



# Water Sharing Plan for the Lower Macquarie Groundwater Sources 2019

under the

Water Management Act 2000

I, Melinda Pavey, the Minister for Water, Property and Housing, do, by this Order, in pursuance of section 50 of the *Water Management Act 2000*, make the following Minister's Plan, being the *Water Sharing Plan for the Lower Macquarie Groundwater Sources 2019*.

Dated this 24 day of June 2019.

Melinda Pavey  
**Minister for Water**

## Explanatory notes

This Plan replaces the *Water Sharing Plan for the Lower Macquarie Groundwater Sources 2003*. This Order is made under section 50 of the *Water Management Act 2000*. The concurrence of the Minister for the Environment was obtained prior to the making of this Order.

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# Water Sharing Plan for the Lower Macquarie Groundwater Sources 2019

## Part 1 Introduction

### 1 Name of Plan

This Plan is the *Water Sharing Plan for the Lower Macquarie Groundwater Sources 2019* (hereafter *this Plan*).

### 2 Nature and status of this Plan

- (1) This Plan is made under section 50 of the *Water Management Act 2000* as amended (hereafter *the Act*).
- (2) This Plan covers the core provisions of section 20 of the Act for water sharing, and additional provisions of section 21 of the Act, and other relevant matters.

### 3 Date of commencement

This Plan takes effect on 1 July 2019.

### 4 Area to which this Plan applies

- (1) The area in respect of which this Plan is made is that area of land within the Macquarie Water Management Area known as the Lower Macquarie Groundwater Sources (hereafter *these groundwater sources*) as shown in Schedule 2.

**Note.** The Macquarie Water Management Area is shown on a map in Appendix 1.

**Note.** Maps referred to in this Plan may be inspected at the Department's offices listed in Appendix 2.

- (2) The following groundwater sources referred to in this Plan are shown on the map in Schedule 2:
  - (a) Lower Macquarie Zone 1 groundwater source (hereafter *Zone 1*),
  - (b) Lower Macquarie Zone 2 groundwater source (hereafter *Zone 2*),
  - (c) Lower Macquarie Zone 3 groundwater source (hereafter *Zone 3*),
  - (d) Lower Macquarie Zone 4 groundwater source (hereafter *Zone 4*),
  - (e) Lower Macquarie Zone 5 groundwater source (hereafter *Zone 5*), and

(f) Lower Macquarie Zone 6 groundwater source (hereafter **Zone 6**).

**Note.** The Lower Macquarie Groundwater Sources were previously known as Groundwater Management Area 008. Zones 1, 2, 3, 4, and 5 were previously known as 8A, 8B, 8C, 8D and 8E, respectively. Zone 6 was previously within the Upper Macquarie Groundwater Management Area 009.

## **5 Waters to which this Plan applies**

The waters in these groundwater sources include all water contained in the unconsolidated alluvial aquifers and the sandstone aquifers of the Great Artesian Basin within the area to which this Plan applies.

## **6 Interpretation**

- (1) Terms that are defined in the Act have the same meaning in this Plan and the effect of these terms may be explained in Notes.
- (2) Additional terms to those identified in subclause (1) are defined in Schedule 1.
- (3) Notes in the text of this Plan do not form part of this Plan.
- (4) Schedules to this Plan form part of this Plan.
- (5) Appendices to this Plan do not form part of this Plan.

## Part 2 Vision, objectives, strategies and performance indicators

### 7 Vision, objectives, strategies and performance indicators

This Part is made in accordance with section 35 (1) of the Act.

### 8 Vision

The vision for this Plan is to ensure the ecological, social, cultural and economic sustainability of the Lower Macquarie Groundwater Sources.

### 9 Objectives

The objectives of this Plan are to:

- (a) maintain, and if necessary restore groundwater dependent ecological processes and biodiversity,

**Note.** Subclause (a) is an environmental objective. The outcomes of this objective would include: the identification of dependent ecosystems and their critical ecological processes; identification and measurement of key indicators of dependent ecosystem health; the implementation of management systems to support high priority dependent ecosystems' ecological processes and, the environmental impacts of management change as assessed against the Vision.

- (b) optimise or maximise the social outcomes of groundwater management,

**Note.** Subclause (b) is a social objective. The outcomes of this objective would include: no decline in groundwater quality as a result of extraction; sustainable groundwater source for present and future generations; priority of access for town water supply and basic rights; and social impacts of management changes defined and assessed against the Vision.

- (c) contribute to a sustainable regional economy,

**Note.** Subclause (c) is an economic objective. The outcomes of this objective would include: access to the resource clearly defined (reliability, trading and other management); and, economic impacts of management changes defined and assessed against the Vision.

- (d) recognise and respect Aboriginal cultural responsibilities and obligations to the landscape, and

- (e) preserve and enhance the cultural benefits and values derived from groundwater.

**Note.** Subclauses (d) and (e) are cultural objectives. The outcomes of these objectives would be to have the cultural benefits and values of the Lower Macquarie Groundwater Sources identified, and the cultural impacts of management changes defined and assessed against the Vision.

### 10 Strategies

The strategies of this Plan are to:

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- (a) establish environmental water rules and manage access to groundwater consistent with those rules,
- (b) establish rules for the protection of basic landholder rights,
- (c) establish an extraction limit for each groundwater source, taking into account the requirements of the environment,
- (d) reduce the total share component of access licences to the final extraction limit,
- (e) establish rules for the granting of access licences,
- (f) establish rules for determining the groundwater available from time to time under access licences,
- (g) establish water allocation account management rules,
- (h) establish rules for minimising the local impacts of groundwater extraction on the environment, on the aquifer itself, and between users,
- (i) establish the access licence dealing rules, and
- (j) establish the conditions that will apply to access licences and water supply work (bore) approvals.

## **11 Performance indicators**

For the purpose of section 35 (1) (b) of the Act, the following indicators are to be used to determine the performance of this Plan against its objectives:

- (a) change in groundwater extraction relative to the extraction limits,
- (b) change in climate adjusted groundwater levels,
- (c) change in water levels adjacent to identified groundwater dependent ecosystems,
- (d) change in groundwater quality,
- (e) change in economic benefits derived from groundwater extraction and use,
- (f) change in structural integrity of the aquifer,
- (g) extent to which domestic and stock rights have been met,
- (h) extent to which local water utility requirements have been met,
- (i) extent to which native title rights requirements have been met, and

- (j) extent of recognition of spiritual, social and customary values of groundwater to Aboriginal people.

## **Part 3 Basis for water sharing**

### **12 Basis for water sharing**

This Part is made in order to give effect to section 5 (3) of the Act, and in accordance with sections 20 (2) (c) and 21 (e) of the Act.

### **13 Climatic variability**

- (1) This Plan recognises climatic variability and therefore that the level of natural recharge to these groundwater sources will vary.
- (2) To give effect to subclause (1), this Plan has provisions that manage:
  - (a) the sharing of water in these groundwater sources within the limits of water availability on a long-term average basis, and
  - (b) water extractions to enable the protection of groundwater dependent ecosystems, aquifer integrity and water quality in these groundwater sources.

### **14 Recharge**

- (1) The overall basis for water sharing in this Plan is the average annual recharge to each groundwater source as follows:
  - (a) 25,500 megalitres per year (hereafter *ML/yr*) plus the requirements for basic landholder rights at the commencement of this Plan in Zone 1,
  - (b) 26,600 ML/yr plus the requirements for basic landholder rights at the commencement of this Plan in Zone 2,
  - (c) 11,000 ML/yr plus the requirements for basic landholder rights at the commencement of this Plan in Zone 3,
  - (d) 6,000 ML/yr plus the requirements for basic landholder rights at the commencement of this Plan in Zone 4,
  - (e) undefined in Zone 5, and
  - (f) 9,600 ML/yr plus the requirements for basic landholder rights at the commencement of this Plan in Zone 6.
- (2) A review of recharge for each groundwater may be undertaken by the Minister to:
  - (a) recommend an average annual recharge for Zone 5, and



- (b) recommend any changes to the average annual recharge for Zones 1, 2, 3, 4 and 6.
- (3) The Minister may under section 45 (1) (b) of the Act amend subclause (1) to vary the average annual recharge values for each of these groundwater sources, following the second review undertaken in subclause (2).

## Part 4 Environmental water provisions

### 15 Environmental water provisions

This Part is made in accordance with sections 5 (3) and 8 (1), 8 (2) and 20 (1) (a) of the Act.

### 16 Planned environmental water

**Note.** It is anticipated that the planned environmental water provisions in this Part and management of local impact provisions in Part 10, Division 3 of this Plan will also protect the cultural and spiritual values of groundwater (see clause 9 (e)).

- (1) This Plan establishes the following planned environmental water rules:
  - (a) subject to Part 10 Division 2 of this Plan, the physical water contained in the storage component of these groundwater sources, will be reserved for the environment,
  - (b) subject to Part 10 Division 2 of this Plan, 15% of an amount that is equal to the average annual recharge to these groundwater sources, excluding Zone 5, minus basic landholder rights at the commencement of this Plan, is reserved for the environment and Aboriginal cultural heritage.
- (2) A review of the proportion of recharge in subclause (1) (b) reserved as planned environmental water in these groundwater sources using the best available science may be undertaken by the Minister to:
  - (a) recommend the proportion of the annual recharge to be reserved for the environment and Aboriginal cultural heritage in Zone 5,
  - (b) recommend any change to the proportion of the annual average recharge to be reserved for the environment and Aboriginal cultural heritage in each of Zones 1, 2, 3, 4 and 6, and
  - (c) identify groundwater dependent ecosystems, establish their groundwater requirements and recommend appropriate management options to protect them.

**Note.** Studies may recommend management options other than reservation of a portion of recharge to protect groundwater dependant ecosystems.
- (3) The Minister may under section 45 (1) (b) of the Act, amend subclause (1) (b) to vary the proportion of recharge reserved as planned environmental water in each of these groundwater sources, based on the review undertaken in subclause (2), and this variation should:

- (a) establish the proportion of the annual average recharge to be reserved for the environment and Aboriginal cultural heritage in Zone 5,
- (b) if required, change the proportion of the annual average recharge to be reserved for the environment and Aboriginal cultural heritage in each of Zones 1, 2, 3, 4 and 6, and
- (c) designate further high priority groundwater dependent ecosystems, and include them in Schedule 3.

**Note.** The extent of impact of these changes on access by licence holders is limited by the provisions in clause 29.

- (4) Any change in planned environmental water arising from subclauses (3) and (5) shall not result in the proportion of recharge reserved for the environment being less than 10%, or greater than 30% in any groundwater source.

## **17 Adaptive environmental water**

- (1) Water may be committed in these groundwater sources for environment purposes by an adaptive environmental water condition pursuant to section 8B of the Act.
- (2) The holder of an access licence may request that the Minister impose an adaptive environmental water condition in respect of the whole or a part of the share component of the access licence.
- (3) The condition imposed under subclause (2) will continue until the holder requests its removal.
- (4) An access licence may be held by the Minister, Local Land Services or another public body to the extent that the whole or part of that access licence has been surrendered as a result of on farm water savings made by works or other improvements, subject to:
  - (a) the share component of the access licence held being equal to the value of the on-farm water savings made,
  - (b) the access licence held being the highest priority category in these groundwater sources, other than a specific purpose category, and
  - (c) an adaptive environmental water condition being imposed on the access licence and that condition not being removed.
- (5) The adaptive environmental water condition specified in subclause (1) and the plan for implementation of that condition, as required by section 8E (7) of the Act:
  - (a) are to be established by the Minister, and

- (b) shall be such as to ensure that there will be a contribution to the objectives of this Plan.
- (6) The allocation of water for access licences with an adaptive environmental water condition will be in accordance with the available water determination for the relevant category of access licence under this plan.
- (7) If the adaptive environmental water condition on an access licence requires the water to be left in the water source for environmental purposes, then the water allocation account is to be debited when the water is available in accordance with the adaptive environmental water condition on the access licence.
- (8) If the adaptive environmental water condition requires the environmental water to be taken from the water source then the water allocation account is to be debited when it is taken.
- (9) For the purposes of auditing compliance with the extraction limit under this Plan, the delivery of water pursuant to an access licence that has been committed as adaptive environmental water shall be accounted for as extraction where it occurs pursuant to a licence under subclause (2) or subclause (4).
- (10) To the extent that the water allocation of an access licence which is subject to an adaptive environmental water condition is not required to meet the requirement of the condition it may be the subject of an assignment dealing in accordance with the Dealings Rules in this plan.
- (11) Notwithstanding subclause (10) an access licence with an adaptive environmental water condition may be the subject of any other dealing permitted by the Dealing Rules in this Plan, provided the benefit to the environment provided for in the adaptive environmental condition is not diminished.
- (12) At the commencement of this clause, there were no access licences with an adaptive environmental water condition in these groundwater sources.

## Part 5 Basic landholder rights

### 18 Basic landholder rights

- (1) This Part is made in accordance with sections 5 (3) and 20 (1) (b) of the Act.
- (2) If a landholder is unable to exercise their basic landholder rights due to interference of their supply by extraction authorised by access licences:
  - (a) the Minister may amend a water supply works approval to allow the landholder's affected bore to be replaced or deepened to ensure continuing access to water for basic landholder rights, or
  - (b) the Minister may amend another water supply works approval so that basic rights water may be supplied by an alternative water supply work during critical times.
- (3) In accordance with the legislative requirements, the Minister may impose a charge on access licence holders in these groundwater sources under section 114 of the Act, as a contribution to the costs of activities or works associated with subclause (2).
- (4) Basic landholders rights exercised under section 52 of the Act must be exercised in accordance with any guidelines established by the Minister with respect to the reasonable use of water for domestic consumption and stock watering by landholders authorised to use water for either or both of those purposes.

**Note.** The Minister may, by order made under section 323 of the Act, impose temporary restrictions on basic landholder rights when it is necessary to do so in the public interest, such as to cope with a water shortage or threat to public health or safety.

**Note.** The Minister may enforce any reasonable use guidelines by serving orders on individual landholders under section 325 of the Act. The Minister may also order individual landholders accessing basic landholder rights to take specified measures to protect the environment, to preserve basic landholder rights or to overcome a threat to public health under section 328 of the Act.

### 19 Domestic and stock rights

**Note.** It is not recommended that the water from these groundwater sources be consumed without prior treatment. Land use activities may have polluted the groundwater in some areas.

- (1) At the commencement of this Plan, the water requirements of holders of domestic and stock rights are estimated to be a total of 1,426 ML/yr, comprising:
  - (a) 132 ML/yr in Zone 1,
  - (b) 151 ML/yr in Zone 2,
  - (c) 402 ML/yr in Zone 3,

- (d) 226 ML/yr in Zone 4,
  - (e) 473 ML/yr in Zone 5, and
  - (f) 42 ML/yr in Zone 6.
- (2) This Plan recognises that the exercise of domestic and stock rights may increase during the term of this Plan.

**Note.** Increase in use of domestic and stock rights may occur as a result of an increase in the number of landholdings overlying these groundwater sources, or as a result of the increase in the exercise of domestic and stock rights by existing landholders.

## 20 Native title rights

The requirement for water to satisfy native title rights is the water that may be taken in the exercise of native title rights in accordance with the *Native Title Act 1993* of the Commonwealth, including any determination of native title.

### Notes.

- 1 This Plan may be amended if there is a native title determination in accordance with the *Native Title Act 1993* of the Commonwealth by which water is required.
- 2 Native title rights may be exercised in accordance with the *Native Title Act 1993* of the Commonwealth, including section 211 of that Act.

## **Part 6 Bulk access regime**

### **21 Bulk access regime**

- (1) This Part is made in accordance with section 20 (1) (e) of the Act.
- (2) This Plan establishes a bulk access regime for the extraction of water under access licences in these groundwater sources having regard to:
  - (a) the environmental water provisions established under Part 4 of this Plan,
  - (b) the requirements for basic landholder rights identified under Part 5 of this Plan, and
  - (c) the requirements for water for extraction under access licences identified under Part 7 of this Plan.
- (3) The bulk access regime established in subclause (2):
  - (a) recognises the effect of climatic variability on the availability of water as provided for under Part 3 of this Plan,
  - (b) establishes rules according to which access licences are granted as provided for in Part 8 of this Plan,
  - (c) recognises and is consistent with limits to the availability of water as provided for in Part 9, Division 1 of this Plan,
  - (d) establishes rules according to which available water determinations are to be made as provided for in Part 9 Division 2 of this Plan,
  - (e) establishes rules according to which access licences are managed as provided for in Parts 9 and 10 of this Plan, and
  - (f) establishes rules with respect to the priorities according to which access licences are to be adjusted as a consequence of any reduction in the availability of water as provided for in Part 9 of this Plan.

## **Part 7 Requirements for water for extraction under access licences**

### **22 Requirements for water under access licences**

This part is made in accordance with section 20 (1) (c) of the Act.

**Note.** The amount of water specified in this Part represents the total volumes or total shares specified in the share components on access licence in these groundwater sources. The actual volume of water available at any time will depend on climate, access licence priority and the rules in this Plan.

### **23 Share components of domestic and stock access licences**

It is estimated that at the time of commencement of this Plan, the share components of domestic and stock access licences authorised to extract water from these groundwater sources will total 0 ML/yr.

### **24 Share components of local water utility access licences**

It is estimated that at the time of commencement of this Plan, the share components of local water utility access licences authorised to extract water from these groundwater sources will total 2,350 ML/yr, distributed as follows:

- (a) 2,000 ML/yr in Zone 1,
- (b) 350 ML/yr in Zone 3, and
- (c) 0 ML/year in all other groundwater sources.

### **25 Share components of aquifer access licences**

It is estimated that at the time of commencement of this Plan, the share components of aquifer access licences authorised to extract water from these groundwater sources will total 65,375 ML/yr, distributed as follows:

- (a) 19,680 ML/yr in Zone 1,
- (b) 22,608 ML/yr in Zone 2,
- (c) 8,264 ML/yr in Zone 3,
- (d) 5,103 ML/yr in Zone 4,
- (e) 2,477 ML/yr in Zone 5, and
- (f) 7,243 ML/yr in Zone 6.



## **26 Changes to share components**

This Plan recognises that the total requirements for water for extraction within these groundwater sources may change during the term of this Plan as a result of:

- (a) the granting, surrender or cancellation of access licences, or
- (b) the variation of local water utility access licences under section 66 of the Act.

## Part 8 Rules for granting access licences

### 27 Rules for granting access licences

- (1) This Part is made in accordance with sections 20 (2) (b), 61 and 63 of the Act, having regard to the limits to water availability in these groundwater sources and the need to protect groundwater dependent ecosystems and groundwater quality.
- (2) Applications for access licences may be made and access licences granted in these groundwater sources if they are for:
  - (a) a specific purpose access licence for which application is provided for under clause 10 of the *Water Management (General) Regulation 2018* (hereafter ***the Regulation***) in accordance with section 61 (1) (a) of the Act,  
**Note.** At the commencement of this Plan, clause 10 of the Regulation provides for the following specific purpose access licences to be applied for:
    - (a) a local water utility access licence (subcategory “domestic and commercial”), for the purpose of domestic consumption and commercial activities,
    - (b) a domestic and stock access licence (subcategory “domestic”), for the purpose of domestic consumption,
    - (c) an aquifer access licence (subcategory “town water supply”), for the purpose of supply to communities for domestic consumption and commercial activities, and
    - (d) any category of specific purpose access licence (subcategory “Aboriginal cultural”), for Aboriginal cultural purposes.  
**Note.** Pursuant to sections 66 (3) and 66 (4) of the Act, the Minister may also vary a local water utility’s share component at 5 year intervals, or on application of the local water utility where there is rapid growth in population.
  - (b) an access licence with a zero share component in accordance with sections 61 (1) (b) and 63 (5) of the Act,
  - (c) an access licence that may be granted in accordance with a dealing that is permitted by Part 11 of this Plan.
- (3) In applying for a new access licence, the applicant must establish the purpose and circumstances relating to that access licence, and that the share and extraction component sought will be the minimum required to meet that purpose and circumstance.
- (4) Access licences granted under this Part cannot be used to extract water through a water supply work (bore) located in areas where the extraction authorised by the access licence plus the full extraction authorised by existing access licences nominating water supply works (bores) located in the area and the exercise of basic

landholder rights, are likely to cause an adverse local impact, as outlined in Part 10 Division 3 of this Plan.

## **Part 9 Limits to the availability of water**

### **Division 1 Long-term average extraction limits**

#### **28 Extraction limits**

- (1) This Division is made in accordance with section 20 (2) (a) of the Act.
- (2) The extraction limit for each groundwater source, except Zone 5, is the recharge established in clause 14, minus the proportion of recharge reserved as planned environmental water in clause 16, plus the total requirements for basic landholder rights at the commencement of this Plan and is as follows:
  - (a) 21,675 ML/yr, plus the total requirements for basic landholder rights at the commencement of this plan in Zone 1,
  - (b) 22,610 ML/yr plus the total requirements for basic landholder rights at the commencement of this plan in Zone 2,
  - (c) 9,350 ML/yr plus the total requirements for basic landholder rights at the commencement of this plan in Zone 3,
  - (d) 5,100 ML/yr plus the total requirements for basic landholder rights at the commencement of this plan in Zone 4, and
  - (e) 8,160 ML/yr plus the total requirements for basic landholder rights at the commencement of this plan in Zone 6.
- (3) For Zone 5, until the average annual recharge and the proportion of recharge reserved for the environment are established under clauses 14 (3) and 16 (3), the extraction limit is taken to be 2,398 ML/yr, plus basic landholder rights being the requirements for water at the commencement of this Plan identified in clause 19 (1) (e).
- (4) For Zone 5, after the average annual recharge and the proportion of recharge reserved for the environment are established under clauses 14 (3) and 16 (3), the extraction limit will be the recharge minus the proportion of recharge reserved for the environment plus basic landholder rights.

#### **29 Variation of extraction limits**

- (1) The Minister may under section 45 (1) (b) of the Act amend clause 28 to vary the extraction limits in accordance with:

- (a) any change to the average annual recharge arising from clause 14, or
  - (b) any change to the planned environmental water arising from clause 16.
- (2) If there is any change to the extraction limits arising from subclause (1) then:
- (a) in Zone 1 the extraction limit will not be more than 27,540 ML/yr plus the total requirements for basic landholder rights at the commencement of this Plan, and will not be less than 16,065 ML/yr plus the total requirements for basic landholder rights at the commencement of this Plan,
  - (b) in Zone 2 the extraction limit will not be more than 28,730 ML/yr plus the total requirements for basic landholder rights at the commencement of this Plan, and will not be less than 16,760 ML/yr plus the total requirements for basic landholder rights at the commencement of this Plan,
  - (c) in Zone 3 the extraction limit will not be more than 11,880 ML/yr plus the total requirements for basic landholder rights at the commencement of this Plan, and will not be less than 6,930 ML/yr plus the total requirements for basic landholder rights at the commencement of this Plan,
  - (d) in Zone 4 the extraction limit will not be more than 6,480 ML/yr plus the total requirements for basic landholder rights at the commencement of this Plan, and will not be less than 3,780 ML/yr plus the total requirements for basic landholder rights at the commencement of this Plan,
  - (e) in Zone 5 the extraction limit will not be less than 2,398 ML/yr plus the total requirements for basic landholder rights at the commencement of this Plan, and
  - (f) in Zone 6 the extraction limit will not be more than 10,370 ML/yr plus the total requirements for basic landholder rights at the commencement of this Plan, and will not be less than 7,340 ML/yr plus the total requirements for basic landholder rights at the commencement of this Plan.

### **30 Compliance with extraction limits**

- (1) Water extraction in these groundwater sources will be monitored each water year to determine if there is any growth in volume extracted above the extraction limit specified in clause 28 as amended by clause 29, based a comparison of the extraction limit against the average extraction within each groundwater source over that year and the preceding 2 years.
- (2) For the purposes of auditing compliance with the extraction limit, if water that:

- (a) pursuant to an access licence is committed as adaptive environmental water to be left in the aquifer for environmental purposes, then extraction will be assumed to be equal to 100% of the available water determination made under clause 31, or
  - (b) pursuant to an access licence is committed as adaptive environmental water to be extracted for environmental purposes, then extraction will be that measured through the approved water supply work (bore).
- (3) If the 3 year average of extraction in a groundwater source in this Plan exceeds the extraction limit established in clause 28 by 5% or greater, then the available water determination made for aquifer access licences under clause 31 (5) and clause 31 (6) for the following water year, should be reduced by an amount that is assessed necessary by the Minister to return subsequent total water extraction to the extraction limit for that groundwater source.

## **Division 2 Available water determinations**

### **31 Available water determinations**

- (1) This Division is made in accordance with section 20 (2) (b) of the Act.
- (2) All available water determinations in these groundwater sources shall be expressed as either:
  - (a) a percentage of the share component for all access licences where share components are specified as megalitres per year, or
  - (b) megalitres per unit of share component for all access licences where share components are specified as a number of shares.
- (3) An available water determination for each category of access licence in these groundwater sources should be made at the commencement of each water year.
- (4) The available water determinations made at the commencement of the water year for domestic and stock and local water utility access licences should be 100% of share components.
- (5) The available water determination made at the commencement of the water year for aquifer access licences should be such that the total of available water determinations for each water source under this clause equals the extraction limit for the water source set in clause 28 as varied by clause 29, minus the total requirements for basic

landholder rights, minus the total available water determinations for domestic and stock and local water utility access licences, or such lower amount as results from the operation of clause 30.

- (6) The available water determination for all aquifer access licences in Zone 5 and Zone 6 will not exceed 1 ML per unit of share component.

## **Part 10 Rules for managing access licences**

### **Division 1 General**

#### **32 Rules for managing access licences**

This Part is made in accordance with sections 20 (2) (b), 21 (a) and 21 (c) of the Act, having regard to:

- (a) the environmental water rules established in Part 4 of this Plan,
- (b) requirements for water to satisfy basic landholder rights identified in Part 5 of this Plan, and
- (c) requirements for water for extraction under access licences in Part 7 of this Plan.

### **Division 2 Water allocation account management**

#### **33 Water allocation account management**

This Division is made in accordance with sections 20 (2) (b) and 21 (c) of the Act.

#### **34 Water allocation accounts**

In accordance with section 85 of the Act, a water allocation account shall be established for each access licence in these groundwater sources.

**Note.** Water allocation may be assigned to, or from, these accounts by a water allocation assignment made under section 71T of the Act, where these are allowed under rules specified in Part 11 of this Plan.

#### **35 Accrual of water allocations**

Water allocations will be accrued into water allocation accounts each water accounting year in accordance with the Minister's available water determinations as specified in clause 31.

#### **36 Annual accounting for water extraction**

- (1) Water taken from these groundwater sources will be accounted for at least annually.
- (2) Water taken by a water supply work (bore) nominated by an access licence will be periodically debited against the access licence water allocation account.
- (3) A water allocation account shall remain at or above zero at all times.



- (4) Unused water allocations in the water allocation accounts of domestic and stock access licences or of local water utility access licences, cannot be carried over from one water year to the next.
- (5) In any water year, subject to local impact management restrictions arising from Part 10, Division 3 of this Plan, water taken from these groundwater sources under a local water utility access licence or a domestic and stock access licence may not exceed a volume equal to:
  - (a) 100% of the share component of the access licence,
  - (b) plus any water allocations assigned from another access licence under section 71T of the Act in that year,
  - (c) plus any water allocations re-credited in accordance with section 76 of the Act in that year, and
  - (d) minus any water allocations assigned to another licence under section 71T of the Act in that year.
- (6) Unused water allocations in the water allocation accounts of aquifer access licence may be carried over from one water year to the next, subject to subclause (7).
- (7) The maximum amount of unused water allocations that can be carried over under subclause (6) is equal to 0.62 ML per unit of share component.
- (8) In any water year, subject to local impact management restrictions arising from Part 10, Division 2 of this Plan, water taken from these groundwater sources under an aquifer access licence may not exceed a volume that is equal to:
  - (a) 1.44 ML per unit of aquifer access licence share component,
  - (b) plus any water allocations assigned from another access licence under section 71T of the Act in that year, and
  - (c) minus any water allocations assigned to another access licence under section 71T of the Act in that year.

### **Division 3 Management of local impacts**

#### **37 Management of local impacts**

This Division is made in accordance with section 21 (a) of the Act.

### **38 Extraction interference between neighbouring bores**

- (1) To minimise interference between extraction under different access licences in Zones 1, 2 and 6, extraction from a new water supply work (bore) nominated by an access licence shall not be permitted within:
  - (a) 1,000 metres (hereafter *m*) of an existing water supply work (bore) nominated by an access licence, if the new water supply work (bore) will extract up to and including 10 ML/day,
  - (b) 2,000 m of an existing water supply work (bore) nominated by an access licence, if the new water supply work (bore) will extract greater than 10 ML/day and up to and including 20 ML/day, and
  - (c) 3,000 m of an existing water supply work (bore) nominated by an access licence, if the new water supply work (bore) will extract greater than 20 ML/day.
- (2) To minimise interference between extraction under different access licences in Zones 3, 4 and 5 extraction from a new water supply work (bore) nominated by an access licence shall not be permitted within:
  - (a) 1,000 m of an existing water supply work (bore) nominated by an access licence, if the new water supply work (bore) will extract up to and including 5 ML/day,
  - (b) 2,500 m of an existing water supply work (bore) nominated by an access licence, if the new water supply work (bore) will extract greater than 5 ML/day and up to and including 10 ML/day,
  - (c) 3,500 m of an existing water supply work (bore) nominated by an access licence, if the new water supply work (bore) will extract greater than 10 ML/day and up to and including 15 ML/day, and
  - (d) 4,000 m of an existing water supply work (bore) nominated by an access licence, if the new water supply work (bore) will extract greater than 15 ML/day.
- (3) The distances and daily extraction rates referred to in subclauses (1) and (2) shall be specified on the new water supply work (bore) approval.

- (4) All new water supply works (bores) that are screened, slotted, or in any way open, within the Great Artesian Basin sandstone aquifers, shall have an annual extraction limit of 500 ML/yr.
- (5) Notwithstanding the provisions of subclauses (1), (2), and (4), the Minister may, upon application by an access licence holder, vary the distance restrictions specified in this clause if:
  - (a) an hydrogeological study, undertaken by the licence holder, and assessed as adequate by the Minister, demonstrates minimal potential for any adverse impact on existing licensed extraction,
  - (b) all potentially affected access licence holders have been notified by the proponent, and  
**Note.** Potentially affected access licence holders are typically neighbouring access licence holders and/or those in the near vicinity.
  - (c) there is a process for remediation in the event that any adverse impact occurs in the future, specified as conditions on the licence.
- (6) Subclauses (1) to (3) do not apply to extraction under existing access licences.

**Note.** The intention of this clause is to minimise the impact of extraction under new access licences on extraction under existing access licences. It is intended to develop models to support hydrogeological assessment of the adverse impacts of new groundwater extractions on existing licensed extraction.

### 39 Water level management

- (1) The Minister may declare that, in order to maintain water levels within these groundwater sources, local access rules are to apply in a defined area, known as a local impact area.
- (2) If water levels in any part of a groundwater source have declined to such an extent that an adverse impact is occurring, or is likely to occur, extraction from all water supply works (bores) nominated by an access licence within a local impact area declared under subclause (1) shall be restricted to such an extent and for such time as is required to reinstate water levels to such a degree as to mitigate or avoid that impact.
- (3) An adverse impact in subclause (2) shall be considered to have occurred if the Minister considers that excessive drawdown has occurred, or if:
  - (a) the average of the seasonally recovered water levels over a 5 year period is not maintained within 10% of the total available drawdown below the initial seasonally recovered water level over the 5 year period, or

- (b) if the seasonally recovered water levels are not maintained within 20% of the total available drawdown below the July 2002 water level.

**Note.** This clause recognises that in some locations, at certain periods of high groundwater demand, critical water level declines may occur, and that additional extraction limitations may be required. The Department will identify monitoring bores, and determine the method for specifying an affected area. The total available drawdown is defined by the height of the piezometric level above the bedrock (i.e. base of the groundwater source). Groundwater levels will be measured in the winter months of June, July or August allowing the aquifer to recover from the previous pumping season.

#### 40 Water quality management

- (1) The beneficial uses of these groundwater sources, based on beneficial use classes identified in the Australian and New Zealand Environment and Conservation Council *Water Quality Guidelines 2001*, and the National Health and Medical Research Council *Raw Water for Drinking Purposes Guidelines 1996*, are:

- (a) raw water for drinking purposes, and  
(b) agricultural water,

**Note.** It is not recommended that the water from this groundwater source be consumed without prior treatment. Land use activities may have polluted the groundwater in some areas.

- (2) Water quality decline will be deemed unacceptable if extraction is likely to cause water quality to decline to a lower beneficial use class.
- (3) The Minister may declare that, in order to protect water quality within this groundwater source, local access rules are to apply in a defined area known as a local impact area.
- (4) A baseline of electrical conductivity (hereafter *EC*), against which changes in the salinity of groundwater will be measured, will be set by the Department.
- (5) The EC limits adopted by this Plan for the beneficial use categories are as follows:
- (a) 800 EC for Raw Water for Drinking Supplies Class, and  
(b) 1,500 EC for Agricultural Water Class.

**Note.** These are the limits specified in Guidelines for Groundwater Protection in Australia, Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand, (1995, as adopted by the NSW Government *Groundwater Quality Protection Policy 1997*).

- (6) If, for groundwater of less than or equal to 800 EC, as established by the salinity baseline set by subclause (4), there is an increase in salinity of more than 20% of the difference between the salinity baseline set by subclause (4) and the beneficial use class limits established in subclause (5) (a), then:

- (a) the Minister may declare a local impact area,
  - (b) access licence holders within the local impact area will need to demonstrate to the Minister that continual extraction, or a proposed new extraction regime, will not have an unacceptable impact on the groundwater quality of the aquifer, and
  - (c) until such time that this justification to continue to extract has been assessed and approved by the Minister:
    - (i) extraction from water supply works nominated by an access licence within the local impact area will be restricted to such an extent and for such time as required to halt that salinity increase, or
    - (ii) access licence holders may be issued with a directive to cease to pump.
- (7) If, for groundwater of greater than 800 EC and less than or equal to 1,500 EC, as established by the salinity baseline set by subclause (4), there is an increase in salinity of more than 20% of the difference between the salinity baseline set by subclause (4) and the beneficial use class limit established in subclause (5) (b), then:
- (a) the Minister may declare a local impact area,
  - (b) access licence holders within the local impact area will need to demonstrate to the Minister that continual extraction, or a proposed new extraction regime, will not have an unacceptable impact on the groundwater quality of the aquifer, and
  - (c) until such time that this justification to continue to extract has been assessed and approved by the Minister:
    - (i) extraction from water supply works nominated by an access licence within the local impact area shall be restricted to such an extent and for such time as required to halt that salinity increase, or
    - (ii) access licence holders may be issued with a directive to cease to pump.
- (8) If there is an increase in salinity from extraction that results in the current beneficial use class salinity limit being exceeded, then subclauses (7) (a) and 7 (c) shall apply.

#### **41 Protection of groundwater dependent ecosystems**

- (1) Extraction of groundwater from a new or replacement water supply work (bore) is excluded:
  - (a) within 100 m of high priority groundwater dependent ecosystems for water supply works (bores) exercising basic rights,

- (b) within 200 m of high priority groundwater dependent ecosystems for water supply works (bores) nominated by an access licence, and
- (c) within 40 m of any river for any works.

**Note.** Subclause (1) will not apply to extraction from an existing water supply work (bore) until such time as the work is replaced.

- (2) High priority groundwater dependent ecosystems are those listed in Schedule 3.
- (3) The Minister may under section 45 (1) (b) identify further high priority groundwater dependent ecosystems and include them in Schedule 3, based on further studies of groundwater ecosystem dependency undertaken by the Minister.
- (4) The Minister should consult with the Minister for the Environment before adding further high priority groundwater dependent ecosystems to Schedule 3.

#### **42 Protection of aquifer integrity**

- (1) The Minister may declare that, in order to protect the integrity of the aquifers within these groundwater sources, local access restrictions are to apply in a defined area known as a local impact area.
- (2) The Minister may, on presentation of evidence of land subsidence or aquifer compaction, restrict extraction from all water supply works (bores) nominated by an access licence within a local impact area declared under subclause (1), to such an extent and for such time as to stabilise that subsidence or compaction.

#### **43 Extraction restrictions**

The Minister may, in the event of local impact restrictions arising from this Division, impose, by Order, a reduction in annual, quarterly, monthly, weekly or daily extraction rates from water supply works (bores) in the local impact area.

#### **44 Group registration**

This Plan allows for the formation of a group of access licences with respect to the sharing of local impact restrictions arising from this Division, subject to the following rules:

- (a) the group register will be maintained by the Minister,
- (b) holders of access licences must make a request to the Minister to form a group,
- (c) total extraction by all access licences within a group will be assessed as a whole against their combined restricted extraction and must not exceed that amount,

- (d) no access licence holder within the group may extract more than is permitted by Division 2 of this Part in any one water accounting year as a result of participation in a group,
- (e) an access licence holder may apply to be removed by the Minister from the group and the extraction by the group will be reduced by the extraction restriction of that access licence,
- (f) an access licence holder may apply to be added by the Minister to the group and the combined restricted extraction of the group will be increased by the extraction restriction of that access licence, and
- (g) the Minister reserves the right to remove a licence holder from a group where that individual causes the group extraction restriction to be exceeded, or to dissolve a group where its members exceed their combined extraction restriction.

#### **45 Infrastructure failure**

- (1) The operational rules relating to local impact management may rely on water levels at specified monitoring bores.
- (2) In the event of a monitoring bore failure the Minister may:
  - (a) continue with the current access rules until the monitoring bore is reinstated,
  - (b) adjust the current access rules based on climatic conditions and any other monitoring bore information, until the monitoring bore is reinstated, or
  - (c) rely on another monitoring bore in the area to provide information.

## Part 11 Access licence dealing rules

### 46 Access licence dealing rules

- (1) This Part is made in accordance with section 20 (1) (d) of the Act and with the Minister's access licence dealing principles gazetted under section 71Z of the Act.
- (2) Applications for access licence dealings may be granted subject to the Minister's access licence dealing principles gazetted from time to time under section 71Z of the Act and the rules in this Part.

**Note.** There are a number of mechanisms within the Act, called access licence dealings, to change either the ownership of all or part of an access licence, or the location within a water source at which all or part of the share and extraction components of access licences can be exercised. These dealings are governed by the principles in section 5 of the Act, Minister's access licence dealing principles, and the rules in this Part.

**Note.** Where there is an inconsistency between access licence dealing rules established in this Plan and Minister's access licence dealing principles gazetted subsequent to the commencement of this Plan, section 71Z of the Act provides for the Minister's access licence dealing principles to prevail.

### 47 Rules relating to constraints within a groundwater source

- (1) This clause applies to any relevant dealings under sections 71Q, 71S, and 71W of the Act, and section 71T of the Act with respect to allocation assignments within these groundwater sources.
- (2) Dealings are prohibited under this clause if:
  - (a) any of the access licences or water allocations involved are not within these groundwater sources, or
  - (b) the dealing would result in the total extraction under access licences through nominated works in the area, plus basic landholder rights extraction, causing any adverse local impact in accordance with Part 10, Division 3 of this Plan, or otherwise.

### 48 Rules for change of water source

- (1) This clause relates to dealings under section 71R of the Act.

**Note.** Section 71R dealings are the mechanism by which access licences can move from one water source to another. Once the change in water source has been effected, if permitted, the new licence will have to nominate specified works (by a dealing under section 71W of the Act) in the receiving water source before extraction can commence.

- (2) Dealings under section 71R of the Act that change the water source to which an access licence applies are prohibited in these groundwater sources.



- (3) An access licence with a share component specifying one of these groundwater sources may be cancelled and a new licence issued specifying another of these groundwater sources only if the total share components of all access licences in the groundwater source in which the access licence is issued remains below the extraction limit for that groundwater source established in clause 28, as amended in clause 29.
- (4) Notwithstanding subclause (3), a new licence specifying Zone 3, 4 or 5 may not be issued following cancellation of an access licence in Zone 1, 2, or 6.
- (5) The volume of the share component on an access licence issued under this clause is to be the volume of the cancelled access licence share component.

#### **49 Rules for conversion of access licence category**

- (1) This clause relates to dealings under section 71O of the Act.
- (2) Dealings that result in conversion of an access licence of one category to an access licence of another category are prohibited in these groundwater sources.

#### **50 Rules for interstate access licence transfer**

- (1) This clause relates to dealings under section 71U of the Act.
- (2) Dealings that result in an interstate access licence transfer into or out of these groundwater sources are prohibited.

#### **51 Rules for water allocation assignments between water sources**

- (1) This clause relates to dealings under section 71T of the Act.
- (2) Dealings that assign water allocations between an access licence in one of these groundwater sources and an access licence in another of these groundwater sources may be permitted only if:
  - (a) the total water allocations credited to all access licences in the groundwater source to which the water allocation is assigned remains below the extraction limit of that groundwater source established in clause 28, as amended by clause 29, or
  - (b) the assignment would not result in the total extraction of credited water allocations through nominated works in the area, plus basic landholder rights extraction, causing any adverse local impact in accordance with Part 10, Division 3 of this Plan, or otherwise.

- (3) Notwithstanding subclause (2), water allocations may not be assigned from an access licence in Zone 1, 2 or 6, to an access licence in Zone 3, 4 or 5.

**Note.** Each water allocation assignment must be applied for. Access licence holders may enter into private contracts to assign water allocations for a number of years. Such contracts are not guaranteed by the Government, and approval must be sought annually. Approval will be subject to the rules in this Plan, including local impact assessment.

## **52 Rules for interstate assignment of water allocations**

- (1) This clause relates to dealings under section 71V of the Act.
- (2) Dealings that result in an interstate assignment of water allocations to or from these groundwater sources are prohibited.

## **Part 12 Mandatory conditions**

### **53 Mandatory conditions on access licences**

This Part is made in accordance with sections 17 (c) and 20 (2) (e) of the Act.

### **54 Access licence conditions**

- (1) All access licences shall have mandatory conditions to give effect to the provisions of this Plan in relation to the following:
  - (a) the specification of the share component of the access licence,
  - (b) the specification of the extraction component of the access licence,
  - (c) the requirement that all taking of water under the access licence will be subject to the available water determinations,
  - (d) the requirement that all taking of water under the access licence will be subject to any local impact management restrictions established in this Plan,
  - (e) the requirement that all taking of water under the access licence will be subject to the account management rules established in this Plan,
  - (f) the requirement that water may only be taken under the access licence by the water supply work (bore) nominated by the access licence,
  - (g) the taking of water in accordance with the access licence may only occur if the resulting debit from the access licence water allocation account will not exceed the volume of water allocation remaining in the account, and
  - (h) any other conditions required to implement the provisions of this Plan.
- (2) All domestic and stock access licences shall have mandatory conditions that only allow the taking of water for the purpose of domestic consumption or stock watering as defined in section 52 of the Act.
- (3) All local water utility access licences shall have mandatory conditions that only allow the taking of water for the exercise of a water supply function of the local water utility or for other such purpose provided for under the Act.

### **55 Mandatory conditions on water supply work (bore) approvals**

All approvals for a water supply work (bore) to which this Plan applies shall have mandatory conditions in relation to the following:

- (a) the water supply work (bore) is only to be constructed by a driller licensed under section 349 of the Act,
- (b) the water supply work (bore) must comply with drilling standards as specified by the Minister,
- (c) construction of a water supply work (bore) must prevent contamination between aquifers through proper bore construction,
- (d) a water supply work (bore) approval holder must ensure decommissioning procedures comply with applicable standards as specified by the Minister,
- (e) a new or replacement water supply work (bore) to access water for basic rights will be required, as a condition of approval, to be constructed to sufficient depth to maintain access to the water source for the life of the work,
- (f) the water supply work (bore) approval holder is, within 2 months of completion of the work, or after the issue of the approval if the water supply work (bore) is existing, to provide the Minister with:
  - (i) details of the work on the prescribed form,
  - (ii) a plan showing accurately the location of the work in relation to portion and property boundaries, and
  - (iii) details of any water analysis and/or pumping tests required by the Minister,
- (g) if, during the construction of the water supply work (bore), saline or contaminated water is encountered above the producing aquifer, such water is to be sealed off by:
  - (i) inserting the appropriate length(s) of casing to a depth sufficient to exclude the saline or contaminated water from the work, and
  - (ii) placing an impermeable seal between the casing(s) and the walls of the bore hole from the bottom of the casing to ground level, as specified by the Minister,
- (h) if a water supply work (bore) is abandoned, the water supply work (bore) approval holder is to:
  - (i) notify the Minister that the work has been abandoned, and

- (ii) seal off the aquifer by backfilling the work to ground level after withdrawing the casing (lining), as specified by the Minister,
- (i) an extraction measurement device shall be installed and maintained on each water supply work (bore) used for extraction of water under an access licence, and such devices shall be of a type, and shall be maintained in a manner, which is acceptable to the Minister,
- (j) a water supply work (bore), excluding a water supply work granted for extraction of basic landholder rights, must comply with the relevant local impact management rules in Part 10 of this Plan,
- (k) notwithstanding the available water determination, it is the responsibility of the water supply work (bore) approval holder, excluding the holder of a water supply work approval for extraction of basic landholder rights, to ascertain from the Minister whether or not there are in place any local impact restrictions before commencing to take water from the groundwater source,
- (l) extraction under an access licence through the approved water supply work (bore) is only authorised with respect to the access licences specified on the water supply work (bore) approval,
- (m) a water supply work (bore) approval holder must supply to the Minister on request, and to the required standards, a report pertaining to the quality of the water obtained from the water supply work (bore),
- (n) any new applications for water supply works (bore) approvals are to be sent to the NSW Aboriginal Land Council for assessment of potential impacts on sites of significance and for advice on appropriate distance restrictions, and
- (o) any other conditions required to implement the provisions of this Plan.

**Note.** It is recommended that the Minister also apply conditions to water use approvals requiring the supply of information on an annual basis on types and areas of irrigated crops.

## Part 13 Monitoring and reporting

### 56 Monitoring

The monitoring of the performance indicators specified in clause 11 shall be undertaken by the Minister.

**Note.** Review and Audit of this Plan

In accordance with section 43A of the Act, the Natural Resources Commission must undertake a review of this Plan prior to any decision to extend its term or to make a new plan. The review must consider the extent to which this Plan's water sharing provisions have contributed to achieving or not achieving the State priorities for local land services relevant to natural resource management (as referred to in the *Local Land Services Act 2013*).

When undertaking this review the Natural Resources Commission is required to call for public submissions. The Commission will take into consideration any submission received as well as any other relevant State-wide or regional government policies or agreements that apply to the Local Land Services region.

In accordance with section 44 of the Act, this Plan will be audited at intervals of no more than five years, for the purpose of ascertaining whether its provisions are being given effect to. This audit is to be carried out by an audit panel appointed by the Minister in consultation with a water management committee where one exists.

## **Part 14 Amendment of this Plan**

### **57 Amendment of this Plan**

- (1) This Part is made in accordance with section 45 (1) (b) of the Act.
- (2) This Plan can be amended in accordance with the following clauses of this Plan:
  - (a) clause 14 in respect to the average annual recharge,
  - (b) clause 16 in respect to planned environmental water,
  - (c) clause 29 in respect to long-term average extraction limit,
  - (d) clause 41 in respect to high priority groundwater dependent ecosystems and Aboriginal cultural heritage values.

### **58 Amendment relating to planned environmental water**

- (1) The Minister may amend this Plan to provide for the recovery of planned environmental water as follows:
  - (a) the recovery is only to apply where the Minister has cancelled an access licence held by the Minister in accordance with section 8A of the Act,
  - (b) the amount of additional water to be provided as planned environmental water is to be equivalent to the annual average extraction of water under the cancelled licence over the long-term,
  - (c) the average annual long-term availability of water for the remaining access licences that relate to the water source concerned is to be reduced by the average annual long-term extraction of water under the cancelled licence.
- (2) The Minister may amend this Plan to specify the purposes for which planned environmental water committed under section 8A of the Act is to be used.

## Schedule 1 Dictionary

The following definitions apply to this Plan in addition to the definitions set out in the Act:

***abandoned*** (work) refers to a water supply work (bore) that is no longer being used.

***aquifer compaction*** refers to the reduction in the porosity (pore spaces) of an aquifer, and may result from over pumping the aquifer.

***available water*** in relation to a water management area or water source, is the water that is available in that area or water source in accordance with an available water determination that is in force in respect of that area or water source.

***available water determination*** is a written Order by the Minister as to the availability of water for the various categories of access licence in relation to a specified water management area or water source.

**Note.** An available water determination gives rise to a water allocation that is credited to a water allocation account for each licensed holder.

***bedrock*** is the solid rock underlying unconsolidated sediments such as the soil and weathered rock. Bedrock is a general term for solid rock that lies beneath soil, loose sediments, or other unconsolidated material.

***drawdown*** refers to a lowering of the level to which water will rise in cased bores. Natural drawdown may occur due to seasonal climatic changes. Groundwater pumping may also result in seasonal and long-term drawdown.

***extraction limit*** is that proportion of the long term average annual recharge and storage which can be extracted each year without causing adverse impact on the environment or groundwater users, including landholders exercising basic rights.

***Great Artesian Basin*** is a 'confined' groundwater basin comprised of a complex multi-layered system of water bearing strata (porous sandstone aquifers) separated by largely impervious rock units, underlying largely arid and semi-arid landscapes to the west of the Great Dividing Range, and extending from Queensland through New South Wales and the Northern Territory, to South Australia.

***groundwater*** is water that occurs beneath the ground surface in the saturated zone.



***groundwater dependent ecosystems*** are ecosystems which have their species composition and natural ecological processes wholly or partially determined by groundwater.

***groundwater*** is water that occurs beneath the ground surface in the saturated zone.

***long term average storage component*** is the volume of water in the aquifer less the combined average annual recharge and requirements for basic landholder rights at the commencement of this Plan.

***monitoring bore*** refers to a bore constructed for the purpose of measuring water levels and/or taking samples for water quality analysis.

***recharge*** is the addition of water, usually by infiltration, to an aquifer.

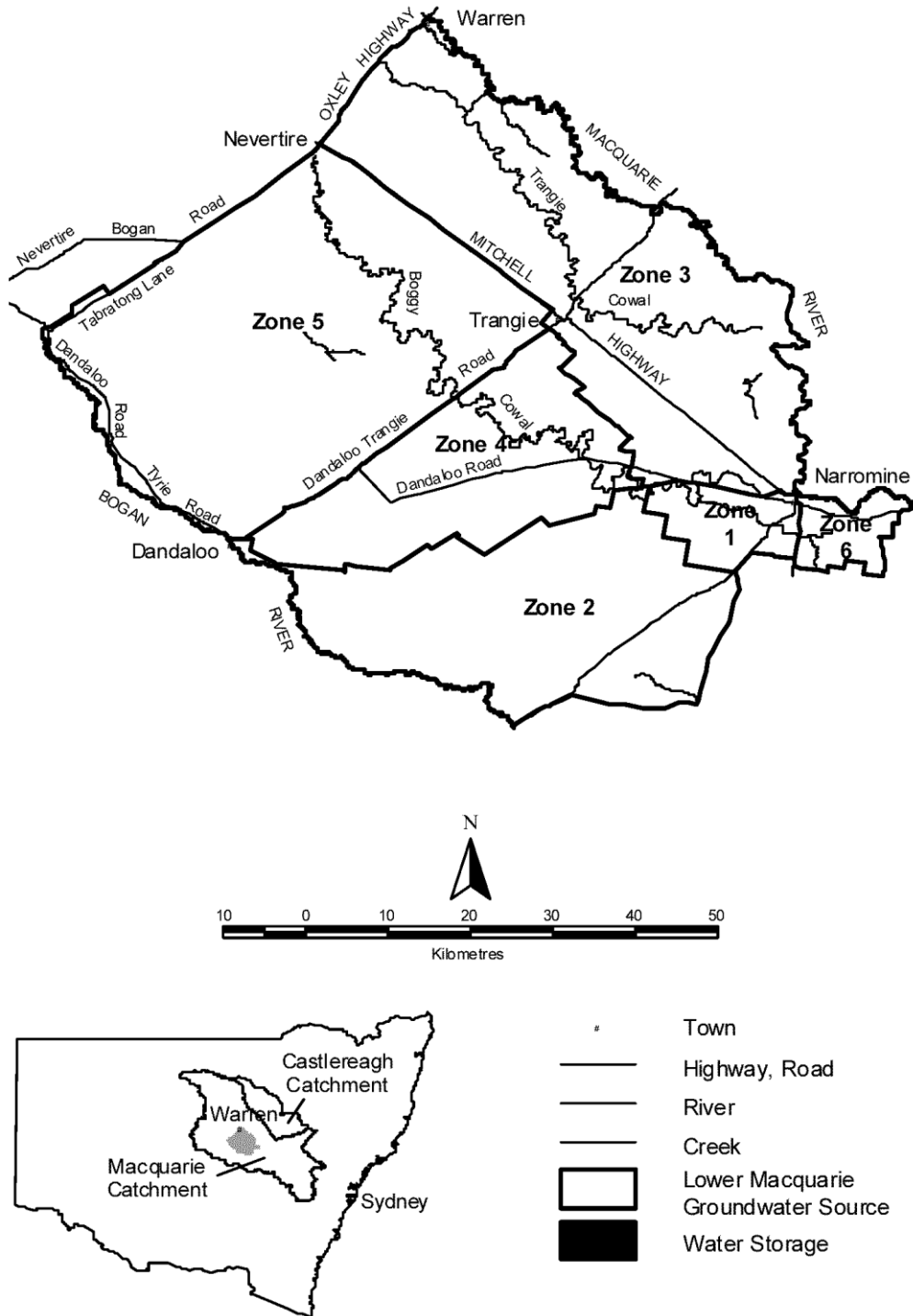
***sandstone*** is sedimentary rock formed by the consolidation of sand grains, the sand component is often predominantly quartz and cemented by a fine grained matrix.

***share component*** is the share component of an access licence.

***unconsolidated alluvial aquifers*** are formed from sediments deposited by the action of flowing water in particular along river beds and floodplains, but not including lakes and seas.

***water year*** is a 12 month period from 1 July to 30 June.

## Schedule 2 Lower Macquarie Groundwater Sources

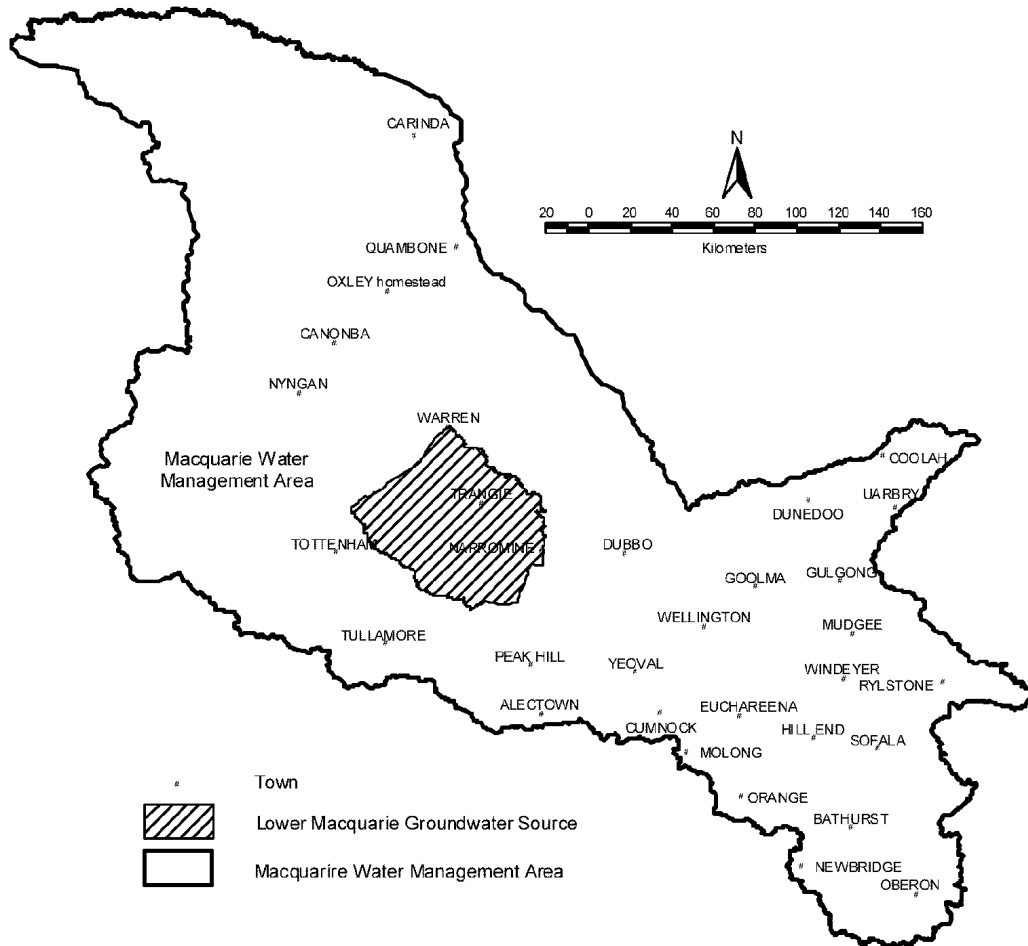


### **Schedule 3 High priority groundwater dependent ecosystems**

There are no high priority groundwater dependent ecosystems identified at the commencement of this Plan.

**Note.** The high priority groundwater dependant ecosystems listed in this Schedule may change during the period of this Plan. The offices of the Department, shown in Appendix 2, should be contacted for a current list.

## Appendix 1 Macquarie Water Management Area



## **Appendix 2 Location of maps**

The maps in relation to this Plan may be inspected at:

Department Industry, Water  
209 Cobra Street  
DUBBO NSW 2830

Department of Industry, Water  
161 Kite Street  
ORANGE NSW 2800