

# Property & forest boundaries: Understanding the difference.

MDNR Survey Unit

Presented by: Matt Dontz, P.S.

Josh Davidson, P.S.

# Professional Surveyor requirements in Michigan.

- 4 year B.S. degree in Surveying
- Pass an 8 hour Fundamentals of Land Surveying Exam
- 4 year experience working directly under a licensed surveyor.
- Pass a 6 hour Principles & Practice of Land Surveying Exam
- Pass a 4 hour Michigan Specific Exam

# At our office



# Surveyors and Foresters

- Work outdoors – Have the best office
- Licensed under Occupational Code –
- Act 299 of 1980
- As Surveyors and Foresters Licensed in the state of Michigan we should know our “Boundaries of Expertise”

# Act 299 of 1980

## ARTICLE 21

- **339.2101 Definitions.**
- Sec. 2101. As used in this article:
  - (a) “Forester” means a person who, by reason of his or her knowledge of the natural sciences, mathematics, and the principles of forestry, acquired by forestry education and practical experience, is qualified to engage in the practice of professional forestry.
  - (b) “Practice of professional forestry” means professional forestry services, including consultation, investigation, evaluation, planning, or responsible supervision of forestry interns or forest technicians when the professional service requires the application of forestry principles and techniques.
  
- **339.2105 Plan, map, specification, report or estimate; indorsement by registered forester.**
- Sec. 2105. A plan, map, specification, or report issued by a registered forester shall be indorsed with his or her name and certificate of registration number during the life of the certificate of registration. A registered forester shall not indorse a plan, specification, estimate, or map unless the registered forester actually prepared the plan, specification, estimate, or map or was in the actual charge of the preparation of the plan, specification, estimate, or map.

# Act 299 of 1980

## Article 20

- **339.2001 Definitions.**

- Sec. 2001.

- As used in this article:

- (f) “Practice of professional surveying” means providing professional services such as consultation, investigation, testimony, evaluation, planning, mapping, assembling, and interpreting reliable scientific measurements and information relative to the location, size, shape, or physical features of the earth, improvements on the earth, the space above the earth, or any part of the earth, and the utilization and development of these facts and interpretations into an orderly survey map, plan, report, description, or project. The practice of professional surveying includes all of the following:

- (i) Land surveying that is the surveying of an area for its correct determination or description for its conveyance, or for **the establishment or reestablishment of a land boundary** and the designing or design coordination of the plotting of land and the subdivision of land.

- (ii) Geodetic surveying that includes surveying for determination of the size and shape of the earth both horizontally and vertically and the precise positioning of points on the earth utilizing angular and linear measurements through spatially oriented spherical geometry.

- (iii) Utilizing and managing land information systems through establishment of datums and local coordinate systems and points of reference.

- (iv) Engineering and architectural surveying for design and construction layout of infrastructure.

- (v) Cartographic surveying for making maps, including topographic and hydrographic mapping.

- (j) “Professional surveyor” means a person who, by reason of knowledge of law, mathematics, physical sciences, and techniques of measuring acquired by professional education and practical experience, is qualified to engage in the practice of professional surveying.

# Definition of Boundary

- Black' s Law Dictionary defines a **Boundary** as “... is understood, in general, every separation, natural or artificial, which marks the confines or line of division of two contiguous estates.”
- A change in ownership defines a boundary.
- Land boundaries can be marked by monuments, or may not be marked at all

- MSPS is working to educate the public on why and when a professional surveyor is needed
- Surveyors have knowledge of the laws and procedures for locating boundaries
- Only a licensed Professional Surveyor has the authority to establish or reestablish a boundary
- Handheld GPS – Everyone is a surveyor



# GENERAL LAND OFFICE (GLO) SURVEYS

NOW CALLED BLM

# THE WORLD ISN' T FLAT NOR IS IT SQUARE!!!!

- As the original government surveyors laid out each township they were instructed to push the error in their measurements to the North and West tiers of each township.
- Be aware of the last  $\frac{1}{4}$  miles on the N & W sides of the township.
- Be aware of “double corners”, standard and closing corners. Make sure you are using the correct corner for the section your working in.



GLO & SCHAAF  
FIELD BOOKS  
FROM 1930'S

26-13

FIELD NOTE BOOK

TOWN 26N. R 13W.

FOR DEPARTMENT  
OF  
CONSERVATION



STATE OF MICHIGAN

Town 26 N, R 13 W

East Random between sec's 21 + 28  
80.06 Intersect 13 L. south of post. Same

West Corrected between sec's 21 + 28

9.44 Beech 8 in dia

28.69 Maple 12 " "

40.00 Set for section post

Hem 13 S 30 W 24

Pine 14 N 28 E 32

52.74 Pine 14 in dia

66.97 Beech 10 " "

80.06 Section corner.

North between sections 20 + 21

10.78 Pine 16 in dia

25.71 Beech 14 " "

40.00 Set for section post

Beech 14 S 37 W 49

" 10 East 17

52.89 Pine 15 in dia

67.50 Beech 13 " "

74.50 Enter swamp W.

80.00 Set post corner sec's 16-17-20 +

Cedar 14 S 69 E 12

" 9 N 61 W 36

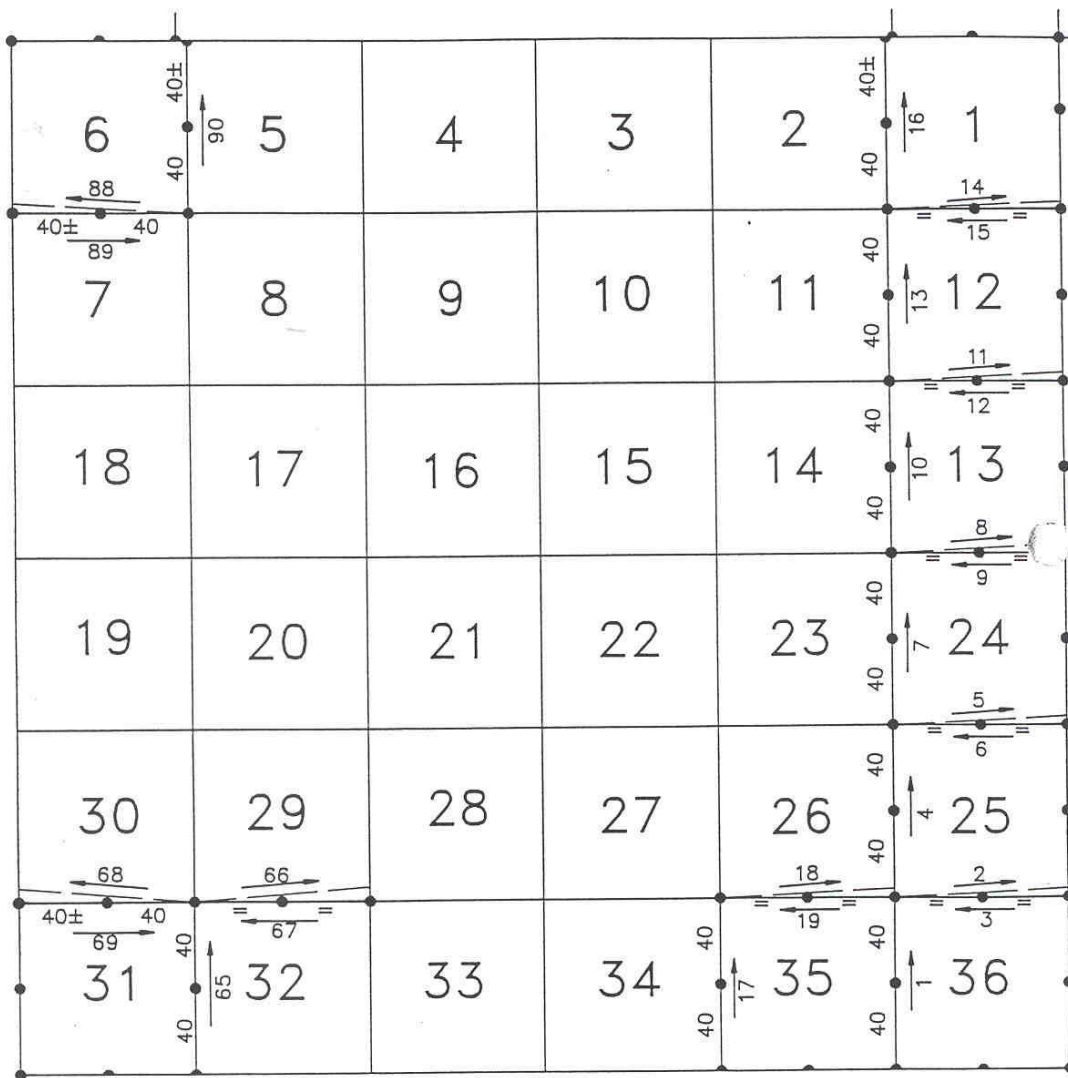
land rolling, 2<sup>d</sup> rate. Beech, Sugar, Pine, Hem  
May 31, 1839

# Importance of GLO Notes

- Witnesses
- Distances ran
- Deflections in lines
- Closing Distances
- Topo Calls
- Line trees



# 1833 INSTRUCTIONS

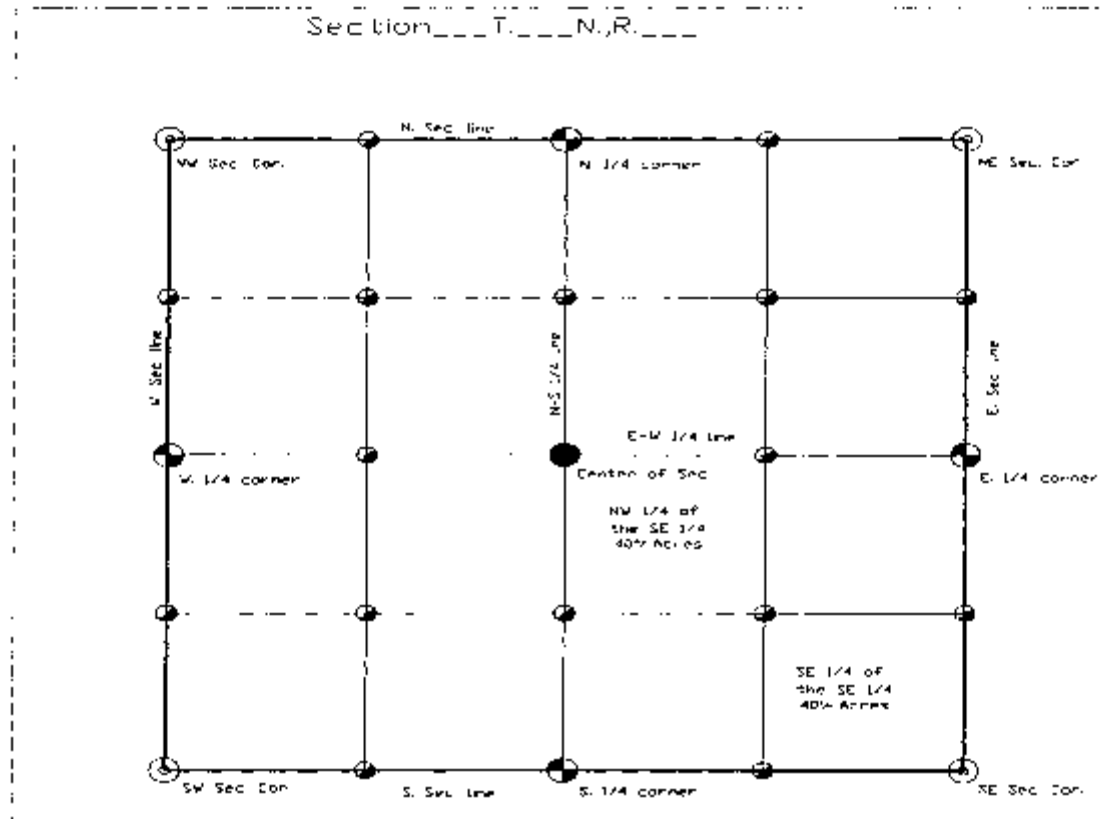


- - - - - = Random Line  
 ————— = True or Corrected Line





# Typical Section

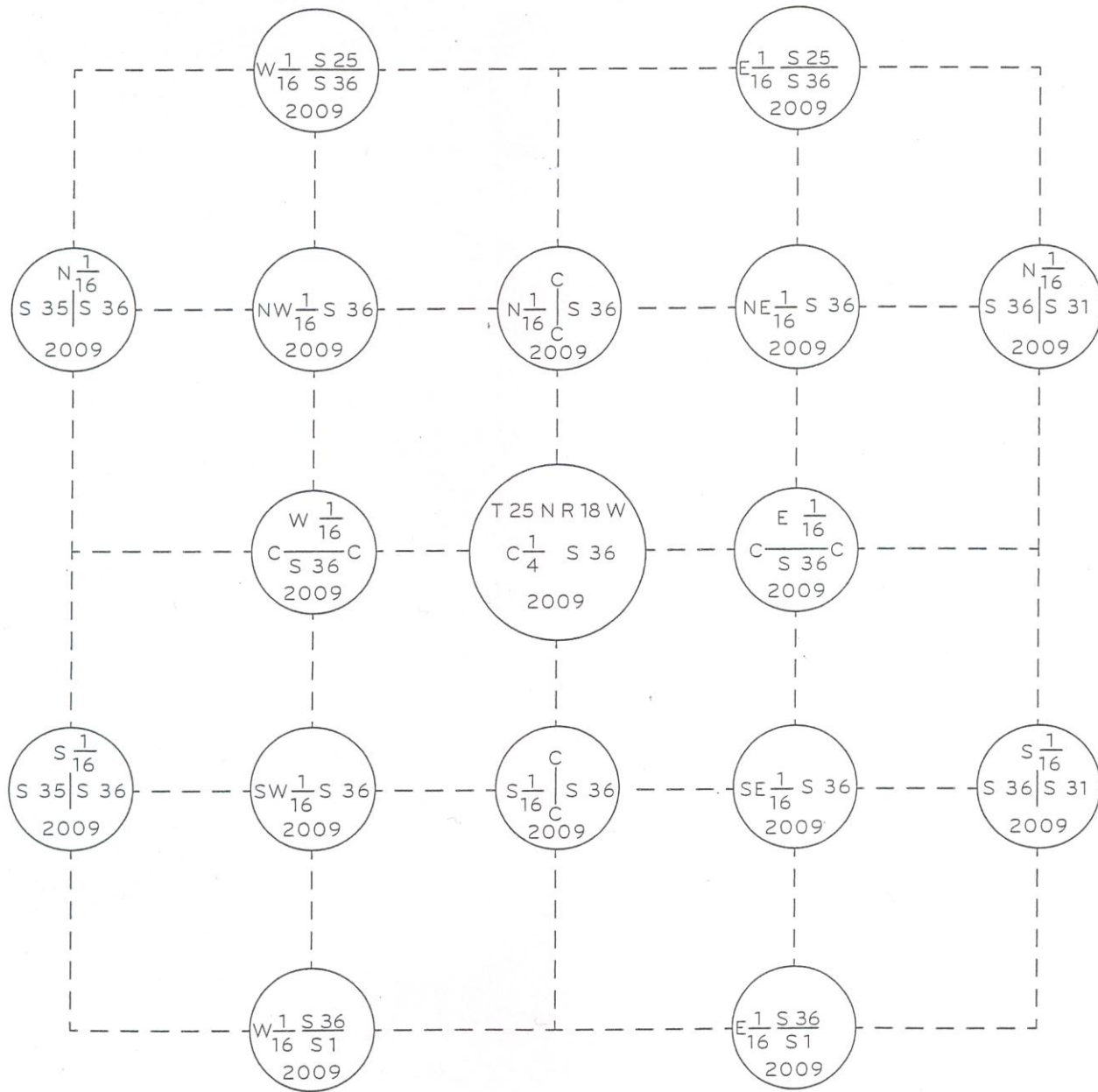


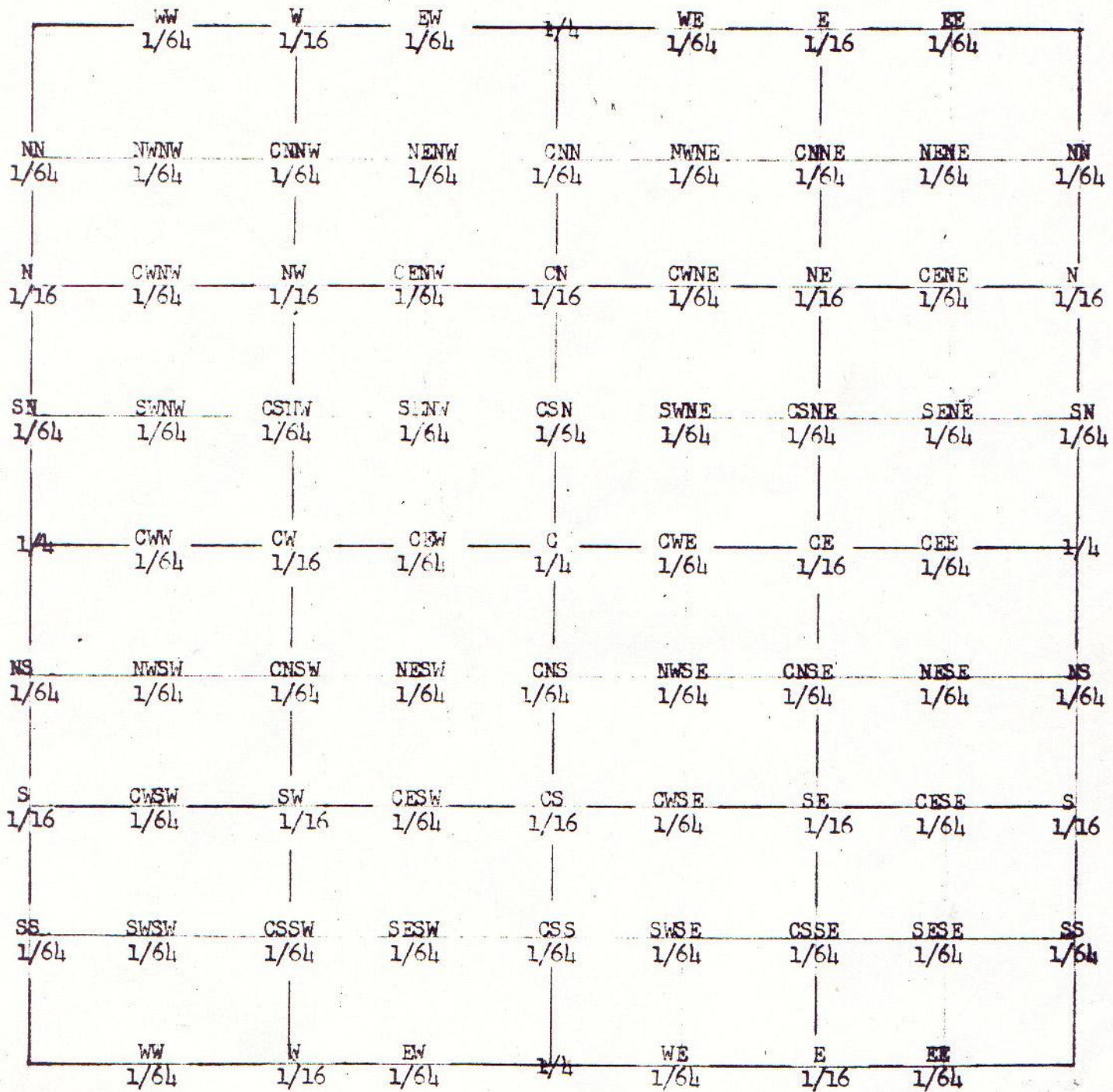
*Text book style of calculating center of section and 1/16 corners if 1/4 corner were properly established.*

**Center of section:** Is placed at the intersection of the N-S quarter line and the E-W quarterline

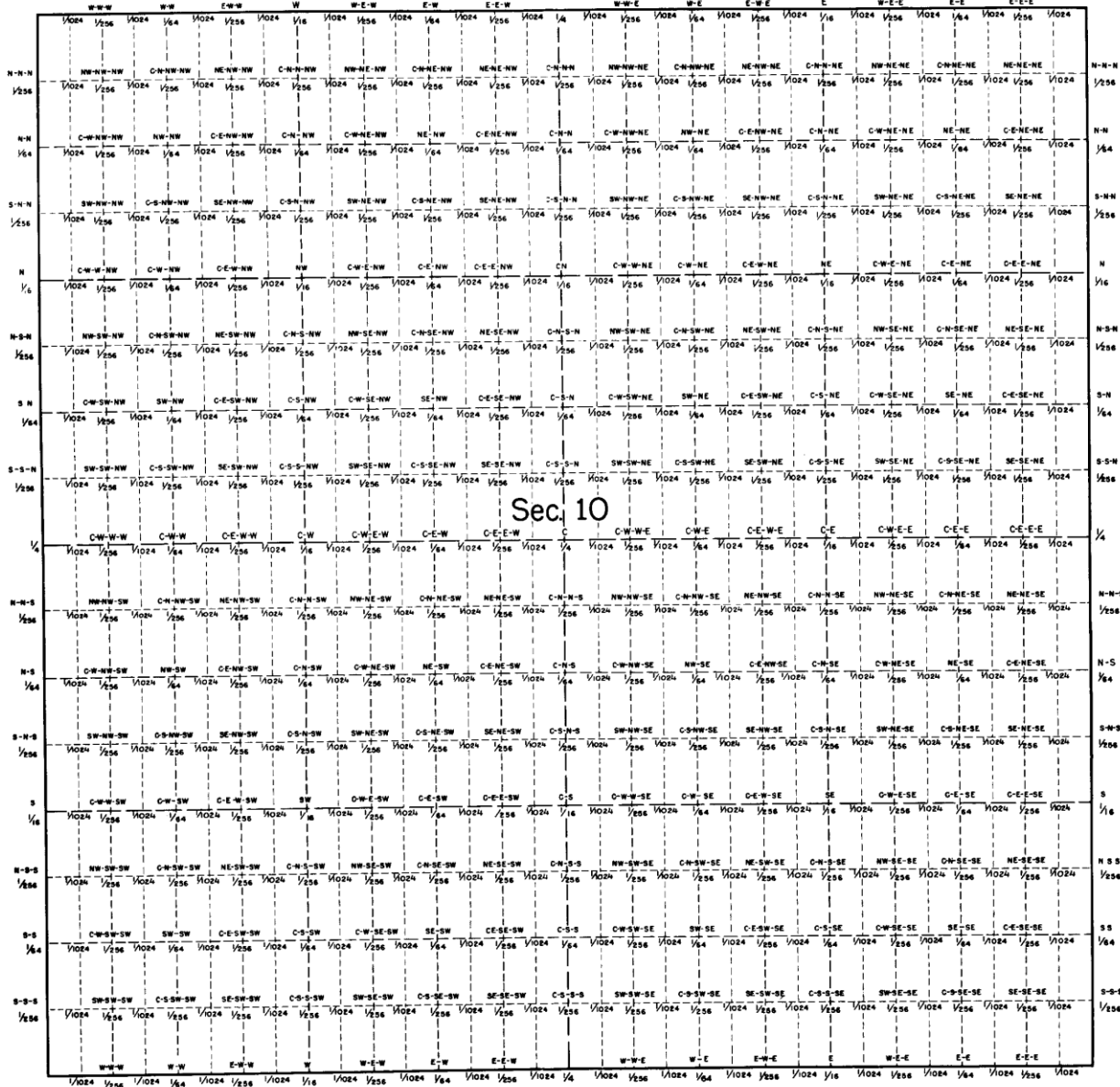
**1/16 corner on a 1/4 line:** Is place midway and online between a 1/4 corner and the center of section.

**Center 1/16 corner:** Is placed at the intersection of the two 1/16 lines.





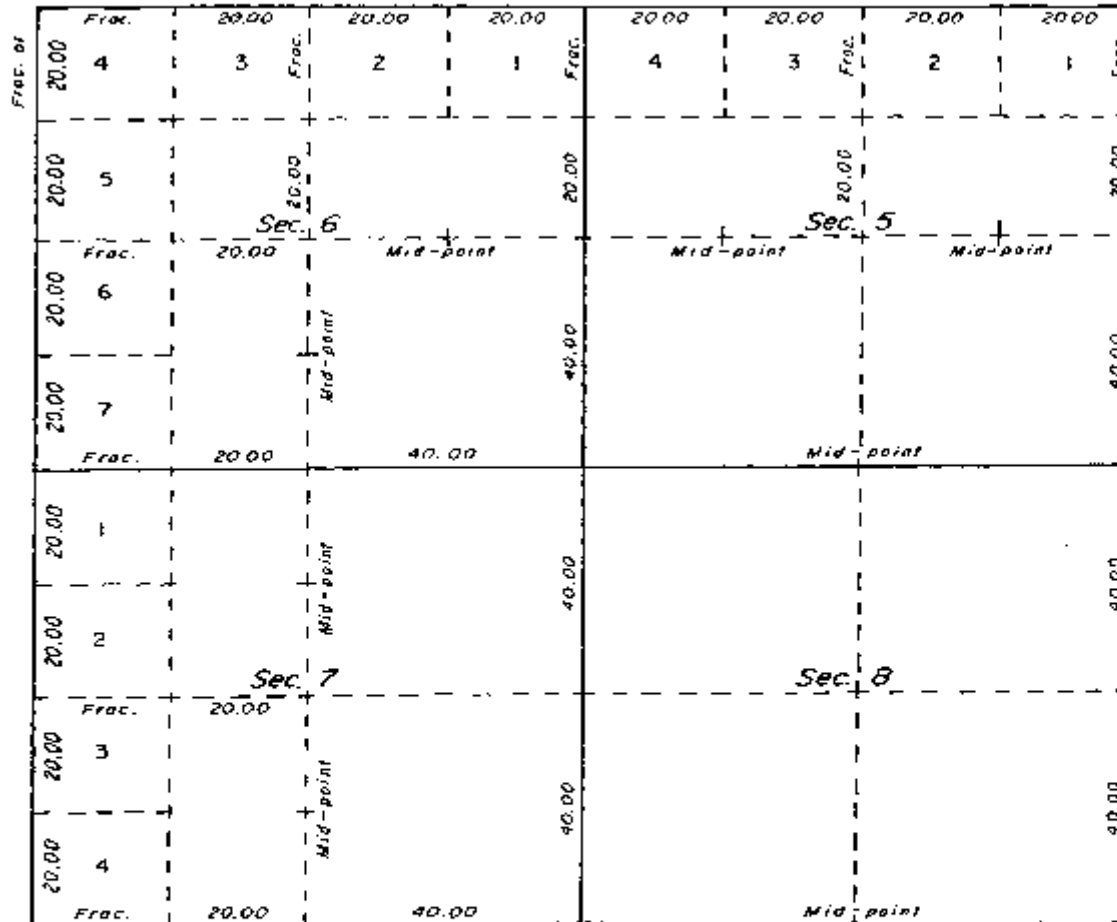
# IDENTIFICATION OF CORNERS ON SUBDIVISION OF SECTION LINES

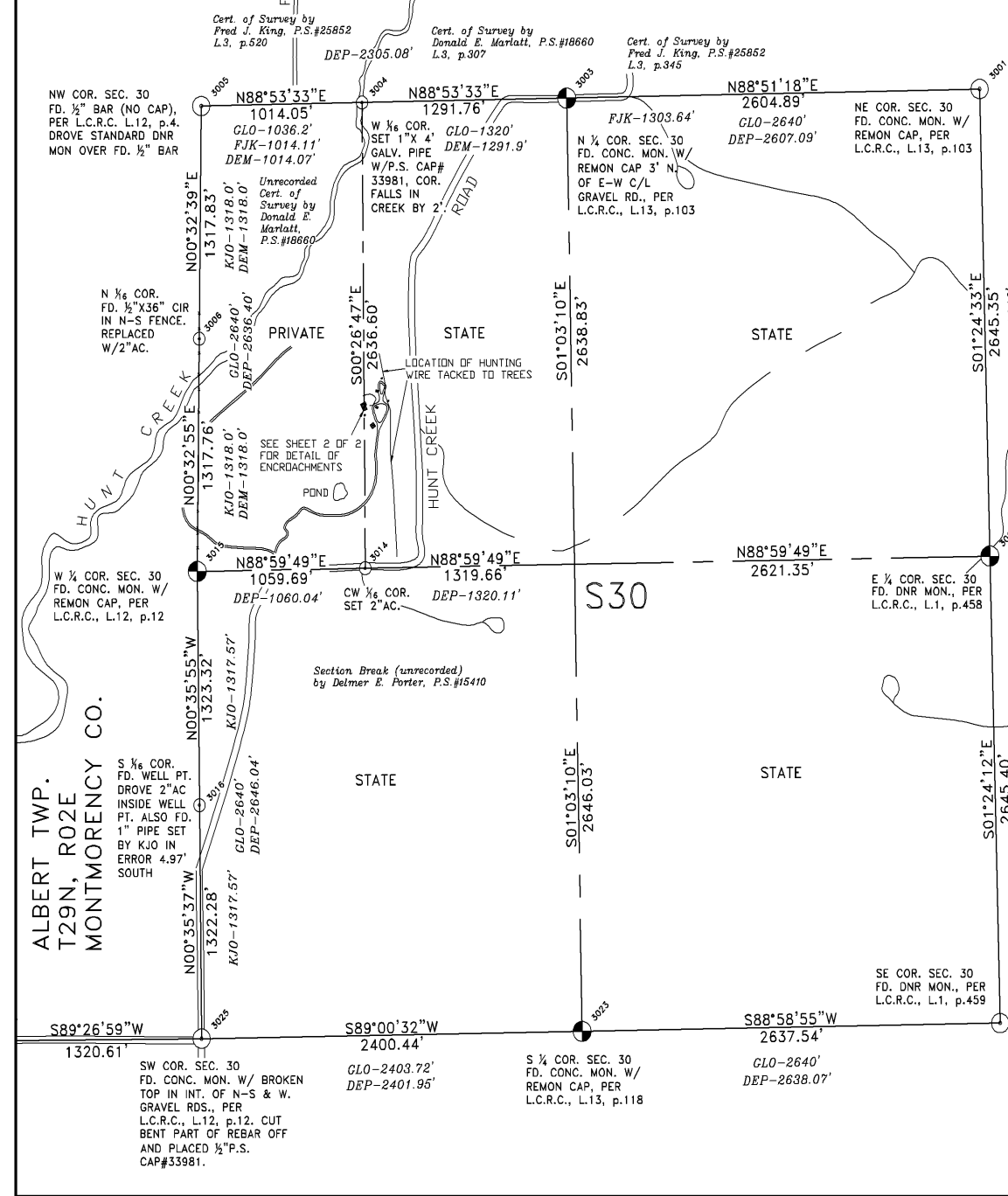


If 1/1024 corners are established they will be marked 1/1024 only

See figs. 65 & 66 MANUAL OF SURVEYING INSTRUCTIONS, 1973, for marks on the monuments

# “Run Out” Sections





POINT#	NORTHING	EASTING
3001	571558.72	19750837.40
3003	571506.66	19748233.03
3004	571481.69	19746941.51
3005	571462.10	19745927.65
3006	570144.32	19745915.14
3011	568914.16	19750902.45
3014	568845.18	19746962.05
3015	568826.63	19745902.52
3016	567503.38	19745916.34
3021	566269.55	19750967.24
3023	566222.69	19748330.12
3025	566181.17	19745930.04

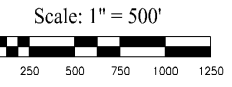
**CERTIFICATION:**  
I HEREBY, CERTIFY THAT THIS IS A TRUE REPRESENTATION OF THE SURVEY, AND THAT THE BOUNDARIES ESTABLISHED ARE MEASURED AND MARKED ACCORDING TO THE ESTABLISHED AND MEASUREMENTS HEREON.

CARL T. KIISKILA, P.

**LEGEND**

- DCP = Orange Carsonite Post
- BCP = Blue Carsonite Post
- LT = Location Tag
- 2" AC = 2" Aluminum Cap on 3/8" X 34" rebar
- CIR = Capped Iron Rod
- CIP = Capped Iron Pipe
- X-X-X = Fence or Fence remains
- SP = Single Proportion to GLO
- DP = Double Proportion to GLO
- S.C. = Standard Corner
- C.C. = Closing Corner
- ==== = GRAVEL COUNTY RD. <66'>
- ==== = SEASONAL ROAD
- = 2-Track Trail Rd.
- = Section Corner
- ⊙ = 1/4 Corner
- = Center of Section
- = 1/16 or Misc. Corner
- \* = Corner not recorded this survey

Location of roads, trails, rivers etc. are approximate only from 2005 Flashearth Imagery and field ties.



ALL MEASUREMENTS ARE IN GRID FEET AND DECIMALS THEREOF.

STATE OF MICHIGAN  
DEPARTMENT OF NATURAL RESOURCES  
FOREST MANAGEMENT

TYPE OF SURVEY AND LOCATION: SURVEY FOR SECTION 30, T29N, R02E, MONTMORENCY COUNTY, MICHIGAN

DIVISION: FMD

SURVEY BY: CARL T. KIISKILA

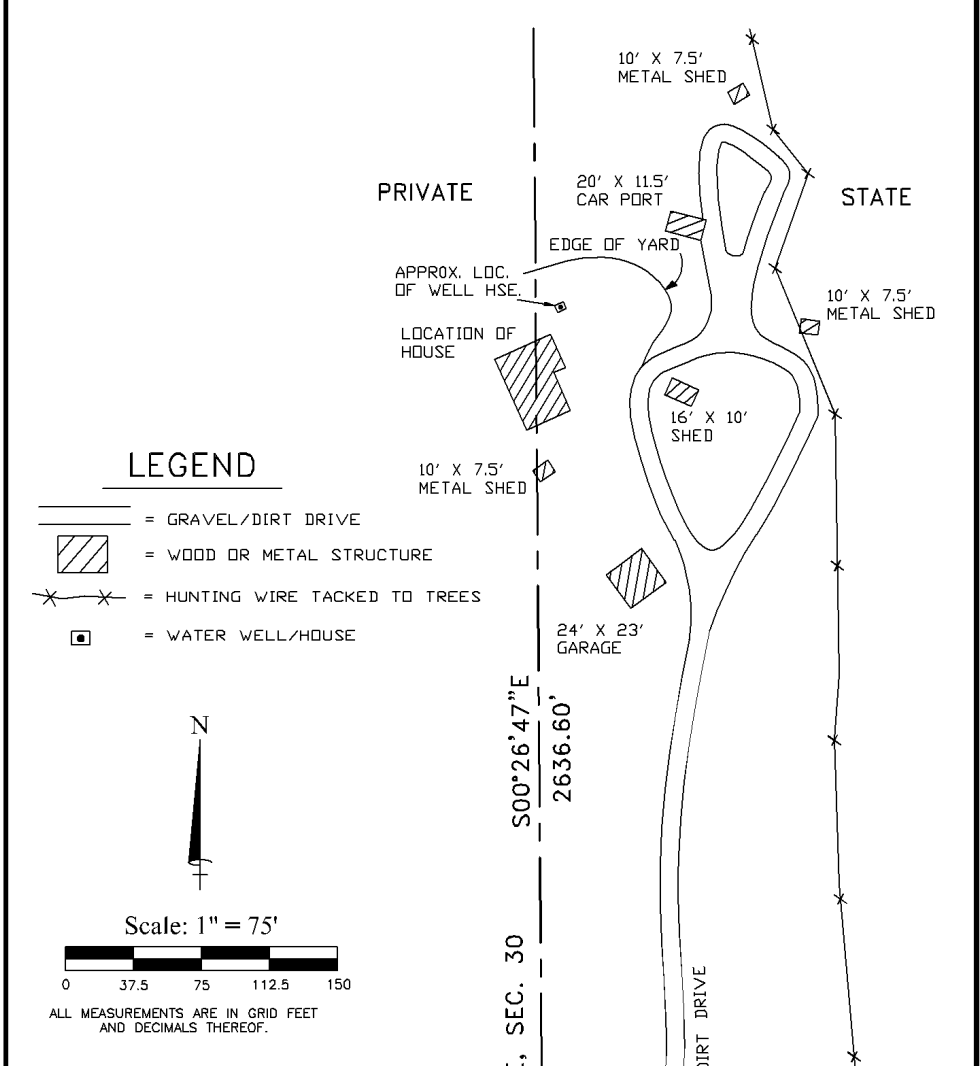
FIELD WORK BY: CARL KIISKILA

DRAWN BY: MATT DONTZ, P.S.#15410





CAD FILE: P:\OPM\SurveyData\PROJ

PLAN NO: R-60-BH

SURVEY MAP  
 DETAIL OF ENCROACHMENTS IN THE  
 SE 1/4 OF THE NW 1/4 OF SEC. 30, T29N, R03E



**LEGEND**

-  = GRAVEL/DIRT DRIVE
-  = WOOD OR METAL STRUCTURE
-  = HUNTING WIRE TACKED TO TREES
-  = WATER WELL/HOUSE

N

Scale: 1" = 75'



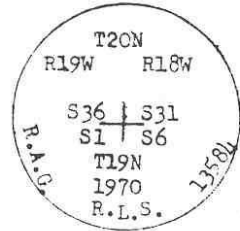
ALL MEASUREMENTS ARE IN GRID FEET AND DECIMALS THEREOF.



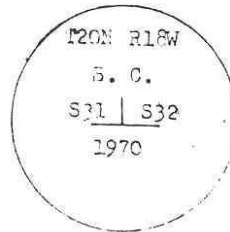


TYPICAL STAMPING OF BRASS CAPPED SURVEY MONUMENTS

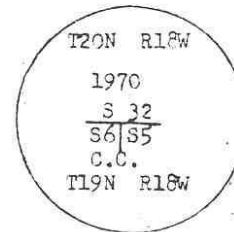
Used by Robert A. Griffin, Cadastral Surveyor, U.S. Forest Service Huron-Manistee National Forest, Michigan. Monuments are stamped with the year, surveyor's initials and registration number.



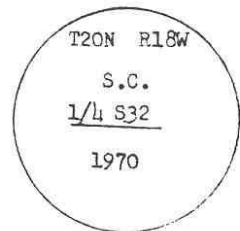
Corner common to four Townships



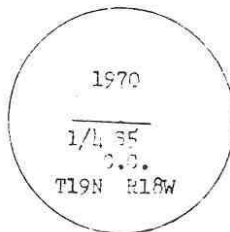
Standard Corner on Twp. Line or Correction Line



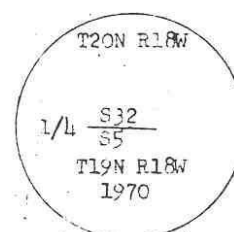
Closing Corner on Twp. Line or Correction Line



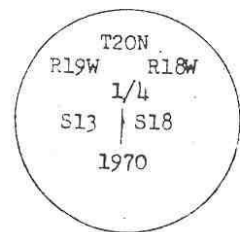
Standard 1/4 Corner on Township Line or Correction Line



Closing 1/4 Corner on Township Line or Correction Line



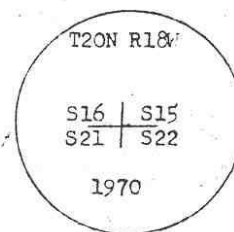
Common 1/4 Corner on Township Line



1/4 Corner common to two Townships



Closing Corner on a Land Grant



Corner common to four Sections

# CORNER EVIDENCE

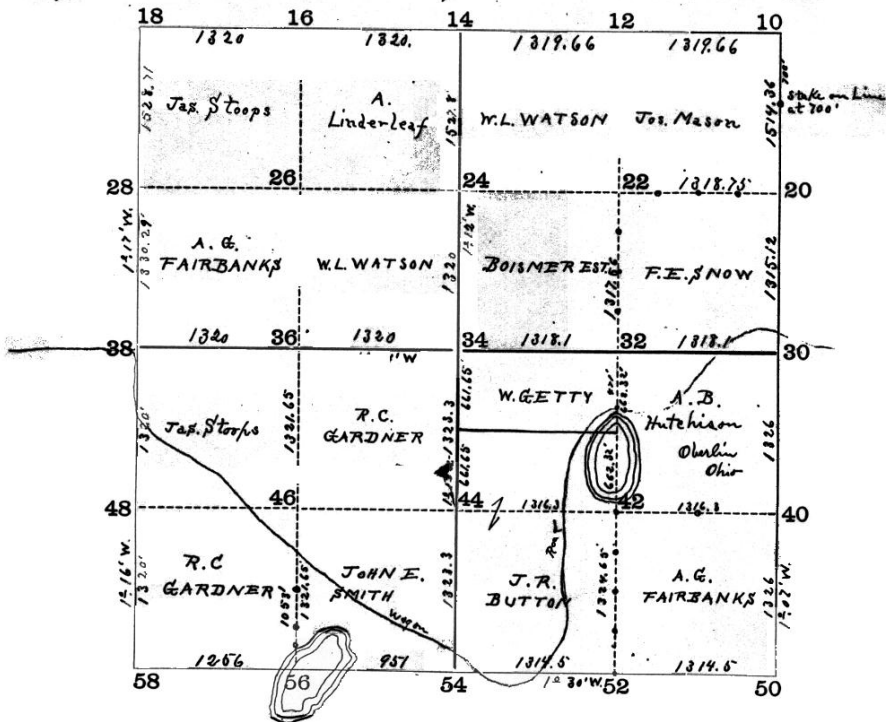
ORIGINAL GLO  
AND COUNTY SURVEYOR

STATE OF MICHIGAN,  
COUNTY OF GRAND TRAVERSE.

SEC  
T27N R9W

RECORD OF MINUTES OF SURVEY.

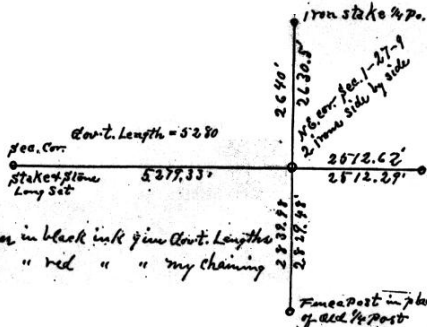
Survey of SECTION 1, Town 27 N., Range 9 W. Meridian of Michigan.



I run both  $\frac{1}{4}$  lines of the sec. and placed cor. #34 at their intersection and we drove 40 rod stakes on every all lines run - drove 20 rod stakes on some lines

Cor. #10 of Sec. 1-27-9 is 2 iron stakes side by side & wit. by { Pine stump 30 N.  $26^{\circ}E$ . 39'  
Pine stump 30 S.  $86^{\circ}W$ . 176.5'

Cor. #10 was in bad shape or lost the road having been graded down about 3 feet - I measured the Govt. line in to this cor. from the N. S. E. W. and found one foot shortage in the E. W. line and 20 feet shortage in the N. S. line which shortage I divided proportionately between the different lines as per plat below



Figures in black ink give Govt. Lengths  
" " " " my chaining

REMAINS OF 1852  
GLO BT -WPS AT N  
1/4, SEC. 36 T27N,  
R5W, KALKASKA  
CO., MI

FLAGGING ON  
AXED  
MEASURING  
NOTCH



GLO PINE BT STP. WITH  
FACE-

S. SIBLEY-1837

SE COR. SEC. 27, T19N,  
R12W, LAKE CO., MI



1896 TULLER  
STAKE POINT  
AT

C 1/4 SEC. 25  
T26N, R13W



1915 County  
Surveyor Yellow  
Pine Witness  
Stump





1915 County  
Surveyor Stake  
Oscoda County



CHISELED STONE  
BY WILLIAM  
SLAWSON-1876

E 1/4 SEC. 12, T27N,  
R9W

GRAND TRAVERSE  
CO., MI



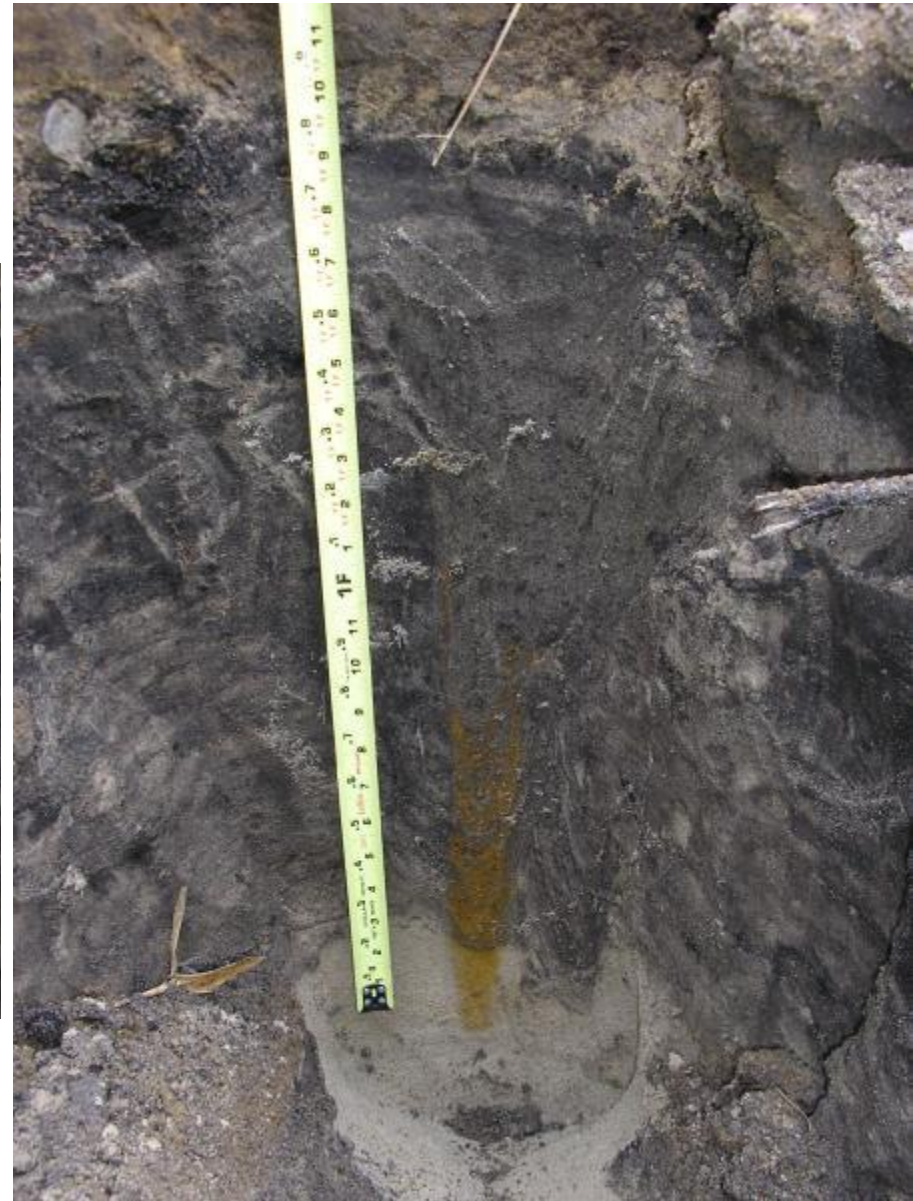
# Stake Shadow



# Crockery & Stake Shadow



# Stake Shadow







# Survey Information



# Information Sources

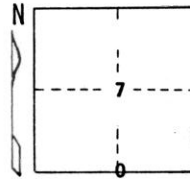
- Register of Deeds
  - GLO Notes & plats
  - County Surveyor Records
  - Act 74-LCRC' s
  - Sec. 3. If a public land survey corner or an accessory to the corner is used by a surveyor as a control in a survey, not more than 90 days after completion of the survey, the surveyor shall complete, sign, seal, and file with the register of deeds of the county where the corner is situated, a corner record for the public land survey corner or accessory to the corner, unless the corner monument and its accessories are as described in an existing corner record filed under this act.
  - Act 132-Cert. Surveys
  - Equalization office
  - Deeds
  - DNR Survey Records

# OLD STYLE CORNER RECORD-BEFORE 1972

STATE OF MICHIGAN  
DEPARTMENT  
OF  
NATURAL RESOURCES  
LAND CORNER RECORD

BENZIE COUNTY  
T 26 N R 13 W

DESCRIPTION OF CORNER S 1/4 corner Sec. 7  
 CORNER MONUMENT Set DNR Monument & Cedar Guard Post  
 DATE MONUMENT PLACED AND WITNESSED 4-24-72  
 WITNESSES TO CORNER..... 8" Maple S 18 W 23.5'  
16" R. Cherry N 23 E 42.0'  
7" Maple N 82 E 34.8'  
 AND \_\_\_\_\_



CIRCLE CORNER REGISTERED

DESCRIPTION IN DETAIL AS TO HOW CORNER WAS LOCATED AND IDENTIFIED OR RESTORED.

Corner reestablished single proportion to U.S. between recovered Section Corners to E & W. Corner fence post (Fence W & Irregular S) Approx. 20' S & 14'E.



SIGNED Carl F. Roser DATE 5-23-72  
 REGISTERED LAND SURVEYOR 12028

County Courthouse  
 Area Forester (Regions I & II)  
 District or Region Surveyor  
 Forestry Div., Lansing

# LAND CORNER RECORDATION CERTIFICATE

Filing Requirement of Act 74, Mich. PA 1970

LIBER **2** PAGE **283**

STATE OF MICHIGAN  
BENZIE COUNTY  
RECORDED

12 JAN 2000 9:23:21 AM  
MICHELLE R. GRAY  
REGISTER OF DEEDS  
# PAGES One

Register of Deeds Stamp & File Number

For Corners In:  
Benzie  
(County)

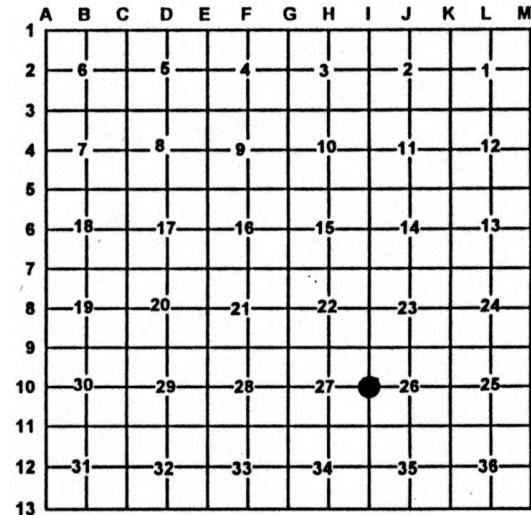
1. Public Land Survey		T <u>26N</u>	R <u>13W</u>		I-10
		T _____	R _____		
2. Property Controlling in Section	S _____	T _____	R _____		
	S _____	T _____	R _____		
3. Miscellaneous Property in Section	S _____	T _____	R _____		
	S _____	T _____	R _____		

4. Lot No: \_\_\_\_\_ Recorded Plat: \_\_\_\_\_

5. Private Claims: \_\_\_\_\_

I, Craig W. McVean, in a field survey on Nov. 4, 1999 do hereby state that under requirements of PA 74, Michigan PA of 1970, the corner points mentioned in lines 1 and 2 above were in conformance with regulations and rules therefore as required in the current manual of survey instructions of the United States Department of the Interior, Bureau of Land Management or by a decree of a Court of Law and/or that the corner points mentioned in lines 3, 4 and 5 above were in conformance with the rules of the Michigan Board of Land Surveyors or by a Decree of a Court of Law; established, re-established, monumented, recovered, found as expressed below:

**NOTE: Not more than 2 corners, all in the same town and range, may be recorded on this certificate.**



**A. Description of original monument and accessories and/or subsequent restoration:**

I-10-GLO-Pine 36" ¼ Sec. Cor. – Alvin & Austin Burt - 1839  
Hemlock 15" N60°E 21 L.

- Chicago & West Michigan Railway Co. – 1891 Plans 784' S. to CL. Railway
- C.P. Tuller – 1896 – BK 4B, P. 274 – FND. The W. Pine Stp. and the Stp. of the Hem. Wit. tree
- LCRC L. 1, P. 155 – C.F. Roser – 1981  
FD. 36" x 6.5' W. Pine stub with real old N-S, B-W fence remains on it. There is a possible Hem. Hummock site N60°E 14'. Corner also fits 1891 Chicago & West Mich. R.R. tie of

(784' – Rec.) 785.9' ± comp. S. to ctr. of existing RR tracks. There is an old E-W (shewed) fence, mostly down, 50' ± S of 36" W. Pine stub. The fence goes E'ly a short distance to swp. & W'ly (mostly gone) ½ mile. Accept 36" WPS for ¼ Cor. Drove DNR Mon. on 1" x 30" pipe inside 1 ¼" x 36" pipe in ctr. of cut off stump remains of 36" P. stb. -11" W. Pine S28°E 43.7', 26" W. Pine Stp. N61°E 45.5', 22" W. Pine S29°W 68.8', 10" Cedar S51°W 71.5'.

A. Description of original monument and accessories and/or subsequent restoration:

I-10-GLO-Pine 36" ¼ Sec. Cor. – Alvin & Austin Burt - 1839

Hemlock 15" N60°E 21 L.

-Chicago & West Michigan Railway Co. – 1891 Plans  
784' S. to CL. Railway

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and the Stp. of the Hem. Wit. tree

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(784' – Rec.) 785.9' ± comp. S. to ctr. of existing RR tracks.  
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swp. & W'ly (mostly gone) ½ mile. Accept 36" WPS for ¼  
Cor. Drove DNR Mon. on 1" x 30" pipe inside 1 ¼" x 36" pipe in ctr.  
of cut off stump remains of 36" P. stb. -11" W. Pine S28°E 43.7',  
26" W. Pine Stp. N61°E 45.5', 22" W. Pine S29°W 68.8', 10" Cedar  
S51°W 71.5'.

B. Description of corner evidence found and/or method applies in restoring or re-establishing corner:

I-10-1/4 corner common to Sec. 26 & 27 – FND. 4" DNR alum. cap on 1" iron pipe in CL. 36" W. Pine stub w/ 6' dia. Root base per  
Roser LCRC. Old down fence wire is N-S through stub. DNR mon. accepted as careful & faithful perpetuation of the position of  
the original corner.

Ratified by Peer Group

In accordance with P.A. §45

Chairman *[Signature]*

Date 11/3/1999

C. Description of monument for corner and accessories established to perpetuate locating the position of the corner:

I-10-4" DNR Alum. Cap on 1" x 30" iron pipe inside 1 ¼" x 36" iron pipe in CL of 36" W. Pine stp. Stub.

Add Blue Carsonite Post 2' SW

N74°E 19.62' to set N & T in S Side 9" W. Pine scribed 'XBT'

N2°W 29.81' to set N & T in W Side 8" W. Pine scribed 'XBT'

S30°E 44.33' to set N & T in SW Side 19" W. Pine (CFR)

S23°W 69.47' to set S & T in W Side 28" W. Pine (CFR)

S45°W 71.87' to set N & T in SE Side 12" Cedar fd. scribed '1/4 NBT' (CFR)



Signed by:

*Craig W. McVean*

Date:

\_\_\_\_\_

# LCRC-1/16 CORNERS

## LAND CORNER RECORDATION CERTIFICATE Filing Requirement of Act 74, Mich. PA 1970

For Corners In: \_\_\_\_\_ Located In \_\_\_\_\_ Corner Code # \_\_\_\_\_  
(County)

1. Public Land Survey T \_\_\_\_\_ R \_\_\_\_\_  
T \_\_\_\_\_ R \_\_\_\_\_

2. Property Controlling in Section S 25 T 26N R 13W 4  
S 25 T 26N R 13W 5

3. Miscellaneous Property in Section S \_\_\_\_\_ T \_\_\_\_\_ R \_\_\_\_\_  
S \_\_\_\_\_ T \_\_\_\_\_ R \_\_\_\_\_

4. Lot No: \_\_\_\_\_ Recorded Plat: \_\_\_\_\_

5. Private Claims: \_\_\_\_\_

L. 1, P. 405  
3/30/2000

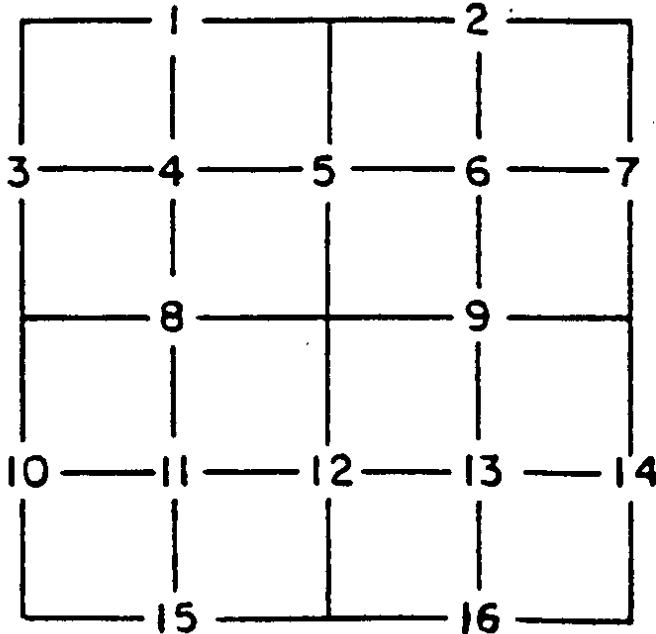
Register of Deeds Stamp & File Number

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2	6	5	4	3	2	1							
3													
4	7	8	9	10	11	12							
5													
6	18	17	16	15	14	13							
7													
8	19	20	21	22	23	24							
9													
10	30	29	28	27	26	25							
11													
12	31	32	33	34	35	36							
13													

I, Craig W. McVean, in a field survey on Sept 8, 1998 do hereby state that under requirements of PA 74, Michigan PA of 1970, the corner points mentioned in lines 1 and 2 above were in conformance with regulations and rules therefore as required in the current manual of survey instructions of the United States Department of the Interior, Bureau of Land Management or by a decree of a Court of Law and/or that the corner points mentioned in lines 3, 4 and 5 above were in conformance with the rules of the Michigan Board of Land Surveyors or by a Decree of a Court of Law, established, re-established, monumented, recovered, found as expressed below:

NOTE: Not more than 2 corners, all in the same town and range, may be recorded on this certificate.

A. Description of original monument and accessories and/or subsequent restoration:  
4 - None 5 - None



B. Description of corner evidence found and/or method applies in restoring or re-establishing corner:  
4 - NW 1/16 cor. Sec. 25 - Corner in cedar swamp. 5 - CN 1/16 Cor. Sec. 25 - Set 2" Alum. Cap on 5/8" x 34" Rebar per standard BLM procedure.

C. Description of monument for corner and accessories established to perpetuate locating the position of the corner:  
4 - 2" Alum. Cap. on 5/8" x 34" Rebar. Set Blue Carsonite Post 1' SW N70°E 26.16' to N & T in SE side 6" Cedar N52°W 13.35' to N & T in SW side 6" Cedar S40°W 10.00' to N & T in SE side 9"W. Birch S20°E 21.49' to N & T in E side 3' Fir  
5 - 2" Alum. Cap on 5/8" x 34" Rebar. Added broken glass around and set Blue Carsonite Post 1' SE. S19°E 21.72' to N & T in W. side 42" R. Oak N83°W 15.83' to N & T in S. side 4" R. Oak N60°E 40.77' to N & T in SE side 14" S. Maple S85°E 18.76' to N & T in S side 4" W. Pine

Signed by: Craig W. McVean Date: 3/29/2000  
Surveyor's Michigan License No.: 39088

# USEFUL SITES

**-BLM SITE:** (<http://www.glorerecords.blm.gov>)

**-FLASHEARTH:** (<http://www.flashearth.com>)

**-RECORDED PLATS:**

([http://www.dleg.state.mi.us/platmaps/sr\\_subs.asp](http://www.dleg.state.mi.us/platmaps/sr_subs.asp))

**-LAND CORNER RECORDS:**

([http://www.dleg.state.mi.us/remon/sr\\_remon.asp](http://www.dleg.state.mi.us/remon/sr_remon.asp))

**-MDOT MAPS:**

(<http://mdotwas1.mdot.state.mi.us/public/ROWFiles/index.cfm>)

# Differences between Survey grade GPS & Mapping grade.



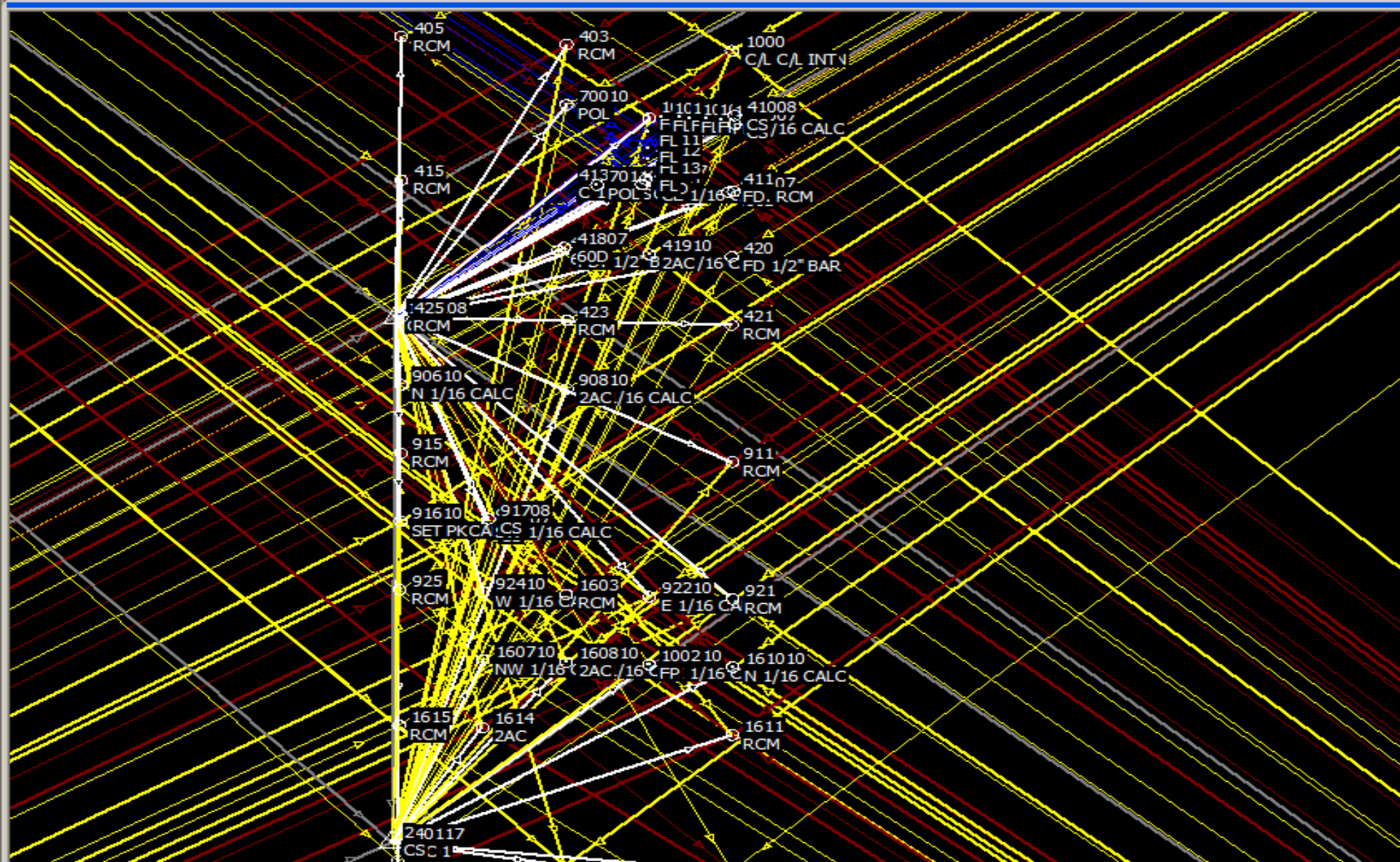
# RTK Survey grade GPS Base Station & Rover







# GPS PROCESSING



# DIFFERENTIAL GPS IN NORTHERN HARDWOOD STAND

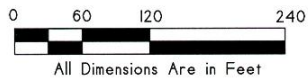


— Garmin GPSMap 76

— Trimble PROXR. No PDOP filtering.

+ Ashtech Z-surveyor survey grade kinematic.

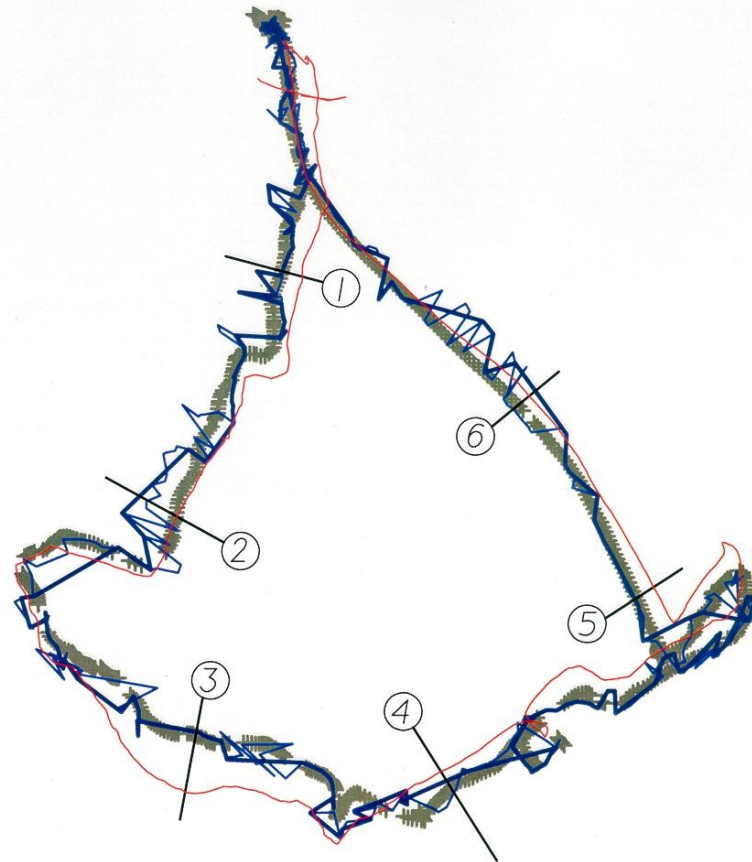
19 Dec 2001






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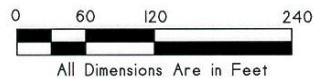
# DIFFERENTIAL GPS IN NORTHERN HARDWOOD STAND



-  Garmin GPSMap 76
-  Trimble GEO II. No PDOP filtering.
-  Trimble GEO II PDOP  $\leq 6$

+ Ashtech Z-surveyor survey grade kinematic.

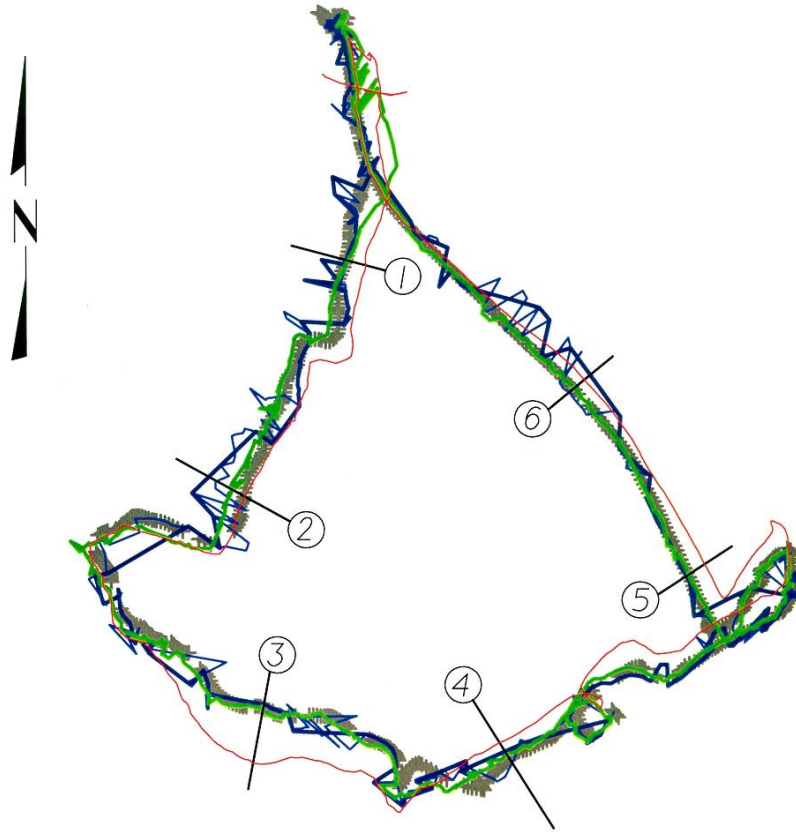
19 Dec 2001



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# DIFFERENTIAL GPS IN NORTHERN HARDWOOD STAND



- Garmin GPSMap 76
- Trimble GEO II. No PDOP filtering.
- Trimble GEO II PDOP  $\leq 6$
- Trimble PROXR. No PDOP filtering.

+ Ashtech Z-surveyor survey grade kinematic.

19 Dec 2001







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# DIFFERENTIAL GPS IN FOREST CLEARING



-  *Garmin GPSMap 76*
-  *Trimble GEO II. No PDOP filtering.*
-  *Trimble PROXR. No PDOP filtering.*
-  *Ashtech Z-surveyor survey grade kinematic.*

19 Dec 2001



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# Upgrading Corner



03/23/2009

# Updated Corner





# BEARING TREE

Paint Blazes and nail  
4" Ring min.



- **GLO Bearing Tree**
- 10” Sugar Maple
- September 26, 1850
- Living until fall 2011
- August 7, 2012 cut
- 36” DBH
- 200+ estimated age
- Corner common to Sections 8, 9, 16, & 17, T28N, R7W



# Milling Butt Log



# GLO Scribing found in log



