
Hills and Fleurieu

Landscape Board

Water-Affecting Activities Control Policy

Effective from 19th April 2021

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Hills and Fleurieu Landscape Board Water-Affecting Activities Control Policy

Introduction

The *Landscape SA Act 2019* (the Act) provides for a Water-Affecting Activities (WAA) Control Policy (this Policy) to be prepared with respect to the conservation, management or protection of water resources within a landscape management region. A control policy should not overlap with the provisions of a Water Allocation Plan (WAP) that is in operation in relation to a prescribed water resource or prescribed wells.

This document is in two parts. Section 1 explains which WAA permit rules apply in different parts of the Hills and Fleurieu region (including on the region's boundary where a watercourse forms part of the boundary).

Section 2 details the WAA policies which apply to specific activities in areas where these are not already regulated by a relevant WAP. In accordance with the Act, Section 2 specifies the activities for which a WAA Permit is required, and sets out the matters to be considered when granting a WAA Permit. These rules are substantially the same as provisions made previously under the *Natural Resources Management (NRM) Act 2004* and contained in Regional NRM Plans. The rules in these former NRM Plans no longer apply, and are replaced by the rules in this WAA Control Policy, pursuant to Sec 102 of the Act.

Section 1 Which rules apply where

1.1 Prescribed and non-prescribed areas

The Hills and Fleurieu region crosses the boundaries of several prescribed water resources or wells areas, where the permit provisions of water allocation plans apply to WAA. It also includes some 'non-prescribed', areas where the provisions of regional NRM Plans formerly applied.

These areas have been delineated as 'zones' to indicate where, and for which activities, the relevant WAP rules or the rules under this Policy apply.

The zones are shown in Map 1, and were derived as follows.

Zone	Area/s within the Hills and Fleurieu region
HF1	covered only by the Western Mount Lofty Ranges (WMLR) Prescribed Water Resources Area
HF2	covered by both the WMLR Prescribed Water Resources Area and the McLaren Vale Prescribed Wells Area
HF3	covered only by the Eastern Mount Lofty Ranges (EMLR) Prescribed Water Resources Area
HF4	covered by the Central Adelaide Prescribed Wells Area
HF5	outside of any prescribed areas other than the River Murray Prescribed Watercourse

1.2 Relevant WAA and authorities

Section 104 of the Act specifies the activities that may be regulated by a WAA Permit. The WAA covered by either a WAP or this WAA Control Policy in the Hills and Fleurieu region are shown in Table 1.1, together with the relevant approval authority. Under this Policy, a person may only undertake an activity listed in Table 1.1 if the relevant authority shown has granted a permit to authorise the activity or the activity is excluded from requiring a permit.

The Act also provides for additional WAA to be prescribed by a Regulation (104 (4) (I)).

Table 1.1: WAA and relevant authorities

WAA	Relevant authority
<i>Water diversion and storage - erection, construction, modification, enlargement, or removal of a dam, wall or other structure</i>	Hills and Fleurieu Landscape Board*
<i>Building a structure in a watercourse, lake or floodplain</i>	Hills and Fleurieu Landscape Board*
<i>Drainage or discharge of water into a watercourse or lake</i>	Hills and Fleurieu Landscape Board*
<i>Depositing objects or solid material in a watercourse, lake or floodplain</i>	Hills and Fleurieu Landscape Board*
<i>Excavation or removal of rock, sand or soil from a watercourse, lake or floodplain</i>	Hills and Fleurieu Landscape Board*
<i>Destroying vegetation growing in a watercourse or lake, or growing on the floodplain of a watercourse</i>	Hills and Fleurieu Landscape Board*
<i>Use of imported water and effluent</i>	Minister
<i>Well construction and repair - drilling, plugging, backfilling, sealing, replacing, repairing or altering a well, drilling a monitoring well</i>	Minister
<i>Draining or discharge of water directly or indirectly into a well</i>	Minister
<i>Commercial forestry</i>	Minister

* where this WAA relates to a section of watercourse which forms the boundary between two different landscape management regions, the relevant authority may be either of the Boards, and only one WAA permit is required, as set out in Section 2 of this Policy.

1.3 Location of WAA rules

Table 1.2 shows the location of the WAA rules which apply for each activity. Where the WAA rules which apply are part of a WAP, they may be found here:

- EMLR WAP Chapter 7 [hyperlink](#).
- WMLR WAP Chapter 8 [hyperlink](#).
- McLaren Vale WAP Chapters 7, 8 and 9 [hyperlink](#).

Table 1.2: Rules applying to WAA activities in each zone

Act ref	WAA	WAA rules				
		HF1	HF2	HF3	HF4	HF5
104(3) (a) and (b)	Well construction and repair - drilling, plugging, backfilling, sealing, replacing, repairing or altering a well, drilling a monitoring well	WMLR WAP 8.3	McLaren Vale WAP Ch. 9	EMLR WAP 7.2.7	Adelaide Plains WAP principles	Sec 2 of this Policy
104(3) (c)	Draining or discharge of water directly or indirectly into a well	WMLR WAP 8.4	McLaren Vale WAP Ch. 7	EMLR WAP 7.2.8	Adelaide Plains WAP principles	Sec 2 of this Policy
104(3) (d) or 104(4)(a)	Water diversion and storage - erection, construction, modification, enlargement, or removal of a dam, wall or other structure that will collect or divert, or collects or diverts, water flowing in a watercourse or flowing over land	WMLR WAP 8.5	WMLR WAP 8.5	EMLR WAP 7.2.1	Sec 2 of this Policy	Sec 2 of this Policy
104(4) (b)	Building a structure in a watercourse, lake or floodplain	Sec 2 of this Policy	Sec 2 of this Policy	EMLR WAP 7.2.2	Sec 2 of this Policy	Sec 2 of this Policy
104(4) (c)	Drainage or discharge of water into a watercourse or lake	Sec 2 of this Policy	Sec 2 of this Policy	EMLR WAP 7.2.3	Sec 2 of this Policy	Sec 2 of this Policy
104(4) (d), (e) and (f)	Depositing objects or solid material in a watercourse or lake	Sec 2 of this Policy	Sec 2 of this Policy	EMLR WAP 7.2.4	Sec 2 of this Policy	Sec 2 of this Policy
104(4) (g)	Destroying vegetation growing in a watercourse or lake, or growing on the floodplain of a watercourse	Sec 2 of this Policy	Sec 2 of this Policy	Sec 2 of this Policy	Sec 2 of this Policy	Sec 2 of this Policy
104(4) (h)	Excavation or removal of rock, sand or soil	Sec 2 of this Policy	Sec 2 of this Policy	EMLR WAP 7.2.5	Sec 2 of this Policy	Sec 2 of this Policy
104(4) (i) and (j)	Use of imported water and effluent	Sec 2 of this Policy	McLaren Vale WAP Ch 8	EMLR WAP 7.2.6	Adelaide Plains WAP principles	Sec 2 of this Policy
104(4) (k)	Undertaking commercial forestry	WMLR WAP 8.6	WMLR WAP 8.6	EMLR WAP 7.2.9	n/a	Sec 2 of this Policy

Section 2 WAA permit policies

2.1 General policies and processes

Section 102(3)(c) of the *Landscape SA Act 2019* (the Act) requires the Hills and Fleurieu Landscape Board to set out matters it will consider when exercising its powers to grant or refuse permits under Part 8 Division 2 of the Act.

A permit is required for WAA contained within section 104 of the Act. Table 2.1 sets out the activities that require a permit in the Hills and Fleurieu landscape management region, subject to the exclusions set out in the Act and below. Table 2.1 also identifies the relevant authority for assessing permit applications for each type of activity.

A number of activities are excluded from requiring a permit under section 106 of the Act; this includes some activities which are approved under other legislation, such as the *Environment Protection Act 1993* or the *Planning Development and Infrastructure Act 2016*.

In addition, the Board has identified some instances where activities that would otherwise require a permit are excluded. These activities are shown in Table 2.1 (columns 'WAAs excluded from requiring a permit – general exclusions' and 'WAAs excluded from requiring a permit – specific exclusions'), and discussed further in sections 2.2 and 2.3 in some cases.

2.1.2 WAP interface

A water allocation plan may set out policies that the relevant authority will take into account when considering an application for a WAA permit. The WAA policies in a water allocation plan do not overlap with the policies in this WAA Control Policy. The policies apply separately to specific activities in specific areas, as outlined in Section 1.

2.1.3 Process to assess WAA applications

The broad steps in assessing a WAA permit application are as follows, and Figure 2.1 sets out the assessment process in more detail.

- Ascertain the nature and scope of the WAA with reference to section 104 of the Act.
- Precisely define the affected site and determine if it is in an area regulated by a WAP.
- Ensure sufficient information has been provided by the applicant to enable the relevant authority to make an informed decision.
- Determine if the WAA permit application qualifies as an exclusion. If the application does not qualify, it will be assessed via the 'on merit' process.
- Assess 'on merit' applications against the WAA permit policies in this section, or the relevant WAP as appropriate.

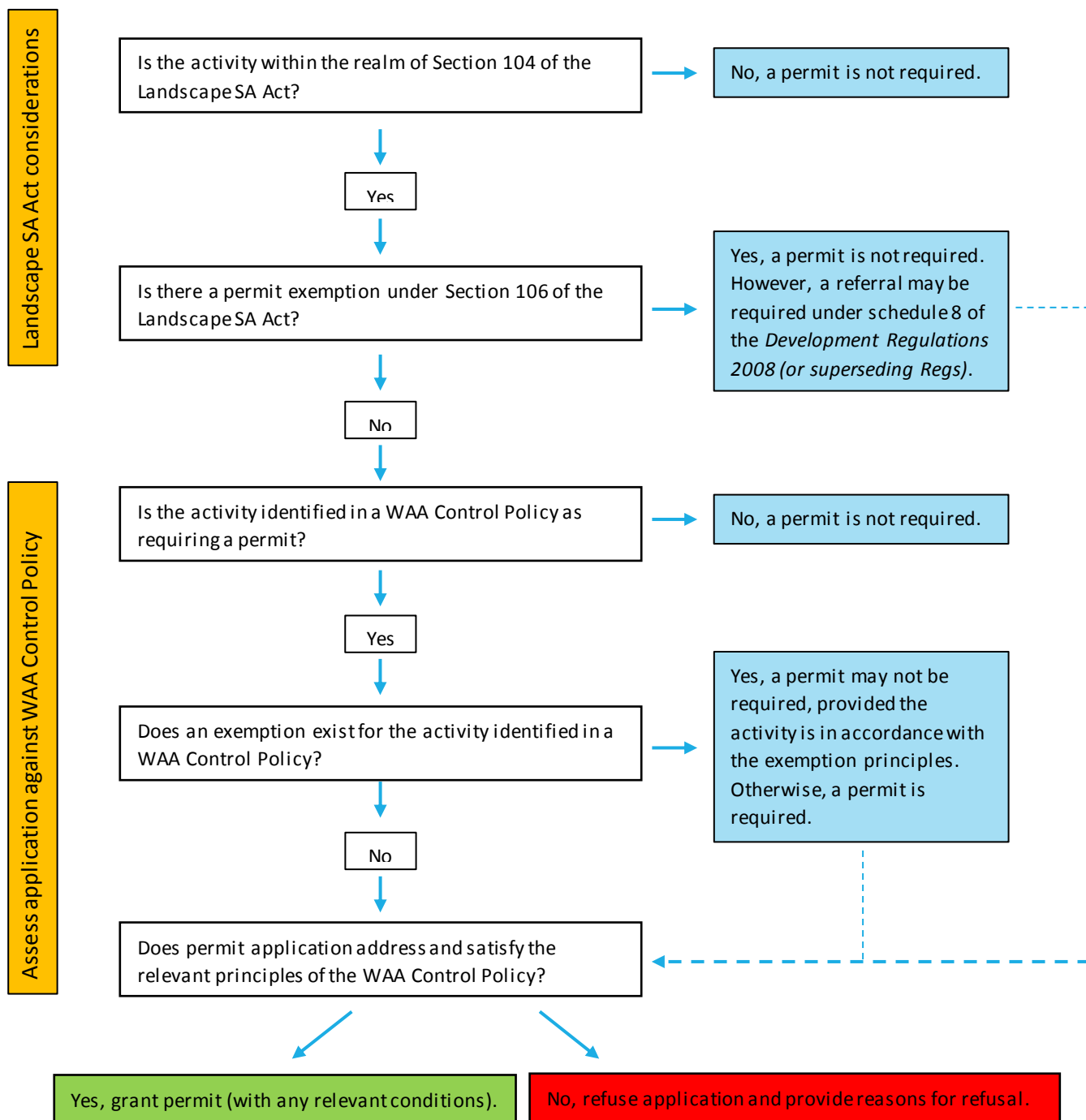
2.1.4 Applications related to watercourses on a boundary

Within the Hills and Fleurieu landscape management region, the following watercourses have sections which form part of the boundary between the Hills and Fleurieu and another landscape management region: Bremer River, Onkaparinga River, River Torrens/Karrawirra Parri, Gawler River, Little Para River, South Para River.

If a WAA activity relates to one of these sections of watercourse, only one WAA permit is required and the relevant authority may be either of the relevant Boards. The same WAA permit policies apply in all cases, regardless of the assessment authority.

Figure 2.1 Assessment process

A WAA permit application is assessed using the following steps:



Applicant can appeal at the ERD Court against a refusal of a permit or a permit condition as per Section 216 of the Landscape South Australia Act.

2.1.5 Public notification

Public notification is not required for any WAA permit applications under the Act.

2.1.6 Best Practice Operating Procedures (BPOP)

The Board has determined a process for granting exemptions for local government and other statutory authorities for particular WAA that would otherwise require a permit.

An exemption to requiring a permit may be granted when all of the following points are met:

- Where the Council or authority is able to present to the Board a BPOP in relation to the WAA; and
- The person proposing to undertake the activity has obtained written approval from the Board to undertake the activity or activities in accordance with the BPOPs; and
- The activity is undertaken in accordance with the BPOPs

Further information on the development of a BPOP will be available on the Hills and Fleurieu board website.

2.1.7 Current Recommended Practice (CRP)

A CRP sets out what the Board considers to be the most appropriate approach, methodology and/or design for undertaking particular WAA. In addition, a CRP may further clarify the standards required to discharge the specific duty pursuant to section 110 of the Act.

In some instances, a CRP may negate the requirement for a WAA permit (see Table 2.1). The Board requires to be notified prior to the commencement of an activity undertaken in accordance with a CRP in such cases. A list of approved CRPs is published on the Hills and Fleurieu board website.

2.1.8 Undertaken as part of an Board-endorsed work plan

An exemption from requiring a WAA permit will be provided for some activities where the Hills and Fleurieu Board has a contract with an applicant/financial deed pursuant to section 27 or 96 of the Act that specifies that there is an exclusion from requiring a WAA permit, for a specific work plan. All Board-endorsed work plans will follow any relevant CRP for that WAA activity.

Table 2.1: WAA exclusions and relevant authority

Act definitions of WAA	Examples of WAA	WAA excluded from requiring a permit – general exclusions	WAA excluded from requiring a permit – specific exclusions	Relevant authority
S104(3)(a) Drilling, plugging, backfilling or sealing of a well	Well drilling or closure	As specified in the Act	None - all applications assessed on merit	Minister
S104(3)(b) Repairing, replacing or altering the casing, lining or screen of a well	Well maintenance or upgrade	As specified in the Act	None - all applications assessed on merit	Minister

S104(3)(c) Draining or discharging water directly or indirectly into a well	Managed aquifer recharge	As specified in the Act	None - all applications assessed on merit	Minister
S104(3)(d) The erection, construction, modification, enlargement or removal of a dam, wall or other structure that will collect or divert, or collects or diverts— (i) water flowing in a prescribed watercourse; or (ii) water flowing in a watercourse in the Mount Lofty Ranges Watershed that is not prescribed; or (iii) surface water flowing over land in a surface water prescribed area or in the Mount Lofty Ranges Watershed	Dam, wall or other structure; Piping a watercourse; Channelling a watercourse; Stormwater harvesting/treatment; wetland	As specified in the Act	Desilting a dam in some circumstances, provided it is carried out consistently with principle 48, and does not involve a WAA pursuant to 104(4)(d)	Board
S104(4)(a) The erection, construction, modification, enlargement or removal of a dam, wall or other structure that will collect or divert, or collects or diverts, water flowing in a watercourse that is not in the Mount Lofty Ranges Watershed and that is not prescribed or flowing over any other land that is not in a surface water prescribed area or in the Mount Lofty Ranges Watershed	Dam, wall or other structure; Piping a watercourse; Channelling a watercourse; Stormwater harvesting/treatment; wetland	As specified in the Act	Desilting a dam in some circumstances, provided it is carried out consistently with principle 48, and does not involve a WAA pursuant to 104(4)(d)	Board
S104(4)(b) The erection, construction or placement of any building or structure in a watercourse or lake or on the floodplain of a watercourse	Buildings or structures <10m ² ; Pump house; Horse shelter; Culvert; Crossing point or bridge; Fencing	As specified in the Act Activity where the proponent has written authorisation to carry out the activity in	Exclusion for zone HF5: Activity that is proposed to be undertaken beyond the 1-in-100 year average recurrence (ARI) flood level, where flood mapping is available, or a distance of 10 metres	Board

S104(4)(c) Draining or discharging water directly or indirectly into a watercourse or lake	Stormwater from buildings; Pipes; Culverts; Side entry pits	accordance with Board endorsed BPOP addressing the activity Activity that is undertaken in accordance with a Board endorsed CRP addressing the activity and notification has been received by the Board prior to commencement Activity that is undertaken as part of a Board-endorsed work plan that permit for that activity specifies that there is an exclusion from requiring a WAA	Exclusion for zone HF5: Activity that involves draining or discharging water of better quality than the receiving waters at a rate not exceeding 1 ML/y	Board
S104(4)(d) Depositing or placing an object or solid material in a watercourse or lake	Island in dam in a watercourse; Ripraps; Rocks; Tyres; Snags; Filling a watercourse			Board
S104(4)(e) Obstructing a watercourse or lake in any other manner	Planting vegetation			Board
S104(4)(f) Depositing or placing an object or solid material on the floodplain of a watercourse or near the bank or shore of a lake to control flooding from the watercourse or lake	Levee Banks; Depositing fill			Board
S104(4)(g) Destroying vegetation growing in a watercourse or lake or growing on the floodplain of a watercourse	Removal or destruction of trees, shrubs, grasses	As specified in the Act Activity where the proponent has written authorisation to carry out the activity in accordance with Board endorsed BPOP addressing the activity		Board
S104(4)(h) Excavating or removing rock, sand or soil from— (i) a watercourse or lake or the	Desilting dam in a watercourse; Desilting wetlands,	Activity that is	Desilting a dam in some circumstances, provided it is carried out consistently with	Board

floodplain of a watercourse; or (ii) an area near to the banks of a lake so as to damage, or create the likelihood of damage to, the banks of the lake	swamps and springs; Realignment or alteration of a watercourse; Groundwater access trench (GAT) construction	undertaken in accordance with a Board endorsed CRP addressing the activity and notification has been received by the Board prior to commencement	principle 48, and does not involve a WAA pursuant to 104(4)(d)	
S104(4)(i) Using water in the course of carrying on a business in the Hills and Fleurieu landscape management region at a rate that exceeds the rate prescribed by this Policy, if the water has been brought into the region by means of a pipe or other channel	Use of imported water for irrigation; Use of imported water for industrial purposes	Activity that is undertaken as part of a Board endorsed work plan that specifies that there is an exclusion from requiring a WAA permit for that activity	Exclusion for zone HF5: Where imported water is used on the land at a rate of up to 1 ML/ha/y; or up to 1 ML/y for non-irrigated activities Where the water is sourced from an SA Water owned or operated mains water supply network.	Minister
S104(4)(j) Using effluent in the course of carrying on a business in the Hills and Fleurieu landscape management region at a rate that exceeds the rate prescribed by this Policy	Use of treated effluent (e.g. Community Waste Management System (CWMS)) for irrigation. Use of treated effluent for industrial purposes		Exclusion for zone HF5: Where effluent is used on the land at a rate of up to 1 ML/ha/y; or up to 1 ML/y for non-irrigated activities Where a person or business undertaking a WAA is legally obligated to comply with a mandatory code of practice for the use of effluent that is consistent with the principles in this plan (for example, but not limited to, the EPA <i>Code of Practice for Milking Shed Effluent 2003</i>)	Minister
S104(4)(l) An activity prescribed by the regulations		None	None	To be determined

2.2 WAA permit general objectives

The general objectives and principles which all 'on-merit' WAA applications will be assessed against within the Hills and Fleurieu region are outlined below:

For the purposes of section 2.2 and 2.3:

- Any terms used that are defined in the Act carry the meaning given by the Act;
- Any terms used in this Policy that are defined in the 'WAA definitions' in section 2.4 carry the meanings given in that section, unless otherwise specified, or where used in a general sense; and
- Terms that are given in italics are defined in section 2.4. Italics are generally only used the first time a term is used within a principle. Note that commonly used terms defined in section 2.4 are generally not italicised for the sake of visual clarity.

2.2.1 Objectives

- a) Support development and use of water resources in a sustainable and equitable manner to maximise productive use, while providing for the needs of natural ecosystems and other water uses, in the long-term
- b) Prevent activities which could lead to unacceptable deterioration in the quality and quantity of water resources
- c) Minimise adverse impacts of activities on other natural resources and the community
- d) Protect aquifer integrity, and geomorphology of watercourses, lakes and floodplains, and
- e) Protect the long-term integrity of ecological functions and dependent biodiversity.

2.2.2 Principles

1. A WAA must be undertaken in such a way that, in both the short-term and the long-term, it ensures:
 - a) maintenance or improvement of water quality;
 - b) capture of water is within sustainable limits;
 - c) equitable sharing of the water available for consumptive use;
 - d) maintenance of natural hydrological and hydrogeological systems, and *environmental water requirements*;
 - e) preservation of *water-dependent ecosystems*;
 - f) protection against the risk of harm to public and private assets and public safety from flooding; and
 - g) continued monitoring of potential impacts from the activity where appropriate.
2. A WAA must not:
 - a) cause or exacerbate soil erosion or bank destabilisation of a watercourse or lake, or erosion of a floodplain;
 - b) be located in ecologically sensitive areas where the activity will or is likely to have a significant detrimental impact;
 - c) have adverse impacts on water resources, other natural resources, or communities at both local and regional levels;
 - d) have adverse impacts on biodiversity and habitat preservation, *water-dependent ecosystems*, *environmental water requirements* and migration of aquatic biota;
 - e) cause or exacerbate unnatural waterlogging or rising watertables;
 - f) cause unacceptable deterioration in the quality of surface water, underground water or water in a watercourse or lake;
 - g) create or exacerbate the incidence or intensity of local or regional flooding or increase the flood risk to public and private assets, communities or individuals;
 - h) impact on authorised devices or activities for scientific purposes; and
 - i) cause damage to the integrity of an aquifer or aquifers.

2.3 Objectives and principles for specific WAA

[NB: Principle numbers 3 to 6 and Objective F intentionally omitted]

3. n/a
4. n/a
5. n/a
6. n/a

In addition to the general objectives and principles set out in section 2.2, the relevant authority will consider the following objectives and principles when determining whether to grant or refuse a permit for an activity that will be assessed 'on merit', and when considering best practice operating procedures.

2.3.1 Constructing, backfilling or repairing wells—section 104(3)(a) and (b)

The following objectives and principles apply specifically to an activity under the following sections of the Act:

- 104(3)(a): drilling, plugging, backfilling or sealing of a well; and
- 104(3)(b): repairing, replacing or altering the casing, lining or screen of a well.

referred to hereafter as the 'activity' or 'activities'.

Objectives

In addition to the general objectives outlined in section 2.2.1;

- G. Ensure the integrity of headworks are maintained; and
- H. Ensure wells are constructed in the correct aquifer system.

Principles

In addition to the general principles outlined in section 2.2.2;

7. Well construction must be in accordance with the General Specification for Well Construction, *Modification and Abandonment in South Australia* (or any subsequent or related policy), as provided by the relevant authority.
8. The equipment, materials and method used for the activity shall not adversely affect the quality of the underground water resource.
9. Aquifers shall be protected during the activity to prevent adverse impacts on the integrity of an aquifer.
10. Where a well passes through two or more aquifers, an impervious seal must be made and maintained between the aquifers to prevent leakage between aquifers.
11. Wells drilled for the drainage or discharge of water into a well shall be pressure cemented along the full length of the casing.
12. The activity shall not adversely affect the quality, quantity and accessibility of water for supply from existing wells operated by other landholders. This includes that in Zone HF4, a new well constructed for the purpose of taking underground water must not be located

within 300 metres of an operational well that has a permit or licence to recharge the underground aquifer and is being used for *Managed Aquifer Recharge* (MAR) unless:

- a) the new well will be completed in an aquifer that is not in direct hydraulic connection with the aquifer into which the water is being recharged; or
- b) the new well is part of the existing MAR scheme.

13. The activity shall not adversely affect *water-dependent ecosystems*.
14. In zone HF5, the activity shall not significantly increase local drawdown.
15. [n/a – intentionally omitted].
16. A well may be deepened provided that it does not penetrate a different aquifer.
17. Despite principles 12-14, a replacement well may be drilled provided that:
 - a) the original well is backfilled in accordance with a permit issued pursuant to section 127(3)(a) of the Act;
 - b) the replacement well is within 20 metres of the original well; and
 - c) the replacement well takes water only from the same aquifer as the original well.

2.3.2 Drainage or discharging water into a well—section 104(3)(c)

The objectives and principles that follow apply specifically to an activity under section 104(3)(c) of the Act, comprising draining or discharging water directly or indirectly into a well.

In addition to the objectives and principles outlined in this section, the requirements of the *Environment Protection Act 1993*, and associated relevant policies such as the *Environment Protection (Water Quality) Policy*, should be considered.

Objectives

In addition to the general objectives outlined in section 2.2.1;

- I. Ensure the integrity of headworks are maintained.
- J. Ensure the sustainable operation and management of managed aquifer recharge schemes (also known as aquifer storage and recovery schemes).

Principles

In addition to the general principles outlined in section 2.2.2;

18. Water that is drained or discharged into a well must comply with the *Environment Protection Act 1993* and any associated policy.
19. A permit to drain or discharge water into a well will not be issued unless a risk assessment is undertaken to the satisfaction of the relevant authority.

This risk assessment must be consistent with the *National Water Quality Management Strategy—Australian Guidelines for Water Recycling: Managing Health & Environmental Risks, Phase 1 2006* and *Phase 2 2009*, and other related documents current at the time, including:

- a) an investigation into the sustainability of the drainage or discharge site, including but not limited to, tests for transmissivity, maximum injection pressures and calculated likely impacts on the integrity of the well and confining layers, and impacts of potentiometric head changes to other underground water users;
 - b) an appropriate operation or management plan demonstrating that operational procedures and monitoring regimes are in place to protect the integrity of the aquifer, minimise the wastage of water and protect the discharge site on an ongoing basis;
 - c) a water quality assessment which identifies hazards in the source water;
 - d) a report on the consequences and impacts to the *ambient underground water* resource where the water quality characteristics (salinity and chemistry composition) of the water to be discharged differs to that of the *ambient underground water*.
20. Water that is drained or discharged into a well only by means of gravity is exempt from meeting the requirements of principle 19 a).
21. Roof runoff that is drained or discharged into a well via a closed system of capture and transport is exempt from meeting the requirements of principles 19 a), b) and d), provided that the system is equipped with a mechanism to divert first flush water.
22. Further to principle 19 b), continuation of draining and discharge is dependent on an annual report that addresses the impacts to the *ambient underground water* at the draining or discharge site. Roof run-off captured in a closed system and then drained or discharged into a well is exempt from this principle.
23. For the purposes of principles 18 and 19, the relevant concentrations, levels or amounts shall be measured in sufficient representative samples of:
- a) the water to be drained or discharged; and
 - b) *ambient underground water* collected from the proposed point of injection, or as near as possible to the proposed point of injection.

For the purpose of this principle, 'sufficient representative samples' means suitable samples, collected with equipment appropriate for the substance, material or characteristic to be measured and taken at suitable locations and times to accurately represent the quality of the relevant water.

24. The draining or discharging of water directly or indirectly into a well must not degrade ecosystems dependent on the underground water or detrimentally affect the ability of other persons to lawfully take from that underground water.
25. The *headworks* for the draining or discharge of water shall be constructed so that extraction, draining and discharge operations can be metered without interference.
26. The *headworks* for the draining or discharge of water shall be constructed so that water cannot leak if the well becomes clogged.
27. Wells constructed for the draining or discharge of water at pressures greater than gravity must be pressure cemented along the full length of the casing. This does not exempt the need to follow the general specifications for well construction.

2.3.3 Water diversion and collection—sections 104(3)(d) and 104(4)(a)

The objectives and principles that follow apply to an activity under the following sections of the Act:

- 104(3)(d): the erection, construction, modification, enlargement or removal of a dam, wall or other structure that will collect or divert, or collects or diverts —
 - i. water flowing in a prescribed watercourse; or
 - ii. water flowing in a watercourse in the Mount Lofty Ranges Watershed that is not prescribed; or
 - iii. surface water flowing over land in a surface water prescribed area or in the Mount Lofty Ranges Watershed; and
- 104(4)(a): the erection, construction, modification, enlargement or removal of a dam, wall or other structure that will collect or divert, or collects or diverts, water flowing in a watercourse that is not in the Mount Lofty Ranges Watershed and that is not prescribed or flowing over any other land that is not in a surface water prescribed area or in the Mount Lofty Ranges Watershed.

Note – Basin Plan limits for non-prescribed surface water management zone

This section includes principles that contribute to meeting South Australia’s responsibilities under the Commonwealth’s Basin Plan. The Hills and Fleurieu landscape region includes part of the South Australian Non-Prescribed Areas surface water Sustainable Diversion Limit (SDL) resource unit, a planning unit within the Basin Plan’s South Australian Murray Region water resource plan area). This surface water SDL resource unit also includes parts of the Murraylands and Riverland, Northern and Yorke, South Australian Arid Lands and Limestone Coast landscape regions.

The Basin Plan sets a sustainable diversion limit for this SDL resource unit that caps allowable surface water taking in the area. The allowable future dam development capacity within the sustainable diversion limit for this SDL resource unit has been apportioned by agreement between the three NRM regions’ prior to the boundary changes relevant to the introduction of the *Landscape South Australia Act, 2019* (namely the South Australian Murray-Darling Basin, South Australian Arid Lands and South East NRM Boards). While the boundaries of the previous South Australian Arid Lands NRM Board region and South East NRM Board region align with the South Australian Arid Lands Landscape region and Limestone Coast Landscape regions respectively, the part of the surface water SDL resource unit within the previous South Australian Murray-Darling Basin NRM Board area, referred to as the non-prescribed surface water management zone, is now divided across the Murraylands and Riverland; Hills and Fleurieu; and Northern and Yorke Landscape regions. To ensure that development is managed within the previously negotiated limit of 38,600ML for the *non-prescribed surface water management zone*, the three Landscape Boards now responsible for the management of the *non-prescribed surface water management zone* will use a centralised database to track and manage development against the available limit.

The dam capacity limit that applies to the part of the South Australian Non-Prescribed Areas SDL resource unit in the Hills and Fleurieu landscape region applies to the total dam capacity, including existing dam capacity and future dam development.

Note: Catching and holding dams

Dams have traditionally been constructed across watercourses and drainage paths to directly capture water for a variety of purposes.

A dam that directly catches runoff or flow typically inhibits all flow until the dam is filled. Once filled, water spills over and flows further downstream. Such *catching dams* have been shown to reduce the rate and volume of streamflow, and change the pattern of streamflow, from natural undeveloped conditions. *Catching dams* may create problems for both other users and ecosystems downstream as they can reduce flow duration and total yield, and lengthen periods of no flows. There is little flexibility in the management of *catching dams* as they generally capture all runoff or flow until full.

Greater flexibility is provided by *holding dams*, where water is stored in a *holding dam* after being diverted from a *catchment area* or watercourse via a mechanism like a weir, pump or channel, rather than directly capturing runoff or flow with the dam. This is because the mechanism used to divert runoff or water from a watercourse can be varied more easily to allow capture of water at different times or flow rates.

Objectives

In addition to the general objectives outlined in section 2.2.1;

- K. Ensure that dams, walls or any other water collection or diversion mechanisms are sited, constructed and operated in a manner which:
 - a) protects the rights of downstream water users (including the environment) to access those water resources; and
 - b) maintains amenity.

Principles

In addition to the general principles outlined in section 2.2.2;

Siting

- 28. A dam, wall or other *structure* for the storage, collection or diversion of water must not:
 - a) be constructed in areas prone to erosion;
 - b) contribute to dryland salinity or intrusions of saline underground water into watercourse;
 - c) be constructed or enlarged in ecologically sensitive areas, where this will cause or be likely to cause significant detrimental impacts.
- 29. *Catching dams* must not be constructed or enlarged in or across watercourses with a *stream order* of three or higher, except in Zone HF5, where this may be permitted in exceptional circumstances where the proponent can demonstrate, to the relevant authority's satisfaction, that there is no reasonably practical alternative approach on the *property* to collect or access sufficient water to meet the reasonable requirements of the proponent.
- 30. In all other cases, *holding dams* should be constructed in preference to *catching dams*, unless it is not reasonably practical to do so.

Non-prescribed surface water management zone

31. A dam, wall or other structure that collects or diverts water must not be constructed or enlarged in zone HF5, if this would cause the total volume of dam capacity in the non-prescribed surface water management zone to exceed the non-prescribed surface water management zone limit of 38,600 ML.
32. For the purposes of principle 31:
 - a) the *non-prescribed surface water management zone* is shown in Figure 2.3.
 - b) the dams and their capacities in the *non-prescribed surface water management zone* considered to exist prior to 30 June 2009 are given in Topography Water Bodies dataset Number 902 archived by the Department for Environment, Water and Natural Resources for the purposes of Basin Plan compliance.
33. [n/a – intentionally omitted]
34. [n/a – intentionally omitted]

Property limits

35. A dam must not be constructed or enlarged if that activity would:
 - a) In zone HF5, cause the total volume of dam capacity on a *property* to exceed (or further exceed) the *property* dam capacity limit for that *property*. For the purposes of 35 a), the *property* dam capacity limit for a given *property* is calculated as follows:

0.3 (30% of) X the area of the property (km²) X long term average rainfall between the months of May and November (mm) for the locality X 0.1 (10% run-off coefficient);
 - b) In zone HF4, result in the combined capacity of all dams in a catchment within an *allotment* exceeding 50 per cent of the annual runoff for that catchment in the *allotment*.

Note: For the purposes of principle 35 b):

- ‘annual runoff’ is a volume derived from 10 per cent of the mean annual rainfall for the *allotment*, multiplied by the area of the *allotment*; and
- the term ‘*allotment*’ means an *allotment* delineated on a certificate of title under the *Real Property Act 1886* and includes two or more contiguous *allotments* owned or occupied by the same person and operated as a single unit for the purpose of primary production.

Exception to limits

36. Principle 35 does not apply where the diversion is solely for the purpose of improving water quality, and/or mitigating flooding, prior to returning the diverted water to the same watercourse or *drainage path* within three days (or other period as determined by the relevant authority), with loss of water volume only allowed via minimised evaporation and seepage from the water body.
37. Principle 35 does not apply to authorised *structures* for the specific purpose of measuring streamflow.

For the purpose of this principle, an 'authorised *structure*' means a *structure* authorised by the Board, a local government authority or the Minister.

38. Where a dam (the 'original dam') has been washed away, a permit may be granted to construct a replacement dam of the same capacity as the original dam, despite principle 35, provided that:
- a) the capacities of the original and replacement dams are demonstrated to the relevant authority's satisfaction; and
 - b) the replacement dam is constructed in the same location as the original dam, or on a part of the same *property* that is *hydrologically continuous* with the original dam within the *property*.
39. In zone HF5, new dam capacity may be allowed in addition to the limits set out in principle 35 to collect additional runoff generated from human-made areas of low permeability (such as hard surfaces created by urban or industrial development), provided that:
- a) it can be demonstrated to the relevant authority's satisfaction by a suitably qualified expert that collecting the additional runoff will not compromise the provision of water requirements of water- dependent ecosystems and existing consumptive users; and
 - b) pre-development runoff and recharge from the site is returned to the environment:
 - i. as close as reasonably practical to the natural flow path;
 - ii. as soon as reasonably practical following precipitation, unless detained on-site for water quality remediation and/or mitigation of flooding, in which case the pre-development runoff and recharge must be returned to the environment within three days of collection or diversion (or other period as determined by the relevant authority);
 - iii. in a manner that maintains the natural flow regime and aquifer recharge; and
 - iv. in a manner that does not cause significant detrimental impacts to the environment, including but not limited to erosion and detrimental impacts to stream bed and bank stability.
40. For the purposes of principle 39:
- a) Pre-development runoff and recharge is the mean annual volume expected to return to water resources from the site under conditions prior to the creation of the low permeability surfaces that give rise to additional runoff.
 - b) Pre-development runoff and recharge, and the volume of additional runoff generated by low permeability areas, will be determined to the satisfaction of the relevant authority by a suitably qualified hydrologist or engineer.

Flow regime

41. A dam, wall or other *structure* that collects or diverts surface water flowing over land or water from a watercourse must include a device that ensures any water present at or below the threshold flow rate will:
- a) not be collected or diverted; or
 - b) in zone HF5, be bypassed around the dam, wall or other *structure*, or otherwise returned to the same watercourse or surface water drainage path immediately downstream of the dam, wall or other *structure* as soon as reasonably practical AND the water will be of an equivalent or better quality; or

- c) in zone HF4, be bypassed around the dam, wall or other *structure*, or otherwise returned to the same watercourse or surface water drainage path immediately downstream of the dam, wall or other *structure* as soon as reasonably practical.

42. For the purposes of this plan:

- a) in Zone HF5, the *threshold flow rate* (in litres/second) is calculated by multiplying the *unit threshold flow rate* (in litres/second/km²), by the area of *catchment area* (in km²) above the point where the water is diverted from the watercourse or drainage path, where the *unit threshold flow rate* is determined by the relevant authority.
- b) In Zone HF4, the threshold flow rate (litres/second) means:
 - i. the flow rate of a watercourse or drainage line (litres/second) determined by multiplying the unit threshold flow rate (litres/second/square kilometre) by the area of catchment (square kilometre) that contributes to the watercourse or drainage line, that is above the point where the water is diverted from the watercourse or drainage line; or
 - ii. 1 litre/second, whichever is the greater.

For the purposes of (i), the unit threshold flow rate of a subcatchment can be determined by dividing the 10th per centile flow rate (litres/second) for a subcatchment (square kilometres), where the 10th per centile flow rate is the flow rate (litres/second) obtained from a time weighted annual flow duration curve (with the time step being 1 day - mean flow), which is greater than or equal to 10 per cent of all flows during that period.

43. A device that will achieve the outcomes required by principle 41 shall:

- a) be designed and constructed to ensure its correct operation is automated and, as far as reasonably practicable, cannot be manually overridden;
- b) not be obstructed or tampered with in any way; and
- c) be maintained in such a condition that it continues to be effective in meeting principle 41.

Dam design features

44. Dams, walls, or other *structures* for the collection, storage or diversion of water should, where appropriate and practicable, be designed and constructed to incorporate a range of features to improve water quality and enhance ecological values. Such features include, but are not limited to:
- a) an irregular edge;
 - b) a variety of depths to increase habitat for a variety of plants and animals;
 - c) well vegetated edges;
 - d) minimal stock access;
 - e) an upstream silt trap for *Catching dams* (one-tenth the size of the dam);
 - f) provision for aquatic biota migration where appropriate; and
 - g) provision of an island at least 0.5 metres above the maximum dam water level in water at least 0.5 metres deep.

Dam construction

45. The erection, construction, enlargement, modification or removal of a dam, wall or other *structure* to collect or divert water must be undertaken in a manner that minimises the removal or destruction of riparian and in-stream vegetation (e.g. via inundation of area).

46. The erection, construction, enlargement, modification or removal of a dam, wall or other *structure* to collect or divert water must be undertaken in a manner that prevents silt or sediments from entering the watercourse, including but not limited to the use of erosion and sediment control measures such as diversion drains, revegetation, straw bale barriers, filter fences, sediment traps and *detention basins*.
47. In Zone HF5, the erection, construction, enlargement, modification or removal of a dam, wall or other *structure* to collect or divert water must ensure a minimum 20-year design life in accordance with best practice guidelines (endorsed by the Board) for all watercourse flow conditions up to the 100-year *Average recurrence interval* (0.01 annual exceedance probability) flow rate for the proposed location.

Dam maintenance

48. In zones HF1, HF2, HF3 and HF4, a WAA permit is not required where the desilting of a dam only involves the removal of unconsolidated material deposited since construction of the dam or material deposited since the dam was previously desilted. In zone HF5, a WAA permit is not required where the *desilting* of a dam meets all of the following provisions:
- a) *desilting* only involves the removal of unconsolidated material deposited since construction of the dam or material deposited since the dam was previously desilted;
 - b) *desilting* does not enlarge the dam capacity or increase the dam wall height beyond their original dimensions;
 - c) the dam is not on a watercourse with a *stream order* of 3 or higher;
 - d) the excavated material is not placed in or near a watercourse, floodplain or lake; and
 - e) the excavated material does not:
 - i. adversely affect native vegetation;
 - ii. impede the natural flow of surface water;
 - iii. re-enter any water body; or
 - iv. facilitate the spread of pest plants or pathogenic material; and
 - v. appropriate measures are taken to minimise water quality impacts arising from *desilting*.

2.3.4 Building or structure in a watercourse, lake or floodplain—section 104(4)(b)

The objectives and principles that follow apply specifically to an activity under section 104(4)(b) of the Act, comprising the erection, construction or placement of any building or *structure* in a watercourse or lake or on the floodplain of a watercourse.

Objectives

As per the general objectives outlined in section 2.2.1.

Principles

In addition to the general principles outlined in section 2.2.2;

49. Construction and placement of *structures*—including roads—in a watercourse, floodplain of a watercourse, lake, wetland or area subject to inundation:
- a) shall be designed to minimise the risk of erosion resulting from the construction and location of the *structure*;

- b) must not adversely affect the provision of *environmental water requirements* (e.g. by impeding flows);
- c) must not adversely affect the migration of aquatic biota;
- d) must not result in flooding, either upstream or downstream; and
- e) must not be constructed where it, or any debris collected by it, would increase the risk of damage to property or the risk to safety of persons.

50. *Structures* that impede the flow of water must be designed to bypass or otherwise return water present at or below the *threshold flow rate* in accordance with principles 41–43.

51. Principle 50 does not apply to *structures* authorised by the Minister or the relevant authority for the specific purpose of measuring stream flow, or for managing water flow to assist with maintenance, rehabilitation or restoration of locally indigenous *water-dependent ecosystems*, habitats, communities or species.

2.3.5 Drainage or discharge of water into a watercourse or lake—section 104(4)(c)

The objectives and principles that follow apply specifically to an activity under section 104(4)(c) of the Act, comprising draining or discharging water directly or indirectly into a watercourse or lake.

In addition to the objectives and principles outlined in this section, the requirements of the *Environment Protection Act 1993*, and associated relevant policies such as the *Environment Protection (Water Quality) Policy*, should be considered.

Objectives

In addition to the general objectives outlined in section 2.2.1;

- L. Manage drainage or discharge water such that Contaminants are contained and managed on-site to minimise the conveyance of Contaminants into watercourses or lakes.

Principles

In addition to the general principles outlined in section 2.2.2;

52. Drainage or discharge of water into a watercourse or lake must only be undertaken where suitable protective measures have been provided to minimise degradation in the quality of the receiving water. Suitable protective measures may include, but are not limited to:
- a) *detention basins* to regulate the rate, volume and quality of water discharged;
 - b) reuse of drainage or discharge water that occurs under conditions that would not present a risk to public or environmental health;
 - c) litter traps;
 - d) pre-treatment of the water before discharge; and
 - e) a requirement that the quality of water drained or discharged into a watercourse lake or floodplain is of a quality similar to or better than that of the receiving water environment.

In addition, in zone HF5, this may include ensuring that discharge into the receiving waters occurs at times of naturally high flow.

53. All treatment devices must be appropriately managed to ensure that they continue to function according to their design, particularly in the removal of accumulated sediment and litter.

54. The rate, location and timing of discharge or drainage of water must occur such that:
- the geomorphology of the watercourse or lake is protected;
 - water-dependent ecosystems* (including their *environmental water requirements*), and migration of aquatic biota, are not adversely affected;
 - the flow capacity of the watercourse or lake is considered; and
 - there is no increase in the risk of flooding.
55. In zone HF5, storage of any contaminated water must only be undertaken in storage vessels with no natural catchment that are constructed to prevent leakage or overflow of any contaminated water.

Note: Waste stream from desalination processes

The discharge of a waste stream (brine and other chemicals) from desalination processes directly or indirectly to a watercourse or lake would be considered under this section of these policies for the control of WAAs.

2.3.6 Management of obstructions—sections 104(4)(d), (e) and (f)

The objectives and principles that follow apply specifically to an activity under the following sections of the Act:

- 104(4)(d): depositing or placing an object or solid material in a watercourse or lake;
- 104(4)(e): obstructing a watercourse or lake in any other manner; and
- 104(4)(f): depositing or placing an object or solid material on the floodplain of a watercourse or near the bank or shore of a lake to control flooding from the watercourse or lake.

Objectives

As per the general objectives outlined in section 2.2.1.

Principles

In addition to the general principles outlined in section 2.2.2;

56. Any object or solid material to be used in the control or prevention of watercourse erosion must be designed with consideration of the local-scale and catchment scale landscape and hydrological processes.
57. The depositing or placing of an object or solid material in a watercourse or lake, or obstructing a watercourse in any other manner, must not:
- cause or increase erosion;
 - cause detrimental offsite impacts, for example, but not limited to, flooding;
 - adversely affect *water-dependent ecosystems*; or
 - adversely affect the migration of aquatic biota.
58. In relation to depositing or placing an object or solid material in a watercourse, or lake:
- in zone HF5, objects or solid materials or other obstructions that impede the flow of water must be designed to bypass or otherwise return water present at or below the *threshold flow rate* in accordance with principles 41-43, where applicable;
 - in zone HF4, the activity may be undertaken only where it includes:

- i. the construction of an erosion control *structure*, for example a *rock chute*; or
 - ii. a device or *structure* used to extract or regulate water flowing in a watercourse, for example diversion weirs, or
 - iii. an activity required for scientific purposes, for example flow measuring devices.
59. Principle 58 does not apply to *structures* authorised by the Minister or the relevant authority for the specific purpose of measuring stream flow, or for managing water flow to assist with maintenance, rehabilitation or restoration of locally indigenous *water-dependent ecosystems*, habitats, communities or species.
60. Depositing or placing an object or solid material on the floodplain of a watercourse, or near the bank or shore of a lake, to control flooding from the watercourse or lake shall not:
- a) adversely affect the natural flow of a watercourse;
 - b) increase the risk of flooding (upstream or downstream); or
 - c) cause or increase erosion.
61. Depositing or placing an object or solid material on the floodplain of a watercourse, or near the bank or shore of a lake, to control flooding from the watercourse or lake should:
- a) provide for the needs of ecosystem processes (including the migration of aquatic biota); and
 - b) minimise the impact or risk of flooding on human communities.

2.3.7 Management of vegetation removal and excavation - sections 104(4)(g) and (h)

The objectives and principles that follow apply specifically to an activity under the following sections of the Act:

- 104(4)(g): destroying vegetation growing in a watercourse or lake or growing on the floodplain of a watercourse; and
- 104(4)(h): excavating or removing rock, sand or soil from—
 - i. a watercourse or lake or the floodplain of a watercourse; or
 - ii. an area near to the banks of a lake so as to damage, or create the likelihood of damage to, the banks of the lake.

Note: Native vegetation controls

In most cases, destruction of, damage to and removal of native vegetation requires approval under the South Australian *Native Vegetation Act 1991*. Issuing a water affecting activity permit does not negate the need to comply with the provisions of the *Native Vegetation Act 1991*.

Objectives

As per the general objectives outlined in section 2.2.1.

Principles

In addition to the general principles outlined in section 2.2.2;

62. Alteration to the alignment of a watercourse, or destruction of vegetation within a watercourse, lake or floodplain shall only occur where it is for the protection of existing

infrastructure or rehabilitation of a watercourse, lake or floodplain, and the activity does not result in any of the following:

- a) increased erosion;
- b) increased flooding;
- c) bed and bank instability;
- d) downstream sedimentation;
- e) destruction of significant habitat for native fauna;
- f) decline in water quality; or
- g) alteration to the natural flow regime of a watercourse.

63. The excavation and removal of rock, sand or soil, or destruction of vegetation within a watercourse, lake or floodplain, must not adversely affect either:

- a) the ecology of a watercourse, lake or floodplain; or
- b) migration of aquatic biota.

2.3.8 Use of imported water and effluent - sections 104(4)(i) and (j)

The objectives and principles that follow apply specifically to an activity under the following sections of the Act:

- 104(4)(i): using water in the course of carrying on a business at a rate that exceeds one megalitre per hectare per year, or one megalitre per year for non-irrigated activities, if the water has been brought into the region by means of a pipe or other channel ('imported water'); and
- 104(4)(j): using effluent in the course of carrying on a business at a rate that exceeds one megalitre per hectare per year, or one megalitre per year for non-irrigated activities.

In addition to the objectives and principles outlined in this section, the requirements of the *Environment Protection Act 1993*, and associated relevant policies such as the *Environment Protection (Water Quality) Policy*, should be considered where relevant.

Objectives

In addition to the general objectives outlined in section 2.2.1;

- M. Ensure that effluent is used in such a manner that risks to public health are minimised.
- N. Protect the productive capacity of the land.

Principles

In addition to the general principles outlined in section 2.2.2;

64. A permit is not required for the use of imported water and *effluent* where the water or *effluent* is used on the land at a rate of up to one megalitre per hectare per year, or up to one megalitre per year for non-irrigated activities.
65. A permit is not required where a person or business undertaking a WAA is legally obligated to comply with a mandatory code of practice for the use of *effluent* that is consistent with the principles in this plan (for example, but not limited to, the EPA Code of Practice for Milking Shed Effluent 2003 or its successors).
66. In zone HF5, the use of *effluent* must be undertaken in a manner that minimises risks to human health.

67. The use of imported water or *effluent* must not cause a rise in underground water levels that would adversely affect land, public and private assets, other water resources or natural resources and their beneficial uses.
68. The use of imported water or *effluent* must not adversely affect the natural flow regime or ambient quality of the receiving waters.
69. The use of imported water or *effluent* must not adversely affect the productive capacity of the land by impacts including, but not limited to, increasing salinity, water logging, sodicity, toxicity, nutrient concentrations or watertables.
70. The use of imported water or *effluent* must not adversely affect the condition, biodiversity or extent of a water- dependent ecosystem.
71. In relation to the storage of imported water or *effluent*:
 - a) in zone HF5:
 - i. any dams constructed for the storage of chlorine-treated imported water or *effluent* must be constructed so as to prevent:
 - leakage from the dam through the soil;
 - overflows from the dam onto the surface of the land surrounding the dam; and
 - overflow from the dam into a watercourse or lake.
 - ii. any dams constructed for the storage of chlorine-treated imported water or *effluent* must not be located in a watercourse, floodplain, lake, or drainage path.
 - iii. the use of imported water or *effluent* will not be permitted where its use will adversely affect the environment.
 - b) in zone HF4, imported water or *effluent* should be stored in a closed system, with no natural catchment, and constructed to prevent:
 - i. leakage to the surrounding soils;
 - ii. overflow from the dam to the surface of the land surrounding the dam; and
 - iii. overflow from the dam into a watercourse.

Figure 2.2: The South Australian Non-Prescribed Areas surface waterSDL resource unit, a planning unit within the Basin Plan's South Australian Murray Region water resource plan area.

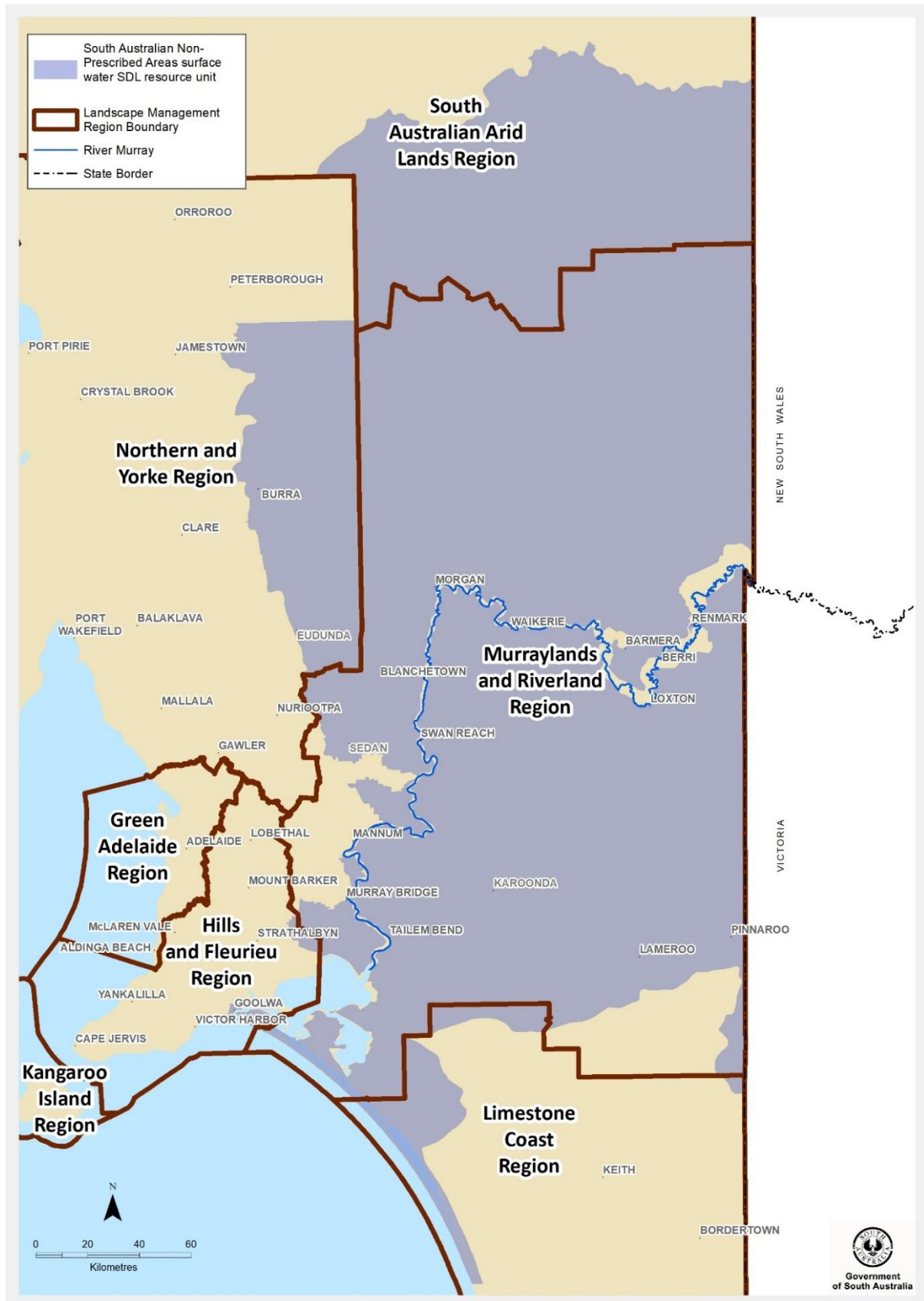
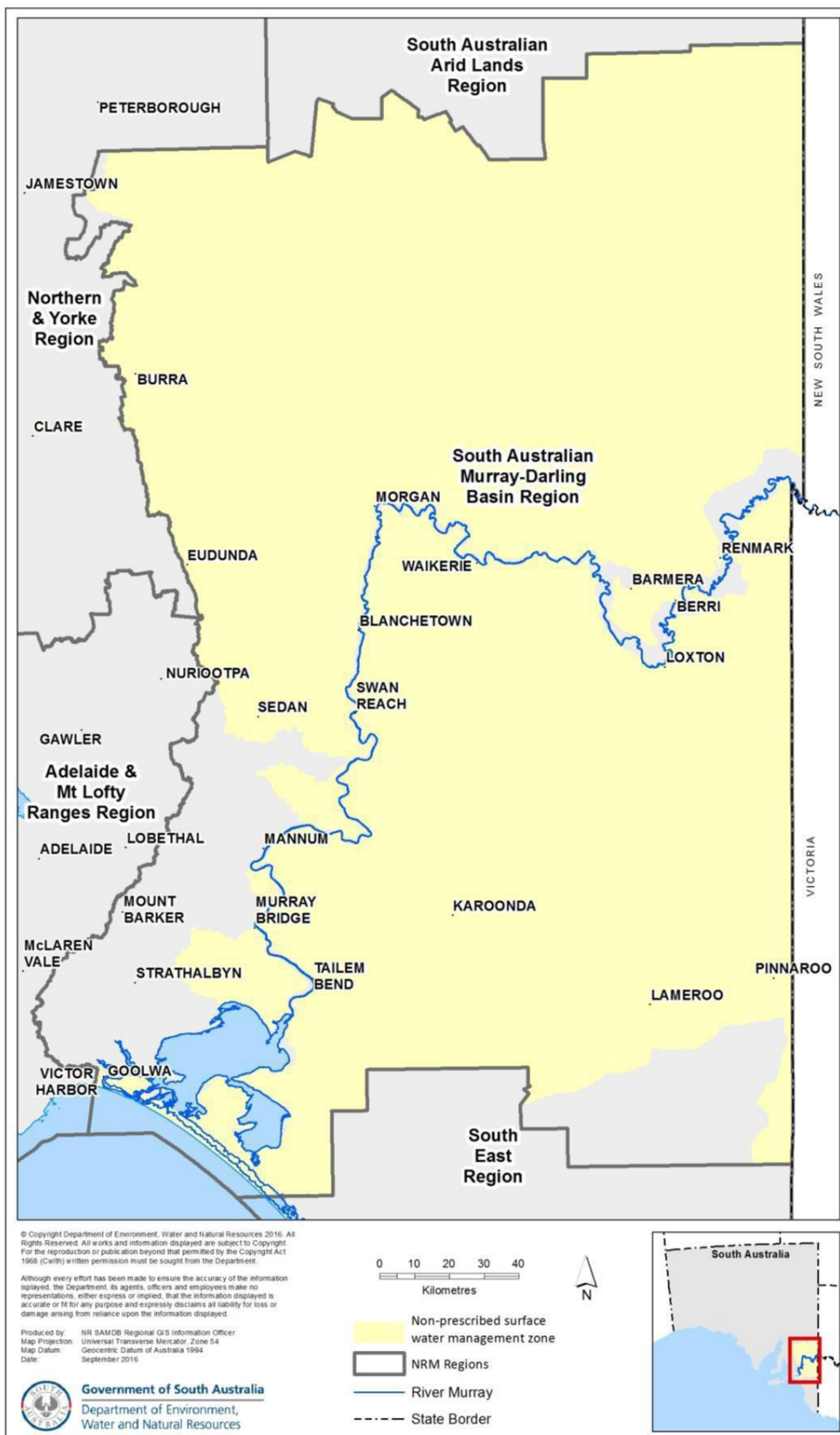


Figure 2.3: Non-prescribed surface water management zone map



2.4 WAA definitions

Terms that are defined in the Act have the meaning as given by the Act. Definitions given for such terms in this section are provided for information, and the definition given in the Act takes precedence in the event of inconsistency.

Allotment: has the same meaning as in the *Real Property Act 1886*.

Ambient underground water: in relation to draining or discharging water into a well, means the underground water that occurs at the proposed site of injection in the relevant aquifer, prior to the commencement of the proposed drainage or discharge of water into a well.

Annual exceedance probability (AEP): the probability that a given flow or rainfall event will be exceeded in any one year.

Average recurrence interval (ARI): the average value of the periods between exceedances of a given flow or rainfall event.

Catching dam: a dam, wall or other *structure* placed on or constructed across a watercourse or drainage path for the purpose of holding back and storing the natural flow of that watercourse or the surface water flowing along that drainage path.

Catchment area: the *Catchment area* of a particular point means all of the land, determined by natural topographic features, from which runoff has the potential to naturally drain to that point.

Community Wastewater Management System (CWMS): an *effluent* collection, treatment and disposal/reuse system for a community.

Contaminants (and indicators of Contaminants): may include, but are not limited to, nutrients, metals, biological organisms (for example, *Escherichia coli*), temperature, dissolved oxygen, colour, turbidity, suspended sediments, leachate, hydrocarbons, and litter.

Desilting: the removal of unconsolidated material deposited in a dam since construction, or material deposited since the dam was previously desilted.

Detention basin: a pond or basin constructed for the temporary detention of water to provide time for suspended sediments and other heavy pollutants to settle before discharge into a watercourse, lake, or other water storage, and/or to regulate the rate and volume of water discharged.

Domestic wastewater: has the same meaning as in section 3(1) of the Act, meaning water used in the disposal of human waste, and water used for personal washing, and water used for washing clothes or dishes, and water used in a swimming pool.

Drainage path: the path that surface water naturally flows along over land.

Effluent: has the same meaning as in section 3(1) of the Act, meaning *domestic wastewater* or *industrial wastewater*.

Environmental water requirements: those water requirements that must be met in order to sustain the ecological values of ecosystems that depend on the water resource, including their processes and biodiversity, at a low level of risk.

Geomorphic characteristics: features of a landform or landscape including, but not limited to, bed and banks of a watercourse, floodplain of a watercourse or lake, cliffs, soils, rocks and other mineral forms.

Groundwater access trench (GAT): shallow trenches excavated to allow direct access to underground water.

Headworks: any assembly on top of a well and located between the well casing and the water delivery system.

Holding dam: a dam that is not constructed across a watercourse and is primarily designed to hold water from a source other than the *Catchment area* of the dam. Other water sources may include, but are not limited to, underground water and water diverted or pumped from a watercourse or *drainage path* that is not in the *Catchment area* of the dam. *Holding dams* may capture a limited volume of surface water from the *Catchment area* of the dam (up to 5% of its total capacity).

Hydrologically continuous: two or more points in the landscape directly connected by the same *drainage path* or watercourse.

Industrial wastewater: has the same meaning as in section 3(1) of the Act, meaning water (not being *domestic wastewater*) that has been used in the course of carrying on a business (including water used in the watering or irrigation of plants) that has been allowed to run to waste or has been disposed of or has been collected for disposal.

Managed aquifer recharge (MAR): Water is artificially recharged (by draining or discharging water into a well) to an aquifer for subsequent recovery.

Non-prescribed surface water management zone: the area identified as the *non-prescribed surface water management zone* in Figure 2.3

Property: an *allotment* or contiguous *allotments* owned or occupied by the same person, persons or body, and operated as a single unit. *Allotments* will be considered to be contiguous if they abut at any point, or are separated only by a road, street, lane, footway, court, alley, railway, thoroughfare, easement, right-of-way, watercourse, channel or a reserve or similar open space.

Rock chute: An engineered rock structure designed to control the bed grade of a watercourse.

Stream order: a method of classifying the size of a part of a watercourse, based on the hierarchy of connecting watercourse segments. The Strahler stream ordering system is used in this plan. The most upstream part of a watercourse is a first order stream. Two first order watercourses join together to become a second order watercourse. Two second order watercourses join together to become a third order watercourse and so on. For the purposes of determining *stream order* for this plan, the network of watercourses is defined in the basis of current 1:50,000 topographic maps produced by the State Government.

Structure (in relation to a body of water or watercourse): something built or constructed, including, but not limited to, a ford, causeway, culvert, fence, jetty, boat mooring, weir or retaining wall.

Threshold flow rate: the flow rate at or below which water must not be taken, or if taken is to be returned to the same watercourse or *drainage path* immediately downstream of the structure, as soon as reasonably practical (in accordance with principles 41, 50 and 58). The value of the *threshold flow rate* for a given location is calculated in accordance with principle 42.

Transmissivity: a parameter indicating the ease of underground water flow through a metre width of aquifer section.

Unit threshold flow rate: used to determine the *threshold flow rate* in accordance with principle 42. The unit threshold will be determined by the relevant authority.

Water-dependent ecosystems: those parts of the environment, the species composition and natural ecological processes that are determined by the permanent or temporary presence of flowing or standing water, above or below ground. The in-stream areas of rivers, riparian vegetation, springs, wetlands, floodplains, estuaries, lakes and aquifer ecosystems are all *water-dependent ecosystems*.