

CHAPTER 6. TECHNICAL STANDARDS OF PRACTICE

2. Surveyors shall not offer, give, solicit or receive, either directly or indirectly, any commission, gift or other valuable consideration in order to secure work, and shall not make any political contribution with the intent to influence the award of a contract by any public authority.

3. Surveyors shall not attempt maliciously or falsely to injure, directly or indirectly, the professional reputation, prospects, practice or employment of other licensees, nor indiscriminately criticize other surveyors' work.

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SUMMARY: This chapter outlines the minimally acceptable technical standards for land surveying in Maine.

Section 1. Introduction

These standards prescribe acceptable practice for land surveying in the State of Maine as approved by the Board in accordance with commonly accepted standards of professional services, prevailing technological progress and current public welfare requirements.

Section 2. General Statement

Each surveyor should counsel with the client to determine the purpose of any surveying service. The specific purpose of a survey may determine the category of service needed, the information required, the work to be done and a sound basis for cost.

The Surveyor shall conduct a reasonable search to acquire data, including but not limited to deeds, maps, certificates of title, abstracts of title, and other boundary line information in the vicinity. The Surveyor shall compare and analyze the data obtained, together with physical evidence and render a professional opinion of the location of the boundaries of the parcel(s). If this investigation should reveal a conflict of evidence, the Surveyor shall notify the client in writing. The Surveyor shall provide the professional expertise, trained personnel, and equipment necessary to meet the specifications promulgated by these standards.

The Surveyor shall, under his responsible charge, cause a survey to be performed.

Section 3. Definitions and Applications

A. DEFINITIONS - Terminology used in these standards shall be defined herein or when not defined herein shall refer to the 1978 edition of "Definitions of Surveying and Associated Terms" as compiled by the joint committee of the American Society of Civil Engineers and American Congress on Surveying and Mapping.

B. CATEGORY - A unit dividing major professional services of a Surveyor into defined segments of similar nature, procedure and practice. A category is comprised of one of several services or products that are closely allied.

C. CONDITION - Each category is divided into four conditions. A condition is determined by the location and use of the site to be surveyed. Every site within the state will fall into one of the four conditions. A condition establishes the tolerances for that survey. It shall be the responsibility of the surveyor to determine the appropriate condition for a particular site.

CHART OF MINIMUM TOLERANCES FOR CONDITIONS

CONDITIONS	I	II	III	IV
Unadjusted Closure Loop or between Control Monuments	1:15,000 ± 15 Sec.	1:10,000 ± 20 Sec.	1:5000 ± 30 Sec.	1:300 ± 30 Min.
Accuracy of Bearing in Relation to source	1:20000	1:15000	1:7000	1:40
Distances on Plans or in Descriptions Accurate to:	±0.1 ft.	±0.2 ft.	±0.5 ft.	±1.0 ft.
Elevations used to Determine Boundaries Accurate to:	1" = 200'	1" = 400'	1" = 2000'	1" = 2000'
Scale of Maps Sufficient to show detail but not less than	1/40 inch	1/40 inch	1/40 inch	1/40 inch
Positional Error in Map Plotting not to Exceed: (Original Map only)				

Section 4. Records Search

For the purpose of this section, a record is any documentary material filed in public repositories that maintain information about the location of real property.

A Surveyor assumes responsibility for adequate research to support a professional opinion of boundary location.

Such research may include, but is not limited to the following tasks:

- A. An examination of the record descriptions of adjoining conveyances referred to in the description of the land being surveyed;
- B. An examination of record maps referred to in the description(s) of the land being surveyed;
- C. An examination of records of surveys referred to in the description of the land being surveyed;

- D. An examination of the record descriptions of adjoining parcels;
 - E. An examination of recorded subdivision plans, assessor plats, and survey maps adjoining the land parcel being surveyed; and
 - F. An examination of maps and field notes of land surveys adjoining the land parcel to be surveyed, which may be filed for record with the local county surveyor, municipal engineer or other governmental agency records.
- In the absence of sufficient record evidence substantiating the boundaries of a parcel of land, the Surveyor should exert reasonable effort to obtain evidence from unrecorded sources.
- The Surveyor should accompany the record search and evaluation with a field investigation.
- If the Surveyor should find that a combination of the above evidence is not adequate to render a professional opinion, he/she shall counsel the client.

Section 5. Descriptions

A description of a parcel of land shall be clear, unambiguous and contain enough information to locate and define the boundaries.

Descriptions shall identify monuments found or set.

Section 6. Maps

The results of a land survey should be shown on a map unless client requests otherwise. Where a surveyed boundary line varies in distance and/or bearing from those recorded, such variation shall be noted.

The map shall bear the official seal and signature of the Surveyor responsible for the land survey.

All monuments shall be described upon the map. Monuments set as a result of the survey shall be so identified.

The direction of all boundary lines shall be shown in relationship to a bearing, which shall be explained on the map. A prominent North Arrow shall be drawn on every map.

Sufficient survey data shall be shown to locate the boundaries of the surveyed land parcel.

All distances shall be horizontal distances.

A graphic scale shall be shown on each map.

Curved lines shall show at least two elements of the curve and preferably these three: Radius, central angle, length of arc. When not tangent to the preceding and/or succeeding course, the bearing or angle of either the initial tangent, radial line or long chord shall be shown. Pertinent information on compound curves shall be shown.

Where sufficient horizontal control stations exist according to the statutory requirements of the Maine State Coordinate System, and the Surveyor has made a tie between a control station or stations and the boundary of the survey, the map shall show the Maine State Coordinate values of at least two exterior corners of the parcel. The map shall also contain a traverse table showing the connection traverse, giving the state coordinates of each station, the grid azimuth, grid length, and Maine State Coordinate System grid factor (combined scale factor and elevation factor).

Section 7. Measurements

All land survey measurements shall be made with equipment and methods of practice capable of attaining the tolerances specified by these standards.

Section 8. Monuments

The boundaries of the parcel(s) of land surveyed and any new parcels created, should be monumented.

Monuments shall be constructed of reasonably permanent material solidly embedded in the ground and capable of being detected by commonly used magnetic or electronic equipment except in rural areas in which case wood posts and/or stone cairns may be used. The monument shall clearly show the registration/license number of the Surveyor responsible for the survey.

Where the placement of a required monument at its proper location is impractical, it shall be permissible to set a reference monument close to that point.

Section 9. Exceptions

These standards shall apply to every land boundary survey in the State of Maine, except that the Surveyor and the client may agree to exclude any land surveying work from these standards. Such land surveying work excluded from the requirements of these standards shall not be monumented in the field nor shall it be used as a basis for a description for a conveyance, unless the map or report and description shall clearly set forth the particulars in which the survey departs from these standards.

A Surveyor will frequently be called upon to perform services that do not constitute a land survey. In such cases all documents prepared by the surveyor shall be clearly identified as not based on a survey.

Section 10. Specifications - Category 1

A. Standard Boundary Survey

1. DEFINITION - A Standard Boundary Survey is defined as a sufficient investigation, study, and evaluation of all factors affecting and influencing the location of the boundaries, and including rights of way and easements of record within or immediately surrounding a certain lot, parcel or quantity of real estate. Such study and evaluation will culminate in the location or relocation on the ground of the boundaries and the determination of areas of the certain lot, parcel or quantity of real estate.

2. PURPOSES - The purpose of Standard Boundary Survey is to locate, monument, describe, and map a quantity of real estate.

3. PRODUCT - A Standard Boundary Survey should produce but not be limited to:

- a. Monuments at all corners, points of curves or references to boundary lines of the involved land.
- b. A written description of the parcel.
- c. A map clearly depicting the survey as made on the ground.
- d. A written report of the surveyors findings and opinions.

4. INFORMATION REQUIRED - Sufficient information to perform the survey should be furnished by the client, or acquired for the client by the surveyor.

5. MONUMENTS - The following guidelines are recommended for monuments:

- a. An artificial monument to be considered permanent, shall be any mark or marker that if left undisturbed will remain in place for a period of at least 25 years.
- b. Natural monuments are the works of nature such as

streams, rivers, ponds, lakes, bays, trees, ledges, rock outcrops and other definitive terrestrial features.

6. CONDITIONS - Surveys under this category shall be termed Standard Boundary Surveys and conform to one of the conditions defined under Section 3(C).

7. TOLERANCES FOR CONDITIONS - For reference to tolerances see Section 3(D).

8. FIELD PROCEDURES - All field work shall be performed in accordance with accepted technical methods as expressed in standard textbooks on surveying theory practice and procedures. Any textbook used for the purpose of surveying instruction by any accredited post secondary school in the State of Maine will be considered a satisfactory text for this purpose.

a. Surveyors are responsible for adhering to the following requirements:

i. All surveying instruments, including electronic distance measuring devices, shall be kept in close adjustment according to manufacturers' specifications or in compliance with textbook standards.

ii. All tapes used for boundary measurements shall be compared at least every year to a standard of accurate length traceable to the U.S. Bureau of Standards through appropriate certificates of documentation.

iii. All electronic distance measuring devices shall be compared to a standard baseline at least every six months.

iv. All field measurements of angles and distance shall be done in such fashion as to satisfy the closures and tolerances expressed in Section 3(D).

v. Where special surveys for vertical or horizontal control are required as a base for a land boundary survey, relevant, special publications from appropriate Government agencies on the special subject matter will be considered as satisfactory texts to define acceptable field methods.

vi. The rules of evidence shall be used to evaluate the evidence of location.

vii. All corners or monuments called for in the relevant deeds to the land to be surveyed or those of adjoining property affecting the location of the boundaries of the land to be surveyed shall be searched for carefully. Each corner or monument recovered shall be evaluated as to its agreement by description and location with the calls in the relevant deeds.

viii. All easements of record or apparent easements that are visible without careful searching shall be physically located during the survey.

ix. Apparent encroachments, conflicts, protrusions and evidence of prescriptive or limitation rights upon the site should be located.

x. All field data shall be gathered and documented to satisfy the requirements for Section 10(I).

9. MAPS, PLATS AND DRAWINGS - Any Standard Boundary Survey requiring a plan should be presented by a reproducible map, depicting the results of the field work, computation, research and record information.

a. Any reasonably stable base drafting media of reproducible quality will be considered as suitable material.

b. No map, plat, or drawing shall be drafted on a sheet size smaller than 8 1/2" x 11".

c. All dimensions, bearings azimuths or angles, including curve lengths, radii and delta angles shall be neatly and legibly shown in respect to each boundary line.

d. Each monument shall be labeled as to size and material.

e. All relevant terrain features, streets, watercourses, utilities, improvements and other similar data should be labeled, dimensioned or referenced to the nearest boundary line or represented by symbol on the map in its proper location.

f. All maps, plats or drawings must show a north arrow.

g. A statement as to the origin of the bearings or angles shall be made on each map, plat or drawing.

h. Each map, plat or drawing shall list the documents

relevant to the survey.

- i. Where the new survey differs from prior deed information in regard to course, distance or quantity the client should be notified. The existing deed call bearings and distances may be shown in parenthesis beside or on the opposite side of the boundary line and designated as "deed". In this case the deed calls should be plainly referenced by a prominent note as to volume and page or file where the deed is recorded. Unrecorded deeds should be identified by the grantor, grantee and date of execution. As an alternative to this procedure, or where complications occur, the discrepancies, problems, conflicts or difference in call distances and bearings should be explained in a written surveyor's report issued to the client along with the plat or drawing.
- j. Where separate intricate details, blow-ups or inserts are required for clarity, they shall be properly referenced to the portion of the map to which they apply.
- k. Cemeteries and burial grounds observed within the premises being surveyed should be shown by actual location.
- l. When applicable, properties, water courses, rights-of-way and easements surrounding, adjoining, penetrating or severing the surveyed site shall be identified and labeled with the name of the owner and record reference.
- m. If appropriate, original subdivision, survey or land grant lines should be shown in proper location.
- n. If a coordinate system is used on the map, the origin shall be identified.
- o. When the Maine State Coordinate System is used, the appropriate scale factor and α Angle shall be shown on the map.
- p. Line weights should distinguish the surveyed parcel from other surrounding real estate.
- q. Elevations shown on the map must be referenced to a datum and a specific bench mark. A statement should be made on the map similar to one of the following examples:
 - i. Example #1. Elevations refer to a BM set near the

N.E. corner of the intersection of First Street and Avenue B on the top of the first hydrant. Elevations is assumed at 200.00 feet.

- ii. Example #2. Elevation and contours are based upon U.S.C. & G.S. Bench mark #2 142, mean sea level datum, 1968 adjustment. Published elevation = 326.042 feet.
 - r. Each map, plat or drawing shall show the name and address of the Surveyor responsible for the survey.
 - s. The title block shall show:
 - i. Standard Boundary Survey
 - ii. Identification of the property
 - iii. The date of the survey
 - iv. The stated scale of the drawing
 - t. The original or reproducible copy of the survey map, plat or drawing shall be retained by the surveyor in his files. The client shall be furnished copies of the survey map, plat or drawing.
10. **CERTIFICATION** - The certification for each map, plat or drawing must be signed and sealed by the Surveyor responsible for the Standard Boundary Survey.
- a. The certification shall state that the survey conforms to the Board of Licensure for Professional Land Surveyors Standards, with or without exception, for the appropriate category and condition.
11. **DESCRIPTIONS** - A description written to describe a surveyed lot, parcel or quantity of land must provide the information to locate the parcel on the ground and distinguish it from all other land.
- a. When the surveyed property's dimensions, boundaries and area are in close agreement with the existing recorded deed or platted calls, the plat method, involving lot, block and subdivision may be used to describe the property.
 - b. Where any significant difference appears between the recorded description and the new survey, a metes and bounds description shall be made if requested by clients.
 - c. A metes and bounds description will be written in two parts. The first part, called the general description, will include the general location of the property in

relation to the parent tract, established and recorded subdivisions, surveys or other original land divisions, and the name of the street, town, county and state in which the surveyed land is situated. The second part called the particular description, shall include the following items:

- i. Monuments, including descriptions as to the type nature, size, substance or construction material, and as to whether set or found.
- ii. Adjoining property or rights-of-way.
- iii. Courses and distances of the new survey.
- iv. Parenthetical deed calls where the deed calls significantly differ from the new survey may be used (or explain differences in a written report).
- v. The area of the parcel.
- vi. The source of bearings.
- vii. Reference to pertinent records and plans.
- d. The point of beginning of any description shall be a point on the parcel boundary carefully chosen and described. Any other point used to locate the point of beginning shall be known as a "reference" point.
- e. Curved boundaries shall be identified as tangent or non-tangent curves and sufficient data to locate the curve shall be recited.
- f. Each metes and bounds descriptions of parcels must close mathematically.
- g. A statement at the end of the description should relate the description to the Standard Boundary Survey.
- h. The metes and bounds description shall be signed and sealed by the responsible Surveyor.

Section 11. Specifications - Category 2

A. Land Title Survey

1. DEFINITION - A Land Title Survey differs from a Standard Boundary Survey in that the Land Title Survey CONFORMS TO THE NEEDS OF TITLE INSURING AGENCIES and therefore may include greater detail not normally gathered in the Standard Boundary Survey.
2. SPECIFICATIONS - The specifications for Standard Boundary Surveys (Category 1) shall apply to Land Title Survey (Category 2).

Section 12. Specifications - Category 3

THIS SPECIFICATION HAS BEEN DRAWN AND ACCEPTED UNDER THE FOLLOWING CONDITIONS: THE BOARD DOES NOT CONSIDER THE MORTGAGE LOAN INSPECTION TO BE A BOUNDARY OR LAND SURVEY. THIS TYPE SERVICE IS IN COMMON PRACTICE AND IS DONE TO SATISFY THE CLIENT'S NEEDS. THE BOARD THEREFORE FEELS A PROFESSIONAL OBLIGATION TO CONTROL THIS PRACTICE THROUGH A SET OF SPECIFICATIONS DESIGNED TO PROTECT THE CLIENT'S INTEREST.

A. Mortgage Loan Inspection:

1. DEFINITION - A Mortgage Loan Inspection is defined as a process common to the residential and business mortgage industry, whereby data are gathered and submitted to the mortgage or title insurer indicating whether or not the building(s) and/or other improvements are located on the land inspected. The said Mortgage Loan Inspection is a professional service requiring the expertise of a Surveyor. The Mortgage Loan Inspection does not constitute a boundary survey of the subject real property and is only a professional opinion made with reasonable care which the interested parties may use as a guide to arrive at decisions they may wish to make concerning said real property.
2. PURPOSE - The purpose of a Mortgage Loan Inspection is to show approximately in map form the subject real property and the obvious improvements that lie within said real property, in order that the mortgage and/or title insurer may use same for determining the insurability of said real property and improvements thereon. Since this inspection does not constitute a boundary survey, if in the surveyor's professional judgement, he/she is unable to locate the property lines sufficiently to identify any encroachments, etc., they should recommend to the client that a boundary survey be performed.

3. PRODUCT - A mortgage Loan Inspection will produce, but not be limited to a sketch depicting the information gathered on the ground, the record dimensions and the record reference of the property.
4. PROCEDURES - The Mortgage Loan Inspection should consist of an examination of the current deed of the locus parcel, an on-site investigation of the land and enough measurement to enable the Surveyor to render a professional opinion with respect to:
 - a. location of buildings and improvements
 - b. possible encroachments
 - c. flood hazard zone when data is available
 - d. zoning requirements
5. MONUMENTS - No monuments will be set; only those observed will be shown.
6. DESCRIPTION - No description will be furnished.
7. STATEMENT - Any drawings on reports resulting from a Mortgage Loan Inspection shall be clearly labeled, "This is NOT a boundary survey."

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