

Cadastral Survey Requirements

Version 7 – Consultation draft

October 2014

This publication has been compiled by Cadastral and Geodetic Services of Land and Spatial Information Group, Department of Natural Resources and Mines.

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Document status:**Standards under the *Survey and Mapping Infrastructure Act 2003***

The Standards under the *Survey and Mapping Infrastructure Act 2003* which are contained in this document were made by the chief executive on xx/xx/2014, by Dr Russell Priebbenow, Director, Cadastral and Geodetic Services, delegate of the chief executive for section 6, under the current *Survey and Mapping Infrastructure Act* delegation.

The notification of the standards was approved by the Minister for Natural Resources and Mines on xx/xx/2014.

The standards take effect on xx xx 2014

Guidelines under the *Survey and Mapping Infrastructure Act 2003*

The guidelines under the *Survey and Mapping Infrastructure Act 2003* which are contained in this document were made by the Chief Executive on xx/xx/2014, by Dr Russell Priebbenow, Director, Cadastral and Geodetic Services, delegate of the chief executive for section 7, under the current *Survey and Mapping Infrastructure Act* delegation.

The guidelines take effect on xx xx 2014

Amendment history

Showing all changes since Cadastral survey requirements v6.0

Section amended	Amendment	Reason
New or changed requirement that affects survey practice or plan preparation		
1.3 Definitions and conventions	New standard containing definitions and conventions	To guide the proper interpretation of the document
1.4.1 Area and type of survey	Description of type of survey and area of Qld to which the standards apply	Compliance with s6(2) of the SMI Act
1.4.2 Plan content, including EARL plans	Designation of the manner in which the standards apply to conventional plans and to plans submitted via EARL	To provide for the use of the EARL services for submission of survey information electronically and for the preparation of paper plans for lodgement
2.3 Administrative boundaries—State, local government and locality	Heading amended and text amended to not require multiple lines for coincident administrative boundaries	Simplification of plan presentation and reflection of the diminished relevance of parish and county
3.3.3 Alteration to endorsed plans prior to lodgement	Text amended for endorsement and submission requirements	Clarification of the requirements for plans endorsed by accredited surveyors and subsequently amended before lodgement
Former section 3.3.4 Re-endorsement	Deleted	Superfluous following amendment to 3.3.3 Alteration to endorsed plans prior to lodgement
3.4.1 Certificates on plans	New requirement added regarding disclaimers	Disallowance of statements that infer that the plan is inaccurate
3.4.2 Measurement accuracy	Text amended from ‘either’ to ‘one or more’, addition of ‘or severance’, addition of ‘95% confidence’	Clarification of accuracy specifications, which also apply to severances
3.4.3 Legal traceability	New guideline for when EDME should be compared to a baseline	To provide guidance for compliance with s.21 of SMI Regulation
3.6.1 Calculated areas	Text amended from ‘prescribed limits’ to ‘accuracies specified in 3.4.2’	Accuracies are no longer prescribed in regulations
3.6.2 Balance areas	Text amended from ‘prescribed limits’ to ‘accuracies specified in 3.4.2’	Accuracies are no longer prescribed in regulations
3.6.4 Multiple line areas	New paragraph added regarding reserved roads and reserved esplanades	Clarification of what are reservations under section 23 of the <i>Land Act 1994</i>
3.11 Compiled plans	Text amended regarding source of compiled information	Clarifying that the correct source information is relevant anytime that boundaries are compiled
3.11.3 Compiled plan of an unsurveyed parcel	Text amended regarding the use of ‘Abt Orig’ and ‘Abt Bal’ Text added regarding misclose Text deleted regarding Form 18 certificate	Clarification of requirement
3.14 Coordinates & subsections	Standard rewritten regarding the use of, requirements for and format of coordinates	Alignment of standard with 3.14 Coordinates, 8 Surveys using Global Navigation Satellite Systems (GNSS), and changes in ICSM SP1

Section amended	Amendment	Reason
3.18 Dimensions	Replace ‘ambulatory boundary’ with ‘physical feature boundary’ Extend exception to complex volumetric plans	Change in terminology in the standards More flexibility for complex plans
3.19.2 Specific requirements	Text amended regarding connection to datum, use of GNSS and coordinates, and changing nominal interval for marks to 3 km	Alignment of standard with sections 3.14 Coordinates, 3.28 Permanent survey marks – connecting to datum, and 8 Surveys using Global Navigation Satellite Systems (GNSS)
3.20 Encroachment and improvements on or near a boundary	Heading amended and Standard rewritten regarding notification of encroachments and improvements	Standard as it was previously written was not being interpreted as applying to the range of situations identified in the SMI Act
3.21 Identification surveys	Text amended from showing parish and county to showing locality Text deleted regarding Form 13 certificate	Diminished relevance of parish and county Removal of superfluous information and duplication with other standards
3.22 Large scale land development surveys	New standard for large scale land development surveys	To provide for the integration of coordinates in the survey approach to new multi-lot land developments
3.23.3 Cadastral survey marks	Clarify requirements regarding colour and shape of corner marks	Avoid confusion with other types of survey marks that are not placed at corners
3.23.5 Survey mark information on plans	Add requirement that boundary evidence relied on for the survey be shown on the plan	Although this has been the practice for many years, it has not been stated explicitly in the standards. It becomes necessary to state it here, in order to distinguish between the requirement for EARL plans and the requirement for non-EARL plans.
3.23.6.1 Clearing of trees for survey purposes	Information rewritten regarding pruning and clearing of vegetation for surveys	To reflect the changed legislative environment for vegetation management
3.24 Meridian	Text amended to require MGA meridian whenever a survey is connected to the State control survey Class and order replaced by positional uncertainty Text deleted regarding presentation and computing coordinates	Connection to State control survey readily provides reference to MGA Alignment with changes in ICSM SP1 Removal of duplication with other standards
3.28 Permanent survey marks – connecting to datum	Heading amended and standard rewritten to require surveys, with exceptions, to connect to the State control survey via CORS or PSMs	Expansion in CORS networks, such as AUSPOS, SunPos, Allday RTK, etc and expanded use of GNSS enables a wider number of surveys to be connected to the State control survey
3.28.2 Specification for permanent survey marks	Text amended regarding permanency and stability of PSMs	The siting of some PSMs has been shown to be problematic
3.30 Profit a prendre & subsections	Text amended regarding plan presentation, use of coordinates, connection requirements, accuracy statements and survey records	Alignment of standard with sections 3.14 Coordinates, 3.18 Dimensions, 3.28 Permanent survey marks – connecting to datum, and 8 Surveys using Global Navigation Satellite Systems (GNSS)

Section amended	Amendment	Reason
3.33 Reinstatement of boundaries	New standard and guidelines, setting out in general terms the 'best practice' that cadastral surveyors should adhere to in reinstating boundaries. Includes a requirement for a reinstatement report.	Industry requests for 'best practice' to be documented. Reinstatement report to provide transparency in the surveyor's decision-making process, and to assist future surveyors relying on the survey.
Former section 3.34 Staking of land	Deleted	Amendments to <i>Land Sales Act 1984</i>
3.37 Survey records	Replacement of the requirement to show parish and county with a requirement to show locality	Diminished relevance of parish and county
3.38 Surveys using remotely sensed data (former section 3.36)	Section moved, heading changed Section rewritten to reflect wide range of remotely sensed data	Clarifying that photography, imagery and digital data can be used to remotely survey land
Chapter 4 Physical feature boundaries	Chapter completely re-ordered and rewritten to reflect: change in terminology from 'ambulatory' to 'physical feature' Clarification added for labelling of fixed tidal boundaries Clarification of compiling provisions Clarification of secondary interest surveys Amendment of reporting requirements Amendment of notation for exempt land New notation for subsequent new plan of survey Provision for dealing with calculated distance to watercourse under s110 Provision for opening watercourse Provision for dealing with declared beach areas	Clarity of understanding 'Ambulatory' is a characteristic of some physical feature boundaries, but was being used as a general descriptive term, leading to confusion in some circumstances. Clarification and alignment with legislation
5.10 Forest consent area	New section	Align with changes to the <i>Forestry Act 1959</i>
5.11 Future Conservation areas	Designated as Standard	Designation omitted previously, but the text contains a requirement.
6.4.1 Easements over land shown as public use land & subsections	Amendments	Align with current requirements of Land Act
Chapter 8 Surveys using Global Navigation Satellite Systems (GNSS)	New chapter with standards and guidelines for the use of GNSS for cadastral surveys	Specific requirements for Queensland that flow from ICSM SP1
9.7 Buildings and other improvements on or near a boundary	Added requirements for improvements	Guideline as it was previously written was not being interpreted as applying to the range of situations identified in the SMI Act (see also amendments to standard 3.20)

Section amended	Amendment	Reason
9.32 Meridian & subsections	Text amended regarding displaying MGA meridian	Clarification and alignment with chapter 8 Surveys using Global Navigation Satellite Systems (GNSS)
9.50 Tabulations	Change ‘ambulatory’ to ‘physical feature’	Change in terminology in the standards
10.2.2 Creation of roads in leases, reserves, trust land and USL	Wording amended	Clarify the correct width of roads, where width is not shown on plans.
10.2.3 Creation of roads in State forest or timber reserves	Text amended regarding plan requirements to show proposed road as a lot	Align with legislation
10.5.1 Esplanades	Wording amended	Previous standard was not consistent with the legislation
Appendix B6	Abbreviation added for SMI Act	Used in notations under Part 7 of SMIA
Clarification – no change to survey practice		
1.7 Departure from standards	New paragraphs added	Explanation of the requirement of the SMI Act regarding the basis for granting exemptions from the standards
2.11 Withdrawal and relodgement of plans	Text amended to simplify the LTPM requirements	Removing duplication of and ensuring consistency with LTPM
2.12 Withdrawn plans	Text amended to simplify the LTPM requirements	Removing duplication of and ensuring consistency with LTPM
3.1 <i>Aboriginal Land Act 1991 and Torres Strait Islander Land Act 1991</i>	Text amended in Information item	With the inclusion of the standard for surveys in remote areas in the Cadastral Survey Requirements, the Ministerial policy previously referenced in this section is redundant, so references to it have been removed.
3.3.1 Endorsement of plans by an accredited surveyor	Text deleted regarding requirement for a Form 10	A Form 10 is not required to be lodged for an endorsed plan
3.9 Certification by surveyor	Text deleted regarding signing and text added regarding forms	Removal of superfluous information and duplication with other standards
3.9.1 Certificates	Heading amended Information on certificates added and certificate wording deleted	Removal of forms approved elsewhere to avoid inconsistency
Former section 3.9.2 Certificate for compiled cadastral plans – Form 18 Former section 3.9.3 Certificate for survey records– Form 12	Certificate wording deleted	Removal of forms approved elsewhere to avoid inconsistency
Former section 3.9.4 Examples for certificates	Examples moved to Appendix E Certificates	Readability of whole document
3.11 Compiled plans	Text amended from ‘prescribed limits’ to ‘accuracies specified in 3.4.2’	Accuracies are no longer prescribed in regulations
3.11.4 Compiled plan of large unsurveyed parcel	Text deleted regarding roads on working maps	Clarify the correct width of roads, where width is not shown on plans.

Section amended	Amendment	Reason
3.21.1 Placement of additional reference marks on subdivision surveys	Text amended from 'lodge' to 'deposit'	Correct terminology
3.25 Native title (former chapter 8)	Section moved, consolidation to just survey specific information	Former chapter 8 contained significant superfluous information
3.27 New lot boundaries intersecting registered secondary interests	Information added	Clarifying that marking of intersections of new lot boundaries with registered secondary interests is not required
3.34 Remote area surveys	Heading amended	Alignment with 3.1 <i>Aboriginal Land Act 1991</i> and <i>Torres Strait Islander Land Act 1991</i>
3.34.2 Specification for surveys of land in remote areas	Text deleted Text amended regarding photogrammetry, connection requirements and GNSS	Grammatical corrections Alignment with 3.28 Permanent survey marks – connecting to datum, 3.38 Surveys using remotely sensed data, and 8 Surveys using Global Navigation Satellite Systems (GNSS)
3.35.3 Resumptions for road purposes	Text amended to align with SPA	SPA replaces IPA
5.4 Border surveys (state border of Queensland)	Amendments	Procedural requirements for obtaining the approval under the standard
5.5 Canals	Include references to SPA	SPA replaces IPA
5.12 Leases	Changed from Standard to Information Clarification of requirement for local government approval	Item is information only Clarification
5.14 Local government approval	Updated to reflect requirements of SPA	SPA replaces IPA
5.15 Local government conditional consent	Include references to SPA Minor text changes	SPA replaces IPA Consistency
6.2 Cane railway easements	Amendment	Clarification of requirement
6.3 Creation of easements	Text added regarding connection to parent parcel	Clarification of requirement
6.5 Non-freehold easements & subsections	Text deleted	Superfluous information
Former section 6.7.3 New lot boundaries intersecting existing easements	Section deleted	Superfluous information
7.3.2 Leases for part of the land only	Remove text and insert reference to RTDPP	Remove duplication between CSR and RTDPP
9.1 Abbreviations	Text added linking to the standard and the abbreviations in Appendix E	Grammatical correction
9.3 Adjoining description	Text amended	Grammatical corrections & superfluous information
9.10 Cancelled boundaries	Clarify wording	Clarification of requirement
9.12 Compass survey	Clarify wording	Clarification of requirement

Section amended	Amendment	Reason
Former section 9.13 Computer assisted drafting (CAD)	Section deleted	Superfluous information
9.15 Corner information & subsections	Section rewritten to put mark description in logical groups	Clarification of requirement
9.28 Linework	Text added linking to the standard	Grammatical correction
9.35 Not to scale	Text amended	Grammatical correction and superfluous information
9.37 Original dimensions	Text amended Change 'ambulatory' to 'physical feature'	Grammatical correction and align with other sections Change in terminology in the standards
9.43 Roads	Text added regarding plans with no road width	Align with other sections
9.47 Station numbers	Text added regarding use of letters	Clarification of requirement
9.48 Symbols	Text added linking to the standard and the abbreviations in Appendix D	Grammatical correction
9.51 Text styles	Text added linking to the standard and the abbreviations in Appendix C	Grammatical correction
9.53 Watercourses—tidal and non-tidal	Text amended	Align with other sections
11 Historical information	Introductory text	Point out that this chapter, although presenting historical requirements, may have ongoing relevance to surveyors.
11.4 Declared catchment areas	Text amended	Additional information included. Amendments due to SPA replacing IPA.
Former section 11.5.2 Previous procedures	Section deleted	Superfluous information
11.7 Historical plan information	Plan types deleted	Superfluous information as the plans have been converted to other types
Former section 11.16 Surveyor's book	Section deleted	Superfluous information
Appendix A Glossary	'access' and 'dedicated access' - reference to IPA removed	IPA repealed
Appendix E Certificates	Former sections 3.9.4.1 – 3.9.4.12	Readability of whole document
Appendix F Reports	Information and example report added	Previously covered in separate documentation
Editorial only		
Multiple occurrences throughout document	Web and Email addresses updated to reflect change in domain name	Ensures currency of electronic links within the document
Multiple occurrences throughout document	Hyperlinks updated	Ensures currency of electronic links within the document
Multiple occurrences throughout document	Departmental name updated to reflect current name	Machinery of Government changes

Section amended	Amendment	Reason
Multiple occurrences throughout document	Replacement of ambiguous wording such as 'should' or 'may' etc with definitive wording such as 'must', 'can' or 'never' as appropriate	Consistency of terminology with Office of Best Practice Regulation guidelines
Multiple occurrences throughout document	Inclusion of 'and' or 'or' as appropriate	Clarification as to whether list items apply in totality or selectively
Multiple occurrences throughout document	Change 'GPS' to 'GNSS'	Use of generic term
Multiple occurrences throughout document	Change 'blocks' to 'lots'	Correct terminology
Multiple occurrences throughout document	Change 'approximate' to 'about' distances and areas	Correct terminology
Multiple occurrences throughout document	Change 'stellar', 'sun', 'star' to 'astronomical'	Correct terminology
Multiple occurrences throughout document	Replacement of dummy plan and lot numbers with # symbols	Use of generic symbology
Multiple occurrences throughout document	Replacement of dummy road, creek, locality, etc with X symbols	Use of generic symbology
1.2 Authority for standards and guidelines	Expansion of heading	Reflection of full nature of section
1.8 Purpose of this document	Text deleted	Superfluous due to addition of section 1.3 Definitions and conventions
2.1 Access restriction strips	Changes reference from IPA to SPA	Sustainable Planning Act replaces IPA
2.6 <i>Land title practice manual</i> (Queensland)	Text amended	The department now makes the Land Title Practice Manual available
3.5 Adjoining information	Guideline heading removed	The Guideline requirements are Standard requirements
3.8 Cancelling clause	Text amended	Correctly referencing the RTDPP
3.11.2 Consolidated titles	Remove the word 'either'	Correct an error in the wording
3.26 Natural boundaries	Text amended	Grammatical correction
3.29 Permits	Section moved Change 'below HWM' to 'beyond tidal boundary' and 'Pacific Ocean' to 'Coral Sea'	Chapter 3 is generally in alphabetical order, but this item had been placed at the end of the chapter. Correct terminology
3.30 Profit a prendre	Change 'recoveries' to 'reference marks'	Consistent terminology
3.39 Town and pasturage reserves	Section moved. No changes to the Standard.	Chapter 3 is generally in alphabetical order, but this item had been placed at the end of the chapter.
3.41 Unallocated State land (USL)	Section moved. No changes to the Standard.	Chapter 3 is generally in alphabetical order, but this item had been placed at the end of the chapter.
5.17 State land actions	Text moved	Grammatical correction
6.1 Definition (under 6 Easements)	Text amended	Align with legislation
7.2 Definition: freehold land	Text amended	Align with legislation

Section amended	Amendment	Reason
9.13 Connections to distant points	Text amended	Grammatical correction
Fomer section 9.18 County boundary	Section deleted	Diminished relevance of parish and county
9.21 Distances	Text amended	Grammatical correction
9.25 Insets	Text amended	Grammatical correction
9.31 Measurement only	Text amended	Grammatical correction
9.33 Metric documentation	Text amended	Grammatical correction
9.36 Offsets	Text amended	Grammatical correction
9.38 Original grants	Text amended Change occurrences of 'portion' to 'grant'	Grammatical correction Better terminology
Fomer section 9.41 Parish boundary	Section deleted	Diminished relevance of parish and county
9.46 State boundary	Text amended	Grammatical correction
9.52 Traverses	Text amended	Grammatical correction

Note to surveyors:

This document does not contain the specific requirements for mining tenure surveys. See the surveying standards page on the department's website.

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Electronic mail may be addressed to principal surveyors within the department, individually or as a group.

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Useful web addresses

The department's website:

Home page <www.dnrm.qld.gov.au/>

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Surveying <www.business.qld.gov.au/industry/property-construction-trades-engineering/surveying/permanent-survey-marks>

Surveying Alerts <www.business.qld.gov.au/industry/titles-property-construction/surveying/alerts>

Land Titles <www.business.qld.gov.au/industry/titles-property-construction/titles-property/survey-plan-requirements/registrar-titles-plans>

Titles Registry Alerts <www.business.qld.gov.au/industry/titles-property-construction/titles-property/titles-registry-alerts>

Registrar of Titles directions for the preparations of plans <www.business.qld.gov.au/industry/titles-property-construction/titles-property/survey-plan-requirements/registrar-titles-plans>

Land Title Practice Manual <www.business.qld.gov.au/industry/titles-property-construction/titles-property/practice-manual>

Policies under the provisions of the *Land Act 1994* <www.dnrm.qld.gov.au/our-department/policies-initiatives/our-policies>

Surveyors Board of Queensland <**Error! Hyperlink reference not valid.**www.s bq.com.au/>

Queensland legislation < www.legislation.qld.gov.au/OQPChome>

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1 Introduction

1.1 Legislation

The *Survey and Mapping Infrastructure Act 2003* provides for the making of standards and guidelines for achieving an acceptable level of survey quality (section 3(2)(a)).

1.2 Authority for standards and guidelines

Section 6(1) of the *Survey and Mapping Infrastructure Act 2003* states that the chief executive may make written standards for surveying, and section 7(1) states that the chief executive may make written guidelines for surveying.

1.3 Definitions and conventions

Standard under the SMI Act

The following definitions apply to all material (standards, guidelines and information) in this document:

accuracy, when used without qualification, means accuracy expressed at a 95% uncertainty

CIF, means a Cadastral Infrastructure File, which is a LandXML file that is consistent with:

- the ICSM ePlan Protocol <www.icsm.govspace.gov.au/eplan-working-group/eplan-protocol/>
- the Queensland implementation of the ICSM ePlan protocol <www.icsm.govspace.gov.au/eplan-working-group/jurisdictional-information/queensland/eplan-protocol-queensland-implemetation/>
- the Queensland implementation of the ICSM ePlan schemas <www.icsm.govspace.gov.au/eplan-working-group/jurisdictional-information/queensland/schemas-and-files/>

department, when used without qualification, means the department administering the SMIA¹

EARL, means the Electronic Access to Registry Lodgement services for electronic exchange of survey information – validation, submission and visualisation services

EARL plan, means a plan prepared by the department's EARL visualisation service on the relevant *Land Title Act* form

physical feature boundary, of land, means a boundary of the land whose location follows a physical feature, either natural or artificial, that:

- exists now; or
- used to exist, and no longer exists

Registrar's directions, means the Registrar of Titles Direction for the Preparation of Plans

SMIA or *SMI Act* means the *Survey and Mapping Infrastructure Act 2003*

water boundary, of land, means a physical feature boundary that is a tidal boundary or a non-tidal boundary under Part 7 of the SMIA

The following conventions apply to interpretation of this document:

- | | |
|-----|---|
| ### | where a specification or an example requires the insertion of a particular number (e.g. a lot number; plan number; dealing number; mining claim number) the number is represented in the specification as '#' symbols |
| XXX | where a specification or an example requires the insertion of a particular name (e.g. a road; creek; river) the name is represented in the specification as 'X' symbols |

¹ currently the Department of Natural Resources and Mines

Standards and guidelines under the SMIA are identified respectively in the document, with standards being designated as ‘Standard under SMI Act’ and guidelines being designated as ‘Guideline under Standard [section number of the standard], [section title of the standard]’. Where a number of subsections form part of the same standard or guideline, each subsection is not separately identified as such (e.g. if, under section 3.3, there are subsections 3.3.1, 3.3.2, 3.3.3, 3.3.3.1 and 3.3.3.2, and each of these is a ‘standard’, only 3.3 will be identified as being a ‘standard’, as 3.3 encompasses all of its subsections).

1.4 Application of standards

Standard under the SMI Act

1.4.1 Area and type of survey

Section 6(2) of the *Survey and Mapping Infrastructure Act 2003* requires that a survey standard must state the area and type of survey to which it applies. Each survey standard and survey guideline in this document applies to cadastral surveys. Unless indicated otherwise, each survey standard and survey guideline applies in the area administered by the State of Queensland.

1.4.2 Plan content, including EARL plans

With the department’s implementation of EARL, surveyors will have two options for preparation of a plan.

1. The first option is to prepare a hard copy plan that complies fully with all relevant aspects of the cadastral survey standards and the Registrar’s directions. After the relevant approvals and executions have been completed, the plan can be lodged for registration or deposited with the department. Plan to be lodged for registration is prepared on a *Land Title Act* Form 21 for the first sheet and Form 21A for subsequent sheets.
2. The second option is to:
 - prepare a Cadastral Infrastructure File (CIF) that complies fully with all relevant aspects of the Cadastral survey standards and the Registrar’s directions; and
 - use the EARL visualisation service to prepare an EARL plan that contains a subset of the information that is in the CIF. This plan is the legal instrument for registration purposes.

For a CIF to comply with the Cadastral survey standards and the Registrar’s directions, the information in the CIF must be the information that is required to be shown on the plan under Option 1 above.

For an EARL plan to comply with the Cadastral survey standards, it must comply with:

- the standards and guidelines identified in the table below, in the manner specified in the table; and
- any other relevant cadastral survey standard for a plan under the SMI Act.

Once the CIF has successfully passed the EARL validation process, and has been submitted to the department via the EARL submission process, the EARL Plan can be produced using the EARL visualisation service (secure service for a plan intended to be lodged for registration or the free service for a plan intended to be deposited with the department). After the plan has been printed, and the relevant approvals and executions have been completed on the printed plan, it can be lodged for registration or deposited with the department, as the case may be.

The EARL visualisation service will produce the EARL plan on a *Land Title Act* Form 38 for the first sheet and Form 38A for subsequent sheets.

Any Standards or Guidelines requiring information to be provided in field records or a survey report can be satisfied by including that information in the CIF.

Standard or Guideline	Application to EARL Plan
3.9 <i>Certification by surveyor</i> and all other references to Form 13 and Form 18 certifications	Form 14 is to be used in lieu of Form 13 Form 19 is to be used in lieu of Form 18
3.14.3 <i>Coordinates of cadastral corners</i>	Coordinates of cadastral corners must not be shown, except as per 3.30 <i>Profit a prendre</i>
3.18 <i>Dimensions</i> and 9.50 <i>Tabulations</i>	Standard applies, except that boundary dimensions may be tabulated where these cannot be readily shown on the face of the plan.
3.19 <i>Easements—surveys of long line easements</i>	For 3.19.2 <i>Specific requirements</i> , coordinates not to be shown for permanent survey marks, boundary marks and/or reference marks
3.21 <i>Identification surveys</i>	Form 14 is to be used in lieu of Form 13
3.23.5 <i>Survey mark information on plans</i>	Applies only to marks at corners of the subject land. Reference mark information is not depicted.
3.24 <i>Meridian</i>	Meridian must be one of those specified, and must be depicted. Information pertaining to the determination of meridian (connections to coordinated marks, stellar observations, etc) is not depicted. Datum is not depicted.
3.30 <i>Profit a prendre</i>	For 3.30.1.2 <i>Reduced survey standard</i> , plan must show dimensions, area, description of corner marks, connections to parent lot, corner coordinates if corners not marked.
3.34.2 <i>Specification for surveys of land in remote areas</i>	The plan of survey is not required to describe the source of any original information used in the survey such as maps and aerial photography.
4.2 <i>Surveying tidal and non-tidal water boundaries</i>	Points table and notation of points table not depicted
4.3 <i>Compiling tidal and non-tidal water boundaries</i>	Original traverse and origin of offsets are not depicted
4.5 <i>Reporting requirements for surveys</i>	Report is not depicted
9.6 <i>Bearings</i>	Guidelines 9.13 <i>Connections to distant points</i> and 9.42 <i>Ranged only and reads bearings</i> do not apply as this information is not depicted
9.11 <i>Centre lines</i> (guideline under 3.23.1 <i>Boundary marking</i>)	Connections to road centrelines are not depicted
9.15 <i>Corner information</i> (guideline under 3.23.5 <i>Survey mark information on plans</i>)	Applies only to marks at corners of the subject land, and occupation at or in the proximity of these corners. Reference mark and permanent mark information is not depicted.
9.17 <i>Datum</i> (guideline under 3.24 <i>Meridian</i>)	Datum is not depicted.
9.31 <i>Measurement only</i> (guideline under 3.18 <i>Dimensions</i>)	These types of connections will not be shown on EARL plans
9.52 <i>Traverses</i> (guideline under 3.23.1 <i>Boundary marking</i>)	Traverses are not depicted, unless necessary for depiction of subject land (e.g. distance across internal road where it intersects external boundary of the subject land; connection of a building to a corner on a building format plan)

1.5 Compliance with standards and guidelines

Standards and guidelines made by the chief executive under the *Survey and Mapping Infrastructure Act*

2003 are identified as such in this document.

Section 13 of the *Survey and Mapping Infrastructure Act 2003* requires surveyors to comply with the relevant standards.

The Act states that survey guidelines are ‘ways of complying with survey standards’ (section 7), and states in section 14 that:

‘A surveyor, surveying associate or surveying graduate may comply with a survey standard by adopting and following—

- (a) the ways stated in a survey guideline for complying with the survey standard; or*
- (b) other ways that achieve an equal or better level of compliance.’*

The implication of this is that, while compliance with guidelines is not compulsory and may be adopted at the professional discretion of the surveyor, if a surveyor chooses to adopt a different approach, then the onus is on the surveyor to be able to demonstrate that the approach is capable of achieving the relevant standard.

1.6 Review

Information

Persons wishing to comment on the appropriateness of these standards are invited to provide comments in writing. In such cases, please consider submitting an alternative to the current standard, to assist the process of ongoing review of the standards.

1.7 Departure from standards

Information

See section 3.37 *Survey records*, page 54.

A surveyor may use any method and/or equipment in performing a survey where it can be demonstrated that such method and/or equipment is capable of achieving the survey standard.

Sections 18 to 20 of the *Survey and Mapping Infrastructure Act 2003* provide a mechanism for exemption from the standards, by application to the chief executive.

The grounds for seeking an exemption are set out in subsection 18(1): “If a surveyor, surveying associate or surveying graduate reasonably believes it is impractical for the person to comply with a survey standard for a particular survey”.

Subsection 18(2)(b) requires applications to address this point: “as briefly as possible, explain why the person believes it is impractical for the person to comply with the survey standard for the survey”.

1.8 Purpose of this document

Information

This document sets out a range of information that surveyors may require in relation to the conduct of cadastral surveys. It includes:

- standards and guidelines under the *Survey and Mapping Infrastructure Act 2003*;
- information about requirements under other legislation;
- specific requirements related to actions under other legislation.

1.8.1 Standards and guidelines under the Survey and Mapping Infrastructure Act 2003

Standards and guidelines under the *Survey and Mapping Infrastructure Act 2003* are identified respectively in the document.

1.8.2 Requirements of other legislation

In addition to the standards and guidelines issued under the *Survey and Mapping Infrastructure Act 2003*, this document contains information about the operation of that Act and other legislation. Where the text is simply a description of the operation of that legislation, it is shown as an 'information' item. However, if the item spells out specific requirements with which surveyors must comply in relation to that legislation, then the item is shown as a 'standard' in relation to that legislation, (e.g. 'Standard under the Land Act').

2 General

2.1 Access restriction strips

Standard under the Sustainable Planning Act

See the *Land title practice manual*, clauses 1-2570 and 1-2580,
<www.dnrm.qld.gov.au/__data/assets/pdf_file/0005/97142/ltpm-part-01.pdf#page=37>.

Access restriction strips are no longer acceptable as a condition on a plan under the provisions of section 347 of the *Sustainable Planning Act 2009*.

2.2 Administrative advices

Information

See the *Land title practice manual*, Part 52

<www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97189/ltpm-part-52.pdf#page=3>.

See the *Registrar of Titles directions for the preparation of plans*, Direction 22.6.9 ‘Existing administrative advices’, <www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97315/rdpp-section-22.pdf#page=9>.

An administrative advice is a noting, placed on a file attached to the register, of a present or future action or condition, affecting the subject title, to alert interested parties searching the register, of such action or condition. The administrative advice is usually authorised by statute, but is not a registrable estate or interest in, or charge on the subject land.

The objective of administrative advices is to provide the mechanism to alert registered owners and other interested parties to the existence of matters affecting land under the provisions of:

- Queensland legislation including:
 - the Acquisition of Land Act 1967
 - the *Land Title Act 1994*
 - the *Land Act 1994*
 - the *Queensland Building Service Authority Act 1991*
 - the *Survey and Mapping Infrastructure Act 2003*
- other determinations by government
- other determinations by interested parties.

While these advices do not encumber the title of the land they may prevent the registration of a dealing.

Interested parties are to be alerted to any advice of an administrative nature by a noting in the register.

Where a certificate of title is found to be in error due to incorrect survey information, the Registrar of Titles may enter an administrative advice over the title and notify the registered owner that a survey plan will be required to register future dealings.

The *Land title practice manual* contains a full listing of acceptable administrative advices (clause 52-2000), <www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97189/ltpm-part-52.pdf#page=20>.

Further information relating to these advices should be obtained from the relevant authority.

2.3 Administrative boundaries—State, local government and locality

Standard under the SMI Act

See section 9.29 *Locality*, page 123.

See section 9.46 *State boundary*, page 130.

See the *Registrar of Titles directions for the preparation of plans*, Direction 22.7 ‘Local government

allocation', <www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97315/rdpp-section-22.pdf#page=10>.

State, local government and locality boundaries must be shown on survey plans where they intersect or adjoin the subject lot. Multiple administrative boundaries are not required to be shown where more than one administrative boundary is coincident, provided each administrative area is labelled on the administrative boundary displayed.

Administrative boundaries require gazettal for any change to their location. If an administrative boundary coincides with a lot boundary, the location of which is subsequently changed, the administrative boundary does not change and must therefore retain its original location.

2.4 Adverse possession

Information

See the *Land title practice manual*, clause 14-2290, <www.dnrm.qld.gov.au/__data/assets/pdf_file/0006/97152/ltpm-part-14.pdf#page=27>.

Adverse possession cannot be claimed against State land (section 6(4) of the *Limitation of Actions Act 1974*).

For adverse possession of freehold land see Part 6, Division 5 of the *Land Title Act 1994*.

2.5 Commonwealth titles

Information

For historical information, see section 11.5 *Commonwealth titles*, page 141.

Under section 207 of the *Land Title Act 1994*, the *Real Property (Commonwealth Titles) Act 1924* was repealed.

Any Commonwealth-acquired land can now be brought under the provisions of the *Land Title Act 1994* by lodgement of an application by the Commonwealth Government solicitor.

If no plan of the land exists in the Land Registry, a plan suitable for registration under the *Land Title Act 1994* is required to be lodged accompanying the application. An indefeasible title is created in the name of the Commonwealth of Australia on registration of the plan and application (*Land Title Act 1994*).

This process applies to any Commonwealth-acquired land, whether it was acquired as Commonwealth-transferred land in 1901 or has been acquired subsequently through resumption.

State leasehold land can be acquired by the Commonwealth and brought under the *Land Title Act 1994* by this process.

2.6 Land title practice manual (Queensland)

Information

A manual prepared by the department, which gives detailed information on forms and subject areas which impact on titling transactions. Each section that relates to a form sets out the requirements of the forms, completed examples, Land Registry practice, the relationship to legislation, and summaries of relevant case law. The manual is available on the department's website, <www.dnrm.qld.gov.au/land/titles-valuations/titles-professionals/land-title-practice-manual>.

2.7 Registrar of Titles directions for the preparation of plans

Information

A set of directions prepared by the Registrar of Titles under section 50 of the *Land Title Act 1994*. While a significant part of the directions relate to actions under the provisions of the *Land Title Act 1994*, the directions relate to any plan lodged in the Land Registry. The directions are available on the department's website, <www.dnrm.qld.gov.au/land/titles-valuations/titles-professionals/survey-plan>.

[requirements/directions-plan-preparation>](#).

2.8 Rejected plans

Information

See section 157 of the *Land Title Act 1994*.

The Registrar of Titles may reject a lodged plan under section 157 of the *Land Title Act 1994*. A rejected plan may be relodged but will be regarded as a new plan in all respects.

2.9 Reservations in title

Standard under the Land Act

See section 3.6.4 *Multiple line areas*, page 17.

See section 3.35.7.1 *Resumption of possession of reservation in title*, page 53.

See section 5.9 *Forest entitlement areas (FEAs)*, page 77.

See section 9.43 *Roads*, page 128.

See section 10.5 *Existing roads*, page 137.

See departmental policy *Land allocation: public purpose reservations PUX/901/112*, [<www.dnrm.qld.gov.au/?a=109113;policy_registry/public-purpose-reservations.pdf>](http://www.dnrm.qld.gov.au/?a=109113;policy_registry/public-purpose-reservations.pdf).

2.9.1 New reservations

Section 23 of the *Land Act 1994* allows the creation of a reservation for public purposes.

Section 23(4) (also sections 159(2) and 167(3)) refers to a ‘future conservation area’. This reservation must be defined. It is not a ‘floating’ reservation.

The location of the reservation must be at the same survey status as the subject parcel. A new plan will be required showing both the lease and the new reservation.

2.9.2 Existing reservations

See sections 23A, 24, 25, 26 and 26A of the *Land Act 1994*.

It is a policy of the department that, wherever possible, a reservation for a public purpose in a deed of grant or lease is to be extinguished, if it is decided by the department that the reservation is no longer needed. The policy refers to a reservation being defined or otherwise.

When a lot that is subject to a reservation in title (e.g. a road/esplanade reservation), is subdivided or the registered owner wishes to purchase the reservation, the reservation must be dealt with in accordance with departmental policy *Land allocation: public purpose reservations PUX/901/112*. In general terms the policy requires one of the following:

- purchase of the reservation by the registered owner without competition;
- an allocation of the reservation (only if it is not in a defined location) to one or more of the subdivision lots normally with a requirement to purchase at a later date.

In both of the above cases, an application must be lodged with a departmental office.

Since lots that are subject to reservation in title must have action taken to deal with the reservation, early application should be made to the department so that the necessary formalities can be completed without unduly delaying the registration of the survey plan. A decision on the reservation may be made using the subdivisional design plan. In most cases the department will require the applicant to purchase the reservation. However, if it is approved to allocate the reservation, the department will advise the applicant of its requirements in relation to the allocation of the reservation and the form of the allocation certificate that must appear on the plan. The allocation certificate must be signed by the departmental delegate prior to the lodgement of the plan with the Registrar of Titles.

The certificate should be in the following form, as appropriate:

Where the reservation is to be allocated to a single lot in a subdivision:

The area ____ ha reserved for _____ purposes in Lot ____ on _____ may be allocated to Lot ____ as shown hereon.

Power exercised: Section 23A of the Land Act 1994

_____(signature) _____

(full name)

Date

(position title)

a duly authorised delegate of the Minister under the current Land Act (Ministerial) Delegation

Where the reservation is to be allocated to more than one lot in a subdivision:

Of the area ____ ha reserved for _____ purposes in Lot ____ on _____, ____ ha may be allocated to Lot ____ and ____ ha may be allocated to Lot ____ as shown hereon.

Power exercised: Section 23A of the Land Act 1994

_____(signature) _____

(full name)

Date

(position title)

a duly authorised delegate of the Minister under the current Land Act (Ministerial) Delegation

Where the reservation is in a fixed location, there is no requirement for an allocation certificate to be shown on the plan.

Guideline under Standard 2.9 Reservations in title

When the reservation in title is being purchased, the presentation of the original survey plan will determine whether that original survey plan can be amended to reflect the change, or whether a new compiled plan will be required. The local departmental office will advise of the process required. This confirms the need to contact the local departmental office from the outset of the job. Refer to sections 23A, and 24 or 26A of the *Land Act 1994*.

Information

A floating reservation exists solely for the life of the subject title. If the title for the land is surrendered absolutely, or extinguished by any other means, the ownership of the land reverts to the State. In effect, the reversion extinguishes the reservation in title.

2.10 State land policies

Information

The department's website provides access to departmental policies regarding dealings in State land, <www.dnrm.qld.gov.au/land/accessing-using-land/state-land/policies>.

2.11 Withdrawal and relodgement of plans

Information

See the *Land title practice manual*, clause 21-2130, <www.dnrm.qld.gov.au/__data/assets/pdf_file/0005/97160/ltpm-part-21.pdf#page=10>.

Withdrawal and relodgement of a plan under s.159 of the *Land Title Act 1994* or s.308 of the *Land Act 1994* does not affect the period of validity for local government approval, which remains valid if it was valid at the date of original lodgement.

2.12 Withdrawn plans

Information

A withdrawn plan may be relodged for registration. When a withdrawn plan is relodged, it is treated as a new plan in all respects.

2.13 Water allocation register

Information

As part of the implementation of the State's agenda for water reform, the *Water Act 2000* has provided for the creation of a new registry of personal property rights in water—the water allocation register. The instrument registered is called a water allocation.

The water allocation register operates within the department as an adjunct to the service already provided by the Registrar of Titles. The existing Registrar of Titles has been appointed as the Registrar of Water Allocations. The register commenced on the 2nd June 2003. Title references commence at 46000001.

Once recorded on the register, water allocation holders and persons who have an interest will be able to lodge dealings and conduct searches in the same manner as now exists for the land titles register.

A lot and a plan number is required for the lodgement of a land dealing, the same format will also be used to identify water allocation related dealings. The Registrar will be using an administrative plan (AP) reference for all the water allocations granted within a resource operations plan (ROP). The associated water allocations become 'lots' on that plan.

For example for the Fitzroy plan, the plan number will be AP6829, for all allocations (or 'lots'). Water allocation 40 in the Fitzroy ROP can be described on all the title dealing forms as being Lot 40 on AP6829. For the Burnett plan, the plan number will be AP6975. Water allocation 144 in the Burnett ROP can be described on all the forms as Lot 144 on AP6975. Each water allocation will also have its own titles reference number.

Other resource operations plans will be given AP plan numbers as they progress to draft status.

All ROPs can be viewed on the water resource planning page of the department's website, <www.dnrm.qld.gov.au/water/markets-trading/water-allocations-register>.

3 Survey

3.1 *Aboriginal Land Act 1991 and Torres Strait Islander Land Act 1991*

Information

See section 3.34 *Remote area surveys*, page 48.

The Governor-in-Council, under the powers of the *Aboriginal Land Act 1991*, may issue deeds of grant over transferable land to Aboriginal people or may issue a deed of grant in trust to Aboriginal people under the *Land Act 1994*. Similar provisions apply under the *Torres Strait Islander Land Act 1991* for grants of land to Torres Strait Islanders.

Under these Acts, the Minister may direct the way in which land is described in deeds of grant or leases, as an alternative to the land being surveyed. The Minister has endorsed a policy that provides three possibilities regarding the description of land in deeds of grant or leases:

- without survey, in which case an application must be made to the Minister addressing certain matters;
- by survey; or
- by an alternate survey specification approved by the Minister, where the land is remote or survey costs are high in relation to the value of the land.

The third possibility, the alternate survey specification which the Minister approved for use under these Acts, has been made as a standard that surveyors can also use for other purposes if the specified criteria are met (See section 3.34 *Remote area surveys*). Therefore, the use of this specification is now a method of describing the land by survey, and not ‘an alternative to surveying the land’. The Minister’s approval would need to be sought where it is proposed that either (a) the land not be surveyed; or (b) a different approach to survey be used.

In the absence of a direction by the Minister to adopt a different approach for a particular dealing, cadastral surveys for grant or lease under the *Aboriginal Land Act 1991* and the *Torres Strait Islander Land Act 1991* and for deeds of grant in trust for Aborigines and Torres Strait Islanders under the *Land Act 1994* may be carried out either in accordance with conventional methods, or in accordance with section 3.34 *Remote area surveys*.

Standard under the SMI Act

Under the provisions of Division 2 of Part 5 of the *Aboriginal Land Act 1991* and the *Torres Strait Islander Land Act 1991*, an interest, such as a lease or an easement, may be transferred, granted or otherwise created. The requirements for survey of these interests are those applying to any other freehold parcel.

3.2 Access

Information

For the subdivision of freehold land under the provisions of the *Land Title Act 1994*, access is a matter for consideration by the local government in its approval process. However, if public use land is to be created on the registration of the plan, access to the public use land is required to be addressed in accordance with Standard 3.2.1 *Access to public use land*

3.2.1 Access to public use land

Standard under the Land Act

See section 3.31 *Public use land*, page 45.

See departmental policy *Creation of trust land PUX/901/207*,
<www.dnrm.qld.gov.au/?a=109113:policy_registry/creation-trust-land.pdf>.

Plans creating public use land, either as parks or reserves, must provide for a legal means of access to these areas. Under section 290JB of the *Land Act 1994* and section 51A(b) of the *Land Title Act 1994*, land

cannot be created as a reserve, or any other public use land that is not a road, unless dedicated access (road or public thoroughfare easement) is provided, except if the Minister approves otherwise. As any public use land shown on a plan is intended to be created as a reserve for some purpose, this access **must** be provided at the time the public use land is created.

There are two exceptions where dedicated access is not required:

1. Where the land is to be included in an existing reserve which itself has dedicated access. Note that this reserve must be a reserve for the same purposes and under the same trusteeship as is intended for the land being defined as public use land. Adjoining land held in fee simple by the local government as trustee and being used for the same purpose, such as a park, is not acceptable. However, the adjoining land can be public use land that is to be dedicated as reserve for the same purposes and under the same trusteeship as is intended for the land being defined as public use land
2. Where the public use land is not a community purpose reserve (e.g. national park) and the administering department has advised the Minister that it does not require access.

For the above exceptions, the Minister must approve that the plan of subdivision may be registered without access to the lot being available. Application for the Minister's approval is by way of letter to the department stating the reason for the request (e.g. land to be joined with an existing reserve of same purpose and trusteeship) and stating through where access will be available. The Minister's approval will be in the form of Form 18, 'General consent'.

Where the public use land lot forms, or is intended to form, part of a continuous trail or promenade, often occurring as part of a staged development, access for the lot is to be dealt with according to its location within the staged releases. Where the public use land lot adjoins part of the continuous trail that already has dedicated access, Ministerial approval to create the public use land without access is required as outlined in item 1 above. Where the public use land does not adjoin part of the continuous trail that already has dedicated access, such as where the road access will not be available until a later stage of the development, a public thoroughfare easement should be created over the proposed road corridor, so that the easement is absorbed through the subsequent dedication of the road.

If there is any doubt as to what type of access is required, contact your local departmental office early in the development process.

3.3 Accredited surveyors and endorsement of plans

Standard under the SMI Act

See departmental procedure *Survey plan processing and pre-lodgement advice SIG/2013/565*, <www.dnrm.qld.gov.au/?a=109113;policy_registry/survey-plan-processing.pdf>.

Accredited surveyors must send a copy of endorsed plans to the department as soon as the plan is endorsed. This will ensure that plans lodged for registration will not be delayed by administrative actions such as entry into the CISP database. Where survey records are to be lodged, these must accompany the copy of the plan.

Surveyors who continuously fail to lodge copies of their endorsed plans in a timely way will be asked to show cause why their accreditation should not be withdrawn.

3.3.1 Endorsement of plans by an accredited surveyor

Accredited surveyors must endorse a plan as soon as practical following completion of their survey. Only an original plan of survey may be endorsed. It is not acceptable to produce a copy of the plan, and endorse that copy. Immediately following endorsement, a copy must be deposited with the department. It is considered by the department that a plan is not acceptable for endorsing until the barcoded label has been attached. Consequently, all copies deposited under this requirement must show the barcoded label.

Endorsements must be signed by personal signature affixed by hand. The use of scanned signatures is not acceptable.

It is expected that a plan of survey will be endorsed at the time that the plan is certified indicating that the plan is accurate and survey is completed. The definition of 'accuracy' in section 3.4.1 *Certificates on plans*

should be noted.

Failure to deposit copies of plans in time for them to be processed prior to lodgement of the original plans may be grounds for removal of accreditation. Copies of endorsed plans must be received at least five (5) working days prior to lodgement, unless exceptional circumstances exist. It is the department's preferred position that copies of endorsed plans are deposited as soon as they are endorsed.

3.3.1.1 Self endorsement

Plans are endorsed by completing item 11 of the survey plan (Form 21, Version 2) by:

- inserting into the 'by' field the name of the endorsing surveyor. In the case of a corporation, this must be the registered corporation name; and
- inserting into the 'date' field the date the endorsement was made. In the case of plans that are amended and re-endorsed, this date should be struck out and the new date inserted.

The endorsement must be signed by either:

- the surveyor personally; or
- in the case of a corporation, by the nominated liaison officer or a cadastral surveyor/director.

The designation of the signatory must be noted (i.e. cadastral surveyor, cadastral surveyor/director or liaison officer).

3.3.1.2 Third party endorsement

Plans are endorsed by completing item 11 of the survey plan (Form 21, Version 2) by:

- inserting into the 'by' field the name of the endorsing surveyor. In the case of a corporation, this must be the registered corporation name; and
- inserting into the 'date' field the date that the endorsement was made. In the case of plans that are amended and re-endorsed, this date should be struck out and the new date inserted.

The endorsement must be signed by either:

- the endorsing surveyor personally; or
- in the case of a corporation, by a cadastral surveyor/director.

The designation of the signatory must be noted (i.e. cadastral surveyor, cadastral surveyor/director).

3.3.2 Provision of endorsed copies to the department

Where the office of the department accepts the endorsed copy by email, the attachment must be an image of the endorsed original plan.

3.3.3 Alteration to endorsed plans prior to lodgement

Plans that have been amended prior to lodgement must be re-endorsed by striking out the existing date of endorsement and inserting the new date. The amendment must be initialled by the signatory noted in section 3.3.1 *Endorsement of plans by an accredited surveyor* as appropriate. There is no limit to the number of times that a plan may be re-endorsed. All amendments to endorsed plans require a new copy of the plan to be submitted to the department immediately after the plan is re-endorsed. This new copy must be accompanied by a copy of either the previous or current version of the plan (as appropriate) that has the changes clearly highlighted.

3.4 Accuracy

Standard under the SMI Act

3.4.1 Certificates on plans

In certificates on cadastral plans, the word 'accurate' has the commonly understood meaning—precise, exact, correct in accordance with a standard—and so has a wider meaning than that frequently used by

surveyors when referring to accuracy of measurement.

Certification of the words used in Form 13, 'that the plan is accurate', implies a declaration that the plan is correct in every detail and is in accordance with the standards of accuracy specified under the *Survey and Mapping Infrastructure Act 2003* and is suitable for the intended action.

For compiled plans, the word 'accurate' also applies to the available information from which the plan is compiled, regardless of the surveyed status of that available information (section 16 of the *Survey and Mapping Infrastructure Regulation 2014*).

A survey plan must not include any statement which may infer that the accuracy of the survey does not comply with surveying standards (for example, a disclaimer referring to the 'fitness for purpose' of an identification survey or inferring the lack of suitability of boundary marking for particular purposes).

3.4.2 Measurement accuracy

The accuracy of a cadastral survey must be determined by one or more of the following methods:

- computation of the angular and linear misclosure in a surround or severance;
- comparison with coordinated permanent survey marks;
- a method appropriate to the technology being used for the survey.

The angular misclosure in a surround or severance or the angular deviation from the adopted meridian must not exceed the lesser of:

- 2.5 times ten seconds of arc multiplied by the square root of the number of angles; or
- 2 minutes.

The linear misclosure in a surround or severance must not exceed either:

- 10 millimetres plus 1 part in 5000 of the total distance traversed; or
- 20 millimetres plus 1 part in 2500, if the survey is in rough or broken terrain; or
- 20 millimetres plus 1 part in 2000, if another surveyor's work is included in the surround; or
- 20 millimetres plus 1 part in 1000, if a survey effected before 1890 is included in the surround.

All surveyed lines (e.g. boundary lines, connections) must have a vector accuracy of 10 millimetres + 50 ppm. This vector accuracy is at 95% relative uncertainty in accordance with ICSM *Standard for the Australian Survey Control Network* (SP1 v2.0) <www.icsm.gov.au/geodesy/sp1.html>.

3.4.3 Legal traceability

Guideline under Standard 3.4 Accuracy

See section 20 of the *Survey and Mapping Infrastructure Regulation 2014*.

See Departmental website *Calibration of survey equipment*, <www.dnrm.qld.gov.au/mapping-data/surveying/equipment-calibration>.

Section 20 of the *Survey and Mapping Infrastructure Regulation 2014* requires cadastral surveyors to ensure that the equipment they use is (a) standardised; and (b) capable of achieving the required accuracy.

The department offers a service to enable surveyors to validate the traceability of their electronic distance measuring equipment (EDME) to the national standards, via a series of baselines which have Regulation 13 certificates under the *National Measurement Act 1960* (Cth). The service is based on the department being appointed as a verifying authority for length under the provisions of the *National Measurement Act 1960* (Cth).

Surveyors can achieve traceability of length measurement for EDME by comparison with one of the baselines. Such comparisons should be carried out in accordance with the EDME Comparison Procedure, and include the prisms used with the EDME for distance measurement. As a general rule, benchtop tests carried out by equipment manufacturers when EDME is serviced do not provide legal traceability.

EDME comparisons should be carried out on the following occasions:

- at least annually;
- after the equipment is serviced;
- after any other event which may affect the quality of distance measurement.

For legal traceability of position measurements using GNSS, refer to chapter 8 *Surveys using Global Navigation Satellite Systems (GNSS)*.

3.5 Adjoining information

Standard under the SMI Act

For drafting standards, see section 9.3 *Adjoining description*, page 103.

There are three interacting principles regarding the depiction of adjoining information on plans.

- First and foremost, it is a well-established principle of Queensland's cadastral system (based on legal precedent) that the extent of a parcel of land is limited by the extent of the adjoining land—there are no gaps or overlaps between titles. Consequently, it is critical that the adjoining land is correctly identified.
- Secondly, the survey plan is the only place where a parcel of land is depicted in relation to its adjoiners (there is no longer a diagram, or a written description of the metes and bounds of the land, on the title). Consequently, it is critical that the plan correctly depicts the adjoining land.
- Thirdly, the title history together with the cadastral plan record, provides a traceable history of the reconfiguration of land. Consequently, it is possible to trace with certainty the particular configuration of the adjoining land, over time.

Based on these principles, it is a requirement that all plans deposited or lodged in the Land Registry have correct adjoining information for the subject land shown on face. This includes lots, easements, road names, watercourse names etc. that immediately adjoin the subject land. The adjoining information must be correct at the time the plan is certified as accurate by the cadastral surveyor.

The implications of the above principles, which lead to the above requirement, are as follows:

- All plans must correctly depict and identify adjoining descriptions on the date the plan is certified as accurate by the cadastral surveyor. Any plan that incorrectly identifies adjoining land on that date must be corrected. Surveyors should, however, take all reasonable steps to ensure that adjoining information is correct at the time of deposit and lodgement.
- Plans must not show as adjoining information parcel descriptions which are anticipated to be, but are not yet, created. Plans should show the adjoining descriptions relevant at the date the plan was certified as accurate by the cadastral surveyor.

Where a series of plans is prepared from the one survey, instead of using a single plan with multiple sheets, each plan should be prepared as if it stands on its own (i.e. each plan should show the current adjoining descriptions, not those that will exist after other plans in the series have been registered). In addition, the plan may show the plan numbers of the adjacent plans in the series as DPs (but not the proposed lot numbers or proposed boundaries from those plans). An exception to this is when the sequence of lodgement of plans is certain (e.g. successive stages of a subdivision, in which case each plan should be prepared on the assumption that the previous plan is registered; or all plans to be lodged at once, in which case each plan should be prepared on the assumption that the other plans are registered).

- As there is no uncertainty in the titles register, if the land adjoining a lot is reconfigured by subsequent instruments in the register, there is no imperative to correct adjoining information that was correct at the time the plan was certified as accurate and has altered prior to the plan being registered. A plan that correctly depicts adjoining descriptions on the date it is certified, but is later found to have incorrect adjoining information as a result of reconfiguration of the adjoining land, will not be requisitioned to have the adjoining information updated (if that is the only item identified on the plan as being incorrect).

However, should the situation arise where the Land Registry has concerns about the correctness of

the plan at the time it was certified as accurate, and is unable to readily identify the status of the adjoining information on that date, the onus will be on the surveyor who certified the plan to provide evidence (e.g. SmartMap) of the adjoining information at the time the plan was signed.

- Accredited surveyors should ensure that they deposit plans with the department as soon as practicable after the plan is certified as accurate, in order to minimise the likelihood of questions being raised about the correctness of the plan on the date it was certified.

As there is a greater likelihood of changes occurring on non-endorsed plans, due to the greater time between certification and lodgement than between certification and deposit, surveyors lodging non-endorsed plans are more likely to be requested to provide evidence of the surrounding information at the date the plan was certified as accurate.

- If the situation arises where a surveyor, after certifying a plan as accurate but before the plan is lodged, becomes aware of an adjoining plan being registered, the surveyor has a responsibility to ensure that the adjoining survey does not have adverse implications for the reinstatement adopted for the subject plan.

3.6 Areas

Standard under the SMI Act

3.6.1 Calculated areas

A calculated area is preferred where lots close within the measurement accuracies specified in section 3.4.2 *Measurement accuracy*.

Lots which show a calculated area must be deduced by closure and adjustment of the misclosure by the Bowditch method and shown:

- in hectares to four significant figures where the area exceeds one hectare;
- in square metres to the nearest square metre where the area is less than one hectare;
- in square metres to the nearest 0.1 of a square metre where the area is less than one square metre and the land is of high value.

It is not necessary to show trailing zeros to the right of the decimal point (see section 9.33.1 *Use of zeros*).

Where a lot is separated by a dividing feature (e.g. road, railway or watercourse) and the area of the feature is calculated, the area of the lot is calculated as follows:

<i>gross area of lot</i>	<i>184.4746378</i>	<i>ha</i>
<i>area of excluded feature (e.g. road)</i>	<i>20.5822597</i>	<i>ha</i>
<i>by subtraction the net area is</i>	<i>163.8923781</i>	<i>ha</i>
<i>Plan presentation will be</i>	<i>163.9</i>	<i>ha</i>

Note: The 'rounded' net area is adopted.

Where a lot is separated by a dividing feature (e.g. road, railway or watercourse) and the area of the feature exists in imperial units, the area of the lot is calculated as follows:

<i>gross area of lot</i>	<i>184.4746378</i>	<i>ha</i>
<i>conversion of imperial feature (such as Road) (e.g. 50ac 3r 17p)</i>	<i>20.5808</i>	<i>ha</i>
<i>by subtraction the net area is</i>	<i>163.8938378</i>	<i>ha</i>
<i>Plan presentation will be</i>	<i>163.9</i>	<i>ha</i>

Note: The 'rounded' net area is adopted.

3.6.2 Balance areas

See section 3.6.4.1 *Examples of dealing with existing multiple line areas*, page 17.

In the case of balance lots, a balance area is acceptable if that lot does not close within the measurement accuracies specified in section 3.4.2 *Measurement accuracy*.

Where a balance area is adopted, the balance area is determined by adding or subtracting the new calculated areas of lots etc. (rounded as appropriate) from the existing net area of the parcel or parcels.

Note: There is no rounding off of this resulting area. However, the resulting area must not be shown to less than one square metre.

Balance or about areas must be qualified as such on the face of the plan and shown as 'Bal.' or 'Abt' respectively.

3.6.3 About areas

An 'about' area is shown to **three significant figures** only.

3.6.4 Multiple line areas

See section 2.9 *Reservations in title*, page 8.

See section 3.44 *Vincula*, page 59.

See section 9.23 *Forest entitlement areas (FEAs)*, page 121.

See section 9.43 *Roads*, page 128.

See section 10.5 *Existing roads*, page 137.

It is no longer a requirement to show multiple line areas on new plans, except where a reservation in terms of section 23 of the *Land Act 1994* exists. These include reservations in:

- a 'non-fixed' position—such as a road reservation (e.g. SP132657);
- a 'fixed' position—such as a forest entitlement area.

In all other cases, the only area to be shown is the true net area of the lot, regardless of other lots, roads, watercourses, etc., and whether these are fully surrounded or not.

Where the areas of the original exclusions (road reservation, forest entitlement area, etc.) are imperial, these are converted to the nearest square metre and a three-line area shown on the plan. For example:

34.5401	ha
1.9501	ha Rd Resn
32.59	ha

It should be noted that reserved roads and reserved esplanades are not a reservation in terms of section 23 of the *Land Act 1994* (see section 10.5.2 *Reserved roads and reserved esplanades*).

3.6.4.1 Examples of dealing with existing multiple line areas

See section 3.6.2 *Balance areas*, page 17.

Where an existing plan shows a 3 line area in acres, roods and perches (a.r.p):

gross area	85.1.17		
road	4.3.11	Rd	
net area	80.2.6		
by survey a new lot is created:	4.19	ha	
convert existing imperial net area to metric	32.5924	ha	
	– 4.19	ha	(new lot)
by subtraction the new net deduces	28.4024	ha	
Plan presentation will be	28.4024	ha	Bal.

Note: The ‘unrounded’ net area is adopted.

Where an existing plan shows a calculated 3 line area:

gross area	158.534	ha	
road	2.134	ha	Rd
net area	156.4	ha	
by survey a new lot is created:	1234	m ²	
by subtraction the new net deduces	156.2766	ha	
Plan presentation will be	156.2766	ha	Bal

Note: The ‘unrounded’ net is adopted.

3.6.5 Part lots

See section 3.18 *Dimensions*, page 30.

See section 3.44 *Vincula*, page 59.

See the *Registrar of Titles directions for the preparation of plans*, Direction 8.4, ‘Part lots’, <www.dnrm.qld.gov.au/__data/assets/pdf_file/0020/97202/rdpp-section-8.pdf#page=2>.

Where a lot is in parts, the area of each part must be determined by the requirements of sections 3.6.1 *Calculated areas* or 3.6.2 *Balance areas*. The total area of the lot must be the mathematical sum of the areas of the parts with no further rounding.

Similarly, where multiple areas of new road are created on a plan, the area of each part must be determined by the requirements of sections 3.6.1 *Calculated areas* or 3.6.2 *Balance areas*. The total area of new road must be the mathematical sum of the areas of the parts with no further rounding.

Note: Where a lot is severed by roads, watercourses, etc. it may be defined as either part lots or by using vincula. It is not permissible to mix vincula and part lots for the one lot.

3.7 Authorisation of a surveyor to act for another surveyor

Standard under the SMI Act

Section 32 of the *Survey and Mapping Infrastructure Act 2003* provides for a person who was or is a surveyor (the authorising surveyor) to authorise another cadastral surveyor to take action in relation to requirements of the registering authority regarding the authorising surveyor’s plans (for example, to attend to a requisition). If such an authorisation is given, the Act requires that a copy of the authorisation be given to the Surveyors Board of Queensland as soon as practicable.

The Act requires the registering authority to accept anything done by the authorised surveyor on behalf of the authorising surveyor, if a copy of the authorisation has been given to the registering authority.

An authorisation given under this section of the Act must meet the following requirements:

- It must be made on the business letterhead (if applicable) of the authorising surveyor, and signed by both the authorising and authorised surveyor. It is necessary for the authorised surveyor to hold a current registration as a surveyor with a cadastral endorsement at the time of signing.
- The authorised surveyor must be properly identified, and the surveyor's contact details including business address must be provided.
- The authorisation must state either:
 - that it applies to particular plans, which must be identified; or
 - that it applies for a nominated period, the commencement and completion dates of which must be specified (it is permissible for the completion date of the period to be 'until ended by the authorising surveyor').
- Any limitations on the authorisation must be specified (e.g. plans of a particular format, plans certified after a particular date).
- A copy of the authorisation given to the registering authority must be either an original copy (i.e. with original signatures) or a copy certified by a JP or commissioner for declarations (C Dec) that the original has been sighted and that it is a true copy of the original.

The Registrar of Titles will image any authorisation with the dealing number of the plan.

Direction 23.2.2 of the *Registrar of Titles directions for the preparation of plans* specifies the form of an amendment certificate on a plan signed by a surveyor who is authorised under section 32. If the original copy or certified copy of the authorisation has been provided to the registering authority previously in relation to another lodged plan, it is not necessary to supply another certified copy provided that a further line is added at the bottom of the amendment certificate, quoting the dealing number under which the previous plan was lodged, in the form of:

(copy of authorisation recorded with dealing #####)

In cases where a person acting under an authorisation makes amendments to an original deposited plan that was signed by the authorising surveyor, prior to lodgement: any amendments made by the authorised surveyor must be by strikeout, accompanied by the relevant amendment certificate, as the changes are being made to a plan signed by another person; and if a copy of the authorising letter has not previously been supplied to the Registrar of Titles, is to be supplied at the time the plan is lodged.

3.8 Cancelling clause

Standard under the SMI Act

See section 3.42 *Undescribed balances*, page 58.

See section 3.41 *Unallocated State land (USL)*, page 58.

See section 9.18 *Descriptions in title block*, page 117.

See the *Registrar of Titles directions for the preparation of plans*, Direction 4.9 'Plan description and cancelling clause', <www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97198/rdpp-section-4.pdf#page=5>.

It is imperative that the 'cancelling clause' be correctly completed in the title block of the plan. The cancelling clause is an essential part of maintaining the history of the cadastre through the parent-child relationship between the lots. This relationship is recorded in the CISP database and forms the cornerstone of the CISP historical searching facility.

For plans of freehold and non-freehold tenures, the plan must cancel the whole or part of a lot on a plan from which the current tenure is issued. Undescribed balances are not allowed without approval of the Registrar of Titles. See the *Registrar of Titles directions for the preparation of plans*, Direction 4.17, 'Undescribed balances', <www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97198/rdpp-section-4.pdf#page=7>. For freehold tenures, as long as a plan of the balance of the parcel is lodged together with the plan cancelling the part lot, the requirement is considered to be satisfied. For non-freehold tenures, the Registrar of Titles will generally only approve plans cancelling part of a lot where the action involves a town reserve or development lease where the reserve or lease is currently described by exclusions from an undescribed balance.

The Registrar's directions state that common property in a cancelling clause must be described as '*Common Property of <scheme name> Community Titles Scheme <cms/cts number>*'. 'Community Titles Scheme' may be abbreviated to CTS. See the *Registrar of Titles directions for the preparation of plans*, Direction 11.3, 'Description of common property', <www.dnrm.qld.gov.au/__data/assets/pdf_file/0005/97205/rdpp-section-11.pdf#page=1>.

As this method of showing common property does not give the requisite linkages for CISP, the lot-on-plan descriptions of common property must be noted in brackets at the bottom of the title block (i.e. CP on BUP123, CP on SP1234). As the CP/plan description is only incidental to and not part of the cancelling clause noted in the preceding paragraph, it should be shown in a smaller font and must not be shown immediately after the description.

Most parcels of USL now have a valid lot-on-plan description, which is available from SmartMap. Where USL is referred to in a cancelling clause, refer to the *Registrar of Titles directions for the preparation of plans*, Direction 4.10, 'Cancelling clause containing reference to unallocated State land', <www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97198/rdpp-section-4.pdf#page=5>.

3.9 Certification by surveyor

Standard under the SMI Act

See section 9.24 *Ink*, page 121.

See section 9.37 *Original dimensions*, page 126.

See the *Registrar of Titles directions for the preparation of plans*, Direction 4.11 'Surveyors certificate', <www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97198/rdpp-section-4.pdf#page=5>.

Forms 12, 13 and 18 are issued under the *Survey and Mapping Infrastructure Act 2003*. (Note that for the sake of consistency with forms under the previous Act, the form numbers have not changed.)

All cadastral survey plans are required to show a certificate in accordance with Form 13 or Form 18.

The surveyor's name must be shown in full. The surveyor must be a cadastral surveyor at the time of survey and signing of the plan.

The manner of execution of a plan by a corporation must be in accordance with its constitution, which will specify whether or not the common seal is to be affixed. Whenever a corporation signs a plan, the individual who undertook the survey must be identified on the certificate, along with their registration status.

The date of signature must not precede the survey completion date. The plan should be signed and dated prior to lodgement for sealing with the local government.

Certificates must be signed by personal signature affixed by hand. The use of scanned signatures is not acceptable.

Where a plan contains a mixture of survey information and information compiled from other sources, a Form 13 certificate is used to meet the requirements of section 19 of the *Survey and Mapping Infrastructure Regulation 2014*. Form 13 has relevance to the survey information. However, in keeping with sections 15 and 16 of the *Survey and Mapping Infrastructure Regulation 2014*, a statement indicating the origin of compiled information must be shown on the face of the plan.

3.9.1 Certificates

Information

See Appendix E *Certificates*, page 166.

The certificates for cadastral plans are forms approved by the chief executive under section 135 of the SMI Act. They are published on the department's website. Examples are provided in Appendix E to assist with the completion of the relevant forms.

3.10 Changing deeds of grant, reserves, leases and trust land

Information

See section 9.2 *Action statements*, page 102.

Changes to deeds of grant, reserves, leases and trust land are effected using the following provisions of the *Land Act 1994*:

- section 358 for deeds of grant, including deeds of grant in trust
- section 31A and 34D for reserves
- section 360(1)(e) for freeholding leases
- section 360A(2)(d) for term leases, and perpetual leases.

There may be instances where the above actions can be combined on the one plan.

3.10.1 Changing deeds of grant under section 358 of the *Land Act 1994*

Information

Section 358(1) allows a registered owner to surrender the current title if the description of the land is no longer correct because of an exchange, addition of land or closing of a road.

Section 358(3) states that ‘on surrender of the land’ the current title is cancelled and ‘a new deed must be issued containing the land to which the registered owner or trustee is entitled’. Freehold land surrendered to the State under section 358 is surrendered by registration of a transfer in the freehold land register. On registration of the new deed, the land ‘to which the registered owner’ is **not** entitled becomes unallocated (and unencumbered) State land.

Section 182 of the *Land Title Act 1994* states:

‘On registration of an instrument that is expressed to transfer or create an interest in the lot, the interest:

- (a) is transferred or created in accordance with the instrument; and*
- (b) is registered; and*
- (c) vests in the person identified in the instrument as the person entitled to the interest.’*

Consequently, freehold land is surrendered to the State (for further dealing under section 358 of the *Land Act 1994*) from the moment the transfer (surrender) is registered in the freehold land register.

3.10.2 Changing leasehold land

Information

Land is added to or excised from leases by amending the description under sections 360 and 360A of the *Land Act 1994*.

3.10.3 Exchange of land

Standard under the SMI Act

See section 9.2 *Action statements*, page 102.

See section 18(1) and section 358(1)(a) of the *Land Act 1994*.

3.10.3.1 Exchange deed of grant with a lease, reserve or trust land

Section 18(1) allows the Governor-in-Council to grant unallocated State land in exchange for freehold land and, as advised in the note to section 18(1), ‘a deed of grant issued because of an exchange of land is issued under section 358’.

Where less than whole lots are exchanged, if the land to be added to the deed of grant is currently part of a *Land Act 1994* lease, reserve or trust land, the land to be added to the freehold has to be excised from that lease, reserve or trust land.

Where part of a deed of grant is exchanged with part of a lease, reserve or trust land under section 18, the grant must adjoin the lease, reserve or trust land, and one plan must be used. Land separated by a dividing feature (e.g. road, railway, or watercourse) is acceptable (refer to section 3.44 *Vincula*). The documentation lodged with the plan will set out the steps required to change both the deed of grant, and the lease, reserve or trust land. No action statement is required.

3.10.3.2 Exchange between leases, reserves, trust land or USL

Section 18(2) allows the Governor-in-Council to grant unallocated State land in exchange for land subject to a freeholding lease and, as advised in the note to section 18(2), ‘a freeholding lease amended because of an exchange of land is issued under section 360(1)(f)’.

Section 18(3) allows the Minister to lease unallocated State land in exchange for land subject to a term lease (other than a term lease over a reserve) or perpetual lease and, as advised in the note to section 18(3), ‘a term or perpetual lease amended because of an exchange of land is issued under section 360A(3)(c)’.

Section 327A allows a lessee to surrender all or part of a lease on terms agreed between the lessee and the Minister.

The description of a term lease over a reserve (a State lease) is amended under section 360B but the land included or excised from a State lease is trust land.

Where parts of a lease, reserve, trust land or USL are exchanged, the lease, reserve, trust land or USL must be adjoining, and one plan must be used. In effect, this is prepared as a plan of subdivision. Land separated by a dividing feature (e.g. road, railway, or watercourse) is acceptable. (Refer to section 3.44 *Vincula*). No action statement is required unless ‘undescribed’ USL, such as road or creek, is added. (Refer to sections 3.10.4 *Permanently closing road*, 3.10.5 *Simultaneous opening and closing road*, and 3.10.6 *Adding USL or part of a reserve or deed of grant in trust to a deed of grant by sale without competition*). The documentation lodged with the plan will set out the steps required to amend the lots.

3.10.4 Permanently closing road

Standard under the SMI Act

See section 9.2 *Action statements*, page 102.

Permanent closure of road is effected by registration of a plan of subdivision (section 108 of the Act). The plan either creates a lot for the permanently closed road, or adds the land to an adjoining lot (section 109 of the Act). An action statement describing the closed road is required.

3.10.5 Simultaneous opening and closing road

Standard under the SMI Act

A simultaneous road opening and road closure action can be processed in two ways. The options are to:

- close the entire length of the existing road, and open the entire length of the new road, as two discrete parcels; or
- deal with each of the individual segments of the new road and road to be closed.

It is not essential that the intersection of a new road and the road to be closed be surveyed, provided that the surveyed status of the amended road system and any affected land is maintained. If the whole of the length of the road is not addressed, intersections of the road opening and road closure may need to be determined.

The survey plan must show the areas of each segment to be opened and closed defined by station numbers, with relevant action statements.

3.10.5.1 Freehold land (excluding deeds of grant in trust)

See section 9.2 *Action statements*, page 102.

See sections 109A and 358(1)(e) of the *Land Act 1994*.

Section 109A of the *Land Act 1994* allows the simultaneous opening and closure of a road within or adjoining a deed or deeds of grant under the same ownership. The simultaneous road action is completed using a section 358 surrender and issuing of a new deed of grant.

Under section 109A, multiple deeds cannot be amalgamated or subdivided. However, a severance caused by the opening of the new road may be included in the other deed under section 109A(2)(a), with the approval of the Minister.

3.10.5.2 Leases, reserves and deeds of grant in trust

See section 9.2 *Action statements*, page 102.

See sections 109B and 358(1)(e) of the *Land Act 1994*.

Section 109B of the *Land Act 1994* allows the simultaneous opening and closure of a road within or adjoining leases, reserves and deeds of grant in trust. The simultaneous road action is completed using section 358 for deeds of grant in trust, section 31A for reserves, section 360(1)(e) for freeholding leases, and section 360A(2)(d) for term leases and perpetual leases.

When there are two separate lots that are affected on either side of the road, section 109B can be used only if the lots have the same tenure type and the same registered owner. In such a case, one plan may be used. Severances can be transferred on the same plan.

Land cannot be included in a deed of grant in trust for Aboriginal and Torres Strait Islanders unless the land is transferable land under the *Aboriginal Land Act 1991* (section 42A).

3.10.6 Adding USL or part of a reserve or deed of grant in trust to a deed of grant by sale without competition

Standard under the SMI Act

See section 3.41 *Unallocated State land (USL)*, page 58.

See section 9.2 *Action statements*, page 102.

See sections 122(1) and 358(1)(f) of the *Land Act 1994*.

Section 122(1) of the *Land Act 1994* allows for the sale without competition of USL. If the sale is conditional on adding the USL to an existing deed, section 358(1)(f) is used to issue the new deed of grant amalgamating the USL with the existing grant. A plan of subdivision is required, showing the land that is the subject of the new deed of grant.

If the part to be added is currently part of a reserve or a deed of grant in trust or a USL lot described on a survey plan, the plan must also show the balance lot of the reserve, deed of grant in trust or USL lot. The surveyed status of affected lots must be maintained. No action statement is required.

If the part to be added is currently part of a lot not described on a survey plan, the balance of the lot must be shown on an administrative plan as a minimum. If the balance is to be described on an AP, the AP will show separate lots for the part to be added and the balance, with the plan of subdivision then cancelling the AP lot being the part to be added. However, if the part to be added is currently part of a town reserve or development lease where the reserve or lease is currently described by exclusions from an undescribed balance, the Registrar of Titles may approve that a plan of the balance of the lot is not required.

3.10.7 Adding part of a deed of grant in trust to a lease, reserve or trust land

Information

To add part of a deed of grant in trust to a lease, reserve or trust land, a plan is prepared under the *Land Title Act 1994* to subdivide the deed of grant in trust. There is a following action to surrender the required lot and add it to the lease, reserve or trust land.

3.11 Compiled plans

Standard under the SMI Act

See section 3.9 *Certification by surveyor* page 20.

See section 3.20 *Encroachment and improvements on or near a boundary*, page 32.

See section 3.37 *Survey records*, page 54.

See section 9.7 *Buildings and other improvements on or near a boundary*, page 105.

See section 9.37 *Original dimensions*, page 126.

See section 11.11 *Paper subdivisions*, page 144.

See sections 15 and 16 of the *Survey and Mapping Infrastructure Regulation 2014*.
See the *Registrar of Titles directions for the preparation of plans*, Direction 4.16 ‘Plans may be compiled’, <www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97198/rdpp-section-4.pdf#page=7>.

All source information used to compile any plan **must** be publicly searchable. Any information that is not publicly searchable should be included in survey records and lodged with the plan. ‘Publicly searchable’ means that the information is part of the records made available to the public from the department.

The origin of all source information used to compile any boundary on a survey plan must be included in the Form 18 certificate or original information statement, as appropriate. Where all boundaries on a survey plan have been compiled, the compilation certificate (Form 18) is used to meet the requirements of section 16 of the *Survey and Mapping Infrastructure Regulation 2014*.

Compiled plans are subject to the following:

- Where the land is in a fully surveyed state, all corners must have been previously marked.
- Dimensions of the boundaries may be compiled from any source that is part of a public record in accordance with sections 15 and 16 of the *Survey and Mapping Infrastructure Regulation 2014* where this information provides a satisfactory closure for the subject lot. It should be noted that the DCDB is **not** a source from which dimensions can be compiled.
- Where the lot closes within the measurement accuracies specified in section 3.4.2 *Measurement accuracy*, a calculated area is preferred.
- Where the lot does not close within the measurement accuracies specified in section 3.4.2 *Measurement accuracy*, the original areas must be added or subtracted (the result is not rounded off). If the original areas are imperial, the areas must be added or subtracted together first and then converted to the nearest square metre.

3.11.1 Subdivision by compiled plan

Standard under the SMI Act

See section 3.43 *Unsurveyed and/or calculated boundaries*, page 58.

Where parcels have previously been amalgamated, they may be subdivided by a compiled plan provided that the monuments indicating the separate lots have not been removed (section 16 of the *Survey and Mapping Infrastructure Regulation 2014*).

3.11.2 Consolidated titles

Information A consolidated title is one in which two (2) or more lots are shown on the one certificate of title. A single title for two or more lots that have the same registered owner may be created, pursuant to a set of specific circumstances, under section 39 of the *Land Title Act 1994*. Separate indefeasible titles may be created, from a consolidated title, pursuant to a set of specific circumstances, under section 40 of the *Land Title Act 1994*.

Separate indefeasible titles may be issued for each of the lots in an existing single title if:

- the description in the existing single title indicates that there is more than one lot; and
- each of the lots is described on a plan held in the Land Registry (freehold or State land action plan) and each lot is fully dimensioned and has an area; and
- if there is no conditional consent, requiring the land to be held in the one ownership, noted on the plan or plans of the lots.

3.11.2.1 General

Information

Where a lot that is contained within a consolidated title is adjusted using section 358 of the *Land Act 1994*, it is necessary to identify and dimension only the affected lot on the face of the plan. The new deed will issue on the existing descriptions of the unaffected lot(s) and the new plan.

Separate titles may be issued, if requested, subsequent to that issue of the new deed for each of the lots in

the new deed if:

- the description in the existing single deed indicates that there is more than one Lot; and
- each of the lots is described on either a plan held in the Land Registry (freehold or State land action plan) and each lot is fully dimensioned and has an area; and
- if there is no conditional consent, requiring the land to be held in the one ownership, noted on the plan or plans of the lots.

Where a lot that is contained within a consolidated title is affected by the registering of a dealing (e.g. a plan of survey) in the Land Registry pursuant to the *Land Title Act 1994*, separate titles will be issued for each of the lots in an existing consolidated single title if:

- the description in the existing single title indicates that there is more than one lot; and
- each of the lots is described on either a plan held in the Land Registry (freehold or State land action plan) and each lot is fully dimensioned and has an area; and
- if there is no conditional consent, requiring the land to be held in the one ownership, noted on the plan or plans of the lots.

The issue of the new titles for the lots will happen as an internal process and precede the registration of the dealing.

3.11.2.2 Compiled plans for resumptions affecting consolidated titles

Information

In situations when all of the following apply:

- an existing consolidated title was affected by a resumption action
- the resultant State land action plan did not contain complete dimensions and areas for the affected parcels
- the owner is unable to obtain a certificate of title for the individual lots

a request for the correction of the resumption plan can be lodged with the local senior surveyor. The local senior surveyor will arrange for the appropriate action at no cost to the applicant.

3.11.3 Compiled plan of an unsurveyed parcel

Standard under the SMI Act

See section 3.6.3 *About areas*, page 17.

See section 3.11.4 *Compiled plan of large unsurveyed parcel*, page 26.

See section 9.28 *Linework*, page 122.

When a lot is surveyed off an unsurveyed lot, the balance lot may be shown on the same plan as the plan of survey. In these cases, the provisions of sections 15 and 16 of the *Survey and Mapping Infrastructure Regulation 2014* apply.

For both compiled plans of an unsurveyed lot and survey plans containing an unsurveyed lot or unsurveyed balance lot, the following table may be used as a guideline for about dimensions:

Bearings	Nearest 0° 15'
Distances	(According to scale of plans)
Up to 1:1250	Nearest 0.5 metre
1:1500 to 1:2500	Nearest 1 metre
1:3000 to 1:8000	Nearest 2 metres
1:10000 to 1:25 000	Nearest 10 metres
1:30 000 to 1:80 000	Nearest 20 metres

1:100 000 and above	Nearest 50 metres
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Table 1 Rounding dimensions for unsurveyed boundaries (compiled plans)

Note: Any dimension may be shown to a better accuracy if the base data supports it.

Where a bearing and/or distance has not been previously surveyed, each must be qualified by the addition of 'Abt'. Where an about dimension is compiled from a previous plan, 'Abt Orig' and 'Abt Bal' must be used as appropriate.

The dimensions of the parcel should reflect the accuracy of the base information from which the dimensions were determined. The linear misclose must be at least 1:1000.

3.11.4 Compiled plan of large unsurveyed parcel

Standard under the SMI Act

See section 5.13 *Local government boundary*, page 79.

See section 9.43 *Roads*, page 128.

For accuracies of metes and bounds and areas, see section 3.11.3 *Compiled plan of an unsurveyed parcel*, page 25.

This section generally applies to pastoral holding/grazing farms.

The name of the station/holding may be shown under the subject lot number on the face of the plan.

Allocation and plotting of local governments is required.

Roads, surveyed or unsurveyed, are to be shown in accordance with section 3.18 *Dimensions* and section 9.43 *Roads*.

Statement concerning 'Fences to be adopted as boundaries' etc. is to be shown if applicable.

The plan is compiled by collating the latest available data surrounding the lot. This may vary from surveyed information to 'scaling' information from published maps, sketches on lands files, etc. The plan is **not** drafted purely by tracing or digitising from a published map.

3.12 Confused boundaries

Information

Where a surveyor identifies a survey problem that is of such a nature that it affects a local community and a single client could not reasonably be expected to pay for the rectification of the problem, a confused boundary area may exist. This does not apply to areas where the reinstatement of boundaries is merely difficult or complex.

If the surveyor believes that a confused boundary area exists, it should be referred to the local departmental office for an assessment as to whether the department will undertake an investigation. Although there is no mechanism available at present to rectify all of the boundaries in a confused boundary area, it may be possible to reach agreement amongst the landholders to a plan of resurvey of all of the affected parcels.

3.13 Connection of surveys

Standard under the SMI Act

A surveyor must adequately connect a survey to existing surveys. If there are no existing surveys (e.g. the first survey on an island) the position of the survey can be determined by another method that enables the survey to be accurately shown in relation to a natural feature or occupation.

3.14 Coordinates

Standard under the SMI Act

See section 3.28 *Permanent survey marks*, page 41.

See chapter 8 *Surveys using Global Navigation Satellite Systems (GNSS)*, page 93.

3.14.1 Coordinates—General

A coordinates table must be shown on the face of a survey plan when the survey is connected to the State control survey. All coordinates in the table must relate to the geodetic reference framework, which is realised by the State control survey.

Only MGA coordinates are to be shown on a survey plan, except where local coordinates are used to define a volumetric lot. MGA coordinates are to be computed in accordance with the *GDA technical manual*, <www.icsm.gov.au/gda/tech.html>.

Standards of accuracy (uncertainty) and recommended practices for surveys, reductions and marking are set out in *ICSM Standard for the Australian Survey Control Network (SPI v2.0)*, <www.icsm.gov.au/geodesy/sp1.html>. Further guidance is contained in chapter 8 *Surveys using Global Navigation Satellite Systems (GNSS)*.

3.14.2 Hierarchy of coordinate types

Datum coordinates are those coordinates on survey marks in the Survey Control Register that result from an adjustment of the observations as part of the State control survey, which is referenced to the geodetic reference framework.

Derived coordinates are those coordinates on all other survey marks in the Survey Control Register that do not have datum coordinates.

3.14.3 Coordinates of cadastral corners and new marks

See section 3.23 *Marking*, page 36.

See section 3.24 *Meridian*, page 40.

See section 3.28 *Permanent survey marks*, page 41.

See chapter 8 *Surveys using Global Navigation Satellite Systems (GNSS)*, page 93.

Coordinates may be established on marks for a survey conducted in accordance with sections 3.19 *Easements—surveys of long line easements*, 3.22 *Large scale land development surveys*, 3.28 *Permanent survey marks – connecting to datum or 3.30 Profit a prendre*.

If necessary, coordinates for corners of the subject lot may be shown on a plan, only where that information is an integral part of the definition of the lot's boundaries. Plans showing coordinates for lot corners may need to provide a statement of terrain heights used to determine the distances shown on the plan (see chapter 8 *Surveys using Global Navigation Satellite Systems (GNSS)*).

All coordinates on a plan must be tabulated. Each coordinate must state its accuracy (positional uncertainty), lineage and method used to determine the coordinate values. Where existing coordinated permanent survey marks are used to determine coordinates on cadastral corners and/or new marks, those existing PSMs and their coordinate values as shown in the Survey Control Register must be shown in the coordinates table.

Positional uncertainty (P.U. in the example table below) is to be determined in accordance with the *ICSM Standard for the Australian Survey Control Network (SPI v2.0)* <www.icsm.gov.au/geodesy/sp1.html>. The method of determining the coordinate values to be shown in the table are those methods covered by *ICSM Standard for the Australian Survey Control Network (SPI v2.0)* <www.icsm.gov.au/geodesy/sp1.html>.

Depending on the method of the survey, it may be necessary to also show the meridian table as shown in section 9.32.2 *Meridian by observation*, and/or the connections to permanent survey marks as presented in diagrams A and B at the end of section 9.15, *Corner information*.

Plan presentation of coordinates on any plan should conform to the following:

MGA COORDINATES GDA-94

Station	East	North	Zone	P.U.	Lineage	Method	Remarks
PM43067	436 572.111	7 256 243.605	56	0.025	Datum		
PM43606	436 672.218	7 256 000.662	56	0.022	Datum		
1	436 600.15	7 256 111.52	56	0.066	Derived	Traverse	Peg
2	436 673.53	7 256 124.69	56	0.068	Derived	Traverse	Peg
3	436 607.34	7 256 187.55	56	0.056	Derived	Single Stn RTK	Peg
4	436 651.32	7 256 200.11	56	0.035	Derived	Network RTK	Peg
5	436 619.62	7 256 156.21	56	0.04	Derived	Quick Static	Peg
PM###1	436 599.445	7 256 274.091	56	0.034	Derived	Static	New PM
PM###2	436 621.788	7 256 188.007	56	0.032	Derived	AUSPOS	New PM
PM12345	436 555.8	7 256 222.6	56	0.9	Derived	DGNSS	
PM23456	436 595	7 255 980	56	7.5	Derived	Single Point Positioning	

Note: The two existing PSMs in this example (PM43067 and PM43606) are the datum used to derive the coordinates of the new corners 1, 2, 5 and PM###1, and the source of the coordinates for those existing PSMs is the Survey Control Register.

The practice of showing **new** coordinates for existing PSMs on the face of survey plans is discouraged, unless the new coordinates have an improved positional uncertainty compared to that recorded in the Survey Control Register (i.e. PM12345 and PM23546 in the table above). The Survey Control Register is the primary database for coordinate information on any datum marks. As more accurate information or network adjustments are made, the coordinates of any PSM may change.

Scaled coordinates are never to be shown on the face of any survey plan.

3.15 Covenants

Information

See sections 373A to 373D of the *Land Act 1994*.

See the *Land title practice manual*, Part 31,

www.dnrm.qld.gov.au/__data/assets/pdf_file/0004/97177/ltpm-part-31.pdf#page=2

See the *Registrar of Titles directions for the preparations of plans*, Part 21 'Covenants',

<www.dnrm.qld.gov.au/__data/assets/pdf_file/0006/97314/rdpp-section-21.pdf#page=1>.

3.16 Curved boundaries

Standard under the SMI Act

Curved boundaries may be accepted by the department for new lot boundaries where the boundary is readily and unambiguously discernible on the ground at the completion of the survey as is required by section 9 of the *Survey and Mapping Infrastructure Regulation 2014*.

By way of example a curved boundary may be used where it coincides with a curved feature such as a canal wall.

Where a curved boundary is permitted, the boundary must be defined. For example, a circular boundary must be defined by:

- tangent points of the curve; and
- bearing and distance of the chord between the tangent points; and
- radius; and

- arc length.

3.17 Description of parcels

Standard under the SMI Act

See also departmental policies under the *Land Act 1994*, <www.dnrm.qld.gov.au/land/accessing-using-land/state-land/policies>.

Actions under the Land Act 1994

Section of <i>Land Act 1994</i>		Primary, secondary interest	Lot numeric	Lot alpha	Sample	Survey Plan	AP
14(1)	D/G	P	Yes		Lot 1	Yes	
14(2)	D/G in trust	P	Yes		Lot 1	Yes	
14(2)	D/G in trust—ATSI	P	Yes		Lot 1	Yes	
15(2)(a)	Lease of USL	P	Yes		Lot 1	Yes	
15(2)(b)	Lease in a reserve	S		Yes	Lot A	Yes	
23	Future Conservation Area (FCA)	S		Yes	FCA 1	See 5.11	
31	Reserve	P	Yes		Lot 1	Yes	
57	Trustee lease (reserve)	S		Yes	Lease A ¹	Yes	
57	Trustee lease (DOGIT)	S			Lease A	Yes	
60	Trustee permit	S		Yes	Lot A		Yes
89	Survey of trust land	P	Yes		Lot 1	Yes	
103	Road licence	S		Yes	Lot A		Yes
124	Lease of SF or NP	S		Yes	Lot A	Yes	
126(1)	Strategic port land above tidal boundary—D/G or lease	P	Yes		Lot 1	Yes	
126(2)	Strategic port land below tidal boundary—lease only	P	Yes		Lot 1	Yes	
127	Reclaimed land—D/G or lease	P	Yes		Lot 1	Yes	
177	Permit over USL	S		Yes	Lot A		Yes
177	Permit over reserve	S		Yes	Lot A		Yes
177	Permit over road	S		Yes	Lot A		Yes
178	Permit over land below tidal boundary	S		Yes	Lot A		Yes
335(2)(a)	Sublease of a lease	S			Lease A ²		
335(2)(b)	Sublease of a lease	S			Lease A ²	Yes	
363 & 364	Easements	S			Emt A	Yes	
373A	Covenant	S			Cov A	Yes	
373G	Profit a prendre	S			Profit A	Yes	

Section of <i>Land Act 1994</i>		Primary, secondary interest	Lot numeric	Lot alpha	Sample	Survey Plan	AP
multiple	USL	P	Yes		Lot 1	Yes	Yes

Table 2 Actions under the *Land Act 1994*

- Note:**
1. Leases over State forest/timber reserves under the *Forestry Act 1959* or over protected areas under the *Nature Conservation Act 1992* are statutory leases and description should be Lot <alpha>.
 2. For subleases under section 335(2) the description of Lot <alpha> may also be used.

Actions under the *Land Title Act 1994*

Interest	Primary, secondary interest	Lot numeric	Lot alpha	Sample	Survey Plan
Lot	P	Yes		Lot 1	Yes
Lease	S		Yes	Lease A	Yes
Easement	S		Yes	Easement A	Yes
Covenant	S		Yes	Covenant A	Yes
Profit a prendre	S		Yes	Profit a Prendre A	Yes

Table 3 Actions under the *Land Title Act 1994*

- Note:** Leases within a building may use a sketch in certain circumstances

Explanatory plan

See the *Registrar of Titles directions for the preparation of plans*, Part 20 'Explanatory plan',
<www.dnrm.qld.gov.au/__data/assets/pdf_file/0004/97213/rdpp-section-20.pdf#page=1>.

Secondary interest	<i>Land Title Act 1994</i>	<i>Land Act 1994</i>
Lease	Yes	No
Easement	Yes	Yes
Covenant	Yes	Yes
Profit a prendre	Yes	No

Table 4 Explanatory plan actions

- Note:** Registrar of Titles consent required in first instance for any EP.

3.18 Dimensions***Standard under the SMI Act***

See section 3.6.5 *Part lots*, page 18.

See section 3.19.2 *Easements—surveys of long line easements—Specific requirements*, page 32.

See section 3.43.1 *Opposite side of road unsurveyed*, page 59.

See section 3.44 *Vincula*, page 59.

See chapter 4 *Physical feature boundaries*, page 61.

See section 9.6 *Bearings*, page 105.

See section 9.37 *Original dimensions*, page 126.

See section 9.43 *Roads*, page 128.

See section 10.5.1 *Esplanades*, page 138.

Complete dimensions, including the total 'through' distance for every lot or secondary interest boundary, must be shown on the face of the plan for each lot or secondary interest on that plan.

Where a parcel is wholly contained within another lot (e.g. island lots), its relationship to the boundaries of

the outer lot must be shown.

Distances shown on plans must be corrected so that they are a horizontal distance at the mean terrain height of the line. (section 48B of the *Land Title Act 1994*).

With the ability to use multiple sheets, boundary dimensions must not be tabulated (except for the use of points tables on physical feature boundaries and complex volumetric format plans). Tabulation is acceptable to depict the location of line pegs.

In a subdivision where a number of identical lots are created adjacent to each other, the bearing and distance must be shown on all lines.

A bearing on a line with multiple segments must indicate explicitly the bearing for each line segment, by showing the bearing against each line segment, or by indicating the stations between which the bearing applies.

With the introduction of single line areas, the concept of excluding roads etc. from a parcel no longer applies. The same parcel now consists of several severances, which together make up the whole parcel. Every severance of the subject land is required to be fully dimensioned. The following special cases apply for existing internal roads and railways:

1. Where a road has been surveyed on one side only and the opposite side of the road has not been marked, the unsurveyed side of the road does not require dimensioning. The road width must be shown. In such circumstances, the lot will have a balance area.
2. Where a road has been surveyed on one side and the opposite side of the road has been marked, the opposite side of the road must be calculated and dimensioned.
3. Where a road has been surveyed on both sides, the road must be dimensioned.
4. In land other than freehold, internal roads unsurveyed on both sides do not require dimensioning.
5. In cases 1–3 above for heavily congested plans, dimensions need not be shown for internal roads and railways provided that all plan catalogue numbers from which this data can be obtained are shown. The road width must be shown where applicable.

See section 9.43 *Roads* for the method of showing internal roads.

Any balance distance must be deduced from the plan from which the title or deed was issued. However, where the dimensions of the balance are found to be imperfect, or a calculated area is to be adopted, data may be sourced from any registered survey in order to determine the boundaries of the parcel.

No line is to show two distances between the same two corners. Hence a line may be labelled as ‘measured and balance’ or ‘measured and original’ and the occupation etc. at the corner is referenced to that distance. The use of two distances on the one line and a label of ‘measured’ assigned to one and the label ‘balance’ or ‘original’ assigned to the other is unacceptable.

3.19 Easements—surveys of long line easements

Standard under the SMI Act

See section 3.14 *Coordinates*, page 26.

See section 3.28 *Permanent survey marks*, page 41.

See chapter 8 *Surveys using Global Navigation Satellite Systems (GNSS)*, page 93.

Surveys of easements should generally be carried out to the same standard as other cadastral surveys.

In recent years there has been a significant increase in easements for infrastructure corridors (e.g. gas, water, and slurry pipelines) in remote/rural areas. These easements range from a few kilometres to many tens of kilometres in length. Many of the road and property boundaries in these remote/rural areas may be unsurveyed. These infrastructure corridors provide an opportunity to integrate the cadastre across large tracts of remote/rural land and assist in developing a homogeneous coordinate system.

Further infrastructure development in remote/rural areas may lead to the need to identify other long-term interests in land. The following are **minimum** requirements that should apply to all long line cadastral

surveys.

3.19.1 Basic criteria

- The marking of the survey must be such that the property owner can unambiguously identify the easement.
- All corners must be capable of reinstatement and be appropriately marked.
- The survey must be capable of unambiguous interpretation.
- The existing cadastre must be maintained and enhanced.
- The requirements of the *Survey and Mapping Infrastructure Act 2003* must be met in relation to the placement of permanent survey marks.

3.19.2 Specific requirements

- Intersections with the underlying cadastre are to be marked according to the *Survey and Mapping Infrastructure Act 2003* (i.e. with boundary marks and reference marks). This applies to both existing surveyed and unsurveyed boundaries.
- The existing cadastre, where it is reinstated, is to be preserved and additional reference marks placed wherever possible to enhance the cadastre.
- Boundary marks and reference marks are to be placed at bend points along the corridor, as well as at appropriate spacings along the corridor. Appropriate spacings for boundary marks and reference marks are at nominal 3 kilometre intervals.
- Permanent survey marks (e.g. star pickets with concrete collars, marks in 'above ground' structures) are to be placed or located at strategic locations along the corridor, such as at boundary intersections, bends points or at nominal 5 kilometre intervals.
- The boundary marks would normally include pegs or alternative durable marks. Reference marks are to be placed in accordance with best practice. Consideration should be given to placing a range of subsurface and visible surface marks (including connections to above ground structures within the infrastructure corridor). This is considered to be particularly applicable on surveys of large extent.

The use of reference trees and blazed trees can assist in the reinstatement of surveys in remote/rural areas. However surveyors should be aware that in some localities the taking of reference trees and the blazing of trees may be prohibited or not prudent for a range of reasons, including landholder, environmental and aboriginal cultural heritage reasons.

- The survey must be connected to the State control survey (refer to section 3.28 *Permanent survey marks – connecting to datum* for methods of connection).
- Where GNSS is used as part of the cadastral survey, the requirements of chapter 8 *Surveys using Global Navigation Satellite Systems (GNSS)* still apply.
- Where coordinates are shown on cadastral corners, the requirements of section 3.14 *Coordinates* still apply.
- Where the boundaries of the easement are established by running the centre line or a single traverse line along the corridor or through GNSS observations, the boundaries are to be shown as surveyed and not as calculated.

3.20 Encroachment and improvements on or near a boundary

Standard under the SMI Act

See section 3.11 *Compiled plans*, page 23.

See section 9.7 *Buildings and other improvements on or near a boundary*, page 105.

See sections 9, 10, 17 and 18 of the *Survey and Mapping Infrastructure Regulation 2014*.

See the *Registrar of Titles directions for the preparation of plans*, Direction 9.20 'Building format plans', <www.dnrm.qld.gov.au/__data/assets/pdf_file/0003/97203/rdpp-section-9.pdf#page=12>.

See departmental policy *General issues on roads PUX/901/236 Version 2*, <www.dnrm.qld.gov.au/?a=109113:policy_registry/general-issues-roads.pdf>.

The size, nature and location of any encroachment, and other improvements on or near a boundary, must be shown on all survey plans lodged or deposited with the department. Guidelines for depiction of these on plans are given at section 9.7 *Buildings and other improvements on or near a boundary*.

There are a number of provisions of the *Survey and Mapping Infrastructure Regulation 2014* regarding improvements on or near the boundary:

1. Section 9(2)(a) provides for the recording of information about permanent improvements on the land that are used as reference points for the survey.
2. Section 10(1) provides some examples of “a party affected by a boundary”.
3. Section 10(2)(e) requires any encroachment to be identified and the owner to be notified where a substantial encroachment exists.
4. Section 17 requires the position to be recorded of any encroachment, and any permanent improvement that affects, or is affected by, a reinstatement.
5. Section 18 requires that the owner of land who may be adversely affected by a reinstatement be notified.

Accordingly, notifications must be issued in cases where there is a substantial encroachment or where there is some other permanent improvement that is affected by a reinstatement (for example, a fence that differs significantly from the reinstated boundary).

This applies to any reinstated (field surveyed) subject parcel boundaries. This includes encroachments and permanent improvements previously shown on other plans, even where notifications have already been sent, unless there has been no change in ownership of the affected land. In the latter case, the notification on the plan should include a reference to the plan under which the notices were first issued to the current owner.

Encroachments or permanent improvements previously shown on other plans are not required to be shown where subject boundaries are compiled. However, there is nothing preventing a surveyor from showing encroachments or other improvements compiled from original information on compiled subject parcel boundaries, providing that the improvement is still extant at the time of the survey. Refer to section 3.11 *Compiled plans* for fully compiled plans. When showing improvements identified on reinstated (field surveyed) non-subject parcel boundaries, or on new boundaries including resumption boundaries, the surveyor should use professional judgment as to the satisfying of sections 17 and 18 of the *Survey and Mapping Infrastructure Regulation 2014*.

For reinstated subject parcel boundaries, if an encroachment from an adjoining parcel is shown on the subject land **or** if there is an encroachment from the subject parcel onto an adjoining parcel **or** if some other permanent improvement is affected by the reinstatement, the surveyor should either:

- in the case of a lodged plan, following notification of affected owners, place a note on the back of the plan in the form of:

‘Notice issued to the owner(s) of Lot # on SP##### and XXXX Road on dd/mm/yyyy, in accordance with s.18 of the Survey and Mapping Infrastructure Regulation 2014

or

- in the case of an identification survey:
 - without delay, take all reasonable steps to give any affected owner written notice of the intention to deposit the plan with the reinstated boundary, and
 - place a note on the plan in the form of:

‘Notice issued to the owner(s) of Lot # on SP##### and XXXX Road on dd/mm/yyyy’

or words indicating the action taken to advise the affected owner.

Notices affecting State land (including public use land, road) must be referred to the senior land officer, State Land Asset Management, in the local departmental office.

3.21 Identification surveys

Standard under the SMI Act

See section 3.4 *Accuracy*, page 13.

Identification surveys must be presented in A3 size, and must be numbered using a barcoded label affixed in the bottom right hand corner with the plan held in portrait mode. The label must be affixed to the plan being deposited with the department such that its long side is parallel to the short side of the plan form immediately adjacent to the margin.

Identification surveys are not generally examined or registered. However, on request and payment of a fee an identification survey plan may be examined, and if in order will be endorsed by the department. Details of identification surveys are recorded in CISP. There is no objection for an accredited surveyor to endorse an identification survey.

It is important for the maintenance of the integrity of the cadastre that identification survey plans show all of the survey information relied on for the purpose of reinstating the boundaries of the subject land, including the existing reference marks and any new marks placed.

It is important for the purpose of providing an efficient service to clients that identification survey plans prepared as above are lodged in one central repository, presently the department, which is available for timely public searching.

There is nothing to prevent surveyors from preparing a special additional plan responsive to an individual client's needs. This plan does not need to be deposited in the public record but could be based on a subset of the information presented on a formal identification survey plan prepared for lodgement with the department.

An identification survey should demonstrate:

- sufficient detail to be capable of lodgement in CISP;
- that relevant legislation, including the *Surveyors Act 2003* and the *Survey and Mapping Infrastructure Act 2003*, is satisfied.

An identification plan must display the following, as a minimum:

- the department's barcode in the designated space on face;
- description, referring to the lot-on-plan or secondary interest being identified;
- Form 13, issued under the *Survey and Mapping Infrastructure Act 2003*;
- locality;
- original portion;
- local government;
- survey data in a manner that satisfies general plan presentation requirements.

3.21.1 Placement of additional reference marks on subdivision surveys

Surveyors dealing with subdivisions that involve considerable earthworks have lodged plans for registration that do not show all of the reference marks that are intended to be placed as part of the survey. Once lodged in the Land Registry, the original plan is unable to be amended. An identification survey may be deposited to record the additional marks associated with the subdivision.

The original plan of survey must be noted on the face of the plan with the identification survey number, with a note similar to:

Additional reference marks to be placed following road construction (see IS#####).

The surveyor must deposit a final copy of the identification survey within 60 business days of the registration of the original plan of survey. This does not alter a surveyor's obligation to deposit a survey plan within 40 business days of placing a survey mark as required under section 16 of the *Survey and*

Mapping Infrastructure Act 2003.

In these cases, the identification survey plan may be a reproduction of the registered plan annotated with the additional reference mark information. The requirements for plans produced by this method are that:

- any additional reference marks must be tabulated;
- the tabulation must clearly state;

'Additional reference marks placed after registration of SP#####'
- the original Form 13 certificate must be ruled through and a new, correctly executed, Form 13 added to the plan;
- the title must indicate that the plan is an:

'Identification survey of additional reference marks affecting Lots # on SP#####'
- an identification plan number (IS prefix number) in the form of a barcoded label must be affixed to the copy of the plan being deposited in the plan number box.

3.22 Large scale land development surveys

Standard under the SMI Act

See section 3.14 *Coordinates*, page 26.

See section 3.23 *Marking*, page 36.

See section 3.24 *Meridian*, page 40.

See section 3.28 *Permanent survey marks*, page 41.

See chapter 8 *Surveys using Global Navigation Satellite Systems (GNSS)*, page 93.

This standard applies to large scale land developments that are planned and executed using an integrated survey approach based on a coordinate framework connected to the State control survey. It can be adopted where:

- there are at least 20 proposed standard format lots in the development site as a whole (irrespective of how many lots are created in each stage);
- the coordinate framework is intended to be used for all aspects of the development project, from initial design to final construction of works and services; and
- the chief executive² approves the application of this standard for the development.

The specification is as follows:

- a coordinate framework is to be established and connected to the State control survey in accordance with a survey control design agreed to by the chief executive
- a surround survey of the development area is carried out, with coordinates determined in relation to the coordinate framework with a survey uncertainty of <15mm for horizontal position
- the coordinate framework is to be used for the design and construction of works and the design of lot boundaries
- coordinates are assigned to all lot corners following a rigorous adjustment method agreed to by the chief executive, and deposited with the department.

It is not a requirement to mark cadastral corners prior to lodgement of the plan/s for registration, subject to the following conditions:

- full marking of corners must be completed prior to the time at which the planning authority or local government certifies that the development stage is 'on maintenance'
- evidence verifying the position of the corner marks placed must be included in the survey records
- the plan shows connections to the State control survey that provides the basis for the corner

² References in this standard to the chief executive include reference to the person who is the chief executive's delegate under s.19 of the SMIA

coordinates (see section 3.14 *Coordinates*)

- the plan bears a notation along the following lines:
"In accordance with section 3.22 of the Cadastral Survey Requirements, corners have not been marked".

3.23 Marking

See section 9.7 *Buildings and other improvements on or near a boundary*, page 105.

See section 9.15 *Corner information*, page 109.

See section 9.27 *Line pegs*, page 121.

See section 9.52 *Traverses*, page 131.

See Part 4 of the *Survey and Mapping Infrastructure Regulation 2014*.

3.23.1 Boundary marking

Information

Section 9 of the *Survey and Mapping Infrastructure Regulation 2014* establishes the following principles for the marking of boundaries on a cadastral survey:

- ‘3) *A boundary of land must be marked on the land in a way that a person on the land can identify the boundary.*
- 4) *However, subsection (3) does not apply if—*
 - (a) *the client of the surveyor marking the boundary gives the surveyor written notice that the client does not require the boundary to be marked as required by subsection (3); and*
 - (b) *the surveyor complies with the relevant survey standard for the marking; and*
 - (c) *the reference points used for the survey include a recognised permanent survey mark placed in carrying out a State control survey.*’

It should be noted that the reference in section 9(4)(a) to ‘marking the boundary’ is a reference to marks between the end points (e.g. line pegs, clearing, blazing of trees). It does not remove the need to mark the end points (i.e. the corners)—see the standard below.

Standard under the SMI Act

While it is recognised that many boundaries are not physically run, but are determined through traverses, offsets and in some instances through GNSS observations, all boundaries must be surveyed and marked in accordance with the requirements of Part 4 of the *Survey and Mapping Infrastructure Regulation 2014*.

The following requirements apply to the marking of cadastral corners:

- Recognisable survey marks must be placed at each new corner unless it is physically impractical to do so.
- A clear description of cadastral survey marks placed, including reference marks, must be shown on the plan, and where applicable in the survey records.
- A surveyor must mark all existing corners on the subject land that are reinstated in the course of a survey, unless an original mark or suitable occupation exists at the corner. However there are instances where revisiting these corners to mark them may be impractical, such as when traversing to an existing mark, many corners away. In such cases, as a minimum requirement, when a new boundary intersects an existing boundary, both terminal points of that existing boundary must be marked unless one of the following applies:
 - the terminal points are not fully reinstated
 - other marks are used for reinstatement along the boundary (e.g. original line pegs)
 - the survey is a secondary interest action only
 - the survey is an identification survey where a client requires certain corners marked only.
- Where a survey is under section 9(4) of the *Survey and Mapping Infrastructure Regulation 2014*, the relevant survey standard for the marking of the corners is the standard for surveys of land in

remote areas (see section 3.34 *Remote area surveys*).

3.23.2 Reference marks

Standard under the SMI Act

A cadastral surveyor must ensure sufficient reference marks exist on a cadastral survey to facilitate future reinstatement of a cadastral survey.

A cadastral surveyor must record the location of permanent improvements (e.g. buildings, retaining walls) on the land that will assist in the future reinstatement of boundaries.

3.23.3 Cadastral survey marks

Standard under the SMI Act

A cadastral survey mark that identifies a boundary must be a peg capable of resisting destruction, corrosion or decay that is at least 350 millimetres in length, is coloured white and has a square top with a minimum cross-section of 50 millimetres for a sufficient distance from the top to provide for branding.

If a surveyor considers that it is impracticable or unsuitable to use a mark of this type, the surveyor may place a survey mark of equivalent durability and stability, and as far as practicable, of a similar character so that they are recognisable as cadastral boundary marks (for example, if pegs are placed, then they must not be oblong or a colour other than white).

A cadastral reference mark may be any of:

- a suitably marked tree or fence post
- a durable mark on a building or other immovable object
- a pin made of a durable material that is at least 300 millimetres in length and 15 millimetres in diameter
- a permanent survey mark
- any other mark of equivalent durability and stability.

Factors to consider when marking a boundary are:

- standard forms of marking
- recognition of a mark as a survey mark
- durability—expect 60+ years
- clear and unambiguous
- reference marks
- line pegs
- occupation
- public safety.

3.23.4 Other survey marks

Standard under the SMI Act

A survey mark that does not identify a boundary must not have a square cross-section, and must be sufficiently different to avoid confusion with a cadastral boundary mark (e.g. 3:2 cross-section ratio).

3.23.5 Survey mark information on plans

Standard under the SMI Act

Survey plans must show clearly, unambiguously and in as consistent a manner as is possible all relevant information regarding the marks found or placed on the survey and other boundary evidence relied on for the survey. This includes the marks representing a corner (both original corners and new corners), the

marks referencing a corner, and the occupation present at a corner. Specific requirements are as follows:

- All marks recovered, found or placed at a corner that is reinstated or established by a survey must be described.
- When the origin of the corner mark or reference marks recovered at the corner is known, the term 'original' (abbreviation 'O') must be used.
- When the origin of the corner mark or reference marks found at the corner is unknown, the term 'found' (abbreviation 'fd') must be used.
- Where the existing corner mark is found disturbed and the same mark is reset in the original corner position, the term 'reset' must be used. However, where the existing corner mark is removed and a new mark of the same type is placed at the original corner, the term 'renewed' must be used. The term 'replaced' must not be used on plans.
- Where the existing corner mark is removed and a new mark of a different type is placed at the original corner, the term 'placed' must be used.
- Where the survey establishes a new corner, the term 'placed' may be used. Marks placed at these corners are described either by statement on face or as corner information, but the description method must be consistent for all new corners.
- Occupation present at or near all existing or new corners must be shown.

3.23.6 Guidelines for marking boundaries

Guideline under Standard 3.23.1 Boundary marking

Lot numbers should be marked on corner pegs.

For rural surveys, where a fence post is used as a corner it should be branded with a broad arrow and the lot number except where a reference tree is taken.

For rural surveys, alternate marks such as a survey post, a galvanised iron pipe or star picket may be placed at corners where circumstances so dictate, provided such marks are identifiable as survey marks.

New boundaries should be marked sufficiently to enable the boundary to be readily and unambiguously discernible on the ground at the completion of survey.

Where clearing is required to undertake the survey, this should be done in a way that minimises the impact on native flora and fauna (e.g. lopping of branches rather than removal of trees). Surveyors should be aware of Vegetation Protection Orders, Voluntary Conservation Management Agreements, cultural heritage legislation (*Aboriginal Cultural Heritage Act 2003*) and other environmental considerations (e.g. *Vegetation Management Act 1999*). Further information is given below in relation to clearing of vegetation for survey purposes.

Unless fencing is to proceed immediately, subject to environmental considerations, trees standing nearest to the line may be blazed with a horseshoe shaped mark cut into the heart-wood on opposite sides of the tree in such positions that the marks face along the survey line.

Trees through which the boundary line passes should be double blazed on opposite sides so that the marks face along the boundary line.

Where corner marks are not intervisible, sufficient marks should be placed on line between the corners so that the boundary is readily and unambiguously discernible on the ground.

3.23.6.1 Clearing of trees for survey purposes

Information

Vegetation Management is regulated through the *Vegetation Management Act 1999* (VMA) and the *Sustainable Planning Act 2009* (SPA). General information about this legislation is available from the department's website <www.dnrm.qld.gov.au/land/vegetation-management> including links to the legislation and the State policy for vegetation management.

The legislation regulates all clearing of native trees or plants, other than in state forests and national parks.

Clearing of vegetation in state forests and national parks is governed by the *Nature Conservation Act 1992* and the *Forestry Act 1959* respectively.

The clearing of trees is primarily regulated by the VMA, but in certain cases it is also regulated by other state and federal acts. Other Acts are set up to regulate issues relating to endangered, threatened or rare plants, commercial timber trees and plants in and around watercourses. These acts include the *Water Act 2000*, the *Nature Conservation Act 1992*, the *Forestry Act 1959* and local council clearing rules. In some cases, permits may be required under multiple acts. As with all activities, it is vital to make sure that you are aware of the ownership of the land and its estate (e.g. trees on road reserves, unallocated State lands, neighbouring properties).

It should be noted that lopping of branches from trees is not regulated under the VMA and surveyors are not prevented from lopping branches from trees as long as it does not lead to the death of the tree.

The type of clearing activity allowed, and how it is regulated, depends on; the type of vegetation; the tenure of the land; the location, extent and purpose of the proposed clearing; and who is proposing to do the clearing. Depending on these factors, clearing activities will be; exempt from any approval or notification process; require notification and adherence to a self-assessable code; require notification and adherence to an area management plan; or require a development approval.

Exemptions allow native vegetation to be cleared for a range of routine property management activities without the need for a development approval or notification.

On freehold land, indigenous land or leasehold land for agriculture and grazing the most important exemption provided in the VMA is for clearing vegetation in areas shown on a regulated vegetation management map or a regional ecosystem map as category X. In these areas, any tree can be destroyed or removed for any purpose.

In areas shown on a regulated vegetation management map or a regional ecosystem map as category A (unless stipulated on a notice issued by the department), category B, category C or category R, there are exemptions that allow clearing activities.

- Any clearing for community infrastructure mentioned in Schedule 2 of the *Sustainable Planning Regulation 2009* is exempt. This includes transport infrastructure; communication network facilities; waste management facilities; educational facilities; sporting, park and recreational facilities; water cycle management infrastructure; oil and gas pipelines; or any other facility that is intended primarily to accommodate government functions.
- Clearing under a development approval, for a material change of use or reconfiguring a lot, is exempt if the approval is given for a development application for which the chief executive (administering the Sustainable Planning Act 2009) is a concurrence agency for clearing vegetation; or if a lot to which the application relates is less than 5ha, for which a local government is the assessment manager.
- Clearing that is necessary to carry out a cadastral survey of an **existing** property boundary, a geotechnical survey or a geological survey if the area cleared is – (a) for an area in which a survey is conducted—a maximum area of 10m by 10m; and (b) for an area necessary for reasonable access to an area mentioned in paragraph (a)—a maximum of 10m wide.

When carrying out surveying of a subdivision in areas mapped with categories other than as above, there is no exemption, or means to apply for a permit to clear trees for surveying. Surveyors operating in this scenario cannot destroy, remove, kill, poison, drive over, trample or burn any trees for the purpose of the survey, regardless of any planned land use activities in the area.

3.23.7 Guidelines for reference marking

Guideline under Standard 3.23.2 Reference marks

3.23.7.1 Iron pins

The positions and depths at which pins are placed should be decided by the surveyor so as to minimise the chance of disturbance from any cause. The depth at which the pin is placed should be recorded if the depth is excessive.

Where original iron pins are found, the depth of the pin should be recorded where the depth is excessive.

3.23.7.2 Rural areas

In rural areas, reference marks include reference trees (where there is little likelihood of the tree being destroyed in the foreseeable future), iron pins, and other appropriate marks.

Surveyors should, at all times, have regard to the local environment when marking reference trees.

3.23.7.3 Urban areas

In urban areas, reference marks include iron pins, screws/nails in kerbing or manhole surrounds, corners of shops, buildings or other appropriate structures.

Surveyors should be aware that some electricity authorities are opposed to the placement of nails and other marks in power poles.

3.23.7.4 Estate development

In residential estate development, it is essential that an adequate number of reference marks are placed to allow reinstatement of lot boundaries at reasonable cost.

A variety of surface and subsurface marks (mark in kerb, pin, etc.) should be placed to minimise the destruction of reference marks by machinery and earthworks and support future reinstatement.

Permanent survey marks should be placed to facilitate future coordination and reinstatement.

3.24 Meridian

Standard under the SMI Act

See section 3.28 *Permanent survey marks – connecting to datum*, page 41.

See section 9.17 *Datum*, page 117.

See section 9.32 *Meridian*, page 124.

Where a survey is connected to the State control survey, MGA bearings must be used (to an accuracy of twenty seconds of arc, by derivation from either coordinated permanent survey marks or astronomical or CORS observations). Where a survey is not connected to the State control survey, MGA bearings are still preferred, but may be on one of the following meridians:

- the MGA (Map Grid of Australia)
- County Arbitrary Meridian
- the meridian of the original survey
- the meridian of an adjoining survey.

All survey information on any plan must be on one common meridian. A survey covering many plans must be on the same meridian (see section 9.32 *Meridian*).

The origin of the meridian must be noted in the meridian box on the face of the plan, or if insufficient space, a meridian table on the face of the plan.

Where connections to coordinated permanent survey marks are used to obtain meridian, full details (including the MGA coordinates at the date of the survey) of these marks, and the direct bearing, as derived from the survey, between them, must be noted on the face of the plan (in the meridian table), as well as a connection from at least one station of the survey to at least one of the coordinated marks. Careful consideration should be given to the positional uncertainty of any mark to be used for meridian determination to ensure that the PSMs are suitable for this purpose.

Survey records may be supplied to support any determination of meridian, e.g. astronomical observations, GNSS information and adjustments. Information from the Survey Control Register is not required to be repeated in survey records.

It is no longer a requirement to note any line on the plan as ‘datum’. However if considered necessary, a line on the plan may be noted as datum.

3.25 Native title

Information

When acquiring native title rights and interests, as per the *Acquisition of Land Act 1967* (or similar legislation), a sketch plan may be used (e.g. AP); however, if, in the future, native title rights and interests are proven to have existed over the subject land, a plan of survey **may** be required for clarity and certainty.

Where a plan is prepared for any purpose and that plan adequately describes the area subject to the native title rights and interests, no additional plan is required to address those native title rights and interests (e.g. native title rights and interests in Easement A in Lot 5 on RP123456 would be satisfactory for addressing native title rights and interests, as well as recording the easement).

The surveyed status of any parcel is not to be diminished as a result of any action under the *Native Title (Queensland) Act 1993*. However, situations may exist where the existing lot is unsurveyed and full survey is required for the action involving native title rights and interests.

3.26 Natural boundaries

Standard under the SMI Act

See chapter 4 *Physical feature boundaries*, page 61.

See section 9.54 *Watersheds*, page 132.

If a natural feature is to be adopted as a new boundary:

- the feature must be surveyed by a method that accurately locates the feature; and
- an unambiguous description of the feature must be shown on the plan and survey records.

If a boundary abuts a non-tidal watercourse or lake as defined in the *Survey and Mapping Infrastructure Act 2003* (SMI Act), the location of the boundary watercourse or lake must accord with the provisions in the SMI Act (Part 7).

If a boundary abuts tidal waters, the tidal boundary is defined in the SMI Act and if surveyed or compiled the appropriate location must accord with the provisions in the SMI Act (Part 7). Also refer to Chapter 4 *Physical feature boundaries*.

3.27 New lot boundaries intersecting registered secondary interests

Information

See the *Land title practice manual*, clause 9-

2020. <www.dnrm.qld.gov.au/__data/assets/pdf_file/0010/97147/ltpm-part-09.pdf#page=6>

See the *Registrar of Titles directions for the preparation of plans*, Direction 4.21 ‘New lot boundaries and secondary interests’, <www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97198/rdpp-section-4.pdf#page=7>.

The intersections of new lot boundaries with registered secondary interests, whilst dimensioned on the survey plan, are not required to be marked on the ground.

3.28 Permanent survey marks – connecting to datum

Standard under the SMI Act

See section 3.14 *Coordinates*, page 26.

See section 3.22 *Large scale land development surveys*, page 35.

See section 3.24 *Meridian*, page 40.

See chapter 8 *Surveys using Global Navigation Satellite Systems (GNSS)*, page 93.

3.28.1 Connection to datum

A cadastral surveyor must connect all field surveys that create 10 or more lots, and are to be lodged for registration, to the State control survey. This requirement includes surveys on standard and volumetric format plans, but does not apply to building format plans, compiled plans or plans of secondary interest only.

Connection to the State control survey can be by way of:

- a continuously operating reference station (CORS) network included in the datum control survey, or
- connection to two (2) existing coordinated permanent survey marks in the datum control survey each of which has a horizontal positional uncertainty of <30mm.

The quality of the connection to the State control survey must be able to provide a horizontal positional uncertainty of <50mm on any mark for which coordinates are determined (see section 3.14 *Coordinates*).

Where the underlying plan is adequately connected to datum, surveyors have the option of applying to the chief executive (attn: the local departmental principal surveyor) for an exemption from this requirement on the grounds that connection to datum will not provide any additional benefit to the cadastre.

Surveys that create less than 10 lots do not have to connect the survey to the State control survey, but may still connect to existing or new permanent survey marks that are of good geometry spanning the survey. It is preferred that connections to existing permanent survey marks be made in lieu of placement of new PSMs.

Where GNSS observations are used to connect the survey to the State control survey, the measurement techniques referred to chapter 8 *Surveys using Global Navigation Satellite Systems (GNSS)* may be used.

Depending on the method of the connection to datum, it may be necessary to also show the meridian table as shown in section 9.32.2 *Meridian by observation*, and/or the connections to permanent survey marks as presented in diagrams A and B at the end of section 9.15 *Corner information*.

Any new PSMs established must have a completed permanent survey mark plan (PSMP) forwarded to the department, in accordance with the provisions of section 15(2) of the *Survey and Mapping Infrastructure Act 2003*. Where the PSMP for an existing PSM is found to be deficient, information to rectify the PSMP should be forwarded to the department so that the PSMP can be amended and re-imaged. If there is no PSMP in existence for an existing PSM, surveyors are encouraged to prepare and submit a PSMP.

The blank PSMP is available in digital format from the government website www.business.qld.gov.au/industry/property-construction-trades-engineering/surveying/permanent-survey-marks.

3.28.2 Specification for permanent survey marks

Where permanent survey marks are installed, the type of marks are not limited to the traditional brass plaques set in concrete but may include a range of options. To facilitate this, the specifications for permanent survey marks have been revised using performance criteria rather than the previous prescriptive dimensional specification.

In order for a survey mark to be accepted as a permanent survey mark it must conform to the following criteria:

- The mark must be made of a durable material, preferably metal.
- When installed, the mark must be permanent and stable (i.e. have the expectation of longevity). Marks located in shallow structures, such as kerbing or footpaths, do not satisfy this specification.
- It must be capable of being readily identifiable as a survey mark.
- It must be able to be identified with a unique survey control number (as per the Survey Control Register number) either on the mark itself or attached to the mark (e.g. on a concrete collar).
- The mark must be recorded in the State's Survey Control Register.

- It should be capable of occupation, preferably in a location suitable for measurement by GNSS.

3.29 Permits

Standard under the SMI Act

See section 3.17 *Description of parcels*, page 29.

See section 5.17 *State land actions*, page 80.

See section 9.4 *Administrative plans (APs)* page 104.

Permits are dealt with under sections 60, 177 and 178 of the *Land Act 1994*.

A tenure document will issue for a permit. If the term of a permit is 12 months or more, the permit's tenure document will be recorded (registered) in the Land Registry (ATS). Because a permit to occupy is a secondary interest, the permit will be noted on the reserve title or USL title for the permit land (similar to the issue of a State lease over a reserve). No noting will be made on any other title if the registered permit is over 'undescribed' land: road, river, creek or land below tidal boundary.

All permits are secondary interests and hence all descriptions must refer to lot alpha descriptions and should be in the following format.

Section of <i>Land Act</i> <i>1994</i>	Type of permit (over):	Description
60	Trust land	Lot alpha in lot-on-plan
177	Road	Lot alpha in road adjacent to lot-on-plan
177	Creek	Lot alpha in Six Mile Creek adjacent to lot-on-plan
177	River	Lot alpha in Nogoia River adjacent to lot-on-plan
177	Reserve	Lot alpha in lot-on-plan
177	USL with a lot-on-plan title reference	Lot alpha in lot-on-plan
178	Land beyond tidal boundary (river)	Lot alpha in Brisbane River adjacent to lot-on-plan
178	Land beyond tidal boundary (ocean)	Lot alpha in Coral Sea adjacent to lot-on-plan

Table 5 Permit descriptions

3.30 Profit a prendre

Information

See section 3.14 *Coordinates*, page 26.

See section 3.18 *Dimensions*, page 30.

See chapter 8 *Surveys using Global Navigation Satellite Systems (GNSS)*, page 93.

See section 61J of the *Forestry Act 1959*.

See sections 373E–373Q of the *Land Act 1994*.

See sections 97E–97M of the *Land Title Act 1994*.

See Schedule 2 *Definitions*, of the *Land Title Act 1994*.

See the *Land title practice manual*, Part 29,

<www.dnrm.qld.gov.au/__data/assets/pdf_file/0011/97175/ltpm-part-29.pdf#page=3>

See the *Registrar of Titles directions for the preparation of plans*, Part 19, 'Profits a prendre',

<www.dnrm.qld.gov.au/__data/assets/pdf_file/0003/97212/rdpp-section-19.pdf#page=1>.

A profit a prendre is an interest that arises by agreement between two parties and relates to the right of one party to enter on the land of the other and extract or remove part of the land's substance. In simple terms, it is the right to take soil (e.g. sand, gravel) or produce (e.g. wood, turf, fish, etc.) from another's land or to graze animals on it.

A profit a prendre may be registered in the Land Registry against the title to the land. There is no obligation or statutory requirement that requires a profit a prendre to be registered in the Land Registry.

If a profit a prendre involves non-freehold land, under provisions of the *Land Act 1994*, the recording of a profit a prendre against a lease requires the consent of the Minister and is limited to trees and vegetation only.

On registration, a profit a prendre becomes a legal interest that may be sold, mortgaged, gifted, or passed to a beneficiary by a will or intestacy. It is an encumbrance on the title. If the encumbrance is not over the whole of a lot (or lots) and is to be registered in the Land Registry, a survey of the area to be subject to the profit a prendre must be registered in the Land Registry.

3.30.1 Options for survey

Standard under the SMI Act

The Registrar's directions require a profit a prendre to be fully dimensioned with an area and delineated on a survey plan capable of registration in the Land Registry. Three options are available for the survey plan for a profit a prendre:

- full cadastral survey
- reduced survey standard survey
- survey plan prepared by compilation.

3.30.1.1 Full cadastral survey

Full cadastral survey is a normal cadastral survey meeting all the requirements of the *Survey and Mapping Infrastructure Act 2003*.

3.30.1.2 Reduced survey standard

Survey of a profit a prendre may be undertaken using the reduced survey standard set out in this section.

Using this method, the boundaries of a profit a prendre are determined by visible and durable monuments and reference marks, located by a cadastral surveyor. The survey depicting the profit a prendre must be capable of unambiguous interpretation. While reduced standard surveys are not GNSS specific, it is envisaged that GNSS would normally be the accepted technology adopted to satisfy the requirements.

The following specifications apply:

- Where a corner of a profit a prendre lies on a boundary of the parent lot, a mark must be placed on that boundary to standards as specified in section 3.4.2 *Measurement accuracy*.
- Other corners of the profit a prendre may be located to a reduced accuracy that must be no less than ± 1 metre.
- Where coordinates are used to derive the dimensions (bearings and distances) of a profit a prendre, the requirements of section 3.14 *Coordinates* and chapter 8 *Surveys using Global Navigation Satellite Systems (GNSS)* still apply. However, where a reduced accuracy has been used under this standard, then the vector accuracy is also reduced for those corners, (i.e. vector accuracy of 1 metre at 95% relative uncertainty in accordance with ICSM *Standard for the Australian Survey Control Network* (SP1 v2.0) <www.icsm.gov.au/geodesy/sp1.html>). This enables the measurement technique referred to as *differential GNSS* to be used to locate those corners of the profit a prendre, in addition to the more precise measurement techniques set out in chapter 8 *Surveys using Global Navigation Satellite Systems (GNSS)*.
- Where the dimensions (bearings and distances) are derived from other than a normal cadastral survey or GNSS observations, the method of determination must be shown in the survey records.
- A statement as to the accuracy of the positioning of the corners of the profit a prendre is required in the form of:

Boundaries of the Profit a Prendre have been determined using a reduced survey standard with an accuracy of ± 1.0 metre.

- The requirement under section 3.18 *Dimensions* to have sufficient connections to reinstate the

parcel (i.e. the profit a prendre) from the corners of the parent lot still applies.

3.30.1.3 Survey plan prepared by compilation

The survey plan prepared must satisfy section 16 of the *Survey and Mapping Infrastructure Regulation 2014*. About dimensions are not acceptable. Information used by a surveyor to determine the boundaries of a profit a prendre, and quoted in the Form 18 certification, must be searchable and may be:

- Existing Land Registry records (e.g. lodged / registered survey plans, survey records, lease sketches)
- Held by the department as survey plan archival information (e.g. deposited survey plans, identification surveys, other survey records; cadastral connections)
- Available from the department (e.g. air photo library, digital topographic data, digital imagery; paper or digital maps or products)
- Other source information lodged with the plan as survey records and a report, if necessary.

3.31 Public use land

Standard under the SMI Act

See section 3.2.1 *Access to public use land*, page 11.

See section 6.4.1 *Easements over land shown as public use land*, page 84.

See the *Land title practice manual*, clause 21-2270,

www.dnrm.qld.gov.au/__data/assets/pdf_file/0005/97160/ltpm-part-21.pdf#page=16

See the *Registrar of Titles directions for the preparation of plans*, Direction 4.8 'Parcels to be described', www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97198/rdpp-section-4.pdf#page=2.

Sections 290J, 290JA and 290K of the *Land Act 1994* and section 51 of the *Land Title Act 1994* refer to the dedication of public use land (e.g. reserves) on a plan of subdivision.

A plan of subdivision registered under the *Land Act 1994*, that identifies public use land for a community purpose, must be approved by the Minister administering the Act.

A plan of subdivision registered under the *Land Title Act 1994*, that identifies public use land for a community purpose defined in Schedule 1 of the *Land Act 1994* other than road, either:

- requires dedication action under the provisions of the *Land Act 1994* to complete the process; or
- when approved by the Minister, dedicates the reserve on registration of the plan.

For plans registered under either Act that are approved by the Minister, the approval (statement of intent) will need to be lodged with the plan. The statement of intent will identify the trustees of the new reserve.

All new roads and public use land lots must be clearly shown on the plan.

For plans with public use land with a community purpose defined in Schedule 1 of the *Land Act 1994*, that are approved by the Minister, the purpose must be identified on the face of the plan and any additional sheets. For example:

<i>Lot 4</i>	or	<i>Lot 7</i>	or	<i>Lot 8</i>
<i>Public Use Land</i>		<i>Public Use Land</i>		<i>Public Use Land</i>
<i>(Park)</i>		<i>(Drainage)</i>		<i>(Heritage and Historical)</i>

For plans with public use land with a community purpose defined in Schedule 1 of the *Land Act 1994* other than road, that are lodged under the *Land Title Act 1994* without a Ministerial approval, the lot is to be shown as 'Public Use Land' and need not show a purpose, as the land becomes USL on registration of the plan.

For plans of subdivision that create public use land for a purpose other than those defined in Schedule 1 of the *Land Act 1994* (e.g. National Park, Forest Reserve), the lot is shown as 'Public Use Land'. The purpose is not to be shown on the face of the plan. Additional documentation (Form 20) will need to be lodged with the plan identifying the agency that will be responsible for that public use land. A USL title will be created identifying that agency as the responsible agency. The notation on the Form 20 will be in the following

form:

Lot # is Public Use Land and will be under the control of the Environmental Protection Agency.

Lot # is Public Use Land and will be under the control of the Department of Primary Industries and Fisheries.

3.32 Redrawn plans

Information

A plan may be redrawn using the same plan number. It is the surveyor's responsibility to ensure that duplicate plans are not released for general circulation.

3.33 Reinstatement of boundaries

3.33.1 Cadastral Reinstatement Standard

Information

See Appendix F *Reports*, page 166.

This standard provides general direction to surveyors as to the things that must be done to ensure that cadastral boundaries are reinstated in accordance with the relevant law (statute and common law) and the reinstatement is adequately recorded.

Standard under the SMI Act

In conducting a cadastral survey which reinstates existing cadastral boundaries (this does not apply in the case of compiled plans, plans of secondary interest only or subdivisions of existing building format lots), a surveyor must:

- obtain a full search;
- gather sufficient physical evidence to effect the reinstatement;
- assess the origin of each piece of evidence, its reliability and its relevance to boundary location, based on the hierarchy of evidence;
- take account of the rights of all parties affected by the reinstatement;
- place appropriate marks to ensure there is long-standing evidence of the corner and the survey;
- record all relevant occupation;
- document in working files the evidence that has been used to reinstate each line (and corner) (e.g. use of previous surveys, use of occupation, allocation of excess and shortage etc).
- provide a reinstatement report from the documented evidence where the reinstatement is not uncomplicated (such as when the survey disagrees by more than normal survey accuracies from previous surveys used to reinstate any boundary):
- advise the department of steps taken to resolve inconsistencies with other surveys under s.17 of the SMI Act.

3.33.2 Cadastral Reinstatement Guideline

Guideline under Standard 3.33.1 Reinstatement of boundaries

In conducting a cadastral survey which reinstates existing cadastral boundaries, a surveyor will usually undertake a number of activities and exercise a number of judgements in order to reinstate boundaries in accordance with section 3.33.1 *Reinstatement of boundaries*.

Prior to gathering data in the field a surveyor will usually:

- ensure that the plan search obtained incorporates all relevant plans, including historical plans and title records;
- analyse the search to determine agreement, discrepancies or lack of correlation between previous plans;

- ensure that they understand the previous surveyor's reinstatement.

Gathering data in the field a surveyor will usually:

- thoroughly search for physical evidence that may exist (including looking for buried or concealed marks);
- consider and connect to sufficient monuments to reinstate each corner and prove that the adopted marks are reliable, with greater weight being given to older monuments;
- identify differences or lack of correlation in the evidence when compared with previous surveys;

In determining the reinstatement of a boundary a surveyor will usually:

- resolve differences or lack of correlation between evidence gathered;
- ensure the rights of all adjoining owners surrounding the survey and the rights of the subject land are legitimately preserved;
- give due regard to surrounding boundary monumentation and occupation in determining a reinstatement solution, particularly when considering the distribution of excess and shortage;
- not reinstate boundaries solely on the basis of dimensions, without considering the existence of physical evidence (for example: fixing the depth of parcels at a previously surveyed distance, or the direction of side boundaries of a parcel at a previously surveyed direction, without searching for original marks or occupation);
- ensure the expressed intention, accuracy and historical standards of the original survey are considered;
- have a solid basis for the solution adopted and reasons for rejecting other options, where reinstated boundaries shift away from occupation or patterns of occupation.

In documenting the reinstatement of a boundary a surveyor will usually:

- record any other matters or evidence that will enhance future reinstatement of the boundaries created or reinstated;
- document the rationale for the adopted solution.

3.33.3 Hierarchy of boundary evidence

Guideline under Standard 3.33.1 Reinstatement of boundaries

In making a survey to re-establish the boundaries of land, the first and over-riding aim is to arrive at the intention of the parties as expressed in the original documents establishing those boundaries.

The evidence of the parties themselves, when available, will sometimes, although not always, be accepted. If the intention by the actual parties is not available, or not admissible, their intentions must be arrived at by the study of documents to which they were party.

A plan may be such a document, or may be incorporated by reference into such a document.

If the plan is a statement of measurements actually marked on the ground then the markings become monuments, and evidence as to their nature and position is admissible.

However, the intention of the parties to the creation of the boundary is of paramount importance, and the courts have laid down rules establishing the relative importance of the, sometimes conflicting, documentary and physical evidence on which the surveyor must base their survey, in order to arrive at what the intention was.

This set of rules and priorities is often referred to as the *hierarchy of evidence*. It is a list of **best** evidence for establishing the intention of the parties at the time the boundaries were created. It becomes a hierarchy where two or more pieces of evidence for determining a corner or a boundary exist and the evidence is in conflict. A modern expression of the hierarchy of boundary evidence, taking into account recent case law

and using terminology relevant to surveying in Queensland can be ranked as³:

1. “The greatest weight must always be given to lines and corners marked on the ground and corroborated by other physical evidence.
2. Natural monuments shown on the plan.
3. Adjoiners – “a well-established line of an adjacent survey” in existence before the original grant.
4. Adjoiners created after the original grant.
5. Artificial monuments corroborated by documentary evidence.
6. Occupation evidence that is contemporaneous and consistent with the documentary evidence.
7. Bearings and distances. Bearings and distances of short lines⁴ will over-ride bearings and distances of longer lines. Neither bearing nor distance is given overall preference.
8. Artificial monuments uncorroborated by documentary or physical evidence.
9. Area will in general be the least valued evidence, but may in some cases be the key to the problem.
10. Finally, but most important of all, any one of these rules may be of more (or less) weight in one case than another. The rules set out are for cases of conflict, they are general rules, to be used as a guide but not as a straightjacket.”

3.34 Remote area surveys

Standard under the SMI Act

See section 3.14 *Coordinates*, page 26.

See section 3.28 *Permanent survey marks*, page 41.

See section 3.38 *Surveys using remotely sensed data*, page 54.

See chapter 8 *Surveys using Global Navigation Satellite Systems (GNSS)*, page 93.

Methods for cadastral surveys where the land is remote and of low value, or surveys would otherwise be uneconomical or unnecessary.

3.34.1 Application

Alternative survey methods may be used for carrying out cadastral surveys of land where one or more of the following criteria apply:

- The cost of conventional survey methods is inappropriate in relation to the value of the subject land and adjoining land. The nature of the terrain and density of vegetation cover may also affect this cost.
- The general amenity of the area is underdeveloped, as may be indicated by the following:
 - value of infrastructure
 - value of capital investment
 - population density
 - tourist facilities.
- The subject land is remote from any appropriate commercial centre (i.e. access is difficult in relation to distance to be travelled or the length of travelling time required).
- There is no need for the boundary to be marked, taking into account the requirements of the client, the State and the community and recognising good survey practice.

Alternative survey methods must meet the specification for surveys of land in remote areas forming part of

³ Campbell, G., 2010. *Boundaries and the Common Law, Graduate Seminar*. University of Southern Queensland. Nov 2010. p. 17.

⁴ For example connections to reference marks.

this standard.

A cadastral surveyor undertaking a survey using alternative methods must lodge with the survey plan a report providing details of:

- the reason why conventional survey methods are unsuitable
- how the criteria described above are satisfied
- the alternative survey method used.

3.34.2 Specification for surveys of land in remote areas

Corner points of the subject land must:

- be marked with durable monuments unless it is impracticable to do so
- be capable of ready identification by surveyors and landholders
(If requested by Aboriginal or Torres Strait Islander communities involved, notice boards must be placed in close proximity to monuments to give notice of their purpose.)
- be capable of description on a plan
- have sufficient reference marks to facilitate future reinstatement.

Any previously surveyed corners of boundaries of the subject land must be reinstated, and marks replaced if necessary.

Surveys of small exclusions of land from the subject land must be carried out to conventional cadastral survey standards unless an application for exemption from survey in terms of section 40(2) of the *Land Act 1994* is granted (this section applies to deeds of grant in trust for Aborigines and Torres Strait Islanders).

Internal roads are to be surveyed to the following minimum standard:

- The positions of road centre lines are surveyed at sufficient intervals and accuracy:
 - to ensure existing road formations are entirely contained within dedicated roads
 - to facilitate calculation of one side of the road boundaries.
- Selected corners on one side of the road are marked by permanent survey marks at intervals generally no greater than 3 kilometres.
- Intersections of road boundaries with cadastral boundaries and with other road boundaries are marked by durable monuments.

The location of the durable monuments marking the corners of the subject land must be described in some manner acceptable to interested landholders.

Bearings and distances of boundaries or coordinates of corners must be determined by appropriate means with the preferred means being survey using Global Navigation Satellite System (GNSS), normal cadastral survey, survey using remotely sensed data or a combination of these methods.

The requirement to connect to the State control survey still applies (refer to section 3.28 *Permanent survey marks – connecting to datum*).

If the cadastral survey itself is done using GNSS techniques, the requirements of chapter 8 *Surveys using Global Navigation Satellite Systems (GNSS)* still apply.

The plan of survey must clearly describe the boundaries that have not been marked, and the source of any original information used in the survey such as maps and aerial photography.

3.35 Resumption actions

Information

This section deals with the acquisition of land under the *Acquisition of Land Act 1967*, the *Land Act 1994*

and other Acts authorising resumption of land including the *Electricity Act 1994*, the *State Development and Public Works Organisation Act 1971* and the *Transport Planning and Coordination Act 1994*.

Under these Acts, land is resumed in the following manner:

- Land granted in fee simple resumed by and vested in the State becomes USL, until dealt with under the *Land Act 1994* (section 12(2) of the *Acquisition of Land Act 1967*).
- Land granted in fee simple resumed by and vested in a constructing authority for an estate in fee simple, remains freehold land in the name of the constructing authority (section 12(2A) of the *Acquisition of Land Act 1967*).
- Land granted in fee simple resumed by and vested in a local government, remains freehold land in the name of the local government (section 12(2A) of the *Acquisition of Land Act 1967*).
- Land granted in fee simple in trust resumed by and vested in the State, a constructing authority or a local government becomes USL, until dealt with under the *Land Act 1994* (section 12(4) of the *Acquisition of Land Act 1967*).
- Leasehold land resumed under the *Land Act 1994* becomes USL, until dealt with under the *Land Act 1994* (sections 219 and 225 *Land Act 1994*).
- Leasehold land resumed by and vested in a constructing authority under the *Acquisition of Land Act 1967* or any other authorising Act, remains leasehold land until dealt with under the other authorising Act and the *Land Act 1994* (section 12(2A) of the *Acquisition of Land Act 1967*).
- Freehold land or leasehold land containing a reservation for a public purpose and stating the area of land reserved resumed under the *Land Act 1994*, becomes USL until dealt with under the *Land Act 1994* (section 230 of the *Land Act 1994*).

3.35.1 Notice of intention to resume

Standard under the SMI Act

Notices of intention to resume (NIR) may require notation or allocation on any plan of survey that affects the subject land.

3.35.2 Notice of realignment

Standard under the Local Government Act

Under section 902 of the *Local Government Act 1993*, a local government may cause any road to be realigned in order to widen the road.

Section 902(5) of the Act states ‘The local government must lodge a copy of the notice of realignment with the Registrar of Titles for the registration on the instrument of title to the land’.

A search of the Automated Titles System (ATS) will reveal any notice of realignment.

When a local government does not proceed with a realignment, section 911 of the *Local Government Act 1993* provided for the removal of a notice of realignment.

Resumption of land to effect the realignment occurs under the *Acquisition of Land Act 1967*

3.35.3 Resumptions for road purposes

Standard under the SMI Act

See section 10.2.1 *Creation of roads in freehold land*, page 135.

See section 10.2.2 *Creation of roads in leases, reserves, trust land*, page 136.

See section 10.2.3 *Creation of roads in State forest or timber reserves*, page 136.

Land may be resumed for road purposes by the State, a local government or a constructing authority (such as the chief executive under the *Transport Planning and Coordination Act 1994*).

Unless the whole of a lot is taken, the land that is taken by resumption must be shown as a lot on a survey plan prepared for the resumption. Regardless of the resumption notice being gazetted, no action is taken to

correct the affected title for the land until the lodgement of the resumption dealings in the Land Registry. The resumption dealings (resumption document(s) and the survey plan) are required to record the resumption in the register and a further document is required to dedicate the resumed parcel as road.

The resumed land is dedicated as road in the following manner:

- All land (excluding State lease over reserve) resumed by and vested in the State, which becomes USL on resumption, is dedicated as road by lodgement of a dedication notice under section 94 of the *Land Act 1994*.
- Leasehold land resumed by and vested in a constructing authority, which continues to be leasehold tenure on resumption, is dedicated as road by lodgement of a surrender notice (to surrender the acquired leasehold land) and a dedication notice under section 94 of the *Land Act 1994*.
- Where the leasehold land is a State lease over reserve and it is resumed by and vested in either the State or a constructing authority, the underlying reserve is not affected by the resumption. The underlying reserve must be revoked before the land can be dedicated as road (land is not resumed from a reserve, but rather is revoked under section 33 of the *Land Act 1994*).

State lease over reserve resumed under a resumption Act is dedicated as road by lodgement of a surrender notice (to surrender the acquired leasehold land) and a plan of subdivision identifying the area of road to be revoked from the underlying reserve (the plan must show the balance of the reserve and the new road). The plan must be accompanied by a statement of intent revoking part of the reserve and dedicating it as road.

However, a surrender notice is not required where all or part of a State lease over reserve is resumed under the *Land Act 1994* (the resumption extinguishes the affected lease or part).

Where the resumption affects only part of a State lease over reserve, a separate survey plan, identifying the land to be resumed from the State lease (lots described by alpha descriptions), is lodged as part of the resumption dealings to effect the resumption.

- Freehold land resumed by and vested in a local government or a constructing authority for an estate in fee simple can be dedicated as road by either of two methods:
 - by lodging a dedication notice under section 12B of the *Acquisition of Land Act 1967*
 - by lodging an additional plan of new road cancelling the lot. (See section 10.2.1 *Creation of roads in freehold land*). The local authority is not required to approve the plan, as in this case it is exempt from approval pursuant to the *Sustainable Planning Act 2009* and the Sustainable Planning Regulation 2009, and, as such, the plan requires a notation on the back of the plan indicating this. The notation should be in the following form:

This plan is for a purpose set out in the Schedule of the Acquisition of Land Act 1967 and is exempt from Local Government approval under schedules 19 and 26 of the Sustainable Planning Regulation 2009.

3.35.4 Resumption for transport corridor purposes

Standard under the SMI Act

See section 3.40 *Transport Infrastructure Act 1994*, page 55.

Under the *Transport Planning and Coordination Act 1994*, land can be resumed for transport purposes. Transport purposes is defined under the Act as including ‘any purpose for which the Minister is responsible’ and also incidental purposes such as facilitating the construction of ancillary works and plant, the amelioration of negative environmental impacts or providing facilities for transport users. Transport purposes specifically named in the Act are State toll road, local government tollway, rail transport, busway and light rail.

The chief executive of the department responsible for the administration of the transport purpose for which the land is being resumed is a constructing authority within the meaning of the *Acquisition of Land Act 1967*. Land resumed for transport purposes (other than road) and vested in the chief executive as constructing authority remains as freehold or leasehold land until it is ready to be dealt with under the *Transport Infrastructure Act 1994*.

The land that is taken by resumption must be shown as a lot, or easement if applicable, on the survey plan.

A resumption document is required for recording the resumption in the register. If the resumed land is to become part of a transport corridor, a further action is then required to make the land transport corridor land.

The land can be declared as corridor land for a specific transport purpose. On declaration, the resumed land becomes USL and the land is then created as or added to a lease to the State in perpetuity for the declared transport purpose under section 17 of the *Land Act 1994*. Transport corridor land is then subleased to transport corridor operators who operate the specific toll road, tollway, railway, busway or light rail.

3.35.5 Resumptions for other purposes

Information

The *Acquisition of Land Act 1967* enables land to be resumed for any purpose described in the schedule to the Act. If land is resumed for one of these purposes (other than road) and the purpose is also a community purpose under the *Land Act 1994*, then the land (if unallocated State land) is dedicated as a reserve for community purposes by lodgement of a dedication notice under section 31 of the *Land Act 1994*. If the land is resumed for any other purpose that is not a community purpose under the *Land Act 1994*, then the land (if unallocated State land) is granted to the constructing authority by deed or by way of lease.

3.35.6 Freehold land

Standard under the SMI Act

Plans using the provisions of the *Acquisition of Land Act 1967*:

- must deal only with the action being implemented by the resumption
- must show all resumed areas as lots or easements, as appropriate
- cannot dedicate new road
- are registered under the provisions of the *Land Title Act 1994*
- must be signed by the resuming authority as constructing authority
- do not require local government consent.

All registered interests affecting land being resumed (but not including resumption for easement purposes only) are automatically cancelled by section 12(5) of the *Acquisition of Land Act 1967*, and must not be shown on the plan in the lot to be resumed. However, allocations are required to be shown on the reverse of the plan.

The purposes for which land may be taken and by whom are set out in section 5 of the *Acquisition of Land Act 1967*. Land acquired under the *Acquisition of Land Act 1967* may be taken for multiple purposes. Also refer to section 12(4) of the *Acquisition of Land Act 1967*.

Where a subdivision of a balance parcel is required, e.g. as part of a compensation agreement, the subdivision plan must follow the resumption plan. The subdivision plan is subject to the same requirements as any other plan of subdivision.

3.35.7 Resumptions from non-freehold land

Standard under the SMI Act

See section 6.5.1 *Easements over reserves and unallocated State land*, page 85.

See section 9.2 *Action statements*, page 102.

See Chapter 5, Part 3, Division 1 of the *Land Act 1994*, *Resumption of a lease or easement*.

The resumed land must be shown in a form that is consistent with the purpose for which the interest in the land is being resumed (i.e. lot or easement). Refer to section 216(2) of the *Land Act 1994*.

The plan of subdivision lodged to effect a resumption must be consented to by the chief executive of the constructing authority as the acquiring entity.

Land is not resumed from certain State land (e.g. transferable land under the *Aboriginal Land Act 1991*, reserves, road). In these cases, where the intended action is to open road, the plan will be prepared as a

normal road opening in State land, with an appropriate action statement. Alternatively, the requirement could be to subdivide the land to create a separate lot, with further action to deal with the lot to follow.

Under the provisions of the *Acquisition of Land Act 1967* an interest may be resumed from a lease under section 216 of the *Land Act 1994*, section 125A of the *State Development and Public Works Act 1971* or section 25 of the *Transport Planning and Coordination Act 1994*. Land resumed from a lease under the *Land Act 1994* becomes USL, while land resumed under other legislation remains as a lease.

3.35.7.1 Resumption of possession of reservation in title

Standard under the SMI Act

See section 2.9 *Reservations in title*, page 8.

Under section 229 of the *Land Act 1994* an area reserved for a public purpose (or part thereof) within a lease, deed or DOGIT may be resumed. In accordance with section 26(1) of the *Land Act 1994*, if all or part of a public purpose reservation is resumed and the boundaries of the reservation are not stated in the title to the land (i.e. a floating reservation), the Minister may decide the boundaries of the reservation. In this regard, the plan of resumption must identify the area resumed as a lot and an allocation certificate must allocate the area of public purpose reservation resumed to the lot. If only part of the public purpose reservation area is resumed, the balance area of the public purpose reservation must be allocated to the balance title.

Signature of the allocation certificate by the Minister's delegate is required and will be accepted as the Minister's decision in terms of section 26(1).

If the land is intended for road purposes or a community purpose under the *Land Act 1994*, the plan of resumption must identify the area resumed as a lot and a dedication notice must be lodged with the plan.

3.36 Resurveys

Standard under the SMI Act

A resurvey is a plan of subdivision under section 49 of the *Land Title Act 1994* and section 290E of the *Land Act 1994*.

A resurvey is usually carried out with the view to correcting the dimensions of a parcel of land.

On registration, the description of the land changes to the new lot on plan shown on the plan of resurvey and a new title, deed, lease or deed of grant in trust will issue.

The title of the plan is to be shown as:

Lot # being a Resurvey of Lot # on RP#####

Cancelling Lot # on RP#####

It is preferable to use the original lot description as the new lot number.

Resurveys do not require local government consent.

There can be more than one resurvey on the one plan or a resurvey and a secondary interest etc.

For **State land** where the lot has not been previously surveyed, the plan should **not** be presented as a plan of resurvey of the lot, but rather a plan of the lot. For a resurvey of a freeholding lease, term lease (other than a State lease) or a perpetual lease, the plan must be accompanied by a statement of intent.

If a lot is the subject of a conditional consent, the plan of resurvey should make reference to the conditional consent on the original plan in item 6 on the reverse of the plan of resurvey (see section 5.15.1 *Consent shown on plan only*).

3.37 Survey records

Standard under the SMI Act

See section 3.11 *Compiled plans*, page 23.

Survey records must be lodged where information cannot be conveniently shown on the plan or is additional in support of the survey. The survey records would include information such as reinstatement reports, creek traverses, encroachment advices, information which is not publicly searchable in the department, etc. Survey records for lodgement must be clearly identified as survey records and must include a completed Form 12 certificate in accordance with section 21(1) of the *Survey and Mapping Infrastructure Regulation 2014*.

Sufficient survey records must be deposited with the plan of survey to ensure that a complete record of the survey is available to the department. The survey records need not be in the traditional field note form but should be no larger than A4. Survey records must have a cover or cover sheet that contains the following information:

- a description of the survey (in most cases the lots numbers being created)
- a description of the lots being cancelled
- the locality and local government names
- the surveyor's name
- the plan number to which they refer.

Ideally the cover or cover sheet should be of heavier-grade paper than the other pages.

If a report is to accompany survey records, the report and survey records must be the same size and be securely bound together.

Where a surveyor uses methods and/or equipment that involve a significant departure from conventional survey practice, in order to demonstrate that such method and/or equipment is capable of achieving the survey standard, the surveyor must submit with the survey records sufficient information to identify the methods and/or equipment used.

When additional data is lodged in support of the survey (e.g. creek traverse offsets), this information must be indicated in the appropriate box on the face of the plan:

F/Ns: YES / NO

When the plan of survey refers to a set of survey records for a different plan, the box should be completed referring to that plan:

F/Ns: YES / Under SP#####

3.38 Surveys using remotely sensed data

Standard under the SMI Act

See section 3.34 *Remote area surveys*, page 48.

The Registering Authorities are able to accept the use of remotely sensed data for some types of cadastral survey. Surveys using remotely sensed data are appropriate where the boundary can be clearly identified on the ground and on the photograph, imagery or digital model, eliminating the need for marking. This means that the boundary will follow an existing structure (e.g. fence) or a prominent natural feature such as a ridge or watercourse.

In many cases suitable photography, imagery or digital terrain model may already be available from the department or non-government organisations.

- If the source is imagery or data held by the department (e.g. in the State remotely sensed image library held under the *Survey and Mapping Infrastructure Act 2003*), sufficient information must be provided on the plan or in the survey records to identify the specific image or model used. Further information must also identify the structure or feature adopted in the image or model.

- If the source is imagery or data that is not held by the department, in addition to the above requirements, data including relevant metadata must be provided with the survey records in a form that would enable a surveyor to compile the location of the structure or feature from the data provided.

The following further requirements apply to surveys using remotely sensed data:

- The photography, imagery or digital model must be transformed or rectified to integrate with the adjoining cadastral surveys.
- The appropriate method used to establish the relationship between the imagery or digital model and the cadastral survey, must be documented in the survey records deposited with the plan.
- The computed bearings and distances must meet the measurement accuracies specified in sections 3.4.2 *Measurement accuracy* or 3.30 *Profit a prendre* as appropriate.
- Measurement and computation from the remotely sensed data must be undertaken by a suitably qualified person.

3.39 Town and pasturage reserves

Standard under the SMI Act

See section 5.17 *State land actions*, page 80.

See section 9.2 *Action statements*, page 102.

For **all** actions involving the allocation or dedication of part of an area of a town or pasturage reserve, a plan of the respective lot and the balance of the reserve showing its amended area must be prepared as part of the dealing and recorded against the reserve title.

The survey standard of the new lot and the balance lot must not be any lesser than the standard that applies to the reserve that is being dealt with. That is, if the action involves reserve that is fully surveyed, both the new lot and the balance lot must be fully surveyed, to maintain the fully surveyed status of the parcel.

For those reserves that are not described by a current survey plan, the department will progressively prepare a survey plan of each reserve as it currently exists taking into account all the areas that have been excised out over the years. Once this new plan has been prepared and an area of the reserve calculated, a requirement for all future dealings involving excisions from the reserve will be the preparation of a balance plan of the reserve. The surveyor who is undertaking the excision survey will be able to obtain a copy of the digital file for the reserve in order to prepare the balance plan.

3.40 *Transport Infrastructure Act 1994*

Information

The objective of the *Transport Infrastructure Act 1994*, in association with the *Transport Planning and Coordination Act 1994*, is to achieve overall transport effectiveness and efficiency through strategic planning and management of transport resources. Land tenure management of transport land under these Acts is effected through declared transport corridors for specific transport purposes—State toll road, local government tollway, rail transport, busway and light rail. Corridor land is held by the State under perpetual leases for a gazetted transport purpose with subleases to transport corridor operators. Sections 157, 183, 204, 211 and 336(2)(a) of the *Land Act 1994* do not apply to a lease or sublease of transport corridor land.

A transport perpetual lease may cover a large number of lots (see rail transport corridor perpetual lease no. 208003). The Registrar of Titles may decide it is more appropriate for separate transport infrastructure titles to be created for particular corridors or for particular regions (e.g. transport infrastructure title no. 48000011 was created for rail transport corridor land in the Shire of Carpentaria). The purpose of transport corridor land may change in response to government or community requirements.

Ministerial consent is not required for a plan of subdivision that subdivides or amalgamates land subject to a transport perpetual lease (i.e. transport corridor land) or excludes land from a transport corridor lease due to a declaration under the *Transport Infrastructure Act 1994*. However, ministerial consent is required if the transport corridor land is being amalgamated with adjoining land, dedicated as public use land (including road) or surrendered from a transport perpetual lease. Land surrendered from a transport

perpetual lease becomes USL.

Land may be included into and surrendered from a transport perpetual lease. Land may also be included into and surrendered from a sublease of a transport perpetual lease. Ministerial approval is not needed for an amendment of a sublease. Consequently, the descriptions of transport perpetual leases and subleases held by the relevant transport corridor operator may be continually amended. Any amendment to the description of the transport perpetual lease is accompanied by an amendment to the description of the sublease to the transport corridor operator. Land subject to a sublease to a transport corridor operator cannot be defined by part of a lot.

All transport corridor land, except for rail corridor land, needs to be declared under the *Transport Infrastructure Act 1994*. The survey requirements for State toll road, local government tollway, busway and light rail corridors are the same as for the rail corridor.

3.40.1 Queensland Transport rail corridor lease and sublease

Information

Over a number of years the rail network within Queensland (formerly owned and operated by Queensland Rail) has undergone a tenure change.

In general terms, the rail network has been fully identified and leased in perpetuity to The State of Queensland (represented by the Department of Transport)⁵. The lease reference is perpetual lease no. 208003 (title reference 40008706).

The major part of perpetual lease no. 208003 was then subleased to Queensland Rail, being a body corporate established pursuant to the *Government Owned Corporations Act 1993*. The sublease reference is sublease no. 701720343.

Survey plans, consisting of both fully surveyed and compiled (unsurveyed), exist for the whole of the perpetual lease and the sublease.

Because the land is subject to the provisions of the *Land Act 1994* and the *Transport Infrastructure Act 1994*, plan requirements are different to those of a lease issued under the *Land Act 1994* alone.

3.40.2 Amendments of Queensland Transport rail corridor lease and sublease

Standard under the Transport Infrastructure Act

As the rail network forms part of the State's transport corridor land, it will be necessary to adjust parts of the perpetual lease and the sublease.

For example:

- Queensland Rail may surrender its interest in part of the sublease and the part surrendered may then be subleased to another railway manager
- Queensland Rail may surrender its interest in part of the sublease and Queensland Transport may then surrender that part of the land to the State in order that it may be opened as road
- road may be closed and included into the perpetual lease and then added to a railway manager's sublease.

Section 336(2)(a) of the *Land Act 1994* states that a document of amendment may not increase or decrease the area subleased but section 262 of the *Transport Infrastructure Act 1994* states that rule does not apply to a lease of existing rail corridor land, new rail corridor land or non-rail corridor land (perpetual lease no. 208003 covers existing rail corridor land, new rail corridor land and non-rail corridor land).

By provision of section 262 above, the area of a railway managers sublease may be increased or decreased by a document of amendment.

⁵ The Department of Transport is now Queensland Transport.

In consequence, normal procedures relevant to plan preparation and presentation to adjust a lease under the *Land Act 1994* do not apply.

Land subleased to a railway manager must cover the whole of a lot.

3.40.2.1 Excisions from or subdivision of Queensland Transport rail corridor lease and sublease

Standard under the SMI Act

The whole of the rail corridor lot being affected must be dealt with. The area to be excised or subdivided is required to be shown as new road and a new lot for the balance must be created. Supporting documents will be lodged with the plan to amend the description of the corridor lot and to dedicate the new road.

Alternatively the area required as new road could be shown as a new lot with a following action to dedicate that land as new road. The use of statements such as 'area to be excised, 1-2-3-1 10 m²' is unacceptable. Freehold and leasehold land cannot be dealt with on the same plan.

3.40.2.2 Additions to Queensland Transport rail corridor lease and sublease

Standard under the SMI Act

Additions to the perpetual lease, or to a railway manager's sublease, are required to be described as either a separate lot on plan or amalgamated with the adjoining corridor lot, in accordance with the letter of offer.

3.40.3 Common areas for Queensland Transport over rail corridor land

Standard under the SMI Act

The *Transport Infrastructure Act 1994* (sections 26, 84B, 85A, 105I, 249 and 303A) enables 'common area' to be declared where certain road corridors (State-controlled road, State toll road, franchised road and local government tollway) cross railway and busway. Sections 253 and 358 of the *Transport Infrastructure Act 1994* allow the Minister to give permission for a local government to construct, maintain and operate a road on rail and light rail corridor land. A permission given under these sections is dealt with in the same manner as common areas.

3.40.3.1 Common area in rail corridor land

Section 24 of the *Transport Infrastructure Act 1994* allows the Minister to declare a State-controlled road. Section 26 empowers the Minister to declare a road or route, or part of a road or route, that is declared a State-controlled road, that crosses rail corridor land and continues on the other side of the rail corridor land to be a State-controlled road.

If the Minister decides to declare the road or route, or part of the road or route, to be a State-controlled road, the Minister must, when making the declaration, declare in the gazette notice the part of the rail corridor land where it is crossed by the road or route to be a 'common area' for the rail corridor land and the State-controlled road.

The 'common area' to be declared is required to be described on a survey plan as a secondary interest. That is, the title of the plan will be:

'Lot <alpha> in Lot <number> on Plan <number>'.

The surveyed status of the common area will be the same as the affected lot. However, where the common area intersects any boundary of the affected lot, which is in a surveyed state, then that common area boundary must also be fully surveyed. This applies even if the whole of the affected lot is not in a fully surveyed status.

The Registrar of Titles must record the declarations on the relevant lease of the rail corridor land to the State and any affected sublease in the leasehold land register (section 26(7)(b) of the *Transport Infrastructure Act 1994*).

3.40.3.2 Common area in road adjacent to rail corridor land

Section 249 of the *Transport Infrastructure Act 1994* allows the Minister to declare part of a road as common area.

The 'common area' to be declared must be described on a survey plan as a secondary interest. The title of the plan will be:

'Lot <alpha> in road adjacent to <Lot-on-plan>'.

A notation is required on the back of the plan to assist in the registration process. The notation required is:

Lot <Alpha> is proposed to be declared as a Common Area under Section 249 of the Transport Infrastructure Act 1994

The surveyed status of the common area must be the same as the adjoining lots. However, where the common area intersects any boundary, which is in a surveyed state, that common area boundary must also be fully surveyed. This applies even if the whole of the adjoining lots are not fully surveyed.

3.41 Unallocated State land (USL)

Information

See section 3.10 *Changing deeds of grant, reserves, leases and trust land*, page 21.

See section 5.17 *State land actions*, page 80.

See section 9.2 *Action statements*, page 102.

As of 2 October 2006, all unallocated State land (USL) other than roads, watercourses and land beyond a tidal boundary was allocated a lot-on-plan description and recorded in the Automated Titles System (ATS) with a USL title.

Standard under the SMI Act

For **all** actions involving the allocation or dedication of part of an area of USL that currently has a lot-on-plan description, a plan of the respective lot and the balance of the USL showing its amended area must be prepared as part of the dealing and recorded against the USL title.

The survey status of the new lot and the balance lot must not be any lesser than the status of the USL that is being dealt with. That is, if the action involves USL that is fully surveyed, both the new lot and the balance lot must be fully surveyed, to maintain the fully surveyed status of the parcel.

- If the action involves USL that is a lot on a survey plan, it must be actioned by a survey plan.
- If the action involves USL that is a lot on an administrative plan, it may be actioned by an administrative plan or a survey plan. However, if the respective lot or balance lot is to be granted in fee simple, leased, dedicated as reserve or dedicated as road adjoining a surveyed parcel, then it must be actioned by a survey plan. An exception to this is when the dimensions of the USL are not readily identifiable, in which case it may be actioned by an administrative plan with the new lot then being cancelled by a survey plan.

3.42 Undescribed balances

Standard under the SMI Act

See section 3.8 *Cancelling clause*, page 19.

See section 11.11 *Paper subdivisions*, page 144.

See the *Registrar of Titles directions for the preparation of plans*, Direction 4.17 'Undescribed balances', <www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97198/rdpp-section-4.pdf#page=7>.

Any plan which cancels an undescribed balance of a freehold title requires local government consent since it is a subdivision under the provisions of section 50 of the *Land Title Act 1994*. The description will be:

Lot # cancelling balance of Lot # on RP#####

3.43 Unsurveyed and/or calculated boundaries

Standard under the SMI Act

See section 3.11.1 *Subdivision by compiled plan*, page 24.

See section 9.8 *Calculated lines*, page 107.

See section 11.11 *Paper subdivisions*, page 144.

Unsurveyed and calculated boundaries may be used as lot boundaries in the following circumstances.

3.43.1 Opposite side of road unsurveyed

See section 3.11.1 *Subdivision by compiled plan*, page 24.

Where a road boundary is surveyed on one side only, but all the secant points on the unsurveyed side have previously been marked, the unsurveyed side may be used as a boundary. The dimensions on the unsurveyed side must be shown as calculated ('Calc') if they have not been shown on a previous plan, or as original ('Orig') if they have been shown on a previous plan. In each case, the boundaries must be shown as full lines.

3.43.2 Other unsurveyed boundaries

See section 3.11.3 *Compiled plan of an unsurveyed parcel*, page 25.

See section 9.8 *Calculated lines*, page 107.

In general, the boundaries of a freehold parcel must be fully surveyed. However, small sections of a boundary that can be calculated from other plans may be accepted in isolated areas. The unsurveyed part of the boundary is shown as a broken line, with a statement on the plan advising that specified lines on the plan have not been surveyed and that future actions (dealings) may require that these unsurveyed boundaries be fully surveyed. For example:

Lines 1–4 have not been fully surveyed and future dealings may require these boundaries to be surveyed.

Where lengthy sections of boundaries have never been surveyed (boundaries not marked or cleared)—for example, in extremely rough and broken terrain—they may be accepted on subsequent plans. The dimensions may be compiled from the original plan of the land, and a balance area determined. In cases of doubt, the local senior surveyor should be contacted for advice.

3.44 Vincula

Standard under the SMI Act

See section 3.6.4 *Multiple line areas*, page 17.

See section 3.6.5 *Part lots*, page 18.

See section 3.18 *Dimensions*, page 30.

See the *Registrar of Titles directions for the preparation of plans*, Direction 8.4.2 'Severed lots joined by vincula', <www.dnrm.qld.gov.au/__data/assets/pdf_file/0020/97202/rdpp-section-8.pdf#page=2>.

Vincula may be used to bind severances of the same lot where the land is severed by:

- a watercourse
- a road
- a railway
- a stock route
- a channel/drain
- a reserve
- any other transport infrastructure corridor
- any combination of the above features.

A vinculum cannot be used to bind together land that is severed by lot(s) that do not form part of a transport infrastructure corridor. In this case, the provisions of *Registrar of Titles directions for the preparation of plans*, Direction 8.4 Part lots, <www.dnrm.qld.gov.au/__data/assets/pdf_file/0020/97202/rdpp-section-8.pdf#page=2>, may be applicable.

Where vincula are created:

- the severances being bound must be adjacent across the dividing feature, for at least part of their frontages to the feature
- the area of the lot may be calculated from the sum of the areas of the individual severances, or be obtained by calculating the total area enclosed within the outer boundaries and subtracting the area of any enclosed feature. In either case, only the net area is shown and calculated to four significant figures. A three (or more) line area is not to be shown, unless there are section 23 of the *Land Act 1994* exclusions.

Where one or more of the severances of a new lot is fully or partly surveyed along the dividing feature on the plan creating that lot, the relationship of those severances of the lot to each other severance must be clearly shown by surveyed connections.

Where one or more of the severances is compiled along the dividing feature, it is preferred, but not necessary, to show surveyed connections; however, it must be possible to accurately plot the relative location of the severances from the relationships shown on previous maps or plans, or from other information acceptable to the department. The meridian used must be common to all parts of the lot.

Note: Where a lot is severed by roads, watercourses, etc. it may be defined as either part lots or by using vincula. It is not permissible to mix vincula and part lots for the one lot.

4 Physical feature boundaries

Information

See section 1.3 *Definitions and conventions*, page 1.

The surveying profession uses the term ‘ambulatory boundaries’ to describe boundaries which are defined with respect to a natural feature and are subject to the doctrine of accretion and erosion – that is, they can move gradually and imperceptibly due to natural processes. These boundaries become fixed following a sudden change to the feature, and so are no longer ‘ambulatory’. The continued use of the term ‘ambulatory boundaries’ as a descriptor to include boundaries that have become fixed has led to confusion in some instances. To avoid this confusion, the term ‘physical feature boundary’ is used as a collective term, and is defined as follows (see section 1.3 *Definitions and conventions*):

“*physical feature boundary*, of land, means a boundary of the land whose location follows a physical feature, either natural or artificial, that;

- exists now; or
- used to exist, and no longer exists.”

There are a number of types of physical feature boundaries:

- water boundaries, including tidal boundaries and non-tidal boundaries under Part 7 of the *Survey and Mapping Infrastructure Act 2003* (see section 1.3 *Definitions and conventions*);
- other natural feature boundaries, such as cliffs and watersheds; and
- artificial feature boundaries, such as a constructed rock wall that has been adopted as a boundary.

Physical feature boundaries can be either ambulatory or fixed. Artificial feature boundaries are always fixed, while water and other natural feature boundaries are ambulatory if they have not become fixed due to a sudden change.

Since physical feature boundaries are not right line boundaries, they are represented on plans as ‘curvilinear’ or ‘irregular’ boundaries.

4.1 Water boundaries – General

Information

See Appendix F *Reports*, page 166.

Part 7 of the *Survey and Mapping Infrastructure Act 2003* provides for the definition and surveying of the boundaries of land bounded by tidal or non-tidal water. Surveyors are encouraged to familiarise themselves with the following key concepts in Part 7:

- Location at law (throughout Part 7)
- Ambulatory boundary principles (definition – Section 62)
- Source material (definition – Section 62)
- Associated material (definition – Section 62)
- Plans of survey—old, new and reserved (definitions for old & new – Section 62; reserved – section 65)
- Exemption from the rules for surveying boundaries (Section 66 – tidal; Section 95 – non-tidal)
- Boundary location criteria (Section 72 – tidal; Section 100 – non-tidal)
- Declarations (Section 83 – single lot, tidal; Section 93 – multiple lot, tidal; Section 109 – single lot, non-tidal; Section 120 – multiple lot, non-tidal)
- Review and Appeals (Division 6, Sections 122 – 130)

Explanations of these concepts were included in a previous version of this document, but have been removed to avoid the potential for conflict between the explanations and the legislation itself.

Appendix F contains further information that may assist surveyors in determining the information that is to be included in a survey report for a plan under Part 7 of the *Survey and Mapping Infrastructure Act 2003*.

4.2 Surveying tidal and non-tidal water boundaries

Standard under the SMI Act

See section 9.53 *Watercourses—tidal and non-tidal*, page 131.

See section 3.38 *Surveys using remotely sensed data*, page 54.

Where the location of a water boundary is determined by direct measurement of a series of points along the watercourse, using means of measurement such as radiations, traverse and offset or GNSS, the following requirements apply, to ensure that all measurement and attribute information is available on the survey plan:

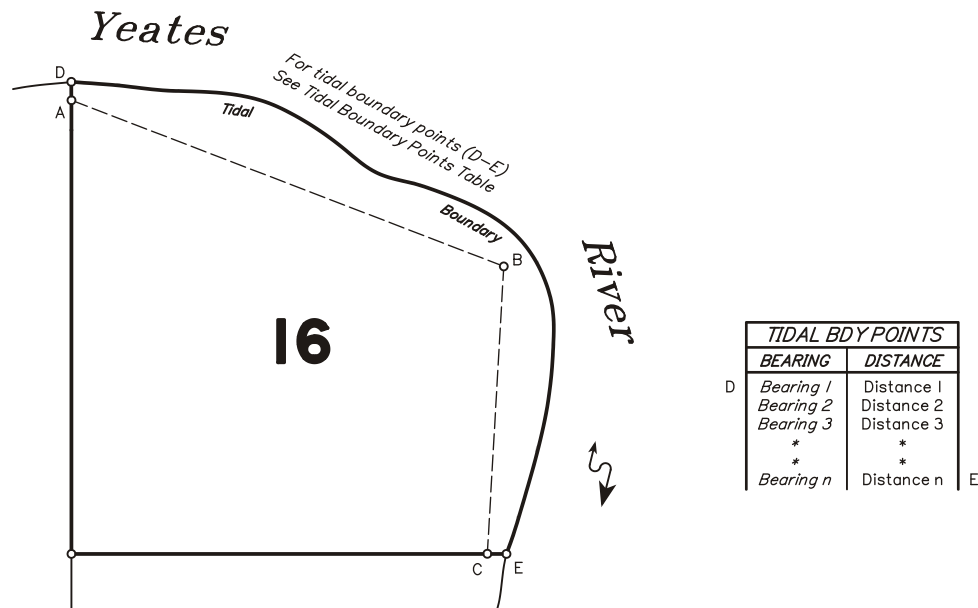
- Where new source material is being introduced, the natural feature or other thing that constitutes the water boundary must be clearly identified and described, either on the plan itself or in the field notes or report.
- Right line boundaries leading to the water boundary should be marked to a high standard with a reasonable level of redundancy, because the later reinstatement of the survey relies on its connection to these ‘side boundaries’ (as an option to strengthen the redundancy, this could include connection to the State control survey).
- The plan must not show station symbols at every measured point along the water boundary. Instead, there must be a tabulation of the bearings and distances between the points measured along the boundary, without station numbers, and a statement along the boundary that the measured points lie on the boundary (e.g. D–E in the diagram below). A limited number of points may need to be shown on the boundary to indicate the location of the tabulated information (e.g. D and E in the diagram). There must be a statement along the water boundary referring to the tabulated measurements between the points. For example:

for river boundary points (D–E) see River Points Table

for creek boundary points (D–E) see Creek Points Table

for tidal boundary points (D–E) see Tidal Boundary Points Table.

- The plan must show a curvilinear presentation of the boundary.
- On the watercourse or tidal water side of the water boundary, the appropriate water body must be named (e.g. Nerang River, Baffle Creek, Moreton Bay, Sandy Strait, Portland Road, Cooper Creek etc). In the case of tidal boundaries the boundary must also be labelled ‘tidal boundary’ (or abbreviation ‘tdl bdy’) along its frontage, reflecting the new term as used in Part 7 of the *Survey and Mapping Infrastructure Act 2003*. Terms such as High Water Mark or HWM must not be used.
- Where the location of a water boundary has become fixed due to physical change which was not gradual and imperceptible, the boundary must be labelled as “(fixed)” – for example: tidal boundary (fixed) or creek (fixed).
- The plan may show the watercourse traverse where a water boundary has been surveyed (e.g. A–B–C in the diagram below).
- Remotely sensed data may be used to survey all or part of a water boundary, provided it meets the requirements of section 3.38 *Surveys using remotely sensed data*.
- Also see section 9.53 *Watercourses—tidal and non-tidal* for further details on the plan presentation of water boundaries.



4.2.1 Plan notations

To assist with the future use of the plan, each plan of survey of land that is lodged for registration after 7 May 2010 (including plans signed before 7 May) and has a water boundary, must bear the required notation which relates the method of defining the boundary to the relevant provision of the *Survey and Mapping Infrastructure Act 2003*, regardless of whether the boundary is surveyed or compiled. The required notation, and the supporting evidence required, is set out in the table below. Notations may require minor modification in certain circumstances to reflect the actual situation. The notation should be placed as close as possible above the description box on sheet 1 of the plan.

Notation	Evidence Required
For a reserved plan of survey <i>Reserved plan of survey under section 65(4)(a)(i), (ii) or (iii) * of the SMI Act</i> [*include only the relevant subsection reference]	The approval letter from the Registrar of Titles or from the chief executive must be lodged
For a plan of exempt land with a tidal boundary <i>Exempt land under section 66(1)(a), (b), (c), (d) or (e) * of the SMI Act (land with a specified tidal boundary, indigenous land, strategic port land, forest reserve, protected area or State Forest #)</i> [*include only the relevant subsection reference] [#include only the relevant descriptor] [If only some of the land on the plan is exempt land, identify the exempt land. For example "Lot x is exempt land ..."]	A report with the plan or in field notes must contain evidence that the plan satisfies exemption rules. Note: If the status of land relating to the exemption is revoked, a noting of advice can be placed on the register using the power in s. 69(1)(a) that a resurvey is likely to result in the tidal boundary being in a different location
For a plan of exempt land with a non-tidal watercourse boundary <i>Exempt land under section 95(1)(a), (b) or (c) * of the SMI Act (indigenous land, forest reserve, protected area or State Forest #)</i> [*include only the relevant subsection reference] [#include only the relevant descriptor] [If only some of the land on the plan is exempt land, identify the exempt land. For example "Lot x is exempt land ..."]	A report with the plan or in field notes must contain evidence that the plan satisfies exemption rules. Note: If the status of land relating to the exemption is revoked, a noting of advice can be placed on the register using the power in s.98(1)(a) that a resurvey is likely to result in the non-tidal boundary being in a different location.
For a first new plan of survey <i>First new plan of survey under section 80, 81, 82, 83, 108, 109 or 110 * of the SMI Act</i>	A report with the plan or in field notes must contain evidence that the plan satisfies the standards.

Notation	Evidence Required
[*include only the relevant section reference]	
For a subsequent new plan of survey <i>Subsequent new plan of survey under section 86 or 113* of the SMI Act. For first new plan see [plan number]</i> [*include only the relevant section reference]	A report with the plan or in field notes must contain evidence that the plan satisfies the standards.
For any plan of survey using new source material <i>Tidal boundary defined using new source material under section 89 of the SMI Act or</i> <i>Watercourse boundary defined using new source material under section 116 of the SMI Act</i>	A report with the plan or in field notes must contain sufficient information to identify unambiguously the feature or other thing adopted as the boundary.
For a plan of secondary interests only No notation is required.	Note: A plan of survey which is a survey of secondary interests only (i.e. it does not reconfigure the land) is not a plan of survey for the land, so does not affect the location at law of the water boundary. Such a plan is not a first new plan of survey or a subsequent new plan of survey for the land.
Single lot declaration <i>First new plan of survey under section 83 or 109* of the SMI Act</i> [*include only the relevant section reference]	See section 4.6 <i>Single lot declarations (tidal and non-tidal)</i>
Multiple lot declaration <i>Tidal boundary follows multiple lot declaration under section 93 of the SMI Act, on AP123456*</i> or <i>Watercourse boundary follows multiple lot declaration under section 120 of the SMI Act, on AP123456*</i> [*Refer to AP Plan containing Gazettal date.]	Note: The declaration process involves making an AP showing the line on which the proposed declaration decision is based. Once all avenues of review and appeal regarding the proposed declaration have been exhausted, the declaration is Gazetted and the AP is updated to include the date of the Gazettal notice.

4.3 Compiling tidal and non-tidal water boundaries

Information

See section 9.53 *Watercourses—tidal and non-tidal*, page 131.

See section 3.11 *Compiled plans*, page 23.

The water boundaries provisions of the *Survey and Mapping Infrastructure Act 2003* provide that the location of the boundary at law may change on registration of a first new plan of survey (section 78 for a tidal boundary; section 106 for a non-tidal watercourse boundary).

Under certain circumstances it is permissible to represent the water boundary on a first new plan of survey or a subsequent new plan of survey using compiled information, provided that the representation is “to the greatest practicable extent ... consistent with the location at law of the boundary”.

The new provisions regarding compilation of water boundaries are more restrictive than was permitted prior to their commencement. This is because, either at commencement of the legislation or on registration of the first new plan of survey, the location of the boundary at law is different to its location before commencement, and it is appropriate to ensure that plans realistically depict the location of the boundary under the new regime.

Standard under SMI Act

Where a plan is to be prepared using compiled information to depict the location of the water boundary, the presentation of the plan of survey must be consistent with the requirements of section 4.2 *Surveying tidal*

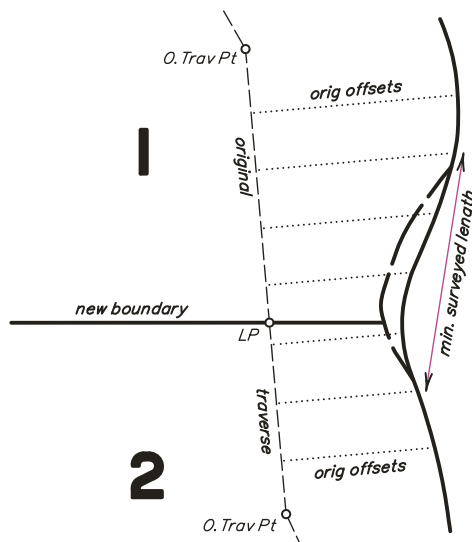
and non-tidal water boundaries.

While traverses of watercourses may be shown on the plan where a water boundary has been surveyed, there is no necessity to show the original traverse when compiling the water boundary. When compiling the water boundary, the original catalogue number shown along the watercourse must be shown. Where the survey is a subsequent plan of survey, the catalogue number shown along the watercourse is that of the first new plan of survey.

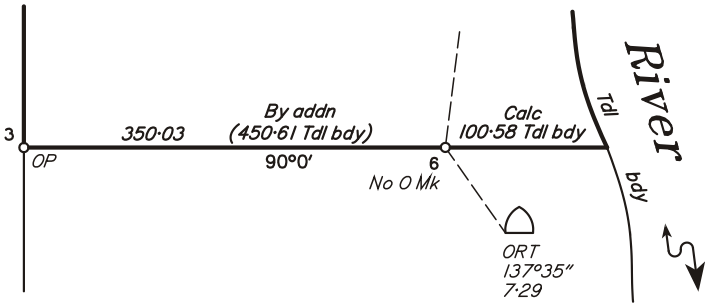
Where a calculated area is shown for a lot, the original watercourse dimensions must be shown in a points table, except for cases involving a vast number of original creek, river or tidal boundary points, where the original plan number shown along the watercourse boundary will suffice, provided survey records are lodged. Additional information supporting the calculation of the area may be recorded in the survey records lodged with the plan. A points table may contain both original and surveyed watercourse dimensions.

Information from a source other than a previous plan of survey (e.g. identification survey, railway book, Main Roads survey, mining survey, etc) may be used to compile a water boundary, provided it meets the requirement of Section 62 of the *Survey and Mapping Infrastructure Act 2003* that the information must be “searchable registered, or otherwise authoritative, information held by the chief executive (land) or the Registrar of Titles”.

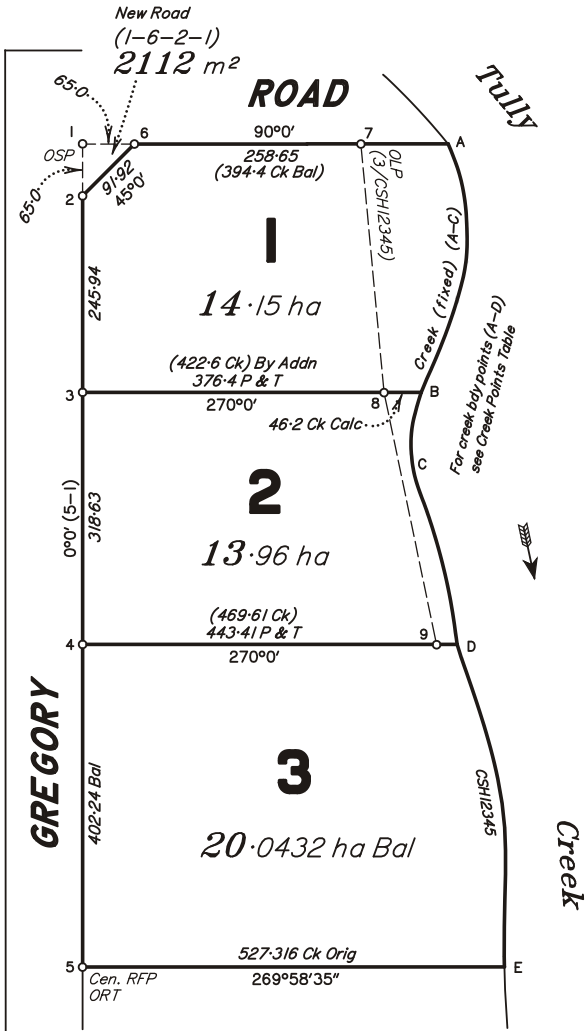
Where a plan contains a combination of a survey of part of a tidal or non-tidal boundary, and a compilation of the relevant length under sections 79, 85, 107 or 112, the extent of the surveyed part must be sufficient to provide continuity with the compiled part. For example, where a new right line boundary intersects an existing non-tidal watercourse boundary, and the relevant length is being compiled under sections 107 or 112, the extent of the part surveyed will as a minimum be between the offset points on the watercourse boundary either side of the right line boundary intersection where the watercourse boundary is generally in the same location as determined by the previous plan.



Where a new right line boundary intersects an existing **tidal** boundary, and the location of the tidal boundary is adopted from original survey information, the newly surveyed right line boundary would be surveyed in part to a mark, with the remaining segment of that boundary being calculated to intersect with the original tidal boundary. The last segment of this line would be qualified as “calc” with an additional qualification as ‘Tdl bdy’ or ‘Tidal boundary’. The overall distance for the line must be shown as ‘by addition’. For example:



Note that while a calculated distance to the watercourse is permissible for a tidal boundary, this is not permissible for a non-tidal watercourse boundary, except in the following situation. If there has been sudden change, the non-tidal watercourse boundary is located where the natural feature was before the sudden change occurred. If the plan of survey is using the previous plan to determine the location of the feature before the sudden change occurred, then the relevant length is being compiled from that plan. In this situation, it is permissible to show a calculated distance on a new right line boundary that intersects the non-tidal watercourse boundary. For example, 8-B in the diagram below:



CREEK POINTS		
	BEARING	DISTANCE
A	152°35'10" orig	28.63 orig
	168°42'25" orig	46.75 orig
	181°10'15" orig	53.22 orig
	194°40'30" orig	57.0 orig
	201°15'05" orig	50.78 orig
B	196°42' orig	87.7 orig
	185°53'15" orig	45.17 orig
	180°10'30" orig	51.26 orig
	165°40'30" orig	59.7
	163°15' orig	73.6
C	170°27'30" orig	95.44
D		

Creek Points compiled from CSH12345.

Original information compiled from CSH12345 in the Department of Natural Resources and Mines.

First New Plan of Survey under s.108 in so far as relates to (C-D) and s.110 in so far as relates to (A-B-C).

4.4 Plans of survey of a secondary interest only

Information

A plan of survey which is a survey of secondary interests only (i.e. it does not reconfigure the land) is not a plan of survey for the land, so does not affect the location at law of the water boundary. Such a plan is not a

first new plan of survey or a subsequent new plan of survey for the land.

Standard under SMI Act

On a plan of survey of a secondary interest only that has a water boundary, the location of the water boundary of the secondary interest may be either compiled from the current plan of survey for the land or determined by surveying the relevant part of the water boundary of the land.

Where the water boundary is surveyed, the feature surveyed is the feature that constitutes the current location at law of the water boundary. In general, this will be the natural feature or other thing that constitutes the boundary on the current plan of survey for the land. The remainder of the water boundary of the land may be compiled.

Where a secondary interest extends to the water boundary (and the water boundary is compiled), the intersection of the secondary interest boundary with the water boundary may be calculated using the information that was used to prepare the current plan of survey for the land. The newly surveyed right line boundary would be surveyed in part to a mark, with the remaining segment of that boundary being calculated to intersect on to the original water boundary. The last segment of this line would be qualified as 'calc' with an additional qualification as to the particular feature 'Ck' or 'Riv' or 'Tidal boundary'. The overall distance for the line must be shown as 'by addition'.

Where the water boundary is compiled, a calculated area can be determined for the secondary interests using the source information (e.g. the original traverse and offsets from the survey records of the original survey). A river points table must be provided, for both surveyed and compiled information along the water boundary if a calculated area is shown.

Guideline under Standard 4.4 Plans of survey of a secondary interest only

In circumstances, where the location of the water boundary is critical to the secondary interest (for example, where the area of a lease over freehold land is relevant to its definition), consideration should be given to surveying the water boundary of the secondary interest. See section 4.2 *Surveying tidal and non-tidal water boundaries*.

4.5 Reporting requirements for surveys

Standard under the SMI Act

See **Appendix F Reports**, page 166.

Reports prepared in accordance with the examples in Appendix F must satisfy the requirements of this standard. In some instances, they will require the surveyor to provide references to, or copies of, information, to support the statements made or conclusions drawn in the report. A report that consists of text only may be provided by inclusion on the survey plan (face of plan or additional sheet), if appropriate. A report that contains non-textual information must be deposited as survey records with the survey plan.

4.5.1 Plans of survey

Where a plan of survey (first new plan of survey, subsequent plan of survey or plan of survey of secondary interest only) involves a survey of a water boundary, the following information must be provided:

- a report addressing:
 - a clear description of the natural feature or other thing that constitutes the water boundary (supported by photographs where relevant)
 - if boundary location criteria are being used to identify the feature that constitutes the boundary, how each of these are satisfied by the adopted feature in its surveyed location (including, where relevant, the public interest assessment. See section 4.8 *Public interest assessment (tidal)*)
 - where relevant to the current determination, a description and location and extant evidence of the natural feature adopted by the original surveyor and/or any subsequent surveys
 - where the feature that constitutes the water boundary was adopted on a previous survey and there has been significant movement of the feature, a description of the

investigation undertaken, and the evidence identified, to establish how such movement has satisfied the relevant aspect of the ambulatory boundary principles (see s.62 of SMI Act) (i.e. was it, or was it not, 'gradual and imperceptible', and what is the basis for that conclusion?).

- where relevant to the current determination, an assessment of the stability and permanency of the feature
- where sudden change has affected the land (flood, storm or human activity), evidence of the former location of the adopted feature
- reference to the relevant provisions of the *Survey and Mapping Infrastructure Act 2003* under which the water boundary has been surveyed
- where there has been a significant change in the watercourse, evidence that the new location of the boundary does not affect the property on the opposite side of a watercourse. If it is apparent that there has been such a significant change in the watercourse and subject to the ambulatory boundary principles, the new location of the boundary extends into the area that is included on a current survey plan of land on the other side of the watercourse, the requirements as per sections 17 and 18 of the *Survey and Mapping Infrastructure Regulation 2014* apply.

4.5.2 Plans with compiled water boundary information

Where plans of survey involve the compilation of a water boundary, the following additional information (as appropriate) must also be provided:

- a description of how the requirements of the relevant section of the *Survey and Mapping Infrastructure Act 2003* (Section 79, 85, 107 or 112) have been met, to allow the relevant length of the water boundary to be compiled, (including how the size and nature of the land and the water boundary make it impracticable to resurvey the water boundary)
- a description of how it was confirmed that the compiled boundary is to the greatest practicable extent, consistent with its location at law.

A plan of survey of secondary interest only that has a water boundary compiled from the current plan of survey for the land is not required to provide a survey report.

4.6 Single lot declarations (tidal and non-tidal)

Information

Section 83 and section 109 of the SMI Act provide for the chief executive to make a single lot declaration about the location of the water boundary, but only where the circumstances set out in the relevant section apply (s.83(5) - tidal or 109(4) - non-tidal). The declaration may be made only after a surveyor has lodged a plan, or has deposited a plan with the intention to lodge it at a later date. The chief executive or Registrar of Titles can defer dealing with the plan in order to investigate the matter and make a declaration. There is an extensive notification and appeal process which must be exhausted before the declaration can be made. Therefore, where a surveyor anticipates that it may be necessary to obtain a declaration in relation to the boundary, it is desirable that the surveyor seek advice from the department prior to finalizing and depositing a plan, to minimise delays in the registration of the plan.

Standard under the SMI Act

On request from the chief executive, the surveyor must provide the following in relation to the water boundary:

- evidence that the relevant circumstances exist for a declaration
- documented reasons, supported by evidence of any investigations carried out, why one of the other rules cannot, or should not, be adopted to define the boundary
- a proposed location for the boundary and the rationale and supporting evidence for that location, based on the provisions of the relevant single lot declaration section of the SMI Act.

4.7 Certification of a reserved plan of survey

Standard under the SMI Act

See section 4.2.1 *Plan notations*, page 63.

A reserved plan of survey is a plan registered after commencement of section 65, but is not taken to be a first new plan of survey for the land. In order to be a reserved plan of survey, the plan must be certified by the chief executive or Registrar of Titles as being a reserved plan of survey. This certification can be achieved by obtaining a letter from the chief executive or the Registrar of Titles certifying that the plan, a copy of which is attached to the letter, is a reserved plan of survey under section 65(4)(a)(i), (ii) or (iii) of the *Survey and Mapping Infrastructure Act 2003*. The letter must be lodged with the plan.

4.8 Public interest assessment (tidal)

Information

In the tidal boundary location criteria of the SMI Act, the third criterion is that the location of the boundary is consistent with the public interest (s.72(3)). Public interest as defined in section 62 of the SMI Act includes the 'cultural, environmental, heritage, land protection, planning, recreational, social, and strategic interests of the public'.

The primary purpose of the public interest assessment is to determine whether incorporating land in the adjoining parcel would be contrary to the public interest, in the following circumstances:

- under s.81 of the SMI Act, applying the alternative natural feature exception, the public interest assessment will apply to the land between the original natural feature and the alternative natural feature
- under s.82 of the SMI Act, applying the applied criteria exception, the public interest assessment will apply to ensure that, if a feature or other thing satisfies the other tidal boundary location criteria, it is not contrary to the public interest to incorporate into the adjoining parcel any of the land on the landward side of the proposed location of the boundary
- under s.83 of the SMI Act, making a single lot declaration, the public interest assessment will apply to ensure that, if the proposed location of the boundary satisfies the first and second tidal boundary location criteria, it is not contrary to the public interest to incorporate into the adjoining parcel any of the land on the landward side of the proposed location of the boundary.

On registration of the plan, all land seaward of the tidal boundary will become or remain the property of the State (see Section 9 of the *Land Act 1994*).

Standard under the SMI Act

It is the responsibility of the surveyor conducting the survey to come to a conclusion about whether the location of the boundary is consistent with the public interest. The Public Interest Criteria set out below are designed to assist surveyors in coming to a conclusion regarding public interest.

The information used to undertake the public interest assessment must be provided by the surveyor for review by the department. Surveyors must source and access reports or datasets pertaining to each of the Public Interest Criteria to assist in making an objective assessment against that criterion. Surveyors must quote and lodge copies of any material used to base the assessment upon (however any searchable material need not be lodged). Sources may include print and electronic media, photos or images, web based material, personal accounts (appropriately authenticated) etc. Comments provided by the surveyor must be objective and unbiased in terms of both the compilation of material and the conclusions drawn on the basis of that material.

The location of a boundary is considered to be consistent with the public interest in instances where, under the alternative feature exception, the proposed boundary adjustment involves an insignificant amount of land—for example, having regard to the value of the land in question.

In certifying the accuracy of a survey plan (Form 13 or 18) the surveyor must be satisfied with the accuracy of any information the surveyor relies on to undertake the survey. Where a surveyor obtains information to undertake a public interest assessment, including where the surveyor relies on other professional persons to compile a report, the surveyor must be satisfied with the accuracy of such information.

The assessing surveyor must assess the overall impact of the proposed tidal boundary against the public interest assessment criteria provided below. Where the assessment finds that the proposed tidal boundary location does not comply with one or more of the Public Interest Criteria, it fails the third criterion of the *Tidal boundary location criteria* (s.72(3)) and cannot be approved.

Public Interest Criteria

1. The proposed boundary location cannot be adopted where it involves land that the public has previously enjoyed access to, or could reasonably expect to have access to.

Note—for example, it would be inappropriate to locate a tidal boundary:

- *on land that is currently used, or has previously been used, by the public for open space or recreational purposes*
- *in a position that would inhibit the public's access to land that forms part of a beach.*

2. The proposed boundary location cannot be adopted where it is inconsistent with any planning provisions pertaining to the subject land, or land within the vicinity of the site, unless it can be demonstrated that the location of the boundary would not compromise the desired outcomes sought by these provisions.

Note: planning provisions encompass existing and proposed planning controls, requirements, intents and objectives. Examples include:

- *the designation of the land in a local government planning scheme as being for open space, recreation, public access or like designations*
- *policies (e.g. expressed through overlays, local planning policies, or codes in planning schemes) that intend for the boundary to be set back from the waterway or coastline, where the boundary is proposed to be located closer to the water than the setback allows*
- *plans for a public access way or park along the river, as documented in an existing or draft state or local planning instrument, where the boundary location encroaches into this area.*

3. The proposed boundary location cannot be adopted where the subject land and/or adjacent land is proposed to be used for community purposes as part of a current development application, unless it can be demonstrated that the location of the boundary would not adversely affect the public's recreational, social and strategic interests in the land.

Note—for example, where a development application has been lodged over an adjoining lot which seeks to dedicate land along the waterway or coastline for public access purposes, if the proposed boundary location will compromise the potential for the access way to be extended along the waterway or coastline in the future.

4. The proposed boundary location cannot be adopted where it would conflict with development conditions applying to the subject land and/or adjacent land, where such conditions have been designed to protect the public interest.

Note: an example of a development condition that has been designed to protect the public interest is one that requires land to be dedicated as parkland.

5. The proposed tidal boundary location does not encroach onto land that is associated with natural heritage or Indigenous or European cultural heritage, unless it can be demonstrated that the boundary location would not increase the vulnerability of heritage values to potential damage or loss.

Note—for example, where the boundary is proposed to be located on land that is listed on the Queensland Heritage Register and the proposed boundary location would increase the vulnerability of heritage values to potential damage or loss.

6. The proposed boundary location cannot be adopted where it would increase the risk of damage to or loss of environmental values associated with the subject land and/or adjacent land.

Note— examples of environmental values could include, but would not be limited to, native vegetation that is shown as remnant vegetation on regional ecosystem mapping or an ecological corridor

identified by the federal, state or local government.

7. The proposed boundary location cannot be adopted where it would lead to decreased management of land degradation resulting from soil erosion, landslip, or weed or pest infestation.

Note—for example, where the boundary location would compromise an active management program being undertaken by the state or local government to manage land degradation.

4.9 Land beyond a tidal boundary

Standard under the SMI Act

For dealings under the *Land Act 1994*, land that is on the tidal water side of a tidal boundary or a right line tidal boundary must be identified by a separate lot number to land above the tidal boundary.

4.10 Jurisdiction over watercourses (non-tidal)

Information

Under the *Water Act 2000*, the State has jurisdiction over activities that may be carried out in any watercourse, whether or not it is a boundary watercourse. The land within non-boundary watercourses is usually included within the original grant, while the land within a boundary watercourse is the property of the State.

Note that amendments of the *Water Act 2000* made by NROLA 2010 provided a new definition for the extent of jurisdiction of the Water Act in non-tidal watercourses, based on natural features (s.5A) and generally further away from the water than the boundary. Surveyors may be called upon to provide advice on the extent of jurisdiction under this new definition. Reference should be made to the *Water Act 2000* and the relevant regulations under that Act for the particular criteria that must be used. The chief executive may declare the location of the outer bank of watercourses, for the purpose of defining the extent of jurisdiction.

4.11 Dealing with internal watercourses

Information

See section 4.2 *Surveying tidal and non-tidal water boundaries*, page 62.

See section 3.31 *Public use land*, page 45.

When a parcel of freehold land with an internal (i.e. non-boundary) watercourse is subdivided, subject to any planning requirement, there are two options for dealing with the internal watercourse. These options are:

- the watercourse is wholly contained within a new lot (the watercourse remains as a non-boundary watercourse). By way of example, a road widening or subdivision on the frontage of a large rural parcel may result in the balance lot still containing an internal watercourse; or as a condition of a subdivision, a local government may require that an area of land wholly containing the watercourse be surrendered as public use land.
- the watercourse is dedicated (opened) as watercourse on registration of the survey plan (s.51 of the LTA 1994 or s.290JA of the LA 1994). In this case the watercourse itself is surveyed, dimensioned and is identified as new watercourse (e.g. new creek) with its area, but is not given a lot number, similar to the treatment of new road. For example:

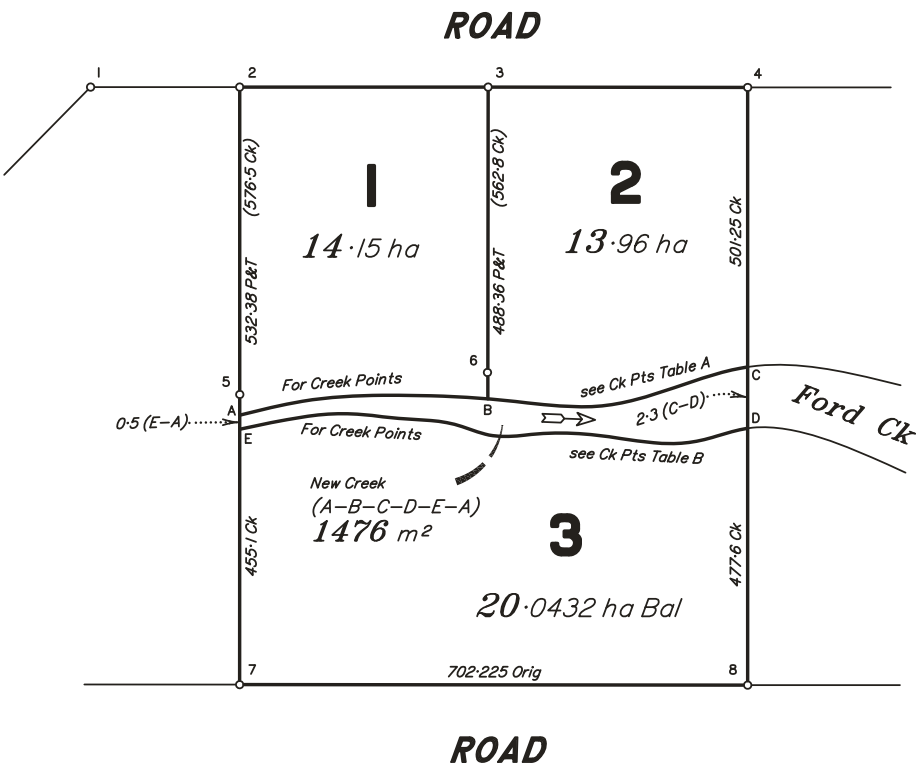


TABLE A			TABLE B		
CREEK POINTS			CREEK POINTS		
BEARING	DISTANCE		BEARING	DISTANCE	
A Bearing 1	Distance 1	B	D Bearing 1	Distance 1	E
Bearing 2	Distance 2		Bearing 2	Distance 2	
Bearing 3	Distance 3		Bearing 3	Distance 3	
B *	*		*	*	
Bearing n	Distance n	C	Bearing n	Distance n	

Standard under the SMI Act

When the watercourse (or part of the watercourse) forms the boundary of a new lot, any such boundary of the watercourse must be surveyed as a water boundary and align with the relevant watercourse location criteria and the feature adopted be appropriately described in the survey records.

4.12 Downstream limits of non-tidal watercourses

Information

In deciding whether a watercourse adjoining land is tidal or non-tidal, particular note should be taken where a “downstream limit” had been declared under the *Water Act 2000*. Where a downstream limit has been declared, they are described in schedule 8 of the *Water Regulations 2002* <www.legislation.qld.gov.au/LEGISLTN/CURRENT/W/WaterR02.pdf#page=126>.

By s.70(2) of the *Survey and Mapping Infrastructure Act 2003*, and despite any indications otherwise provided by original survey plan notations or symbols, where a downstream limit has been declared, the boundary of land adjoining the watercourse upstream of the declared limit is defined in accordance with the provisions of Division 3 and Division 4 *Non tidal land*. Where no declared limit has been determined, tidal water is determined by observation and reference to s.70(1) of the *Survey and Mapping Infrastructure Act 2003*.

The department is working towards the mapping of many more downstream limits and while not declared under the Act as yet, limits have also been identified for the following rivers and creeks (Brisbane, Bremer, Logan, Albert, Coomera and Bohle Rivers and Oxley Creek). The department should be consulted should boundary surveys near the natural tidal / non-tidal interface of any of these waterways be contemplated.

4.13 Title amendment for physical feature boundaries

Information

Where it is found on resurvey of a physical feature boundary of freehold land that the boundary has moved by gradual and imperceptible degrees in accordance with the *ambulatory boundary principles* (s.62 of the SMI Act), the new location of the feature can be recorded by the lodgement and registration of a freehold plan of resurvey (s.50 of the *Land Title Act 1994*).

Where land that is bounded by a physical feature boundary has changed by *other than* gradual and imperceptible degrees, whether addition or loss, the physical feature boundary itself does not move. In such cases, if the land owner wished to have the boundary located in accordance with the physical shape of the land, this can be achieved by:

- in the case of ‘lost land’, a freehold plan of subdivision which surrenders the ‘lost’ land as public use land, subject to the consent of the local government.
- in the case of addition (i.e. reclamation), the lodgement of a State land plan, and the surrender of the current title to the land and re-grant of a new deed under the provisions of section 358(2) of the *Land Act 1994*. Arrangements are made with the department to purchase the additional land (see s.10 & 127 of the *Land Act 1994*).

Standard under the SMI Act

Where a plan of resurvey is prepared under the *Land Title Act 1994*, the boundary is to be surveyed in accordance with section 4.2 *Surveying tidal and non-tidal water boundaries*.

Where a plan is prepared under the *Land Act 1994*, there are two possible situations:

- Land has been added. The new seaward boundary is to be surveyed as a right line tidal boundary, and the plan is a plan of the following type:

Lot X cancelling Lot X and USL (being part of the Coral Sea).

- Land has been removed. The new boundary is to be surveyed as a right line boundary, and the plan is a plan of:

Lot X and Lot Y cancelling Lot X.

Lot Y is shown as Public Use land (PUL) and would become USL on registration of the plan, through the lodgement of a Statement of Intent with the plan.

4.14 Former watercourse land

Information

Section 13B of the *Land Act 1994* deals with former non-tidal watercourse land. This is land that was a boundary watercourse and ceases to become part of the functioning watercourse due to a change and is not likely to again become part of the watercourse. Section 13B provides for an adjoining owner to apply for the land to be declared as former watercourse land, the powers for the chief executive (water) to make the declaration, and for the land to be dealt with as if it were unallocated State land.

Standard under the SMI Act

Where former watercourse land is to be freeholded, a plan must be prepared identifying the land with a lot number and showing an area so that it can be dealt with under the *Land Act 1994*. The survey plan must contain the notation:

Lot # is former watercourse land

The boundaries of the former watercourse land will be located where the watercourse boundary was at law, immediately before the sudden event(s) occurred. The boundary of the former watercourse land, other than the common boundary between the former watercourse and the applicant’s land, must be surveyed and marked at sufficient intervals to enable it to be identified on the ground. The boundary remains as a curvilinear boundary (i.e. not a series of right lines between the marks). The former watercourse boundary common with the applicant’s land may be compiled for the purpose of plan presentation and calculating the new lot area, provided that the information used to compile the boundary is, to the greatest practicable extent, consistent with its location at law.

4.15 Declared beach area

Information

The Minister, under the s.431Q of the *Land Act 1994*, may declare a conditional right of public access over private land where, due to erosion, the access along the area of beach has been compromised by the beach area encroaching into the private land. The section requires the declared beach area to be surveyed and that the area is to be ambulatory so that the public access rights move with the natural movement of the beach. The declaration of part of a lot as a declared beach area does not affect the location at law of any external boundary of the lot, whether a right line boundary or a tidal boundary.

A survey of an area intended to be declared as a declared beach area is prepared as a plan of proposed easement in the affected lot, with the boundary of the landward side of the proposed easement (proposed declared beach area) being surveyed as a natural feature in accordance with section 4.17 *Other natural features as boundaries*.

4.16 Identification survey plans involving a water boundary

Information

Identification surveys are not new plans of survey, therefore where required they should identify the current location of the boundary at law.

4.17 Other natural features as boundaries

Standard under the SMI Act

See section 3.26 *Natural boundaries*, page 41.
See section 9.54 *Watersheds*, page 132.

Other natural features may be adopted as cadastral boundaries (e.g. a cliff, watershed). Surveys of such natural features must comply with section 4.2 *Surveying tidal and non-tidal water boundaries*, except those aspects that are relevant only to water boundaries.

5 Approvals

5.1 General

Information

Approvals and/or consents referred to in this section are not necessarily a survey requirement but may be required to enable the plan to register or, in the case of State land, for the proposed action to be completed.

Generally, consents etc. are noted on the back of the plan.

5.2 Amalgamations

Information

See section 50(h) of the *Land Title Act 1994*.

5.3 Beach Protection Authority

Standard under the Beach Protection Act

See section 45 of the *Beach Protection Act 1968* (now repealed).
See section 179 of the *Coastal Protection and Management Act 1995*.

The *Beach Protection Act 1968* has been repealed and is replaced by the *Coastal Protection and Management Act 1995*.

Where local government development approval prior to 20 October 2003 required the consent of the Beach Protection Authority on the reverse of the plan, there are transitional arrangements that allow for that Authority to provide such consent.

For development approval after 20 October 2003, for reconfiguration of land wholly or partially within a coastal management control district, the local government acting as assessment manager grants approval to the plan. As the department is a concurrence agency to the development approval, no endorsement by the department is required on the plan.

5.4 Border surveys (state border of Queensland)

Standard under the SMI Act

See section 9.46 *State boundary*, page 130.
See the *Queensland Boundaries Declaratory Act 1982*.
See *Redefining the Queensland – New South Wales border: guidelines for surveyors*,
<www.dnrm.qld.gov.au/__data/assets/pdf_file/0020/105743/redefining-queensland-nsw-border.pdf>.

All surveys in areas adjoining state borders must be undertaken in collaboration with the organisation responsible for surveying in the adjoining state.

Where a survey is adjacent to a state border the local senior surveyor should be contacted for advice and coordination of the survey activity with the adjoining jurisdiction. Where practicable, connections should be made to the cadastre in the adjoining jurisdiction.

For surveys abutting New South Wales, the requirements of the approval process can be found in the publication *Redefining the Queensland–New South Wales border: guidelines for surveyors*. Completed plans must be forwarded to the local senior surveyor. The local senior surveyor will arrange for the plan to be approved by the Director of Surveys in Queensland and the Surveyor-General in New South Wales prior to being returned to the surveyor for lodgement.

Information on sovereignty and maritime boundaries between Australia and the former Independent State of Papua New Guinea can be found within the *Torres Strait Fisheries Act 1984*, wherein the Torres Strait Treaty is repeated in the schedule.

5.5 Canals

Standard under the Land Title Act

See section 9.9 *Canals*, page 107.

The *Canals Act 1958* has been repealed however there are transitional arrangements under the *Coastal Protection and Management Act 1995*:

- If development approval for the creation of a canal has been granted prior to 20 October 2003, subsequent endorsement of the plan with respect to the canal is carried out under transitional arrangements by *Beach Protection Authority*.
 - The lot is given a lot number and described as '(CANAL)'.
- If development approval is granted subsequent to 20 October 2003 for the creation of a canal, access channel, or artificial waterway, such approval would be granted by the local government acting as assessment manager under the *Sustainable Planning Act 2009*.
 - In Item 2 on the survey plan, additional words are required to be endorsed by the local government:

XXX Local Government certifies that the waterway shown on this plan, and any access channel associated with the waterway, is constructed in accordance with the development approval for the waterway and/or if the waterway is not a canal, satisfactory arrangements have been made, or will be made, for the maintenance and management of the waterway.

S119(2)(a) Coastal Protection and Management Act 1995

S119(2)(b) Coastal Protection and Management Act 1995

Signed and sealed by XXX Local Government
 - Subsequent approval of the plan is carried out by the local government.
 - The lot is given a lot number and described as '(CANAL)' or '(ACCESS CHANNEL)' or '(ARTIFICIAL WATERWAY)' as appropriate.
 - On subsequent plans, these lots are described with the lot/plan description and the word '(CANAL)' or '(ACCESS CHANNEL)' or '(ARTIFICIAL WATERWAY)' as appropriate is shown on the face of the plan.

5.5.1 Freehold land

Standard under the SMI Act

Under section 9(d) of the *Canals Act 1958*, canals can only be created by a plan, which is endorsed with the details of the relevant executive minute. The date that the clerk of the executive council signs the plan must follow the date of the local government approval. There is no time limit on the executive minute.

The canal must be transferred to the State. Registration of the plan will be delayed until the transfer to the State is also capable of registration.

If encumbrances exist, these must be surrendered before the transfer to the State.

5.5.2 State land

Standard under the SMI Act

For canals created on State land development leases, show the word 'CANAL' as appropriate.

5.6 Catchment areas

Information

See section 11.4 *Declared catchment areas*, page 141.

Section 258 of the *Water Act 2000* allows a regulation to declare a catchment area. Catchment areas are

defined in Schedule 5 of the *Water Regulation 2002*. They are described on administrative plans (APs).

5.7 Channel/drain areas

Information

See section 9.16 *Channel/drain*, page 117.

Unless the plan is signed by the Director-General of the department, or his delegate, as registered owner, the plan must be endorsed by the Director-General of the department to precede local government consent and a transfer to the State must be lodged. There is no time limit on the approval of the Director-General of the department.

5.8 Easements

Standard under the Land Title Act

Section 83(2) of the *Land Title Act 1994* commenced on 25 May 2001.

- Any plan of survey not registered in the Land Registry prior to 25 May 2001, and which is referred to in an instrument of easement for access to a lot from a constructed road executed on or after 25 May 2001, must be approved by the local government in the appropriate item on the reverse of the Form 21, Version 2.
- Plans of survey registered in the Land Registry prior to 25 May 2001 and referred to in an instrument of easement for access to a lot from a constructed road executed on or after 25 May 2001, will not require an approval by the local government.
- Where an instrument of easement for access to a lot from a constructed road uses one or more existing easement descriptions as shown on one or more registered plans of survey, all of those plans of survey will need to satisfy (1) or (2) above as appropriate.
- Plans of proposed easements only, lodged on or after 25 May 2001 will continue to be accepted by the Land Registry without local government approval (the purpose of easement is not disclosed (nor permitted) on the plan. However, if this plan is to be referred to in an instrument of easement for access to a lot from a constructed road that is executed on or after 25 May 2001, (1) above must be satisfied.
- The term ‘constructed’ in section 83(2) of the *Land Title Act 1994* is to be taken to mean a dedicated road.

5.9 Forest entitlement areas (FEAs)

Information

See section 2.9 *Reservations in title*, page 8.

See section 3.6.4 *Multiple line areas*, page 17.

See section 9.23 *Forest entitlement areas (FEAs)*, page 121.

See sections 26B and 26C of the *Land Act 1994*.

Forest entitlement areas (FEAs) were first introduced into the *Land Act 1962* in 1974 in order that the State may manage areas for the production of indigenous timber and associated products in perpetuity. FEAs applied to leases under the Land Act that could be converted to a freeholding tenure such as GHPL and GHFL. (See ‘Glossary’ for a definition of forest entitlement areas.)

When first introduced, the leases were issued over the gross area of the lease without any adjustment for the FEA reservation. This occurred since in most cases there were no surveyed dimensions available for the FEA and areas were not known with any degree of certainty.

While FEAs appear on plans held by the department and show calculated areas they are not cadastral surveys in terms of the *Survey and Mapping Infrastructure Act 2003*. In general, FEAs were surveyed by persons who are not endorsed to perform cadastral surveys.

Standard under the SMI Act

State leases that are subject to an FEA must show the FEA as a reservation in title. If the FEA is surveyed,

the extent of the FEA must be shown on the face of the plan in hairline. The area of the lot must show a multiple line with an exclusion for the FEA.

If the State has not taken possession of the land that is covered by the FEA under the *Acquisition of Land Act 1967*, a deed of grant is issued with the FEA as a reservation in the grant. Alternatively, if the State is to take possession of the land covered by the FEA at the time of freeholding, a survey plan may be required to correctly define that land to be freehold and the land to be held by the State.

Guideline under Standard 5.9 Forest entitlement areas

Since an FEA is a reservation in title no dedicated access to the FEA is required.

5.10 Forest consent area

Information

See section 3.30 *Profit a prendre*, page 43.

See sections 61JA and 61JB of the *Forestry Act 1959*.

A forest consent area is an area identified in a forest consent agreement for the use and management of forest products, similar to forest entitlement areas. However, a forest consent agreement will be registered as a profit a prendre. Any survey for a forest consent area will be in accordance with section 3.30 *Profit a prendre*.

5.11 Future Conservation areas

Standard under the SMI Act

Future conservation areas (FCA) are a reservation in a grant that are in a fixed position. The FCA may be surveyed or not surveyed. Where a grant is subject to a reservation for an FCA and that land is being dealt with, the survey plan for that land must show the FCA.

State leases that are subject to an FCA must show the FCA as a reservation in title. The area of the FCA must be shown on the face of the plan in broken hairline. If the FCA is to be surveyed it must be surveyed to the same status as the surveyed status of the underlying land. All FCA's must be identified with a numeric identifier e.g. FCA1.

5.12 Leases

Information

See the *Land title practice manual*, clause 7-0050,

[<www.dnrm.qld.gov.au/__data/assets/pdf_file/0008/97145/ltpm-part-07.pdf#page=6>](http://www.dnrm.qld.gov.au/__data/assets/pdf_file/0008/97145/ltpm-part-07.pdf#page=6)

For leases under the *Land Title Act 1994*, local government approval is required, if options and term exceed 10 years. The lease document requires approval. The plan does not require approval.

For any leases in leasehold land, including reserves, State forests, and national parks, the approval of the Minister is required and the local departmental office should be contacted. Refer to Chapter 6, Part 4, Division 3, of the *Land Act 1994*.

Note: Leases in lots under the *Building Units and Group Titles Act 1980*, may require local government approval if the land is part of a development under one of the specified Acts. See section 8(2)(b) of that Act. Section 326 of the *Body Corporate and Community Management Act 1997* defines a specified Act as:

- (a) the *Integrated Resort Development Act 1987*; or
- (b) the *Mixed Use Development Act 1993*; or
- (c) the *Registration of Plans (H.S.P. (Nominees) Pty. Limited) Enabling Act 1980*; or
- (d) the *Registration of Plans (Stage 2) (H.S.P. (Nominees) Pty. Limited) Enabling Act 1984*; or
- (e) the *Sanctuary Cove Resort Act 1985*.

5.13 Local government boundary

Information

See section 3.11.4 *Compiled plan of large unsurveyed parcel*, page 26.

If land represented on a plan falls within more than one local government, the approval of each local government is required

5.14 Local government approval

Information

Local government approval is required for all plans of subdivision of freehold land whether by compilation or survey, **except**:

- plans for those actions which the *Sustainable Planning Act 2009* and the *Sustainable Planning Regulation 2009* identify as being exempt from compliance assessment
- subdivisions under the *Property Law Act 1974*, Part XI, section 185 (1)(b), ‘Order of Supreme Court for relief in respect of encroachment’
- plans of amalgamation (section 50(h) of the *Land Title Act 1994*)
- easement (other than easement of access to a lot from a constructed road, see note below), covenant, lease, profit a prendre plans (not a subdivision as per section 49 of the *Land Title Act 1994*), and carbon abatement interest. However, section 83(2) of the *Land Title Act 1994* requires plans of easements creating access from a lot to a constructed road be approved by the local government. See section 5.8 *Easements*.
- plans of resurvey only (section 50(h) of the *Land Title Act 1994*)

The responsibility for ensuring that the survey plan is correct at the time of presentation to the local government rests with the surveyor. Plans must be lodged in the Land Registry within six (6) months of local government approval or a fresh approval obtained, section 50(4) of the *Land Title Act*.

Withdrawal and relodgement under sections 53 and 159(6) of the *Land Title Act 1994* does not affect the lodgement date for local government approval. See section 2.11 *Withdrawal and relodgement of plans*.

5.15 Local government conditional consent

Information

See section 5.2 *Amalgamations*, page 75.

Under the *Sustainable Planning Act 2009* there is no legislative provision that allows for conditions to be included in the local government approval on the plan. The provisions of section 97A of the *Land Title Act 1994* may be utilised by local government to register a condition that lots may not be transferred separately.

However, conditional consents may exist on a previously registered plan or on the title of a lot and may need to be addressed if the lot is affected by survey.

5.15.1 Consent shown on plan only

Information

See section 3.36 *Resurveys*, page 53.

Where multiple parcels of land are compulsorily held in one title by virtue of a condition in a local government consent on a plan only, separate titles may be issued if the appropriate local government grants approval to the removal of the conditional consent and submits this decision in writing to the Registrar of Titles.

Prior to 1948 there was no legislative authority for local governments to conditionally consent to a plan of subdivision. The *Local Government Act 1936* was amended in 1948 to add section 34A(3) (12 Geo.VI No 49, 1948, assented to and commenced 9 December 1948), and provide this authority. Accordingly,

conditions placed on plans prior to 1948 are invalid. A common noting on these plans was 'lots to be held in the one ownership'.

Where an application is received for separate titles to lots over a plan that bears a notation of this nature, the Registrar of Titles will, prior to issuing separate titles:

- issue titles with no further action on plans with the consent prior to 9 December 1948,
- require local government consent on plans after 1948. As a minimum, the council will have to provide their consent in writing on paper that contains their letterhead.

The plan will be noted that the conditional consent no longer applies.

5.15.2 Consents registered on title

Information

See the *Land title practice manual*, clause 21-2200, 'Agreement under the Local Government (Planning and Environment) Act 1990 or the Local Government Act 1936', www.dnrm.qld.gov.au/__data/assets/pdf_file/0005/97160/ltpm-part-21.pdf#page=13.

A conditional consent under section 5.8 (3) or section 4.17 of the now repealed *Local Government (Planning and Environment) Act 1990* is registered on the title. This consent may be varied in whole or in part. See the *Land title practice manual*.

5.15.3 Consent affected by survey

Standard under the Land Title Act

See the *Land title practice manual*, clause 21-2200 Agreement under the Local Government (Planning and Environment) Act 1990 or the Local Government Act 1936', www.dnrm.qld.gov.au/__data/assets/pdf_file/0005/97160/ltpm-part-21.pdf#page=13.

Conditions (either on the plan or on the title) in a prior local government consent must be waived or varied when **one** of the parcels being the subject of the condition is being subdivided.

There are two options, namely:

- local government must vary or remove its condition by the lodgement of appropriate documents with the Registrar of Titles
- the survey must satisfy the condition.

5.16 State development leases

Information

Surveys for state development leases should conform with the usual local government subdivision requirements (see the approval conditions of development lease) but are endorsed by the local departmental delegate prior to the plan being lodged in the Land Registry.

5.17 State land actions

Information

See section 7.6.5 *State forests*, page 92.
See section 9.2 *Action statements*, page 102.

Actions such as road closures, subdivision of, easements in, or other actions on, State leasehold land or any other plan dealing with State land are dealt with under the provisions of the *Land Act 1994*. A formal application is required to be made to the department for any action under the *Land Act 1994*. The department will investigate the matter and provide a formal response to the applicant. If the application is approved, the department's letter of offer will detail any actions required, the applicable sections of the *Land Act 1994*, and other general departmental processes relevant to the application.

Plans in this category all require the consent of the Minister, and are then subsequently lodged in the Land

Registry for completion of the necessary action. Your attention is drawn to section 299A of the *Land Act 1994* regarding the non-registration of documents. It is recommended that any required survey not be carried out until written approval of the proposal is received. It is the responsibility of the surveyor to ensure any plan is suitable for the action, and is in agreement with the department's letter of offer. Where the surveyor is unclear or uncertain of the requirements, the surveyor should contact the writer of the letter and/or the local senior surveyor for clarification. Any changes, should be discussed, and approved, prior to finalising the plan.

Plans for which the department is simply a depository (not an action under the *Land Act 1994*) include plans prepared under the Harbours Act, Port of Brisbane leases, etc.

Standard under the Land Act

A plan completing a State land action must identify the eLVAS file reference in item 4 on the back of the plan.

6 Easements

6.1 Definition

Information

See section 9.18.2 *Secondary interest*, page 118.

See section 9.28 *Linework*, page 122.

See the *Land title practice manual*, Part 9,

www.dnrm.qld.gov.au/__data/assets/pdf_file/0010/97147/ltpm-part-09.pdf#page=02

See the *Registrar of Titles directions for the preparation of plans*, Part 6 'Easements',

www.dnrm.qld.gov.au/__data/assets/pdf_file/0018/97200/rdpp-section-6.pdf#page=1.

From the *Land title practice manual*, Part 9

www.dnrm.qld.gov.au/?a=109113:policy_registry/easement.pdf:

'An easement is a right annexed to land to utilise other land in a particular manner. It does not involve the taking of any part of natural produce of the land or any part of its soil. It may, however, prevent the owner of the other land from utilising his/her land in a particular manner (Halsbury's Laws of England (4th edn, 1975) Volume 14, page 4).

An example of an easement is where one owner (of the "burdened lot") allows another owner (of the "benefited lot") to pass over his/her land.

The land advantaged by the easement is called the "benefited lot" or "dominant tenement". The land over which the easement is granted is called the "burdened lot" or "servient tenement". The benefit of an easement runs with the benefited lot, i.e. it passes from one owner to the next, and the burden of the easement runs with the burdened lot. Therefore, all future owners of the burdened lot are bound by the easement, unless it is surrendered or extinguished.

Generally, for an easement to exist there must be a benefited and a burdened lot. The exception to this is the case of an "easement in gross" (where there is a burdened lot only) to serve the purposes of local government or a government instrumentality.

An easement (other than an easement in gross) must accommodate the benefited lot and contribute to the full enjoyment of the benefited lot.

Re Ellenborough Park [1956] 1 Ch 131 is the landmark case which established the essential characteristics of an easement, which are:

- (a) There must be a benefited lot and a burdened lot.*
- (b) An easement must 'accommodate' the benefited lot.*
- (c) Benefited and burdened lot owners must be different persons.*
- (d) A right over land cannot amount to an easement unless it is capable of forming the subject matter of a grant.*

Note:

- (i) As previously mentioned, easements in gross are not required to exhibit the characteristics in (a) and (b) above.*
- (ii) Section 86 of the Land Title Act 1994 and s.367 of the Land Act 1994 allow easements to be granted if the benefited and burdened lot are owned by the same person.*

It is sometimes a matter of great difficulty to determine whether a particular 'right' is capable of forming the subject matter of a grant. Some examples will demonstrate this:

- an easement over the whole of the land is capable of forming the subject matter of a grant;*
- but it cannot rob the owner of the servient tenement of the reasonable use of their land (Weigall v Toman [2008] 1 Qd R 192);*
- a right to provide a wind break is capable of forming the subject matter of a grant (Ford v Heathwood [1946] QWN 11);*
- but a right to privacy is not (Brown v Flower [1911] 1 Ch 219).*

Many other examples could be given of these difficulties.

A further difficulty arises in attempting to distinguish easements from other rights.'

6.2 Cane railway easements

Standard under the SMI Act

See Appendix A *Deemed tramway easements*, page 146.

See the *Sugar Industries Act 1999*.

These were formerly referred to as tramway easements or deemed tramway easements. Under the provisions of the *Land Title Act 1994*, a tramway easement (now referred to as a permit to pass under the provisions of section 63 of the *Sugar Industry Act 1999*) is not registered against a title in the Land Registry, see section 71 (5) of the *Sugar Industry Act 1999*. All existing tramway easements have been recorded as administrative advices under the *Land Title Act 1994*, and require allocation if the land is subdivided. No future tramway easements will be created under the *Sugar Industry Act 1999* in this manner.

For new easements, a survey plan is required with standard requirements for easements. Sections 81A and 89 of the *Land Title Act 1994* now provide for cane railway easement to be registered as an easement in gross to a public utility provider, being a mill owner.

Some existing tramways are registered easements under the *Land Title Act 1994*. Where the land that is subject to the easement is to be reconfigured, the extent of the easement needs to be determined. If no plan of the easement is available, the centreline of the tramline track should be located relative to the lot boundaries. There is no requirement to mark the easement boundaries or their intersection with the lot boundaries. Recovery marks should be placed near the intersection of the centreline with the lot boundaries as well as at the tangent points and traverse points on curves. The plan must show the dimensions of straights and chords, the radii of curves, areas of the easement and the recovery marks placed.

6.3 Creation of easements

Standard under the SMI Act

Easements, whether in freehold or non-freehold land, may be standard, restricted or volumetric.

Easements that do not cover the whole of the vertical extent of the lot are considered to be 'restricted'. See the *Registrar of Titles directions for the preparation of plans*, Direction 6.5 'Easements limited vertically', <www.dnrm.qld.gov.au/__data/assets/pdf_file/0018/97200/rdpp-section-6.pdf#page=1>.

Where an easement is to be created that affects multiple lots or separate parts of the same lot, a separate easement is required for each lot or part lot. See the *Registrar of Titles directions for the preparation of plans*, Direction 6.3 'Easements in parts', <www.dnrm.qld.gov.au/__data/assets/pdf_file/0018/97200/rdpp-section-6.pdf#page=1>.

Overlapping easements are permitted. Other existing registered easements should be shown if they are located adjacent to the new easement.

An acceptable severance closure between the easement and lot boundaries in accordance with section 3.4.2 *Measurement accuracy*, is required. Where a satisfactory close cannot be obtained, sufficient check measurements should be shown in the survey records to ensure the integrity of the surveyor's own work. The requirement under section 3.18 *Dimensions* to have sufficient connections to reinstate the parcel (i.e. the easement) from the corners of the parent lot still applies.

The parcel over which the easement is to be created does not need to be fully shown or dimensioned. However, sufficient information must be shown to enable the easement to be accurately located within the parcel.

6.3.1 Purpose of easement

Standard under the SMI Act

By direction of the Registrar of Titles, the purpose of an easement is not to be shown on the face of the

plan. The easement document creates the easement and identifies the purpose. This requirement applies to any easement plan lodged in the Land Registry.

6.3.2 Standard easements

Guideline under Standard 6.3 Creation of easements

A standard easement covers the whole of the vertical extent of the parent lot that the easement refers to. Hence an easement in a volumetric lot, that is limited vertically only by the bounding surfaces of that lot, may be referred to as a standard easement and shown on a standard format plan.

6.3.3 Restricted easement

Information

See the *Registrar of Titles directions for the preparation of plans, Part 6 ‘Easements’*, <www.dnrm.qld.gov.au/__data/assets/pdf_file/0018/97200/rdpp-section-6.pdf#page=1>.

A restricted easement does not cover the whole of the vertical extent of the lot and is restricted by single continuous horizontal plane in either height or depth or both.

6.3.4 Volumetric easement

Information

See the *Registrar of Titles directions for the preparation of plans, Direction 10.2 ‘Volumetric format plans’*, <www.dnrm.qld.gov.au/__data/assets/pdf_file/0004/97204/rdpp-section-10.pdf#page=1>.

See the *Registrar of Titles directions for the preparation of plans, Direction 10.6 ‘Volumetric easements’*, <www.dnrm.qld.gov.au/__data/assets/pdf_file/0004/97204/rdpp-section-10.pdf#page=3>.

A volumetric easement must be bounded in all dimensions. A volumetric format easement does not cover the whole of the vertical extent of the lot and may not be bounded by a single continuous horizontal plane in either height or depth.

6.4 Freehold easements

Information

See section 9.18.2.2 *Use of ‘proposed’*, page 118.

See section 11.6 *Easement with titles issued*, page 141.

See the *Land title practice manual*, clause 9-2020,

<www.dnrm.qld.gov.au/__data/assets/pdf_file/0010/97147/ltpm-part-09.pdf#page=6>.

See the *Registrar of Titles directions for the preparation of plans, Part 6 ‘Easements’*,

<www.dnrm.qld.gov.au/__data/assets/pdf_file/0018/97200/rdpp-section-6.pdf#page=1>.

See the *Registrar of Titles directions for the preparation of plans, Part 22 ‘Allocations’*,

<www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97315/rdpp-section-22.pdf#page=1>.

Easements may be created over undescribed balances.

A plan of survey may describe an easement as a ‘proposed easement’ whether or not the instrument creating the easement interest is lodged immediately following the plan. Where the easement instrument is not lodged with the plan, the plan must describe the easement as a ‘proposed easement’.

6.4.1 Easements over land shown as public use land

See section 3.31 *Public use land*, page 45.

Standard under the Land Act

Only registered easements for public utility purposes are able to remain over land shown as public use land on a survey plan, provided that the Minister’s consent has been provided prior to the lodgement of the plan. If the easement is **not** to be continued on the public use land, it is not to be plotted on the face of the plan—see the *Land title practice manual*, clause 21-2280 <www.dnrm.qld.gov.au/__data/assets/pdf_file/0005/97160/ltpm-part-21.pdf#page=17>. No easements are able to remain over land dedicated as road.

Two alternatives are available for the creation of easements over land to be shown as public use land on a survey plan:

- prior to surrender
- after the surrender.

6.4.1.1 Creation prior to surrender

Where new easements for public utility purposes are required over land shown as public use land that is to be surrendered to the State on registration of a plan, the easements may be registered prior to the registration of the plan. Once registered, the easements may be dealt with as noted in section 372 of the *Land Act 1994*

6.4.1.2 Creation following the surrender

Where a new easement is required over land shown as public use land that is to be surrendered to the State on registration of a plan, the easement may be defined on the plan as 'proposed easement'. After the plan is registered, the instrument of easement, duly executed by the delegate of the Minister, is lodged and registered.

Following registration of a plan of subdivision showing public use land, or following the surrender of a lot to the State, any easements that have not been shown on a previous plan as 'proposed easement' must be created on a State land action plan.

6.5 Non-freehold easements

Standard under the Land Act

See Chapter 6 Part 3 Division 8 *Land Act 1994*.

In terms of section 362 of the *Land Act 1994*, easements may be created over non-freehold land, other than road, with the written approval of the Minister.

The use of 'proposed' for the State land action plans is the same as that for freehold land.

All easements over State land must be registered in the Land Registry. All plans of this nature (State land) will require approval by the delegate of the Minister **prior** to lodgement.

To obtain Ministerial consent for an easement, a draft of the easement document must be lodged with the department. The Minister's consent for easements **must** be provided to the applicant on a Land Registry Form 18 ('General consent') with any additional conditions of the Minister's consent provided on a Land Registry Form 20 (enlarged panel).

An easement over land granted in trust, a lease or a licence ends when the deed of grant in trust, lease or licence ends, except if the easement is a public utility easement which may continue over USL with the Minister's approval.

6.5.1 Easements over reserves and unallocated State land

Standard under the Land Act

See section 3.35.7 *Resumptions from non-freehold land*, page 52.

See departmental policy *Easement PUX/901/527*,

<www.dnrm.qld.gov.au/?a=109113:policy_registry/easement.pdf>.

The State is the owner of reserves or parts of reserves, which are not subject to a term lease, and therefore the grantor of such easements.

Easements may be created over any reserve under the provisions of the *Land Act 1994*. However, there are no provisions in legislation that allow for the resumption for easement purposes over a reserve under the *Land Act 1994*.

Where a reserve under the *Land Act 1994* has an easement registered against it, and a lease under the *Land Act 1994* has been applied for, and that lease affects the existing easement, it is a requirement that the

applicant arrange for the creation of a new easement over the new lease and for the subsequent surrender of that part of the existing easement covered by the lease.

Conversely, when establishing an easement over a reserve that contains an existing State lease and that lease will be affected by the easement, it may be necessary to create separate easements for both the reserve and the lease. In such cases the senior lands officer, State Land Assets Management, should be contacted in the local departmental office for advice.

When a reserve burdened by an easement is revoked, the easement must be resumed or surrendered, except if the easement is a public utility easement which may continue over USL with the Minister's approval.

6.5.2 Easements in leases over reserves for State forest or national park

Standard under the SMI Act

As State forests and national parks are not reserves under the provisions of the *Land Act 1994*, easements cannot be created by resumption or agreement, **except** for easements in a State forest under the provisions of section 116A of the *Electricity Act 1994*. These easements are arranged by the department, but are subject to the same provisions as other public utility easements.

However, where a lease issued under the provisions of the *Land Act 1994* exists over any reserve, including State forest, national park or park and recreation, etc., an easement may be created within the lease. An easement may be resumed from the lease. The easement is extinguished at the expiration of the term of the lease.

The easement must be described as:

Easement <alpha> in Lease <alpha> on <plan that created the lease>

6.6 Partial surrender of easement

Standard under the SMI Act

The following is an extract from Part 10—Surrender of easement, *Land title practice manual*, clause 10-2000, <http://www.dnrm.qld.gov.au/__data/assets/pdf_file/0011/97148/ltpm-part-10.pdf#page=3>:

'If the easement is to be only partly surrendered, the surrendered portion must be capable of precise definition. If the surrendered portion is not capable of precise definition, the area to be surrendered, or the area to remain in the easement, must be defined by a plan of survey drawn in accordance with direction 6 of the Registrar of Titles Directions for the Preparation of Plans⁶. Alternatively the easement should be fully surrendered and a new easement created.'

The use of sketch plans is not acceptable.

Some examples of 'precise definition' are:

'All that part of Easement A in Lot 7 on SP123456'

'Proposed Easement X on SP123456'

The use of an identification plan for the 'precise definition' is not acceptable. If a plan is required, it must be a plan of survey lodged in the Land Registry. Plan of survey is defined in Part 4 Division 2A of the *Land Title Act 1994*.

6.7 Specific actions

6.7.1 Easements by resumption

Information

See section 3.35 *Resumption actions*, page 49.

See Chapter 5, Part 3, Division 1 of the *Land Act 1994*.

⁶ <www.dnrm.qld.gov.au/__data/assets/pdf_file/0018/97200/rdpp-section-6.pdf#page=1>

6.7.2 Easements over the whole of a lot

Information

Where an easement is over the whole of a lot, a plan of the easement is not required. In subsequent plans it is shown as an encumbrance on the plan in the normal manner with the description:

'Lot # on SP##### (Easement), <Dealing Number>'.

6.7.3 Road dedications over easements in all tenures

Standard under the Land Act

See section 10.2.1 *Creation of roads in freehold land*, page 135.

See the *Registrar of Titles directions for the preparation of plans*, Direction 22.6.5 'Easements absorbed in new road', <www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97315/rdpp-section-22.pdf#page=6>.

The dedication of road extinguishes all interests in that land, including any easements. Where a road is dedicated over a registered easement (other than a right-of-way easement or an easement for local government purposes to the local government consenting to the plan) by plan or by document, the consent of the grantee of the easement is required. The grantees consent is not required for dedication of a road over an access or a right-of-way easement, including a public thoroughfare easement, as the benefit is superseded by the road.

There are four possible situations for road dedications over easements. These are:

- where the grantee (other than the grantee of an access or a right-of-way easement) is the owner or lessee of another lot, their approval should be on a consent form (Form 18, *Land Title Act 1994*)
- where the grantee is a public utility, their approval should be on a consent form (Form 18, *Land Title Act 1994*)
- where the grantee is a local government but the easement lies in another local government area the grantee local government approval should be on a consent form (Form 18, *Land Title Act 1994*) and the approval should be under seal
- where the grantee is a local government and the easement lies within that local government's area, the local government's consent to the plan is sufficient approval.

7 Leases

7.1 Application of this section

Information

This section refers to leases under the provisions of Part 6, Division 2 of the *Land Title Act 1994* and to subleases under the provisions of Chapter 6, Part 4, Division 3 of the *Land Act 1994* only. Term leases under the provisions of Chapter 4, Part 3 of the *Land Act 1994* are a primary tenure and are not covered in this section.

7.2 Definition: freehold land

Information

The *Land title practice manual*, at clause 7-0000

<www.dnrm.qld.gov.au/__data/assets/pdf_file/0008/97145/ltpm-part-07.pdf#page=3>, defines a freehold lease as follows:

‘A lease is a contract between a lessor and a lessee whereby the lessor as registered proprietor grants to the lessee an estate or interest in land for a fixed term in consideration of the lessee paying rent. The lessee holds the leasehold estate during the term of the lease and the lessor holds the reversion, being the lessor’s estate in the land subject to the lease. The leasehold estate is an asset of the lessee and may be assigned during the lessee’s lifetime or upon his/her death.

The lessee acquires exclusive possession of:

- *all or part of a lot as defined in s.4 of the Land Title Act 1994; or*
- *all of a water allocation as defined in the Water Act 2000.*

The building or land being leased is called ‘the demised premises’.

Section 64 of the Land Title Act 1994 authorises registration of a lease or sub-lease over the whole or part of a lot. A lease may therefore cover:

- *the whole of a lot;*
- *part of a lot;*
- *the whole of a building erected on a lot;*
- *part of a building erected on a lot;*
- *the whole of a lot in a building units plan or group titles plan;*
- *part of a lot or the common property in a building units plan or group titles plan;*
- *part of the common property in a community titles scheme.*

A lease does not require registration to be valid (s 71 of the Land Title Act 1994),

However, if the initial term exceeds three years it must be registered to achieve indefeasibility (ss.184 and 185(1)(b) of the Land Title Act 1994).’

In many respects, leases in State land are similar to leases in freehold land except that the Minister’s approval is required before the lease may be registered. In State land, secondary interests are called ‘subleases’. (See Chapter 6, Part 4, Division 3 of the *Land Act 1994*). A sublease may cover:

- the whole of a lot
- part of a lot.

7.3 Lease types

7.3.1 Whole of the land

Standard under the SMI Act

Where a lease is to be registered over the whole of a lot, the lease is not to be described on a survey plan.

If a lease covers the whole of the lot, and it is desired to restrict it vertically, it must be dealt with as per section 7.3.9, *Volumetric leases*.

7.3.2 Leases for part of the land only

Standard under the SMI Act

7.3.2.1 Freehold

See section 7.3.9 *Volumetric leases*, page 90.

See the *Land title practice manual*, Part 7,

<www.dnrm.qld.gov.au/__data/assets/pdf_file/0008/97145/ltpm-part-07.pdf#page=3>.

See the *Registrar of Titles directions for the preparation of plans*, Direction 5.2 ‘Leases’,

<www.dnrm.qld.gov.au/__data/assets/pdf_file/0008/97199/rdpp-section-5.pdf#page=1>.

The Registrar’s directions set out the requirements for plans of leases of freehold land.

7.3.2.2 Leasehold

See section 335 of the *Land Act 1994*.

A lease of part of the land under the *Land Act 1994* (subleases) requires the approval of the Minister. Section 335 of the *Land Act 1994* states that a sketch may be lodged. However, as the lease is to be registered in the Land Registry, the Registrar of Titles requirement for a common plan form may take precedence. Reference to the ‘approval letter’ or the local departmental office should confirm the survey requirement prior to the survey.

Any long-term sublease (e.g. condominium and villa leases) is required to be surveyed (e.g. SP125981, SP131569). These plans do not conform to normal practice and the consent of the Registrar of Titles should be sought in the first instance if a similar plan is contemplated.

7.3.3 Leases for part of the building only

7.3.3.1 Freehold

Standard under the Land Title Act

See section 65 of the *Land Title Act 1994*.

See the *Land title practice manual*, clauses 7-2205 to 7-2370,

<www.dnrm.qld.gov.au/__data/assets/pdf_file/0008/97145/ltpm-part-07.pdf#page=17>.

See the *Registrar of Titles directions for the preparation of plans*, Direction 5.3 ‘Sketch plans for leases within a building’, <http://www.dnrm.qld.gov.au/__data/assets/pdf_file/0008/97199/rdpp-section-5.pdf#page=2>.

Part of a building on a lot must be sufficiently identified either by means of a description satisfactory to the Registrar of Titles, or a sketch which conforms to the standard required by the Registrar of Titles.

7.3.3.2 Leasehold

Information

In general, subleases under the *Land Act 1994* for part of a building are treated as a lease of part of the land.

7.3.4 Leases for the whole of a building

Information

7.3.4.1 Freehold

See section 65 of the *Land Title Act 1994*.

7.3.4.2 Leasehold

In general, subleases under the *Land Act 1994* for the whole of a building are treated as a lease of part of the land.

7.3.5 Lease for the whole of a lot on a building format plan or group titles plan

Information

No plan is required (See section 7.3.1 *Whole of the land*).

7.3.6 Lease for part of the common property in a community titles scheme

Information

If the lease in common property is not within a building, see section 7.3.2 *Leases for part of the land only*.

If the lease is wholly within a building, see section 7.3.3, *Leases for part of the building only*.

7.3.7 Lease for part of land and part of building

Standard under the Land Title Act

See the *Land title practice manual*, clause 7-2205,

<www.dnrm.qld.gov.au/__data/assets/pdf_file/0008/97145/ltpm-part-07.pdf#page=17>.

The preferred option is to have a lease sketch for the ‘part of the building’, conforming to section 7.3.3 *Leases for part of the building only*, and a lease plan for the ‘part of the land’ conforming to section 7.3.2 *Leases for part of the land only*.

Another option would be to have the ‘part of the building’ lease, prepared as a volumetric lease, conforming to section 7.3.9 *Volumetric leases*. This would entail two survey plans, one a standard format plan (for the part of land), the other a volumetric format plan (for the part of building).

7.3.8 A lease covering more than one lot

Standard under the Land Title Act

A lease over multiple lots is unacceptable (see the *Registrar of Titles directions for the preparation of plans*, Direction 4.8.2 <www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97198/rdpp-section-4.pdf#page=4>), except for a lease within a building over multiple lots (see section 5.1 of that document).

7.3.9 Volumetric leases

Standard under the Land Title Act

See section 7.3.1 *Whole of the land*, page 89.

A lease within a volumetric lot that covers the whole of the vertical extent of that lot is not a volumetric lease.

It is treated as a lease within a standard format lot.

Leases that are restricted in vertical extent are volumetric leases and must conform to the *Registrar of Titles directions for the preparation of plans*, Direction 10.7 *Volumetric leases*, <www.dnrm.qld.gov.au/__data/assets/pdf_file/0004/97204/rdpp-section-10.pdf#page=3>.

7.4 Description of leases

Standard under the Land Title Act

See section 3.17 *Description of parcels*, page 29.

See the *Registrar of Titles directions for the preparation of plans*, Direction 4.8 ‘Parcels to be described’, <www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97198/rdpp-section-4.pdf#page=2>.

The description conforms to that for secondary interests, and the *QSIC parcel identification standard*, <[www.datasmart.oesr.qld.gov.au/Events/datasmart.nsf/0/0A7A59CBFED9DCF14A257BF30007DBB3/\\$FILE/QSIC%20Parcel%20Identification%20Standard%20January%202013.pdf?openelement](http://www.datasmart.oesr.qld.gov.au/Events/datasmart.nsf/0/0A7A59CBFED9DCF14A257BF30007DBB3/$FILE/QSIC%20Parcel%20Identification%20Standard%20January%202013.pdf?openelement)>.

7.5 Subleases

Standard under the Land Act

Standard under the Land Title Act

See the *Land title practice manual*, clause 7-2170,

<www.dnrm.qld.gov.au/__data/assets/pdf_file/0008/97145/ltpm-part-07.pdf#page=15>.

For the preparation of a plan, a sublease is treated in the same manner as another new lease in the lot. Documentation lodged with the plan will clarify that the lease is a sublease. This applies to leases under the provisions of the *Land Title Act 1994* and the *Land Act 1994*.

7.6 Specific estates

See section 3.17 *Description of parcels*, page 29.

7.6.1 Deed of grant in trust

Standard under the Land Act

See section 7.3.2 *Leases for part of the land only*, page 89.

A deed of grant in trust is a freehold estate held in trust for a particular purpose. The empowerment and enabling legislation for the creation of leases within deeds of grant in trust is contained in the document that creates the estate. The legislation creating the estate will determine the type of plan and the approval required.

Section 57 of the *Land Act 1994* applies to the ministerial consent required before the lease can be registered under the provisions of the *Land Title Act 1994*. In all other respects it is a lease in freehold land.

7.6.2 National parks

Information

See section 124 of the *Land Act 1994*.

Note: Secondary tenure leases over part of the land in national parks require approval by the relevant authorities and the local departmental office should be contacted.

The approval letter will specify survey requirements, which is usually the lodgement of a standard format plan.

7.6.3 Vested land

Information

Refer to section 393(4) of the *Land Act 1994* and section 174(1) of the *Transport Infrastructure Act 1994*.

Dealings in vested land (e.g. ports) may be extremely complex and contact should be made with the local senior surveyor in the first instance.

7.6.4 Reserves

Standard under the Land Act

See sections 32, 57 and 59, and Chapter 6, Part 4, Division 3 of the *Land Act 1994*.

A lease over a reserve or part of a reserve requires the approval of the Minister, and is a lease between the State and the lessee as defined in the definitions of the lease. A sublease of such a lease would also require the approval of the Minister and be a sublease in terms of section 335 of the *Land Act 1994*.

For a trustee lease over a reserve the plan format requirement is at the discretion of the chief executive of the department that administers the *Land Act 1994*.

Reference should be made to the letter of offer, or the local departmental office to determine the lease being offered.

7.6.5 State forests

Standard under the Land Act

See section 3.17 *Description of parcels*, page 29.

See section 5.17 *State land actions*, page 80.

See section 124 of the *Land Act 1994*.

See section 35(2) of the *Forestry Act 1959*.

Queensland Parks and Wildlife Service (QPWS) manages State forests in Queensland. Approval of QPWS is required in the first instance. Secondary tenure leases over part of the land in a State forest are approved by QPWS under the provisions section 35 (2) of the *Forestry Act 1959*. The local office of the department administers that approval and issues the lease under the provisions of the *Land Act 1994*.

Note.: When excising from State forest, the plan should only cancel part of the State forest. The balance is dealt with by later actions. If the excision affects an existing secondary lease (e.g. term lease) a new plan is required to re-dimension the existing lease. It is suggested that the plan of the lease uses a new alpha descriptor, and not repeat the existing one.

The plan should be presented on a standard plan form

7.6.6 Reclaimed land

Standard under the SMI Act

See section 4.2 *Surveying tidal and non-tidal water boundaries*, page 62

See section 5.17 *State land actions*, page 80.

See section 127 of the *Land Act 1994*.

Section 127 of the *Land Act 1994* refers to reclaimed land. The reclaimed land is USL, and under sections 14 and 15, the Governor-in-Council may grant a deed of grant or issue a lease over USL. If adding reclaimed land to an existing grant, the action is effected under section 358(f), and if to an existing lease, under section 360(f).

Survey requirements are no different to any other survey of USL for a deed to issue or a lease to issue. The boundaries of reclaimed land must be defined by right lines. Under section 127(4), if only part of the reclaimed land is being granted or leased, then a lot on plan description is required for the balance of the reclaimed area, so that it may be dealt with as a reserve or road.

8 Surveys using Global Navigation Satellite Systems (GNSS)

8.1 Scope of this guideline and reliance on ICSM SP1

Information

See *ICSM Standard for the Australian Survey Control Network (SP1 v2.0)*
<www.icsm.gov.au/geodesy/sp1.html>.

This guideline builds on the concepts and methodologies outlined in Special Publication 1 (or SP1), which is the *Standard for the Australian Survey Control Network (SP1 v2.0)* published by the Australia and New Zealand Inter-Governmental Committee on Surveying and Mapping (ICSM). The *SP1 Guideline for Control Surveys by GNSS (SP1 v2.0)* also sets the framework for this guideline.

This guideline adopts the use of the terms *survey uncertainty*, *positional uncertainty* and *relative uncertainty* from SP1 as the framework for assessing and reporting the quality of GNSS measurements in cadastral surveys.

This guideline covers the same types of GNSS equipment covered by the SP1 GNSS Guideline; namely the use of survey quality GNSS equipment that measure precise code and carrier phase (i.e. dual frequency) measurements and can therefore typically deliver relative positions between GNSS antennae with centimetre level survey uncertainties. In terms of GNSS measurement techniques:

- This guideline covers the GNSS measurement techniques referred to in the SP1 GNSS guideline as *classic static* and *quick static* (the latter is also referred as *fast static* or *rapid static* by some GNSS equipment suppliers).
- This guideline extends beyond the current SP1 guideline to also cover the GNSS measurement techniques referred to in the SP1 GNSS guideline as real-time kinematic surveys using a single reference station (*single station RTK*) and real-time kinematic surveys using a network of continuously operating reference stations (*network RTK*).
- This guideline does not cover the GNSS measurement techniques referred to in the SP1 GNSS guideline as *single point position* and *differential GNSS*, which typically use low quality equipment and can only achieve survey uncertainties at the several metre level and several decimetre level respectively.

8.2 GNSS survey principles

Standard under the SMI Act

See section 3.4 *Accuracy*, page 13.

See section 3.19 *Easements—surveys of long line easements*, page 31.

See section 3.30 *Profit a prendre*, page 43.

See section 3.34 *Remote area surveys*, page 48.

GNSS technology can allow a measurement quality suitable for some cadastral survey activities. It is the responsibility of the surveyor to assess the suitability of GNSS for a particular activity in a given survey. If assessed to be suitable, then the use of GNSS must conform to the following principles:

- **GNSS measurement quality** – GNSS surveys must be designed to ensure that all possible sources of error are minimised to a level expected for the GNSS technique used;
- **GNSS measurement quality for cadastral surveys** – The survey uncertainties achieved from GNSS measurements must ensure that any possible outliers are detected and removed and that the relative uncertainty between adjacent cadastral survey marks does not exceed the vector accuracies specified in section 3.4.2 *Measurement accuracy*;
- **Measurement traceability** – GNSS measurements must conform to legal traceability requirements in line with the SMI Act and the National Measurement Act 1960;
- **Coordinates, heights, bearings and distances** – GNSS surveys must use and manage coordinates, heights, bearings and distances in a manner suitable for cadastral purposes;

- **Survey records** – GNSS surveys must allow lodgement and storage in the register of sufficient information to enable the survey to be correctly and unambiguously interpreted.

8.3 GNSS measurement quality

Guideline under Standard 8.2 GNSS survey principles

8.3.1 The nature of GNSS measurements

Measurements of angle and distance traditionally used in cadastral surveys are made across the landscape and directly between an instrument and a reflector. GNSS measurements have a number of significant differences:

- Signals generated by the satellites are measured by the surveyor's antenna and receiver;
- Measurements from each receiver are combined with each other and the satellite orbits to compute relative positions between the various antennae;
- Those relative positions can be expressed as bearings and distances but it is important to remember that those are derived quantities and not what is actually measured.

Given these factors, the quality of GNSS measurements are affected by a number of factors that are quite different to total stations. Those effects are outlined in the SP1 GNSS guideline as:

- GNSS system effects such as orbit error and satellite availability and geometry at each survey site;
- Atmospheric effects due to the ionosphere and troposphere;
- Site dependent effects such as obstructions to the signals, reflected signals (known as multipath and potentially causing decimetre errors) and interference from non-GNSS radio sources;
- Instrumental effects, most noticeably un-modelled antenna phase centre offsets.

8.3.2 Achieving expected GNSS measurement quality

The SP1 GNSS guideline outlines issues with equipment, observations techniques and processing procedures when using the classic static and quick static techniques. While those guidelines are aimed at datum control surveys the recommendations for achieving survey uncertainties better than 30mm for horizontal position ("SU<30mm") can also be applied to cadastral surveys.

In choosing a suitable GNSS measurement technique for cadastral surveys, surveyors should consider the relevant issues in the SP1 GNSS guideline as well as manufacturer's guidelines for the equipment, software and GNSS technique being used. For cadastral surveys, particular attention should be paid to:

- **Minimising site dependent effects.** This is a major concern for cadastral surveys because measurements often need to be made close to buildings, fences or vegetation. If a cadastral corner is subject to multipath or obstructions, it may be necessary to make the GNSS measurements at reference marks that are free of such problems and connect to or place the cadastral corner using non-GNSS techniques. Excluding GNSS data below a certain elevation mask (e.g. below 15 degrees) and ensuring reasonable satellite geometry (based on so-called DOP values) can also help to minimise site dependant effects;
- **Observing for sufficient time to minimise the effects outlined above and to achieve the required survey uncertainty.** Manufacturer's guidelines usually give suggestions for the observation time required for a given technique and taking into account number of available satellites and baseline length. If real-time kinematic (RTK) technique is chosen as a suitable method for the survey, it is strongly recommended that the occupation time at each mark allows recording of at least one minute of data following initialisation (also referred to as ambiguity resolution). It should also be noted that if the initialisation time is significantly longer than expected from the manufacturer's specifications, it could indicate problems with the GNSS data at that site and/or at that time;
- **Even with careful site selection and sufficient observation time, undetected outliers can still occur in GNSS surveying.** Where the only measurements to a mark are using GNSS then the mark must be occupied twice to ensure any outliers are detected. If the mark is subject to multi-path and/or obstructions, it is recommended that the occupations be separated by at least 30 minutes to allow sufficient change in the satellite constellation. In the case of RTK, it is desirable

(but not mandatory) that the dual occupations use two different base station locations at different times to help isolate any base station errors. An alternative to dual GNSS occupations is to use non-GNSS techniques to check any single GNSS occupations;

- **Minimising non-GNSS effects.** Effects on the actual GNSS measurements are not the only potential source of error in GNSS surveying and external factors such as centring also come into play. For example, use of a tripod and tribrach or a pole in a bipod is preferable to a hand-held pole.

8.4 GNSS measurement quality for cadastral surveys

Guideline under Standard 8.2 GNSS survey principles

8.4.1 Suitability of GNSS measurements for cadastral purposes

Section 3.4.2 *Measurement accuracy* sets out how to check cadastral survey accuracy. The most appropriate method for checking a GNSS survey is coordinate comparison between individual occupations of a cadastral mark and comparison with coordinated permanent survey marks.

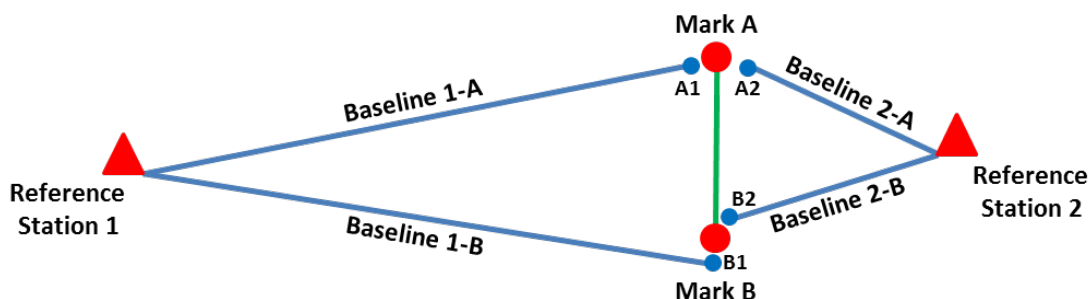
8.4.2 Testing quality of GNSS measurements and their suitability for cadastral purposes

In the case where GNSS is the only technique used at a given mark in a survey, it should be occupied twice. The most rigorous way to test the quality of GNSS measurements is using least squares adjustment. For detailed guidance see the SP1 *Guideline for the Adjustment and Evaluation of Survey Control* along with any instructions for the particular brand of adjustment software being used.

However, for real-time surveys, rather than using least squares adjustment, it is often desirable to test the quality of the GNSS measurements by comparison of the coordinates from two or more GNSS occupations of the same mark. That involves calculating the **expected** agreement between two occupations of a mark (given the equipment and technique used) and comparing that to the **actual** agreement between the two occupations.

Note that quality indicators displayed by the survey controller in the field or in post-processing software can often be overly optimistic because it is based more on internal measurement noise and can underestimate external effects, such as multipath (especially for short occupation times). Therefore, the manufacturer's specification for a given piece of equipment and technique should be used to compute the expected uncertainty of the measurements.

The use of coordinate comparison is best explained using an example survey as shown in the figure below. The surveyor establishes a GNSS base receiver at reference station 1 and uses a GNSS rover receiver to occupy cadastral marks A and B. The Base receiver is then moved to Reference Station 2 and A and B are reoccupied. So for mark A, the first occupation measures baseline 1-A resulting in coordinates at A1 and the second occupation measures baseline 2-A resulting in coordinates at A2. Similarly, B1 and B2 represent the two occupations of mark B.



In the following calculations, it is assumed that the two reference stations have been surveyed to a high quality (e.g. are existing GDA Datum PSMs) such that any relative uncertainty between them has minimal effect when comparing A1 to A2 or B1 to B2.

The equipment manufacturer has stated that the RTK technique should achieve a root mean square (RMS)

of 8mm+1ppm horizontally for each baseline measurement. To estimate the expected measurement uncertainty (at 95% confidence in 2 dimensions) the expected RMS needs to be multiplied by a coverage factor of 2.45. If baselines 1-A and 1-B are 3km long and baselines 2-A and 2-B are 1km long, the expected measurement uncertainties can be calculated as follows:

$$\text{Measurement Uncertainty A1} = (0.008m + 1ppm * 3,000m) * 2.45 = 0.011m * 2.45 = 0.027m$$

$$\text{Measurement Uncertainty A2} = (0.008m + 1ppm * 1,000m) * 2.45 = 0.009m * 2.45 = 0.022m$$

$$\text{Measurement Uncertainty B1} = (0.008m + 1ppm * 3,000m) * 2.45 = 0.011m * 2.45 = 0.027m$$

$$\text{Measurement Uncertainty B2} = (0.008m + 1ppm * 1,000m) * 2.45 = 0.009m * 2.45 = 0.022m$$

The following steps outline the testing of the quality of the survey using coordinate comparison:

- The two occupations of mark A can be tested using their expected measurement uncertainties to calculate an outlier test as follows:

$$\text{Outlier Test}_A = \sqrt{\text{Measurement Uncertainty}_{A1}^2 + \text{Measurement Uncertainty}_{A2}^2}$$

$$(\text{Worked example: Outlier Test}_A = \sqrt{0.027^2 + 0.022^2} = 0.035m);$$

- Therefore, if the horizontal distance between the coordinates of each occupation, A1 and A2, is less than or equal to the outlier test (0.035m in the example above), it is reasonable to conclude that the equipment and technique are performing according to manufacturer's specifications and that neither measurement to mark A is an outlier;
- If the difference between the two occupations does not pass the outlier test then a new independent occupation should be made. Note that consistently failing the outlier test at multiple marks may indicate a problem with the coordinates of one or both of the reference stations;
- Having made two occupations that pass the outlier test, one can take a mean of the two sets of coordinates (A1 and A2) and the survey uncertainty (SU) of that mean can be estimated as follows:

$$SU_{\text{MeanA}} = \sqrt{(\text{Measurement Uncertainty}_{A1}^2 + \text{Measurement Uncertainty}_{A2}^2) / \text{Number Occupations}^2}$$

$$(\text{Worked example: } SU_{\text{MeanA}} = \sqrt{(0.027^2 + 0.022^2) / 2^2} = 0.017m).$$

The quality of the two occupations of mark B can then be tested in a similar manner to mark A, such that:

- The measurement uncertainties for the two occupations of mark B are used to calculate an outlier test for B1 and B2 using the same formula as for mark A.
(Worked example: Outlier Test_B = 0.035m);
- Assuming the outlier test is passed, the survey uncertainty for the mean coordinates from the two occupations of mark B can also be calculated as for mark A.
(Worked example: SU_{MeanB} = 0.017m).

Having confirmed that all 4 occupations are not outliers, the expected relative uncertainty between marks A and B can be calculated:

$$RU_{A \text{ to } B} = \sqrt{SU_{\text{MeanA}}^2 + SU_{\text{MeanB}}^2}$$

$$(\text{Worked example: } RU_{A \text{ to } B} = \sqrt{0.017^2 + 0.017^2} = 0.025m);$$

It is then up to the surveyor to decide whether that level of relative uncertainty between marks A and B is suitable for the cadastral survey. In the example above, A and B need to be at least 290m apart before a relative uncertainty of 0.025m can satisfy the standard of 10mm plus 50ppm. It should also be noted that with longer baselines between the base stations and the cadastral marks, the uncertainties in each measurement above become larger and it becomes more difficult to achieve the required relative uncertainties between cadastral marks.

If the relative uncertainty achieved between marks did not meet the standard of 10mm plus 50ppm, the design of the RTK survey can be improved by:

- Improving the measurement uncertainty by reducing the distance between the reference station and the new marks (e.g. moving reference station 1 closer in the example), or;
- Improving the survey uncertainties of the mean coordinates by adding a third independent

occupation at each mark.

If any of the new marks in the real-time GNSS survey are permanent survey marks, it is also necessary to estimate the horizontal positional uncertainty to attach to the mark in the Queensland Survey Control Register. If mark A in the example above was a permanent survey mark, its horizontal positional uncertainty can be estimated using the survey uncertainty of its mean coordinates and the horizontal positional uncertainty of the nearest reference station (station 2 in the example above). Therefore, if we assume that reference station 2 is an existing PSM with a stated PU of 0.010m, then the horizontal positional uncertainty of mark A can be estimated as:

$$PU_A = \sqrt{PU_2^2 + SU_{MeanA}^2}$$

(Worked example: $PU_A = \sqrt{0.010^2 + 0.017^2} = 0.020\text{m}$).

While most cadastral surveys do not require high precision height measurements, it is worth remembering that a disagreement in height between two GNSS occupations is a useful additional indicator of potential problems. It is therefore advisable to measure antenna heights or use fixed height poles in bipods. The above calculations can be repeated using a manufacturer stated RMS for height of 15mm+1ppm and using 1.96 as the cover factor for 95% confidence in one dimension. Repeating the above calculations using those values leads to an expected agreement in height between two occupations of the same mark (i.e. outlier test) of 0.047m or better.

The entire approach outlined above can also be applied to network RTK measurements. With network RTK, quality can vary with location across the network but a representative horizontal RMS for a given occupation is of the order of 0.020m. In that case, the relative uncertainty (at 95% confidence) between marks A and B would be 0.049m. In that case, A and B need to be at least 780m apart to ensure that the standard of 10mm plus 50ppm is met using network RTK.

8.4.3 Guidance on specific GNSS survey techniques

This section gives guidance on how specific GNSS survey techniques can be applied to cadastral surveys.

8.4.3.1 Guidance on real time kinematic (RTK)

The analysis in the previous section indicates that RTK and network RTK may be suitable for surveys where cadastral lines are several hundred metres in length, providing careful attention is paid to minimisation of site specific errors, ensuring sufficient observation time and use of dual occupations to detect possible outliers.

Therefore, RTK and network RTK are typically **best suited** to:

- Measuring long lines in rural cadastral surveys;
- Measuring long lines between control across large urban subdivisions;
- Surveying natural feature boundaries;
- Other non-cadastral survey tasks in the land development process, such as contour and detail surveys or for bulk earthworks.

It follows that RTK and network RTK cannot satisfy the standard of 10mm plus 50ppm over short lines and is therefore **not suited** to:

- Placement of or measurement between cadastral marks in urban areas where distances often range from 10s of metres (e.g. suburban lots) down to 1 metre (e.g. street corner truncations marks);
- Short connections between corners and reference marks in any cadastral surveys, whether urban or rural.

8.4.3.2 Guidance on static and quick static

Equipment and software available for undertaking static and quick static GNSS surveys can typically achieve a horizontal RMS of 3mm+0.5ppm. If the example calculations above are repeated using a measurement uncertainty of RMS * 2.45 for 95% confidence, the resulting relative uncertainty between marks A and B reduces to 0.009m. Therefore, static and quick static GNSS surveys can achieve uncertainties comparable to total station measurements and can be suitable for achieving the standard of

10mm plus 50ppm.

However, the observation times required for the static and quick static may make the techniques less efficient than traditional total station measurements. Even so, static and quick static GNSS survey techniques are suitable for high quality control surveys to set the overall framework for a cadastral survey; such as the surround survey for a new estate in an urban area or for measuring long lines on large rural cadastral parcels. The techniques can also be useful where real-time communications are problematic.

It is anticipated that when the static or quick static techniques are used, the survey will typically be connected to nearby PSMs or CORS. However, in remote areas, the use of the AUSPOS online processing technique may be suitable, so long as sufficient checks are built into the survey. For example, good practice would be to use AUSPOS to coordinate two or more PSMs at the extremities of the survey and check that other GNSS measurements in the cadastral survey fit between the PSMs within expected uncertainties.

8.4.3.3 Guidance on the use of GNSS to orient total station surveys

It is often desirable to use a combination of GNSS and total station measurements in a cadastral survey, for example where GNSS alone cannot achieve the required uncertainty or it is not possible to occupy a new or existing cadastral mark using GNSS, due to obstructions or likelihood of multipath. In such cases it may be desirable to use GNSS measurements to orient the total station part of the survey.

Consider the example above where the expected relative uncertainty between two marks (A and B) that were coordinated using GNSS is 0.022m. Assuming that A and B were 300m apart and that the GNSS error was all in the orientation of the line, then the MGA bearing of the backsight from mark A to B could be sufficiently accurate to orient total station connections to cadastral marks near mark A (e.g. a 0.022m uncertainty in a 300m backsight causes 0.002m in a 30m foresight).

If the marks were less than 300m apart and the relative uncertainty was still 0.022m, it might still be suitable as a backsight for short foresights. However, the GNSS derived distance between marks A and B would then not satisfy the 10mm plus 50ppm standard, so the distance to be shown would need to be measured with the total station.

8.5 GNSS measurement traceability

Guideline under Standard 8.2 GNSS survey principles

8.5.1 Connecting a GNSS cadastral survey to the datum to achieve legal traceability

To ensure legal traceability of position measurements, two (2) marks on the cadastral survey must each be connected to:

- two (2) continuously operating reference stations (CORS) in the Australian Regional GNSS Network (ARGN), which is operated by Geoscience Australia (GA), e.g. using the AUSPOS online processing service; or
- two (2) continuously operating reference stations CORS in other networks, for which GA has computed high quality coordinates and issued Regulation 13 certificates under the *National Measurement Act 1960* (Cth); or
- two (2) permanent surveys marks designated as GDA datum marks in the Queensland survey control register.

The quality and consistency of these connections should be checked using either a least squares adjustment constraining the published coordinates of the PSMs or CORS, or by doing coordinate comparisons similar to the approach described in the preceding sections.

8.5.2 The GNSS legal traceability regime

The *Surveying and Mapping Infrastructure Regulation 2014* requires a surveyor to ensure that any equipment used for a cadastral survey is standardised.

The *National Measurement Act 1960* (Cth) requires that where Australian legal units of measurement have been defined for a physical quantity, then measurements of that physical quantity shall only be legal when

they are traceable to the Australian primary standard of measurement. For GNSS surveying, the National Measurement Institute has determined that the relevant physical quantity is **position**. It should be noted that is different from total stations, tapes and steel bands where the relevant physical quality is **length**.

Geoscience Australia (GA) has been appointed as a verifying authority for position under the *National Measurement Act 1960* (Cth) and the ARGN is now recognised as a so-called “value standard” for position. GA is able to extend that regime to other CORS. This is achieved by GA processing the CORS data relative to the ARGN and issuing a Regulation 13 certificate with its high quality position.

In Queensland, the department enables GNSS surveys to connect to the legal traceability regime via certain designated permanent survey marks (PSMs). The department has combined all of the episodic GNSS measurements between those PSMs across the state into a single geodetic adjustment. That adjustment is then constrained by the ARGN and other CORS with Regulation 13 certificates to create the datum layer of the survey control register.

8.6 Coordinates, heights, bearing and distances

Guideline under Standard 8.2 GNSS survey principles

8.6.1 Use of Geocentric Datum of Australia and Map Grid Australia

Given the requirement to achieve legal traceability by connecting a GNSS cadastral survey to CORS or to designated PSMs, the GDA/MGA coordinates of those PSMs or CORS will be propagated onto corners, reference marks and new PSMs in the cadastral survey. A GNSS cadastral survey should be treated like any other cadastral survey and conform to any other survey requirements relating to the use and depiction of coordinates. More information on GDA/MGA can be found in the GDA technical manual published by ICSM <www.icsm.gov.au/geodesy/sp1.html>.

When using the static or quick static GNSS techniques in a cadastral survey, it is recommended that coordinates of the designated PSMs or CORS connected to the survey be used to “seed” the post-processing. Those high quality coordinates can significantly improve the computation of the GNSS baselines, e.g. by improving the likelihood of correctly resolving ambiguities.

Similarly, it is recommended that the coordinates of designated PSMs or CORS in the area be used to coordinate RTK base stations used in a cadastral survey.

8.6.2 Use of terrain distances

Section 48B of the *Land Title Act 1994* requires that distances shown on cadastral plans must be corrected so that they are a horizontal distance between the marks on the ground. This is interpreted as being at the mean terrain height of the line (referred to as “level terrain distances” in this section).

When using a total station, the measurements are made at the height of the terrain and level terrain distances are typically achieved by simply applying a slope correction to the measured distances.

However, distances resulting from GNSS measurements are computed on the ellipsoid. Surveyors should note that ellipsoidal distances can be significantly different to terrain distances depending on the height of the terrain in the area. A change in height of 6.5m causes approximately a 1ppm effect on distances. Therefore, at 650m above the ellipsoid, the difference between terrain and ellipsoidal distances is approximately 100ppm. Similarly, variations in height across a cadastral survey covering a large area may also be significant.

8.6.3 Use of local projections and scale factors

Given the need to make comparisons on existing PSMs with GDA coordinates and AHD heights, there will often be a need to set the controller in the field and/or in post processing software to use GDA94/MGA94 and AusGeoid. Similarly, it is sometimes desirable to set the GNSS equipment or software to operate in a local plane coordinate system and/or scale factor when searching for original marks or placing new marks.

Surveyors should be aware of and take great care in relation to the effect that changes to the datum and/or projection settings in their GNSS equipment can have on the bearings, distances and heights stored and/or displayed during the cadastral survey.

Surveyors should also be aware that the projection options set in the controller in the field and/or in post processing software may also affect what types of distances are stored and/or displayed. For example, if the projection is set to MGA then grid distances may be displayed or stored that are subject to line scale factors and can be significantly different to level terrain distances.

Most GNSS equipment allows the surveyor to fit GNSS measurements to local marks; a technique sometimes referred to as a “local calibration” or “site calibration”. Care should be taken when using this approach, which fits the GNSS measurements to a previous cadastral survey by swinging bearings and scaling distances to agree with a line between two original marks. If the true measurement between the marks has excess or shortage compared to the previous cadastral survey, that excess or shortage can then distort all of the subsequent distances computed throughout the GNSS survey.

The above issues can be addressed using various approaches, such as computing height and projection scale factors to give a combined scale factor that converts MGA distances to terrain distances in the project area. Another approach is to create a modified transverse mercator projection that uses a combined scale factor to create a local plane coordinate system at the longitude and height of the project.

A key overarching point is that surveyors should pay careful attention to the use of GDA, MGA, local calibrations, scale factors and projections to ensure that measurements are not unduly distorted for cadastral purposes, while also meeting requirements for depiction of level terrain distances and propagation of GDA/MGA coordinates.

8.7 GNSS survey records

Guideline under Standard 8.2 GNSS survey principles

8.7.1 Field notes

As with any survey, field notes or logging sheets are useful for documenting a GNSS survey. Surveyors should therefore give consideration as to what should be recorded in the field, either on paper and/or digitally in the survey controllers used with the GNSS receivers.

8.7.2 Data processing and archiving

In RTK surveys, it is advisable to configure receivers to log the raw GNSS data to enable post-processing if checks are required at a later date.

On completion of field work, software supplied with the GNSS equipment is typically used to analyse the GNSS measurements that will be used in the cadastral survey.

Multiple occupations need to be analysed to derive the best available positions for the cadastral marks. Analysis is typically done using least squares adjustment or coordinate comparisons. It also requires analysis of how well the new GNSS measurements agree with survey control information for the existing PSMs and/or CORS that were connected during the survey. The final positions of corners, reference marks and PSMs are then used to compute bearings and terrain distances suitable for the cadastral survey.

It is recommended that all the project files in the software be archived, including raw data, processing results, configuration files (e.g. with datum and projection information). It is also recommended that the software be used to create suitable reports that can be archived as digital files and/or paper printouts.

When AUSPOS is used, the surveyor should archive a copy of the AUSPOS processing report along with the RINEX input file.

Where survey records or a survey report is required to be submitted with a survey plan, GNSS processing reports and printouts may be necessary to document the GNSS aspects of the survey. Where GNSS was used to determine any right line boundaries in a survey, then commentary on which lines were determined by GNSS and methodology adopted may be integrated into any other report required to be submitted with the survey, such as a reinstatement report under section 3.33 *Reinstatement of boundaries*. (See examples reports in Appendix F *Reports*).

8.7.3 Permanent survey marks and survey control

Guideline under Standard 8.2 GNSS survey principles

GNSS surveys are subject to all existing requirements relating to new or existing PSMs, including completion of permanent survey mark plans and lodgement of information for inclusion in the Survey Control Register.

When AUSPOS is used, it will typically be used to process an occupation of a PSM. To ensure that the AUSPOS results are correctly reflected in the Survey Control Register, all relevant digital files should be emailed to the survey control business area of the department with “SCDB” contained within the subject field. The following files should be attached:

- permanent survey mark plan or maintenance form as PDF;
- The AUSPOS processing report as PDF;
- The AUSPOS occupation may be valuable for the State Control Survey, especially if there are several hours of GPS data. Therefore, the surveyor should also attach the RINEX input file(s).

9 Plan standards

This section should be read in conjunction with the *Registrar of Titles directions for the preparation of plans*, <www.dnrm.qld.gov.au/land/titles-valuations/titles-professionals/survey-plan-requirements/directions-plan-preparation>.

9.1 Abbreviations

Guideline under Standard 9.55 Plan presentation

See section 9.55 *Plan presentation*, page 133.

See Appendix B *Abbreviations*, page 154.

Abbreviations may be used where space prevents the use of the full word.

A limit of three consecutive letters is preferred (e.g. Cen. face S.F.P. or C face SFP; not C.F.S.F.P.).

The full stops denoting an abbreviation may be omitted.

The abbreviations traditionally used on survey plans (shown in Appendix B) enable certain survey information to be presented clearly and unambiguously and therefore their use is a way of meeting the requirements of section 9.55 *Plan presentation*.

9.2 Action statements

Standard under the SMI Act

See section 3.10 *Changing deeds of grant, reserves, leases and trust land*, page 21.

See section 5.17 *State land actions*, page 80.

See the *Land Act 1994*.

See the *Registrar of Titles directions for the preparation of plans*, Direction 4.10 ‘Cancelling clause containing reference to unallocated State land’,

<www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97198/rdpp-section-4.pdf#page=5>.

An action statement is required for opening or closing road, and must appear on the first sheet of the plan.

9.2.1 Road opening

Where a single parcel is the subject of the approval, the action statement should take the following form:

Area of new road (1–5–7–9–1) 85 m²

Where road is to be opened from more than one lot, the area of the excision from each tenure type is required to be identified. The action statements may be grouped and a total area of new road is required. The action statement should take the following form:

Area of new road	(1–4–6–7)	45 m ²
	(8–1–8)	272 m ²
	(27–2–12–13–5–27)	1.254 ha
	Total	1.2857 ha

9.2.2 Road closure

See section 10.2.2 *Creation of roads in leases, reserves, trust land and USL*, page 136.

See the *Registrar of Titles directions for the preparation of plans*, Direction 4.10 ‘Cancelling clause containing reference to unallocated State land’,

<www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97198/rdpp-section-4.pdf#page=5>.

Where road is added to an existing parcel (including USL), the action statement should take the following form:

Area of closed road (1–2–3–4–6–1) 1.256 ha

Where road is to be closed and included into more than one lot, the area added to each lot is required to be identified. The statements may be grouped. A total area is required. The action statement should take the following form:

Area of closed road	(1-3-4-5)	2564 m ²
	(9-8-11-9)	127 m ²
	Total	2691 m²

Where the road closure action creates a lot (or lots) and does not add the closure to any existing lot:

Area of closed road (Lot 1) 2564sqm

9.2.3 Simultaneous road opening and road closing

See section 3.10.5 *Simultaneous opening and closing*, page 22.

See section 10.4 *Simultaneous opening and closure of road*, page 137.

See the *Registrar of Titles directions for the preparation of plans*, Direction 4.10 ‘Cancelling clause containing reference to unallocated State land’,

<www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97198/rdpp-section-4.pdf#page=5>.

Action statements for simultaneous road opening and closing in a single parcel should take the following form:

Area of new road	(4-5-6-7-8)	2560 m ²
Area of closed road	(1-2-11-12-1)	3056 m ²

Where there are many lots on the one plan, action statements for simultaneous road opening and closing in multiple parcels should take the following form:

Area of new road	(1-4-6-7)	45 m ²
	(8-1-8)	272 m ²
	(27-2-12-13-5-27)	1.254 ha
	Total	1.2857 ha

Area of closed road	(1-3-4-5)	2564 m ²
	(9-8-11-9)	127 m ²
	Total	2691 m²

9.3 Adjoining description

Guideline under Standard 3.5 Adjoining information

See section 3.5 *Adjoining information*, page 15.

See Appendix B, *Abbreviations* page 154.

All adjoining information should be shown in sloping hairline. The latest adjoining registered descriptions and relevant catalogue numbers are shown as follows:

21	42	ML 4	16	16
SL10432	CP808793	MP34567	RP123456	SP123458

Where the adjoining land consists of a number of lots on the same plan, it is not necessary to show the adjoining plan number separately on each lot, provided there is no ambiguity as to the relevant plan number for each lot.

For adjoining information that is either volumetric or ‘below the depth’ it should be shown in broken

sloping hairline style. For example:

56	24
SP123456 (Volumetric)	RP123456

It is not necessary to show secondary interests in adjoining land, if they do not abut the subject boundary.

For the requirements for showing adjoining descriptions of common property, see the *Registrar of Titles directions for the preparation of plans*, Direction 11.3 'Description of common property', <www.dnrm.qld.gov.au/__data/assets/pdf_file/0005/97205/rdpp-section-11.pdf#page=1>.

9.3.1 Adjoining easements

Guideline under Standard 3.5 Adjoining information

See section 3.5 *Adjoining information*, page 15.

Show registered easements and registered plan numbers that abut the subject boundary. For example:

<i>Emt A</i>	<i>Emt G</i>	<i>Emt J</i>
SL20657	SP213175	CP12345

9.3.2 Adjoining leases

Guideline under Standard 3.5 Adjoining information

See section 3.5 *Adjoining information*, page 15.

Leases of part of a building registered under the *Land Title Act 1994* need not be shown as adjoining information.

9.3.3 Adjoining railway

Guideline under Standard 3.5 Adjoining information

See section 3.5 *Adjoining information*, page 15.

The railway name may be shown in addition to the lot-on-plan description.

9.3.4 Adjoining building units or group titles plans

Standard under the SMI Act

See section 9.18.1.2 *Common property*, page 118.

With the introduction of the *Body Corporate and Community Management Act 1997*, comatose titles as per the *Building Units and Group Titles Act 1980* no longer exist. Accordingly, where the adjoining information is scheme land (including BUP or GTP), it will be shown as a lot/plan description or a common property/plan description as appropriate. It is not necessary to show the scheme name. For showing common property see the *Registrar of Titles directions for the preparation of plans*, Direction 11.3 'Description of common property' <www.dnrm.qld.gov.au/__data/assets/pdf_file/0005/97205/rdpp-section-11.pdf#page=1>.

9.4 Administrative plans (APs)

Information

See departmental procedure SLM/2004/1700, *Administrative plans for dealings under the Land Act 1994* <www.dnrm.qld.gov.au/?a=109113:policy_registry/plan-requirements-state-land-dealings.pdf>.
See departmental standard SIG/2013/571, *Administrative plans*, <www.dnrm.qld.gov.au/?a=109113:policy_registry/administrative-plans.pdf>.

Government departments produce plans of survey for administrative purposes, such as administrative plans (AP), national parks and wildlife (NPW) plans and State forest (FTY) plans. These plans are prepared and used mainly for government-related purposes (e.g. issuing of permits and licences).

All survey plans including administrative plans and NPW and FTY plans reside with the department and can be searched through CISP.

Surveyors are reminded that many administrative plans are not based on conventional field surveys, and may be to a lower accuracy (similar to leases of low value or short term under Part 5 of the *Registrar of Titles directions for the preparation of plans*

<www.dnrm.qld.gov.au/__data/assets/pdf_file/0008/97199/rdpp-section-5.pdf#page=1>.)

If surveyors identify issues with administrative plans, the same action should be taken as for other survey plans (i.e. refer the matter to the local senior surveyor).

9.5 Alignment offsets

Guideline under Standard 3.23.1 Boundary marking

See section 3.23 *Marking*, page 36.

See section 9.15.3 *Corner references (reference marks)*, page 111.

See section 9.36 *Offsets*, page 126.

See section 11.1 *Alignments*, page 140.

Offset lines should be avoided if possible. Offset marks should be referenced as a direct connection from corners.

9.6 Bearings

Standard under the SMI Act

See section 3.18 *Dimensions*, page 30.

See section 9.37 *Original dimensions*, page 126.

See section 9.42 *Ranged only and reads bearings*, page 128.

Bearings are shown:

- in degrees, minutes and seconds, rounded as appropriate
- outside the parcel
- in a clockwise direction for completed lots
- reduced to the meridian of the survey
- upright on face of plan
- sloping in all tabulations.

It is preferable that the following use of '0' be adopted, for example:

270°0'; 270°03'; 270°00'30"

Note: The use of 270°00'00" is to be avoided.

9.7 Buildings and other improvements on or near a boundary

Guideline under Standard 3.20 Encroachment and improvements on or near a boundary

See section 3.11 *Compiled plans*, page 23.

See section 3.20 *Encroachment and improvements on or near a boundary*, page 32.

See section 3.23.2 *Reference*, page 37.

See section 9.15.4 *Occupation*, page 113.

See section 17 and section 18 of the *Survey and Mapping Infrastructure Regulation 2014*.

See the *Registrar of Titles directions for the preparation of plans*, Part 9 'Building format plans',

<www.dnrm.qld.gov.au/_data/assets/pdf_file/0003/97203/rdpp-section-9.pdf#page=1>.

Encroachments must be clearly illustrated. As a minimum, the following would be required on a plan to satisfy the requirement that the size, nature and location of an encroachment must be shown on the plan:

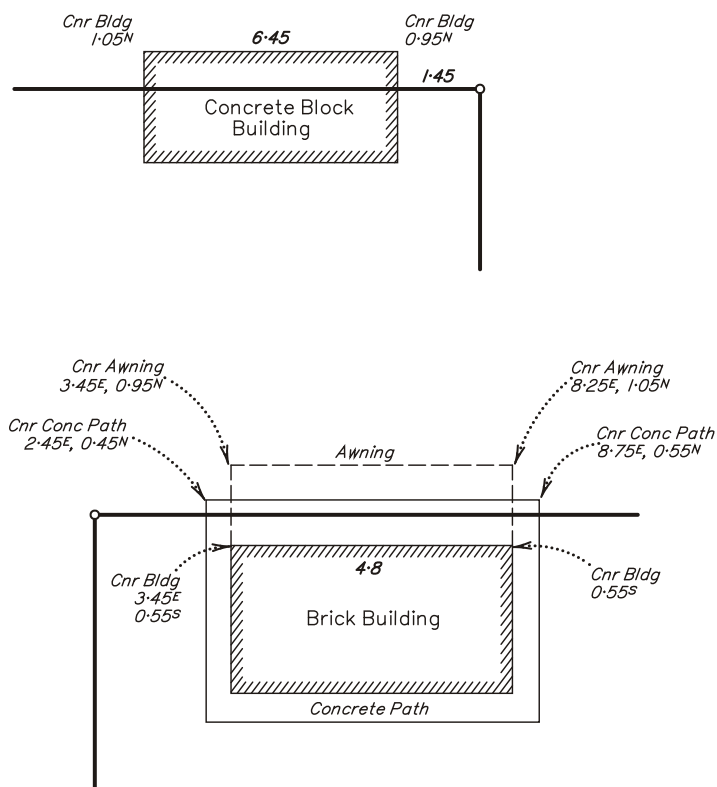
- The encroaching structure should be described (e.g. block wall, house).
- The encroaching edges of the structure should be depicted on the plan, not just one or more corners without any indication of how these relate to the structure.
- The plan should show dimensions to indicate:
 - the size and extent of the encroachment
 - the relationship to cadastral corners.

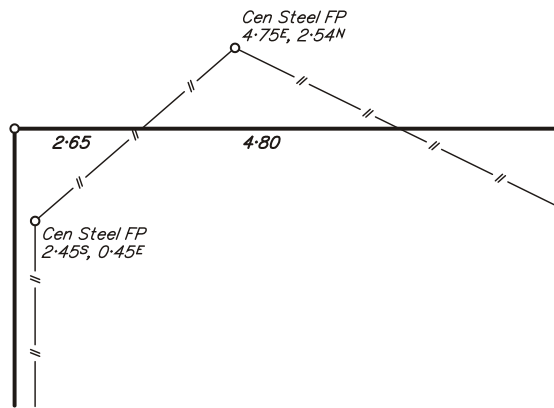
Alternatively, the structure should be plotted at sufficiently large scale to allow these dimensions to be measured on the plan.

Similar information should be shown in relation to other permanent improvements that:

- are adversely affected by the reinstatement of the boundary; or
- are close to the boundary and can be relied on in the future to provide evidence of the location of the boundary.

Encroachments and other permanent improvements may be shown as follows:





When used as a reference mark, connections thereto may be shown ‘on face’ or tabulated in the required manner.

Section 3.23.2 *Reference marks* requires a cadastral surveyor to record the location of permanent improvements (e.g. buildings, retaining walls) on the land that will assist in the future reinstatement of boundaries. Other improvements such as bridges, dams, mine shafts, etc. may be shown if connected to in the course of survey.

9.8 Calculated lines

Standard under the SMI Act

See section 3.18 *Dimensions*, page 30.

See section 3.43 *Unsurveyed and/or calculated boundaries*, page 58.

See section 9.43 *Roads*, page 128.

See section 9.52 *Traverses*, page 131.

Calculated boundaries can be broadly categorised as:

- corners marked (e.g. unsurveyed side of an internal road). The lines must be shown as full lines and correctly labelled
- corners not marked (e.g. remote and inaccessible terrain). Lines shown broken on the plan and successive plans and correctly labelled.

Lines with computed bearings and distances should show the word ‘Calc’. On successive plans these lines would be shown as ‘Orig’.

9.9 Canals

Information

Return to section 5.5 *Canals*, page 76.

9.10 Cancelled boundaries

Guideline under Standard 9.28 Linework

See section 9.28 *Linework*, page 122.

Once cancelled, boundaries are no longer shown on plans.

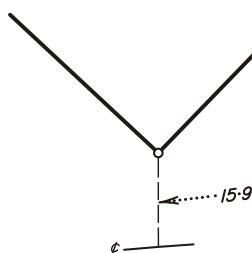
9.11 Centre lines

Guideline under Standard 3.23.1 Boundary marking

See section 3.23 *Marking*, page 36.

See section 9.36 *Offsets*, page 126.

Road centre lines—when shown, indicate as follows:



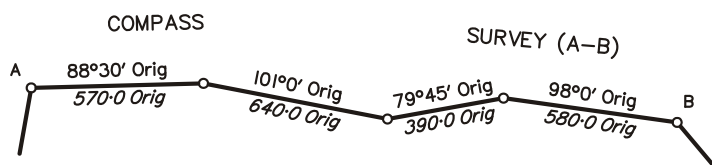
Railway centre lines—connections to 'Rly' are to be shown either on face or by tabulation in the 'Traverses etc.' table.

9.12 Compass survey

Standard under the SMI Act

See section 9.54 *Watersheds*, page 132.

When parts of a boundary have been previously surveyed by compass, these boundary lines should be noted by the term 'compass survey' on face. For example:



9.13 Connections to distant points

Guideline under Standard 9.6 Bearings

See section 9.6 *Bearings*, page 105.

See section 9.42 *Ranged only and reads bearings*, page 128.

'Reads' bearings to beacons, TV towers, etc. can be shown on face or entered in the 'Traverses, etc.' table for clarity.

9.14 Conversions

Standard under the SMI Act

See section 9.33 *Metric documentation*, page 125.

See section 9.38 *Original grants*, page 126.

Conversion factors to be adopted are as follows:	
Links to metres:	links x 0.201168
Note: Distances to be converted to three (3) decimal places	
Perches to square metres:	perches x 25.29285264
Perches to square metres	$m^2 = (\text{perches} \times 625) \times 0.201168^2$
Acres to hectares:	acres x 0.404 685 64
Acres to hectares	$ha = (\text{acres} \times 10) \times 0.201168^2$
Note: Acres to be converted to the nearest square metre (40 perches = 1 rood; 4 roods = 1 acre)	

Table 6 Conversion factors

9.15 Corner information

Guideline under Standard 3.23.5 Survey mark information on plans

See section 3.23 *Marking*, page 36.

Corner information deals with the method of presentation on the face of the plans for:

- corner marks
(i.e. 'original' corner marks and 'new' corner marks)
- reference marks
(i.e. 'original' reference marks and 'new' reference marks)
- occupation.

9.15.1 General guidelines

See diagrams A and B following this section.

Corner information should generally be shown as in Diagram A (i.e. 'on face' presentation) provided the plan can be reproduced at a reduced scale without loss of clarity, otherwise the tabulated presentation method as in Diagram B, where reference mark (including permanent survey mark) information is referred to a table(s), should be used. A mixture of 'on face' and tabulated presentation is to be avoided.

Information on the marking of the corner (i.e. monument at the corner) should be written first, and information on or referring to reference marks and/or occupation should be written in order of proximity after the corner mark. Information on the marking of the corner is shown at all corners that are reinstated by the survey.

Occupation references are generally shown 'on face', but can be referred to the Reference Marks table where the reference 'on face' does not lead to ambiguity as to the marking of the corner. It is preferred that occupation references are determined 'square' from the principal lines run (e.g. station 3—Diagrams A and B); except where a bearing and distance is required to avoid ambiguity (e.g. station 23—Diagrams A and B).

The methods of presentation are influenced by the criteria that ensures clarity of information is maintained on reduction and reproduction of the plan.

9.15.2 Corner marks

See section 3.23 *Marking*, page 36.

See Part 4 of the *Survey and Mapping Infrastructure Regulation 2014*.

Corner marks refer to the survey marks and/or branded occupation found, placed or adopted at all new or existing corners on the survey (e.g. pegs, survey posts or survey marks in occupation at the corner to represent the corner). For example:

OP; Peg pld; Rmns OSP; O Ramset In Br Wall; Screw in Conc fd

The type of nail can be shown (e.g. clout, ramset, spring head).

9.15.2.1 Marks at original corners

See section 9.15.2.2 *Marks at new corners*, page 110.

See diagrams A and B following this section.

When the origin of the existing mark recovered at the corner is known (i.e. recorded on a previously registered survey or a lodged Identification Survey or lodged Redundant Catalogue Plan), the corner mark can be described as follows (the mark may be identified by the addition of the catalogue number of the plan of origin):

OP; OSP; O Nail in Cen RFP; O Screw in Conc (IS2345); O Ramset in Br Wall (RC98765)

When the origin of the existing mark found at the corner is unknown (i.e. no previous cadastral connection on a registered plan, identification survey or redundant catalogue plan) the corner mark can be described as

follows:

Peg fd; Screw in Conc. fd

When there is no existing mark or any evidence thereof at the corner, the corner can be described as follows (note that the term 'No Mk' is never shown on a plan):

No O Mk

When there is no existing mark or evidence of a prior survey mark at the corner, and a new mark is placed at the original corner, the corner mark can be described as follows:

<i>No O Mk</i>		<i>OSP hole</i>
<i>Peg pld</i>		<i>Survey Post pld</i>

Note: 'Peg pld' and 'Survey Post pld' etc. are shown on face of plan when placed at an original corner. These pegs are included in the listing of 'New Pegs' shown in the statement on face of plan (if shown) even though they are placed at an original corner. For example:

Peg placed at Stns 3–9, 11–15 and 19

Peg placed at all new and original comers unless otherwise stated.

When the original mark at the corner has become inaccessible since the original survey and hence is not able to be connected to, then the corner mark, suitably qualified, can be described as follows:

OP not fd (in deep fill); O D/H not fd (under conc.)

When remains of an existing mark or evidence of a prior survey mark is found at the corner, the corner mark can be described as follows:

Rmns OP; OP hole; Rmns OSP; OSP hole

When an existing mark is found disturbed and that same mark is reset at the original corner, the corner mark can be described as follows (note that the term 'replaced' is never shown on a plan):

OP distd Reset; OSP lying out Reset

When an existing mark or remains thereof is removed at time of survey, and is replaced by a new mark of the same type at the original corner, the corner mark can be described as follows (note that the term 'replaced' is never shown on a plan):

OP burnt Renwd; Butt OSP Renwd

When an existing mark or remains thereof is removed at time of survey, and is replaced by a new mark of a different type at the original corner, the corner mark can be described as follows:

<i>OP remvd</i>		<i>Butt OSP remvd</i>		<i>Peg pld</i>
<i>Post pld</i>		<i>Peg pld</i>		<i>OP 0.14S, 0.05W remvd</i>

When an existing mark or remains thereof has been disturbed by construction works (fencing, retaining wall, building) and the occupation is adopted at the original corner, the corner mark can be described as follows:

<i>Cen RFP ↑</i>		<i>GI Nail in RFP</i>
<i>OP 0.25N</i>		<i>OP at ft 0.25W</i>

9.15.2.2 Marks at new corners

See section 9.15.5 *Notations*, page 114.

When the survey establishes new corners, the survey marks placed at these corners are shown either as corner information or by statement on face. For example:

<i>Peg placed</i>	<i>Peg placed at all new corners</i>	<i>Survey Post placed at Stns 4, 7, 11–14</i>
<i>(shown as corner information)</i>	<i>(statement on face)</i>	

If new survey marks placed are branded, this information must also be quoted in the corner information or in statement on face. For example:

<i>Peg Branded (↑) placed</i>	<i>Branded Peg placed at all new corners</i>	<i>Survey Post branded (↑ 3) placed at Stns 4, 7, 11–14</i>
<i>(shown as corner information)</i>	<i>(statement on face)</i>	

Variations such as ‘Peg pld in cairn of stones’, ‘Peg driven flush’, ‘Plastic or Concrete Peg placed’, ‘Star Picket Pld’ must be indicated either in the corner information or in the statement on face.

When the corner is inaccessible and hence is not able to be marked, then the corner mark, suitably qualified, may be described as follows if appropriate:

<i>No mk pld (in swamp)</i>	<i>No mk pld (inaccessible)</i>
---------------------------------	-------------------------------------

9.15.3 Corner references (reference marks)

See diagrams A and B following this section.

Corner references are the reference marks (e.g. iron pins, permanent survey marks, spikes, nails, screws, star pickets, broad arrows, drill holes, pointer pegs, marks on poles, branded trees, bench marks) that are placed or connected to in the course of the survey.

These marks are in addition to the monument denoting the corner. All connections will be from the corner to the reference mark.

Reference marks may be shown on the face of the plan. Where space does not permit, references may be shown by diagram or in the ‘Reference marks’ table. A mixture of ‘on face’ and tabulated presentation is to be avoided. Descriptions of corner information on the face of the plan must be consistent with the descriptions in tables (i.e. descriptions such as ‘OIP gone’ or ‘OIP New Ref’ must be shown both on the face and in the table). See diagrams A and B at the end of this section.

9.15.3.1 Original reference marks

See section 9.7 *Buildings and other improvements on or near a boundary*, page 105.

See section 17 of the *Survey and Mapping Infrastructure Regulation 2014*.

See diagrams A and B following this section.

When the origin of the existing reference mark recovered adjacent to the corner is known (i.e. recorded on a previously registered survey or a lodged identification survey or lodged redundant catalogue plan, enabling the position of the existing corner to be re-established), the reference mark can be described as follows. Best practice is to identify the mark by the addition of the station number and catalogue number of the plan which was the origin of the current reference—either on the face of the plan or in the reference marks table. For example:

*OIP (7/RP1234); ORT (11/C4321); O Nail in Cen RFP (3/RP1234);
O Screw in Conc. (9/RP1234); OIP (I.S. 1568)*

When the origin of the existing reference mark found adjacent to the corner is unknown (i.e. no previous cadastral connection on a registered plan, identification survey or redundant catalogue plan), the reference

mark can be described as follows:

Pin fd; Nail in Bit fd.

When it is evident the original reference mark is missing or destroyed, the reference mark can be described as follows (the connections to the missing or destroyed reference mark are shown on the plan from the original survey records):

OIP gone; ORT gone (burnt out).

When the original reference mark has become inaccessible since the original survey, and hence is not able to be found, the reference mark, suitably qualified, can be described as follows:

<i>OIP not fd (under conc.)</i>	<i>O Nail in Cen RFP not fd (in Dam)</i>
-------------------------------------	--

When the remains of an existing reference mark or evidence of a prior reference mark is found, the reference mark can be described as follows:

<i>ORT hole (burnt out)</i>	<i>Rmns OIP (rusted out)</i>
---------------------------------	----------------------------------

When the existing reference mark is found disturbed or out of position, and that same mark is reset in the original position, the reference mark can be described as follows:

<i>OIP distd reset</i>	<i>Old S Pkt lying out reset</i>
------------------------	----------------------------------

When the existing reference mark is removed at the time of survey, and is replaced by a new mark of the same type in the original position, the reference mark can be described as follows (note that the term 'replaced' is never shown on a plan):

<i>OIP distd renwd</i>	<i>OPM damaged renwd</i>
----------------------------	------------------------------

When an existing reference mark is found disturbed or out of position and the same mark is re-referenced, the reference mark can be described as follows:

<i>OIP distd (New Ref)</i>	<i>OIP distd 180°0', 1.008 (New Ref)</i>
--------------------------------	--

When an existing corner is reinstated in a new position, and an original reference mark is re-referenced to the new corner position, the reference mark can be described as follows:

<i>OIP (New Ref)</i>	<i>OIP 180°0', 1.008 (New Ref)</i>
----------------------	--

When an existing reference mark is removed at the time of survey and replaced by a new mark of a different type, the reference mark can be described as follows:

<i>OIP remvd PM pld</i>	<i>O Ptr remvd Pin pld</i>
-----------------------------	--------------------------------

When an existing reference mark is found adjacent to an existing corner and it is connected to a different corner, the reference mark can be described as follows (note that in addition to the connection to the new corner, a connection to the original corner may also be shown in the usual manner):

<i>OIP New Conn</i>	<i>ORT Stp New Conn</i>
---------------------	-------------------------

When an existing reference mark is found undisturbed but does not agree with the original reference, the reference mark can be described as follows:

<i>OIP (N & C)</i>	<i>Rmns ORT (N & C)</i>
------------------------	-----------------------------

9.15.3.2 New reference marks

See diagrams A and B following this section.

New reference marks can be placed or connected to at existing corners as well as at new corners established by the survey.

When new reference marks are placed or connected to in the course of the survey, the reference marks may be shown either on the face of the plan, by diagram or in the 'Reference marks' table. When showing new reference marks by the method of tabulation, no reference to the mark is shown on face as corner information.

9.15.3.3 Permanent survey marks as reference marks

See section 3.28 *Permanent survey marks*, page 41.

See diagrams A and B following this section.

Permanent survey marks are corner references. In general, the requirements and guidelines relating to reference marks, in particular regarding description, are the same for permanent survey marks, except that when reference marks are shown by the tabulation method, permanent survey marks are tabulated in a separate table headed 'Permanent marks'.

The plan must show the mark type for any new permanent survey mark (i.e. brass plaque, star picket, deep driven mark, mini mark). If a permanent mark table is used, the mark type can be shown in a column headed 'type'.

9.15.4 Occupation

References to occupation are the occupation or improvements (e.g. fence posts, walls, buildings, poles, manholes, gully traps or any such immovable objects) that are connected to in the course of the survey.

These references are in addition to the monument denoting the corner and marks referencing the corner (reference marks). All connections will be from the corner to the occupation.

All occupation present at all corners reinstated or established by a survey is shown.

9.15.4.1 Occupation at original corners

The occupation present at the time of the survey is shown at existing corners regardless of whether the occupation was shown on a previous survey plan or not. However, where the original corner mark was a survey mark in occupation, then the survey mark will be described on the plan.

When occupation referenced on a previous plan is found undisturbed but does not agree with the original reference, the occupation can be described as follows:

<i>Cen RFP</i> <i>0.3S 0.35W (N & C)</i>	<i>Rmns ORT</i> <i>270°15', 8.65 (N & C)</i>
---	---

9.15.4.2 Occupation at new corners

If a new corner is established at which occupation exists (e.g. fence post, walls, buildings, poles, manholes or any such immovable object), the position of the occupation is referenced from the corner. For example:

<i>Cen RFP</i> <i>0.3S 0.06W</i>	<i>Cor Br Bldg</i> <i>0.02N</i> <i>0.05E</i>	<i>C face SFP</i> <i>220°15', 2.6</i>
-------------------------------------	--	--

When a new corner is established by placing a survey mark in occupation (nails, screws, etc. in a fence post, brick wall, etc.), the occupation is referenced. For example:

*Nail in RFP
Cen RFP 0-015S*

*Ramset in Cor Br
Cor Br 0-12W*

*Nail in Cen RFP at
Stns 1, 4, 6-9*

(shown as corner information)

(statement on face)

In these cases the corner mark (i.e. screw, nail) takes priority over the occupation and is thus treated as a corner mark.

If occupation is adopted as the new corner and is branded, this must also be quoted. For example:

N.E Cor SFP (↑ R)

*Cen RFP(↑2) at
Stns 2, 3, 5-8*

(shown as corner information)

(statement on face)

9.15.5 Notations

See section 9.15.2.2 *Marks at new corners*, page 110.

Notations on face of plan may be used in situations where:

- a survey establishes new corners
- space for clear presentation of information 'on face' is limited
- the markings of a number of corners have been treated in the same manner.

For example:

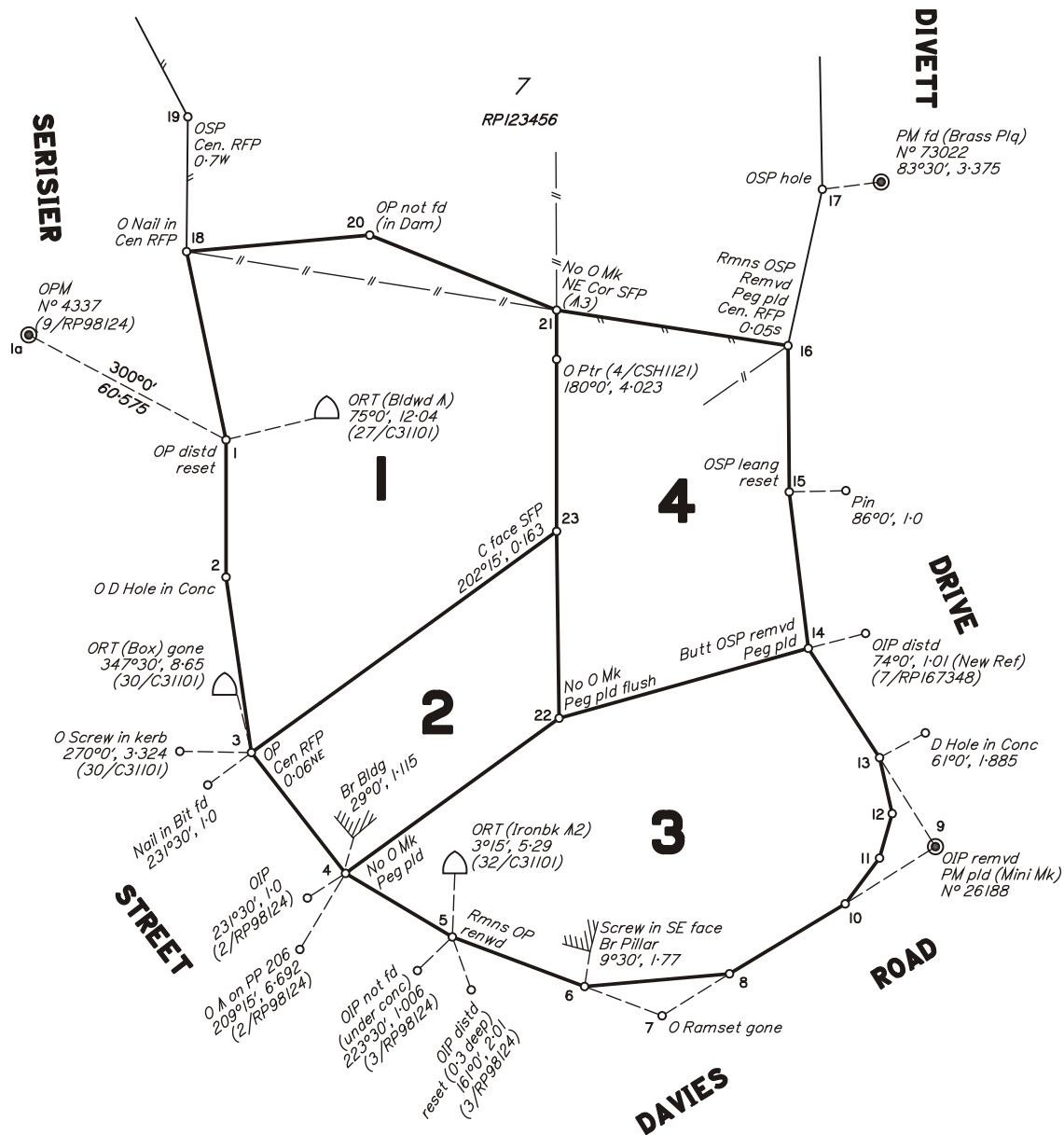
*Peg placed at
Stns 3-9, 11-15*

*Survey Post branded (↑ R) placed
at all new and original corners unless
otherwise stated.*

Diagram A (On face presentation)

Note: A mixture of ‘on face’ presentation and tabulated presentation (Diagram B) must be avoided.

In this example, stations 6, 8, 10–13 and 23 are new corners.



Peg placed at stations 16, 22, 23.

Peg branded (AR) placed at stations
4-6, 8 and 10-14.

9.16 Channel/drain

Standard under the SMI Act

See section 5.7 *Channel/drain areas*, page 77.

A channel or drain area must be given lot numbers and the words '(CHANNEL AREA/DRAIN AREA)' shown in brackets on the face of the plan but not in the description.

For an adjoining description, a channel/drain area is described with the lot/plan description and '(CHANNEL/DRAINAGE AREA)' in brackets on the face of the plan.

9.17 Datum

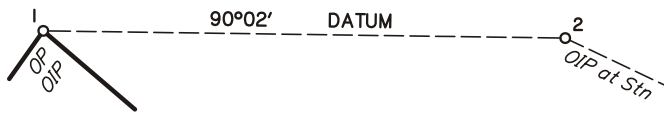
Guideline under Standard 3.24 Meridian

See section 3.24 *Meridian*, page 40.

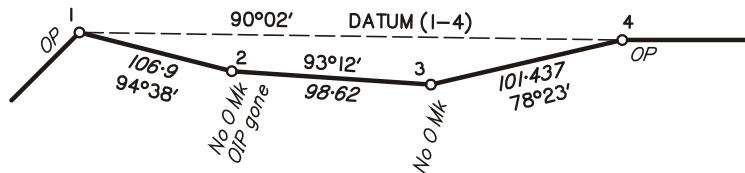
Datum is no longer a requirement on plans. However, where it is used it is shown as follows:



For a cancelled boundary or traverse, show as follows:



Where there are insufficient marks for a datum on one line, the following may be adopted:



9.18 Descriptions in title block

Information

See section 3.8 *Cancelling clause*, page 19.

See the *Registrar of Titles directions for the preparation of plans*, Direction 4.8 'Parcels to be described', <www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97198/rdpp-section-4.pdf#page=2>.

See the *Registrar of Titles directions for the preparation of plans*, Direction 4.9 'Plan description and cancelling clause', <www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97198/rdpp-section-4.pdf#page=5>.

See the *Registrar of Titles directions for the preparation of plans*, Direction 4.10 'Cancelling clause containing reference to unallocated State land',

<www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97198/rdpp-section-4.pdf#page=5>.

9.18.1 Primary estate

9.18.1.1 General

See section 10.2.1 *Creation of roads in freehold land*, page 135.

See the *Registrar of Titles directions for the preparation of plans*, Direction 4.9 'Plan description and cancelling clause', <www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97198/rdpp-section-4.pdf#page=5>.

9.18.1.2 Common property

See section 9.3.4 *Adjoining building units or group titles plans*, page 104.

See the *Registrar of Titles directions for the preparation of plans*, Direction 11.3 ‘Description of common property’, <www.dnrm.qld.gov.au/__data/assets/pdf_file/0005/97205/rdpp-section-11.pdf#page=1>.

9.18.1.3 Unallocated State land (USL)

See section 3.41 *Unallocated State land (USL)*, page 58.

See the *Registrar of Titles directions for the preparation of plans*, Direction 4.10 ‘Cancelling clause containing reference to unallocated State land’, <www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97198/rdpp-section-4.pdf#page=5>.

9.18.2 Secondary interest

See section 3.27 *New lot boundaries intersecting registered secondary interests*, page 41.

See section 7.3.2 *Leases for part of the land only*, page 89.

9.18.2.1 General

See section 50(d) of the *Land Title Act 1994*.

See the *Registrar of Titles directions for the preparation of plans*, Direction 4.8 ‘Parcels to be described’, <www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97198/rdpp-section-4.pdf#page=2>.

9.18.2.2 Use of ‘proposed’

See section 83A of the *Land Title Act 1994*.

See section 364 of the *Land Act 1994*.

9.18.2.3 Examples

Guideline under Standard 3.8 Cancelling clause

The following examples of descriptions in title blocks use ‘Zzz’ as a generic term, and it is to be replaced by the appropriate secondary interest term for your survey (e.g. Emt).

Where a secondary interest is to be created in an existing lot:

Zzz A in Lot 1 on RP123456

Subdivisions with secondary interests in the new lots:

*Lots 1 to 5 and Zzzs B, J & E in
Lots 3, 4 & 5 respectively
Cancelling Lot 1 on RP123456*

Secondary interests in common property in a community titles scheme:

*Zzzs B, J & E in Common Property of
<Scheme Name> Community Titles Scheme <CTS Number>
(CP on BUP1234)*

Secondary interests in common property in a community titles scheme where the common property was created on different plans:

*Zzzs B, J & E in Common Property of
<Scheme Name> Community Titles Scheme <CTS Number>
(CP on SP123456, SP134562 and SP154328)*

Note: Where the common property was created on multiple plans the common property must be shown in the lot allocation table with the secondary interests allocated.

Subdivisions with secondary interests created in adjoining lots:

*Lots 1 and 2
Cancelling Lot 1 on RP123456 and of
Zzz G in Lot 2 on RP45678*

Resurveys with a secondary interest in the same parcel:

*Lot 24 being a Resurvey of Lot 24 on RP123456
and of Zzz E in Lot 24
Cancelling Lot 24 on RP123456*

Resurveys with a secondary interest in an adjoining lot:

*Lot 217 being a Resurvey of Lot 217 on RP123456
Cancelling Lot 217 on RP123456
and of Zzz G in Lot 218 on RP123456*

Secondary interest over a lease of part of land (e.g. easement):

Zzz A in Lease A on SP123456

Note: Also acceptable is 'Zzz A in Lease A on SP123456 in Lot 23 on SP117654', where Lot 23 is the parent parcel. This extended description may assist in CISP entry of the plan.

Secondary interest over undescribed balances:

Zzz A in Lot 1 on RP121345

(where Lot 1 on RP 121345 is the original parcel)

Secondary interest over unallocated State land:

Zzz A in Lot 543 on USL3453

9.19 Description of country

Guideline under Standard 9.55 Plan presentation

See section 9.55 *Plan presentation*, page 133.

Description of country may be shown for surveys in rural areas.

9.20 Diagrams

Guideline under Standard 9.55 Plan presentation

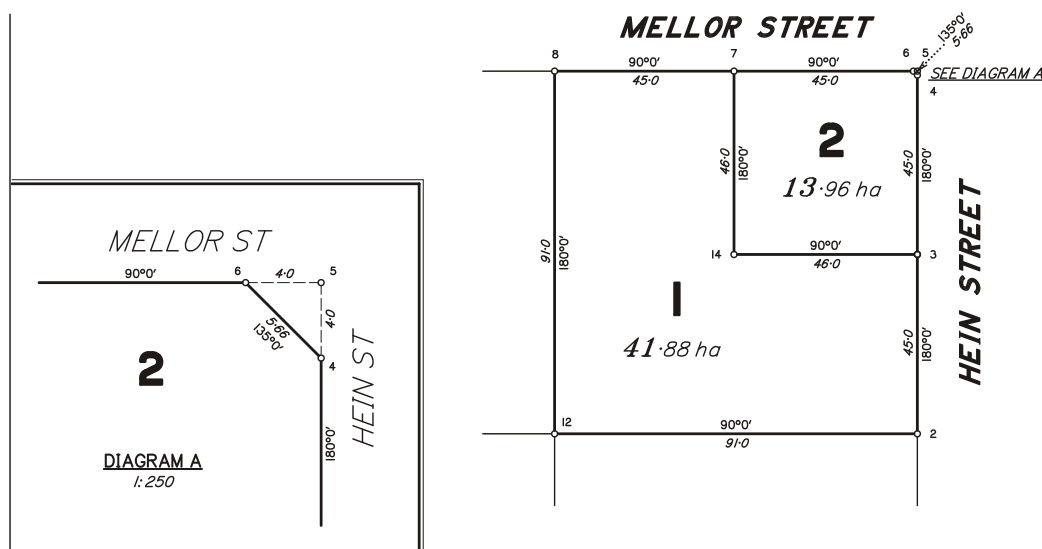
See section 9.35 *Not to scale*, page 126.

See section 9.55 *Plan presentation*, page 133.

Diagrams should be presented as follows:

- refer to the diagram on face of plan, (e.g. **SEE DIAGRAM A**)
- repeat the lot number on the diagram
- if roads and streets are subject on plan, show hairline on diagram
- enclose all diagrams in a border to separate them from the rest of the plan (straight lines preferred)
- draw diagrams to scale if possible
- where more than one diagram is shown on the one plan, diagrams should be labelled consecutively (A, B, C, etc.).

For example:



Note: 6–5 and 5–4 may be tabulated as required.

9.21 Distances

Standard under the SMI Act

See section 3.18 *Dimensions*, page 30.

See section 9.8 *Calculated lines*, page 107.

See section 9.33 *Metric documentation*, page 125.

See section 9.37 *Original dimensions*, page 126.

Distances are shown sloping on the face of the plan and in all tabulations. When they are shown on the face, they are always shown inside the parcel unless the distance is arrowed in.

9.23.1 Brackets

When intermediate distances are shown, the ‘through’ distance is to be shown with brackets.

Station numbers should be used for clarity.

9.22 Fences

Guideline under Standard 9.6 Bearings

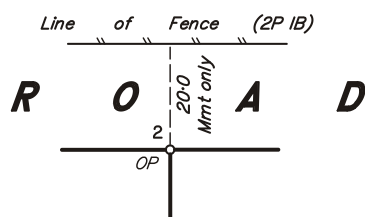
See section 9.6 *Bearings*, page 105.

Type of fence to be shown if possible (e.g. 2P1B, Netting)

‘Reads’ bearings may be shown on fences that exist on previous boundary lines.

If useful, ‘Reads’ bearings may be shown on internal fences.

Connections across roads to fence lines to be treated as follows:



9.23 Forest entitlement areas (FEAs)

Information

Return to section 5.9 *Forest entitlement areas (FEAs)*, page 77.
 See section 2.9 *Reservations in title*, page 8.
 See section 3.6.4 *Multiple line areas*, page 17.
 See sections 26B and 26C of the *Land Act 1994*.

9.24 Ink

Standard under the SMI Act

See section 9.55 *Plan presentation*, page 133

All plans within the definition of the *Survey and Mapping Infrastructure Act 2003*, lodged or deposited with a registering authority for registration, must be drawn in **black**. The ink used for drafting, signing (black ink only), amending and noting plans must be of a permanent and waterproof variety. Biro's and felt pens etc. will not be considered acceptable.

9.25 Insets

Guideline under Standard 9.55 Plan presentation

See section 9.20 *Diagrams*, page 119.
 See section 9.55 *Plan presentation*, page 133.

The use of diagrams for plan presentation is preferred over the use of insets.

9.26 Lease plans

Information

See chapter 7 *Leases*, page 88.
 See the *Land title practice manual*, clause 7-2205,
[<www.dnrm.qld.gov.au/__data/assets/pdf_file/0008/97145/ltpm-part-07.pdf#page=17>.](http://www.dnrm.qld.gov.au/__data/assets/pdf_file/0008/97145/ltpm-part-07.pdf#page=17)

9.27 Line pegs

Standard under the SMI Act

See section 3.23 *Marking*, page 36.
 See section 9.50 *Tabulations*, page 131.

When survey records are not lodged, new line pegs must be shown on the plan.

Placement of line pegs must be indicated by one of the following methods. For example:

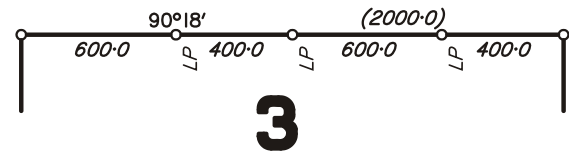
Statement

Line Peg placed at intervals of 200.0
from Stns 1, 3, 6, 12 & 15

Tabulation

LINE PEGS		
STN	BEARING	DIST.
2	180° 42'	203.53
	180° 42'	406.22
	180° 42'	600.3
5	272° 33'	201.42
	272° 33'	400.63

On face of plan



9.27.1 Original line pegs

Show original line pegs as ‘OLP’ on the face of the plan.

Measured distances shown in survey records which serve to fix the position of an OLP are to be shown on the face of the plan.

About distances must not be shown.

Note: If line pegs are not shown on the plan, survey records showing the position of these pegs must be lodged.

Kilometre pegs are treated in the same manner as line pegs. If branded, indicate ‘on face’ or tabulate.

9.28 Linework

Guideline under Standard 9.55 Plan presentation

See section 9.55 *Plan presentation*, page 133.

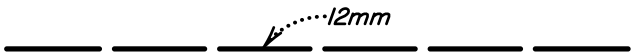
The line styles traditionally used on survey plans (shown below) enable certain survey information to be presented clearly and unambiguously and therefore their use is a way of meeting the requirements of section 9.55 *Plan presentation*.

Note: Boundaries of adjoining land are the same style as boundaries of subject land but at a reduced thickness.

Boundaries of subject land



Boundaries of subject land with about dimensions



Boundaries of subject land across roads
(This requirement has lapsed with the introduction of single line areas)



Original portion boundaries	-----
Secondary interests:	
subject	=====12mm
adjoining	=====
Traverse, secants, etc.	-----3mm
Cancelled boundaries	-----6mm
Unsurveyed line	-----12mm
Parish boundary	-----
County boundary	-----+
Locality boundary	-----Δ
Local government boundary	-----○
State boundary	-----x

The above is a recommended format for line thickness.

Line length and thickness may be varied if clarity of plan will benefit.

9.29 Locality

Standard under the SMI Act

See section 2.3 *Administrative boundaries—State, local government and locality*, page 6.
See section 9.28 *Linework*, page 122.

Locality must be completed on the face of the survey plan. The correct locality name may be found from SmartMap.

If there is more than one locality affecting any of the subject parcel or parcels, each locality must be shown on the reverse of the plan and plotted on the face of the plan. Refer to section 9.28 *Linework*, for locality boundary. No allocation of localities is required.

9.30 Lots

Guideline under Standard 3.17 Description of parcels

See section 3.17 *Description of parcels*, page 29.

See the *Registrar of Titles directions for the preparation of plans*, Direction 8.3 ‘Lot numbers’,
<www.dnrm.qld.gov.au/__data/assets/pdf_file/0020/97202/rdpp-section-8.pdf#page=1>.

See the *Registrar of Titles directions for the preparation of plans*, Direction 9.4 ‘Lot numbers’,
<www.dnrm.qld.gov.au/__data/assets/pdf_file/0003/97203/rdpp-section-9.pdf#page=4>.

See the *Registrar of Titles directions for the preparation of plans*, Direction 10.3 ‘Lot numbers’,

www.dnrm.qld.gov.au/__data/assets/pdf_file/0004/97204/rdpp-section-10.pdf#page=2.

Having regard to the lot identification on marks from previous (or original) surveys, it is recommended that the lot number for the balance of a lot or for an amended lot should retain the original numerical identifier, and consequently be in agreement with the marks on the ground.

The *Registrar of Titles directions for the preparation of plans* contain specific requirements for lot numbering on standard format plans (Direction 8.3), building format plans (Direction 9.4) and volumetric format plans (Direction 10.3).

9.31 Measurement only

Guideline under Standard 3.18 Dimensions

See section 3.18 *Dimensions*, page 30.

Show 'measurement only' as required on the face of plan or tabulated in the 'Traverses, etc.' table. Measurement only may be abbreviated to 'mmt only'.

9.32 Meridian

Guideline under Standard 3.24 Meridian

See section 3.24 *Meridian*, page 40.

See section 3.28 *Permanent survey marks – connecting to datum*, page 41.

See diagrams A and B following section 9.15 *Corner information*.

In all cases where the meridian is shown as MGA the relevant MGA zone must be shown.

9.32.1 Meridian from previous plan

Where the meridian is referenced to a previous plan, and no reference to MGA is known, or not required, then the plan number only is required in the meridian box. Where previous plans have a reference to MGA or AMG or CAM, the meridian box should be completed as follows:

MGA Zone 55	Add 5°48' for	CAM	CAM – add 7'15" for
vide WD4829	MGA Zone 55	vide SL1234	MGA Zone 56
	vide RP801576		vide SP123456

Detail is generally shown in the meridian box; however, where space is limited, the meridian information should be shown directly above the title block. For example:

Meridian: Add 6°11' for MGA Zone 56 vide Plan W31639

9.32.2 Meridian by observation

Plans may be related to MGA by using previous plans, astronomical (sun or star) observations, connection to continuously operating reference stations (CORS), or connections to coordinated permanent survey marks.

Where CORS or stellar observations are used, the meridian box may be completed by reference to MGA and the observation technique. For example:

MGA Zone 56 vide CORS; MGA Zone 56 vide Sun Obs

When the meridian is determined from coordinated PSMs, a meridian table is required, and the meridian box is completed with:

MGA Zone 56 vide meridian table

The meridian table should be in the form of:

MERIDIAN TABLE

Line	Plan Bearing	MGA Zone 56 Bearing
<i>PM43651 to PM43562</i>	<i>145°25'25"</i>	<i>145°25'25"</i> <i>vide SCDB</i>

Where permanent survey marks are used to obtain meridian, for the presentation of the PSMs refer also to the connections to permanent survey marks as presented in diagrams A and B at the end of section 9.15 *Corner information*, and if required, the MGA coordinates table as shown in section 3.14.3 *Coordinates of cadastral corners*.

9.33 Metric documentation

Standard under the SMI Act

See section 9.21 *Distances*, page 120.

See section 9.37 *Original dimensions*, page 126.

The symbol 'm' must not be shown following a number for length. For example:

20·115 not 20·115 m

The decimal point is to be prominently shown at the mid height of the figures where possible.

Numbers should be grouped in threes right or left from the decimal point, and a space should be used instead of a comma. For example:

65 093·762 not 65,093·762

However, except in tabular work (e.g. coordinates), the space may be omitted in groups of only four figures. For example:

4076·3012

A space should be left between the numeral and the unit or unit symbol. For example:

2076 m² not 2076m²

5·273 ha not 5·273ha

No full stops should follow symbols.

9.33.1 Use of zeros

Where the figure is less than one, use a zero before the decimal point. For example:

0·745 not ·745

A zero must not be shown as the last character to the right of the decimal point, except for whole numbers. For example:

4·0 or 51·2 or 67·53 not 4·00 or 51·20 or 67·530

However, when showing (1) road widths or (2) areas, the following procedure is preferred. For example:

ROAD 60 WIDE not ROAD 60·0 WIDE

12 ha not 12·0 ha

9.33.2 Rounding

When rounding to fewer digits than the total number available, the following procedure must be adopted.

Where the digit immediately following the last digit to be retained is less than 5, that digit should be left as is. For example:

7·624 25 to four digits = 7·624

When the digit immediately following the last digit to be retained is 5 or greater, that digit should be increased by one. For example:

4·624 51 to four digits = 4·625

If the digit to be discarded is exactly 5 and there is no indication of what the following digits might be, the last digit retained should be rounded to the nearest even digit. For example:

5·4665 rounded to 3 decimals becomes 5·466

5·4655 rounded to 3 decimals becomes 5·466

9.34 North point and data orientation

Information

See the *Registrar of Titles directions for the preparation of plans*, Direction 4.12 ‘North point’, www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97198/rdpp-section-4.pdf#page=6.

9.35 Not to scale

Standard under the SMI Act

See section 9.20 *Diagrams*, page 119.

See section 9.25 *Insets*, page 121.

See section 9.44 *Scale of plans*, page 129.

Diagrams drawn not to scale should be used with discretion. Show a break in the line for each lot affected. It is advantageous to plot this work to ‘some scale’ for sake of proportional representation. The wording ‘not to scale’ is to be shown on appropriate line or lines.

9.36 Offsets

Guideline under Standard 3.23 Boundary marking

See section 3.23 *Marking*, page 36.

See section 11.1 *Alignments*, page 140.

Offsets are not shown on the plan, in normal circumstances.

9.37 Original dimensions

Standard under the SMI Act

See section 3.9 *Certification by surveyor*, page 20.

See section 3.11 *Compiled plans*, page 23.

See section 3.18 *Dimensions*, page 30.

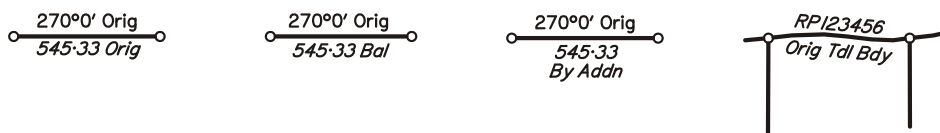
See section 9.14 *Conversions*, page 108.

See section 9.33 *Metric documentation*, page 125.

See section 9.53 *Watercourses—tidal and non-tidal*, page 131.

Original dimensions are shown with ‘Orig’ written in conjunction with each bearing and distance. For dimensions derived from original dimensions by addition or subtraction, ‘Bal’ should be used. ‘By Addn’ may be used for additions. The terms ‘Bal Orig’, ‘Bal by Addn’, and ‘Calc Orig’ are not used.

Subject parcels containing an original physical feature boundary must show the plan catalogue number of the most recent field survey of the boundary. The plan number is to be positioned along the feature to provide a link to the definition of the physical feature boundary at the time of the original survey. For example:



A statement indicating the origin of original compiled information (in accordance with section 3.9 *Certification by surveyor*) is shown in the form of:

Original information compiled from plans RP213546, CP808763 and MP10537 in the Department of Natural Resources and Mines.

The word 'original' is not shown on plans prepared under section 16 of the *Survey and Mapping Infrastructure Regulation 2014*.

9.38 Original grants

Standard under the SMI Act

Where the lot or lots of a new survey affects more than one original grant, the original grant boundaries must be accurately plotted on the plan as broken hairline line where they are not coincidental with a boundary. The original grant numbers (e.g. Portion 23, Section 25, Suburban Allotment 17) must be noted in a fine dotted style.

9.39 Plan formats

Information

See the *Registrar of Titles directions for the preparation of plans*, **Direction 4.7 'Format to be noted'**, <www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97198/rdpp-section-4.pdf#page=2>.
 See the *Registrar of Titles directions for the preparation of plans*, **Part 8 'Standard format plans'**, <www.dnrm.qld.gov.au/__data/assets/pdf_file/0020/97202/rdpp-section-8.pdf#page=1>.
 See the *Registrar of Titles directions for the preparation of plans*, **Part 9 'Building format plans'**, <www.dnrm.qld.gov.au/__data/assets/pdf_file/0003/97203/rdpp-section-9.pdf#page=1>.
 See the *Registrar of Titles directions for the preparation of plans*, **Part 10 'Volumetric format plans'**, <www.dnrm.qld.gov.au/__data/assets/pdf_file/0004/97204/rdpp-section-10.pdf#page=1>.
 See the *Registrar of Titles directions for the preparation of plans*, **Part 20 'Explanatory plans'**, <www.dnrm.qld.gov.au/__data/assets/pdf_file/0004/97213/rdpp-section-20.pdf#page=1>.

9.40 Plan forms

Information

See the *Registrar of Titles directions for the preparation of plans*, **Part 3 'Plan forms'**, <www.dnrm.qld.gov.au/__data/assets/pdf_file/0006/97197/rdpp-section-3.pdf#page=1>.

9.41 Plan types

Information

See section 11.7 *Historical plan information*, page 141.

All plans are now archived at the Landcentre, Brisbane.

The standard plan form (prefix SP commencing at SP100000) commenced in July 1997 and is used for all surveys.

An instrument, as defined under section 4 of the *Land Title Act 1994*, includes a plan of survey.

Freehold plan/State land action plan		
Prefix	Type of plan	Other information
SP	Survey plan	Standard plan form
IS	Identification survey	Standard plan format

AP	Administrative plan	Used for administrative actions such as tree clearing permits, permits to occupy, and various road actions.
----	---------------------	---

Table 7 Current plan types

Within the department plans pass through various stages before the action depicted on the plan can occur. During these stages, the plan status is indicated by the following terms.

Plan process stages	
Stage	Notation
Copy of endorsed plan from accredited surveyors	Deposited (DP)
Original plan for registration	Lodged (SP)
Copy of plan (or original) not intended to proceed to registration	Red Cat (RC)

Table 8 Plan process stages

9.42 Ranged only and reads bearings

Guideline under Standard 9.6 Bearings

See section 9.6 *Bearings*, page 105.

See section 9.13 *Connections to distant points*, page 108.

Show ranged only and reads bearings as follows:



9.43 Roads

Standard under the SMI Act

Return to section 3.6.4 *Multiple line areas*, page 17.

See section 3.18 *Dimensions*, page 30.

See section 9.2 *Action statements*, page 102.

See section 9.8 *Calculated lines*, page 107.

See chapter 10 *Roads*, page 135.

The present name of roads, streets and esplanades must be shown and be in accordance with the relevant local government nomenclature.

Refer to the Main Roads gazette for correct **highway** and **main road** name.

Esplanades are shown and treated in the same manner on plans as for roads.

Dimensions (bearings and distances) are to be shown for internal roads as specified in section 3.18 *Dimensions*. The qualifying use of 'Orig' may be used where applicable.

Where an unsurveyed road without a shown width is declared prior to the commencement of the *Metric Conversion Act 1972* (1 Oct 1973), which amended the *Land Act 1962*, the road is taken to be 60.35m wide on the map or plan. Thereafter these roads without shown widths are taken to be 60m wide.

In some instances a plan will show a road with no width but with a reference to a departmental file (RC reference) or a government gazette (GG). In those instances, the information in the file or the gazette will

be authoritative with regard to the width of the road.

Where only one side of an original road has been surveyed, and calculated dimensions are shown on the unsurveyed side, the lines may be shown as full lines and correctly labelled. Lines with calculated dimensions should show the word 'Calc' in the first instance and 'Orig' on successive plans.

For unsurveyed internal roads, the road is to be shown as a double dashed line, with the road width indicated (similar to the presentation for reserved road in section 9.43.1 *Reserved roads*).

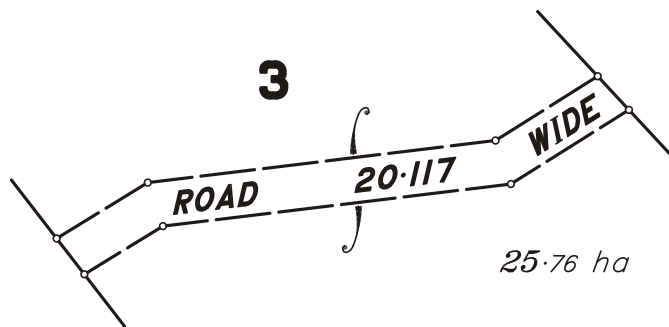
For roads forming boundaries of subject parcels, when the opposite side is shown, the width must be indicated and the road plotted to scale. For example:

ROAD 60.35 WIDE

Note: By section 96 (b) of the *Land Act 1994*, the width of 60 metres applies to any road not shown on the lease or the plan. This is different to the width that was stated under the *Land Act 1962*.

9.43.1 Reserved roads

Reserved roads and reserved esplanades, either surveyed or unsurveyed, are shown on the face of the plan in a specific location and are also shown as being excluded from the parcel on the face of the plan. For example:



9.44 Scale of plans

Standard under the SMI Act

See section 9.35 *Not to scale*, page 126.

See the *Registrar of Titles directions for the preparation of plans*, Direction 4.14 'Scale'

<www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97198/rdpp-section-4.pdf#page=6>.

See the *Registrar of Titles directions for the preparation of plans*, Direction 9.12 'Level diagrams'

<www.dnrm.qld.gov.au/__data/assets/pdf_file/0003/97203/rdpp-section-9.pdf#page=9>.

Plans must be drawn accurately to a scale that will allow all details and annotations being clearly shown on an A4 second-generation copy of the original. This requirement should assist in determining the selection of the appropriate plan scale.

A complete plot of the subject lot or lots is drawn on the plan in an uninterrupted manner to the scale as shown in the title.

Plans and diagrams are to be drawn at one of the following scales, or multiples to the power of 10 thereof.

Plan scales			
1:1	1:2	1:4	1:7.5
1:1.25	1:2.5	1:5	1:8
1:1.5	1:3	1:6	

Table 9 Plan scales

If required, diagrams may be drawn 'not to scale' for clarity.

9.45 Secants

Standard under the SMI Act

See section 9.28 *Linework*, page 122.
See section 9.52 *Traverses*, page 131.

Dimensions of secants are shown ‘on face’ or tabulated in the ‘Traverses, etc.’ table.

9.46 State boundary

Guideline under Standard 5.4 Border surveys (state border of Queensland)

See section 5.4 *Border surveys (state border of Queensland)*, page 75.
See the *Queensland Boundaries Declaratory Act 1982*.

Show State boundaries as follows:



9.47 Station numbers

Guideline under Standard 9.55 Plan presentation

See section 9.55 *Plan presentation*, page 133.

Station numbers or letters may be shown on the plan to describe survey lines, qualify action statements and other ‘on face’ statements.

Station numbers are to be shown upright in as simple a format as possible (i.e. 1, 2, 3, with 1a, 1b, etc. for secants and close proximity work only). Station letters (i.e. A, B, C, etc) may be used to qualify action statements involving unsurveyed corners (e.g. closed road).

9.48 Symbols

Guideline under Standard 9.55 Plan presentation

See section 9.55 *Plan presentation*, page 133.
See Appendix D, *Symbols*, page 163.

The symbols traditionally used on survey plans (shown in Appendix D) enable certain survey information to be presented clearly and unambiguously and therefore their use is a way of meeting the requirements of section 9.55 *Plan presentation*.

9.49 Surveys in strata

Information

See section 11.8 *In strata*, page 143.
See the *Registrar of Titles directions for the preparation of plans*, Direction 10.2.3 ‘Restricted or “in strata” lots’, <www.dnrm.qld.gov.au/__data/assets/pdf_file/0004/97204/rdpp-section-10.pdf#page=1>.
See the *Registrar of Titles directions for the preparation of plans*, Direction 6.5 ‘Easements limited vertically’, <www.dnrm.qld.gov.au/__data/assets/pdf_file/0018/97200/rdpp-section-6.pdf#page=1>.

9.50 Tabulations

Standard under the SMI Act

See section 3.18 *Dimensions*, page 30.

See section 9.15 *Corner information Diagram B*, page 109.

See section 9.34 *North point and data orientation*, page 126.

See section 9.52 *Traverses*, page 131.

See the *Registrar of Titles directions for the preparation of plans*, Direction 4.12 ‘North point’,

<www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97198/rdpp-section-4.pdf#page=6>.

When a plan has been ‘rotated’, tabulations are to be rotated likewise so as to facilitate easy of reading of the plan.

With the ability to use multiple sheets, boundary dimensions must not be tabulated (except for the use of points tables on physical feature boundaries). Tabulation is acceptable to depict the location of line pegs.

9.51 Text styles

Guideline under Standard 9.55 Plan presentation

See section 9.55 *Plan presentation*, page 133.

See Appendix C, *Styles*, page 162.

For text, variable pen sizes, lettering heights, etc. are used to indicate the information in an unambiguous manner, attempting to demonstrate the guidelines contained within the pages of this manual.

The text styles traditionally used on survey plans (shown in Appendix C) enable certain survey information to be presented clearly and unambiguously and therefore their use is a way of meeting the requirements of section 9.55 *Plan presentation*.

9.52 Traverses

Guideline under Standard 3.23.1 Boundary marking

See section 3.23 *Marking*, page 36.

See section 3.37 *Survey records*, page 54.

See section 9.8 *Calculated lines*, page 107.

See section 9.45 *Secants*, page 130

See section 9.53 *Watercourses—tidal and non-tidal*, page 131.

Extraneous field traverse information is generally not shown. However, when traverse lines are shown, dimensions are shown on face or tabulated in the ‘Traverses, etc.’ table.

When traverse dimensions are tabulated, numerical order is preferred. For example:

TRAVERSES, etc.

<i>LINE</i>	<i>BEARING</i>	<i>DIST.</i>
1–2	180° 07'	13.13
3–4	236° 43' 30"	105.26
5–5a	355° 32' 40"	20.117

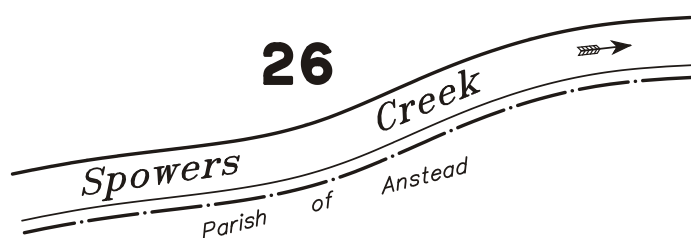
Where a traverse has been run to establish a new boundary along an **inaccessible area**, the traverse is shown in the normal manner and the boundary shown calculated.

9.53 Watercourses—tidal and non-tidal

Standard under the SMI Act

See chapter 4 *Physical feature boundaries* page 61.

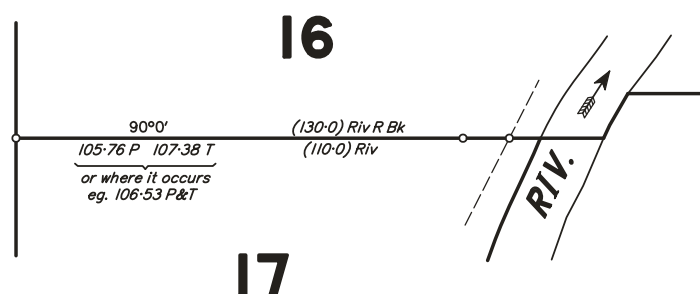
Show the opposite bank of a watercourse if practicable. It is not always necessary, however, to show information on the other side of watercourse forming boundaries except for adjoining local government or locality names. For example:



Distances on a boundary that terminates at a watercourse are to include distances to:

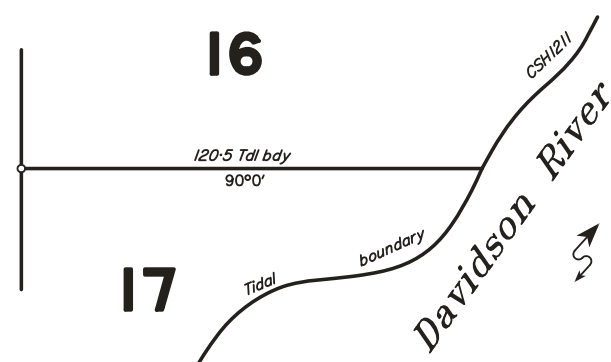
- post or peg
- traverse
- watercourse boundary (Ck, Riv, etc.).

For example:



For non-tidal watercourses, an arrow indicating 'downstream' **only** must always be shown.

For tidal watercourses, a double-headed arrow is to be shown to indicate that the stream is subject to tidal influence. A larger arrow head should indicate the direction of downstream flow. For example:



9.54 Watersheds

Guideline under Standard 3.26 Natural boundaries

See section 3.26 *Natural boundaries*, page 41.

See chapter 4 *Physical feature boundaries*, page 61.

See section 9.12 *Compass survey*, page 108.

When 'watershed' is the boundary, the following guidelines should apply:

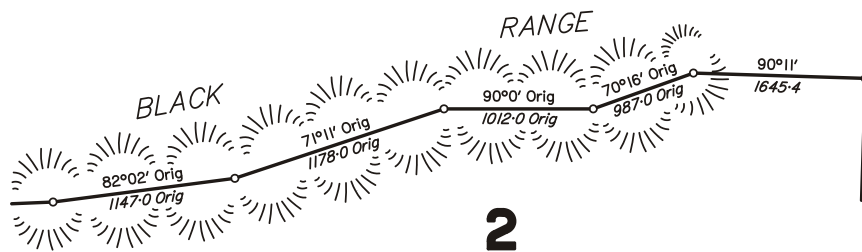
Unsurveyed watershed



Surveyed watershed



Surveyed watershed adopting traverse lines



(The word WATERSHED is not shown)

If traverse lines have been adopted as the boundary and corners have been marked, then right lines are shown.

Note : If in doubt as to which of the above methods is to be used, a search of the original tenure document should be made.

Relevant boundaries are labelled 'compass survey' as required.

9.55 Plan presentation

Standard under the SMI Act

See section 9.1 *Abbreviations*, page 102.

See section 9.19 *Description of country*, page 119.

See section 9.20 *Diagrams*, page 119.

See section 9.24 *Ink*, page 121.

See section 9.25 *Insets*, page 121.

See section 9.28 *Linework*, page 122.

See section 9.47 *Station numbers*, page 130.

See section 9.48 *Symbols*, page 130.

See section 9.51 *Text styles*, page 131.

See the *Registrar of Titles directions for the preparation of plans*, <www.dnrm.qld.gov.au/land/titles-valuations/titles-professionals/survey-plan-requirements/directions-plan-preparation>.

Plans should be capable of clearly and unambiguously conveying the survey information to any reasonable

user of the plan. To achieve this, plans must be drafted in accordance with accepted presentation formats, use consistent abbreviations, linework, styles and symbols, and be capable of being imaged by mechanical or digital processes to produce a copy or a reduced size copy satisfactory to the registering authority.

10 Roads

See section 2.9 *Reservations in title*, page 8.

See section 9.43 *Roads*, page 128.

See Glossary, page 146.

See the *Registrar of Titles directions for the preparation of plans*, Direction 4.9 ‘Plan description and cancelling clause’, <www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97198/rdpp-section-4.pdf#page=5>.

See the *Registrar of Titles directions for the preparation of plans*, Direction 4.10 ‘Cancelling clause containing reference to unallocated State land’,

<www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97198/rdpp-section-4.pdf#page=5>.

See departmental policy *Land allocation: public purpose reservations PUX/901/112*,

<www.dnrm.qld.gov.au/?a=109113:policy_registry/public-purpose-reservations.pdf>.

10.1 Definition

Information

See section 93 of the *Land Act 1994*.

A road is land set apart from a primary estate in land (either an estate in fee-simple, leasehold or other State land) and is dedicated to public use. Roads, once dedicated, are vested in the State under the provision of section 95 of the *Land Act 1994*.

10.2 Creation of road

See section 3.35.3 *Resumptions for road purposes*, page 50.

See section 6.7.3 *Road dedications over easements in all tenures*, page 87.

Road may be created under legislation such as the provisions contained in the *Land Act 1994* or the *Land Title Act 1994*.

10.2.1 Creation of roads in freehold land

Standard under the SMI Act

See section 3.35.3 *Resumptions for road purposes*, page 50.

See section 3.35.5 *Resumptions for other purposes*, page 52.

See section 6.7.3 *Road dedications over easements in all tenures*, page 87.

See section 9.18.1.1 *General*, page 117.

See the *Registrar of Titles directions for the preparation of plans*, Direction 4.8.1 ‘Lots’,

<www.dnrm.qld.gov.au/__data/assets/pdf_file/0007/97198/rdpp-section-4.pdf#page=4>.

Road is created in freehold land under the provisions of sections 50(a) and 51(2) of the *Land Title Act 1994*. The effect of these provisions being that new roads shown on plans are opened and dedicated for public use on the registration of the plan. Any affected secondary interests may need to be addressed prior to the lodgement of the plan.

A method to dedicate land as new road under the provisions of the *Land Title Act 1994* is by registration of a plan of survey. Each parcel of land to be dedicated as road should be clearly shown as ‘new road’ on the face of the plan. If more than one parcel is dedicated as new road on the plan, a total area is required and should be shown in the form of:

Total Area of New Road 1.234 ha

A plan may show new road only. For example:

Plan of New Road cancelling Lot 12 on RP123456

Pathways or lanes are not a prescribed community purpose for land under Schedule 1 of the *Land Act 1994*, and are to be shown as new road.

Alternatively, a lot may be surrendered to the State for subsequent dedication of the road in terms of sections 327 and 94 of the *Land Act 1994*. It should be noted that section 327 of the *Land Act 1994* requires

the Minister's approval. That approval will not be forthcoming without the written concurrence of all interested parties, in particular the authority with whom the new road is to be vested. (See the *Land title practice manual*, clause 21-2290 <www.dnrm.qld.gov.au/__data/assets/pdf_file/0005/97160/ltpm-part-21.pdf#page=17>).

10.2.2 Creation of roads in leases, reserves, trust land and USL

Standard under the SMI Act

See section 3.11.4 *Compiled plan of large unsurveyed parcel*, page 26

See section 9.2 *Action statements*, page 102.

Section 96 of the *Land Act 1994* clarifies, in lease land, when a road may be considered dedicated. See section 9.43 *Roads* regarding widths of unsurveyed roads.

Road is created in leases, reserves, trust land and unallocated State land under the provisions of section 94 of the *Land Act 1994*. Land may be dedicated as a road for public use by the registration of a dedication notice, or a plan of subdivision. Each parcel of land to be dedicated as road should be clearly shown as 'new road' on the face of the plan. If more than one parcel is dedicated as new road on the plan, a total area is required and should be shown in the form of:

Total Area of New Road 1.234 ha

A plan may show new road only. For example:

Plan of New Road cancelling Lot 2 on AP123456

Where road is to be created in a reserve and the reserve contains a State lease that is affected by the road, the action can be completed on one survey plan (plan of area of new road and balance of the reserve parcel, and new lease alpha in the balance parcel).

10.2.3 Creation of roads in State forest or timber reserves

Standard under the SMI Act

Revocation actions are effected under section 32 of the *Forestry Act 1959*. Revocations for road and 'tourism' purposes **do not** require parliamentary approval.

Revocations are made by amendment to the Schedule (State forests) to the *Forestry (State Forests) Regulation 1997* by the Governor-in-Council.

A plan is required to identify the area that is to come out of the State forest or timber reserve and is to become road. The plan must identify the area as a lot with a numeric descriptor. The surveyed status of the lot will be at least the same as the underlying parcel of State forest or timber reserve.

Once excluded vide amendment to the Schedule of the *Forestry (State Forests) Regulation 1997*, the land becomes USL. The area is then dedicated as road by the registration of the dedication document.

If a State lease administered under the *Land Act 1994* is currently registered over the area proposed to be excised, a signed surrender of the lease area involved must be obtained by negotiation from the lessee in the first instance. A plan is then produced to show the area to be excised and the new lease area (exclusive of the excised area). The lease must be partially surrendered prior to the partial revocation of the State forest or timber reserve.

Again, the dedication of the road and amendment of the lease would only take place **after** the State forest has been amended and the department has been advised.

10.2.4 Creation of roads in scheme land

Standard under the Land Title Act

See the *Registrar of Titles directions for the preparation of plans*, Direction 12.3 'Common property to be excised', <www.dnrm.qld.gov.au/__data/assets/pdf_file/0006/97206/rdpp-section-12.pdf#page=1>.

Road may be created directly from lots and/or common property within a community titles scheme in the

following circumstances:

- If the new road is to be directly created from part of the common property only and the area of new road does not affect any part of a building or structure on a building format plan, a plan of new road only cancelling part of the common property is required.
- If the new road is to be directly created from part of a lot only and the area of new road does not affect any part of a building or structure on a building format plan, a plan of subdivision creating a new lot and new road cancelling the lot is required.

Alternatively the area of new road required may be created as a lot with a following action to dedicate and open the new road.

10.3 Closure of road

Standard under the SMI Act

Road closures are affected under the provisions of section 98 of the *Land Act 1994*.

There are several options to deal with closed road and the letter of offer from the senior land officer, State Land Asset Management, will indicate the option to be adopted.

10.3.1 Addition to adjoining lot or lots

See section 3.10.4 *Permanently closing road*, page 22.

See section 9.2 *Action statements*, page 102.

10.3.2 Separate title

If it is intended to issue a separate title over the area of closed road, a plan showing the new lot is required. The separate title could be a lease or a deed of grant under the provisions of the *Land Act 1994*.

10.3.3 Temporary closure of road

Roads may be temporarily closed by gazettal pursuant to section 98 of the *Land Act 1994*. A road licence may be issued over the temporarily closed road subject to conditions (sections 103 and 104 of the *Land Act 1994*). The road licence area is to be defined on an administrative plan (AP) and the licence area is defined as a secondary interest. The temporarily closed road is still dedicated road (a primary interest) and may be reopened by gazettal action (sections 106 and 107 of the *Land Act 1994*).

Temporarily closed road is to be shown as adjoining information as 'road' together with the secondary interest identifier. For example:

SMITH ROAD

Lot <alpha>

AP 1234

10.4 Simultaneous opening and closure of road

Standard under the SMI Act

See section 3.10.5 *Simultaneous opening and closing road*, page 22.

See section 9.2.3 *Simultaneous road opening and road closing*, page 103.

See section 9.43 *Roads*, page 128.

See sections 94 to 98 and section 109 of the *Land Act 1994*.

10.5 Existing roads

Standard under the SMI Act

See section 2.9 *Reservations in title*, page 8.

See section 3.6.4 *Multiple line areas*, page 17.

See section 4.2 *Surveying tidal and non-tidal water boundaries*, page 62.

See section 4.3 *Compiling tidal and non-tidal water boundaries*, page 64.

See section 9.43 Roads, page 128.

10.5.1 Esplanades

A deed of grant will disclose whether an esplanade is excluded from the grant or reserved from the grant. If it is excluded from the grant (see 20371234), the esplanade is not a reservation under section 23 of the *Land Act 1994*. Accordingly the subject lot/s will not show an exclusion for the esplanade. The landward side of the esplanade (the boundary of the lot) must be shown in subject style.

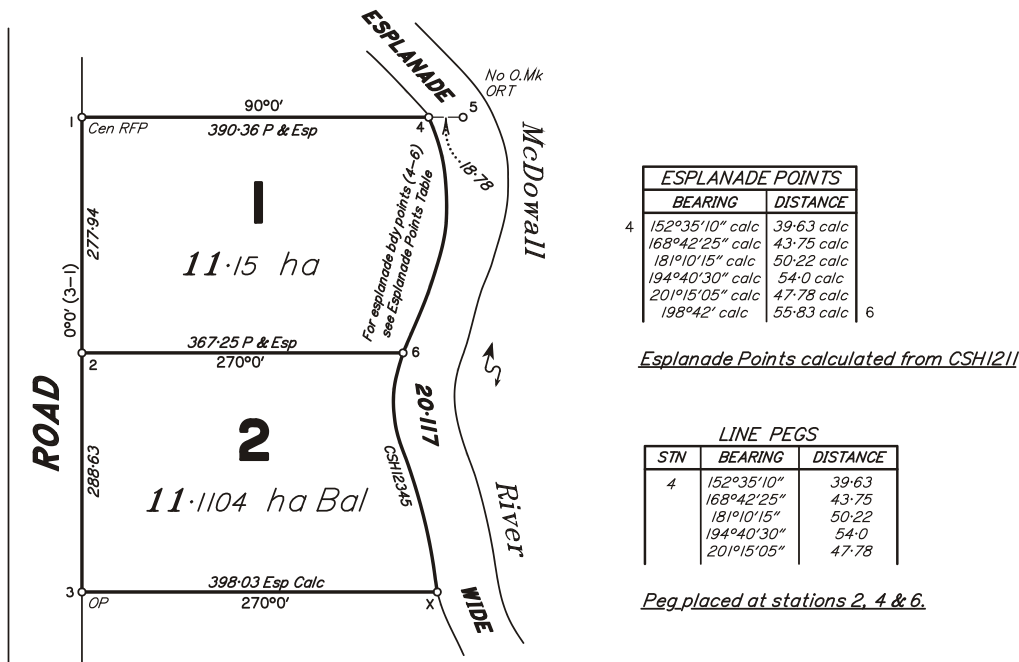
For an unmarked esplanade, the position of the esplanade is fixed at the time of alienation of the lot. The landward boundary of the esplanade is also fixed at the time of alienation, but remains curvilinear, irrespective of when the feature was surveyed, and is not subject to accretion or erosion (McGrath v. Williams NSW Law Reports 1912 Vol. XII). The seaward boundary of the esplanade is subject to the doctrine of accretion and erosion.

If the esplanade is reserved from the grant, the tidal boundary must be shown in subject style, and the landward edge of the reserved esplanade must be shown as curvilinear with a dotted line style. The area is to be shown as a three line area. There is no requirement to calculate the landward edge of the esplanade. The width of the reserved esplanade must be shown.

When surveying any part of the landward side of an esplanade, the esplanade boundary is curvilinear. The measurements between the surveyed points must be shown in an ‘Esplanade points table’ in the same manner as for other curvilinear boundaries. When marking the landward side esplanade boundary, the marks placed are in effect line pegs and must be shown in accordance with section 9.27 *Line pegs*.

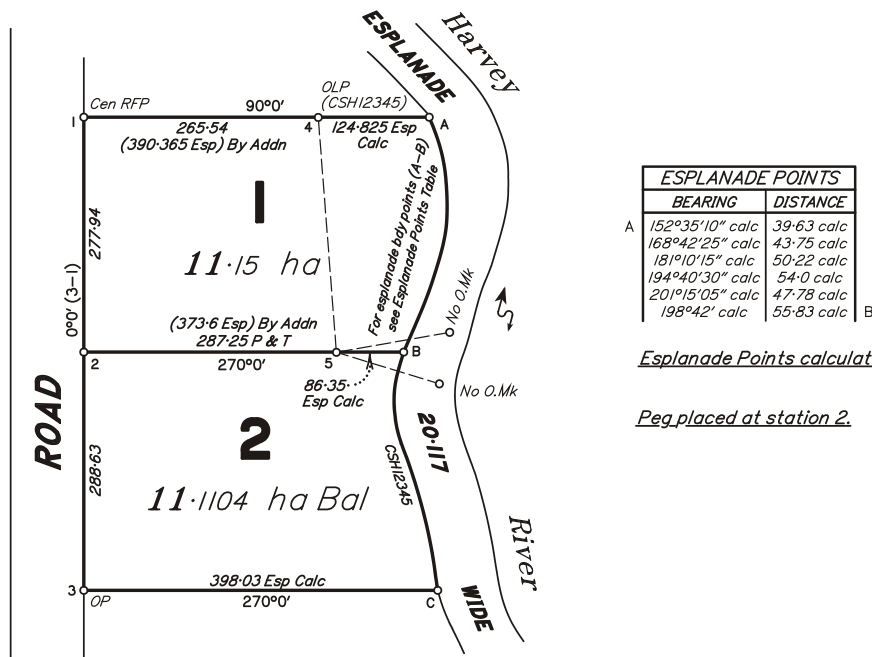
When depicting a compiled part of the landward side of an esplanade, in lots with a calculated area, an esplanade points table must show the dimensions between points on the esplanade boundary that are used to calculate the area. The dimensions must be shown as ‘Calc’.

Surveying the landward side of the esplanade



Not surveying the landward side of the esplanade

Note: Survey records may be required to support the calculation of the esplanade boundary points.



10.5.2 Reserved roads and reserved esplanades

Reserved roads and reserved esplanades, are considered to have been dedicated for public use and are excluded from the lots containing them. Existing reserved roads or reserved esplanades are shown on the face of plans as either surveyed or unsurveyed.

The position of the reserved road and reserved esplanade is fixed at the time of alienation of the lot. The landward boundary of the reserved esplanade is fixed at the time of alienation, but remains curvilinear, irrespective of when the feature was surveyed, and is not subject to accretion or erosion (McGrath v. Williams NSW Law Reports 1912 Vol. XII.) The seaward boundary of the reserved esplanade is subject to the doctrine of accretion and erosion.

Reserved roads and reserved esplanades cannot be burdened by easements, secondary interest leases, profits a prendre, etc.

11 Historical information

Information

The information in this chapter describes the operation of legislation which has since been repealed, but may have ongoing relevance to the definition of boundaries, or to dealings with particular categories of land.

11.1 Alignments

See section 9.5 *Alignment offsets*, page 105.

See section 9.36 *Offsets*, page 126.

See *Law relating to land boundaries and surveying*, AG Brown, appendixes A and B.

11.1.1 Declared alignments

Declared alignments become boundaries. The declaration was made by the Minister for Local Government under section 35(8)(7) of the *Local Government Act 1936*.

The provisions referred to above were repealed under the *Local Government Act 1993*.

These plans are recorded in departmental systems with a plan prefix of DA.

11.1.2 Official alignments

An official alignment, not being a declared alignment indicates a building line only, which may or may not coincide with the property boundary.

11.2 Amalgamations

See section 5.2 *Amalgamations*, page 75.

Plans of amalgamation outside the Brisbane City Council lodged prior to 25 May 1985 did not require local government consent. The *Land Title Act 1994* was amended in 1997 to include section 50(h), and consequently remove the need for plans of amalgamation to be approved by a local government.

11.3 Barrier fences

Note: The *Barrier Fences Act 1954* was repealed by the *Rural Lands Protection Act 1985*.

Under section 180 of the *Rural Lands Protection Act 1985* (repealed) the Minister could issue an order for the establishment and maintenance of barrier fences. Section 202 provided for the establishment of a ring fence by an Order-in-Council. These orders were endorsed on the title to which they related.

For an order under the Barrier Fences Act, see RP165728.

In general, orders under the *Rural Lands Protection Act 1985* are no longer enforced since the department or the local government undertake the maintenance of the fences.

When lots, which were subject to an order under section 180 of the *Rural Lands Protection Act 1985*, were subdivided, the plan of subdivision was submitted to the local district office of the department. The district office arranged for certification by the Minister's delegate whether the new lots were subject to the order.

Allocation, if required, was similar to that for a reservation in title.

Note: The *Rural Lands Protection Act 1985* was repealed by the *Land Protection (Pest and Stock Route Management) Act 2003*.

Section 324 requires that an endorsement made in the register kept under the *Land Act 1994* or the *Land Title Act 1995* under section 185(1) of the *Rural Land Protection Act 1985* must be removed.

11.4 Declared catchment areas

See section 5.6 *Catchment areas*, page 76.

Surveyors undertaking surveys in declared catchment areas would be aware of a requirement for the department's approval of plans of subdivision in these areas. The department administering the *Water Act 2000*, as a concurrence agency, holds powers over subdivision and certain land uses within declared catchment areas.

On 1 October 2000, the catchment areas provisions of the *Water Act 2000* commenced. These are found in Chapter 2, Part 7 of the Act. Under the provisions it is possible to make a regulation that both declares an area to be a declared catchment area (DCA) and regulates the use of land in the DCA. The provisions of the *Water Act 2000* provide the same powers that are provided in section 27 of the *Water Resources Act 1989*.

Because of the saving of the *Water Resources (Areas and Boards) Regulation 2000*, the DCAs that existed on 1 October 2000 continue to exist. However, the chief executive's powers over land use in the DCA are not found in that regulation and have expired.

11.5 Commonwealth titles

See section 2.5 *Commonwealth titles*, page 7.

11.5.1 Background

See the **Real Property (Commonwealth Titles) Act 1924**.
(Note: Section 207 of the **Land Title Act 1994** repealed this Act.)

Lands such as 'post and telegraph reserves' and some 'rifle range reserves' were not part of the 'old system register' as they were never alienated from the State.

They were lands that vested in the State (Crown) prior to the formation of the Commonwealth. Pursuant to the constitution (section 85), these lands were passed to the Commonwealth. A list of them was drawn up in 1908 and certain arrangements made for payment, but the Commonwealth did not necessarily take a title out over them.

The above Act enabled the Commonwealth to apply to the Registrar of Titles to have these lands registered under the *Real Property Act 1861*.

When the Commonwealth wished to deal with these lands, a survey was required if a subdivision was involved. A request to bring the land under the *Real Property Act 1861* required a freehold plan. Dimensions came from the original plan of the land.

11.5.2 Current procedures

See section 2.5 *Commonwealth titles*, page 7.

11.6 Easement with titles issued

See section 6.4 *Freehold easements*, page 84.

In rare cases, titles for easements have been issued. See Title 10967023 or Title 11685016/17 and RP50663.

11.7 Historical plan information

See section 9.41 *Plan types*, page 127.

The common plan form (from 800000) was introduced in 1989 and was used for both freehold action and State action surveys.

When Form 21, Version 1, was introduced under the *Land Title Act 1994* in late 1997, the plan series, identified with a barcode label commenced from 100000, the previous pre-numbered series had reached

about 914000.

Prefixes for the various types of plans are:

Freehold action plans			
Prefix	Type of plan	Other information	Active
BPA	Building units plan of amalgamation		Yes
BRP	Building units plan of resubdivision		Yes
BUP	Building units plan		Yes
GRP	Group title plan of resubdivision		Yes
GTA	Group title plan of amalgamation	No more plans being added to this series	No
GTP	Group titles plan		Yes
PGT	Pre-examined GTP		Yes
RP	Registered plan		Yes
SBA	Leasehold building units plan of amalgamation		Yes
SBP	Leasehold building units plan		Yes
SP	Survey plan		Yes
SPA	Stratum plan of amalgamation	Southbank	Yes
SPS	Stratum plan of subdivision	Southbank	Yes
SRP	Leasehold building units plan of Resubdivision		Yes
SSP	Stratum plan		Yes
UB	Upper building units plan		Yes

Table 10 Freehold action plan types

Mixed Use Development Act plans			
Prefix	Type of plan	Other information	Active
MCP	Mixed community plan		Yes
MPP	Mixed precinct plan		Yes
MSP	Mixed stratum plan		Yes

Table 11 Mixed Use Development Act plan types

Crown action plans			
Prefix	Type of plan	Other information	Active
AP	Administrative plan		Yes
CP	Crown plan		Yes
MPH	Mining plan (homestead tenure)	No more plans being added to this series	Yes
SF	State forest (tenure description)	Dept of Primary Industries and Fisheries	Yes
NPW	National parks and wildlife	Environmental Protection Agency plan	Yes

Crown action plans			
FTY	Forestry plan	Dept of Primary Industries and Fisheries	Yes
RA	Road action plan		No
RX	Road excision plan		No
SP	Survey plan		Yes

Table 12 Crown action plan types

Freehold plan/Crown action plan			
Prefix	Type of plan	Other information	Active
DP	Deposited plan		Yes
IS	Identification survey		Yes
RC	Red cat		Yes
SP	Survey plan		Yes

Table 13 Plan types that are common to both freehold and Crown action plans

11.7.1 Freehold action plans

In order to conform with statutory requirements under the *Land Title Act 1994* the surveyors certificate was required to be executed in accordance with the following timeframe:

- plans numbered 191500 to < 800000 executed by 30 June 1990
- plans numbered 800000 to 863500 executed by 30 June 1994
- plans numbered 863500 to 869500 executed by 31 March 1995.

The above timeframe requirement no longer applies; however, the plan must have been capable of registration at the date of certification, and satisfy the requirements of the Land Registry, for the action proposed, at the date of lodgement.

The custodian for plans numbered between 1 and 799999 was as follows:

- southern (Brisbane) 1 to 299999
- central (Rockhampton) 600000 to 699999
- northern (Townsville) 700000 to 799999.

11.7.2 Crown action plans

In 1992, the county/town prefix for all Crown action plans was removed and replaced with the initials CP—Crown plan. The CP prefix was subsequently replaced by the survey plan (SP) prefix, introduced in 1997.

While the ‘county/town prefix’ is no longer used, the plan archive contains many plans that are catalogued in accordance with the historical ‘county/town’ prefix.

11.8 In strata

See section 9.49 *Surveys in strata* page 130.

Refers to surveys where the lots were defined by a surface that was referred to:

- the surface of the land; or
- a reduced level.

These plans often contained a statement like ‘to the depth of 50 feet below the surface’.

11.9 Irrigation areas

The *Water Act 2000* abolished irrigation areas

The provisions of the *Water Resources Act 1989* required the following:

- A local government may not approve a plan of subdivision in an irrigation area unless the plan has first been approved by notation thereon by the Director-General of the department.
- The approval of the local government must be applied for not later than twelve months after the date of notation by the Director-General of the department. (Schedule Part 1, Clause 31A (7) of the *Water Resources Act 1989*.)
- A plan by a constructing authority is not a subdivision for the purposes of section 31A of the *Water Resources Act 1989* and does not require the approval of the Director-General of the department.

11.10 Old system land—resurvey

There is no known old system land in Queensland. In bringing this land under the provisions of the *Land Title Act 1994*, a lot-on-plan reference has been determined for these parcels and referred to in the certificate of title. Where the plan is of an area not previously surveyed and shown on a prior plan, use the description as given in lot-on-plan conversion on the certificate of title.

11.11 Paper subdivisions

See section 3.11 *Compiled plans*, page 23.

See section 3.42 *Undescribed balances*, page 58.

See section 11.15 *Subdivision without survey* page 145.

The term ‘paper subdivisions’ refers to the creation of new parcels by title transfers

Section 48 of the *Real Property Act 1861* (now repealed) dealt with transfers of land. Section 48 stated:

‘When land under the provisions of this Act is intended to be transferred the transferor shall execute a memorandum of transfer in form D of the Schedule hereto and every such memorandum shall be attested to by a witness and shall for description of the land intended to be transferred refer to the grant or certificate of title of such land or shall give such description as may be sufficient to identify that particular portion of land intended to be transferred and shall contain an accurate statement of the estate or interest intended to be transferred and a memorandum of all mortgages and other encumbrances affecting the same and if such land be leased the name and description of the lessee with a memorandum of the lease.’

The part underlined above allowed the Registrar of Titles to register a transfer over part of a title provided it was sufficiently described. These transfers occurred without a survey plan being available of the land being transferred. When the transfer document was lodged, it was accompanied by a metes and bounds description of the land being transferred. Often these transfers related to the subdivision of a rectangular parcel into two equal parts. The parts created by the transfer were normally described as subs A and B or resubs A and B of the parent parcel and became known as ‘pencil subdivisions’. This name was applied because of the practice of pencil-plotting the subdivisions on the original plan of survey of the parent parcel. When the department implemented the shortened lot-on-plan description for parcels in the register, compiled plans were prepared for those lots that had no plan with dimensions available. There are still some outstanding lots that require plans to be prepared.

For an example see title 30015085 and RP619400.

11.12 Proclaimed survey area

When in the opinion of the chief executive of the department, the state control survey had been sufficiently developed within any area, and permanent survey marks had been established over such area, the Governor-in-Council could declare such area to be a proclaimed survey area under the *Survey Coordination Act 1952*.

A number of proclaimed survey areas in Queensland lapsed due to the provisions of the *Statutory*

Instruments Act 1992.

11.13 Railway boundaries

Prior to 1914, railway land was not normally surveyed unless the land was being resumed from a surveyed parcel of land. Section 92(1)(3) of the *Railway Act 1914* vested in the Commissioner of Railways, all land within railway fences. It is generally accepted that this section only applied to land fenced prior to 1914.

Where unsurveyed railway land is being surveyed the fence should be adopted if it was erected prior to 1914 (*Railway Act 1914*).

The standard width for unsurveyed and unfenced railways is:

- 150 links (30·175 metres) in urban areas
- 300 links (60·35 metres) in rural areas.

With the railway being centred on the centreline of the constructed rails.

Valuable information that may assist in the determination of the boundaries may be found in the original railway books, archived at Landcentre. All railway books have been enrolled in CISP and many are imaged. Care should be exercised in that the construction of the railway may not have been centred within the boundaries of the railway land, and the fences extant may not have been constructed on the same alignments as the original fences.

11.14 River Improvement Trust Act 1940

See section 10(5A) of the *River Improvement Trust Act 1940*.

For an example of a plan subject to the River Improvement Trust see RP167212 and Lot 2 on RP116442. Title 15515100.

11.15 Subdivision without survey

See section 11.11 *Paper subdivisions*, page 144.

11.16 Total deed areas

See section 3.6 *Areas*, page 16.

In the past, the plan showed a statement of the total deed area of the consolidated title as well as a list of the lots contained within the consolidated title. This information was required for the preparation of the deed of grant. For example:

Total deed area
Lots 1 & 2 on RP432167 and
Lots 5–7 on SL32114
144·2523 ha

Note: Where workers' homes perpetual town leases and State housing perpetual town leases were freeholded, it is not uncommon to find that the description in the deed of grant consists of two separate lots that are separate identities on an original registered plan. It is also noted in the deed of grant that it was granted under the Workers Homes Corporation Act or the State Housing Act. Whether or not separate titles may be issued is a matter for determination by the Registrar of Titles.

Appendix A. Glossary

This glossary of some of the most commonly used terms is intended to assist the user in understanding these Requirements. It is to be used in association with specific legislation.

access

See **dedicated access**.

Under the *Local Government (Planning and Environment) Act 1990*, ‘access’ was defined as a ‘practical’ means of entry. However, practical means of entry does not always guarantee ‘dedicated access’.

access restriction lots

An access restriction lot is a separate lot in a subdivision. They may also be called buffer strips and were a town planning requirement of local government to restrict access from roads to adjacent land.

administrative advice

A document which is deposited by a local, commonwealth or state government authority or other authorised parties to record an interest in the lot in the ATS (e.g. notice of intention to resume).

administrative plan (AP)

Plans that define boundaries and areas of land subject to dealings under an Act where a cadastral survey is not required. Used for administrative actions such as licences, permits, and various road actions.

allocation

Interests in land are carried forward from one title to the next through the allocation of the interests of old lots to the new lots. These interests may include easements, original grants, mortgages, etc.

associated documents

Associated documents are instruments that are lodged in the department with the plan (e.g. easements, leases, mortgages, nomination of trustees, transfers).

ATS

ATS (Automated Titles System) is the computerisation of the Torrens Title System of registration for all freehold and leasehold dealings in land in Queensland.

blind roads

Blind roads are roads which have no access from a contiguous road system and are no longer of concern to the Registrar of Titles, being a matter for the local government.

borrowing out of plans

Any unregistered survey plan lodged in the department may be borrowed out by the lodger for correction by the surveyor. The amended plan must be returned to the department.

cadastral survey

Any process of determining the boundaries of a piece of land or waters, including preparation of plans, required or authorised:

- under any Act dealing with the alienation, leasing, and occupation of State lands or with mining, or affecting titles to land
- or
- by the proprietor, lessee or mortgagee under any Act affecting titles to land
- or
- by the owner, proprietor, lessee, mortgagee or occupier of, or any person holding a registered

interest in, any land for the re-establishment of, or identification of, or adjustment of any boundary of such land

or

- under any Act to be made or certified by a cadastral surveyor.

calc. book

A numbered, linen-bound book formerly held by each examiner. The book contained an index of all plans examined by that examiner and a copy of any requisition. This has been replaced by CISP.

caveat

A notice to the Registrar of Titles by a person claiming an interest in the land. It prevents the registration of any instrument affecting such land until the caveat is withdrawn, removed or lapses. Caveats are recorded in the ATS.

certificate of title

A certificate that may be issued by the Registrar of Titles that provides evidence of the ownership of a freehold interest in a parcel of land.

CISP

CISP (Computer Inventory of Survey Plans) is a textual database of all survey plans in the department.

comatose title (historical)

This was the title to the underlying parcel of land over which a building unit plan or group title plan had been registered. On extinguishment of a BUP or GTP any dealing with the parcel reverted to this title. With the commencement of the *Body Corporate and Community Management Act 1997*, all comatose titles were cancelled.

court order

An order of the Supreme Court regarding the transfer of land or the creation of a benefit easement where an encroachment exists. No local government consent is required for the associated survey plan.

Crown land (*Land Act 1962*)

See **State land**.

Crown lease

A lease that is issued under the *Land Act 1994*.

dealing

An action relating to a parcel of land, such as a transfer of an interest.

dealing number

A unique number allocated to each document and survey plan when lodged in the department. It determines the priority of registration of plans and associated documents in relation to a title.

dedicated access

See **access**.

A dedicated road formed or unformed, surveyed or unsurveyed providing legal access to a lot, reserve or State land. See 'Access' in the *Local Government (Planning and Environment) Act 1990*.

deed of grant

Land granted in fee simple by the State, or the document evidencing the grant, including an

indefeasible title under the *Land Title Act 1994*. The deed is enrolled in the freehold registry and the registered owner's indefeasible title is created.

deed of grant in trust

Land granted in fee simple in trust by the State, or the document evidencing the grant, including an indefeasible title under the *Land Title Act 1994*.

deemed tramway easements

See section 6.2 *Cane railway easements*, page 83.

Tramway easements are defined by law and were originally created by section 41 of the *Sugar Experiment Station Act 1900* and subsequently preserved by section 84 of the regulation of the *Sugar Cane Prices Act No 45 of 1962*. The tramway easement rights were preserved under section 203 of the *Sugar Industries Act No 20 of 1991*, provided it was registered in the register of easements (*Sugar Industries Act 1991*) prior to 30/06/1996. The *Sugar Industries Act 1999* now registers these tramway easements in an access rights register, section 69. The person to whom the access right is granted must advise the Registrar of Titles (section 71 (2)) and the Registrar of Titles is required to enter an administrative note in his register (section 71 (4)). The administrative note is not evidence of the registration of the access right in the Land Registry (section 71 (5)).

defeasance

A condition relating to a title that can void the title if performed. Such conditions are contained in a separate instrument (not the title itself).

department

The State government agency that administers the *Survey and Mapping Infrastructure Act 2003*.

deposited plan

A plan or copy of a plan deposited with the department for the purposes of endorsement as being correct in respect of survey content. It includes:

- plans deposited for pre-examination and endorsement
- original State land action plans deposited for passing and recording
- copies of plans endorsed by accredited surveyors
- plans that have been lodged for registration but are marked 'no further action'
- plans deposited pursuant to section 16 of the *Survey and Mapping Infrastructure Act 2003*.

easement

A right enjoyed over the lands of a registered owner. The dominant tenement is the land to which a right is granted. The servient tenement is the land that is burdened by the granting of a right to another parcel of land. For easements in gross there is no dominant-servient relationship.

encroachment

Encroachment by a building, including encroachment by overhang of any part as well as encroachment by intrusion of any part in or on the soil. (*Property Law Act 1974*). (See section 3.20 *Encroachment*, page 32.)

endorsed plan

A plan that has passed survey examination and has been officially endorsed as being correct in survey content only for the intended action.

fee simple

An estate in land which is absolute and without limitation to inheritance. It implies full ownership in land, the tenure of which is called freehold.

forest entitlement area

A reservation of commercial timber, and the land on which it stands, to the State in a deed of grant

or freeholding lease to enable the State to undertake long-term management of timber.

freehold

Land that has been alienated from the State.

freehold title

An estate in fee simple created by a deed of grant when land is granted by the State, or an indefeasible title created on registration of subsequent dealings.

fully withdrawn plan

A lodged plan that is no longer required to be registered by the interested parties. The consent of the registered owner or the lodger is required prior to withdrawal.

geodetic control point

Positions established and marked on the ground, which are coordinated in a geodetic coordinate system.

geodetic datum

A set of constants used for defining the coordinate reference system for geodetic control surveys.

holding

State land held by any lessee. A 'pastoral holding' is a State lease used for grazing purposes (*Land Act 1962*). There is no definition of 'holding' in the *Land Act 1994*.

indefeasible title

The indefeasible title for a lot is created on the recording of the particulars of the lot in the freehold land register.

identification survey/plan

A cadastral survey carried out for the purpose of identification, re-establishment, marking or remarking of existing boundaries of a piece of land or waters. No interests are created or altered as a result of these surveys/plans. In general, the survey content of these plans has not been examined.

instrument

Instruments include:

- a deed of grant or certificate of title
- a will, grant of representation, or exemplification of a will, that may be used to deal with a lot
- a deed that relates to or may be used to deal with a lot
- a power of attorney that may be used to deal with a lot
- a request, application or other document that deals with a lot and may be registered under the *Land Title Act 1994*
- a map or plan of survey that may be lodged.

interest in land

Rights, duties, liabilities connected with the land. The extent of the rights depending on the level of interest held (e.g. leasehold interest, freehold interest, joint interest, interest in common).

lease (*Land Title Act 1994*)

A lease is an instrument creating an interest in land for a fixed period, usually in consideration of the payment of rent. It is a requirement of a lease that there must be a lessor, a lessee, a demised premise or demised area and a term granted.

leasehold

State land leased to a person or company, for a term of years or in perpetuity.

lodged plan

A plan which has been lodged with the department for the purpose of registration as an instrument to give effect to a dealing(s) and is recorded in the ATS.

lodgement

The act of acceptance for registration purposes, by a registering authority of a registrable instrument such as a plan of survey.

lot (*Land Act 1994*)

A separate, distinct parcel of land created on:

- the registration of a plan of subdivision
or
- the recording of particulars of a lease.

lot (*Land Title Act 1994*)

A separate, distinct parcel of land created on:

- the registration of a plan of survey
or
- the recording of particulars of a deed of grant.

lot-on-plan

Lot-on-plan is a unique identifier for a parcel of land.

metes and bounds

‘Metes’ are the dimensions of the parcel and ‘bounds’ are the adjoiners. It was common for titles and grants to have a word description of the land, the metes and bounds. An example is deed of grant 20361102, which states in part:

‘Commencing at the south corner of portion 177, and bounded thence on the north east by that portion bearing 318 degrees 46 chains 59 ½ links, on the north-west by portion 175 bearing 228 degrees 19 chains 97 ½ links, and on the south west and on the south-east by roads bearing 138 degrees 46 chains 60 3/10 links and 48 degrees 19 chains 97 6/10 links to the point of commencement.’

natural feature

A topographical feature suitable for use as a boundary in a cadastral survey, including:

- a mountain range
- a cliff
- a river
- a watercourse
- a seashore.

notice of intention to resume (NIR)

A notice lodged in the department by a statutory authority of their intention to resume. It is noted in ATS as an administrative advice.

nomination of trustees

See transfer to trustees.

original grant

The original deed of grant for any parcel of land issued by the State detailing therein the

reservation of rights to the State.

patent error

A minor error on a survey plan, which can be corrected by the Registrar of Titles pursuant to section 155 (1) of the *Land Title Act 1994*.

proclaimed survey area (PSA)

See section 11.12 *Proclaimed survey area*, page 144.

public use land

Includes roads and other lots that are to be dedicated for public use on registration of a plan of survey or plan of subdivision.

red cat plan (redundant catalogue plan)

A copy of a survey plan lodged pursuant to section 16 of the *Survey and Mapping Infrastructure Act 2003*. The copy is held as a record of survey data only and as soon as the original survey plan is lodged the copy is no longer accessible. Derived from the term ‘redundant catalogue plan number’, which was given to such a copy.

register (noun)

A record of information about land maintained by the Registrar of Titles, under the authority of the *Land Title Act 1994* (i.e. the freehold land register) and under the authority of the *Land Act 1994* (i.e. leasehold land register).

register (verb)

To record the particulars of a lot, interest, instrument or other thing in the appropriate register in the Land Registry.

registered plan

A lodged plan that has proceeded to registration with or without accompanying documentation and is now recorded within the land titles register.

rejected plan

A lodged plan that is prevented from proceeding to registration and is rejected by the Registrar of Titles. The original plan is returned to the lodger.

requisition

A formal notification that a document has defects and those defects should be clarified or corrected before the document may be passed for registration.

reservation in a deed or lease

A clause in a deed or lease where the grantor (the State) reserves something to itself (e.g. gold and petroleum, or a certain amount of land) within the lease or deed.

reservation in title

See **road reservation**.

Reservations in title are areas of land set aside in deeds of grant for the express use of the State (Crown) in the process of the closer settlement of Queensland. They are non-delineated areas of land within the external boundaries of a lot (or other parcel of land). Reservations in title are mainly for road purposes but can be for railway, telegraph, or other defined purposes.

reserve

A parcel of land that has been set aside, through the provisions of the *Land Act 1994*, for a community purpose (e.g. for park and recreation purposes).

reserved road

A reserved road, either surveyed or unsurveyed, is shown on a plan in a specific location and reserved from the title.

resumption

The procedure under which an authority, empowered by the State government, compulsorily acquires land for a specific purpose.

road action plan

See **administrative plan**.

A sketch plan that was drawn for the purpose of road opening and/or closure under the *Land Act 1994*.

road excision plan

See **administrative plan**.

A sketch plan that was drawn for the purpose of excising an area of land from a Land Act lease for the purpose of dedicating the area as road.

road reservation

See **reservation in title**.

A road reservation does not have a specific location within a lot but is reserved from the title. Note that on some older plans, a road reservation is referred to as 'reserved for road purposes'.

State land (*Land Act 1994*)

All land in Queensland, except freehold land.

statutory area

An area of land wherein either:

- another statutory authority, in addition to the local government, must consent to the plan (e.g. within a coastal management control district)
- or
- some extra condition must be complied with.

statutory authority

An authority that is created through an Act of Parliament.

surrender

To surrender an interest in land (e.g. a lease) is to give it back to the person or body (e.g. the State) from whom it was granted.

survey

The act or process of determining the form, contour, position, area, height, depth or any other similar particulars of the earth's surface, whether on land or water, or of any natural or artificial features on, below or above any part of that surface. It also refers to planning the position or the length and direction of the bounding lines of any part of that surface, or of any natural or artificial features, and includes the making or obtaining of a plan or plans.

tenure

The form in which property is held, set aside or dealt with under an Act (e.g. freehold, reserve, road or unallocated State land). Tenure is also used to describe an interest in land that has a term (e.g. leasehold as opposed to freehold).

transfer and request to amalgamate

The transfer and request to amalgamate are documents used to resolve cases of joint ownership

created by the movement of title boundaries by survey when two or more different registered owners are involved.

transfer to trustees (formerly nomination of trustees)

The document that is often used in dealing with access restriction lots as it transfers the land to the relevant local government in trust, usually for town planning purposes.

unallocated State land (USL)

All land in Queensland, except land that is:

- freehold land or land granted, or contracted to be granted, in fee simple by the State
or
- road or reserve, including national park, conservation park, State forest or timber reserve
or
- land subject to any lease or licence issued by the State.

unregistered dealing

An instrument that has been lodged with the Registrar of Titles but not yet registered.

vacant Crown land

See unallocated State land.

vested land

State land, the control of which has been ceded to a statutory authority (e.g. Port of Brisbane).

If an Act does not authorise the grant of a tenure over the vested land, the vested land must be surrendered to the State before the land may be further dealt with as unallocated State land. See departmental procedure PUX/952/062, [<www.dnrm.qld.gov.au/?a=109113:policy_registry/tenures-to-port-authority-corporation.pdf>](http://www.dnrm.qld.gov.au/?a=109113:policy_registry/tenures-to-port-authority-corporation.pdf) .

Appendix B. Abbreviations

B.1 General

Title	Abbreviation
Automated Titles System	ATS
Australian Height Datum	AHD
Australian Map Grid	AMG
Building unit plan	BUP
Certificate of title	C/T
Computer Inventory of Survey Plans	CISP
Contaminated land	C/L
Crown action plan	CP
Digital Cadastral Data Base	DCDB
Deed of grant	D/G
Deposited plan	DP
Easement	Emt
Global Positioning System	GPS
Global Navigation Satellite System	GNSS
Forest entitlement area	FEA
Freehold action plan	RP
Group title plan	GTP
<i>Land title practice manual</i>	LTPM
Map Grid of Australia	MGA
Permanent survey mark	PM or PSM
Proclaimed survey area	PSA
<i>Registrar of Titles directions for the preparation of plans</i>	RTDPP
Resumption	Resump
Survey Control Data Base	SCDB
Vegetation protection order	VPO

B.2 Crown tenures—*Land Act 1962*

Freeholding tenures	Abbr	Leasehold tenures	Abbr
Agricultural farm	AF	Grazing homestead perpetual lease	GHPL
Auction perpetual lease	APL	Non-competitive lease	NCL
Auction purchase freehold	APF	Pastoral development holding	PDH
Development lease	DL	Pastoral holding	PH
Freeholding sale	F	Perpetual country lease	PCL
Grazing homestead freeholding lease	GHFL	Perpetual suburban lease	PSL
Perpetual country lease converted	PCL(C)	Perpetual town lease	PTL
Perpetual lease selection	PLS	Preferential pastoral holding	PPH
Perpetual suburban lease converted	PSL(C)	Special lease	SL
Perpetual town lease converted	PTL(C)	Stud holding	SH
Special lease purchase freehold	SLPF		
Special purchase	SP		

Occupations	Abbr
Occupation licence	OL
Permit to occupy	PO
Road licence	RL

B.3 State tenures—*Land Act 1994*

Freeholding tenures	Abbr	Leasehold tenures	Abbr
Freeholding sale	F	Term lease	TL
Grazing homestead freeholding lease	GHFL	Perpetual lease	PPL
Freeholding lease	FL		

Permits	Abbr
Permit to occupy	PO
Road licence	RL

B.4 Department of Housing

Leasehold tenures	Abbr
State housing freeholding lease	SHFL
State housing perpetual town lease	SHPTL
Workers' homes perpetual town lease	WHPTL

B.5 Acts and Regulations and their abbreviations

Acts and Regulations are referred to in full in the document.

B.6 Commonly used plan abbreviations

About	Abt	Covenant	Cov
Addition	Addn	Creek	Ck
Alignment Spike	A Spk	CRESCENT	CRES
Alluvial Mining Claim	AMC	crown plan	CP
Application Post	Appln Post		
Approximately	Approx	Datum Post	D Post
ARCADE	ARC	Dead	Dd
Australian Geodetic Datum	AGD	Deep Driven Mark	DDM
Australian Height Datum	AHD	Department of Mines and Energy (D.M.E.) Plan ...	MP
Australian Map Grid	AMG	Departmental	Deptl
Avenue	Ave	Developmental	Dev
		Diagram	Diag
Balance	Bal	Distance	Dist
Bank	Bk	Disturbed	Distd
Bitumen	Bit	Dog Spike	D Spk
Block	Blk	Dredging Area	DA
BOULEVARD	BLVD	Dredging Claim	DC
BOUNDARY	BDY	Dredging Lease	DL
Brick	Br or Bk	Drill Hole (& Wing)	D Hole, D/H or D/H & W
BROADWAY	BDWY	DRIVE	DR
Brook	Brook		
Building	Bldg	Easement	Emt
Building Unit Plan	BUP	East	E
Business Area	BA	Electric Light Pole	ELP
		ESPLANADE	ESP
Calculated	Calc	Exploration Permit	EP
Centre	Cen (C)	Coal	EPC
CHANNEL	CHNL	Minerals	EPM
CHASE	CH	Petroleum	EPP
CIRCLE	CCL	EXPRESSWAY	EXPWY
CIRCUIT	CCT	Extended	Extd
CLOSE	CL		
Coal Mining Lease	CML	Fence Posts:	
Concrete	Conc	Round Fence Post	RFP
Connection	Conn	Square Fence Post	SFP
Construction	Constn	Square Concrete Fence Post	Conc SFP
Continued	Contd		
Corner	Cor	Round Steel Fence Post)	either
County	Cty	Round Galv. Iron Fence Post)	Steel FP
COURT	CT	Steel Fence Post)	or

Tubular Steel Fence Post).....	GIFP	Line Peg	LP
Corner Square Fence Post	Cor SFP	Local Government	Local Govt
Centre Round Fence Post	Cen RFP	Low Water Mark	LWM
Centre Face Square Fence Post).....	Cen Face SFP	Manhole	M/H
).....	(CFace SFP)	Map Grid of Australia	MGA
Fences: E.g. 2 Barbed Wire, 1 Plain Wire	2B 1P	Market Garden Area	MGA
		Mark	Mk
FREEWAY	FWY	Measurement	Mmt
Foot	Ft	Metre(s)	m
Found	Fd	Mineral Claim	MC
		Mineral Development Licence	MDL
Galvanized	Galv	Miners Homestead	MH
Galvanized Iron	GI	Miners Homestead Lease	MHL
Gold Field Homestead	GFH	Miners Homestead Perpetual Lease	MHPL
Gold Mining Lease	GML	Mining Lease	ML
Ground	Gnd	Mining Title Freehold Lease	MTFL
Group Title Plan	GTP	Mount	Mt
GROVE	GR	Mountain	Mtn
Gully Trap	G/T		
		Nails:	
Headwall	Hdwl	Galv. Iron Nail	GINail
Hectares	ha	Lead Head Nail	LHNail
HIGHWAY	HWY	Ramset Nail	Ram Nail
High Water Mark	HWM	Round Head Nail	RHNail
Holding	Hldg(H)	Spring Head Nail	SHNail
Identification	Ident	No Original Mark	No O Mk
Identification Survey	IS	North	Nth (N)
Instruction	Inst	Noted & Checked	N & C
Intersection	Intsn or Int	Number	No
Iron Pin	I Pin (IP never used)		
ISLAND	IS	Obliterated	Obltd
		Occupation	Occupn
Kerb	Kb	Old	Old
Kilometre(s)	Km	Original	Orig (O)
		Original Iron Pin	OIP
LANE	LA	Original Line Peg	OLP
Leaning	Leang	Original Peg	OP
Left Bank	LBk	Original Mile Post	OMP
Licensed Gem Claim	LGC	Original Permanent Survey Mark	OPM or OPSM

Original Pointer Peg O Ptr
 Original Reference TreeORT
 Original Survey PostOSP
 Overhead O/H

Permanent Marks:

Permanent Survey Mark Perm Mk, PM or PSM
 Brass PlaqueBrass Plq
 Deep Driven MarkDDM
 Mini MarkMini Mk
 Star Picket S Pkt

PARADE PAR.
 PARKWAY PKWY
 PATHWAYPTHWY
 Peg Peg(P)
 Permanent Perm
 Permanent Survey Mark Perm Mk, PM or PSM
 Petroleum Lease PL
 Petroleum Well Location PWL
 Pillar Plr
 Pipeline license P Lic
 PLACE PL
 PlacedPld
 PLAZAPLZ
 Plinth Plth
 Pointer Ptr
 Portion Por
 Position Posn
 Power Pole PP
 Profit a Prendre Profit or PaP
 PROMENADEPROM

QUAY QY

RAILWAYRLY
 Ranged Rgd Only
 ReadsRds
 RecreationRec.
 Redundant Catalogue PlanRC
 Registered PlanRP

Reinstated Reinstd
 RemainsRmns
 RemarkedRemkd
 RemovedRemvd
 RenewedRenwd
 Reset Reset
 Reserve Res
 Reserved Resd
 Reservation (Road Reservation)Rd Resn
 Reservoir.....Rsvr
 Residence AreaRA
 Restricted Mining Claim RMC
 Restricted Mining Purposes Claim RMPC
 Right BankRBk
 Right of Access R of A
 Right of Way R of W
 RIVER RIV(R)
 ROADRD

Section Sec
 SheetSh
 SMI Act *.Survey and Mapping Infrastructure Act 2003*
 SouthSth(S)
 Special Bauxite Mining Lease SBML
 Special Coal Mining Lease SCML
 Special Gem Claim SGC
 Special Mining LeaseSML
 Special Perpetual Mining Purposes LeaseSPMPL
 SpikeSpk
 SplitSplit
 StandardStand
 Star PicketS Pkt
 StationStn
 StraightenedSt'd or Strghd
 StrainerStnr
 STREETST
 StumpStp
 SuburbanSubn
 Surface Surf
 Surface AreaSurf Area (SA)
 SurveyedSurvd

Tailings Area	TA	Underground	U/G
Telegraph Pole	TP	Very Old	V Old
TERRACE	TER	Water Hole	WH
Tidal Boundary.....	Tdl Bdy	Water Right	WR
Traverse	Trav	Water Tower	Wt Twr
		Watershed	W'shed
Unallocated State Land	USL	West	W

If upper and lower case is used for a word to be abbreviated, then use upper and lower case for the abbreviation.

e.g.: **RAILWAY = RLY**
Railway Fence = Rly fence
CHANNEL = CHNL
Kerb and Channel = Kerb & Chnl

Abbreviations—common trees

Bauhinia	Bauh	Cypress pine	Cy Pine
Beefwood	Beefwd		
Blackbutt	Bkbutt	Dead finish	Dd Fin
Blackwood	Blackwd		
Bloodwood	Bldwd	Fibrewood	Fibrewd
Bollywood	Bollywd		
Bonewood	Bonewd	Gum topped box	GT Box
Bottle brush	Bot Brush		
Bottle tree	Bot Tree	Ironbark	Ironbk
Boxwood	Boxwd	Ironwood	Ironwd
Brigalow	Brig		
		Johnson River hardwood	JR Hardwd
Cabbage gum	Cab Gum		
Camphorwood	Camphwd	Kurrajong	Kjong
Candlenut	Candnt		
Cheesewood	Cheesewd	Lancewood	Lancewd
Coachwood	Coachwd		
Coolibah	Coolbh	Mahogany	Mahog
Corkwood	Corkwd	Mangrove	Mgrove
Cottonwood	Cottonwd		

Messmate	Mmate	Satinwood	Satinwd
Milkwood	Milkwd	Scrubtree	Scrub
Moreton Bay ash	MB Ash	Scrubwood	Scrub
		Silkwood	Silkwd
Nutwood	Nutwd	Spotted gum	Sp Gum
		Stringybark	Stybkb
Peppermint	Pmint		
Pepperwood	Pepperwd	Tallowwood	Tallowd
Poplar gum	Pop Gum	Tulipwood	Tulipwd
		Turpentine	Turp
Quandong	Qdong		
		Whitewood	Whitewd
Rosewood	Rosewd		
Saffron heart	Saf Heart	Yellowjacket	Y Jacket
Sandalbox	Sandbox	Yellowwood	Yellowd
Sandalwood	Sandwd		
Sassafras	Sasfras		

Appendix C. Styles

Information

See section 9.51 *Text styles*, page 131.

The following are text styles traditionally used on survey plans:

- subject lot, mining tenure (where used as legal property descriptions), easement, island and diagram

ABCDEFGHIJKLMNOPQRSTUVWXYZ
1254567890

- adjoining style to above and their catalogue numbers, adjacent (non-adjoining) road, street, railway, channel and drainage area, all distances and all column headings and entries, statements and endorsements, corner information, plan title (where applicable), features (gully, bldg, 2B 1P fence, etc.), read and ranged only bearing, area (right of decimal)

ABCDEFGHIJKLMNOPQRSTUVWXYZ
1254567890 *abcdefghijklmnopqrstuvwxyz*

- subject road, street, lane, pathway, drain and channel area, railway, highway, expressway, freeway and plan title (where applicable)

ABCDEFGHIJKLMNOPQRSTUVWXYZ
1254567890

- subject bay, sea, ocean, river, creek, area (left, of decimal), plan title (where applicable), adjoining state (e.g. NSW)

ABCDEFGHIJKLMNOPQRSTUVWXYZ
1254567890 *abcdefghijklmnopqrstuvwxyz*

- adjacent (non-adjoining) river, parish name (upper and lower case), bay, ocean, sea

ABCDEFGHIJKLMNOPQRSTUVWXYZ

- adjoining county name, adjoining or internal creek (note: for capitals, use style above)

abcdefghijklmnopqrstuvwxyz

- subject holding, parish name on face (when applicable)

ABCDEFGHIJKLMNOPQRSTUVWXYZ
1254567890
abcdefghijklmnopqrstuvwxyz

- all bearings (except column entries and reads), station numbers

1254567890 *abcdefghijklmnopqrstuvwxyz*

Appendix D. Symbols

Information

See section 9.48 *Symbols*, page 130.

The following are symbols traditionally used on survey plans:

adit	
astronomical station	
bench mark	● B.M. Number
binder (vinculum)	
bore	● Bore
bore and drain	
bridge and culvert	
broad arrow	
building	(Approx. Shape & Descriptn) L/Set Brick
cliff or escarpment (traversed)	 OR
creeks and rivers (traversed)	
creeks and rivers (not traversed)	
cutting	
dam	
embankment or steep bank	
fence—on boundary	
fence—internal	
gravel pit	
gully	
horizontal control point	

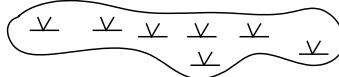
lake or lagoon



lighthouse



mangroves



mining district



mining field



observation station



peak



permanent survey mark



permanent water hole



photogrammetric control point



power line



quarry



railway single track



railway double track



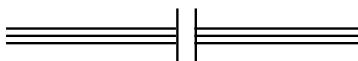
range or ridge



retaining wall



road overbridge



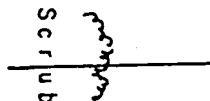
rocky foreshore



sand



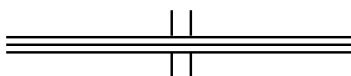
scrub or timber ridge



shaft

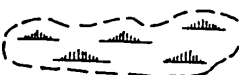




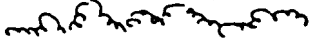
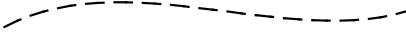


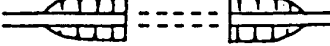




subway under railway



survey station

○ (Small circle with number)



tank (earth)	 <i>Tank</i>
telephone or telegraph line	
timber ridge	
track	
trigonometrical station	1st & 2nd order  1400 3rd & 4th order  1210
tunnel	
vertical control point	○ Cadastral Traverse ⊙ Permanent Mark ⊖ Bench Mark
waterhole	
weir	
well	 <i>Well</i>
windmill	

Appendix E. Certificates

Information

These examples are designed to assist with the completion of the relevant forms. As the structure of the certificates for EARL plans (Form 14 and Form 19) is essentially the same as that of the Form 13 and Form 18 respectively, separate examples have not been provided for the certificates for EARL plans. The relevant examples in this appendix should be used to assist the completion of the corresponding certificate on EARL plans.

Example 1—Form 13—individual cadastral surveyor

Survey and Mapping Infrastructure Act 2003

Certificate for cadastral plans

I, John William Brown hereby certify that the land comprised in this plan was surveyed by ***me personally*** and that the plan is accurate, that the said survey was performed in accordance with the *Survey and Mapping Infrastructure Act 2003* and *Surveyors Act 2003* and associated Regulations and Standards and that the said survey was completed on ***1/6/2014***.

JW Brown

Date : ***1/8/2014***

Cadastral Surveyor

Example 2—Form 13—corporation cadastral surveyor

Survey and Mapping Infrastructure Act 2003

Certificate for cadastral plans

J W Brown Surveys Pty Ltd (ACN or ABN 123456789) hereby certify that the land comprised in this plan was surveyed by ***the corporation, by Peter Andrew Smith, cadastral surveyor, for whose work the corporation accepts responsibility*** and that the plan is accurate, that the said survey was performed in accordance with the *Survey and Mapping Infrastructure Act 2003* and *Surveyors Act 2003* and associated Regulations and Standards and that the said survey was completed on ***1/6/2014***.



John William Brown, Director

Brian Lloyd Gardiner, Director

Date : ***1/8/2014***

Note: A common seal may not be required, depending on the corporation's constitution.

Example 3—Form 13—individual cadastral surveyor supervising a registered person*Survey and Mapping Infrastructure Act 2003***Certificate for cadastral plans**

I, John William Brown hereby certify that the land comprised in this plan was surveyed by ***Peter Andrew Smith, surveying associate, for whose work I accept responsibility*** and that the plan is accurate, that the said survey was performed in accordance with the *Survey and Mapping Infrastructure Act 2003* and *Surveyors Act 2003* and associated Regulations and Standards and that the said survey was completed on ***1/6/2014***.

JW BrownDate : ***1/8/2014***

Cadastral Surveyor

Note: See section 75 of the *Surveyors Act 2003* regarding the requirements for supervision.

Example 4—Form 13—corporation cadastral surveyor, survey by registered person other than a cadastral surveyor*Survey and Mapping Infrastructure Act 2003***Certificate for cadastral plans**

J W Brown Surveys Pty Ltd (ACN or ABN 123456789) hereby certify that the land comprised in this plan was surveyed by ***the corporation, by Peter Andrew Smith, surveying graduate, for whose work the corporation accepts responsibility, under the supervision of John William Brown, cadastral surveyor*** and that the plan is accurate, that the said survey was performed in accordance with the *Survey and Mapping Infrastructure Act 2003* and *Surveyors Act 2003* and associated Regulations and Standards and that the said survey was completed on ***1/6/2014***.

***John William Brown, Director******Brian Lloyd Gardiner, Director***Date : ***1/8/2014***

Note: A common seal may not be required, depending on the corporation's constitution.

Example 5—Form 18—individual cadastral surveyor

Survey and Mapping Infrastructure Act 2003

Certificate for cadastral plans—compiled

I, John William Brown hereby certify that ***I have*** made this plan under Section 16 of the *Survey and Mapping Infrastructure Regulation 2014* and pursuant to the *Survey and Mapping Infrastructure Act 2003* and *Surveyors Act 2003* and associated Regulations and Standards and that the plan is accurate, and compiled from ***CP842126 and RP181275 in the Department of Natural Resources and Mines.***

JW Brown

Date : ***1/8/2014***

Cadastral Surveyor

Example 6—Form 18—corporation cadastral surveyor

Survey and Mapping Infrastructure Act 2003

Certificate for cadastral plans—compiled

J W Brown Surveys Pty Ltd (ACN or ABN 123456789) hereby certify that ***the corporation, by Peter Andrew Smith, cadastral surveyor, for whose work the corporation accepts responsibility, has*** made this plan under Section 16 of the *Survey and Mapping Infrastructure Regulation 2014* and pursuant to the *Survey and Mapping Infrastructure Act 2003* and *Surveyors Act 2003* and associated Regulations and Standards and that the plan is accurate, and compiled from ***CP842126 and RP181275 in the Department of Natural Resources and Mines.***



John William Brown, Director

Brian Lloyd Gardiner, Director

Date : ***1/8/2014***

Note: A common seal may not be required, depending on the corporation's constitution.

Example 7—Form 18—individual cadastral surveyor supervising a registered person*Survey and Mapping Infrastructure Act 2003***Certificate for cadastral plans—compiled**

I, John William Brown hereby certify that ***Peter Andrew Smith, surveying associate, for whose work I accept responsibility, has*** made this plan under Section 16 of the *Survey and Mapping Infrastructure Regulation 2014* and pursuant to the *Survey and Mapping Infrastructure Act 2003* and *Surveyors Act 2003* and associated Regulations and Standards and that the plan is accurate, and compiled from ***CP842126 and RP181275 in the Department of Natural Resources and Mines.***

JW BrownDate : ***1/8/2014***

Cadastral Surveyor

Note: See section 75 of the *Surveyors Act 2003* regarding the requirements for supervision.

Example 8—Form 18—corporation cadastral surveyor, plan prepared by registered person other than a cadastral surveyor*Survey and Mapping Infrastructure Act 2003***Certificate for cadastral plans—compiled**

J W Brown Surveys Pty Ltd (ACN or ABN 123456789) hereby certify that ***the corporation, by Peter Andrew Smith, surveying graduate, for whose work the corporation accepts responsibility, under the supervision of John William Brown, cadastral surveyor, has*** made this plan under Section 16 of the *Survey and Mapping Infrastructure Regulation 2014* and pursuant to the *Survey and Mapping Infrastructure Act 2003* and *Surveyors Act 2003* and associated Regulations and Standards and that the plan is accurate, and compiled from ***CP842126 and RP181275 in the Department of Natural Resources and Mines.***

***John William Brown, Director******Brian Lloyd Gardiner, Director***Date : ***1/8/2014***

Note: A common seal may not be required, depending on the corporation's constitution.

Example 9—Form 12—individual cadastral surveyor

Survey and Mapping Infrastructure Act 2003

Certificate for survey records

I, John William Brown hereby certify that these survey records are accurate records of the survey performed by ***me personally.***

JW Brown

Date : ***1/8/2014***

Cadastral Surveyor

Example 10—Form 12—corporation cadastral surveyor

Survey and Mapping Infrastructure Act 2003

Certificate for survey records

J W Brown Surveys Pty Ltd (ACN or ABN 123456789) hereby certify that these survey records are accurate records of the survey performed by ***the corporation, by Peter Andrew Smith, cadastral surveyor, for whose work the corporation accepts responsibility.***



John William Brown, Director

Brian Lloyd Gardiner, Director

Date : ***1/8/2014***

Note: A common seal may not be required, depending on the corporation's constitution.

Example 11—Form 12—individual cadastral surveyor supervising a registered person

Survey and Mapping Infrastructure Act 2003

Certificate for survey records

I, John William Brown hereby certify that these survey records are accurate records of the survey performed by ***Peter Andrew Smith, surveying graduate, for whose work I accept responsibility.***

JW Brown

Date : ***1/8/2014***

Cadastral Surveyor

Note: See section 75 of the *Surveyors Act 2003* regarding the requirements for supervision

Example 12—Form 12—corporation cadastral surveyor, survey performed by registered person other than a cadastral surveyor

Survey and Mapping Infrastructure Act 2003

Certificate for survey records

J W Brown Surveys Pty Ltd (ACN or ABN 123456789) hereby certify that these survey records are accurate records of the survey performed by ***the corporation, by Peter Andrew Smith, surveying graduate, for whose work the corporation accepts responsibility, under the supervision of John William Brown cadastral surveyor.***



John William Brown, Director

Brian Lloyd Gardiner, Director

Date : ***1/8/2014***

Note: A common seal may not be required, depending on the corporation's constitution.

Appendix F. Reports

Information

F.1 Reinstatement reports

These examples are designed to assist with the completion of the relevant reports (see section 3.33 *Reinstatement of boundaries*).

Example 1

- Datum Stns 6a – 9 in Logan Rd
- The excess between Stns 8a – 9 +0.011 was proportioned
- The OIP at Stn 7 was N&C 0.02 different
- The Cor at Stn 1 was fixed by OIP. Angle at 6 - 0°01'40" on original but agrees with RP123456
- Stns 1 - 6 is +0.866 on RP123456 and RP234567 show excess in Lot 442.
- The Cnr at Stn 5 was fixed by deed from Stn 6 to give good agreement with occupation.
- Remarks and occupational ref at Stn 8 on RP234567 also suggests excess should be left in Lot 443.

Example 2

Orig reference marks were found at stns 19, 35 79 and 86 on SL9876 in the Smith Street Tunnel and adopted – see stns 4, 6 and 7.

This datum was then connected northwards through to the only remaining marks of IS123456 along Maroon Road and Grey Street at or near stns 6 and 17 on that plan.

The only other remaining accessible old mark at this northern extension of Lot 123 on Maroon Road was the old screw off stn 10 on RP876543 – see stn 1 at Maroon Road.

The end result was reasonable bearing and distance agreement with old plans of survey in Maroon Road and a reasonable agreement with the position of stns 19a and 19b on SL8654 – see stns 13 and 14 on this plan.

The azimuth of this survey is that of SL8654 and SL9876. Subtract 35 seconds from bearings on SP123456 and SP234567 to correlate them with this plan.

Example 3

- Datum for this survey is the southern side of Edge Street from original marks found. Examination of available search raised some serious concerns:
- IS234567 - Adopted stn 2 on RP198765 which did not fix Edge Street and joined to the 0.Spike at Bark Street - moving off the intermediate OIP's. He also chose to ignore SL2345 in fixing Green Street. I totally ignored IS234567.
- IS123456 - Followed SL2345 in Green Street to the point of adopting occupational measurements east of Stn 3 on SL2345 as I could get no correlation between the reference marks placed by IS123456. I also could not get any correlation between Edge Street and Green Street. I therefore ignored IS23456.
- Summary - My fix follows the older surveys with very good agreement on occupation to support my decisions.

Example 4

- The alignment of Main Street (Stns 2-9) was fixed by O. Screw at Stn 2 and the butt of a RFP at Stn 9 (See RP612345). Connections across Main Street confirmed at least deed distance remains.

- The alignment of Bertram Street was fixed by reference marks at Stns 14, 16 & 18.
- Parallel alignments along Bertram Street with deed distance maintained and produced south-east to intersect the Main Street alignment. Stn 5 was then fixed.
- Deed distance was taken along Main to Stn 8. The connection to Stn 15 produced a parallel alignment along Alexandra Street.
- Maintaining deed distance across Medcraf Street, excess of 32mm was proportioned between Medcraf and Main Street

Example 5

Stations 172-91

- Stn 172 fixed using ORT remains
- Stn 168 fixed at true secant from Stn 172
- Stn 79 fixed using ORT
- No original marks found east until Stn 91
- Stn 91 fixed using ORT hole

Stations 90-94

- Stn 90 fixed deed road width from Stn 91
- Stn 92 fixed using OSP hole
- Stn 93 fixed by secant from Stn 92
- Stn 94 fixed using OSP hole

Stations 94-100

- Stn 94 fixed using OSP hole (agrees with ORT)
- Stn 96 fixed using OSP hole
- Stn 97 fixed by secant from Stn 96
- Stn 99 fixed by secant from Stn 98
- Stn 100 held from OIP/OP

Station 103

- Stn 103 fixed original width from 102 using SP123456

Example 6

Datum for the survey is the eastern side of Computer Circuit from original marks found.

Line 1-4 fixed from original reference marks found at Stns 1, 2 4 & 5. No discrepancies found with these marks

Line 6-7 fixed at deed from & parallel to Computer Circuit, due to the skewing back street and the agreement found with SP123456. I did not see it necessary to measure through to the rear street.

Stn 3 fixed at deed from Stn 2, leaving deed to the north and the south.

Lines 3-6 & 2-7 fixed at original right angle off Computer Circuit.

Example 7

Eastern Boundary

NR123 fixes the eastern boundary of Carbine Road 3 chains from rail centreline.

NR12 shows offsets to the boundary from the rail centreline. 67 links east and 83 links west.

The eastern boundary of Lot 1 was fixed 233 links from the eastern boundary of Carbine Road. This position is confirmed by the presence of a very old railway fence.

Southern Boundary

The position of the level crossing has not been previously surveyed.

NR12 has a noting about "Open level Crossing Drawing No 7". This cannot be located by Queensland Rail.

As there was very good agreement with the old railway fence along the eastern boundary, the old fence posts from the same fence were adopted to fix the southern boundary. The shape of the fence/boundary is consistent with SP123456.

Example 8

- Stn 11 fixed at deed from Thoms Street.
- Line 7 – 11 parallel to Thoms Street vide RP123456
- Shortage between Stns 6 & 7 justified by overall shortage in Golden Avenue
- RP134567 took excess which is not justified. Therefore shortage between Stns 7 & 8 of 0.016m (based on RP34567 and not RP134567) proportioned to fix western boundary of subject lot which is parallel to Thoms Street.

Example 9

It should be noted that the survey is generally over extremely rugged terrain. The line from Stn19-30 has been re-established as a straight line as intended on Plan CH311234. The OIP at Stn 23 was re-referenced even though it was placed in Cen RFP hole on RP87654. This reinstatement removed the shortage that existed between the OIP at Stn 23 and Stn 8 to the west. This is supported by the existence of a large excess to the reinstated corners to the east at Stn 26 and 27.

The N/S position of the OIP at Stn 23 was adopted as large excesses exist both north and south of Stn 23, and previous surveys revealed that the OIP demonstrates the positioning of the original fence. It also provides a reasonable distance (0.326 shortage) from Stn 18-24 which has been proportioned to calculate Stns 21 and 22.

The alternative solution of adopting a straight line from Stn 9 -27 as per CH311234 would make this shortage substantially larger (0.807) even though creating a better angle at Stn 23.

Stn 8 has been established by deed road width from line Stn 7 – 4 and keeping deed angle to a very old RFP hole found at Stn 9.

Stn 9 has been established by producing the deed angle at Stn 8 and intersecting it with the deed road width from Stn 10 – 11 accepted on RP876543. Stn 10 was then calculated by deed road width from Stn 9 – 8 and producing accepted line from RP876543. This leaves reasonably proportional excesses from Stn 8 – 1 and Stn 10 – 11.

Stn 7 is then fixed at the intersection point of a deed road width from lines established as above being Stns 9 – 8 – 3. Stn 19 has been established by proportion from Stn 13 – 12 – 11 (RP159185) and calculating the true secant as shown on that plan.

Example 10

This report is to explain that minor differences that were observed in the shape and area of the Lots 1 and 2 compared to that shown on the BUP1234, which was surveyed in 1973.

The general shape of the units on Level A is in agreement, however the measured area of the former Lot 1 is approximately 4m² larger than the area shown on BUP1234.

It appears from our measurements that the difference in area is because the original areas on BUP1234 were measured to the inside face of the wall and not the centre of the wall as required.

The general shape of the units on Level B is in agreement with the exception of the balconies which project out from the face of the building by approximately 0.5 metres. The projection does not show on the BUP1234, however at the scale of that plan these very small steps may have been considered too small to plot.

Our inspection found that all balconies protrude a similar amount. The current owner advised that to his knowledge the balconies had not been extended, however the balcony handrails had been replaced as part of the ongoing maintenance of the building which was some 30 years old.

The measured area of the former Lot 2 is approximately 8m² larger than the area shown on BUP1234. As on Level A, the difference is consistent with the area being measured to the inside of the walls rather than to the centre of the walls.

The boundaries adopted by this survey were the centre of the original walls, floors and ceilings as required by the Body Corporate and Community Management Act and the previous Building Units and Group Titles Act.

The differences in areas were consistent throughout the building, leading to the conclusion that the survey of BUP1234 had measured to the internal face of the walls which had thereby caused the areas to be incorrect.

F.2 Water boundary reports

The information provided below is designed to assist with the preparation of survey plans and the relevant reports for surveys involving a water boundary (see section 4.5 *Reporting requirements for surveys*). It is suggested that where a water boundary report is required, headings be used to distinguish that section of the report from the reinstatement section of the report (see section 3.33 *Reinstatement of boundaries*).

Surveying tidal boundaries

Applying the legislation

Exceptions		
<ul style="list-style-type: none"> when the boundary of tidal water is right-line when land is exempt land when reserved plan status applies 	<ul style="list-style-type: none"> not a tidal boundary under SMI Act old rules apply (to surveying or compiling) old rules apply (to surveying or compiling) 	-- s.66 s.65
New source material		
<ul style="list-style-type: none"> when land is USL 	<ul style="list-style-type: none"> survey a feature that satisfies the location criteria 	s.89
First New Plan of Survey (FNPOS)		
<ul style="list-style-type: none"> when natural feature surveyed on original plan, and: 		
<ul style="list-style-type: none"> same feature is adopted in practically same location 	<ul style="list-style-type: none"> subject to s.79, compile feature in original location or resurvey the feature (field or photogrammetric) 	s.80
<ul style="list-style-type: none"> same feature is subject to gradual & imperceptible change 	<ul style="list-style-type: none"> resurvey the feature in present location (field or photogrammetric) 	s.80
<ul style="list-style-type: none"> feature has been subject to sudden change 	<ul style="list-style-type: none"> compile feature in last location prior to sudden change (usually from original plan, 	s.80

	but can be from imagery prior to sudden change)	
<ul style="list-style-type: none"> the land is freehold prior to 7 May 2010, and an alternative feature closer to the water that satisfies location criteria is adopted 	<ul style="list-style-type: none"> survey the feature that satisfies the location criteria (feature closer to the water than original feature) 	s.81
<ul style="list-style-type: none"> when no natural feature surveyed on original plan, and something that satisfies location criteria exists 	<ul style="list-style-type: none"> survey the thing that presently exists (eg. natural feature or wall that corresponds to original deed) 	s.82
<ul style="list-style-type: none"> when none of the above apply 	<ul style="list-style-type: none"> single lot declaration, or multiple lot declaration 	s.83 s.93
Subsequent New Plan of Survey	(survey or compile feature, depending on application of ambulatory boundary principles)	
<ul style="list-style-type: none"> when FNPOS surveyed a feature 	<ul style="list-style-type: none"> subject to s.85, can compile from FNPOS 	s.86
<ul style="list-style-type: none"> when FNPOS compiled feature 	<ul style="list-style-type: none"> subject to s.85, can compile from FNPOS 	s.86
Esplanades		
<ul style="list-style-type: none"> when locating the tidal side of an esplanade 	(survey or compile feature, depending on application of ambulatory boundary principles)	s.90 s.91
<ul style="list-style-type: none"> when locating the landward side of an esplanade 	boundary is not a tidal boundary, but is curvilinear boundary fixed at time of exclusion or dedication <ul style="list-style-type: none"> originally surveyed (no about dimensions): located at offset from original tidal feature originally not surveyed: located at offset from original tidal feature described in source material or original location of MHWS (when not described) 	s.90 s.91

Survey Report**EXAMPLE 1— First new plan of survey of a tidal boundary (section 80, surveyed)***[Sample report text to be shown here]***EXAMPLE 2— First new plan of survey of a tidal boundary (section 80, compiled)***[Sample report text to be shown here]***EXAMPLE 3— First new plan of survey of a tidal boundary (section 81, surveyed)**

Tenure and survey history

The land existed as a freehold grant as at 7 May 2010, as it was granted in 1915. In the deed, the land was described as being bound by the Pioneer River

The land in the grant was surveyed on RP702689 but the plan and field notes did not describe the natural feature and field notes are not available. Using aerial imagery, it would appear that the previous survey adopted the high bank of the Pioneer River as the ambulatory boundary.

Survey of tidal boundary

This plan adopts an alternate feature, being the top of a low bank, which is between the original adopted natural feature and the water subject to tidal influence. Its location has been determined by field survey.

The alternate natural feature has been assessed against the first four tidal boundary location criteria in s.72, and:

- It is not subject to tidal inundation under any combination of astronomical conditions and average meteorological conditions because it is *0.5m above the tidal debris line*.
- It is on the landward side of any beaches, foredunes, mangroves, sea grasses, salt grasses, salt marshes, salt pans, intertidal flats, tidal sand banks and other similar features.
- The location of the tidal boundary is consistent with the public interest.
- The tidal boundary is in a stable location that is sustainable in the long term under normal seasonal events and does not require construction to keep it free from complete or partial inundation or obliteration.

EXAMPLE 4— First new plan of survey of a tidal boundary (section 82, surveyed)

Tenure and survey history

The land was granted in 1911. In the deed, the land was described as being bound by “Brisbane River”.

The land in the grant was surveyed on RP12589 in 1865 but the plan did not identify the natural feature adopted as the basis of the boundary. No survey records were lodged with the Department of Natural Resources and Mines.

The land was depicted as adjoining the Brisbane River and there is no clear statement showing the adoption of a natural feature on RP12589.

Survey of tidal boundary

This plan adopts a boundary based on the top of a revetment wall. Its location has been determined by field survey.

The alternate feature has been assessed against the tidal boundary location criteria in s.72 of the SMI Act, and:

It is not subject to tidal inundation under any combination of astronomical conditions and average meteorological conditions (criterion 1) as it is above Mean High Water Springs defined by the Semidiurnal Tidal Planes 2012 table and site inspections revealed ‘high tide’ near the base of the revetment wall.

It is on the landward side of any beaches, foredunes, mangroves, sea grasses, salt grasses, salt marshes, salt pans, intertidal flats, tidal sand banks and other similar features (criterion 2) because the boundary is on top of a revetment wall which also acts a retaining wall.

The location of the tidal boundary is consistent with the public interest as the proposed boundary location relates to the existing revetment wall which appears to have been in existence for some time. As the land is zoned Low Density Residential and neither Development Application or PD Online show or require any planning provisions for open space, the position of the proposed boundary will not obstruct the public interest.

The tidal boundary is in a stable location that is sustainable in the long term under normal seasonal events and does not require construction to keep it free from complete or partial inundation or obliteration.

As there is no natural feature in reasonable proximity to the tidal boundary, the top of the revetment wall has been adopted as the new boundary.

The boundary chosen being top of the revetment wall is on the landward side of any sandy beaches or sandy dunes and of any active erosion areas that have no natural vegetation.

Application of Section 82 of the SMI Act to the tidal boundary definition

In the absence of any meaningful information as to the original adopted natural feature noted on either the original plan or subsequent plans, and the absence of any further confirming information in any associated material for the original plan, s.82 of the SMI Act has been identified as being applicable in the redefinition of the tidal ambulatory boundary.

EXAMPLE 5— First new plan of survey of a tidal boundary (section 82, compiled)

[Sample report text to be shown here]

EXAMPLE 6— First new plan of survey of a tidal boundary (section 83, surveyed)

[Sample report text to be shown here]

EXAMPLE 7— Subsequent new plan of survey of a tidal boundary (section 86, surveyed)

[Sample report text to be shown here]

EXAMPLE 8— Subsequent new plan of survey of a tidal boundary (section 86, compiled)**Tenure and survey history**

A first new plan of survey SP234567 was registered for the subject land on 17/09/2010 pursuant to s.80 of the *Survey and Mapping Infrastructure Act 2003*.

On the first new plan of survey, the top of bank was adopted as the boundary. Between *stations A and D* the boundary was compiled using the definition of the tidal boundary on SP234567 as the original plan of survey.

Definition of tidal boundary

The boundary of the subject land is the top of the bank as adopted on SP234567.

Compiled Plan

Although some localised erosion areas from recent flooding events were evident, the location of the boundary at law on SP245678 is to the greatest practicable extent consistent with the location of the boundary depicted on SP234567. This has been confirmed by site inspection.

Surveying non-tidal watercourse boundaries*Applying the legislation*

Exceptions		
<ul style="list-style-type: none"> when the watercourse is internal or right-line when land is exempt land when reserved plan status applies 	<ul style="list-style-type: none"> not a watercourse boundary under SMI Act 	--
	<ul style="list-style-type: none"> old rules apply (to surveying or compiling creek/river) old rules apply (to surveying or compiling creek/river) 	s.95 s.65
New source material		
<ul style="list-style-type: none"> when land is USL 	<ul style="list-style-type: none"> survey a feature that satisfies the location criteria 	s.116
First New Plan of Survey (FNPOS)		
<ul style="list-style-type: none"> when natural feature surveyed on a previous plan satisfies the location criteria, and: <ul style="list-style-type: none"> feature exists in practically same location feature subject to gradual & imperceptible change feature subject to sudden change when natural feature surveyed on a previous plan does not satisfy the location criteria 	<ul style="list-style-type: none"> subject to s.107, compile feature in existing location (usually from plan that last surveyed creek/river), or resurvey the feature (field or photogrammetric) 	s.108
	<ul style="list-style-type: none"> resurvey the feature in present location (field or photogrammetric) 	s.108
	<ul style="list-style-type: none"> compile feature in last location prior to sudden change (usually from plan that last surveyed creek/river, but can be from imagery prior to change) 	s.110
	<ul style="list-style-type: none"> survey a feature that satisfies the location criteria (a feature further from water than previous feature) 	s.108

• when no natural feature surveyed on a previous plan, and:	(eg. creek/river excluded from lot but not surveyed, centre thread last run)	
• no evidence of sudden change	• survey a feature that satisfies criteria (field or photogrammetric)	s.108
• evidence of sudden change	• single lot declaration, or • multiple lot declaration	s.109 s.120
Subsequent New Plan of Survey	(survey or compile feature, depending on operation of ambulatory boundary principles)	
• when FNPOS surveyed a feature	• subject to s.112, can compile from FNPOS	s.113
• when FNPOS compiled feature under s.108	• subject to s.112, can compile from FNPOS	s.113
• when FNPOS compiled feature under s.110	• compile from FNPOS	s.113

Survey Report

EXAMPLE 9— First new plan of survey of a non-tidal boundary watercourse (section 108, surveyed)

Survey of non-tidal watercourse boundary

The current location of the natural feature has been determined by locating the top of the bank of Plantation Creek utilising RTK GNSS techniques.

The natural feature being the top of the bank adopted on SP234567 accords with the non-tidal boundary watercourse location criteria in s.100 as follows:

Criterion 1: it occurs naturally; is within the channel but not within the bed of the watercourse and it is in a reasonably stable location. The top of the bank feature was compared with the original bank feature surveyed on plans GS107 & GL12451. The original deeds of grant for Portions 6V, 31Vb and 48 all describe the feature as the left bank of Plantation Creek. The original creek bank was plotted from field notes for plan GS107. The original creek bank for plan G12451 was traced from a fair copy of GL12451 as the original field notes were not available. A comparison between the surveyed creek bank and the original banks was such that it verified that the same feature had been located by survey.

There were some changes occurring on that part of the creek bank represented by GS107. Differences found on this section were up 8.5m apart. The variation is believed to be gradual and imperceptible changes over a period of some 95 years since the original survey.

Criterion 2: It is not a line of intersection of a particular level of water flow with land and; it is not transient in nature

Criterion 3: It is the top of a bank

The location of the boundary is consistent with s.108(4) and s.108(5) in that it is generally not closer to the opposite site of Plantation Creek than the last known location of the non-tidal boundary (watercourse) as depicted on Plans GS107 and GL12451.

EXAMPLE 10— First new plan of survey of a non-tidal boundary watercourse (section 108, compiled)

[Sample report text to be shown here]

EXAMPLE 11— First exception for the boundary location criteria rule (non-tidal) provision (section 109, surveyed)

[Sample report text to be shown here]

EXAMPLE 12— Second exception for the boundary location criteria rule (non-tidal) provision (section 110, surveyed)

[Sample report text to be shown here]

EXAMPLE 13— Second exception for the boundary location criteria rule (non-tidal) provision (section 110, compiled)

[Sample report text to be shown here]

EXAMPLE 14— Subsequent new plan of survey of a non tidal boundary watercourse (section 113, surveyed)

Tenure and survey history

A first new plan of survey SP234567 was registered for the subject land on 14/11/2011 pursuant to s.108 of the *Survey and Mapping Infrastructure Act 2003*.

On the first plan of survey, the high bank of the river was adopted as the boundary. Between stations *A-B-E-G* and *C-D-F* the boundary was compiled using the definition of the non-tidal boundary (watercourse) on SP234567 as the original plan of survey.

Definition of non-tidal watercourse boundary

The boundary of the subject land is the high bank of the river adopted on SP234567.

Compiled Plan

The location of the boundary at law on SP245678 is consistent with the location of the boundary depicted on SP234567. This has been confirmed by site inspection.

EXAMPLE 15— Subsequent new plan of survey of a non-tidal boundary watercourse (section 113, compiled)

[Sample report text to be shown here]

EXAMPLE 16— Plan of survey of a non-tidal boundary lake (section 119, surveyed)

[Sample report text to be shown here]

EXAMPLE 17— Plan of survey of a non-tidal boundary lake (section 119, compiled)

[Sample report text to be shown here]

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