# Manual of Good Practice

## Chapter

### PART A

**Standards for Surveys**

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### PART B

**Standards of Practice**

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*Revised June, 1992*
Introduction
STANDARDS FOR SURVEYS

The Alberta Land Surveyors' Association is a self-governing profession established pursuant to the Land Surveyors Act (SA 1981, c.L-4.1)

Implicit in this legislation is the responsibility to establish and maintain standards for various surveys conducted by Alberta land surveyors, in concert with government and other complementary legislation.

Standard requirements should not be regarded as cast in stone. Alberta land surveyors are requested to provide input to the Association where improvements can be incorporated. Moreover, it is anticipated that changing legislation, improved technology and techniques, and incorporation of standards for other types of surveys will cause this document to be modified on a continuing basis in order to prevent obsolescence.

Standards, specifications and guidelines for Alberta Survey Control, pursuant to Section 8 of the Surveys Act are not included in this document and may be obtained from the Survey Control Branch, Land Information Services Division.
PART A

Chapter 1
DEFINITIONS

The following definitions are in addition to those given in the Surveys Act, Land Titles Act, Planning Act, etc.

1. "Calculated" data is information derived by computation from sources which may not have been measured in entirety by the Surveyor who displays such information.

2. A "disturbed monument" is one that has somehow been moved other than by an Alberta land surveyor in the course of his duty, and that can be proved beyond reasonable doubt to have been moved from its original position.

3. A "lost monument" is one whose position can be re-established only by its bearing and distance from some other monument or monuments to which it had previously been connected by survey.

4. An "obliterated monument" is one that can be restored with confidence from traces remaining on the ground of the original monument or from other physical evidence of the position of the original monument.

5. To "re-establish" means to determine the position of a lost monument.

6. A "restoration survey" is a survey made to restore the obliterated monuments of a previous survey.

7. A "resurvey" is the survey of a previously surveyed boundary made to effect changes in, or corrections to the previous survey, or to re-establish lost monuments or to place additional monuments on the boundary. A resurvey will always include a retracement of the boundary and often also the restoration of obliterated monuments.

8. A "retracement survey" is a survey of the existing monumentation of a previously surveyed boundary in order to determine the bearings and distances between the monuments.

9. The "right" or "left bank" of a river or stream is that bank which is on the right or left side of the bed as the case may be when the observer is looking downstream. The "bed" of a body of water has been defined as the land covered so long by water as to wrest it from vegetation, or as to mark a distinct character upon the vegetation where it extends into the water or upon the soil itself. The "bank" of a body of water is the limit or edge of the bed of the body of water.


11. The "azimuth" of a point B from another point A is the angle formed by the vertical plane containing A and B with the plane of the astronomical meridian passing through A, such angle being reckoned from north, around through east, south and west, to 360°, east being 90°, south 180°, west 270°, and north 360° or 0°. It follows that, except in the case of a meridian or the equator, the azimuth of a straight line changes as the initial point moves along the line and that a direction is not defined by an azimuth unless the initial point is specified or implied.

12. The "bearing" of a point B from another point A is the angle formed by the vertical plane containing A and B with the plane of a fixed astronomical meridian, which may or may not be the astronomical meridian passing through A, such angle being reckoned like the azimuth from north around through east, south and west, to 360°. It follows that a straight line has the same bearing at all its points, but except in the case of a meridian or the equator, a direction is not defined by a bearing unless the meridian to which the bearing is referred is specified or implied.
Chapter 2
MEASUREMENTS AND ACCURACIES

New Surveys

1 The minimum accuracy for surveys under the Surveys Act shall be such that the error shall not exceed the greater of 1:7500 or 0.02 m in the surveyor’s own work.

Prior Surveys

2 When closing on work performed by other surveyors, an error of closure not exceeding 1:5000 is adequate. If such accuracy is not obtained, the survey shall be re-measured, or verified in an independent manner.

Checking Work

3 All surveys pursuant to the Surveys Act shall be verified in some manner, i.e. by closure on prior or current work, by a closing traverse, by closing on existing Alberta Survey Control, or by check measuring all observations, etc.

Chapter 3
BOUNDARIES & MONUMENTATION

Recommended Monuments

1 In the event that it is not practical to place a statutory iron post at a property corner, the following shall be used:
   - Lead Plus 'with tack' In Drill Hole - for rock or concrete conditions
   - Concrete Nail ‘with washer’ - for asphalt conditions.
   - 2 cm Diameter, Round Solid Steel Bar - for gravel conditions, length to suit circumstances.
   - Reference Monuments - may be used at an offset location if the actual corner is inaccessible or impractical to monument, but must not create confusion or ambiguity.
   - Other Monuments - may be used if the above are impractical, at the surveyor’s discretion.

Iron Bars

2 Prior to June 9, 1988, good practice required that 1.275 cm square by 45 cm long iron bars be placed at lot corners on subdivision surveys except those corners on curved block limits and block outline corners. With the passage into law of the Surveys Act on June 9, 1988, statutory iron posts are required at all property corners.

Brass Caps

3 Brass caps are used primarily in this province on surveys pursuant to C.L.S. standards, (under instructions from the Surveyor General, i.e. Indian Reserves, National Parks) or pursuant to instructions from the Director of Surveys in relation to initial subdivisions of Provincial Lands.

Marker Posts & Bearing Trees

4 Where practical, iron posts should be referenced by a marker post placed 0.3 m distant therefrom and the direction noted on the plan.

(a) Marker posts should not be placed where they may constitute a hazard to the public or interfere in the normal use of land. In general, marker posts should not be placed in developed urban areas.
(b) Marker posts placed along road or right-of-way surveys should be situated on adjacent fence lines whenever possible.
(c) For surveys in unsurveyed territory pursuant to the Survey Regulation, bearing trees and/or marker posts are required.
(d) Where a marker post is placed other than 0.3 m distant from a monument, both the distance and direction of the marker post from the monument shall be noted on the plan.

Frequency

5 Part III of the Surveys Act requires that all new boundaries be monumented at every deflection and point of curvature, with some exceptions, in addition to intersections with existing surveyed lines. For further detail refer to subsequent sections dealing with specific types of surveys.

Countersinking

6 Monuments shall be countersunk in areas where they interfere with farming or grading operations and a note placed on the plan to that effect.

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92.06.04
6.1 It would be good practice that iron posts found countersunk in urban residential areas during frost free conditions be referenced and raised to ground level.

7 All surveyed boundaries, other than natural boundaries shall be comprised of either straight lines or circular curve segments.

8 When establishing a boundary of an unposted railway right-of-way, the centre line of which is shown on the official plan to be a spiralled curve, each spiral shall be replaced with a circular curve in accordance with Schedule A.

9 Statutory iron posts placed shall be marked with the Survey Corporation or Partnership permit number or the registration number of individual surveyors not affiliated with a surveyor’s partnership or limited company. The markings placed on the iron posts shall be noted in the legend of the plan.

10 The following policy has been adopted by the Land Survey Branch regarding 66/99 foot road allowances.

(a) For all surveyed lines, the width of the road allowance shall be maintained as that shown on the official township plan. In cases where there are two different widths shown on adjacent plans, the width shown on the most recent plan shall be used.

(b) For all unsurveyed lines, the width shall be established as 99 feet (one and one half chains).

(c) For correction lines with only one limit surveyed and shown as 66 feet (one chain) on the official township plan, an 82.5 foot (one and one quarter chains) road allowance shall be established.

(d) The transition from a 66 foot road allowance to a 99 foot road allowance shall follow the attached guidelines.

NOTE: The 33 feet (one half chain) that is required to create a 99 foot road allowance shall be taken from the quarter sections adjacent to the east and north limits of the road allowances. The exception being on correction lines, where 16.5 feet (one quarter chain) shall be taken from the quarter sections adjacent to both the north and south limits of the road allowances.

Guideline 1: Partially Surveyed Townships
On all boundaries, except those along correction lines, the limit of the road allowance shall jog 33 feet, at approximately right angles (depending on the direction of the section or quarter section line), beginning at the position of the last corner defining a 66 foot road allowance and the 33 foot jog begins there. The E 1/4 16 and the NE 20 are similar examples.

Diagram #1

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Guideline 2: Correction Lines
Along correction lines the limit of the road allowance shall taper, from the position of the last corner defining a 66 foot road allowance to the nearest section corner defining a 99 foot road allowance. In diagram #2, section 31, the NE 31 is the last corner defining a 66 foot road allowance and the NE 36 is the nearest section corner defining a 99 foot road allowance. In this example, the limit tapers 1 mile. In section 6, the S 1/4 6 is the last corner defining a 66 road allowance and the SE 1 is the nearest section corner defining a 99 foot road allowance (the limit tapers 1/2 mile).

Diagram #2

Establishment of Monuments Plan

If a monument has been established and is not shown on a plan registered in the Land Titles Office the surveyor shall file a plan within two years of the establishment of any monument - this plan to be called an “Establishment of Monuments” plan.

Chapter 4
RETRACEMENTS AND RESTORATIONS

1 When undertaking any survey involving property boundaries, thorough research of all available pertinent sources of documentation is mandatory. Sources of documentation are, but are not limited to the following:
- Land Titles Office registered or filed plans
- Land Titles Office certificiates of title
- Land Titles Office registered documents
- Surveyor’s own files and field notes
- Fellow surveyor’s files and field notes when known to exist and the survey has not been publicly recorded
- Director of Surveys plans and original survey notes
- Director of Surveys control marker data
- E.R.C.B. respecting well site plans and licensed pipelines
- Public Lands Branch for crown dispositions
- Surface Rights Board

Hierarchy of Evidence

2 When an Alberta land surveyor is employed to retrace original or existing surveyed property boundaries, it is essential that a thorough field investigation be made to unearth evidence as to the position of the boundaries as originally surveyed. The hierarchy of evidence regarding boundaries is:
- natural boundaries, or evidence of same,
- original monuments or traces of same,
- fences or evidence of possession reasonably dating back to the original survey,
- measurements as shown on plans of previous surveys.

Monuments in Subdivisions

3 Prior to February 16, 1912 it was mandatory that all lot and block corners on subdivision surveys be monumented. Therefore, when retraceing lot boundaries originally created prior to February 16, 1912 and subsequent to June 9, 1988 it is essential to search for original monuments at all corners.

In the period February 16, 1912 to June 9, 1988 posting was required only for block outlines, deflections, and those lot corners which fell on a curvilinear block boundary. Therefore, when a surveyor is employed to re-establish a lost monument at a lot corner within a plan originally surveyed between February 16, 1912 and June 9, 1988 except for corners on curvilinear boundaries, the positions of the property lines are governed by the plan dimensions in relation to the block corners. This concept will generally entail proportioning from the original block corner monuments, or from the re-established positions thereof.
In the case of a lost monument at a lot corner situated on a curved block boundary, the nearest undisputed points on the curve on either side of the lot corner shall be used, in conjunction with proportioning. Generally, the curve radius indicated on the registered plan will be maintained.

Although many subdivision plans surveyed in the period 1912 to 1988 will indicate that some form of monument was placed by the surveyor at all lot corners, only those placed on the block limits or at lot corners on curvilinear boundaries should be considered as governing monuments. The former monuments, however, may be useful to the surveyor as evidence as to lost block corner position.

The definition of "block" in the 1912-1988 period is problematic, since no generally accepted definition exists. However, it is common practice to accept the definition which may be illustrated on the subdivision plan in question through the use of lot and/or block numbers, whether surrounded by streets or not. Falling clear definition on the plan, the parcel titles may distinguish between lots and blocks.

The Surveys Act (1912 - 1988) required posting of "corners", "angles", and "beginning and end of curves" on block boundaries.

The Surveys Act passed on June 9, 1988 requires the posting of all lot and block corners on subdivision surveys; therefore, when retracing lot boundaries created prior to February 1, 1912 and after June 9, 1988, it is essential to search for monuments at all lot corners.

Section 14 of the Surveys Act empowers Alberta land surveyors to examine witnesses under oath in relation to determining the true and original position of survey monuments which have been destroyed. Such evidence should not be overlooked in the course of retracement surveys since appropriate testimony from a reliable witness having first hand knowledge may constitute the best evidence available. The evidence should be transcribed in writing and signed under oath by the witness.

At the present time, coordinates of property corners in relation to the Alberta Survey Control System do not constitute governing evidence. Ties to Alberta Survey Control Markers however, may be useful evidence of original monument locations and are deemed to be measurements in the hierarchy of evidence.

Positional conflicts arising from plan dimensions, monuments on the ground, or other sources are not uncommon in conducting retracement surveys. It is the responsibility of the Alberta land surveyor to discharge his duty in an unbiased manner in resolving such conflicts. The surveyor should consider the following in resolving such conflicts:

- Property lines established on a registered subdivision or original township survey plan cannot be altered by subsequent plans, although resubdivision can be used to effect new boundaries between consenting owners.
- Property lines shown on registered plans which are obviously in conflict with prior established boundaries will not effect change to the prior boundary position.
- Given ambiguity or conflict within a single plan, the "intent" of the original survey should be considered as a guide to the surveyor in effecting re-establishment.
- The advice of the Director of Surveys, experienced surveyors, or the original surveyor should be sought in severe cases.

If a boundary conflict cannot be resolved by the surveyor, it may be necessary to involve the Boundary Adjudication Board pursuant to Section 9 of the Surveys Act or the Courts. In this event, the surveyor would assume the role of expert witness.

For the purpose of restoring original township survey boundaries, it is essential that surveyors be familiar with BULLETIN 38 of the Federal Topographical Surveys Branch, Dept. of the Interior, which describes original monument formats used in the period 1871 to 1917.
8 When establishing a section or quarter section corner from a witness monument placed subsequent to 1890 the said corner shall be defined by producing the line through the witness monument from the nearest section or quarter section corner on the same side of the witnessed corner. The corner in question shall be placed at the distance indicated for the witness monument. Prior to 1890 witness monuments were not required to be placed on a surveyed line and corner establishment should be based on the nature of the evidence.

9 When searching for original section or quarter corner monuments, the original township survey notes may be indispensable. Such information as direction of survey and ties to topographic features, etc., may assist in a thorough search for evidence. Copies of these field notes are available from the Director of Surveys.

10 When monuments on original township survey boundaries cannot be restored from traces remaining on the ground of the original monument, from other physical evidence, or testimony by witnesses, then as a last resort the surveyor may proceed to re-establish the monument by measurement from other monuments which are connected to it by survey.

If the re-establishment employs other monuments in the original township survey, the surveyor shall take into consideration the intent and sequence of the original survey.

That is to say, if the lost monument is in the interior of the township, generally other monuments north and south of the lost corner should be used. If the lost monument is on the exterior boundary of the township, other monuments on either side of the lost corner on the same township boundary should be used. The exception is quarter corners on east-west section boundaries in the interior of the township, which shall be re-established in relation to the section corners on either side.

It is the responsibility of the surveyor to assess all available evidence including other monuments placed on subsequent plans when re-establishing a lost monument. The re-establishment should be performed using the best evidence available, while additional ties should be made to other monuments to confirm the validity of the re-establishment.

When re-establishing lost corner in original township surveys, due weight shall be given to the bearings as shown on the official or registered plan.

11 All damaged or obliterated monuments used in a survey whether urban or rural, should be restored. Pits, mounds and/or trenches on original township surveys, however, shall not be reconstructed or restored unless so instructed by the Director of Surveys.

12 Section 41(1)(a)(i) and Section 41(2) of the Surveys Act should be followed in regard to defining curvilinear property boundaries. The radius shown on the original plan of survey and the position of the original monuments shall be utilized. The chord or radial bearing should be shown on the plan.

Chapter 5
FIELD NOTES

Systematic Records

The following requirements pertain to compiling, recording and retaining of field notes that are made in conjunction with surveys.

Content of Notes

1 Systematic records shall be made of all field measurements at the time of observation. These records shall be preserved for future reference or submission to the Director of Surveys if requested.
2 The field notes shall give a clear and detailed account of everything found, observed and done in the course of the survey including:
(a) the date of observations, location, and purpose of the survey;
(b) the type and identification of equipment if pertinent;
(c) the name of the person(s) making and recording the observations;
(d) the entry of each quantitative observation or measurement;
(e) a complete description of the condition of every monument found, restored, and placed, and of every permanent structure referencing a monument;
(f) a record of all searches made for evidence (physical, documentary or verbal).
All lost monuments shall be identified.

3 Entries in field notes should not be erased or obliterated.

Filing of Notes
4 Field notes should be kept indefinitely by the practitioner. Notes can be kept in one or more of the following forms and should be filed such that ready retrieval for subsequent reference is possible:
(a) Field books, bound or loose leaf.
(b) Micro-film of above.
(c) Electronic medium.

Chapter 6
GENERAL REQUIREMENTS FOR PLANS

The following requirements pertain to the preparation of various types of plans which are required to be submitted to the Land Titles Office for registration.

While the Surveys Act defines the field requirements, the Land Titles Act and certain other acts provide the statutory authority for the registration of plans of survey, and to some extent, specify the information which must be shown on plans. The requirements which follow are intended to supplement and amplify the statutory provisions and to indicate the manner in which plans should be prepared in order that they may most effectively fulfill the purposes for which they are intended.

General Requirements
(applicable to all plans)

Size of Plans
1 All plans intended for registration must be drawn on tracing linen or mylar film not more than 0.75 metres in width nor more than 3.0 metres in length. In general, a somewhat lesser width and length is desirable. However, no plan should be smaller than 0.35 metres by 0.4 metres. A mylar thickness of 0.08 millimetres (3 mil) is recommended.

Margin
2 A marginal outline not less than 0.02 m from the edge of the plan should be drawn around all sides of the plan. No survey data shall be shown outside the marginal line.

Inks
3 Universal black drawing ink for mylar film shall be used. All ink shall be black, except as noted in Section 23.

Inks & Clarity
4 Plans must scale accurately and be of a good standard of draftsmanship. Mechanical lettering throughout is preferred, with minimum letter height of 2 mm (80 CIlTemplate).

Heading
5 Each plan must bear a heading preferably on the top right hand side, stating:
(a) The nature or purpose of the survey shown thereon; e.g. "Plan showing survey of public work (Gravel Pit)"; "Right-of-way for Oil Pipe Line"; "Plan showing subdivision of".
(b) The legal description of the affected area by quarter section, township, range, and meridian numbers or river lot and settlement plan numbers; or if in a subdivided area, by lot, block and registered plan numbers as well as quarter section, township, and range numbers. The name of the municipality should also be shown.
(c) The scale of the plan. The 1:1, 1:2, 1:5 scale ratios should be adhered to and
scale ratios of less than 1:5000 shall not be used without the permission of the Land Titles Office.
A scale bar shall also be shown. It is not essential to show the name of the surveyor or the year in which the survey was made in the heading, but is permitted. Company logos shall not be shown.
(d) A legend listing symbols used and the explanation of each.

6 The north direction of the reference meridian must be indicated by an arrow drawn on the plan. The area shown on the plan should be oriented in such a way that the direction of north is towards the top of the plan where practical.

7 All data shall be clearly legible and should be so placed on the plan as to be read from left to right or from bottom to top of the plan. Data should not be placed in such a way that the plan has to be turned around in order to be read. Such information as connections to Alberta Survey Control, must not interfere with the survey boundaries illustrated. An inset showing same will be preferable in many cases.

8 Sufficient blank space, preferably above or below the heading of the plan should be left to accommodate any approval or registration certificates, etc., that may be required.

9 The plan must show the original boundaries of quarter sections, settlement lots or other surveyed parcels to such an extent as is necessary to indicate clearly the location of the area surveyed. Original section, settlement lot or parcel boundaries should be shown in full black lines unless rendered redundant through subdivision, in which case they shall be shown in dotted or broken lines, as well as interior quarter section boundaries which shall also be broken. Where not otherwise clear, the designation of original quarter section or parcel boundaries shown be shown by a notation made beside them on the plan, e.g. “North Bdy. of N.E. 1/4 Sec. 9-28-7-5”.

10 Unless specifically required in any regulation or other instructions, the following abbreviations may be used on the plan without explanation in the legend.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ac.</td>
<td>Acres</td>
</tr>
<tr>
<td>ASCM</td>
<td>Alberta Survey Control Marker</td>
</tr>
<tr>
<td>Bik.</td>
<td>block</td>
</tr>
<tr>
<td>bdy.</td>
<td>boundary</td>
</tr>
<tr>
<td>B.C.</td>
<td>beginning of curve</td>
</tr>
<tr>
<td>B.M.</td>
<td>Bench Mark</td>
</tr>
<tr>
<td>B.T.</td>
<td>bearing tree</td>
</tr>
<tr>
<td>calc.</td>
<td>calculated</td>
</tr>
<tr>
<td>ck.m.</td>
<td>check measured</td>
</tr>
<tr>
<td>chd.</td>
<td>chord</td>
</tr>
<tr>
<td>cop.</td>
<td>copied</td>
</tr>
<tr>
<td>c.s.</td>
<td>countersunk</td>
</tr>
<tr>
<td>C. of T.</td>
<td>Certificate of Title</td>
</tr>
<tr>
<td>conc.</td>
<td>concrete</td>
</tr>
<tr>
<td>cor.</td>
<td>corner</td>
</tr>
<tr>
<td>E.C.</td>
<td>end of curve</td>
</tr>
<tr>
<td>Fd.</td>
<td>found</td>
</tr>
<tr>
<td>ha.</td>
<td>hectare</td>
</tr>
<tr>
<td>I</td>
<td>statutory iron post</td>
</tr>
<tr>
<td>I.Bar</td>
<td>Indian Reserve</td>
</tr>
<tr>
<td>I.S.</td>
<td>Legal Subdivision</td>
</tr>
<tr>
<td>M.</td>
<td>mound or meridian</td>
</tr>
<tr>
<td>Mer.</td>
<td>meridian</td>
</tr>
<tr>
<td>Mp.</td>
<td>marker post</td>
</tr>
<tr>
<td>Mk.</td>
<td>mark</td>
</tr>
<tr>
<td>Mkd.</td>
<td>marked</td>
</tr>
<tr>
<td>Mon.</td>
<td>monument</td>
</tr>
<tr>
<td>P.</td>
<td>standard C.L.S. Post (Brass Cap)</td>
</tr>
<tr>
<td>P.C.C.</td>
<td>point of change of curvature</td>
</tr>
<tr>
<td>P.I.</td>
<td>point of intersection</td>
</tr>
</tbody>
</table>
PL. ......................................................... placed
P.C. ..................................................... point of curvature (tangency)
Pit ........................................................ 4 pits
R. ............................................................. Radius
Rd. .......................................................... road
Ref. .......................................................... Reference
Rge. ......................................................... range
Re-est ..................................................... re-established
Res. ......................................................... restored
R/W .......................................................... right-of-way
Rly. .......................................................... railway
Sec. ........................................................ section
S.M. ........................................................ stone mound
S.T. ........................................................ sub-tangent
T .............................................................. trench
Twp. ......................................................... township
Wo. ........................................................ wooden post
Wit. ........................................................ witness
\( \triangle \) .................................................. central angle of curve

11 Monuments found or placed shall be indicated on the plan by the use of the following symbols. Descriptive notes should also be shown in accordance with Section 10 where necessary to clearly show what was found and what was left at every corner used or established by the survey. A legend is required explaining all symbols used.

- ● ...................................................... statutory iron post found
- ○ ...................................................... statutory iron post placed
- ❌ ...................................................... wooden post found
- ❌ ...................................................... wooden post placed
- 🔴 ...................................................... I bar found
- ◊ ...................................................... I bar placed
- ◊ ...................................................... witness monument found
- ⚪ ...................................................... witness monument placed
- 🟢 ...................................................... survey control marker found
- ▲ ...................................................... traverse station found
- ▲ ...................................................... traverse station placed
- ◇ ...................................................... well head
- 🔵 ...................................................... lead plug found
- 🔵 ...................................................... lead plug placed

12 Linear measurements shall be shown in metres and decimals thereof. Rounding to the nearest 0.01 metre is recommended. However, distances to the nearest 0.001 metre may be shown to eliminate ambiguity in certain cases, i.e. where converting from Imperial Measure, or specifying a third item of curve data.

13 Directions shall be shown on all surveyed lines in the form of full circle bearings, except for ties to Survey Control Markers where actual observed angles shall be displayed. Generally directions should be rounded to the nearest 5 seconds of arc unless circumstances warrant greater accuracy.

14 When required, areas (except for condominium unit areas) should be shown to the following accuracies:

- Area of lot or right-of-way
  - 0.1 ha to 1.0 ha ........................................ quote to 0.001 ha
  - Over 1.0 ha ........................................... quote to 0.01 ha

15 When a monument cannot be placed at a required position, the reason for the omission shall be clearly stated on the plan.

16 Plans of survey shall indicate the condition of monuments found or placed. In the absence of a note to the contrary it is assumed that the monument is undamaged.

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17 All calculated data on plans shall be shown followed by the abbreviation "calc."

18 Plans of survey shall show ties to section or quarter section corners re-established from secondary evidence such as fence corners so that the position of the re-established corner can be ascertained in relation to some supporting physical evidence on the ground.

19 (a) Whenever it is necessary to re-establish original boundaries, all original monuments or other evidence by which such original boundaries are re-established must be shown on the plan.

(b) If any original monument is restored by the surveyor, the extent of such restoration should be noted on the plan.

(c) A note shall be placed on the plan of survey describing the method used in re-establishing lost corners if the method is not otherwise clearly evident.

20 (a) Sufficient linear and angular tie measurements between the newly surveyed and the previously surveyed boundaries to accurately fix the location of the surveyed area in relation to original land boundaries, must be shown on the plan.

The purpose of making ties is twofold: to accurately locate the area surveyed in relation to boundaries already established and to permit a complete checking of the data of the new survey against that of previous surveys. Ties should be made and shown on the plan with these objectives in mind.

(b) Tie distances and other linear measurements, where their extent is not indicated by arrows are assumed to refer to the distance between the two nearest monuments on the line on which the distance is shown. Where there is any possibility of doubt, the extremities of the tie should be indicated by small arrows.

(c) When it is necessary to show linear ties to original monuments located at considerable distances from the boundaries of the area being surveyed, the lines on which such ties are made may be shown foreshortened on the plan. All boundaries within the area to be registered shall be shown to scale however.

21 When, in connection with a new survey, any portion of a previous survey is retraced or re-measured and measurements shown on the plan thereof are found to be in error, the surveyor shall confirm his own measurements by measuring each distance or angle again. These measurements shall be shown on the new plan of survey "Check Measured", or "ck.m."

22 (a) The "reference" or "assumed" bearing for the survey shall be clearly indicated on the plan of survey. Township bearings shall be used unless the survey has been integrated into the Alberta Survey Control Network.

(b) All bearings shall be shown as full circle bearings.

23 The extent of the area affected by the plan of survey shall be delineated by a heavy black line coinciding with the exterior boundaries of the survey. Road plans may also be inlined with red ink. This inlining, however, must not create confusion or interfere with other plan data.

24 When the area or areas shown on the plan comprise lands which are bounded by a natural boundary, the natural boundary must be shown on the plan.

(a) When it has been confirmed that an adjoining owner has riparian rights, the bank of the body of water should be shown as it exists at the time of survey.

(b) If it is found that an owner does not have riparian rights, the bank should be shown according to the traverse of the river or lake upon which the title is based. Notes of these traverses are available from the office of the Director of Surveys at a nominal charge to surveyors.

(c) If a bank is traversed at the time of survey, the lengths and bearings of the courses should be shown on the plan together with offsets from them at intervals not exceeding 30 metres and more frequent where required to show the present position of the bank in relation to the remainder of the survey.
(d) The boundary so established should be shown as a solid black line with a statement printed along it giving the date of traverse and the name of the surveyor.
   e.g. *Bank shown according to traverse by ..............., A.L.S. (....Date....), 19....*

(e) If it is necessary to show the present bank as well as its position at the time of patent, both traverses should be plotted and one shown in a solid black line, the other in a broken black line, in order of importance, with a statement on each setting out the date of traverse and the name of the surveyor.

(f) The name or number of the lake or river should appear on the plan; and the direction of flow of water should be indicated by an arrow in the case of streams or rivers.

25 Guidelines for establishment of natural boundaries under the Surveys Act.

In common law, a natural boundary at any instant is the designated natural feature as it exists at that instant, and the boundary position changes with the natural movements of the feature as long as these movements are gradual and imperceptible from moment to moment.

It is essential to designate clearly and concisely both on the plan and in the field notes, the character of any natural feature adopted as a boundary. In the case of water boundaries, except where applicable legislation, judicial decision, or existing rights are to the contrary, the bank shall be used as the feature defining the boundary.

Locate natural boundaries by either:
1. a survey network utilizing offsets or radial measurements such that bank identification points to not exceed a 30 metre interval.
2. by plotting the feature directly from controlled aerial photographs, provided that:
   (a) the scale of the photographs is as large as or larger than the scale of the final plan of survey. Enlargements may be used to fulfill this requirement only if the resolution is such that the boundary feature is sharply defined on the enlargements.
   (b) the boundary is inspected on the ground by the surveyor.
   (c) the position of the boundary is clearly marked on the photographs and, where it is inspected on the ground, is marked on the photograph in the course of the inspection.
   (d) photo identifiable points are positively identified and are pin-pricked on the photographs and surveyed on the ground in relation to the monumentation of the survey and according to the following specifications:
      i) one photo identifiable point is to be established in the vicinity of each intersection of an artificial boundary with the natural boundary, and a tie is to be made to the natural boundary along each intersecting artificial boundary.
      ii) at least three photo identifiable points are to be established in the vicinity of the natural boundary on each photograph used, or if enlargements are used, on each 25 cm square of the enlargement along the course of the natural boundary, and
      iii) the accuracy of survey of the photo identifiable points shall be at least equal to that prescribed for surveys under the Surveys Act.
3. Notwithstanding Sections 1 and 2, natural boundaries may be plotted by stereoplottor provided that:
   (a) the scale at which the model is viewed is as large as or larger than the final plan of survey,
   (b) clause 2(b) above is complied with, and
   (c) photo identifiable points are pin-pricked on the photographs and surveyed on the ground according to the following specifications:
      i) one photo identifiable point is to be established in the vicinity of each intersection of an artificial boundary with the natural boundary,
      ii) at least two photo identifiable points at each end of the series of overlaps and at least one control point at intervals not exceeding three overlaps are to be established, and

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iii) the accuracy of survey of the photo identifiable points shall be at least the equivalent to that prescribed for surveys under the Surveys Act.

4. All detail transferred from a particular photograph to the plan in accordance with sections 2 or 3 should be outlined in ink on the photograph, and the photograph should be retained by the surveyor as part of the field notes. The relevant photograph numbers must be shown on the plan. All photographs used must show date of photography and scale, and be signed and dated by the Alberta Land Surveyor responsible for the survey.

5. The plan may require the approval of the Department of Forestry, Lands and Wildlife as to the location of the natural boundary.

6. If the plan is required for a transaction (i.e. separation of titles under Section 86 of the Planning Act) which results in the exclusion of the beds and shores of water bodies from the existing Certificate of Title, the plan must have the approval of the Department of Forestry, Lands and Wildlife as to ownership. This approval may be endorsed on the plan or be in a letter form. Planning approval is also required.

26 Where any boundary or limit of a block, parcel or right-of-way has been surveyed as an arc of a circular curve, the length of the curve, its radius, and the central angle of curve shall be shown on the plan. Chord lengths and bearings with length of subtangents may also be shown but are not essential.

NOTE: On subdivision plans having curvilinear boundaries, it may be desirable to show the delta Angle to the nearest second of arc, and the other curve related information to millimetre precision. For multiple curves or curve segments, information may be shown in tabular form.

27 (a) In general, the only topographic features which should be shown on a plan are those which form an essential part of the survey, such as a river bank or lake which constitutes a property boundary. It is sometimes desirable however, to show any well-defined features such as a creek bank, a fence corner, or a building. If a monument is situated near it, since a record of the relative positions of the monument and the feature shown may be of assistance in relocating the monument at some future time. In such cases, the topography should be accurately plotted and if measurements have been made to determine its location, they should also be shown.

(b) Topography which is not essential or which serves no useful purpose should be omitted from plans which are to be registered, as well as such designations of parcels as "Church Site", "Cultivated Land", etc., describing the purpose for which the land is used or is intended to be used unless required by statute. In no case should contour lines be shown on any plan which is to be registered.

28 A plan of survey performed pursuant to Sections 2 or 4 of the Survey Regulation shall show the ASCM or unique identifier number of all survey control markers to which the survey is connected. In addition, the tablet markings shall be shown on parentheses below the ASCM number (MKD_____).

29 The use of tabular data for annotation purposes on subdivision plans should be minimal and the annotation should be shown in the form of drafted details.

Chapter 7
SUBDIVISION SURVEYS

1 If a subdivision plan encompasses part of a previously registered parcel or quarter section, the heading should so state.

2 The total area of the subdivision should be shown on the plan by means of a notation as follows, printed beneath the heading: "The area affected by the registration of this plan is denoted thus..... and contains.....ha." If the area subdivided is under more than one registered ownership or if it affects more than one quarter section or other former parcel, the area subdivided in each portion, should be stated. Where several titles or former parcel numbers should be shown in tabular form.

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3 Each lot or parcel which is 0.5 hectares or more in area shall have its area shown. The areas of all Public Reserve Parcels shall be shown regardless of size.

4 Block letters or numbers used should not be in duplication of those shown on previous plans of subdivision in the same quarter section or neighbourhood. In additions to small townsites, block numbers or letters used should follow consecutively those shown on previously registered plans of the townsite. In resubdivisions of existing blocks, former lot numbers should not be duplicated.

Reserves and public utility lots are to be designated in accordance with the Planning Act and Regulations. In addition, the full meaning of the suffixes ER, MR, SR, MSR, & PUL, if used, shall be shown in the legend. Where applicable the name of the school authority and its address shall be shown.

5 In plans of additions to existing subdivisions, productions into the new subdivision of streets or avenues in any adjoining existing subdivision should be given the same numbers or names as the streets and avenues already in use.

6 Perpendicular widths of each street should be shown twice in each course thereof. When intersected other than perpendicularly by other streets or by the limit of the subdivision, the slant width should also be shown. Widths of lanes should be shown twice in each course in each block.

7 (a) Complete information as to the length and bearing of every boundary created shall be shown, with the exception that ditto marks may be used where dimensions are repetitive.

(b) If corner-cuts are standard, a note to that effect may be shown in the legend of the plan giving the required dimensions etc.

8 If a larger area than that intended to be registered has been surveyed on the ground, only that part which is to be registered may be shown on the plan. Plans showing further extensions of the subdivision outside the portion to be registered will not be accepted. Only previously registered surveyed lines may be shown outside the area to be registered under the new plan, and they shall be shown as continuous black lines, whether rights-of-way or subdivisions.

9 Plan number of all previously registered adjacent subdivisions, roads, railways, etc., must be shown on the plan.

10 (a) Where the plan is a subdivision of part of a former plan, the boundaries and numbers of original lots should be shown in black broken lines only when necessary for clarification. Rights-of-way within the plan limits should also be shown in black broken lines.

(b) If the area being re-subdivided formerly contained streets or lanes which are to be superseded by lots or by new streets or lanes differently located on the new plan, the former lot boundaries and numbers should not be shown. Only if it is desired to indicate the locations of evidence found at the old lot corners, should the former lot boundaries be shown, and in that case, they should be drawn in black dotted lines.

(c) Streets or lanes may be eliminated by a Closing By-law under the Municipal Government Act. In this case title to the former streets or lanes will vest in the Municipality upon registration of the Closing Bye-law in a Land Titles Office.

(d) Where the re-subdivision of an area containing streets or lanes that are to be eliminated is in the form of a Replotting Scheme under the Planning Act, prior cancellation or closing of the streets is not necessary as this is automatically accomplished under the replotting scheme.

11 Except as noted below, the plan of subdivision must bear all necessary approvals, signatures and affidavits before it can be accepted for registration in a Land Titles Office.
In general, it will include the following:
(a) Surveyors affidavit and signature, in form 11 pursuant to the Land Titles Act, sworn before a Commissioner for Oaths.
(b) Owner - if the owner is an individual, his signature must be witnessed and the witness must take an affidavit in form 31 pursuant to the Land Titles Act. This affidavit must be sworn before a Commissioner for Oaths if taken within the Province of Alberta, or before a notary public if taken outside of the Province of Alberta - if the owner is a corporate body, the plan is signed by an executive officer or officers of the corporation under the corporation’s official seal.
(c) Planning Approval - by the subdivision approving authority in accordance with the Planning Act.
(d) Encumbrances - are not required to approve the plan if no land is dedicated for public purposes (refer to the Land Titles Act for details). If land is dedicated for public purposes, encumbrances must approve the subdivision, either directly on the plan or by a separate consent form (Form 12A L.T.A. Forms). A mortgagee’s signature is not required for a mortgage on an easement.
(e) The Director of Program Support, Public Lands Division, Alberta Forestry, Lands & Wildlife - if the plan of subdivision contains land adjoining a lake, river, stream or other body of water.
(f) The Director of Surveys - pursuant to Sec. 43 1 (b) of the Surveys Act. The approval is to ensure that the bond or other surety is in place prior to registration.
(g) Replotting schemes - a subdivision plan by a replotting scheme pursuant to the Planning Act will not be executed by the owners, but rather by the appropriate municipal authority.

Processing
12 When a subdivision plan is presented to a Land Titles Office for registration therein, it should be accompanied by the appropriate forms and documentation. These may include special instructions, duplicate certificate of title, discharges of encumbrances, etc.

Field Measurements
13 Sufficient field measurements shall be made to ensure that no errors of layout or measurement have occurred.

Closures
14 Each and every figure on a subdivision plan shall be checked for mathematical closure.

Delayed Posting
15 The use of delayed posting provisions under the Surveys Act is optional. This option is intended to allow major construction to be completed prior to lot corner monumentation, and its use is recommended where the subdivision plan must be processed prior to completion of construction operations.

Re-establishments
16 In the event that conventional posting is employed, and subsequent re-establishment of lot corners occurs, a plan of same shall be prepared by the surveyor and registered in accordance with Section 42 of the Surveys Act.

Auxiliary Marks
17 The positions of all monuments placed on a subdivision survey should be marked with guard stakes, such as redtop wooden stakes, to facilitate subsequent location by others.

Chapter 8
STRATA AND CONDOMINIUM SURVEYS

Strata Surveys
1 Strata subdivision surveys are subdivision surveys in a three-dimensional sense, conducted in accordance with Section 41 of the Surveys Act, and the plan prepared and registered pursuant to Section 83.2 of the Land Titles Act.
(a) The geometric shapes forming the boundaries of strata spaces shall be limited to:
   - horizontal, vertical, or inclined plane surfaces, and/or
   - cylindrical, or portions of cylindrical surfaces which shall have axes which are either vertical or horizontal.
(b) While the Surveys Act requires that strata surveys be related to a minimum of two bench marks being either adjacent survey control markers, or newly established bench marks within the site related to geodetic datum, it is preferable that the latter be employed whenever practical.
Condominium
Surveys

2 Condominium plans, whether bare land or building type, are surveyed pursuant to the Surveys Act and the Condominium Property Act.

(a) A building shall be defined for the purposes of condominium surveys as being a fully enclosed space. That is to say, partially enclosed balconies and other such building appurtenances should not be included in a building condominium unit.

(b) When conducting a survey of a building condominium, each unit perimeter shall be measured. In addition, the site perimeter shall be fully surveyed, monumented, and tied to Alberta Survey Control in accordance with the Surveys Act.

(c) Generally, condominium unit boundaries are defined by existing walls. However, if it is desired to create units or parts of units where interior partitioning does not exist (i.e. parking, storage areas) unit boundaries may be defined by measurements from adjacent existing walls.

(d) The site plan within a building condominium plan shall illustrate in addition to the requirements of the statutes:
   - monuments thereon, and ties to Alberta Survey Control,
   - the location and dimensions of the building(s), including the perpendicular distances to property lines, the dimensions of the main walls, any protrusions beyond such main walls, and a note identifying the nature of the wall depicted.

(e) Bare land condominium units shall be monumented in accordance with the Surveys Act.

(f) Refer to Schedule *B* attached for the required affidavit by surveyors for building condominium plans.

Chapter 9
RIGHT-OF-WAY SURVEYS

This chapter deals with surveys for new roads, utility or pipeline rights-of-way, and railways. Items 1 and 2 are applicable in all cases.

1 Posting Requirements

(a) When only one limit of a right-of-way is monumented, the south and/or west limits are preferred for posting.

(b) When surveying a new right-of-way which is adjacent and parallel to an existing right-of-way, monuments shall be placed on a limit not coincident with any existing limit.

(c) Subject to the above, monuments shall be placed at:
   - each deflection, or terminal point of the limit(s) except as noted in 1.(d) below,
   - each beginning and end of curve, which shall have a constant radius,
   - intervals not exceeding 1000 metres, except for roads which should not exceed 600 metres, or in either case, intervals to yield intervisibility, whichever is the lesser,
   - the intersection of the posted limit(s) with each surveyed boundary crossed, including blind lines.

(d) When a boundary of a right-of-way is coincident with, terminates on or purports to define a 1/4 line, the said 1/4 lines shall be surveyed in accordance with the Surveys Act, except in the case where the posted limit is parallel to and less than 30 metres from the posted section line, then the alternate methods of making intersections as outlined in 1.(f) may be used.

(e) Except as noted in 1.(f) below, when surveying rights-of-way that intersect surveyed section or quarter sections lines, the intersections shall be made by using the nearest section or quarter corners on each side of the point of intersection. If the monuments at these corners are lost they shall be re-established, giving due consideration to all available evidence.

(f) The following alternate methods of making intersections are acceptable:
   - if the right-of-way being surveyed is parallel to, or approximately parallel to an existing surveyed section boundary, and the point of intersection with another surveyed boundary is within 30 m of the said section boundary, the intersection may be made by adopting the bearing shown on a township plan or other registered plan. Such bearing shall be shown on the new plan of survey.

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Surveyed Section Lines

Cancelled, Abandoned Plans

Areas

Widths

Partial Abandonment

Tie-Backs

Re-establishments

Road Surveys

New Railway Surveys

Spirals

- if the right-of-way being surveyed is parallel to an existing surveyed right-of-way, and the posted limit is within 30 m of the posted limit of the existing right-of-way, the surveyror may place a monument at a section boundary intersection by adopting the intersection angle of the section boundary from the previous survey, provided that the previous survey established the said section boundary by joining with a straight line the nearest section or quarter corners on either side of the point of intersection, and a tie is made in one direction, on the new survey, to one of the adjacent section or quarter section corners to confirm the previous survey.

(g) For the purpose of these standards, except as noted in 1(h) below, "surveyed" lines are defined as:
- any line shown to be surveyed on a plan of public record,
- blind lines whether actually surveyed on the original township survey or not,
- quarter lines which are shown to have been surveyed on any plan of public record.

(h) Boundaries shown on cancelled subdivision plans or on abandoned right-of-way plans need not be intersected. A "cancelled" subdivision plan is a plan for which no titles exist. Rights-of-way may be considered abandoned when no interest exists in relation to the right-of-way.

(i) Land Title Office, Energy Resources Conservation Board, or any other records should be reviewed to determine the status of current interests of record.

(ii) Consideration should be given to any potential interest in the right-of-way, bearing in mind the age and location of the plan in question. If the right-of-way is considered abandoned, the boundaries need not be intersected and posted.

(i) Except within urban residential parcels, the area of right-of-way surveyed shall be shown on the plan in each parcel or separate title affected. The areas should be placed in close proximity to the parcel designation.

(j) If the right-of-way surveyed has parallel sides, the perpendicular width shall be clearly shown, as well as any rights-of-way widths adopted from previous surveys.

(k) Where a portion of a previously registered road is abandoned in favour of a new survey, any remaining portion of the previously surveyed road in the same quarter section or parcel, which is still to be used, should be retraced in the new plan of survey and a calculated distance shown to delineate the unsurveyed quarter line or parcel boundary.

(l) On surveys of rights-of-way which may terminate within the interior of a section, the terminal monument shall be tied to some other known point in such a manner that a closure may be obtained from information shown on the plan.

2 Re-establishments

If an iron post is placed to re-establish a lost monument on a right-of-way survey, it shall be marked with the letters and/or numbers which are indicated on the plan as being marked on the original post. (Other than Permit/Registration No. of the original surveyor.) Pits need not be dug in the case of a monument on a road survey, although a marker post shall be placed in accordance with accepted practice.

3 Special Requirement for New Roads in Rural Areas

Each iron post placed should be marked with the letter "R" and a unique number within the survey being conducted.

4 Special Requirements for New Railway Surveys

(a) When a new railway right-of-way is surveyed, and the track has been constructed prior to the survey, the centre line of actual track shall be related to the right-of-way survey, and such relationship shown on the plans of survey.

(b) Any spiral curves existing on the centre line of track of a new railway shall be replaced with a circular curve in accordance with Schedule 'A' for the purpose of posting the railway limits.

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5 Special Requirements for Existing Railway Rights-of-Way
   (a) When establishing the boundary of a previously surveyed but unposted railway right-of-way, the centre line of which is shown on the filed plan to be a spiralled curve, the spiral shall be replaced with a circular curve in accordance with Schedule "A".
   (b) When establishing the location of a right-of-way based on existing centre line of track, an iron post shall be placed to define the tangent for subsequent use at least 500 m distant from the survey being conducted, or near the next point of curvature whichever is nearer. Such post shall be tied to the survey being conducted.
   (c) Existing rights-of-way based on "as constructed" or "as-built" surveys will generally refer to centre line of rail existing at the time of survey, and ownership is based upon this centre line location. Therefore, the centre line of rail is usually the best evidence of the original survey line provided that no movement has occurred since the original survey.
   (d) Existing rights-of-way based on "location" plans may or may not correspond to actual rail location since "as located" surveys were conducted prior to rail construction. If it is found that the existing centre line of rail agrees reasonably with the centre line as shown on the plan, then it is likely that the rail is the best evidence of the original survey line. If not, alternate procedures appropriate to the circumstances are indicated.

Chapter 10
REAL PROPERTY REPORTS

1 In this standard
   (a) "Alberta Land Surveyor's Real Property Report" means the survey and plan prepared in respect of a survey performed for the purposes of certifying the location of an improvement relative to the boundaries of a parcel of land;
   (b) "Improvement" includes any visible thing constructed or placed on, in or over land;
   (c) "Parcel" means a unit of land described in an Alberta Land Surveyor's Real Property Report.
   (d) "Surveyor" means an Alberta land surveyor.

2 A Surveyor performing a survey for the purpose of identifying, locating and illustrating improvements together with the extent of the parcel and encumbrances thereon, shall prepare an Alberta Land Surveyor's Real Property Report in accordance with this standard.

3 A Surveyor performing a survey for the purpose of preparing an Alberta Land Surveyor's Real Property Report shall locate and confirm sufficient survey monuments in order to define the boundaries of the parcel in accordance with the Surveys Act.

4 When conducting a field survey for an Alberta Land Surveyor's Real Property Report, a surveyor shall:
   1) firstly perform research adequate to identify the parcel boundaries and encumbrances thereon, including obtaining a copy of the current Certificate of Title which shall be retained in his file.
   2) locate and confirm sufficient monuments in order to define the perimeter boundaries of the parcel in accordance with The Surveys Act.
   3) locate the main walls of all buildings located on the parcel relative to the boundaries thereof, whether entirely or partially within the parcel, together with any visible portions of the buildings which may extend beyond the main walls.
   4) locate relative to the boundaries of the parcel, any other improvements situated on the parcel or adjacent lands which, in the opinion of the surveyor, have a significant impact on the value, use or enjoyment of the parcel.

5 When preparing a plan for an Alberta Land Surveyor's Real Property Report, a surveyor shall:
   1) indicate the legal description, municipality, and where available, the municipal address of the parcel;
   2) designate the legal description of all lands adjoining the parcel,

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3) Indicate prominently that the plan is an "Alberta Land Surveyor's Real Property Report".
4) Illustrate all improvements located pursuant to section 4 hereof, with their dimensions and minimum distances from the boundaries of the subject parcel.
5) Indicate the nature of each improvement illustrated, and where incomplete, the stage of construction of same.
6) Clearly and prominently identify any encroachment which may exist, together with the amount of such encroachment.
7) Indicate the length and bearing of each boundary of the subject parcel.
8) Indicate the survey monuments used to define the perimeter boundaries in accordance with Section 4.2, together with the relationship of the said survey monuments to the perimeter boundaries of the parcel.
9) Illustrate, identify and dimension all easements which affect the parcel.
10) Place a note on the plan containing the copyright symbol, the name of the practitioner holding the copyright and the current year.

6) The plan prepared as part of the Alberta Land Surveyor's Real Property Report shall contain a certification in the following form:

"I, Alberta Land Surveyor, do hereby certify that:
1. The survey represented by this plan is true and correct and was made under my personal supervision.
2. The survey was made in accordance with the Manual of Good Practice.
3. The survey was completed on the ___ day of ____, A.D., 19__.
4. The improvements as shown on this plan are entirely within the boundaries of the subject property (except as noted herein), and;
5. No visible encroachments exist onto the subject property from any improvement situated on an adjacent property (except as noted herein).

DATED this ___ day of ____, A.D., 19__.

Alberta Land Surveyor"

Chapter 11
WELLSITE SURVEYS

This chapter deals with the survey of oil and gas well sites and related facilities for the licensing of wells under the "Oil and Gas Conservation Regulations". The position of the well head and reported coordinates of the well location are adequately covered under the regulations. Any further reporting of the well head location should be dealt with on an individual client basis.

In addition to the Survey Regulation, Part 2 - Surveys in Unsurveyed Territory pursuant to the Surveys Act, the following shall apply:

1) An Alberta land surveyor performing a survey for the location of well sites and related facilities in surveyed territory, shall locate and confirm sufficient monuments to define at least one boundary of the 1/4 section affected and shall measure the relationship of the well site and related facilities to the said boundary. Where the possibility of conflict occurs, the surveyor shall exercise discretion to ensure that the wellhead or facilities are properly located.
2) Where the boundaries of a wellsite or related facility terminate on, are coincident with or purport to define a property boundary, the said boundary should be surveyed in accordance with the Surveys Act.
3) The type of monumentation found or placed for well sites and related facilities shall be shown on the plan. It is recommended that iron bars be placed.
4) Energy, Mines & Resources, Canada third order levelling specifications (+ 24mm \sqrt{dist. in km}) shall be achieved within the surveyor's own work. Elevations shall be determined from a minimum of two (2) bench marks, one of which is recommended to be a bench mark with a published geodetic elevation. Bench marks used shall be identified on the plan. The datum shall be geodetic and also noted on the plan.
5) Horizontal accuracy shall be no less than 1:5000 in the surveyor's own work and 1:2500 in ties to previous surveys.
6) The name of the land surveyor shall be printed legibly on the plan.
The name of the land surveyor shall be printed legibly on the plan.

Effective September 1, 1992, when preparing a final plan for an LOR Roadway, an Alberta land surveyor shall base the plan on a survey in accordance with the following:
- determine the position of the road by an appropriate survey method, relative to the Alberta Township system.
- horizontal accuracy shall be no less than 1:5000 in the surveyor's own work and 1:2500 in ties to previous surveys.
- shall determine the relationship to existing surface disposions, crossed or contiguous with the survey.
- shall be certified correct by an Alberta land surveyor.

Chapter 12
DESCRIPTIVE PLANS

When requested to prepare a Descriptive Plan of Subdivision, the surveyor should inform his/her client as to the advantages of having a new title created by a Plan of Survey. When preparing a Descriptive Plan, the surveyor should use his/her best professional judgement in preparing the plan such that the creation of the parcel does not harm any landowner by creating conflicts with property boundaries or encroachments. In preparing a Descriptive Plan, pursuant to the Land Titles Act, the surveyor:

1. Shall conduct a plan and title search, and search any relevant encumbrances registered against the title to the subject property.
3. shall place a note on the plan indicating that no boundaries have been established and marked on the ground.
4. If the descriptive plan creates a new boundary (i.e. subdivision) and is not a consolidation or a plan of an existing metes and bounds description, the surveyor shall undertake sufficient research, including a field inspection if necessary, to ensure that the boundaries being created by the descriptive plan are consistent with the intent of the subdivision, to confirm that all improvements lie within the boundaries of the proposed parcel, and to confirm that no encroachments exist onto the subject property from adjacent lands.
5. A note should be placed on the plan indicating either that no field inspection was done, or that a field inspection was done on a certain date using one of the following statements:
   (a) No field inspection was carried out, and boundaries have not been established on the ground.
   or
   (b) A field inspection was carried out on the __ day of ____________, 19__, and boundaries have not been established on the ground.
6. Where a descriptive plan includes a natural boundary, the surveyor should conduct a field inspection to confirm the location of the natural boundary.
7. Shall place a note on the plan stating the name of the land surveyor preparing the plan followed by the title "Alberta Land Surveyor" and the date the plan was signed by the land surveyor.

Chapter 13
REMOTE POSITIONING METHODOLOGY

When applying remote positioning methodology to cadastral surveys, the following requirements shall be adhered to:

1. The Surveys Act, regulations and other instructions of the ALS Manual shall be followed.
2. Observations from remote positioning methodology shall be reduced and converted into full-circle bearings and linear distances. These bearings and distances shall be derived and verified to comply with requirement (1). Surveyors shall ensure consistency between the survey measurements derived from remote positioning methods and those from conventional survey methods.
3 Plans of surveys made or partially made by remote positioning methods shall meet requirement 1 with the following additional requirements:
(a) survey measurements derived from a remote positioning method shall be shown on the plans with the wording "derived from (a particular remote positioning method)."
(b) the legend of the survey plans shall be extended in order to cover the survey measurements derived from remote positioning methods.
4 In order to comply with the intent of Chapter 5 of the Manual of Good Practice, the surveyor shall keep a record of each survey made or partially made by remote positioning methods. The record shall also contain as a minimum, the following items:
(a) observation procedures and logistics,
(b) reduction procedures of the observed data,
(c) processed remote positioning data from which cadastral survey measurements are derived.

Chapter 14
CONSTRUCTION LAYOUT SURVEYS

Construction layout surveys/surveyors should adhere to the following guidelines:
1 Sufficient research shall be carried out to ensure the surveyor has all information available to lay out the proposed facilities within the site boundaries. A survey methodology which will produce the required accuracy should be used.
2 The construction drawings shall be reviewed and any discrepancies or ambiguities clarified prior to the survey layout. In no case should assumptions be made as to the location of proposed facilities.
3 The layout should be precomputed and sufficient checks performed to ensure it is consistent with the original construction drawings.
4 A field copy and office copy of construction drawings should be obtained before commencing the survey.
5 Ensure the construction drawings used are "Approved for Construction", and that all revisions to the drawings are included.
6 Horizontal and vertical control to be used for the construction layout shall be verified prior to commencing any staking of facilities.
7 Independent checks shall be made on all facilities laid out to ensure any layout inconsistencies are rectified prior to construction.
8 If any changes in the location or dimensions of the facilities are requested, the revisions should be in writing and signed by an authorized person.
9 In no instance should the surveyor allow construction to begin on a layout which has not been verified.
10 Surveyors shall verify who is responsible for locating underground facilities within the construction area.
PART B

Chapter 1
COMMENTARY ON THE CODE OF ETHICS

Introduction
The Code of Ethics represents a standard of conduct for the Alberta land surveyor. It stresses his responsibility not only to the public and to his clients but also to his personnel and to his colleagues.

Those who rely on an Alberta land surveyor may find it difficult to assess the quality of his services. They have a right, however, to expect that he be a person of integrity and competence.

Because ethics are abstract concepts they are not easily defined. Therefore, care must be used in applying the Code of Ethics to judge the Alberta land surveyor. There could be cases when certain parts of the commentary should not be strictly enforced. Similarly, the code cannot cover all instances of unethical conduct. It is the responsibility of the Association to judge whether the Code is followed not so much in fact, as in spirit.

The Code
1. An Alberta land surveyor shall serve society, his clientele and his profession with the ultimate objective of contributing to the knowledge of land, to the better management of land and to the preservation of peaceful and lawful enjoyment of land.

The public responsibility of an Alberta land surveyor to contribute to the knowledge of land, to the management of land and to the peaceful and lawful enjoyment of land imposes particular obligations on him. Especially important is the work of establishing or re-establishing boundaries of land. The correct survey or resurvey of boundaries of land is essential to the maintenance of the land survey system and the land titles system in the province of Alberta. This public interest must be greater than the interest of the client of the Alberta land surveyor and requires that the Alberta land surveyor carry out his duties without favour, affection or partiality.

2. Duty to Personnel
An Alberta land surveyor has a duty to assist his pupils and employees to achieve their optimum level of contribution to society through their contribution to the profession.

An Alberta land surveyor shall assist his pupils and employees in obtaining instruction in the practical, ethical and theoretical aspects of surveying.

An Alberta land surveyor has a particular obligation to his pupils to ensure that they are instructed in the art, practice, ethics and profession of an Alberta land surveyor.

2.2 Professional Impropriety
An Alberta land surveyor should avoid even the appearance of professional impropriety.

An Alberta land surveyor shall disclose to his client any conflict of interest, affiliation or prior involvement that could even have the appearance of preventing him from carrying out his duties with independence and objectivity and should accept or continue such employment only if his client consents.

An Alberta land surveyor in doing work for two or more clients who could have differing interests must explain fully to each client the implications of common representation and should accept or continue such employment only if his clients consent and he can carry out his duties with independence and objectivity. A differing interest could occur where the timing or completion of projects or approval of plans could give one client an advantage over another.

An Alberta land surveyor must recommend that his client retain another Alberta land surveyor if any conflict of interest, affiliation, or prior involvement prevents him from carrying out his duties with independence and objectivity.

An Alberta land surveyor shall not solicit employment by offering payment or other inducement to secure such employment. This includes compensating a third party for recommending him.
An Alberta land surveyor must attempt to resolve amicably any controversy over fees with clients. He shall explain all charges incurred and shall make available to his client copies of any details relevant to his assessment. Where differences cannot be resolved he shall ensure that his client has knowledge of complaint or mediation procedures available through the Alberta Land Surveyors' Association.

An Alberta land surveyor shall not influence improperly any public body or public official or state or imply that he is able to do so.

An Alberta land surveyor shall guard the reputation of his profession as he guards his own reputation. He shall never be reluctant or too proud to rebut unjustified criticism of his profession, another surveyor, or of himself.

An Alberta land surveyor shall prevent his name being used in a professional way in association with any person or enterprise of a dubious or doubtful character.

2.3 Professional Confidences
An Alberta land surveyor has a duty to preserve the confidences of his client and regard as privileged the information he may obtain regarding the affairs of his client.

An Alberta land surveyor shall maintain confidentiality with respect to the client's affairs during, as well as after, the completion of his assignment or termination of his employment.

The Alberta land surveyor is responsible for compliance with this article by his articled pupils and staff and therefore must exercise care in selecting and training his employees.

This article should not normally apply to the provision of survey information related to boundary definition which should be disclosed to other Alberta land surveyors on request.

2.4 Professional Judgement
An Alberta land surveyor has a duty to exercise unbiased independent professional judgement on behalf of his client, and shall represent his client competently.

An Alberta land surveyor must decline to accept direction from employers, directors, officers, or other superiors in his organization where such direction compromises his integrity, his independence or his objectivity. Where an Alberta land surveyor is employed by an organization, a written agreement should be provided to prevent possible misunderstanding. This agreement should define the relationship between him and the organization and provide for his independence.

An Alberta land surveyor must ensure, in the formation of a corporation, that any director, officer, or stockholder cannot influence the independence of any Alberta land surveyor employed by the corporation in carrying out his duties as an Alberta land surveyor.

An Alberta land surveyor shall not accept assignments that are beyond his resources to complete in a reasonable time, that are beyond his competence, or that he cannot carry out in a professional manner. This does not necessarily preclude him from accepting employment in an area in which he may not be completely proficient provided his client is made fully aware of his capability and in good faith he expects to become qualified and that this would not result in an unacceptable delay or expense to his client. An Alberta land surveyor offered employment in a matter in which he is not and does not expect to become so qualified, should either decline the employment or, with the consent of the client accept the employment and associate with another Alberta land surveyor who is competent in the particular field of expertise.

An Alberta land surveyor shall present clearly to his client, circumstances where his professional judgement may be overruled by regulatory or legal authority and the consequences thereof.

2.5 Integrity and Competence
An Alberta land surveyor shall assist in maintaining and improving the integrity and competence of the profession of surveying.

An Alberta land surveyor shall assist in maintaining the integrity and competence of the profession of surveying, which includes responsibility for maintaining the survey system, by cooperating with his colleagues to resolve any apparent errors or
discrepancies in his work and taking all necessary measures to remedy those errors or discrepancies.

An Alberta land surveyor shall report to the Association any matter of incompetence or disregard of good practice. To let such practice continue may result in a deterioration of the survey system and may harm the integrity of the profession. On the other hand, occasional errors or oversights in work can often be resolved between surveyors and need not be reported to the Association unless the parties cannot agree to a solution to the matter.

An Alberta land surveyor shall assume the professional responsibility for all authorized work carried out by his nonprofessional staff.

An Alberta land surveyor shall ensure before he accepts any applicant for articleship that the applicant has the necessary personal attributes including good character required of an Alberta land surveyor.

An Alberta land surveyor shall devote some of his time to the affairs of his association. Changes in human affairs and imperfections in human institutions make necessary constant efforts to maintain and improve the survey profession, survey institutions, surveying procedures and the survey system.

An Alberta land surveyor shall participate in proposing and supporting legislation and programs to improve the survey profession, survey institutions, surveying procedures and the survey system.

An Alberta land surveyor shall participate in proposing and supporting legislation and programs to improve the system. If an Alberta land surveyor believes that the existence or absence of a rule of law, regulation or instruction causes or contributes to an unjust result, he should endeavour to obtain appropriate changes.

An Alberta land surveyor shall continually advance his knowledge and skills by participating in the activities of the Association, in relevant continuing education programs and in other related professions or societies.

2.6 Dignity of the Profession
An Alberta land surveyor has a duty to maintain the dignity of the profession through his association with his clients, colleagues and subordinates.

An Alberta land surveyor shall limit his advertising to the adequate provision of information to the public. Special care must be taken to ensure that the information set forth in any advertising is relevant to the appropriate selection of a surveyor. Preparation of advertisements and professional articles for lay publications and participation in seminars, lectures and civic affairs should be motivated by a desire to educate the public and to provide information relevant to the selection of the most appropriate Alberta land surveyor rather than to obtain publicity for particular Alberta land surveyors.

An Alberta land surveyor shall refrain from any false or misleading statements or self-laudatory language in any advertising.

An Alberta land surveyor shall not in any dealings that he has with a client or prospective client, attempt to solicit assignments or projects that are being carried out by another surveyor. If he is asked to participate in or complete a project which is in the process of being carried out by another Alberta land surveyor, he shall not do so unless the prior Alberta land surveyor approves the participation or in the case of completing a project, that he withdraws or terminates his services.

An Alberta land surveyor shall not attempt to injure the professional reputation of any other Alberta land surveyor.

An Alberta land surveyor shall refrain from criticism in public of the conduct or practice of any other Alberta land surveyor.

2.7 Professional Services
An Alberta land surveyor should assess and receive fair and just compensation from his client, commensurate with the technical complexity, level of responsibility and liability potential of the services performed.

An Alberta land surveyor shall assess a fee that will enable him to serve his client effectively and will enable him to carry out the project in accordance with good survey practice. On the other hand, he shall not charge more than a reasonable fee for that could discourage laymen from utilizing land surveyors in the protection of their property rights and would furthermore, generally harm the reputation of Alberta land surveyors.

Manual of Good Practice
92.06.04
An Alberta land surveyor shall, when he is in the process of being employed, reach a clear agreement with his client as to the basis of the fee charges to be made. Such a course will not only prevent later misunderstanding but will also contribute to good relations between the surveyor and the client.

An Alberta land surveyor shall in any estimates or quotations given to a prospective client, clearly outline the work covered by the estimate and shall clearly indicate any conditions which may result in additional costs. He should not quote a fixed fee for an unknown quantity of work unless such fee includes all contingencies. Once he has entered into an agreement to carry out survey work for an agreed fee, he shall carry out the work for no more than the agreed fee.

An Alberta land surveyor shall not reduce the quality of his professional services in order to complete a project at an agreed cost.

An Alberta land surveyor shall not divide a fee for surveying services with another surveyor who is not a partner or associate of his survey firm unless the client consents to employment of the other surveyor after a full disclosure that a division of fee is to be made; the division is made in proportion to the services performed; and the total fee does not exceed reasonable compensation for all services rendered to the client.

An Alberta land surveyor shall not use the advantage of a salaried position to compete unfairly with another Alberta land surveyor and will not engage in outside work without the knowledge and consent of his employer.

2.8 Unauthorized Practice
An Alberta land surveyor shall assist in preventing the unauthorized practice of land surveying.

An Alberta land surveyor shall report to the Association any instances where unqualified persons practice land surveying. The prohibition against the practice of land surveying by a layman is grounded in the need of the public for integrity and competence of those who undertake to provide land surveying services.

An Alberta land surveyor shall not enter into any arrangement that will enable an unqualified person or corporate body to carry out a land survey either directly or indirectly.

An Alberta land surveyor shall not join or become a member of a company which carries out survey work unless he or another Alberta land surveyor will be taking responsibility for all land survey work performed.

An Alberta land surveyor shall not establish offices, branch or otherwise, unless those offices are under the full-time direction and management of a resident Alberta land surveyor. If land survey offices are not under the direction and management of a resident Alberta land surveyor, there is a real danger that non-professional personnel in the office will assume the role of professional duties and that supervision will be inadequate. It is considered essential that the client/surveyor relationship be retained in the practice of land surveying. This article would not preclude an Alberta land surveyor from delegating tasks to his field assistants, clerks, secretaries and others as long as the Alberta land surveyor maintains a direct relationship with his client and supervises the work.

Chapter 2
ADVERTISING GUIDELINES

1 The advertisement must be in good taste.
2 The advertisement shall not be misleading. It is misleading if it contains a misrepresentation of fact or creates unrealistic expectations.
3 The advertisement shall not be self-laudatory.
4 The advertisement shall make no reference to price or fees for professional services.
5 The advertisement shall be factual. It shall not contain false or inaccurate information.
6 The advertisement shall not be contrary to the best interest of the public.
7 The advertisement shall not tend to harm the dignity, integrity, and honour of the profession.
8 Alberta land surveyors shall place identification signage on all field vehicles being used in the practice of surveying. Such signage shall indicate the company name and/or logo, but may also include the company address and phone number. The company name on the signage shall be a minimum of 5 cm in height. When using sub-contractors, using their own vehicles, the previously mentioned requirements shall apply to those vehicles and any existing signage used by those sub-contractors must be covered entirely.

Chapter 3
TECHNICAL LABOUR SUB-CONTRACTING

1 An Alberta land surveyor may engage the service of a person(s) who is(are) a member in good standing of ASSMT (herein referred to as "sub-contractor") not in his direct employ to supply labour and perform technical functions on his behalf. These technical functions do not include or encompass client liaison or new business development.
2 The Alberta land surveyor shall assume full responsibility for the actions and conduct of the sub-contractor during the performance of his services and duties, in the same context and extent as if the sub-contractor was in the direct employ of the Alberta land surveyor. The Alberta land surveyor shall issue all work instructions to the sub-contractor in person and shall receive the completed work from the sub-contractor in person.
3 An Alberta land surveyor shall not remunerate any of his technical assistants (including the sub-contractor) for services rendered based upon a proportion of the entire fee which he charges a client for the whole service, nor a fixed fee which may encourage inferior methods or time reducing procedures which are at cross purposes with adopted survey standards.
### Schedule "A"

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### Schedule "B"

**AFFIDAVIT**

I, [Name], Alberta Land Surveyor, make oath and say:

That the survey represented by this plan was made under my personal supervision;

That the survey was made in accordance with good surveying practices and in accordance with the provisions of the Surveys Act;

That the survey was performed between the dates of [Date 1] and [Date 2], 19[Year], and that this plan is true and correct, and is prepared in accordance with the provisions of the Condominium Property Act and the Land Titles Act.

That the building(s) situated on the parcel that is (are) the subject of this plan is (are) wholly within the external boundaries thereof; (in case of encroachment, this statement will be varied accordingly);

SWORN before me at the [Address] of [City] in the Province of Alberta this [Date] day of [Month], 19[Year].

__________________________
[Signature]

Alberta Land Surveyor

A Commissioner for Oaths in and for the Province of Alberta