



*Survey and Mapping Infrastructure Act 2003*

# Survey and Mapping Infrastructure Regulation 2014

**Current as at 28 February 2023**

**Reprint note**

This is the last reprint before repeal. Repealed on 1 September 2024 by 2024 SL No. 144 s 34.

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Queensland

# Survey and Mapping Infrastructure Regulation 2014

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# Survey and Mapping Infrastructure Regulation 2014

## Part 1 Preliminary

### 1 Short title

This regulation may be cited as the *Survey and Mapping Infrastructure Regulation 2014*.

### 2 Definitions

The dictionary in schedule 2 defines particular words used in this regulation.

## Part 2 Principles to be applied in carrying out surveys

### Division 1 All surveys

#### 3 Importance of State survey and mapping infrastructure

The State survey and mapping infrastructure is of value to the community because it contributes to the State's economic, environmental and social development.

#### 4 How a survey contributes to the State survey and mapping infrastructure

A survey contributes to the State survey and mapping infrastructure by, for example, ensuring each of the following—

[s 5]

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- (a) survey observations for achieving an acceptable level of survey quality are made;
- (b) the survey marks placed, or the survey marks used as reference points for the survey, provide permanent physical evidence of the survey;
- (c) the physical integrity of the survey marks used is appropriate for the survey's intended purpose;
- (d) the survey observations made and survey marks placed comply with the relevant survey standards;
- (e) the survey records for the survey contain a clear description of the survey marks placed;
- (f) if a survey mark from another survey has been incorrectly placed or disturbed, details of the mark are recorded in an appropriate document;  
*Examples of an appropriate document—*
  - a State dataset
  - the land registry kept under a registration Act
- (g) relevant information about the survey and the survey marks placed are recorded in a State dataset;
- (h) a surveyor accepts responsibility for the survey quality.

## **5 When a survey is of value for a survey and mapping infrastructure purpose**

- (1) A survey is of value for a survey and mapping infrastructure purpose if, for example, the survey—
  - (a) produces information in a form that can be recorded in a State dataset; or
  - (b) places permanent survey marks; or
  - (c) makes measurements between permanent survey marks; or
  - (d) makes measurements that establish the relationship between the geodetic reference framework and a subsidiary framework.

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*Example of a subsidiary framework—*

cadastral boundary system

- (2) Subsection (1) does not limit the power of—
- (a) the chief executive in deciding, under section 34(1), 51(3)(b) or 56(1) of the Act, whether a survey mark, or information about a survey, is of value for a survey and mapping infrastructure purpose; or
  - (b) a surveyor in deciding, under section 55(1) of the Act, whether a survey is of value for a survey and mapping infrastructure purpose.

## **6 Intended purpose of survey**

- (1) A survey must be carried out in a way that achieves the survey's intended purpose.
- (2) The survey's intended purpose may be achieved by, for example—
  - (a) depicting on the plan of survey the spatial location and extent of the features surveyed; and
  - (b) establishing appropriate survey marks for the survey by, for example—
    - (i) placing a survey mark of a type complying with the relevant survey standard; or
    - (ii) using existing survey marks as reference points; and
  - (c) achieving an acceptable level of survey quality that is appropriate for the survey's intended purpose; and
  - (d) identifying, describing and depicting, as appropriate, natural features that are tidal boundaries or non-tidal boundaries of land.

## **7 Integrating survey and mapping information**

- (1) A survey must be capable of being integrated with other surveys.

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- (2) The integration may be achieved by, for example, ensuring appropriate connections are made to the following when carrying out the survey—
- (a) the geodetic reference framework;
  - (b) a subsidiary framework;  
*Example—*  
cadastral boundary system
  - (c) a natural feature forming a boundary of land, including, if appropriate, the former location of a natural feature if the former location still forms a boundary of land;
  - (d) a permanent improvement on the land.

## **Division 2                      Cadastral surveys**

### **8                      Application of div 2**

This division applies to a cadastral survey in addition to division 1.

### **9                      Boundary locations**

- (1) The plan of a cadastral survey must, for a parcel of land surveyed—
- (a) describe and show the location of each existing boundary of the land; and
  - (b) if the survey is carried out for registering an interest in the land—describe and show each boundary of the land the subject of the interest.
- (2) A boundary of land is shown on the plan by recording—
- (a) each of the following things used as reference points for the survey—
    - (i) permanent improvements on the land;
    - (ii) existing survey marks;



- 
- (iii) survey marks placed in carrying out the survey;  
and
- (b) the length and direction of the boundary.
- (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.

## 10 Taking account of parties' rights and obligations

- (1) A cadastral surveyor carrying out a cadastral survey must, in identifying or marking a boundary of land, take account of the rights and obligations of each party affected by the boundary.

*Examples of a party affected by the boundary—*

- an owner of land sharing the boundary
  - an owner of land near the boundary if the owner's understanding of the position of the boundaries of the owner's land may change as a result of reinstating the boundary
  - an owner of land benefited by an easement if the owner's understanding of the position of the boundaries of the easement may change as a result of reinstating the boundary
- (2) This may be achieved by, for example, ensuring each of the following—
- (a) cadastral boundaries are reinstated in accordance with the hierarchy of reinstatement evidence;
- (b) cadastral boundaries are defined by abutments with no gaps between, or overlaps of, the boundaries;

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- (c) how to decide the position of a natural feature forming a boundary is recorded on the plan;
- (d) if there is an apparent irregularity in information recorded for an existing survey mark, the irregularity is recorded in—
  - (i) a State dataset; or
  - (ii) the land registry kept under a registration Act;

*Example of an apparent irregularity—*

Observations made by the surveyor relating to the survey mark differ from the information recorded for the mark in a State dataset.

- (e) any encroachment is identified and, if the encroachment is substantial, each owner of land affected by the encroachment is notified.
- (3) In this section—

*hierarchy of reinstatement evidence* means a set of rules recognised in the surveying profession—

- (a) for giving weight to evidence of cadastral boundaries; and
- (b) used in the reinstatement of cadastral boundaries.

## 11 Importance of cadastral surveys for cadastral boundary system

- (1) A cadastral survey contributes to—
  - (a) the maintenance and improvement of cadastral boundaries throughout the State; and
  - (b) the information held in—
    - (i) a State dataset; or
    - (ii) the land register kept under a registration Act.
- (2) This may be achieved by, for example, ensuring each of the following for the survey—

- 
- (a) survey observations for achieving an acceptable level of survey quality are made;
  - (b) survey marks placed, or the survey marks used as reference points for the survey, provide permanent physical evidence of the survey;
  - (c) the physical integrity of the survey marks used is appropriate for the survey's intended purpose;
  - (d) the way survey observations are made and survey marks are placed complies with the relevant survey standards;
  - (e) the survey records for the survey contain a clear description of the survey marks placed;
  - (f) permanent survey marks are placed to assist future reinstatement;
  - (g) the survey records for the survey are kept in—
    - (i) a State dataset; or
    - (ii) the land registry kept under a registration Act;
  - (h) the cadastral surveyor for the survey—
    - (i) accepts responsibility for the survey quality; and
    - (ii) keeps survey records for the survey in a form suitable as a record of the survey.

## **Part 3                      Geodetic reference framework**

### **12            Geodetic reference framework—Act, s 6**

- (1) For section 6(4) of the Act, the geodetic reference framework is—
  - (a) for latitude and longitude—GDA2020; or
  - (b) for mapping projection—MGA2020.
- (2) In this section—

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**GDA2020** means the Reference Frame under the *National Measurement (Recognized-Value Standard of Measurement of Position) Determination 2017* (Cwlth) as in force on the commencement.

*Note—*

‘Commencement’ refers to the commencement of this section, not of the *National Measurement (Recognized-Value Standard of Measurement of Position) Determination 2017* (Cwlth). See the *Acts Interpretation Act 1954*, section 32F(2).

**MGA2020** means the system of rectangular coordinates derived from a Universal Transverse Mercator projection of latitudes and longitudes that are based on GDA2020.

## Part 4                      Provisions about survey standard and survey guideline matters

### 13            Matter for which a survey standard may be made

A survey standard may be made about the supervision of persons carrying out cadastral surveys.

### 14            Placing and reinstating survey marks

- (1) A person must not place or reinstate a survey mark for a cadastral survey unless the person is—
  - (a) a cadastral surveyor; or
  - (b) a registered person supervised by a cadastral surveyor.Maximum penalty—20 penalty units.
- (2) A person must not place or reinstate a permanent survey mark for a survey unless the person is—
  - (a) a surveyor; or

(b) a person supervised by a surveyor.

Maximum penalty—20 penalty units.

## 15 New boundaries

- (1) Information derived from an existing survey, whether or not made for cadastral purposes, may be used by a cadastral surveyor in defining a boundary.
- (2) However, the cadastral surveyor is responsible for—
  - (a) the accuracy of the information used; and
  - (b) the adequacy of the survey marks used for the survey.

## 16 Preparing plans without carrying out a cadastral survey

- (1) A cadastral surveyor may prepare a plan of survey for a cadastral survey without carrying out the survey if—
  - (a) the plan is prepared from information from an existing survey, whether or not made for cadastral purposes; and
  - (b) the area and dimensions of the land are sufficiently accurate for the plan's intended purpose.

*Example of intended purpose—*  
to register an interest in land
- (2) If a cadastral surveyor prepares a plan under subsection (1)—
  - (a) the plan must be in the approved form and signed by the surveyor; and
  - (b) the surveyor must endorse the plan to the effect that it was prepared under this section.
- (3) The cadastral surveyor is responsible for the accuracy of the information used for preparing the plan.

## 17 Reinstating existing boundaries

- (1) This section applies if a cadastral surveyor carries out, or is responsible for carrying out, a cadastral survey, including a

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survey commonly called in the surveying profession an identification survey, to find out the position of an existing boundary on land.

(2) The cadastral surveyor must do each of the following—

- (a) look for evidence of the boundary by finding out the positions and descriptions of existing survey marks and permanent improvements on the land that have been used to define the boundary;
- (b) give primary consideration to the existing survey marks, unless other evidence suggests that the existing marks were incorrectly placed or have been disturbed;

*Examples of other evidence—*

- the original measurements
  - the position of a permanent improvement on the land
  - a statement by an occupier of the land
- (c) if the surveyor decides that a survey mark has not been placed as originally intended—
    - (i) record the position of the mark being reinstated; and
    - (ii) reinstate the mark according to the original intentions;
  - (d) if a doubt or discrepancy arises in relation to the placing of a survey mark, include in the survey records—
    - (i) a clear description of the survey mark; and
    - (ii) sufficient information to show the doubt or discrepancy; and
    - (iii) if the plan of survey is to be registered under a registration Act—sufficient information to enable the registering entity to register the plan;
  - (e) decide whether or not the position of a natural feature forming a boundary of the land is significantly different from the position marked on the registered plan for the land;

*Example—*

A cadastral surveyor may be required to decide whether or not the location at law of a tidal or non-tidal boundary, as provided for in part 7 of the Act, is consistent with the boundary's position as marked on the registered plan for the land.

- (f) record any encroachments on the land;
- (g) find out and record the position of any permanent improvements on the land that affect, or are affected by, a reinstated boundary.

Maximum penalty—10 penalty units.

- (3) In this section—

*registered plan* means a plan registered under a registration Act.

## **18 Procedure after reinstating existing boundaries**

- (1) This section applies if a cadastral surveyor—
  - (a) reinstates a boundary in carrying out a cadastral survey mentioned in section 17(1); and
  - (b) considers an owner of land may be adversely affected by the reinstatement.
- (2) The surveyor must—
  - (a) without delay, take all reasonable steps to give the owner written notice of the intention to give the plan with the reinstated boundary to the relevant person under section 19; and
  - (b) advise the relevant person of the steps taken to notify the owner.

Maximum penalty—10 penalty units.

## **19 Requirements for cadastral plans**

- (1) A cadastral surveyor who carries out, or is responsible for carrying out, a cadastral survey must give the relevant person for the plan of survey—

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- (a) the plan of survey; and
- (b) a certificate in the approved form signed by the cadastral surveyor; and
- (c) any other document reasonably required by the relevant person, including any document supplied for demonstrating consistency with the public interest under part 7 of the Act.

Maximum penalty—20 penalty units.

- (2) In this section—

*relevant person* means—

- (a) for a plan of survey registered, lodged for registration, or deposited under a registration Act—the registering entity; or
- (b) for a plan not mentioned in paragraph (a) and given to the chief executive under section 16 of the Act—the chief executive.

## 20 Survey accuracy

A cadastral surveyor who carries out, or is responsible for carrying out, a cadastral survey must ensure any survey equipment used for the survey is—

- (a) standardised; and
- (b) capable of achieving the accuracy stated in the relevant survey standard for cadastral surveys.

Maximum penalty—6 penalty units.

## 21 Survey records

- (1) Survey records for a cadastral survey that are registered, lodged, or deposited under a registration Act, or given to the chief executive under section 16 of the Act, must be accompanied by a certificate in the approved form signed by the cadastral surveyor for the survey.



- (2) The cadastral surveyor must, unless the surveyor has a reasonable excuse, keep for 6 years any survey records not mentioned in subsection (1), whether or not all the information from the survey records is shown on the plan of survey.

Maximum penalty—6 penalty units.

## **Part 5**

# **Watercourse identification and non-tidal boundary (watercourse) location**

### **Division 1**

## **Preliminary**

#### **22 Purpose of pt 5**

The purpose of this part is to support the application of the provisions of part 7, division 4 of the Act relating to the identification of watercourses and establishing the location at law of non-tidal boundaries (watercourse).

#### **23 Meaning of terms used in pt 5**

If a term used in this part is defined for part 7 of the Act, the term has the same meaning in this part and in schedule 1.

### **Division 2**

## **Supporting provisions**

#### **24 Diagram depicting different valley reaches**

Diagram A in schedule 1, part 1 depicts in overview the upper, middle and lower valley reaches of a valley drained by a typical watercourse.

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**25 Explanations and accompanying cross-section diagrams for typical upper valley reach**

Schedule 1, part 2—

- (a) gives an explanation of the characteristics of a typical upper valley reach and associated watercourse; and
- (b) includes a diagram (Diagram B) in cross-section form depicting the natural features that are likely to be found in a typical upper valley reach; and
- (c) includes a diagram (Diagram C) depicting the natural features that are likely to be found in a typical watercourse in an upper valley reach and can help in locating non-tidal boundaries (watercourse).

**26 Explanations and accompanying cross-section diagrams for typical middle valley reach**

Schedule 1, part 3—

- (a) gives an explanation of the characteristics of a typical middle valley reach and associated watercourse; and
- (b) includes a diagram (Diagram D) in cross-section form depicting the natural features that are likely to be found in a typical middle valley reach; and
- (c) includes a diagram (Diagram E) depicting the natural features that are likely to be found in a typical watercourse in a middle valley reach and can help in locating non-tidal boundaries (watercourse).

**27 Explanations and accompanying cross-section diagrams for typical lower valley reach**

(1) Schedule 1, part 4—

- (a) gives an explanation of the characteristics of a typical lower valley reach and associated watercourse; and
- (b) includes a diagram (Diagram F) in cross-section form depicting the natural features that are likely to be found in a typical lower valley reach; and

- 
- (c) includes a diagram (Diagram G) depicting the natural features that are likely to be found in a typical watercourse in a lower valley reach and can help in locating non-tidal boundaries (watercourse).
- (2) Schedule 1, part 4 also includes—
- (a) a diagram (Diagram H) in cross-section form depicting the natural features that are likely to be found in a typical lower valley reach where 2 or more watercourses in the form of anabranches are contained within the valley; and
  - (b) a diagram (Diagram I) in cross-section form depicting the natural features that—
    - (i) are likely to be found in typical watercourses in a lower valley reach where the valley contains 2 or more watercourses in the form of anabranches; and
    - (ii) can help in locating non-tidal boundaries (watercourse) in a multiple watercourse environment.

## 28 Additional information about applicability of cross-section diagrams

- (1) For any valley, a particular valley reach could contain a section of valley reach, or a section of watercourse within a section of valley reach, that is not typical, having regard to the valley reach and watercourse cross-sections depicted in schedule 1, parts 2, 3 and 4.

*Example—*

The cross-section of part of a middle valley reach of a particular watercourse might more closely resemble what is typical for an upper valley reach cross-section, and the cross-section of part of a lower valley reach of a particular watercourse might more closely resemble what is typical for a middle valley reach cross-section.

- (2) Accordingly, a cross-section diagram could be used to help in the location of a non-tidal boundary (watercourse), regardless of the valley reach in which the section of watercourse under consideration is located.

## **29 Explanation about valley margins**

- (1) Schedule 1 includes a number of references to valley margins.
- (2) A reference to a valley margin, in relation to a valley drained by a watercourse, is taken to be a reference to the bedrock feature that forms a lateral extent of the valley floor.
- (3) A valley margin could consist of a hill, cliff, ridge or mountain, but this will generally vary according to where the valley margin is situated in the valley.

*Example—*

A valley margin in an upper valley reach could be a mountain but, in a lower valley reach, a valley margin is likely to be no higher than a ridge.

## **30 Explanation about terraces**

- (1) Schedule 1 includes a number of references to terraces.
- (2) A reference to a terrace, in relation to a valley drained by a watercourse, is taken to be a reference to an abandoned floodplain that is situated above an active floodplain associated with the watercourse.
- (3) A terrace is formed when floodplains are abandoned during down cutting into the valley floor by base level change in the form of tectonic activity, by shifts in sediment load or by changes in the flow regime of the watercourse.

# **Part 6 Repeal**

## **31 Repeal**

The Survey and Mapping Infrastructure Regulation 2004, SL No. 130 is repealed.

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# Schedule 1 Valley reaches

sections 24 to 27

## Part 1 Overview of valley reaches

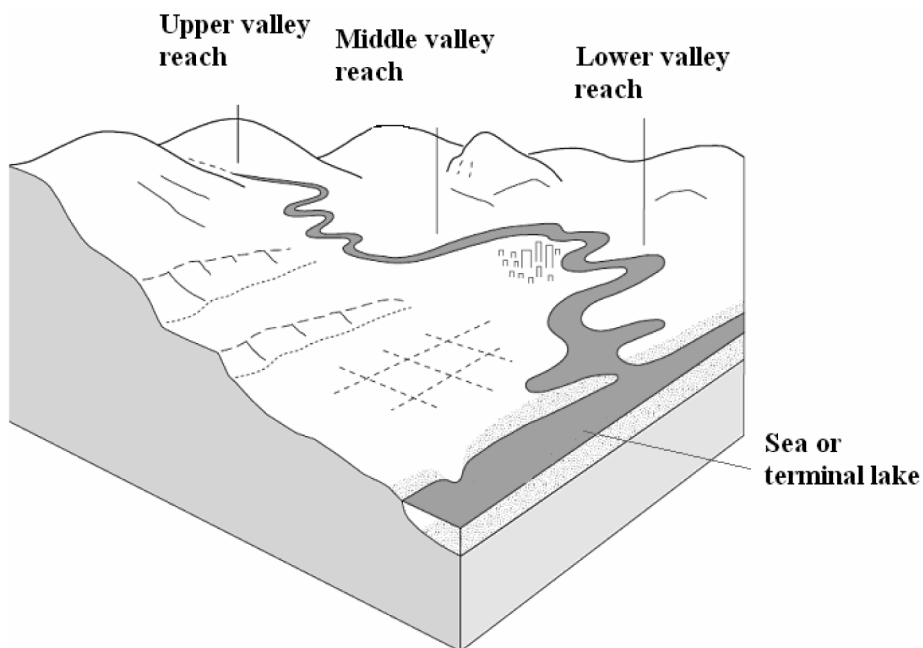


Diagram A—Overview of valley reaches

## Part 2 Upper valley reach

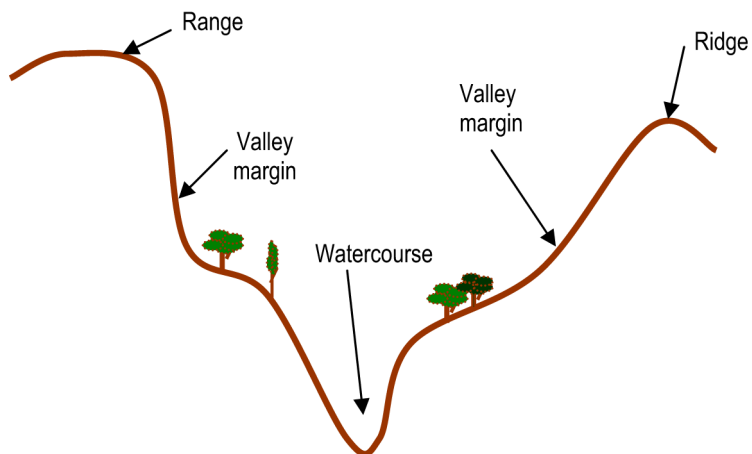
### Explanation of upper valley reach and associated watercourse

The upper valley reach of a valley drained by a watercourse is typically located in the most elevated parts of the watercourse

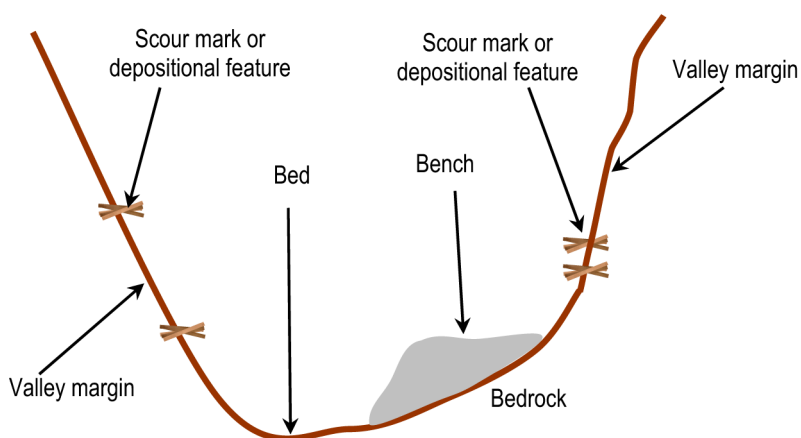
catchment, often near the catchment's watershed. The valley floor is typically quite narrow, characterised by gorges and in some places is only as wide as the watercourse itself. The valley floor is typically quite steep, characterised by waterfalls and cascades. The general direction and location of the reach is dictated by the valley margins that appear as significant geomorphic features.

The watercourse is typically narrow and deep with a V-shaped profile carved into the bedrock. The location of the watercourse within the narrow valley floor is generally dictated by the valley margins. The flow in the watercourse has high velocity and high energy, resulting in high erosive power. High flow events are confined within the watercourse by the adjoining valley margins. Past flow levels are often evidenced by scour marks on the valley margin or the deposition of lighter material, including, for example, sands and twigs, carried by the flow. The bed and banks of the watercourse typically consist of bedrock and very coarse material, including boulders, cobbles and gravel. The movement and deposition of material happens primarily in periods of high flow. Flow tends to respond directly to rainfall events and during dry periods there is little or no base flow. Vegetation within or along the watercourse is often sparse or immature due to the regular scouring caused by high flow energy or by the absence of deep soil profiles.

Where the watercourse is wider, it could have a narrow bench adjacent to one bank or the other. These benches are typically made of finer materials, commonly cobbles and gravel. These benches tend to be short in length and disconnected, and alternate from one side of the watercourse to the other as the flow rebounds from one valley margin to the other. These benches are regularly reshaped by flow events.



**Diagram B—Cross-sectional view of an upper valley reach**



**Diagram C—Cross-sectional view of a watercourse in an upper valley reach**

## Part 3 Middle valley reach

### Explanation of middle valley reach and associated watercourse

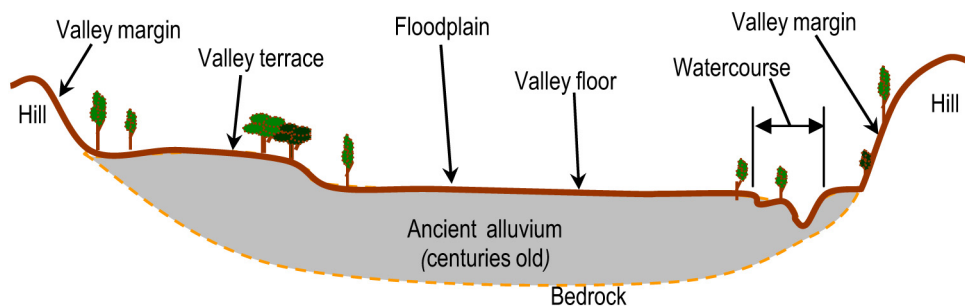
The middle valley reach of a valley drained by a watercourse is typically located in the watercourse catchment's pediment or foot hills. The middle valley reach is at a higher elevation than the lower valley reach but is not as high as the upper valley reach. The valley floor is typically of moderate width, and is characterised by narrow floodplains between valley margins of fringing hills, terraces and low ridges. The valley floor has a moderate grade, characterised by a meandering watercourse and occasional cascades. The valley floor is typically comprised of ancient sediments deposited by the watercourse in earlier geological periods, and can be interrupted by occasional bedrock ridges or bars that are exposed in the watercourse.

The watercourse carries flow from several tributaries and so is typically deeper and wider than in the upper valley reach. The location of the watercourse within the valley floor is generally dictated by its meander pattern and is occasionally bounded by the valley margin. The flow in the watercourse has less energy and is not as fast as in the upper valley reach. However, it has enough energy to transport sediment eroded in the upper valley reach down to the lower valley reach. Much of the sediment being transported is temporarily stored in the watercourse (typically as in-stream benches and islands) or on adjacent floodplains before being further eroded and transported downstream in subsequent high flow events.

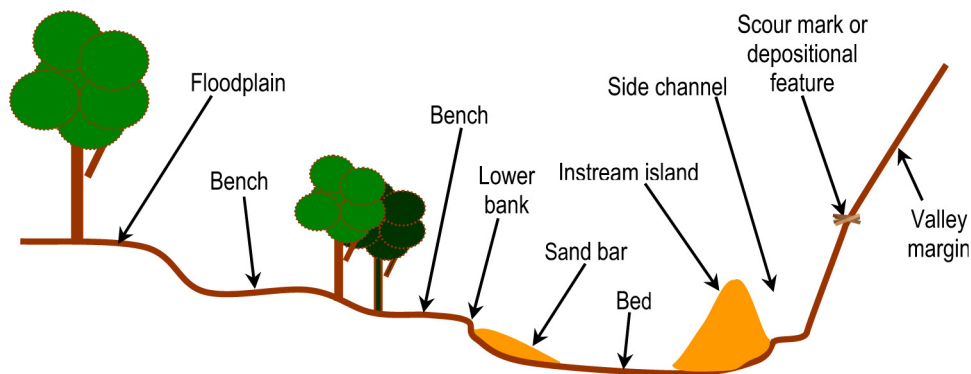
A number of benches are typical in the watercourse, created by the mixture of flow size and frequency. The lower, narrower channel of the watercourse is shaped by the more frequent, smaller flows and the wider, deeper channel of the watercourse is shaped by less frequent large flows. High flow events commonly erupt from the watercourse onto the adjacent floodplain. The bed and banks of the watercourse typically consist of medium sized material, such as cobbles, gravel and sand. Subject always to long-term weather cycles, almost perennial base flows occur because of the slow drainage of upper sections of the middle valley reach and groundwater inflows from alluvial floodplain aquifers along the watercourse. Vegetation within or along the watercourse is well



established because of the reliable base flows and stable channel profile.



**Diagram D—Cross-sectional view of a middle valley reach**



**Diagram E—Cross-sectional view of a watercourse in a middle valley reach**

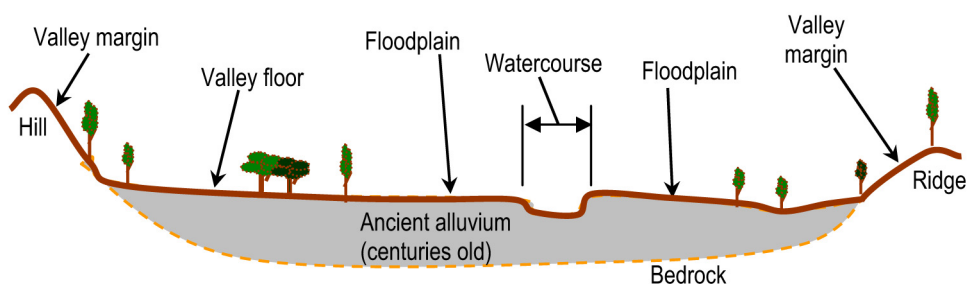
## Part 4 Lower valley reach

### Explanation of lower valley reach and associated watercourse

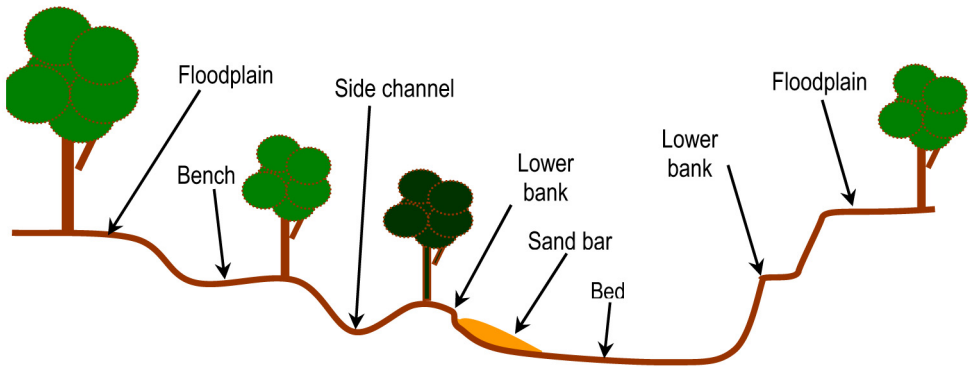
The lower valley reach of a valley drained by a watercourse is typically located in the watercourse catchment's lowest elevations, generally immediately upstream of where the watercourse becomes tidal or where it flows into a natural terminal lake. The

valley floor is quite broad, characterised by extensive floodplains between distant valley margins of fringing hills and low ridges. The valley floor has a low gradient, characterised by a strongly meandering watercourse with ox-bows and occasional anabranches. The valley floor is typically comprised of ancient sediments deposited by the watercourse in earlier geological periods.

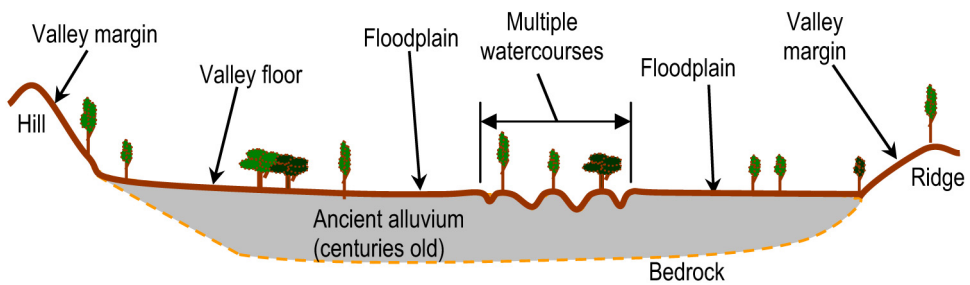
The watercourse gradient is quite low, resulting in slow moving flow. However, the watercourse is now carrying water from all upstream reaches and so dissipates this kinetic energy by meandering across the valley floor, eroding and depositing sediment along the way. This results in a comparatively wide, shallow channel, often with large sediment accumulations such as in-stream benches and islands. Sediment that makes up the channel of the watercourse and adjoining floodplains tends to be fine, commonly gravel, sand and silt, with low resistance to erosion. Large flows result in floods that spread across the floodplains, depositing fine sediment. Perennial base flows occur because of the slow drainage of upper sections of the lower valley reach and groundwater inflows from alluvial floodplain aquifers along the watercourse. Vegetation within or along the watercourse is well established due to the reliable base flows and stable channel profile.



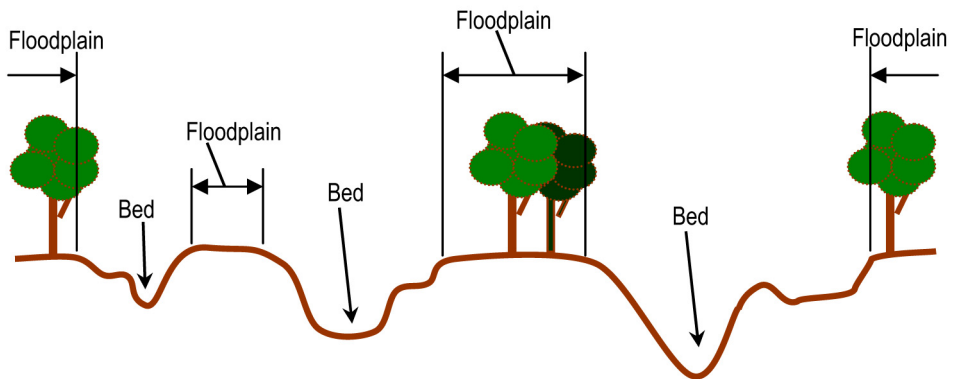
**Diagram F—Cross-sectional view of a lower valley reach**



**Diagram G—Cross-sectional view of a watercourse in a lower valley reach**



**Diagram H—Cross-sectional view of a lower valley reach with multiple watercourses**



**Diagram I—Cross-sectional view of multiple watercourses in a lower valley reach**

## Schedule 2 Dictionary

### section 2

***cadastral boundary system*** means the following—

- (a) information held by the department about cadastral boundaries throughout the State;
- (b) survey marks placed, or survey marks used as reference points for cadastral surveys, that provide permanent physical evidence of the surveys.

***encroachment*** means an encroachment under the *Property Law Act 1974*, section 182.

***permanent improvement***, on land, includes the following—

- (a) a building;
- (b) a fence;
- (c) a wall.

***registered person*** means a person registered under the *Surveyors Act 2003*.

***registering entity***, for a plan of survey, means the person responsible for registering the plan under a registration Act.

***registration Act*** means the *Land Act 1994* or the *Land Title Act 1994*.

***survey records***, for a survey, means the documents necessary to adequately record every aspect of the survey, including the following—

- (a) a measurement or an analysis made for, or in relation to, the survey;
- (b) information about—
  - (i) survey marks placed in carrying out the survey; or
  - (ii) survey marks used as reference points in carrying out the survey;

- (c) the plan of survey;
- (d) any electronically produced measurement, analysis or plan of survey;
- (e) any document supplied for demonstrating consistency with the public interest under part 7 of the Act.