre Tract  
Previously surveyed.

The P.I. of road is 476.0 ft W of I.M. set  
on lake shore being N.E. Cor of ten Acre  
and at sta 13+1498.1 ft from road.

We walk S to S line of 10 acre tract

P.I. is at sta 13+993.0 ft from road  
and 375.1 ft W of I.M. at S.E. Cor of 10 acre  
tract. Diagram. Next page.

E.B. Horst.

Feb-14-1917

at M.C. on E + W  $\frac{1}{4}$  line, we  
Chain N.E. along lake shore  
to S.E. Cor (I.M.) of Shore Acre  
distance = 469.0 ft.

N.W. angle of lake shore to true  
E + W  $\frac{1}{4}$  line =  $108^{\circ}30'$

- quit for night.

E.B. Horst.





135-29-See 29, 354.1

Thursday, Feb. 15, 1917.

Horst, transit, J. C. Carson,  
axe + flag.

We go to 1/4 cor between secs  
20 & 29 and run random 1/4  
line S thru sec 29 at  $8^{\circ}15'$  var.  
at 472.5 ft S set 6 in spike  
and offset 2 ft W to ridge large tree  
at 654. Center of N+S Thorp road N.E. angle  
 $= 27^{\circ}45'$ . at sta 13+ ft N on road  
at 789.4 ft S cross N boundary  
of Ten acre tract N.W. angle  
 $= 70^{\circ}25'$ . - 413 ft W of I.M. at Gull Lake  
at 1015.0 ft S set spike  
" 1294.5 " " " " "  
" 1365.0 " " " " " 1/4 Cor  
on S side of sec 29 sets S  
3915 ft and E 93.1 ft. - 2 ft offset  
correction = .01722 E for each ft  
S. But 1294.5 goes E 22.3  
+ 2 ft offset = 24.3 ft  
Set transit over this hub and  
run true 1/4 line S to Gull Lake  
at sta 1328.6 S cross S boundary  
of 10 acre tract 34.5 ft W of S.E. Cor.  
S.E. Angle  $= 69^{\circ}24'$ .

E. B. Horst.





Friday - Feb. 16 - 1917

Forst and Carson go to  
M.C. on Gull Lake on E + W  
1/4 line where I sight W on  
true 1/4 line and turn SW.  
angle to M.C. on S 1/4 line  
angle =  $81^{\circ}07'$

at I.M. at S.E. cor. of Govt. Lot 4  
N.W. angle =  $99^{\circ}06'$

angle of S 1/4 line to trap road  
N.E. angle =  $103^{\circ}19'$

Diagram on next page.

at N.W. cor to Sec. 29. S.E. angle  
=  $89^{\circ}22'$  (true lines)

quit for night E.B. Forst.



← E + 17 1/4 Line

354.7

Part of Govt  
Lot 4.  
Gull Beach

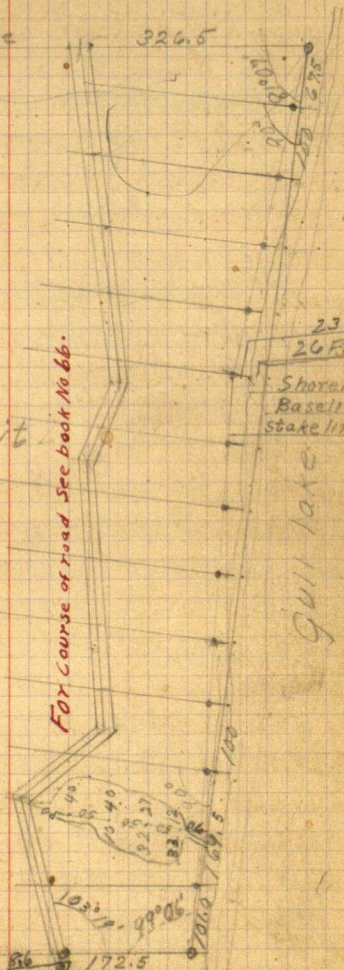
For Course of road See book No 66.

23 Ft  
26 Ft  
Shoreline  
Baseline  
state line

Gull lane

← S 1/16 line

86 172.5  
Hub



100. 135-29 See 29.

Saturday. Feb 17-1917

Horst hires J.C. Carson  
with team to take him  
and outfit to Report.

I pay J.C. Carson \$2.00 for  
board labor and Sivery.

I take 3-00 P.M. train to  
Walker arrive at 5-30 P.M.

At Aurora over night.

P.R. Fare = 80 cts. E.B. Horst

354



Tuesday. Sept. 18-1917.

E.B. Horst transit + chain.

Daniel Delory axe + chain.

106

Delury. 17-139-31

Saturday Oct-6-1917.

Horst-transit-chain.

E.L. Tusler axe + chain

Daniel Delury axe + chain



Monday Nov, 7, 1921

E. B. Horst, + Ben Beach.

Leave Walker 8:45 A.M. train.

Arrive at Brainerd at Noon.

R.R. fare each \$2.45

Dinner each 50¢

Walter H. Cobban arrives at  
Brainerd from Mpls. at 3:30 P.M.

and orders a car from Rocky Pt.  
Car arrives at 5 P.M. and we  
go to Guy Smith's place to board  
while on survey of Gull Lake  
Highlands and other work.

E. B. Horst.





110 20-135-29  
Plat. (Gull Lake Highlands) Plat.  
Tue. Nov. 8, 1921

E. B. Horst, Surveyor

Ben Beach, chain

Guy Smith, "

Henry Collins Axe.

I set transit on line between secs.  
20-21-135-29 about 400 ft. S. of Cor.  
to 16-17-20-21 and in cent. of graded  
road. I set Hub under transit, then  
set over I.M. at sec. Cor. & chain S.  
on line 33' set over this point and  
turn S.W.  $\angle 90^{\circ}07'$  and run line W.  
gt 2107.5 the I.M. at the M.L. bet.  
secs. 17-20 set N.  $39.8^{\circ}$  E.

thence sight E. on our line & turn

R.  $95^{\circ}20'$  407.5 1

R.  $14^{\circ}30'$  542.5 2

L.  $5^{\circ}45'$  141.0 3

R.  $18^{\circ}30'$  376.0 4

L.  $11^{\circ}07'$  170.5 5

(11-9-21) L.  $5^{\circ}30'$  85.0 6

R.  $11^{\circ}15'$  385.0 7

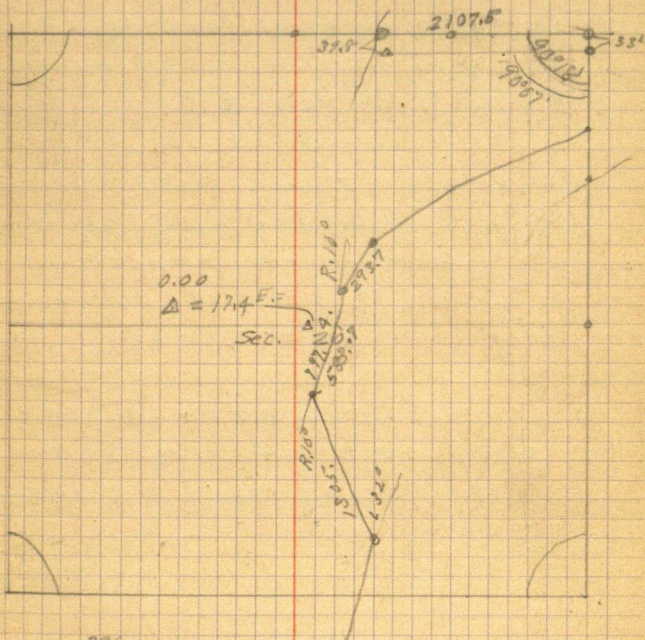
L.  $31^{\circ}54'$  135.3 8

L.  $22^{\circ}40'$  111.2 9

R.  $19^{\circ}35'$  121.5 10

R.  $24^{\circ}25'$  817.3 to E. W. Rand. Q,

N.E.  $\angle = 72^{\circ}26'$



37.6  
33.0

$$\begin{array}{r} 2117 \overline{) 168000} \phantom{00} 3212 \\ \underline{6351} \phantom{00} 1003212 \\ 4490 \\ \underline{9234} \\ 12560 \\ \underline{2117} \\ 4430 \\ \underline{4234} \end{array}$$



Nov. 9, 1921.

From the cor. secs. 16-17-20-21

Wechain S. on Road. 943.4 ft.

thence S.  $56^{\circ}10'$  W. 2152.2 on road

thence S.  $15^{\circ}52'$  W. 293.7 " "

" S.  $5^{\circ}52'$  W. 214.6 " "

& set Hub. thence West on a  
Random & S. 20.

at 600 set stake mkd 600 W.

" 943.4 P.I. on Lake Margaret  
traverse.  $NE \angle = 72^{\circ}25'$

Begin at sta 0.00 E+W. and

Chain E to gull Lake

at 500 E set Hub on gull Lake

114

Nov. 10-1921

Same crew.

Begin at Hub on Bull Lake

Turn NW  $\angle$   $116^{\circ}30'$  227.3 ft.

R.  $13^{\circ}15'$  332.8

R.  $16^{\circ}30'$  364.8

R.  $9^{\circ}00'$  213.2

R.  $4^{\circ}35'$  760.0 to g.p.t. 1 ft. N.

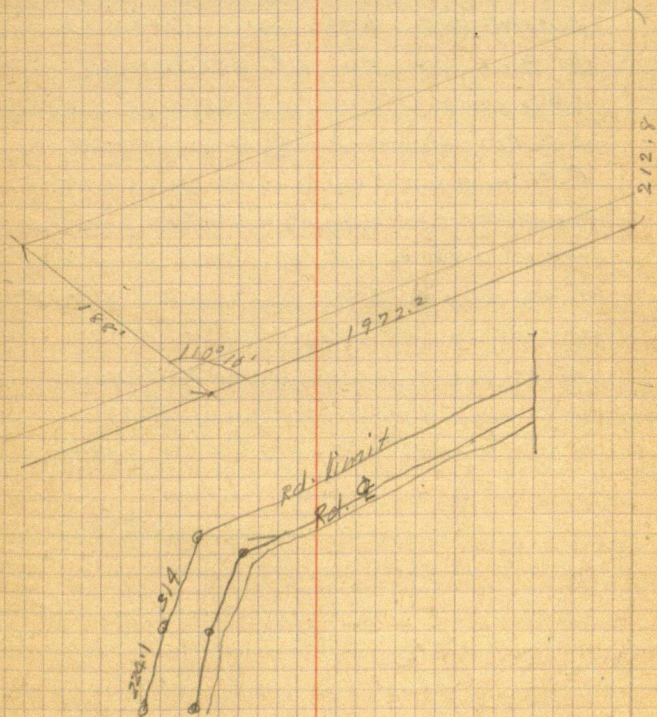
of M.C. bet. 20-21.

NW  $\angle$  at p.t. to sec. line. =  $116^{\circ}08'$

R.  $4^{\circ}35' = R. 4^{\circ}39'$  to M.C.

True brg. Last course = N.  $63^{\circ}52'E$ .





S-20-135-29

116

Nov. 11, 1921.

I compute Lat + Dep. of previous work and go to field at 9<sup>00</sup>

Go over street site along Lake Margaret.

From M.C. bet. Secs. 17-20 chain E. 360 ft. to st. terminal on sec. line.

St. terminal on  $\angle$  S. 20 = 300, E. From apt. 1945.4-S and 1591-SW. from sec cor. S. 20-21 and on present road. I turn NE.  $\angle$  56° 04' and run N. on Rand. E 1/4 line S. 20 about 400 ft. + set Hob.

P.M. Horst + Beach go to Walker.

RR fare each from Nisswa \$1.79.  
train due at 3:22 arrived at 5<sup>00</sup> being late. Cold + clear

EB Horst.



Nov. 12, 1921

E.B. Horst & Ben. Beach,  
Making plat and computing Lat.  
& Dep. of Gull Lake Highlands  
all day in Walker Office.

E.B. Horst.

Nov. 14, 1921.

E. B. Horst + Ben Beach return  
to Guy Smith's arrive at 11:00 A.M.  
Fare walker to Nisswa each \$1.28  
Livery (both) \$1.25

P.M. We begin at a pt. on Rand.  
N89°58'E. E + W  $\frac{1}{2}$  S-20. 300 ft. E. and run  
Road line N. 17°01' E. about parallel  
to shore of Lake Margaret.  
at.



122

Nov. 29, 1921.

E. B. Horst & Ben Beach return  
to complete flattening & staking  
Gull Lake Highlands  
fare \$3.50 pd. by Horst.

Auto livery from Nisswa to Cobden  
\$1.75.

P.M. we drive stakes & take old  
measurements

Nov. 30.

E. Blodgett pays Mr. Parks <sup>(in silver)</sup> \$1.00  
for livery taking Ben Beach  
to Nisawa on Nov. 21, 1921.



124

Dec. 1st, 1921. Thursday.

Horst, Beach, Smith + Collins.

Run meanders from S.W. Cor.

of Inwood S.W. along Lake Margaret.  
for the purpose of platting later.

From I.M. at S.W. Cor. of Inwood

Sight S.  $52^{\circ}41'$  E. along S. side Inwood

Thence:

S. $80^{\circ}55'$	W. 456.5	to A.P. 1.
N. $85^{\circ}36'$	W. 368.0	2.
S. $32^{\circ}30'$	W. 121.0	3.
South	251.0	4.

N.  $1/16$  S. cor. bet. 29-30 bears N.  
 $88^{\circ}58'$  W.

Thence chain S.  ~~$88^{\circ}58'$~~  E. 483.0 ft.

at 32 ft. S.  $80^{\circ}55'$  W. a fence runs  
to within 250 ft. of N.W. cor.

end of Lake + Mouth of Home Brook.  
 along bank of brook. (Not exactly on line)  
 on  $N\frac{1}{4}$  sec. line Sec. 29. 133-30  
 at E edge of swamp.

to NW  $\frac{1}{4}$  Sec. 29. 131.

S. 50° 10' E. about 500 ft. + hence S. 1630' E  
 of Guy Smiths. Home.



①

127

Shore Acres Cass Co Minn

in Gov Lots 1-2 & 4 Sec 29-135-29

Reg of Deeds Book D Pg 25

Co Surveyor Book B Pg 553

Env No 338 A. C. Ryan E. Grand Forks Minn

Horst Field Book 64-66

Ch. this Bk Pg 42 T. 63-92 T. 100

Horst F Bk 66 Pg 116 T. 120

Curo 1947 Pg 127 Bk 64 This Book

March 18-1947. Harold and JWC eat  
at Daves on Wacker 30° drive to Peguot

Dig up INT 1/4 Car on Ed Tunberg Line

PM

1.P.M. Harold & his car with Coyne McLau-  
ghlin and JWC to Shore Acres

work on G.C. Ryan E. Grand Forks Minn

\$150. Contract to Survey Lots 1-2-1311.

Shore Acres 1 to 6-30 PM Cut out E-W

& From 1/4 bet 29-30-135-29 East  
to Gull Lake

John W Curo

128

2

Mar 27-1947

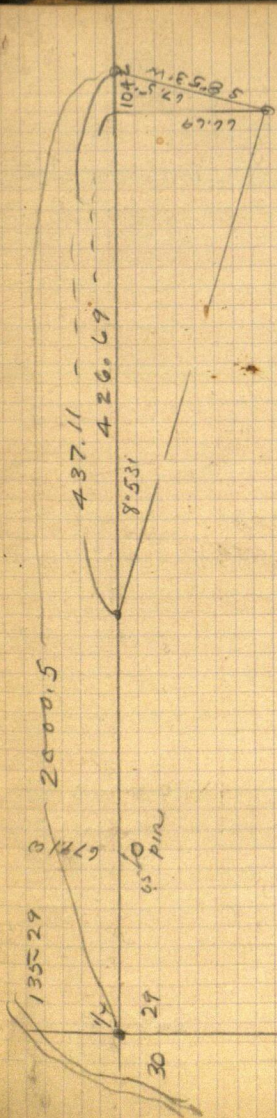
## Shore Acres.

Curo Contract to survey Lots 1 and  
 2. Block 1. Shore Acres Cass Co Minn  
 For J. C. Ryan. @ \$150 Ryan pd \$25. last  
 Fall. bal \$125. All Main Trailer Ho  
 10 AM I and my 41 Ford Pick up Coyne  
 McLaughlin @ \$1. pr hour (when he works  
 dinner at Nisswa \$1.70 12-30 to 4-30  
 Coyne + I work in snow squall

Reg @ E. B. Harsh's old 2x48" pipe  
 on west shore of Gull Lake Chain  
 West on  $\frac{1}{4}$  4 Sec 29-135-29  
 @ 288? blue mark on N Side 10"  
 power pole 300 pin E a road  
 300 + 182.85 old 60 d spike set Mar 18/47  
 by Harsh not on line = 482.85 W  
 437.11 Hub 600 pin 625 end  
 Swamp 679.1 old 2M. 2x48" pipe  
 Set by Harsh Sets 0.65 So off line  
 900 pin in Swamp 2100 - 99.4  
 2000.6 To  $\frac{1}{4}$  Cor  $\frac{99.4}{2000.6}$   
 on West side Sec 29-135-29



3



$$\begin{array}{r} 179.66 \\ 98.57 \\ \hline 278.23 \end{array}$$

$$\begin{array}{r} 5170.2 \\ 2524.5 \\ \hline 22645.7 \\ 1022.83 \\ \hline \end{array}$$

$$\begin{array}{r} 179^{\circ} 60' \\ 40^{\circ} 20' \\ \hline 2 \overline{) 139.40} \\ 69^{\circ} 50' \\ \hline \end{array}$$

$$2524.5 \frac{1}{4} \text{ sec } 7-18$$

$$\begin{array}{r} 1909.7 \\ 1328.4 \\ \hline 581.1 \\ 432.0 \\ \hline 149.1 \end{array}$$

$$\begin{array}{r} 47^{\circ} 07' \\ 46^{\circ} 20' \end{array}$$

All we are trying to do is  
to locate the true Section  
line between Section 29  
and Section 32



DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

ROADWAY 14 FEET WIDE. SIDE SLOPES  $1\frac{1}{2}$  TO 1.

FOR SINGLE TRACK EMBANKMENT.

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

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

MADE IN GERMANY.