

PUBLIC LAND SURVEY

In 1785 the Federal Congress enacted the basic law under which, with few changes, practically all the lands north of the Ohio River and west of the Mississippi River and the states of Alabama, Florida and Mississippi have been surveyed. The objective of the system was to have all land measured into regular units, each a mile square. These units, however, are only approximately a mile square because all due north and south lines converge towards the north pole.

THE SYSTEM. The public land survey system starts with an initial point to which is referenced all territory within certain specified regions. Thirty-five such points have been established. Through each initial point is extended a true north and south line called a principal meridian and a due east and west line called a base line. Each principal meridian is named to differentiate it from the others.

In order that the convergence in-the north and south lines may be properly handled, areas approximately 24 miles square are surveyed out. The lines running north and south on these blocks are called guide meridians and those running east and west are known as standard parallels. The 24-mile blocks are measured as 24 miles on all sides except the north, where the correction for convergence is made.

Each 24-mile block is divided into townships, each approximately six miles square. Theoretically, all townships contain less than 36 square miles, as the range lines start at points six miles apart on the south standard parallel and are run due north, to the standard parallel on the north side of the 24-mile block. The group of townships extending north and south are called ranges while those running east and west are known as tiers or townships.

The work of dividing the townships into sections starts at the southeast corner and extends across the township to the north, taking a tier of sections at a time and always working from south to north. The section lines are run parallel to the east township line rather than due north. The object of this work is to throw the irregularities into the north and west tier of sections in each township.

Each section may be further subdivided into quarters by projecting lines across the sections from points midway between the corners. Likewise, each quarter section may be divided into quarters or 40-acre units, and these, in turn, into quarters. In irregular sections on the north and west sides of a township, the irregularity is not distributed throughout the section but thrown into the north and west subdivision.

The General Land Office, which does the land surveying for the Federal government usually completes its work with the running of the exterior lines of the sections. In addition, by running a traverse line along their edges, it meanders all navigable streams and those over three chains in width as well as other large bodies of water such as lakes over 25 acres. Any additional land surveying must be done by local surveyors.

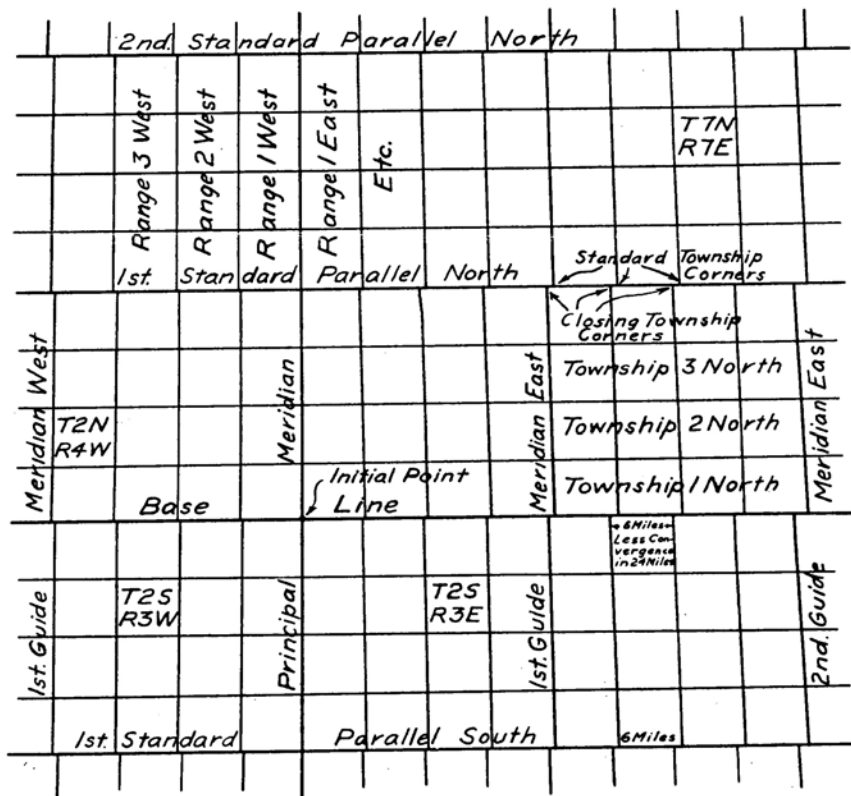
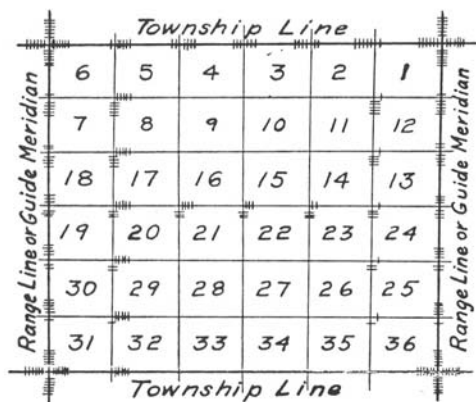


Figure 14. Diagram indicating the usual Township arrangement.

A complete set of field notes is taken by the General Land Office along each line measured. These notes indicate the nature of the topographic features, the soil and cover type, and the accuracy, placement, and method of running all lines. A complete description of all monuments and corner markings is also included. Field notes are useful in finding corners on old surveys and in retracing lines in areas where the regular system of public land survey was not used.



NW $\frac{1}{4}$	W $\frac{1}{2}$	NE $\frac{1}{4}$
160a	NE $\frac{1}{2}$	
N $\frac{1}{2}$ SW $\frac{1}{4}$		NE $\frac{1}{4}$
80a		SE $\frac{1}{4}$
		40a

Figure 15. Diagram indicating the numbering of the Sections and the markings on the stone. Figure 16. Diagram indicating the designation of divisions of a section the Sections and the markings on stone corners.

Occasionally, the lines in the field will not coincide with the notes therefore. Copies of the field notes are kept in the General Land Office at Washington, D. C., and in the regional offices throughout the country. Whenever the area in any state is completely surveyed, the original

records are transferred to the state officials. Most county surveyors have secured copies of the field notes for much of the land in their respective counties. Field notes are public records and are available to anyone who is willing to stand the expense of copying them.

LEGAL DESCRIPTION. All tracts of land are described by the same method. The tiers of townships are numbered from the base line and are also designated as north or south therefrom. Likewise, the ranges are labeled from the principal meridian. It is therefore possible to describe any particular six mile square by giving its township and range designation with the name of the principal meridian. Sections are always numbered, there being 36 to the township. Aside from the lands surveyed before 1796, the sections in a township are, according to the law, "numbered respectively, beginning with the number one in the northeast section and proceeding west and east alternately through the township, with progressive numbers until the 36th is completed. Sections in partial or irregular townships are given the same number they would have if the township were full.

Portions of sections are described in reference to the direction of the section. Thus, the northeast quarter of the section is labeled NE1/4 while, when it is divided into quarters, the same designation is applied to them, as the SE1/4 of the NE1/4. Areas, which normally would contain 40 acres but which do not because of irregularities, are called lots` and numbered in a regular manner for each section.

The complete description of a piece of land starts at the smallest division and covers each division in order on a size basis. Thus, a given 20 acre tract would be described as W1/2, NE1/4, SW1/4, S 32, T 20 N, R 3 E, W.M. To obtain the number of acres in a regular subdivision, multiply the area of a section, (640- acres), by the product of the fractions in the legal description.

FIELD MARKINGS. Section lines in wooded country are marked by blazing sufficient trees within 50 links of the line, preference being given to those trees nearest the line. Trees which are intersected by the line will have two hack marks or notches on the sides facing the line. Trees not intersected by the line will be blazed on two sides quartering to the line, the blazes being opposite each other and coinciding in direction with the line where the trees stand near it. The blazes approach each other toward the line, the farther the line passes from the blazed trees. In early surveys the blazes were not quartered in this manner.

A corner with suitable witnessing objects is established at each intersection of the survey lines. Corners are now made of iron pipe with a brass cap thereon upon which is placed the label of the corner. On older surveys the corners consisted of wooden stakes, trees, stones, or bits of buried glass or charcoal. As a rule, section and township corners were set diagonally while the others were set in cardinal directions. Witnesses, in wooded country, are usually trees called bearing trees, although pits and mounds may be used. Bearing trees are marked with two blazes, the upper blaze being the larger and containing the special markings while the lower and smaller blaze contains the letter B T. These blazes face the corner and in most cases are cut through the bark and into the wood. On old surveys, the blazes are often overgrown, necessitating the chopping away of the wood covering the marks if they are to be read.

The corners placed by the General Land Office are:

1. Township corners at each corner of every township.
2. Section corners at each corner of every section.
3. Quarter corners halfway between the section corners on the section lines. So called, because they become the corner to quarter sections.
4. Meander corners at the intersection of a section line with the meander line along streams or other object.
5. Witness corners set to witness a regular corner which cannot be placed, because of its falling in a stream, lake, road, cliff or rock slide. Witness corners are ordinarily placed on the section line leading into the regular corner. However, if there is not a suitable place

within a distance of 10 chains on a surveyed line leading to a corner, the witness corner may be located in any direction within a distance of 5 chains.

6. Standard corners, on standard parallels referring to the land to the north of the parallel. There are standard township, section, and quarter corners.

7. Closing corners, on standard parallels referring to the land to the south of the parallel.

TABLE SHOWING THE MARKINGS FOUND ON CORNERS AND BEARING TREES IN THE U.S.

CORNER	WOODEN STAKE OR TREE	STONE	BEARING TREE
Town- ship	Township and Section on NE face; Range and Section on SE face; Township and Section on SW face; Range and Section on NW face.	Six notches on all four sides.	Township, Range, and Section in which the tree stands.
Section	Township and Section on NE face; Range and Section on SE face; Section on SW and NW faces.	One notch for each mile. Interior corners are marked in reference to the south and east boundaries of the township. Corners on township boundaries are referenced to the township corners between which the corner lies.	Township, Range and Section in which the tree stands.
Quar- ter On east and west sides of Section.	1/4 S and Number of Section on west face and Number of Section on east face.	1/4 on west face	1/4 S and Number of Section in which tree stands.
On north and south sides of Section.	1/4 S and Number of Section on north face and Number of Section on south face.	1/4 on north face	1/4 S and Number of Section in which tree stands.
Meander, Witness, Stan- dard, or Closing.	The same markings as for a regular corner or bearing tree in that position with an addition of the letters MC, WC, SC, or CC.		