Alabama Standards of Practice for Land Surveying

Four (4) Continuing Education Hours
Course #AL1002

Approved Continuing Education for Licensed Professional Engineers & Professional Land Surveyors

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Course Description:

The Alabama Minimum Standards for the Practice for Land Surveying course satisfies the continuing professional education requirement of four (4) hours in standards of practice for surveying, ref The Code of Alabama Sec. 34-11-6(f).

The course is designed as a distance learning course that enables the practicing professional land surveyor or engineer to examine and revisit the Alabama standards for the practice of land surveying.

Objectives:

The primary objective of this course is to familiarize the student with the standards of practice for land surveying in Alabama and satisfy the four required hours of continuing education required by Sec. 34-11-6(f).

Upon successful completion of the course, the student will have a thorough understanding of this topic.

Grading:

Students must achieve a minimum score of 70% on the online quiz to pass this course. The quiz may be taken as many times as necessary to successfully pass and complete the course.

A copy of the quiz questions are attached to last pages of this document.

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STANDARDS OF PRACTICE FOR SURVEYING IN THE STATE OF ALABAMA

RULE NO. 1.01 PURPOSE

The purpose of these rules is to establish standards for the practice of surveying in the State of Alabama, as established by Alabama Code Section 34-11-1.

RULE NO. 1.02 DEFINITIONS

As used in these rules, the following terms have the following meanings where the context permits:

1. Survey shall mean the orderly process of

- Conducting research
- Performing field measurements and observations
- Applying mathematical and legal principles to determine, display or indicate land boundaries, land areas, and the position and characteristics of any natural or artificial features on or near the surface of the earth.

It may be further defined according to the type of data obtained, to the methods and instruments used, and to the purpose(s) to be served. All surveys showing property boundary information must be in accordance with Rule 1.03. For purposes of this rule, types of surveys shall include, but not be limited to the following definitions:

a. Property Boundary Survey shall mean a survey of property, the primary purpose of which includes, but is not limited to, determining the perimeters of the property being surveyed by establishing in the first instance original property lines, or by retracing the lines and corners of previously established property lines. A property boundary survey is a professional opinion on the physical location of property lines based on appropriate boundary law principles governed by the facts and evidence gathered and evaluated during the course of the survey. A property boundary survey may further include describing and locating fixed improvements, platting or dividing property and preparing descriptions of

property. A property boundary survey includes the setting or recovery of corner monumentation. Any survey showing property lines where a property boundary survey was not performed shall have the following note: “THIS IS NOT A PROPERTY BOUNDARY SURVEY”.

b. Record Survey or As-Built Survey shall mean a survey performed to obtain horizontal and/or vertical data so that the constructed improvements may be located and delineated.

c. Geodetic Survey shall mean a survey of areas and points affected by and taking into account the curvature of the earth.

d. Control Survey shall mean a survey which provides horizontal or vertical position data for the support or control of subordinate surveying, mapping, or construction layout purposes.

e. Topographic Survey shall mean a survey of the selected natural and selected man-made features of a part of the earth’s surface by remote sensing and/or ground measurements to determine horizontal and vertical spatial relations.

f. Hydrographic Survey shall mean a survey having for its principle purpose the determination of data relating to bodies of water and which may consist of the determination of one or several of the following classes of data: depth of water and configuration of bottom, directions and force of current, heights and times and water stages, and location of fixed objects for survey and navigation purposes.

g. Quantity Survey shall mean a survey for the purpose of obtaining measurements of quantity.

h. Right-of-Way and Easement Survey shall mean a survey for the purpose of obtaining specific rights into property for public or private use.

i. Specific Purpose Survey shall mean a survey performed for a specified purpose other than as defined above.

2. Corner is a point on a boundary line at which two or more boundary lines meet or a change in direction on any given boundary line.

3. Monument shall mean a man-made or natural object that is durable and occupies a defined position.

4. Witness Monument shall mean any monument that does not occupy the same defined position as the corner itself, but whose relationship to the monument is established.

5. Reference Point shall mean any defined position that is or can be established in relation to another defined position.

6. Temporary Benchmark (TBM) shall mean a temporary (not permanent) point set whose elevation is relative to a stated datum.

7. Benchmark shall mean a permanent material object, natural or artificial, bearing a marked point whose elevation is relative to a stated datum.

8. Map, Plat, Drawing, or other similar titles shall mean any map used for the purpose of depicting the results of any survey as defined herein. Each map shall state the type of survey or surveys it depicts.

9. Subdivision Map or Plat is a drawing used to depict new property being created under the laws of the State of Alabama and must first be surveyed in accordance with Rule 1.03 of these standards. See Alabama Code Section Sections 35-2-50 & 35-2-51.

10. Standard of Care is defined as the duty of the land surveyor to use that degree of knowledge, skill and care ordinarily possessed and used by members of the land surveying profession, and to perform any services undertaken, as a land surveyor, in a manner that a reasonably prudent land surveyor would use under the same or similar circumstances.

RULE NO. 1.03 SURVEYING STANDARDS FOR FIELD AND OFFICE (MAP, PLAT, AND DRAWING)

1. The following certification (statement) shall be included on each survey plat or drawing: "I hereby certify (or state) that all parts of this survey and drawing have been completed in accordance with the current requirements of the Standards of Practice for Surveying in the State of Alabama to the best of my knowledge, information, and belief."

Surveyor's Signature: _____

Alabama License Number _____ Date_____

2. The licensed surveyor shall select the proper equipment and methods, and exercise the appropriate theory and practice necessary to meet the standard of care.

3. Property boundary surveys shall be accompanied by a map depicting the results of said survey. Other surveys, as defined in Rule 1.02 of these standards, shall be accompanied by a map or report, and all applicable requirements of Rule 1.03 apply.

a. The map shall be legibly drawn on any reasonably stable and durable material of reproducible quality. No map shall have dimensions of less than 8-1/2 x 11 inches.

b. All maps shall bear the name, street or mailing address, and telephone number of the firm issuing the drawing, along with the name and license number of the surveyor. A surveyor practicing independent of any firm shall have his or her name, street or mailing address, and telephone number on each drawing. All maps shall reflect the date(s) of the field survey and also for any revision thereto. The map and the copies of the map shall have the signature and seal of the licensed surveyor. Electronic signatures are acceptable.

c. Each survey drawing shall state the type of survey it depicts.

d. Copies of a map provided for informational purposes only may be issued without the signature and seal of the licensed surveyor when it is clearly shown that the map is invalid without said signature and seal. It shall be a violation of this rule to use this section to circumvent the intent and purpose of these standards.

e. A designated “north arrow” and either a stated scale or graphic scale of the map shall be prominently shown.

4. A reference to angular measurements shall be clearly stated on the map, including but not limited to “True,” “Record” or “Grid North.”

5. Abbreviations generally used by the public or in proper names that do not relate to matters of survey are excluded from the legend requirements. Below are acceptable abbreviations and symbols that may appear on the face of maps. Any other abbreviations and symbols relating to survey matters shall be clearly shown within a legend or notes appearing on the map. N = North S = South E = East W = West, or any combination such as NE, SW, etc. º = Degrees ' = Minutes when used in a bearing " = Seconds when used in a bearing ' = Feet when used in distance " = Inches when used in distance AC or ac = Acres ± = More or less (or plus or minus) R = Range T = Township SEC = Section GNSS = Global Navigation Satellite System PLSS = Public Land Survey System Metric Notations.

6. The surveyor shall make an accurate determination of the location of the property boundary in as complete accord as possible with the description as contained in the deed or other instrument of conveyance, based upon appropriate boundary law principles governed by the facts and evidence gathered and evaluated during the course of the survey. In case of a new parcel, the description shall be written to reflect both accurately and precisely the property boundary as surveyed and monumented by the surveyor.

a. The survey shall be referenced to the source of information used in conducting the survey such as the recorded deed, a recorded plat, other instruments purporting to convey property, oral testimony taken, datum sources, and any other appropriate references. All information called for in the deed or other instrument of conveyance, such as point of commencement, point of beginning, lot number(s), block number(s), section corner(s), aliquot part(s), recording information, etc., will be shown on the map. Any discrepancies between the survey results and such sources of information shall be shown and/or explained in appropriate notes on the face of the map. This includes a comparison between record directions and distances with surveyed directions and distances.

b. When a new parcel is being created, reference shall be made on the map and in the property description to a monumented U.S. Public Land Survey corner(s), a monumented corner(s) shown on a recorded plat, or a monumented corner(s) that is described in a publicly recorded instrument.

c. When a new metes and bounds description is written, it shall describe the monument at each property corner, found or set.

d. All legal descriptions written for property conveyance shall be a mathematically closed figure.

7. All changes in direction, including curves, shall be shown on the survey drawing by angles, bearings, or azimuths. Curved lines shall show the radii, arc distances, and central angles, or radii, chord distances, and chord bearings. If a non-tangent line is not definable as a simple circular curve, compound circular curve, or spiral, that fact shall be noted upon the drawing with sufficient measurements shown upon the drawing to position the line. When intersecting lines are non-radial to a curve, sufficient angular data shall be shown to relate the line to the curve.

8. Open and notorious evidence of boundary lines, such as fences, walls, buildings, or monuments shall be shown upon the map, together with dimensions sufficient to show their relationship to the boundary line(s).

9. Visible encroachments onto or from adjoining property or abutting streets shall be indicated with the extent of such encroachments shown or noted upon the drawing. No underground or subsurface features (e.g. footers, underground utilities, etc.) are required to be located unless the surveyor specifically agrees to locate such features.

10. Visible evidence of easements or rights-of-way on/or across the lands surveyed shall be located or noted and shown upon the drawing.

a) If streets or street rights-of-way abutting the land surveyed are not physically open, a note to this effect shall be shown upon the drawing.

b) All easements and rights of way to be shown on the survey must have documentation provided to the surveyor by the client or client's representative. No sub-surface features are required to be located unless information of their existence and location is furnished to the surveyor by the client.

11. Location of fixed improvements within the boundary, if required, shall be shown upon the map, and their position shall be dimensioned and referenced to the boundaries, either directly or by offset lines. Evidence of boundary lines is always required to be shown, as stated above.

12. Cemeteries and burial grounds located within the boundaries of the property surveyed shall be located and shown upon the drawing if observed or if knowledge of their existence and location is furnished to the surveyor. However, a detailed survey of the limits of the cemetery is not required according to this rule.

13. The surveyor shall make a determination of the position of the boundary of the property being surveyed and shall set monuments as defined herein, unless monuments already exist at such corners.

14. All monuments, found or placed, shall be described on the map with data given to show their location upon the ground in relation to the boundary lines. When a monument at the property corner cannot be set, a witness monument shall be placed with data given to show its location upon the ground in relation to the boundary lines or corner. The monument descriptions shall state the size, material, and cap identification of the monument, as well as whether the monument was found or set. When a parcel has a natural and/or artificial feature such as a bluff, river, lake, beach, marsh, stream, or other irregular boundary as one or more of its boundaries, then a monumented meander or survey line shall be established either directly along or near the feature. Dimensions shall be shown between the meander or survey line and the boundary line sufficient to show the relationship between the two.

15. A typical boundary monument or witness monument set shall:

a. be composed of a durable material;

b. have a minimal length of 18 inches;

c. have a minimum diameter of 1/2 inch (number 4 rebar is acceptable);

d. be identified with a durable marker or cap bearing the Alabama License Number of the land surveyor or the company Certificate of Authorization Number;

e. be detectable with conventional instruments for finding ferrous or magnetic objects; and

f. be a durable and identifiable alternative monument when a cases arises due to rock or other physical obstruction so that neither a boundary monument nor a witness monument can practicably be set in accordance with (a)-(e).

16. The bearings and distances shown on the drawing or plat of survey shall be substantiated by field measurements. The accuracy of the field measurements shall be premised upon the type of survey and the current or expected use of the land. The accuracy of the measurements shall be statistically verified by the results of a closed traverse. The relative error of closure permissible shall be no greater than the following:

Commercial/High Risk:

Linear--1 foot in 10,000 feet

Angular--15 seconds times the square root of the number of angles;

Suburban:

Linear--1 foot in 7,500 feet

Angular--20 seconds times the square root of the number of angles;

Rural:

Linear--1 foot in 5,000 feet

Angular--30 seconds times the square root of the number of angles.

Side ties from a traverse point on the closed traverse to locate or set monuments that are not points on the closed traverse shall be substantiated by measurements from a second traverse point or by a redundancy of measurements from a traverse control point.

RULE NO. 1.04 VERTICAL CONTROL AND TOPOGRAPHIC SURVEYS (NGS STANDARD)

1. All surveys in this class shall indicate the datum, including a description, location, and elevation of the benchmark(s) upon which the survey is based.

2. Vertical Control Surveys: The level loop closure in feet should not exceed 0.05 times the square root of distance in miles. Should GNSS (Global Navigation Satellite System) observations be utilized to establish precise elevations, the practices used to develop such elevations shall be described on the map.

3. Topographic Surveys: The horizontal position of physical features shall comply with current map accuracy standards as adopted by USGS.

RULE NO. 1.05 MISCELLANEOUS

1. GNSS (Global Navigation Satellite System) coordinates shall clearly referenced the appropriate datum on the map. When state plane coordinates are used, the following information shall be depicted on the map of survey:

(a) The horizontal datum used.

(b) The method used to derive information, such as GNSS observations or conventional surveying techniques.

2. When more stringent standards than those set forth herein are required by federal, state or local governmental agencies, the survey shall comply with those standards. When more stringent survey standards or requirements than those set forth herein are mandated by the client and agreed to by the surveyor, the survey shall comply with those survey standards, providing said survey requirements are within the scope of the surveyor's expertise.

3. When special conditions exist that effectively prevent the survey from meeting these standards, the special conditions and any necessary deviation from the standards shall be noted upon the drawing. It shall be a violation of this rule to use special conditions or less stringent standards to circumvent the intent and purpose of these standards.

4. Additions or deletions to survey drawings by any other person(s) than the signing party or parties is prohibited without written consent of the signing party or parties.

Quiz Questions

1. **Survey shall mean the orderly process of?**
   - Conducting research
   - Performing field measurements and observations
   - Applying mathematical and legal principles to determine, display or indicate land boundaries
   - All of the above
2. **What type of survey is a survey of areas and points affected by and taking into account the curvature of the earth?**
   - Control Survey
   - Geodetic Survey
   - Hydrographic Survey
   - Topographic Surve
3. **What is a man-made or natural object that is durable and occupies a defined position?**
   - Corner
   - Benchmark
   - Monument
   - TBM
4. **True or False? The map and the copies of the map shall have the signature and seal of the licensed surveyor.**
   - True
   - False
5. **Which of the following shall be shown upon the map, together with dimensions sufficient to show their relationship to the boundary line(s)?**
   - Buildings
   - Fences
   - Monuments
   - Walls
   - All of the above

6. **Which of following encroachments is not required to be located unless the surveyor specifically agrees to locate such features?**
    - Underground utilities
    - Adjoining property
    - Abutting streets
    - All of the above
7. **A typical boundary monument or witness monument set shall be?**
    - Be composed of a durable material
    - Have a minimal length of 18 inches
    - Have a minimum diameter of 1/2 inch
    - All of the above
8. **The relative error of closure permissible shall be no greater than which of the following for suburban survey?**
    - Linear--1 foot in 5,000 feet
    - Linear--1 foot in 7,500 feet
    - Linear--1 foot in 10,000 feet
9. **Regarding Vertical Control Surveys, the level loop closure in feet should not exceed _____ times the square root of distance in miles.**
    - 0.05
    - 0.5
    - 5
    - 50
10. **True or False? Additions or deletions to survey drawings by any other person(s) than the signing party or parties is prohibited without written consent of the signing party or parties.**
    - True
    - False