



Competition Realty, LLC

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MEMORANDUM

Land Surveying and the Land Owner

You will probably require the services of a Professional Land Surveyor at sometime in your life. Usually the need arises when you buy property or a home or when you add improvements to your land. Since these transactions represent large and important investments for you and your family, we have prepared this informational **MEMORANDUM** to help you understand the duties of a land surveyor and to assist you in selecting a knowledgeable Professional Land Surveyor.

HISTORICAL ROLE OF THE LAND SURVEYOR

Land surveyors have mapped much of the history of man's use of the Earth. A Babylonian boundary stone inscribed with the king's decree and the name of the surveyor of the land still endures today after three thousand years! As civilization has expanded and matured, the surveying profession has similarly kept pace with the need of society to define, delineate and map the land and man's improvements thereon. Today the Professional Land Surveyor is equipped with many sophisticated surveying tools and the specialized knowledge required to provide services for land owners, developers, industry, and government. Whether the project be the layout of a new highway, bridge or dam, the precise location of offshore oil rigs, a municipality's underground sewer lines, the establishment of international boundaries or a farm's missing corners, the Professional Land Surveyor is called upon to perform his unique role knowing that future generations may rely on the quality of his work for centuries to come.

STATUTORY AUTHORITY

In the Commonwealth of Virginia an individual may **ONLY** practice land surveying under Virginia Code Section § 54.1-406, et.seq.

TYPES OF SURVEYS

BOUNDARY SURVEY:

A survey for the expressed purpose of establishing or re-establishing the corners and boundary lines of a given parcel of land. A boundary survey may be an original survey or a retracement survey. An original survey is a subdivision of land into smaller tracts, such as the original warrant surveys for subdividing the lands of William Penn. Any subdivision of an existing tract of land is also an original survey and the performance of such a survey is dictated by the client's needs, site considerations, state laws and local ordinances governing subdivisions. However, before a tract of land can be subdivided, its corners and boundaries must be established by a retracement survey.

A retracement survey is a boundary survey which re-establishes the corners and boundary lines of a parcel of



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land previously surveyed. This involves a thorough research of both public and private records to arrive at a proper description of the property. Often the surveyor must include a historical analysis of property configurations in the general area. Such research may involve public records in other county courthouses or even research of the original warrant tracts maintained by the Pennsylvania Historical and Museum Commission, Division of Land Records, at Harrisburg. Angular and linear measurements locating existing property corners and other evidence of ownership are then correlated with this title research. Complex survey problems, often solved using high-speed computers and plotters, are then resolved and final monumentation of property corners and boundary lines is established. The details of the survey are shown on a survey map or on a series of maps. Copies of maps stamped with the surveyor's seal and usually accompanied by a written legal description are then prepared for the client's needs. The Professional Land Surveyor maintains the original map tracings and other record research as he may be required at a later date to represent his findings in a Court of Law.

LAND TITLE SURVEY:

If you are purchasing title insurance, often a land title survey is required. This is usually a boundary retracement survey with additional surveying to meet the specific needs required by title insurance companies. The map of such a survey must show particular information in detail and exactness of matters discoverable from survey and inspection, and not necessarily evidenced by public records. Unrecorded easements, access roads to other properties, physical encroachments of buildings, and other visible adverse uses of the property by other parties, are examples of matters of particular concern for a land title survey.

TOPOGRAPHIC SURVEY:

A survey showing the elevations and contours of the land and locating features natural and man-made, such as streams, buildings, quarries, fences, roads, woodlands, etc.

CONSTRUCTION SURVEY:

Layout for control and alignment of construction for roads, buildings, pipelines, powerlines and other improvements to the land.

WHEN IS A SURVEY ADVISABLE

- BEFORE title in land is transferred. A survey assures the location of property boundaries and the accuracy and wording of legal descriptions.
- BEFORE land is subdivided by deed, will, or by the Court.
- BEFORE land is developed by the construction of buildings, roads, fences, etc.
- BEFORE an easement or right-of-way is created across the land.
- BEFORE a boundary dispute arises or when you believe someone is encroaching upon your land.
- BEFORE timber is to be cut and removed.



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METHODS OF LAND SURVEYING

To a large degree the extent of urbanization and relative worth of the land determine the method of surveying most appropriate. The equipment used varies with the need and nature of a survey.

COMPASS AND CHAIN:

Surveying with a magnetic compass and surveyor's chain was the method employed in most of the original subdivisions of the Commonwealth. Today this method is primarily used for reconnaissance surveys of large tracts.

TRANSIT AND TAPE:

Angles are measured with a transit or theodolite and distances measured with a surveyor's steel tape giving an accuracy required for modern boundary or land title surveys.

ELECTRONIC MEASURING:

Electronic Distance Measuring equipment using light beams coupled with theodolites, enable the surveyor to measure precise angles and distances with greater ease and accuracy. This also allows measurements across swamps, valleys and other terrain impractical or impossible to measure using steel tapes. Electronic angle sensing on theodolites and electronic data recording are other recent additions to modern surveying equipment.

SATELLITE POSITIONING:

Sophisticated electronic equipment using orbiting satellites to determine both horizontal and vertical placement on the face of the earth is a relatively new innovation. This is usually limited to large control surveys and governmental projects, but its use, in time, will become more prevalent by many Professional Land Surveyors.

PHOTOGRAMMETRIC MAPPING:

Photogrammetric mapping may be developed from aerial photographs and is particularly useful for showing land contours, site conditions and details for large areas. Usually the photography is made specifically for the project involved. Ground control surveys must be used to establish measurements, both horizontally and vertically, to photo-identifiable points in order to insure scale accuracy of the photo model.

COST OF A LAND SURVEY

The cost of a land survey depends on many things, including the type of survey needed and the method used. Some variables which affect the cost of a land survey are:

- Required accuracy and purpose for the survey.



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- Complexity of legal records; the number of deeds that need to be researched are often complicated by vague, incomplete and contradictory legal descriptions. Deeds for abutting properties must be researched and unrecorded deeds and agreements must be resolved.
- Size and shape; an irregular shape has more corners and a longer boundary than a square containing the same area.
- Terrain and accessibility; a flat, open field is easier to survey than mountain woodland. Streams, cliffs and dense vegetation complicate the surveying process.
- Field evidence; the existence of iron pins, corner stones, designated trees and other evidence of boundaries aid the surveyor and their absence compounds difficulties. Cooperative neighbors can be very helpful.
- Time of the year; summer foliage restricts sighting distances whereas deep winter snow hinders travel and conceals property corners.
- Title insurance requirements; title insurance companies need considerable documentation and verification of field evidence.
- Monumentation; the objects utilized to mark the corners and boundaries. For example, concrete or cut stone monuments are more durable but require greater effort to set and are more costly to obtain than iron pins.
- Plat requirements; the necessary details to be shown on the survey map including the requirements of Planning Commissions, Title Insurance Companies, Architects, Professional Engineers, etc., affect the time involved to produce the map.

Because of the many variables, it is best that you consult with the Professional Land Surveyor at his office or at the job site to determine an estimate or cost for the survey. A survey which meets your needs and legal requirements, based on proper deed research, and complete and accurate field and office work, will likely prove to be the least expensive in the end.