BK 69   Dr. 16

_____Survey

45th Parallel

Traverse & Calculatins

From_____ To_____

Road Acc't. No._____

Date Filed 6-11-41   File_____

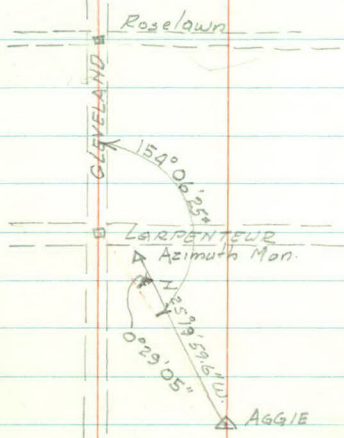TRAVERSE & CALCULATIONS
for Placing

Pt. on 45th Parallel

Completed 10-17-40

Party
R. Pease
A. Moeschter
L. Goldberg.
C. Fewer.

2 Pages

Pt.	Inc. Angle		Bearing		Dist.
	Lt.	Rt.	Mag	Calc.	

Roselawn

CLEVELAND

154° 06' 25"

LARPENTEUR
Azimuth Mon.
N 25° 19' 59.6" W
0° 29' 05"

AGGIE

W ¼ Cor. #16

| | | | N 7° 40 W | N 0° 04' 30.4" E | 2634.20 |

| S.W. Cor #16 154° 06' 25" | | | | | |

| | 0° 29' 05" | | N 33° 30' W | N 25° 49' 34.6" W | 2001.68 |

Aggie
to
A. M.

Azimuth 154° 40' 00.4" = N 25° 19' 59.6" W

N 33° W

	Logs.				
Cos.	Sin	Dist	Lat	Dep.	Diff

1 sec. Lat. = 30.870 meters at sea level

1 meter = 39.37 inches

1 sec Lat diff from sea level = 0.04 ft.

$$\frac{30.870 \times 39.37}{12} + 0.04 = 101.31' = 1 \sec \text{Lat.}$$

coordinates Aggie = $\begin{cases} \text{Lat } 44°59'12.458" \\ \text{Long } 93°11'00.785" \end{cases}$

44° 59' 59.990
44° 59' 12.45·8
47.542

47.542 × 101.31 = 4816.48' in Lat.

4816.48
4436.08

∴ Pt. in question is   380.40' North of W¼ Sec 16

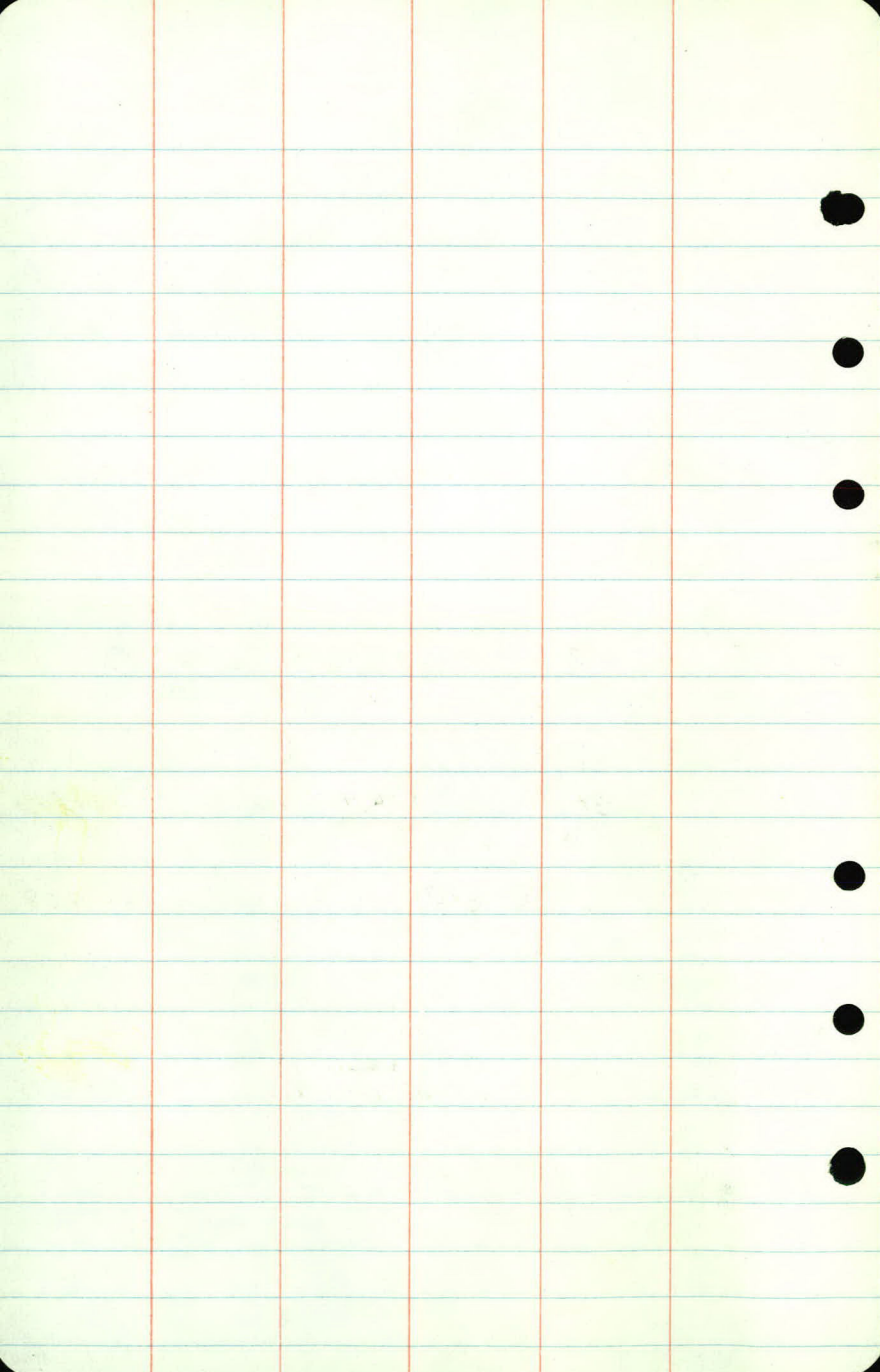| | | | 2634 20 | | 4436.08 |

			3.25 57 249		
9.9543303		3.3013946	1801.875		1801.875

0.00

Report on Determination of 45th Parallel

To Establish Point on Cleveland Avenue.

U.S.G.S. Triangulation Station "AGGIE" whose coordinates are:
Latitude 44°59' 12.458" and Longitude 93°11'00.785" and whose
Azimuth Mark lies in azimuth of 154°40'00.4".

Found Station "AGGIE" at top of slope north of U. of M. Farm Campus
Building, known as "College Girls Dormitory." Also found Azimuth
Mark at S.E. Corner of Larpenteur and Cleveland.

Occupied Station"AGGIE" and observed Azimuth Mark, turning angle, to
the left, of 0°29'05", twelve times (6 times normal and 6 times with
telescope plunged) to S. W.Corner of Section 16 of Rose Township.
Azimuth of 154°40'00.4" = bearing of N 25°19'59.6" W.
Chained distance from "AGGIE" to S. W. Corner, Sec.16, and found it
to be 2001.68 ft.
thence: "AGGIE" to S.W. Cor. is N 25°49'04.6" W. Dist. of 2001.68 ft.

Occupied S. W. Corner 16 and observed "AGGIE" turning angle, to the
left, of 154°06'25", twelve times (6 times normal and 6 times with
telescope plunged) to W 1/4 Cor. 16.
Chained distance from S.W. Cor.16 to W 1/4 Cor. 16 and found it to
be 2634.20 ft.
thence: S.W. Cor. 16 to W.1/4 Cor. 16 is N 0°04'30.4" E. with
distance of 2634.20 ft.

One second of Latitude is 30.870 meters at sea level.
One meter is 39.37 inches
Correction for 1000 ft. above sea level is + 0.04'/sec.
thence: One second of Latitude equals 101.31 ft.

If "AGGIE" is in 44°59'12.458" Latitude, there are 47.542 seconds required
to reach 45 degree latitude.
thence: Pt. on 45° Latitude must be 4816.48 ft. due North of U.S.G.S.
Triangulation Point "AGGIE".

Then by computation found Latitude of S. W. Cor. 16 to be 1801.88 ft.
due North of "AGGIE", and the Latitude of W. 1/4 Cor. 16 to be 4436.08
ft. due north of "AGGIE".
thence: Pt. on 45th Parallel on Cleveland Ave. must be 380.40 ft.
due north of W. 1/4 Cor. Sec.16.

This Point beyond reasonable doubt is within allowable error of seven feet.

To Establish Point in Vicinity of Keller Golf Course.

Visited P. J. McCauley at Minnesota State Highway Department and
from his U. S. G. S. Maps of Mississippi River Control scaled
distances from the following points in Sec.16 of New Canada Twp.

1. Along west Line of Sec. 16 distance from center of R. R. track,
   north to 45°, found it to be 1320.0 ft.

2. Along north and south 1/4 line, distance from center of R. R. track,
   north to 45°, found it to be 116.67 ft.

3. Along east line of Sec.16, distance from center of R. R. track,
   south to 45°, found it to be 326.67 ft.

4. Along Soo Line track, distance from East Line Sec. 16 to
   intersection of East ℄ track of Northern Pacific R. R., found
   it to be 416.67 ft.

Chained distance along Soo Line ℄ from East Line Sec. 16 to
intersection East ℄ track of Northern Pacific, found it chained
385.70 ft.
thence: 385.70 divided by 416.67 ft. gives constant which is ratio
between scaled and measured distances.

Then chained above scaled distances applying ratio, and set three
points, one on Arcade St., one on N. and S. 1/4 Line Sec. 16, one
on Phalen Ave.

Then occupied pt. on N. & S. 1/4 Line Sec.16, sighted on Point on
Phalen Ave., plunged and checked pt. on Arcade St. within fifty feet.

Then set point on S.T.H. #61 on same line.
This point must be checked by solar or astronomic observations.