

Australian Capital Territory

# Surveyors (Surveyor-General) Practice Directions 2023

Disallowable Instrument DI2023-112

made under the

**Surveyors Act 2007, s 55 (Surveyor-general practice directions)**

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## **1 Name of instrument**

This instrument is the *Surveyors (Surveyor-General) Practice Directions 2023*.

## **2 Commencement**

This instrument commences on 1 July 2023.

## **3 Surveyor-General practice directions**

I issue the surveyor-general practice directions as set out in Schedule A to this instrument.

## **4 Revocation**

This instrument revokes the *Surveyors (Surveyor-General) Practice Directions 2021 (No 1)* DI2021-51.

Greg Ledwidge  
Surveyor-General  
16 June 2023

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## Definitions

In these directions, unless the contrary intention appears:

‘The Act’ means the *Surveyors Act 2007*.

‘Adjustment Report’ means the document that shows the results of the adjustment of the survey observation network, be it a horizontal, vertical or combined adjustment.

‘AHD’ means Australian Height Datum as defined in the Geocentric Datum of Australia 2020 Technical Manual Version 1.7, as published by the Intergovernmental Committee on Surveying and Mapping in 2021. AHD is the official vertical datum of the Australian Capital Territory.

‘Appropriate accuracy’ means accuracy which is reasonably attainable in any particular survey.

‘Approved Survey Plan’ means any plan as defined by Guideline No. 7.

‘Surveyors Assistant’ means a person subject to immediate supervision by a registered surveyor.

‘Qualified Surveyor’ means a person recognised as a Qualified Surveyor pursuant to Guideline No. 12.

‘Cadastre’ means a public inventory of parcel-based information and data concerning all legal land and property objects, which shows the nature, size and legal rights, restrictions and responsibilities associated with each land and property object.

‘Calculation Sheet’ means the document showing survey calculations as determined by the surveyor, and the boundary definition to be shown on the plan.

‘Control Mark’ means a survey mark of a durable nature and maintained as part of a horizontal or vertical control survey network.

‘Control Survey’ means a high-accuracy geodetic survey, or a breakdown of a high-accuracy geodetic survey established for the purpose of setting out any other survey or to which any existing survey can be related, shown on a plan signed by a registered surveyor and available from a government authority.

‘Coordinated Reference Mark’ or ‘CRM’ means a reference mark of a kind referred to in Direction 35 and Direction 36, registered by a government authority, which has been or will be connected to a control survey.

‘Corner’ means a point at which two boundary lines and/or arcs meet.

‘Established Survey Control Mark’ means a control mark with a horizontal accuracy of Class C or better or a horizontal positional uncertainty of 0.02 m or better.

‘Estate Development Plan’ means a plan as defined in the *Planning and Development Act 2007*, Section 94.

‘GDA2020’ means the Geocentric Datum of Australia 2020, which is the official horizontal datum of the Australian Capital Territory.

‘GNSS’ means Global Navigation Satellite Systems.

‘Greenfield Survey’ means a survey of land, in an urban area, that is subject to an Estate Development Plan and may or may not be comprised within a Holding Lease.

‘Guideline’ means a guideline for surveyors authorised by the Surveyor-General, or their predecessors.

‘Identification Survey’ means a survey of a previously measured parcel of land made for the purpose of re-identification of the boundaries of that land and of their location in relation to relevant improvements and interests. An identification survey cannot be used to create new boundaries.

‘Infill Survey’ means a survey in an existing urban area of previously surveyed parcels.

‘Mean High Water Mark’ means the line of mean high tide between the ordinary high-water spring and ordinary high-water neap tides.

‘MGA2020’ means the Map Grid of Australia 2020, the official mapping projection in the Australian Capital Territory.

‘Monument’ means a natural or artificial object, or a point thereon, that is shown on an approved plan held by a public authority which is used for the purpose of locating or relocating a boundary or point in a survey.

‘Plan’ means any drawing or record, signed by a registered surveyor, of either a partial or complete survey of land.

‘Positional Uncertainty’ means the uncertainty of the coordinates or reduced level of a survey control mark, at the 95% confidence level, with respect to GDA2020, as described in SP1 v2.2.

'Reduced Level' means the vertical distance in metres as determined between a surveyed point and the AHD.

'Reference Mark' means a durable survey mark of the kind referred to in Direction 34 (a) and connected by measurement to a corner, angle, line mark or tangent point of any survey.

'Road' means a public access way as defined by the *Public Roads Act 1902*.

'Rural Survey' means a survey, as defined by the Act, other than an urban survey, of land within the Territory.

'SCDB' means the ACT Spatial Cadastral Database. This is the spatial representation of every current parcel of land in the ACT. It provides the map base for systems dealing with land related information. The SCDB is the indicative graphical representation of property boundaries. It is not the point of truth for legal property boundaries or related attribute information, which will always be the Deposited Plan.

'Spline' means a continuous curve that is constructed so as to pass through a given set of points and has continuous first and second derivatives.

'SP1 v1.7' means the publication titled Standards and Practices for Control Surveys (SP1) Version 1.7 as published by the Inter-Governmental Committee on Surveying and Mapping in 2007.

'SP1 v2.2' means the publication titled Standard for the Australian Survey Control Network (SP1) Version 2.2 as published by the Intergovernmental Committee on Surveying and Mapping in 2020.

'Stratum' means any parcel of land or easement consisting of a space of any shape below, on, or above the surface of the land, or partly below and partly above the surface of the land with some, or all of the vertical dimensions being limited.

'Supervised Person' means a person who is working under the supervision of a registered surveyor.

'Supervising Surveyor' means a registered surveyor who supervises the activities of Qualified Surveyors and Surveyors Assistants.

'Survey Certificate' under the Planning and Development Act 2007, Section 139 means a detail survey plan pursuant to Guideline No. 15.

'Survey' – see the Act, dictionary.

‘Survey Mark’ means any mark placed in accordance with these Directions or shown on an approved plan.

‘Surveyor-General’ – see the Act, dictionary

‘Surveyor’ means a surveyor registered under the Act.

‘Transfer and Grant of Easement’ means an instrument or dealing that legally creates an easement. See the Land Titles Practice Manual for more information.

‘Urban Survey’ means a survey of land within the Territory for urban development, as comprised in section 6 (1) (a) and (1) (b) of the *Districts Act 2002*.

## Division 1 – General Duties of a Surveyor

### Directions 6 – 14

- |  |  |
|--|--|
| <i>General provisions for undertaking a survey</i> | <p>6. When undertaking a survey in accordance with these Directions the surveyor must:</p> <ul style="list-style-type: none"> <li>(a) during the course of the survey locate or relocate with appropriate accuracy the boundaries of the land surveyed; and</li> <li>(b) place, or if required replace, survey marks required by the survey; and</li> <li>(c) determine with appropriate accuracy the position of all monuments relevant to the survey; and</li> <li>(d) make complete field notes of the survey in accordance with Division 6 of these Directions; and</li> <li>(e) if required prepare a plan of the land surveyed and if necessary a report on the survey.</li> </ul> |
| <i>Power of entry</i>                              | <p>7. A written notice of intention to enter upon land given under section 45 of the Act must be in or to the effect of Form 1 in Schedule 1 to these Directions.</p>  |
| <i>Survey search information</i>                   | <p>8. A surveyor must procure all information necessary to:</p> <ul style="list-style-type: none"> <li>(a) locate or relocate the boundaries of any land surveyed; and</li> <li>(b) connect the survey to control marks where required by these Directions.</li> </ul>   |
| <i>Requisitions</i>                                | <p>9. (a) A surveyor must promptly address and respond to all requisitions from the Surveyor-General or Registrar General.</p> <p>(b) After certification of the plan by the Surveyor-General, where amendments are required, the surveyor must submit a revised plan containing the correct information.</p> <p>(c) After registration, amendments to a plan may be made by the Surveyor-General in accordance with Guideline No. 16.</p>   |
| <i>Surveys not requiring strict accuracy</i>       | <p>10. (a) A surveyor may make a survey for a purpose not requiring strict accuracy under arrangement made between the surveyor and the surveyor's client and in a manner and with marking as may be agreed upon between them.</p> <p>(b) A plan made in accordance with this Direction must show monuments as approximately located.</p> <p>(c) Where a survey is made in accordance with this Direction the surveyor must endorse on the plan a certificate in or to the effect of Form 2 or Form 2A in Schedule 1 to these Directions.</p>  |



*Identification surveys or re-marking*

11. (a) A surveyor may make:
- (i) an Identification Survey in a manner as may be required by the nature of the survey; and
  - (ii) a survey required for the re-marking of a previously surveyed parcel of land in a manner and with marks in positions as may be specially required by the client. A re-marking survey must not be in connection with any disposition of land or of any interest in land.
- (b) Where a survey is made in accordance with this Direction, the provision of Directions 6, 7, 8, 12 (b)(f)(g)(h), 13, 14, 17, 22 (b)(c)(d)(e), 29 to 33 and 52 to 58 both inclusive (but no other provision of these Directions) must apply.
- (c) Surveys made in accordance with this Direction are not surveys of lesser accuracy as described in Direction 10.

*Lodging of plans and survey information*

12. (a) Plans prepared in association with surveys made under Direction 10 may be lodged with the Surveyor-General who must keep a record of the plans.
- (b) Plans prepared in association with surveys made under Direction 11 or under the provision of Section 34 of the Building (General) Regulation 2008, must be prepared in accordance with Guideline No. 15 and be lodged with the Surveyor-General who must keep a record of the plans.
- (c) Survey Certificates that are required to accompany a development application under the provisions of the *Planning and Development Act 2007*, Section 139 must be prepared in accordance with Guideline No. 15 and must be lodged with the Surveyor-General.
- (d) The surveyor must lodge the coordinate values of the CRMs derived in accordance with Direction 39 and Guideline No. 2 in a manner or a form prescribed by the Surveyor-General.
- (e) The surveyor must lodge the coordinate values of the reference marks found, placed, re-referenced, or gone as part of the survey, in a manner or a form prescribed by the Surveyor-General.
- (f) The surveyor must lodge the adjustment report for the survey control network upon request by the Surveyor-General.
- (g) The Surveyor must lodge the calculation sheet upon request by the Surveyor-General.
- (h) The Surveyor must lodge SCDB data in a manner or a form prescribed by the Surveyor-General.

*The role of a supervising surveyor and supervised persons*

13. (a) The supervising surveyor is solely responsible for surveys carried out under their supervision.
- (b) The supervising surveyor is responsible for ensuring that the supervised person is aware of the importance of the surveyors role in:
- (i) maintaining the integrity of surveys and the cadastre; and
  - (ii) providing professional, high quality services to the public; and
  - (iii) producing high quality survey outcomes in accordance with legislative requirements; and
  - (iv) ensuring that work is undertaken in a safe and responsible manner in accordance with legislation; and
  - (v) maintaining a continuing professional responsibility to the wider surveying profession.
- (c) For the benefit of the cadastre and the profession, it is encouraged that supervised persons aim to acquire qualifications and experience to work as a Qualified Surveyor.

*Supervision  
Requirements*

14. (a) Supervised persons must not exercise power of entry on to land unless accompanied by the supervising surveyor or having the owner's written permission.
- (b) Remote electronic supervision techniques may be used to supervise persons under general or immediate supervision. The supervising surveyor must keep adequate documentation of each use of remote electronic supervision techniques.
- (c) Persons intending to work under supervision must apply to work under General Supervision in a manner prescribed by the Surveyor-General. Persons working under General Supervision must notify the Office of the Surveyor-General where their circumstances change.
- (d) Supervising surveyors must maintain evidence of their supervision.
- (e) The Surveyor-General may require the supervising surveyor to lodge evidence of their supervision of persons.
- (f) Supervision must be undertaken in accordance with Guideline No. 13.

*Immediate  
Supervision*

- (g) A person under Immediate Supervision is a Surveyors Assistant and requires no minimum qualifications and no minimum practical experience period.
- (h) A person under Immediate Supervision must be accompanied on site by their supervising surveyor at least 50% of the time.

*General  
Supervision*

- (i) A person under General Supervision must be a Qualified Surveyor as defined in Guideline No. 12.
- (j) A person under General Supervision must be accompanied on site by their supervising surveyor at least once, at the start of a project or monthly where a project takes more than two months to complete.
- (k) Surveyors may be exempt from certain supervision requirements pursuant to Guideline No. 13.
- (l) Qualified Surveyors should certify plans pursuant to Form 4 of Schedule 1.

## Division 2 – Adoption of Datum

### Directions 15 – 16

- Marks defining the datum line for orientation*
15. (a) Before adopting a line as the datum for orientation of a survey, a surveyor must determine and confirm the marks defining the line are in the correct position and undisturbed.
- Method for determining datum line bearing*
- (b) The bearing adopted for the orientation of the survey must be the grid bearing calculated from MGA2020 coordinates of an Established Survey Control Mark and a Trigonometric Station. Where this is not possible:
- (i) adopt the grid bearing calculated from MGA2020 coordinates of an Established Survey Control Mark to another Established Survey Control Mark; or
- (ii) adopt, either directly or by calculation, the stated dimensions between the survey reference marks contained within registered or approved survey plans, pursuant to Guideline No. 4.
- (c) The coordinates used in subclause (b) must be obtained from the Survey Control Mark Register within 3 months before the completion of the survey. The bearing must be verified by angular connection and, if practicable, distance connection to another Established Survey Control Mark.
- (d) Whenever possible, the survey reference marks adopted in accordance with subclause (b) (ii) above must be contained within a single registered or approved survey plan. The bearing must be verified by angular connection and distance connection to at least one other reference mark.
- Vertical datum*
16. The AHD reduced levels of a survey must be determined:
- (a) in accordance with SP1 v1.7 and Guideline No. 2; and
- (b) by differential levelling or EDM height traversing techniques; and
- (c) from a minimum of three control marks with a vertical accuracy of class LC order L3 or better; and
- (d) the reduced level used in subclause (c) must be obtained from the Survey Control Mark Register within 3 months before the completion of the survey.

## Division 3 – Measurement and Calculations

### Subdivision A – Use of Equipment

#### Directions 17 – 20

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|---|-----|---|
| <i>Standardisation and calibration of equipment</i>     | 17. | <ul style="list-style-type: none"><li>(a) In making a survey, the surveyor must ensure that all equipment used in the survey is in accurate adjustment, standardised, and properly calibrated.</li><li>(b) Electronic distance measuring equipment must be calibrated at least once every 12 months and immediately after repairs or any change of software, on a certified baseline established by or acceptable to the Surveyor-General.</li><li>(c) GNSS equipment must be verified at least once every 12 months, and immediately after repairs or any change of software, on a geodetic network approved by the Surveyor-General, in accordance with Guideline No. 9.</li><li>(d) Details and results of a calibration or verification of equipment used for making a survey must be lodged with the Surveyor-General, when completed.</li></ul> |
| <i>Surveys using GNSS</i>                               | 18. | <ul style="list-style-type: none"><li>(a) When making a survey of other than an irregular natural boundary using GNSS equipment, a surveyor must use an approved GNSS surveying technique in accordance with Guideline No. 10 that will achieve an accuracy as required by Direction 31.</li><li>(b) When making a survey of an irregular natural boundary using GNSS equipment, a surveyor must use an approved GNSS surveying technique in accordance with Guideline No. 10 so that each change of course or direction of the boundary is determined with appropriate accuracy.</li><li>(c) The procedures and techniques used when operating GNSS must be in accordance with Guideline No. 10 and the details and results of the observation reductions are to be supplied to the Surveyor-General on request.</li></ul>                           |
| <i>Use of direct measurements</i>                       | 19. | A surveyor must measure all boundaries and lines by the most direct method that is reasonable and practicable.  |
| <i>Use of remote sensing or photogrammetric methods</i> | 20. | Notwithstanding the provisions of Direction 19, the Surveyor-General may authorise the determination of boundaries by photogrammetric methods, or by a remote-sensing method approved by the Surveyor-General.  |

## Subdivision B – Partial Surveys and Easements

### Directions 21 – 22

- |                        |     |   |
|------------------------|-----|---|
| <i>Partial surveys</i> | 21. | (a) If surveying part of the land parcel, the surveyor must connect that part of the land by measurement to sufficient and relevant monuments.  |
|                        |     | (b) Partial surveys must be made in accordance with Guideline No. 1.  |
| <i>Easements</i>       | 22. | (a) For an easement over a service the surveyor must verify that the relevant services are wholly within the limits of the easement.  |
|                        |     | (b) An easement must be connected by measurement to relevant monuments and parcel boundaries.   |
|                        |     | (c) The surveyor must show on the plan or on the diagram to accompany a Transfer and Grant of Easement, the dimensions of the easement.   |
|                        |     | (d) Easement dimensions must be sufficient to allow a check closure of those dimensions.  |
|                        |     | (e) The surveyor must lodge digital spatial information for all easements, in a manner prescribed by the Surveyor-General.  |
|                        |     | (f) Easements are not legally created by a Deposited Plan. An easement may only be created by a Transfer and Grant of Easement. See the Land Titles Practice Manual for more information. |

## Subdivision C – Re-determination of Boundaries

### Directions 23 – 28

- |   |   |
|---|---|
| <i>Adoption of original survey marks</i>                                    | 23. (a) In the absence of evidence to the contrary, where a surveyor makes a resurvey of all or part of the land in a Crown Grant or Crown Lease, the boundaries as originally marked on the ground must be adopted as the true boundaries, even though the bearings and lengths appearing in a relevant plan or document do not agree with those between the corresponding monuments.<br><br>(b) All boundaries must be re-determined in accordance with Guideline No. 22.   |
| <i>Location of irregular boundaries</i>                                     | 24. Where an occupation is used to define a boundary, the boundary must follow the material of the fence, wall, or structure at the surface of the ground.  |
| <i>Variation from original dimensions to be shown</i>                       | 25. Where marks are found, a surveyor must determine the bearing and distance between them. If a difference from the original reference is determined, the surveyor must decide from other evidence which of the monuments to adopt and must note details of the evidence and the difference on the plan.   |
| <i>Practice to be adopted where original marks are missing or disturbed</i> | 26. Where monuments of an original survey are missing or disturbed the surveyor must determine the boundaries and corners of the subject land by measurement in correct relation to boundaries of adjacent parcels of land and parcels of land on opposite sides of roads, and to occupations and to other evidence of correct location as may be found after full investigation and inquiry.   |
| <i>Disclosure of excess or shortage</i>                                     | 27. (a) Where a measurement discloses a boundary of land surveyed to be longer or shorter than is indicated in the document of title for that land, a surveyor must verify the length of the boundary and record appropriate entries in field notes, and show in the notes and on any plan of the survey the monuments adopted.<br><br>(b) In the absence of monuments defining the land surveyed, a surveyor must indicate whether there is sufficient land available to permit the adoption of measurement without causing any encroachment upon or hiatus with any road or adjoining parcel of land. |

*Monuments to  
be shown on  
field notes and  
plans*

28. (a) A surveyor must indicate in field notes and on any plan the nature and position, or non-existence of all monuments relevant to the survey.
- (b) A monument that is important for the definition of the land must be shown in the surveyor's field notes, and on the plan, with the annotation "found", "gone", "disturbed" or "inaccessible" as appropriate.
- (c) A monument must not be recorded as "gone" unless a thorough search for it has been made and the measurements of its probable site recorded on the surveyor's field notes.
- (d) Where a surveyor ascertains during the making of any survey that control marks or coordinated reference marks are missing, disturbed or likely to be disturbed, the surveyor must report the fact to the Surveyor-General.



## Subdivision D – Calculations and Accuracy of Field Measurements

### Directions 29 – 32

- Angular checks* 29. A surveyor must check the angular work in a survey by:
- (a) a complete angular close; or
  - (b) a comparison against four Established Survey Control Marks; or
  - (c) a comparison with GNSS observations.
- Accuracy of Angular closure* 30. The observed angular misclose must not exceed 10 seconds plus  $10\sqrt{n}$  seconds where 'n' is the number of traverse angular stations; provided always that any misclose must not exceed 1 minute.
- Accuracy of measured distances* 31. (a) A length measurement must be verified, either directly by means of a second measurement of that length or indirectly by calculation of that length from the measurements of other lengths and angles.
- (b) When making an urban survey, a surveyor must measure all lengths to an accuracy of 6 mm + 30 ppm or better at a confidence level of 95%.
  - (c) When making a rural survey, a surveyor must measure all lengths to an accuracy of 10 mm + 50 ppm or better at a confidence level of 95%.
- Closure of surround traverse* 32. (a) A surveyor must check all measurements and where the nature of the survey permits, the check must be by the mathematical closure of the lines in all surrounds in the survey.
- (b) The closure of any survey must be that the length of the misclose vector does not exceed 15 mm + 20 ppm of the perimeter.
  - (c) The length of the misclose vector may be determined as  $\sqrt{(a^2+b^2)}$  where 'a' is the misclose in eastings and 'b' is the misclose in northings.
  - (d) All computations and transformations used in the preparation of a plan must be checked for accuracy.

## Division 4 – Survey Marks and Monuments

### Subdivision A – Description of Marks

#### Directions 33 – 36

- Description of marks*
33. (a) Where any boundary or corner of a survey is required to be marked in accordance with these Directions, the point must be firmly marked with:
- (i) a peg; drill hole in rock, concrete, or other similar material; a chisel mark or nail in fixed timber; or otherwise suitably marked; and
  - (ii) an indicator stake, pursuant to Guideline No. 4.
- (b) For rural surveys, pegs must be of sound durable wood at least 350 mm long and not less than 75 mm by 75 mm at the top end.
- (c) For urban surveys, pegs must be of sound durable wood at least 250 mm long and not less than 75 mm by 35 mm at the top end.
- (d) All pegs must be pointed for approximately two-thirds of their length, must be bevelled at the top, and painted white.
- (e) The centre of the top of all pegs must represent the survey point, provided that where conditions prevent the correct centring of pegs, a tack must be placed eccentrically thereon to represent the survey point.
- (f) All pegs are to be placed upright, so that the top is not more than 75 mm above the ground level in the case of a rural survey and 40 mm above the ground level in the case of an urban survey and the surrounding earth must be securely rammed.
- (g) If a peg projecting above the surface of the ground may be hazardous or inconvenient to the public the peg may, at the discretion of the surveyor, be placed flush with the surface of the ground. If that is done, the fact must be noted on the plan.
- (h) Lockspits must consist of trenches at least 1 m long, 200 mm wide at the surface and 150 mm deep, dug in the direction of the boundaries, and commencing 300 mm from each corner or angle, or may consist of packed stones of similar dimensions.

*Description of marks*

- (i) Where any corner, angle or other point is marked other than with a peg, where practicable wings must be cut in solid rock, concrete or fixed timber, 75 mm long 20 mm wide and 10 mm deep commencing 20 mm from the corner or where the surface renders this impracticable, lines may be painted at least 300 mm long and 20 mm wide.
- (j) Where practicable, a corner or angle may be marked using a boundary mark token securely attached to timber, post, fence, or other surface using a non-corrodible nail, spike, rivet, or screw. The boundary mark token must be at least 32 mm diameter and 1.5 mm thick, with "Boundary Mark" permanently stamped or etched on the upper surface.

*Description of reference marks*

34. (a) Where a surveyor is required to place reference marks in accordance with these Directions, they must be:
- (i) a galvanised iron pipe at least 300 mm long and internal diameter not less than 10 mm with a wall thickness of not less than 3 mm;
  - (ii) a solid non-corrodible metal spike at least 300 mm long and having a diameter of at least 20 mm;
  - (iii) a galvanised iron star picket at least 300 mm long with a drill hole or punch mark on its upper end;
  - (iv) a galvanised iron spike at least 100 mm long driven into fixed timber with a wing 75 mm long cut into the timber and directed to the galvanised iron spike;
  - (v) a drill hole cut into a kerb or other substantial structure at least 5 mm in diameter and 10 mm deep with a wing at least 75 mm long, 20 mm wide and 10 mm deep at the base, and the point directed thereto;
  - (vi) a drill hole at least 10 mm in diameter and 25 mm deep cut into bedrock with a wing 75 mm long and directed where the bedrock exists within 300 mm of the natural surface of the ground;
  - (vii) an appropriate chisel mark cut into the sound wood of a suitable tree; or
  - (viii) a mark of a durable character or a specific point on a permanent or substantial structure.

*Description of reference marks*

- (b) Where a surveyor has placed or has found a subsurface reference mark or a control mark more than 0.4 m below the existing surface of the ground, the depth must be indicated on the plan.
- (c) Where a surveyor has placed a reference mark referred to in either sub-clause (a); (i), (ii), or (iii) of this Direction it must be placed vertically at least 80 mm below the surface of the ground, or deeper if it is likely to be disturbed.

- Description of CRMs*
35. A CRM must be:
- (a) a non-corrodible metal plaque set in a concrete kerb as specified by plan Misc. 825; or
  - (b) a non-corrodible metal plaque set in the top of a concrete block as specified by plan Misc. 825; or
  - (c) a deep driven stainless-steel rod; as specified by plan Misc. 827; or
  - (d) a galvanised iron star picket as specified in plan Misc. 824; or
  - (e) a drill hole and wings cut into a kerb or other substantial structure, as specified by plan Misc. 826.
- Other marks*
36. The Surveyor-General may approve the use of other marks of a durable character as a substitute for marks described in Directions 33 to 35.

## Subdivision B – Marking of Surveys

### Directions 37 – 45

- Marking urban surveys* 37. (a) Where a surveyor makes an urban survey, the surveyor must, whenever possible, firmly mark each corner (including corners of each parcel of land in a subdivision) with a peg or mark of a nature as prescribed in Direction 33.
- (b) Where it is not possible or practical to mark a corner, the surveyor must:
- (i) place a reference mark in accordance with Direction 43 (a); and
- (ii) note on the plan that the corner was not marked and show the connection from the reference mark to the corner.
- (c) Where a surveyor makes an urban survey, the surveyor must place line marks as prescribed in Direction 33 on all unfenced boundaries at intervals of not more than 200 metres, with the position shown on the plan.
- (d) Marking of urban surveys must not be completed until land servicing has reached a stage where all CRMs, reference marks and corner marking will be durable and stable.
- Placement of reference marks and CRMs for urban surveys* 38. Where a surveyor makes an urban survey for any purpose and the land surveyed:
- (a) abuts a road:
- (i) the surveyor must place a reference mark near each extremity of the boundary of the subject land where it abuts the road, as well as at road intersections; and
- (ii) within a Greenfields survey, the surveyor must place CRMs at intervals of not more than 200 metres throughout the length of the frontage of the land surveyed.
- (b) abuts territory land, the surveyor must place sufficient reference marks suitable for the redefinition of the rear boundaries of the land surveyed.
- (c) does not abut a road, the surveyor must place at least two reference marks suitable for redefinition of the survey.
- (d) The requirement of subclause (a) (i) is subject to the condition that a reference mark need not be placed with 30 metres of another reference mark or CRM.
- Connections to CRMs in greenfield surveys* 39. In a greenfield survey, the surveyor must connect all CRMs placed and all Established Survey Control Marks found to the subject land by a closed traverse in accordance with Guideline No. 2.

- Marking rural surveys*
40. (a) Where a surveyor makes a rural survey, the surveyor must mark distinctly and durably all boundaries:
- (i) with a mark as prescribed in Direction 33 together with lockspits in the direction of each unfenced boundary from each corner; and
  - (ii) on unfenced boundaries with marks and lockspits as prescribed in Direction 33 placed at intervals of not more than 200 metres where one mark cannot be seen from the next; or
  - (iii) not more than 500 metres, where one mark can be seen from the next; and
  - (iv) and show the position of the marks on the plan.
- (b) Where it is not possible or practical to mark a corner, the surveyor must:
- (i) place a reference mark in accordance with Direction 43 (a); and
  - (ii) note on the plan that the corner was not marked and show the connection from the reference mark to the corner.
- Reference marks for rural surveys*
41. Reference marks must be placed or connected to on rural surveys in accordance with the following:
- (a) where the land surveyed is not being subdivided - at least two reference marks suitable for redefinition of the survey; and
  - (b) where the land surveyed is being subdivided - at least two reference marks in respect of each parcel; and
  - (c) where a boundary other than a road frontage - additional reference marks at intervals of not more than 1,500 metres; and
  - (d) where a boundary is a road frontage - pairs of reference marks suitable for orientation so that the interval between any two successive reference marks does not exceed 1,000 metres, and one reference mark at each extremity.

- Surveys of rural or reserved roads* 42. When making a survey of a rural or reserved road a surveyor must:
- (a) measure and mark distinctly and durably all lines which form or are to form the boundary of one side of the road with marks and lockspits pursuant to Direction 33; and
  - (b) place marks at each corner along the surveyed boundary. Where the distance between corners is in excess of 200 metres, marks are to be placed at intervals of not more than 200 metres except where corner marks are intervisible. Where marks are intervisible the distance between them should not exceed 500 metres; and
  - (c) place marks at each corner of the unsurveyed boundary; and
  - (d) place pairs of reference marks suitable for survey orientation so the interval between any two successive reference marks does not exceed 1,000 metres, and place one reference mark at each extremity.
- Placement of reference marks and CRMs* 43. (a) Where these Directions require a surveyor to place CRMs and reference marks, the marks must be placed:
- (i) in positions that minimise disturbance; and
  - (ii) not more than 30 metres from the corner, or line mark to which it refers; and
  - (iii) clear of all in-ground services; and
  - (iv) at least 1 metre behind the kerb in speed zones greater than 60 km/h.
- (b) CRMs of a type described in Direction 35 (b), or (c) or (d) are required to be placed at a ratio of at least two per 100 blocks of land or part thereof, provided always that one must be of the type described in Direction 35 (c).
- (c) Where a CRM is installed in a position that it has, or the surveyor may have reason to consider that it may have in future, clear line of sight only to one other CRM then the surveyor must place nearby a reference mark and must connect the CRM to it by closed traverse.
- (d) Where these Directions require a surveyor to place a CRM, the surveyor must determine the AHD reduced level of the CRM in accordance with Direction 16 and provide the results to the Surveyor-General prior to practical completion.
- Connections to be shown* 44. Where a surveyor is required to place a reference mark, the requirement must include the connection by direct measurement from the mark to the survey.

*Connection to  
control marks  
for infill and  
rural surveys*

45. For infill and rural surveys:
- (a) A surveyor must connect to Established Survey Control Marks within the limits of the survey in an infill area, and 1,000 metres of the subject land in a rural area; and
  - (b) Measurements between all control marks found or placed, and connections to the survey must be proved by closed traverse pursuant to Guideline No.2; and
  - (c) If GNSS equipment is used in the making of a survey, the surveyor must connect to at least three Established Survey Control Marks pursuant to Guideline No. 10.



## Division 5 – Boundaries Formed by Tidal and Non-Tidal Waters and other Natural Features

### Directions 46 – 51

- Definitions* 46. In this Division:
- ‘Bed’, in relation to a lake or stream, includes any portion of the lake or stream:
- (a) that is alternately covered and left bare, with an increase or diminution in the supply of water; and
  - (b) that is adequate to contain the lake or stream at its average or mean stage without reference to extraordinary freshets in time of flood or to extreme droughts.
- ‘Lake’ includes any permanent or temporary lagoon, or a similar collection of water not contained in an artificial work, but does not include tidal waters.
- ‘Natural feature’ includes any cliff face or ridgeline, but does not include any tidal or non-tidal waters.
- ‘Stream’ includes any non-tidal waters that are not a lake.
- Surveys where boundary includes tidal or non-tidal or other natural features* 47. (a) A boundary formed by tidal waters, or by a lake, stream or natural feature, must be surveyed so that each change of course or direction of the boundary is determined with appropriate accuracy.
- (b) If the actual position of the mean high-water mark of tidal waters, the bank of the lake or stream or the natural feature is substantially different to the adopted position of the boundary, both the actual position and the adopted position are to be shown on the plan.
- (c) If the middle line of a stream is:
- (i) the boundary of land and has not previously been defined by survey; or
  - (ii) otherwise required to be determined;
- both banks of the stream must be surveyed and shown on the plan together with the determination of the middle line.
- (d) The middle line of a stream need not be marked unless the purpose for which the survey is made so requires.

*Changes in  
boundaries  
formed by tidal  
waters*

48. (a) If, since the date of a previous survey, there has been a change in the position of the mean high-water mark of tidal waters forming a boundary of land to be surveyed:
- (i) if the change arose from natural, gradual, and imperceptible accretion or erosion—the position of the mean high-water mark as it is as the result of the change is to be adopted; or
  - (ii) if the change arose otherwise than from natural, gradual, and imperceptible accretion or erosion—the position of the mean high-water mark as it was before the change is to be adopted.
- (b) The first survey of a mean-high water mark boundary, or approval to the adoption of a changed position referred to in subclause (a) (i) must be obtained from the Surveyor-General.
- (c) When seeking approval to a determination under subclause (b), a surveyor must provide the Surveyor-General with a comprehensive report regarding the surveyor's determination.
- (d) A comprehensive report under this clause must include:
- (i) the basis and method of determining the position of the mean high-water mark; and
  - (ii) the surveyor's opinion as to the reason for any change in that position and the process by which the change has taken place; and
  - (iii) photographs, documents or other information relevant to the position of the mean high-water mark as is reasonably required by the person to whom the report is to be provided.

*Changes in boundaries formed by lakes, streams and natural features*

49. (a) If, since the date of a previous survey, there has been a change in the position of the bank of a lake forming a boundary of land to be surveyed, then, in any subsequent survey, the position of the bank, as it was before the change, must be adopted.
- (b) If, since the date of a previous survey, there has been a change in the position of the bank of a stream, or of some other natural feature, forming a boundary of land to be surveyed, then, in any subsequent survey:
- (i) for any change arising from natural, gradual, and imperceptible accretion or erosion, the position of the bank or natural feature, as it is as a result of the change, must be adopted; or
  - (ii) for any change arising otherwise than from natural, gradual, and imperceptible accretion or erosion, the position of the bank or natural feature, as it was before the change, must be adopted.
- (c) A surveyor who determines a new position for the bank of a stream, or for a natural feature, in connection with a survey carried out for the purposes of lodging a plan with a public authority, must lodge, together with the plan, a comprehensive report regarding the surveyor's interpretation of the new position. The report is to include:
- (i) the basis and method of determining the position of the bank of stream or natural feature; and
  - (ii) the surveyor's opinion as to the reason for any change in that position and the process by which the change has taken place; and
  - (iii) photographs, documents or other information relevant to the position of the bank of stream or natural feature as is reasonably required by the person to whom the report is to be provided.

*References to high water mark, tidal waters, lakes streams and other natural features in previous surveys*

50. For the purposes of preparing a survey, in any previous plan or other description of land:
- (a) a reference to high-water mark is taken to be a reference to mean high-water mark; and
  - (b) a reference to, or description of, a boundary that abuts tidal waters is taken to be a reference to, or description of, a boundary that abuts mean high-water mark; and
  - (c) a reference to the bank of a lake or stream is taken to be a reference to the limit of the bed of the lake or stream; and
  - (d) a reference to, or description of, a boundary that abuts a lake or stream is taken to be a reference to, or a description of, a boundary that abuts the limit of the bed of the lake or stream, unless a contrary intention appears.

*Method of  
showing natural  
features  
boundaries on  
plans*

51. A plan that shows a natural feature boundary:
- (a) must describe the natural feature; and
  - (b) must indicate the boundary by a spline curve that generally follows the position of the boundary; and
  - (c) must show the connection between terminals of the natural feature for each parcel.

## Division 6 – Field notes

### Directions 52 – 58

- |  |   |
|--|---|
| <i>Field Notes</i>                           | <p>52. (a) A surveyor must make neat, precise, complete and readily intelligible field notes of every survey.</p> <p>(b) Facts, readings and observations must be recorded immediately after they are ascertained.</p> <p>(c) A surveyor must keep an archive of:</p> <ul style="list-style-type: none"> <li>(i) all field notes made by the surveyor, with indexes and cross-references set out in a manner that facilitates the preparation of a complete and accurate plan; and</li> <li>(ii) all other information and documentation relevant to those field notes.</li> </ul> <p>(d) A surveyor's field notes must include:</p> <ul style="list-style-type: none"> <li>(i) the nature and position of any survey mark found by the surveyor; and</li> <li>(ii) the nature of any survey mark (other than a peg) placed by the surveyor; and</li> <li>(iii) all other information relevant to the survey.</li> </ul> <p>(e) A surveyor must make no erasures, and initial all amendments.</p> |
| <i>Surveyor to retain electronic records</i> | <p>53. If a survey has been recorded in whole or in part by electronic methods:</p> <ul style="list-style-type: none"> <li>(a) an electronic copy of all recorded data; and</li> <li>(b) a copy of the reduced data or positional results</li> </ul> <p>must be retained in a form that facilitates the preparation of a complete and accurate plan.</p>  |
| <i>Disclosure of difficulties</i>            | <p>54. A surveyor must disclose any doubt, discrepancy or difficulty suggested by or encountered in a survey in the field notes.</p>  |
| <i>Datum line to be recorded</i>             | <p>55. A surveyor must clearly indicate in the field notes the datum line of the survey and the origin of the orientation adopted.</p>  |
| <i>Landmarks to be recorded</i>              | <p>56. A surveyor should record the names of estates, buildings, roads, rivers, creeks, lakes and the like, and house numbers, as far as they are material to the survey and ascertainable by the surveyor.</p>   |

- Surveyor to sign and date field notes* 57. (a) In the case of a survey that has been performed by a surveyor personally or under the surveyor's supervision, the surveyor must personally sign, date and retain each page or sheet of the field notes and (in the case of a survey recorded by electronic means) each page or sheet of the reduced and formatted data.
- (b) Before signing each page or sheet, the surveyor must be satisfied that the notes are accurate and that the date the work was performed is recorded.
- Recording angles, bearings and distances* 58. (a) All angles and bearings must be observed and recorded in degrees, minutes and seconds, and expressed clockwise from zero through to 360 degrees.
- (b) All distances must be measured and recorded in metres.

## Division 7 – Deposited Plans

### Directions 59 – 65

- |   |     |   |
|---|-----|---|
| <i>Plans to be lodged promptly</i>                      | 59. | (a) Plans must be lodged with the Surveyor-General no later than 12 months after completion of the survey.<br><br>(b) All marking as required in Division 4 of these Directions must be completed prior to lodgement unless an exemption is granted by the Surveyor-General.  |
| <i>Standards for plans</i>                              | 60. | (a) Guideline No. 6 may be reviewed by the Surveyor-General and promulgated as a notifiable instrument.<br><br>(b) Plans may be rejected for examination in accordance with Guideline No. 6.  |
| <i>Datum to be shown</i>                                | 61. | A surveyor must show the datum line of the orientation of a survey on the plan by placing at the terminals the distinguishing letters 'A' and 'B' and noting the nature of the marks defining the datum.  |
| <i>Description of marks and connections to be shown</i> | 62. | A surveyor must indicate on the plan:<br><br>(a) the nature of any corner or line mark placed which is not a peg; and<br><br>(b) the nature of any reference mark or CRM placed together with the relevant connections; and<br><br>(c) the nature of any reference mark or CRM found and surveyed, together with the relevant connections; and<br><br>(d) closed connections between control marks. |

- Information to be shown on Plan*
63. A surveyor must show on the plan:
- (a) the nature of all boundaries at the completion date of the survey, irrespective of how they are marked or defined.
  - (b) the description, width, and where practicable, height and the relationship to the boundary of all common walls; and
    - (i) if a wall is on a boundary, the boundary must be described on the plan as 'face of wall' or 'passing through wall', or otherwise, as appropriate.
    - (ii) a wall must only be described as a 'party wall' in accordance with Section 32 of the *City Area Leases Ordinance 1936*, as applied and modified by Section 5 of the *National Lands Ordinance 1989* for National Land, and/or Sections 27 and 28 of the *Common Boundaries Act 1981* for Territory Land.
  - (c) the location and description (including the nature, construction material, and if practicable, height and age) and the relationship to the boundary of any permanent structure (including any fence):
    - (i) that is within one metre of the boundary of the land surveyed; or
    - (ii) otherwise relevant to the boundary.
  - (d) any doubt, discrepancy or difficulty suggested by or encountered in a survey, or in an accompanying report.
  - (e) the complete dimensions (including bearings and distances) of each parcel of land surveyed.
  - (f) all distances as horizontal ground distances, expressed in metres.
- GNSS and remote sensing derived lines to be indicated*
64. A plan that includes lines derived from GNSS observations, from photogrammetric or remote sensing means, must indicate which of those lines have been so derived.
- Certification*
- 65.
- (a) Where a surveyor is required to lodge a plan at the Registrar-General's Office the surveyor must endorse a certificate in or to the effect of Form 3 or Form 3A in Schedule 1 to these Directions.
  - (b) Certifications must be a digital representation of the surveyors original signature.
  - (c) Unless prior written approval is obtained from the Surveyor-General, the plan must not be certified until all survey marks have been placed.



## Division 8 – Stratum Surveys

### Direction 66

*Requirements  
for stratum  
surveys*

66. With regards to a stratum survey, a surveyor must:
- (a) only complete the survey, once building construction has reached a stage where all relevant structures have been constructed and are suitable for boundary redefinition purposes; and
  - (b) where a stratum block overhangs a road or Territory Land, mark at ground level, the projection of the stratum block; and
  - (c) at ground level, mark the external subject land boundaries; and
  - (d) mark the internal subject land boundaries where practicable; and
  - (e) at each basement level place a minimum of four intervisible reference marks in a controlled network; and
  - (f) be exempt from complying with Direction 37 (b) in relation to (d) above; and
  - (g) delineate on the plan the extent of any easement and fully describe its purpose and limits; and
  - (h) show on the plan elevations and sections sufficient to delineate the stratum blocks using reduced levels; and
  - (i) show on the plan the position and reduced level of at least two reference marks or control marks adjacent to the subject land; and
  - (j) determine all reduced levels in accordance with Direction 16.

## **Division 9 – Community Title**

### **Direction 67**

- Survey and plan requirements* 67. References to roads in these Directions, include private roads or easements for access within a community title, unless the Surveyor-General has provided written advice to the contrary.

## Division 10 – Unit Title

### Direction 68

#### Legislative requirements

*Related  
legislation and  
directions*

68. (a) Directions within this Division and Guideline No. 17 are supplementary to the requirements of the *Unit Titles Act 2001* and associated regulations. In the event of an inconsistency between the Act or Regulation and these Directions, the former take precedence.
- (b) In carrying out a survey for the preparation of a Units Plan within the meaning of the *Unit Titles Act 2001*, a surveyor must undertake the survey in accordance with this Division. The provision of Directions 6, 7, 8, 9, 12 (g)(h), 13, 14, 17, 22 (b)(c)(d)(e), 29 to 32 and 52 to 58 both inclusive (but no other provision of these Directions) must apply.

# Schedule 1 - Forms

## Form 1 (Direction 7)

Surveyors Practice Directions

*Surveyors Act 2007*

To the owner of..... ('the land')

*(insert reference to land proposed to be entered)*

In pursuance of Section 45 of the *Surveyors Act 2007* notice is given that I, the undersigned Registered Surveyor, intend to enter the land on

.....for the purpose of making a survey.

*(insert dates of proposed entry)*

Dated this ..... day of ..... 20 .....

(Name).....

(Signature).....

Registered Surveyor

(Address) .....

## Form 2 (Direction 10)

Surveyors Practice Directions

*Surveyors Act 2007*

I ..... of .....

a surveyor registered under the *Surveyors Act 2007* certify that the survey represented in this plan, being a survey which does not require strict accuracy was made in accordance with Direction 10 of the Surveyors Practice Directions.

(Signature).....

(Date).....

### Form 2A (Direction 10)

Surveyors Practice Directions  
*Surveyors Act 2007*

I ..... of.....

a surveyor authorised to work in the ACT under Automatic Deemed Registration certify that the survey represented in this plan, being a survey which does not require strict accuracy was made in accordance with Direction 10 of the Surveyors Practice Directions.

(Signature).....

(Date).....

### Form 3 (Direction 65)

Surveyors Practice Directions  
*Surveyors Act 2007*

I ..... of.....

a surveyor registered under the *Surveyors Act 2007* certify that the survey represented on this plan is accurate and has been made in accordance with the Surveyors Practice Directions and was completed on .....

(Signature).....

(Date).....

### Form 3A (Direction 65)

Surveyors Practice Directions  
*Surveyors Act 2007*

I ..... of.....

a surveyor authorised to work in the ACT under Automatic Deemed Registration certify that the survey represented on this plan is accurate and has been made in accordance with the Surveyors Practice Directions and was completed on.....

(Signature).....

(Date).....

### Form 4 (Direction 14)

Surveyors Practice Directions

*Surveyors Act 2007*

I ..... of.....

a qualified surveyor in the ACT performed the survey represented on this plan under general supervision.

(Signature).....

(Date).....

## **Schedule 2 – Datums and Mapping Projections**

The Geocentric Datum of Australia 2020 (GDA2020) is the official horizontal datum of the Australian Capital Territory. This datum is defined in the Intergovernmental Committee on Surveying and Mapping (ICSM) publication titled 'GDA2020 Technical Manual'.

The Map Grid of Australia 2020 (MGA2020) is the official mapping projection in the Australian Capital Territory. The ACT falls wholly within UTM Zone 55, and Jervis Bay Territory falls wholly within UTM Zone 56, as defined in the GDA2020 Technical Manual.

The Australian Height Datum (AHD) is the official height datum in the Australian Capital Territory.