

# Water Sharing Plan for the Kulnura Mangrove Mountain Groundwater Sources 2003

[2003-117]



New South Wales

## Status Information

### Currency of version

Historical version for 1 July 2004 to 9 December 2004 (accessed 6 January 2025 at 3:03)

Legislation on this site is usually updated within 3 working days after a change to the legislation.

### Provisions in force

The provisions displayed in this version of the legislation have all commenced.

### Notes—

- **See also**  
[Statute Law \(Miscellaneous Provisions\) Bill \(No 2\) 2004](#)
- **Note**  
In incorporating the amendments made by the *Water Management (Minister's Plans) Order No 2 of 2004*, published in Gazette No 110 of 1.7.2004, p 5072, changes have been made to the numbering of some of the provisions to maintain appropriate numerical or alphabetical order.

### Authorisation

This version of the legislation is compiled and maintained in a database of legislation by the Parliamentary Counsel's Office and published on the NSW legislation website, and is certified as the form of that legislation that is correct under section 45C of the [Interpretation Act 1987](#).

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# Water Sharing Plan for the Kulnura Mangrove Mountain Groundwater Sources 2003



New South Wales

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# Water Sharing Plan for the Kulnura Mangrove Mountain Groundwater Sources 2003



New South Wales

## Part 1 Introduction

### 1 Name of Plan

This Plan is the *Water Sharing Plan for the Kulnura Mangrove Mountain Groundwater Sources 2003* (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 2004 and ceases 10 years after that date.

### 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 Central Coast Water Management Area known as the Kulnura Mangrove Mountain Groundwater Sources (hereafter **these groundwater sources**) as shown on the map in Schedule 2.

**Note—**

The Central Coast Water Management Area is shown on the map in Appendix 1.

**Note—**

Maps referred to in this Plan may be inspected at offices of the Department of Land and Water Conservation listed in Appendix 2.

- (2) The following groundwater sources referred to in this Plan are shown on the map in Schedule 2:

- (a) National Park, State Forest and Drinking Water Catchment Groundwater Source (hereafter **Zone 1**),
- (b) Wollombi Brook Groundwater Source (hereafter **Zone 2**),
- (c) Brisbane Water Groundwater Source (hereafter **Zone 3**),
- (d) Ourimbah Creek Groundwater Source (hereafter **Zone 4**),
- (e) Wyong River Groundwater Source (hereafter **Zone 5**),
- (f) Upper Mangrove Groundwater Source (hereafter **Zone 6**),
- (g) Lower Mangrove and Popran Creeks Groundwater Source (hereafter **Zone 7**), and
- (h) Mooney Mooney and Mullet Creeks Groundwater Source (hereafter **Zone 8**).

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

The water in these groundwater sources includes all water contained in the Hawkesbury sandstone aquifers within the groundwater sources listed in clause 4.

## **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.

## **7 Effect on licences, authorities and permits under the [Water Act 1912](#)**

- (1) This Plan applies from the date of commencement to those matters that are administered under the Act at that time.
- (2) This Plan applies to other matters from the date the relevant provisions of the Act are commenced.

### **Note—**

To the extent possible, the rules embodied in this Plan will apply to matters administered under the [Water Act 1912](#) in the interim.

## **8 State Water Management Outcomes Plan**

- (1) This Plan is consistent with the State Water Management Outcomes Plan (hereafter

the **SWMOP**) in accordance with section 16 (1) (a) of the Act.

- (2) Schedule 3 identifies the SWMOP targets applicable to this Plan and how this Plan contributes to those targets.

**Note—**

The SWMOP applying at the commencement of this Plan is that gazetted on 20 December 2002 under section 6 of the Act.

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

### **9 Vision, objectives, strategies and performance indicators**

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

#### **10 Vision**

- (1) The vision for this Plan is the sustainable, equitable and efficient use, through integrated management, of groundwater in the Kulnura Mangrove Mountain Groundwater Sources to preserve, enhance and rehabilitate the environmental, social, cultural and economic uses of groundwater for the present and the future.
- (2) This Plan also recognises the following respect statement for Aboriginal values associated with these groundwater sources:
  - (a) life-giving water is of extreme significance to Aboriginal culture for its domestic, traditional and spiritual values, and
  - (b) whilst water supplied for the environment will provide protection for native flora and fauna, and opportunities for fishing, food gathering and recreational activities, it is important that the community respects the spiritual significance of water to Aboriginal people.

#### **11 Objectives**

The objectives of this Plan are to:

- (a) manage groundwater extractions to protect and enhance ecological processes and the diversity of terrestrial groundwater dependent ecosystems in these groundwater sources,
- (b) manage groundwater extractions in these groundwater sources to protect baseflows to rivers and related ecosystems,
- (c) manage groundwater extractions to protect and enhance ecological processes and the diversity of subsurface groundwater dependent ecosystems in these groundwater sources,
- (d) manage groundwater extractions to provide domestic and stock and native title water



requirements within these groundwater sources,

- (e) manage groundwater extractions to maximise the economic benefit of groundwater use within these groundwater sources,
- (f) manage groundwater extractions to provide opportunities for new and existing users within these groundwater sources,
- (g) establish rules for priority of access to groundwater consistent with the priority requirements of the Act, and rules for the management of extraction in these groundwater sources,
- (h) recognise the high quality and beneficial use (raw drinking water) of water of these groundwater sources, and encourage its use where appropriate, and
- (i) manage groundwater extractions to protect and enhance groundwater dependant species and sites of significance to the local Aboriginal communities in these groundwater sources.

## **12 Strategies**

The strategies of this Plan are to:

- (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) establish rules for the granting of access licences,
- (e) establish rules for determining the groundwater available from time to time under access licences,
- (f) establish water allocation account management rules,
- (g) establish rules for minimising the local impacts of groundwater extraction on the environment, the aquifer itself, and between users,
- (h) establish the access licence dealing rules, and
- (i) establish the conditions that will apply to all access licences and water supply work (bore) approvals.

## **13 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 high priority groundwater dependent ecosystems,
- (d) change in groundwater quality,
- (e) change in economic benefits derived from groundwater extraction and use,
- (f) extent to which domestic and stock rights requirements have been met,
- (g) extent to which local water utility requirements have been met,
- (h) extent to which native title rights requirements have been met, and
- (i) extent of recognition of spiritual, social and customary values of groundwater to Aboriginal people.

**Note—**

Appendix 3 details the objectives to which these performance indicators relate and the methods for assessing these indicators.

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

### **14 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.

### **15 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 of these groundwater sources.

### **16 Recharge**

- (1) The overall basis for water sharing in this Plan is the average annual recharge to each groundwater source as follows:
  - (a) unquantified in Zone 1,

**Note—**

Almost half of the area to which this Plan applies is in State Forests, National Parks and Drinking Water Catchment (Zone 1) and therefore a recharge figure for this groundwater source was not identified. This decision was made in recognition that extractions would not occur in this groundwater source, and continues the precedent set in the development of the previous groundwater licensing policy for Kulnura Mangrove Mountain.

(b) 1,128 megalitres per year (hereafter **ML/yr**) in Zone 2,

(c) 2,616 ML/yr in Zone 3,

(d) 3,602 ML/yr in Zone 4,

(e) 3,023 ML/yr in Zone 5,

(f) 2,765 ML/yr in Zone 6,

(g) 8,231 ML/yr in Zone 7, and

(h) 9,007 ML/yr in Zone 8.

- (2) Pursuant to section 45 (1) (b) of the Act, the average annual recharge to each groundwater source established in subclause (1) may be varied by the Minister after year 5 of this Plan, following further recharge studies undertaken by the Minister.

**Note—**

The extent of impact of this change on access by licence holders is limited by the provisions in clause 28.

## **Part 4 Environmental water provisions**

### **17 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.

### **18 Planned environmental water**

**Note—**

It is anticipated that the planned environmental water provisions in this Part, and management of local impacts provisions in Part 10 of this Plan, will also protect the cultural and spiritual values of groundwater (see clause 11 (i)).

- (1) This Plan establishes the following planned environmental water rules:

- (a) the long-term average storage component of each groundwater source is reserved for the environment,
- (b) 100% of the average annual recharge to Zone 1 will be reserved for the environment,

- (c) 807 ML/yr will be reserved for the environment in Zone 2,
- (d) 1,873 ML/yr will be reserved for the environment in Zone 3,
- (e) 3,210 ML/yr will be reserved for the environment in Zone 4,
- (f) 2,164 ML/yr will be reserved for the environment in Zone 5,
- (g) 1,979 ML/yr will be reserved for the environment in Zone 6,
- (h) 5,892 ML/yr will be reserved for the environment in Zone 7, and
- (i) 6,447 ML/yr will be reserved for the environment in Zone 8.

**Note—**

For the first 5 years of this Plan, the above represents approximately 72% of recharge reserved for the environment in Zones 2, 3, 5, 6, 7, and 8, and 89% in Zone 4. The environmental water in Zone 4 is greater than in other groundwater sources in order to protect the connectivity of base flows to Ourimbah Creek.

- (2) Pursuant to section 45 (1) (b) of the Act, the Minister may vary the proportion of recharge reserved as the planned environmental water in subclause (1) after year 5 of this Plan, based on further studies of groundwater ecosystem dependency undertaken by the Minister.

**Note—**

The extent of impact of this change on access by licence holders is limited by the provisions in clause 28 (2).

- (3) The Minister should consult with the Minister for the Environment before varying the planned environmental water in accordance with subclause (2).

## **19 Planned environmental water**

At the commencement of this Plan, there is no water committed for specified environmental purposes in accordance with section 8 (1) (b) of the Act.

## **20 Adaptive environmental water**

- (1) At any time an access licence holder may, by a process determined by the Minister, commit all or part of their licence as adaptive environmental water.
- (2) The conditions of the commitment specified in subclause (1):
  - (a) are to be established by the Minister,
  - (b) are to be specified on the access licence, and
  - (c) shall be such as to ensure that there is a contribution to the objectives of this Plan.
- (3) At the commencement of this Plan there are no access licences committed to an

environmental purpose in accordance with section 8 (1) (c) of the Act.

## **Part 5 Basic landholder rights**

### **21 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 to their supply caused by extraction authorised by access licences:
  - (a) the landholder's affected water supply work (bore) may be replaced or deepened to ensure continuing access to water for basic landholder rights, or
  - (b) basic rights water may be supplied by alternative means during critical times.
- (3) 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).

#### **Note—**

The Minister may issue an order under section 328 of the Act to restrict the exercise of basic landholder rights from these groundwater sources to protect the environment, for reasons of public health, or to preserve existing basic landholder rights.

### **22 Domestic and stock rights**

#### **Note—**

It is not recommended that the water from these groundwater sources be consumed without prior treatment. Land use and other activities may have polluted the groundwater in some areas. *A study of groundwater quality in rural areas on the NSW Central Coast* by the Central Coast Public Health Unit (Murray J *et al*, 2000) found that 33% of the domestic raw groundwater samples were deemed unsuitable for drinking. The samples failed one or more of the following health related criteria: coliforms, thermotolerant coliforms, *E. coli*, copper, flouride, manganese, nitrate, nitrite and sulphate. All users are advised to contact Central Coast Health for advice on the risks associated with consuming the water from the Kulnura Mangrove Mountain Groundwater Sources.

- (1) At the commencement of this Plan the water requirements of holders of domestic and stock rights are estimated to be a total of 1,500 ML/yr, comprising:
  - (a) 0 ML/yr in Zone 1,
  - (b) 56 ML/yr in Zone 2,
  - (c) 129 ML/yr in Zone 3,
  - (d) 178 ML/yr in Zone 4,
  - (e) 149 ML/yr in Zone 5,
  - (f) 137 ML/yr in Zone 6,

(g) 406 ML/yr in Zone 7, and

(h) 445 ML/yr in Zone 8.

**Note—**

The volumes of water identified in subclause (1) are the total volumes of water estimated for domestic and stock rights in these groundwater sources. These volumes are based on a figure of 1 ML/yr for domestic purposes and 2 ML/yr for stock purposes, for each freehold property.

(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 basic landholder rights by existing landholders.

### **23 Native title rights**

(1) At the commencement of this Plan there are no holders of native title rights and therefore the water requirements for native title rights are estimated to be a total of 0 ML/yr.

(2) This Plan recognises that the exercise of native title rights may increase during the term of this Plan.

**Note—**

An increase in native title rights may occur as a result of the granting of native title rights under the Commonwealth's [Native Title Act 1993](#).

## **Part 6 Bulk access regime**

### **24 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 Part 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 Parts 9 and 10 of this Plan.

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

### **25 Estimate of water requirements**

- (1) This Part is made in accordance with section 20 (1) (c) of the Act.
- (2) At the commencement of this Plan, the requirements identified for water for extraction under access licences within these groundwater sources are estimated to be as follows:
  - (a) 0 ML/yr in Zone 1,
  - (b) 39 ML/yr in Zone 2,
  - (c) 13 ML/yr in Zone 3,
  - (d) 736 ML/yr in Zone 4,
  - (e) 14 ML/yr in Zone 5,
  - (f) 344 ML/yr in Zone 6,
  - (g) 938 ML/yr in Zone 7, and
  - (h) 694 ML/yr in Zone 8.

#### **Note—**

Subclause (2) represents the total volumes specified on access licences in these groundwater sources. It is not a commitment to supply that water.

- (3) This Plan recognises that the total requirements for water for extraction under access

licences within these groundwater sources may change during the term of this Plan as a result of:

- (a) the granting, surrender, non-renewal, or cancellation of access licences,
- (b) the variation of local water utility access licences under section 66 of the Act, or
- (c) the volumetric quantification of the share components of existing access licences that are currently non-volumetric.

## **Part 8 Rules for granting access licences**

### **26 Rules for granting access licences**

- (1) This Part is made in accordance with sections 20 (2) (b) 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) Access licences may be granted in these groundwater sources subject to any embargo on the making of applications for access licences made under Chapter 3 Part 2 Division 7 of the Act.
- (3) The Minister should declare an embargo on the making of applications for access licences in any of these groundwater sources, once the total access licence share components in the groundwater source equals the extraction limit established in clause 27.
- (4) The embargo referred to in subclause (3) should apply to applications for all access licences, other than access licences of the following kinds:
  - (a) local water utility access licences,

**Note—**

Pursuant to sections 66 (3) and 66 (4) of the Act, the Minister may vary a local water utility's licence at 5 yearly intervals, or on application of the local water utility where there is a rapid growth in population.

- (b) specific purpose access licences for which applications are provided for under the regulations in accordance with section 61 (1) (a) of the Act, or
  - (c) aquifer (Aboriginal cultural) access licences up to 10 ML/yr per application.
- (5) A new local water utility access licence should not be granted pursuant to subclause (4) (a), or the share component of an existing access licence increased under section 66 (3) and 66 (4) of the Act, unless the water utility demonstrates that demand management measures are in place.
- (6) In applying for a new access licence, the applicant must establish the purpose and circumstance relating to that access licence, and that the share and extraction



component sought will be the minimum required to meet that purpose and circumstance.

- (7) 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 licence, plus the full extraction authorised by existing access licences through 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.
- (8) If an access licence share component applied for is significant, as determined by the Minister on the basis of particular aquifer characteristics, the application will not be granted until a water supply work (bore) approval has been granted and the work constructed.
- (9) Once the water supply work (bore) is constructed and the results of a pumping test or its equivalent are supplied by the applicant, in the required form and to the specification of the Minister, the access licence may be granted.
- (10) The share component of the access licence granted under subclause (9) will be the proportion of the share component sought that the water supply work (bore) is capable of extracting without adverse local impact as outlined in Part 10 Division 3 of this Plan.
- (11) Subclauses (6), (8), (9) and (10) do not apply to a new access licence arising from:
  - (a) section 61 (1) (c), of the Act, where the right has been acquired by auction, tender or other open market process, or
  - (b) an access licence dealing.
- (12) (Repealed)

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

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

#### **27 Long-term average extraction limits**

- (1) This Division is made in accordance with section 20 (2) (a) of the Act.
- (2) The long-term average extraction limit for each groundwater source each year of this Plan is the recharge established in clause 16, minus the proportion of recharge reserved as planned environmental water established in clause 18, and is as follows:
  - (a) 0 ML/yr in Zone 1,
  - (b) 306 ML/yr in Zone 2,

- (c) 710 ML/yr in Zone 3,
- (d) 736 ML/yr in Zone 4,
- (e) 820 ML/yr in Zone 5,
- (f) 750 ML/yr in Zone 6,
- (g) 2,234 ML/yr in Zone 7, and
- (h) 2,444 ML/yr in Zone 8.

## **28 Variation of the long-term average extraction limits**

- (1) Pursuant to section 45 (1) (b) of the Act, the Minister may vary the long-term average extraction limits established under clause 27 (2) after year 5 of this Plan as a result of:
  - (a) any change to the average annual recharge arising from clause 16 (2),
  - (b) any change to the planned environmental water arising from clause 18 (2), and
  - (c) a socio-economic impact analysis of any change to the extraction limit.

### **Note—**

Any socio-economic analysis should, as a minimum, consider inter-generational issues, future timeframes and development forgone.

- (2) If there is any change to the long-term average extraction limits arising from subclause (1) then:
  - (a) the extraction limit in any groundwater source will not increase by more than 300%, and
  - (b) the extraction limit in any groundwater source will not decrease by more than 37%.

## **Division 2 Available water determinations**

### **29 Available water determinations**

- (1) This Division is made in accordance with section 20 (2) (b) of the Act.
- (2) In making an available water determination under section 59 of the Act, the Minister should consider the following rules:
  - (a) water extraction in each groundwater source, including extraction authorised by an access licence and extraction resulting from the exercise of basic landholder rights, will be monitored in each water accounting year to determine if any growth in volumes extracted is occurring above the extraction limit in clause 27, based on comparison of the extraction limit against the average extraction within the

groundwater source over that year and the preceding 2 years,

**Note—**

A water accounting year is defined in clause 34 (3).

- (b) if water that, pursuant to an access licence, is committed as adaptive environmental water to be left in the aquifer for environmental purposes, then for the purpose of subclause (a), the extraction will be assumed to be 100% of the available water determination,
- (c) if water that, pursuant to an access licence, is committed as adaptive environmental water to be extracted for environmental purposes, then for the purpose of subclause (a), the extraction will be that measured through the approved water supply work (bore),
- (d) if the 3 year average of extraction in a groundwater source exceeds the long-term average extraction limit established in clause 27 by 5% or greater, the available water determination for the following water accounting year for aquifer access licences in that groundwater source should be reduced by an amount that is assessed necessary by the Minister to return subsequent total water extraction to the long-term average extraction limit,
- (e) if the 3 year average of extraction in a groundwater source is less than 95% of the long-term average extraction limit established in clause 27, then the available water determination for aquifer access licences in that groundwater source shall be increased to such an extent as to allow extraction to increase to that extraction limit,
- (f) notwithstanding subclause (e), the available water determination shall not exceed 100% of total access licence share components,
- (g) the available water determination calculated in accordance with this clause will apply to all access licences excepting local water utility and domestic and stock access licences and will be the same percentage for all access licences to which it applies, and
- (h) separate available water determinations will be made for both local water utility and domestic and stock access licences, and subject to section 60 of the Act, this shall be 100% of these access licence share components.

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

### **Division 1 General**

#### **30 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**

### **31 Water allocation account management**

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

### **32 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 allocations 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.

### **33 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 29.

### **34 Annual accounting for water extraction**

- (1) Water taken from these groundwater sources will be accounted for at least annually.
- (2) Water taken by an approved water supply work (bore) nominated by an access licence is taken to be extracted and will be periodically debited against the access licence water allocation account.
- (3) A water accounting year shall be the 12 month period commencing 1 July.
- (4) In any one water accounting year, subject to local impact management restrictions arising from Part 10, Division 3 of this Plan, water taken from any of these groundwater sources under an aquifer access licence may not exceed a volume consisting of:
  - (a) 120% of the access licence share component,
  - (b) plus any water allocations assigned from another licence under section 71T of the Act in that year, and
  - (c) minus any water allocations assigned to another licence under section 71T of the

Act in that year.

- (5) Total water in any account at any time may not exceed a volume consisting of:
  - (a) 120% of the aquifer access licence share component,
  - (b) plus any water allocations assigned from another licence under section 71T of the Act in that year, and
  - (c) minus any water allocations assigned to another licence under section 71T of the Act in that year.
- (6) A maximum of 20% of any aquifer access licence share component may be carried forward in a water allocation account from one water allocation accounting year to the next.
- (7) Subclauses (4), (5) and (6) do not apply to domestic and stock and local water utility access licences.
- (8) For domestic and stock and local water utility access licences in any one water accounting year, subject to local impact management restrictions arising from Part 10, Division 3 of this Plan, water taken from any of these groundwater sources, and total water in any water allocation account at any time may not exceed a volume consisting of:
  - (a) 100% of the access licence share component,
  - (b) plus any water allocations assigned from another licence under section 71T of the Act in that year,
  - (c) plus any water allocations reccredited 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.
- (9) Allocations in a local water utility or domestic and stock water allocation account cannot be carried over from one water accounting year to the next.
- (10) A water allocation account shall remain at or above zero at all times.

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

### **35 Management of local impacts**

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

### **36 Extraction interference between neighbouring bores**

- (1) To minimise interference between extraction under different access licences in each groundwater source, the following rules will apply to extraction authorised by an access licence:
  - (a) extraction from a new or replacement water supply work (bore) for the extraction of basic landholder rights will not be permitted within:
    - (i) 50 metres of the property boundary, or
    - (ii) 100 metres of an approved water supply work (bore) from which basic landholder rights water may be extracted,
  - (b) extraction from a new or replacement water supply work (bore) nominated by an access licence will not be permitted within:
    - (i) 400 metres of an approved water supply work (bore) nominated by another access licence,
    - (ii) 200 metres of an approved water supply work (bore) from which basic landholder rights water may be extracted, or
    - (iii) 50 metres of the property boundary.
- (2) Notwithstanding the provisions of subclause (1), the Minister may, upon application by an access licence holder, vary the distance restrictions specified in subclause (1) if:
  - (a) an hydrogeological study undertaken by the licence holder, and assessed as adequate by the Minister, demonstrates minimal potential for adverse impact on existing licensed extraction,
  - (b) the applicant has sought written comment from the potentially affected licence holders, and submits these comments to the Minister for consideration, and
  - (c) there is a process for remediation in the event that any local impact occurs in the future, specified as conditions on the licence.

**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 impact of new groundwater extractions on existing licensed extraction.

- (3) Subclause (1) does not apply to extraction under existing access licences until such time the relevant water supply work (bore) is replaced.

**Note—**

The intention of this clause is to minimise the impact of extraction by new access licences on extraction under existing licences.

- (4) The maximum authorised extraction resulting from extraction authorised by a new access licence nominating a water supply work (bore) at a particular location, or the operation of Part 11 of this Plan, is not to exceed 200 ML/yr per square kilometre.
- (5) Pursuant to section 45 (1) (b) of the Act, the Minister may amend the maximum extraction density established in subclause (4) if change is required as a result of further studies undertaken by the Minister.
- (6) Any change to the maximum extraction density resulting from subclause (5) is to be within the range of 12 ML/yr per square kilometre to 200 ML/yr per square kilometre.

### **37 Water level management**

- (1) The Minister may declare that, in order to protect water levels within these groundwater sources, local access rules are to apply in a defined area known as a local impact area.
- (2) The following extraction restrictions shall apply to extraction from all water supply works (bores) within a local impact area declared under subclause (1) nominated by an access licence, and will be based on monitoring bores or predictive models where monitoring bores are not installed:
  - (a) when groundwater levels in an area remain above, or recover to, the 80<sup>th</sup> percentile exceedance level, extraction from water supply works (bores) nominated by an access licence in the area will be in accordance with the water supply work approval and access licence conditions, and annual available water determinations,
  - (b) when groundwater levels are between the 80<sup>th</sup> and 90<sup>th</sup> percentile exceedance levels, quarterly volumes extracted from water supply works (bores) nominated by an access licence in the affected area shall not exceed one sixth of the access licence annual available water determination,
  - (c) when groundwater levels are between the 90<sup>th</sup> and 95<sup>th</sup> percentile exceedance levels, quarterly volumes extracted from water supply works (bores) nominated by an access licence in the affected area shall not exceed one twelfth of the access licence annual available water determination,
  - (d) when groundwater levels are at or below the 95<sup>th</sup> percentile exceedance level, extraction shall cease from water supply works (bores) in the affected area nominated by an access licence,
  - (e) subclauses (a) to (c) do not apply to extraction under local water utility access licences,
  - (f) when groundwater levels in an area remain above, or recover to, the 90<sup>th</sup> percentile exceedance level, extraction from water supply works (bores)

nominated by a local water utility access licence in the area will be in accordance with the water supply work approval and access licence conditions, and annual available water determinations,

- (g) when groundwater levels are between the 90<sup>th</sup> and the 95<sup>th</sup> percentile exceedance level, quarterly volumes extracted from water supply works (bores) nominated by a local water utility access licence in the affected area shall not exceed one sixth of the access licence share component, and
- (h) when groundwater levels are at or below the 95<sup>th</sup> percentile exceedance level, quarterly volumes extracted from water supply works (bores) nominated by a local water utility access licence in the affected area shall not exceed one twelfth of the access licence share component.

**Note—**

Water supply work approval and access licence holders will be advised as soon as possible if extraction restrictions are going to apply in accordance with this clause.

**Note—**

This provision 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 of Land and Water Conservation will identify monitoring bores, and determine the method for specifying an affected area.

### **38 Water quality management**

- (1) The beneficial uses of these groundwater sources are raw water for drinking, and ecosystem protection, based on 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*.

**Note—**

It is not recommended that the water from these groundwater sources be consumed without prior treatment. Land use and other activities may have polluted the groundwater in some areas. *A study of groundwater quality in rural areas on the NSW Central Coast* by the Central Coast Public Health Unit (Murray J *et al*, 2000) found that 33% of the domestic raw groundwater samples were deemed unsuitable for drinking. The samples failed one or more of the following health related criteria: coliforms, thermotolerant coliforms, *E. coli*, copper, flouride, manganese, nitrate, nitrite and sulphate. All users are advised to contact Central Coast Health for advice on the risks associated with consuming the water from the Kulnura Mangrove Mountain Groundwater Sources.

- (2) Water quality decline will be deemed unacceptable if extraction is likely to cause water quality to decline to a lower beneficial use class, and such a determination will be based on:
  - (a) a site inspection by the Minister, and
  - (b) water analysis from bores within the groundwater source, undertaken at the expense of the relevant access licence holder.



- (3) The Minister may declare that, in order to protect water quality within these groundwater sources, local access rules are to apply in a defined area known as a local impact area.
- (4) If water quality declines are resulting from extraction, extraction from all water supply works (bores) within a local impact area declared under subclause (3) nominated by an access licence will be restricted to such an extent, and for such time, as required to halt that decline, or restore the beneficial use of these groundwater sources.
- (5) An access licence holder may apply to the Minister for an exemption to the restrictions arising from subclause (4) to allow short term (seasonal) contracts to be honoured.
- (6) An exemption under subclause (5) may only be granted if the Minister is satisfied that such an exemption will not result in further water quality decline.
- (7) Construction of a new water supply work (bore) will not be permitted:
  - (a) within 100 metres of a contamination source, unless the proponent can demonstrate to the Minister's satisfaction that a lesser distance will result in no more than minimal harm to these groundwater sources, and that extraction will not impact on the environment or cause a threat to public health as advised by the Minister for Health, or
  - (b) within a greater distance than in subclause (a) nominated by the Minister in order to ensure that no more than minimal harm will occur to these groundwater sources, and that extraction will not impact on the environment or cause a threat to public health as advised by the Minister for Health.
- (8) An existing water supply work (bore) within 100 metres of a contamination source will be able to continue extraction of groundwater at levels equivalent to 2002/03 access licence share components nominating that work, subject to any restrictions arising from subclause (4).
- (9) Extraction of groundwater from a new water supply work (bore) for any purpose except basic landholder rights, between 100 metres and 500 metres of a contamination source, will require:
  - (a) an application to the Minister by the licence holder providing evidence that no drawdown of the watertable within 100 metres of the contamination source will occur,
  - (b) the Minister to assess the application as adequate, and
  - (c) the Minister to approve the application.
- (10) Schedule 4 lists contamination sources in these groundwater sources.

- (11) Subclauses (7), (8) and (9) may be applied by the Minister in relation to contamination sources not on Schedule 4, based on the results of a site inspection or other relevant information provided to the Minister.
- (12) Pursuant to section 45 (1) (b) of the Act, the Minister may vary Schedule 4 by inclusion or deletion of a contamination source based on the results of a site inspection or other relevant information provided to the Minister.

**Note—**

Schedule 4 is only to be used in relation to the granting of access licences and water supply work (bore) approvals under the *Water Management Act 2000*.

**39 Protection of groundwater dependent ecosystems**

- (1) Extraction of groundwater from a new or replacement water supply work (bore) for any purpose, is excluded within 100 metres of:
- (a) high priority groundwater dependent ecosystems listed in Schedule 5 and shown in Appendix 4,
  - (b) culturally significant sites, being areas of high conservation value for cultural reasons, as contained in the National Parks and Wildlife Service's Cultural Sites Register, or
  - (c) any river.

**Note—**

Subclause (1) will not apply to current authorised extraction from an existing water supply work (bore) until such times as the work is replaced.

- (2) Where an applicant can demonstrate to the Minister that the distance conditions in subclause (1) cannot be met, the Minister may consider the application providing the following construction criteria can be met:
- (a) the water supply work (bore) must only draw water from an aquifer at depths greater than 40 metres from the land surface,
  - (b) the water supply work (bore) must have an impermeable seal, as specified by the Minister, constructed within the bore to isolate aquifers above 40 metres depth and to prevent water ingress, and
  - (c) the water supply work (bore) must comply with any access licence and water supply work approval conditions established to mitigate any risk to groundwater dependent ecosystems.

**Note—**

Water supply work (bore) approval conditions may include bore construction requirements, establishment of

monitoring bores between extraction bores and ecosystems, and pumping limits.

- (3) Pursuant to section 45 (1) (b) of the Act, the Minister may amend the exclusion distances in subclauses (1) and (2), based on further studies of groundwater ecosystems dependency undertaken by the Minister.
- (4) Pursuant to section 45 (1) (b) of the Act, the Minister may identify further high priority groundwater dependent ecosystems and include them in Schedule 5 and Appendix 4 after year 5 of this Plan, based on further studies of groundwater ecosystem dependency undertaken by the Minister.
- (5) The Minister should consult with the Minister for the Environment before adding further high priority groundwater dependent ecosystems to Schedule 5.

#### **40 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) within a local impact area declared under subclause (1) nominated by an access licence, to such an extent and for such time as to stabilise that subsidence or compaction.

#### **41 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 affected area.

#### **42 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 limit to be exceeded, or to dissolve a group where its members exceed their combined extraction restriction.

#### **43 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**

#### **44 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 on 27 December 2002 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, the 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 the Minister's access licence dealing principles gazetted subsequent to the commencement of this Plan, section 71Z of the Act provides for the access licence dealing rules in this Plan to prevail.

#### **45 Rules relating to constraints within a groundwater source**

- (1) This clause applies to any relevant dealings under sections 71D, 71F, and 71J of the Act, and section 71T of the Act with respect to water allocation assignments within a groundwater source.
- (2) Dealings are prohibited under this clause if:
  - (a) any of the access licences or water allocations involved are not within these groundwater sources, unless provided for in clause 49,
  - (b) the dealing results in the total access licence share components or credited water allocations authorised to be extracted through nominated works at a location exceeding 200 ML/yr per square kilometre subject to clause 36 (5) and (6),
  - (c) the dealing would result in the total extraction under access licences through nominated works in the area, plus basic landholder rights extraction, causing adverse local impact in accordance with Part 10 Division 3 of this Plan, or
  - (d) the applicant has not notified property owners adjoining the location to which the share component or water allocation is assigned.

#### **46 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, except as provided for in this clause.
- (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 27.
- (4) The volume of the share component on a licence issued under a dealing provided for in subclause (3) is to be the volume of the cancelled access licence share component.

#### **47 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.

**48 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.

**49 Rules for water allocation assignments between water sources**

- (1) This clause relates to dealings under section 71T of the Act for assignment of water allocations between water sources.
- (2) Dealings that assign water allocations between access licences in other water sources and access licences in these groundwater sources are prohibited.
- (3) 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 licence water allocation accounts in the groundwater source to which the water allocation is assigned remains below the extraction limit of that groundwater source established in clause 27,
  - (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 an adverse local impact in accordance with Part 10 Division 3 of this Plan, and
  - (c) the applicant has notified property owners adjoining the location to which the water allocation is assigned.

**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.

**50 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**

### **51 Mandatory conditions on access licences**

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

### **52 Access licences**

- (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 water taken under the access licence will be subject to the available water determinations,
  - (d) the requirement that all water taken under the access licence will be subject to any local impact management restrictions established in this Plan,
  - (e) the requirement that all water taken 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 will only be permitted 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.
- (4) A local water utility must prepare a demand management strategy to the specifications and satisfaction of the Minister before commencing to pump under the local water utility access licence.
- (5) All aquifer (Aboriginal cultural) access licences shall have mandatory conditions that only allow the taking of water by Aboriginal persons or communities for personal, domestic and communal purposes including the purposes of drinking, food preparation, washing, manufacturing traditional artefacts, watering domestic gardens,

cultural teaching, hunting, fishing, and gathering, and for recreational, cultural and ceremonial purposes.

### **53 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 for basic landholder rights extraction, 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) 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 to ascertain from the Minister whether or not there are in place any local impact restrictions before commencing to take water from these groundwater sources,
- (l) extraction under an access licence through an 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), and
- (n) 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**

### **54 Monitoring**

The monitoring of the performance indicators specified in clause 13 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 the Plan's water sharing provisions have contributed to achieving or not achieving the relevant natural resource management standards and targets in the catchment management area (as referred to in section 5 of the [Catchment Management Authorities Act 2003](#)).

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 catchment management area.

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 the water management committee, where one exists.

**Note—**

Implementation Program

In accordance with section 51 of the Act, the Minister may establish an Implementation Program that sets out the means by which the provisions of this Plan are to be achieved.

It is proposed that the Minister establish an Implementation Program for this Plan. Pursuant to section 51 (5) of the Act, the Implementation Program is to be reviewed annually by the Minister to determine whether it is effective in implementing this Plan.

The results of the review of the Implementation Program are included in the annual report for the Department.

## Part 14 Amendment of this Plan

### 55 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 16 in respect to average annual recharge,
  - (b) clause 18 in respect to planned environmental water,
  - (c) clause 28 in respect to long-term average extraction limits,
  - (d) clause 36 in respect to extraction densities,
  - (e) clause 38 in respect to contamination sources, or
  - (f) clause 39 in respect to exclusion distances and high priority groundwater dependent ecosystems.

## 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 access licence.

**contamination sources**, relates to activities that have resulted in the presence of a substance in the groundwater source at a concentration above that at which the substance is normally present, and at a level that presents a risk of harm to human health or reduces the beneficial use of a groundwater source.

**Note—**

Contamination sources can arise from a range of industrial and other land based activities. The impact of some activities will be temporary, while others pose a risk over a much longer timeframe. In some instances, particularly when the land use has involved hazardous substances, the source may be threatening to humans, or may affect the current or future beneficial uses of the groundwater source. Determining in any particular case whether or not contamination presents a significant risk of harm can be complex and difficult. It involves considerations such as the type, nature, quantity and concentration of contaminants, how they manifest themselves and the nature of their impact in the particular groundwater source. It also involves broader questions such as the current use of the groundwater source, who might be exposed to the contamination under that use, and whether they would be exposed.

**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.

**exceedance level** means the level that, under natural conditions, the water level at a monitoring point would have been higher than for a specified percentage of the time. Natural in this context means the levels established by monitoring bores not appreciably impacted by extraction.

**extraction limit** is the amount of the long-term average annual recharge and storage that can be extracted, on average, each water accounting year.

**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.

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

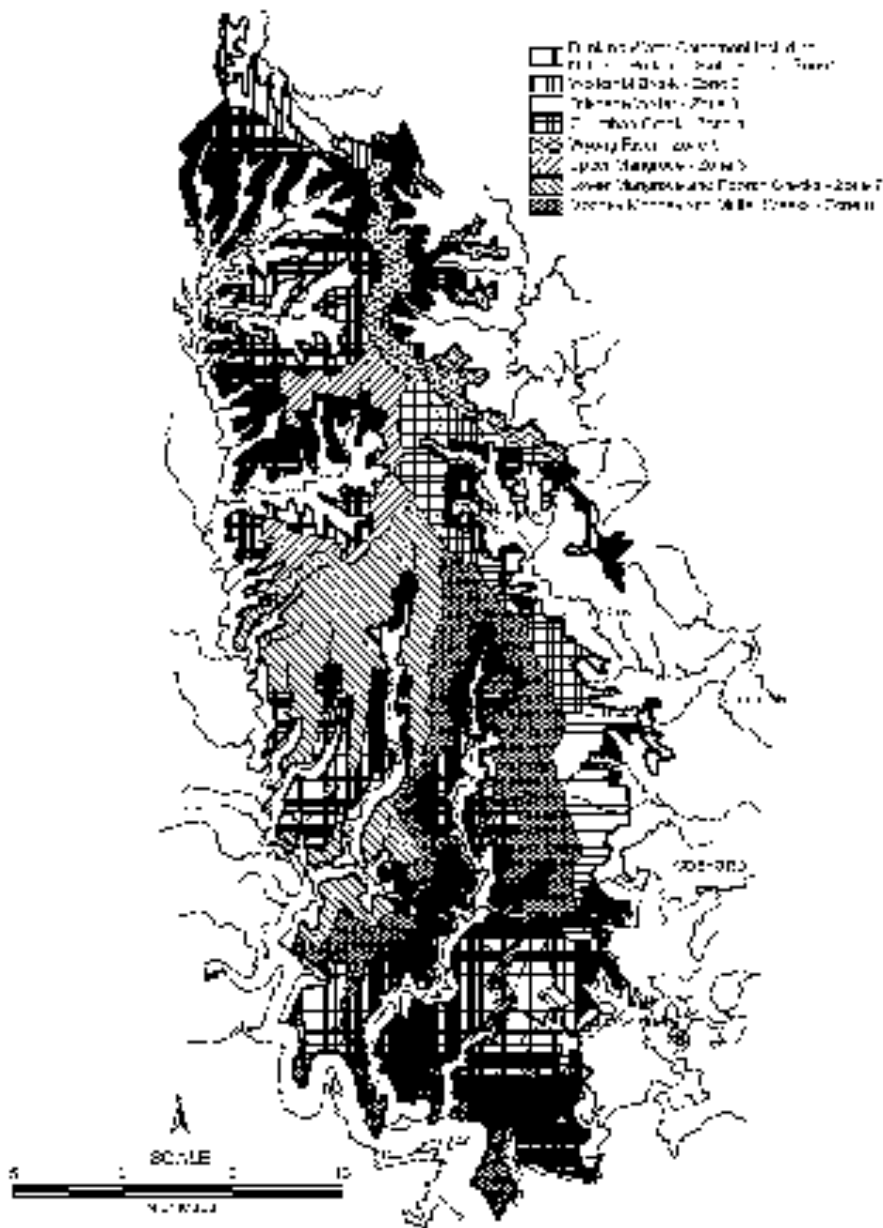
**recharge** is the addition of water, usually by infiltration, to an aquifer.

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

**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.

**watertable** is the upper surface of an unconfined aquifer.

## Schedule 2 Kulnura Mangrove Mountain Groundwater Sources



## Schedule 3 Contribution to relevant targets in the December 2002 State Water Management Outcomes Plan

### Levels of assessed contribution:

FULL—contributes to target in full

HIGH—while not fully contributing to target, there is a good level of contribution

PARTIAL—goes some way to contributing to the target

LOW—only small degree of contribution to target

Relevant target	Level of contribution	Comments
<p><b>Target 1e</b> The long term average annual extractions for groundwater limited (or being phased down) to an ecologically sustainable level (the Sustainable Yield) as determined by detailed assessment of each groundwater source and consultation with the relevant management committee. In the absence of such an assessment, the following to apply: 100 percent of average annual recharge for a groundwater source where there is no significant ecosystem dependency; 70 percent of average annual recharge where there is significant ecosystem dependency</p>	FULL	<ul style="list-style-type: none"> <li>• This Plan clearly sets out the Sustainable Yield (SY) as a percentage of estimated recharge in each groundwater source.</li> <li>• This Plan provides for a review of SY by year 6 and allows for the extraction limit to be varied accordingly.</li> </ul>
<p><b>Target 1f</b> Rules for adjustments to future available water determinations in the event that the extraction limits are exceeded, clearly prescribed in consultation with the relevant management committee, and acted upon</p>	FULL	<ul style="list-style-type: none"> <li>• Rules set out in Part 9 of this Plan.</li> <li>• This Plan sets out planned environmental water as a percentage of estimated recharge distributed in each groundwater source.</li> </ul>
<p><b>Target 2</b> All management plans incorporating mechanisms to protect and restore aquatic habitats, and the diversity and abundance of native animals and plants, with particular reference to threatened species, populations and communities and key threatening processes</p>	HIGH	<ul style="list-style-type: none"> <li>• This Plan sets out extraction rules/distances to limit the local environmental impact of extraction.</li> <li>• Part 10 of this Plan identifies high priority groundwater dependent ecosystems with rules to protect them.</li> <li>• This Plan provides for variation in planned environmental water/local extraction rules in years 6–10, based on studies relating to environmental requirements.</li> </ul>

<p><b>Target 5</b> Access rights for water access licensees clearly and legally specified in terms of share and extraction components</p>	<p>HIGH</p>	<ul style="list-style-type: none"> <li>• This Plan establishes transparent extraction limits and allocation rules.</li> <li>• This Plan provides for new entitlements to be granted only where entitlements within any of these groundwater sources are less than the extraction limit for the particular groundwater source and therefore will not impact on the value of existing access licences.</li> <li>• The nature of the local extraction rules set out in Part 10 of this Plan, means that future access rights will not be exclusive but affected by location of other works, and licences with existing bores will have priority over licences requiring new bores.</li> </ul>
<p><b>Target 6a</b> For groundwater sources, the total volume of water specified on access licences reduced over the term of a water sharing plan to no more than 125 percent of the Sustainable Yield</p>	<p>FULL</p>	<ul style="list-style-type: none"> <li>• The total access licence share components for each groundwater source is less than 125% of SY.</li> <li>• This Plan makes no special provision for access to water for Aboriginal communities.</li> </ul>
<p><b>Target 7</b> Mechanisms in place to enable Aboriginal communities to gain an increased share of the benefits of the water economy</p>	<p>HIGH</p>	<ul style="list-style-type: none"> <li>• This Plan provides general market opportunity.</li> <li>• This Plan allows for applications for new access licences but gives no priority of access.</li> <li>• The Government has established alternative mechanisms to address this target.</li> </ul>
<p><b>Target 10</b> Degree of connectivity between aquifers and rivers assessed, and zones of high connectivity mapped to enable baseflows to the river to be maintained or improved</p>	<p>HIGH</p>	<ul style="list-style-type: none"> <li>• Baseflows to surface rivers (eg Ourimbah Creek) are recognised through extraction limits (Part 9 of this Plan).</li> <li>• This Plan provides for review of the extraction limit in year 6.</li> </ul>

<p><b>Target 11</b> Groundwater dependent ecosystems identified and mapped for all priority aquifers, and the ecological water requirements assessed to enable local groundwater extraction rates and/or Sustainable Yields to be reviewed</p>	<p>HIGH</p>	<ul style="list-style-type: none"> <li>• Types of dependent ecosystems have been mapped, but ecological water requirements are not known.</li> <li>• Part 10 of this Plan sets out extraction rules/ distances to limit local environmental impact of extraction on ecosystems.</li> <li>• This Plan identifies high priority groundwater dependent ecosystems with rules to protect them.</li> <li>• This Plan provides for variation in planned environmental water/local extraction rules in years 6–10, based on studies relating to environmental requirements.</li> </ul>
<p><b>Target 12</b> Measures in place in all water sources subject to a gazetted water sharing plan to protect domestic and stock rights from the impact of other water access and use</p>	<p>FULL</p>	<ul style="list-style-type: none"> <li>• This Plan identifies the volumes necessary to meet basic domestic and stock requirements.</li> <li>• Part 5 of this Plan sets aside volumes for basic domestic and stock requirements in each groundwater source.</li> <li>• Local management rules protect basic rights extractions (Part 10 of this Plan).</li> </ul>
<p><b>Target 13</b> The knowledge sharing, training and resources necessary to ensure that Aboriginal people have the capacity to be effectively involved in water management identified and addressed</p>	<p>HIGH</p>	<ul style="list-style-type: none"> <li>• Aboriginal community representatives have been involved in developing this Plan.</li> <li>• A workshop was held with members of the Local Aboriginal Land Council to input ideas into development of this Plan.</li> </ul>
<p><b>Target 14</b> Water sources, ecosystems and sites of cultural or traditional importance to Aboriginal people identified, plans of management prepared, and measures put in place to protect and improve them</p>	<p>HIGH</p>	<ul style="list-style-type: none"> <li>• This Plan does not address specific Aboriginal cultural or traditional requirements but has identified a specific Aboriginal objective at Part 2 and dependent ecosystems of particular importance.</li> <li>• This Plan does provide extraction limits and buffers to protect high priority dependent ecosystems that should assist in protecting Aboriginal values.</li> <li>• Part 10 of this Plan provides local management rules that should assist in protecting Aboriginal values.</li> </ul>
<p><b>Target 16a</b> All share components of access licences tradeable</p>	<p>FULL</p>	<ul style="list-style-type: none"> <li>• Part 11 of this Plan provides for dealings with access licences.</li> </ul>

<p><b>Target 16c</b> Conversion factors and protocols established to facilitate trading and dealings between water sources, whilst also protecting existing access and environmental water</p>		<ul style="list-style-type: none"> <li>• This Plan does not allow trading out of these groundwater sources, but allows trading between the groundwater sources within the Plan area, subject to extraction limits.</li> </ul>
<p><b>Target 16d</b> Reduced conversion factors only applied when necessary to offset increased losses associated with water supply delivery</p>	FULL	<ul style="list-style-type: none"> <li>• This Plan does not impose any reduction factors.</li> <li>• Part 9 of this Plan provides for the granting of new access licences up to the extraction limit within each groundwater source.</li> </ul>
<p><b>Target 16e</b> Any unassigned access rights identified and clear mechanisms established for their future assignment</p>	FULL	<ul style="list-style-type: none"> <li>• The rules for granting of new access licences are set out in Part 9 of this Plan.</li> </ul>
<p><b>Target 16f</b> Zones established where necessary for environmental protection and limits/constraints on water dealings in them made explicit</p>	FULL	<ul style="list-style-type: none"> <li>• This Plan establishes 8 individual groundwater sources and the constraints to trading between them is based on access licence share component levels versus extraction limits for each groundwater source.</li> </ul>
<p><b>Target 35</b> All management plans incorporating water quality objectives that have considered Government approved Interim Environmental Objectives, the current Australian and New Zealand Environment and Conservation Council Guidelines and the recommendations of relevant Healthy Rivers Commission Inquiries</p>	HIGH	<ul style="list-style-type: none"> <li>• This Plan includes a general water quality objective.</li> <li>• This Plan recognises the beneficial uses as raw water for drinking and ecosystem protection.</li> <li>• Local management rules under Part 10 of this Plan specifically address water quality.</li> </ul>
<p><b>Target 38</b> Aquifer water quality vulnerability zones mapped and extraction limits reviewed to reduce the risk of lateral intrusion of poor quality water</p>	HIGH	<ul style="list-style-type: none"> <li>• Vulnerability mapping of some of the area (Hawkesbury) is available and extraction limits in this Plan recognise these risks..</li> <li>• Local impact management rules in Part 10 provide mechanisms to manage the lateral movement of poor quality water.</li> </ul>

## Schedule 4 List of contamination sources

Contamination sources in the Kulnura Mangrove Mountain Groundwater Sources are:

- (a) NSW Agriculture Chicken Disposal Pits (related to Newcastle Disease) located at Waratah Road, Bloodtree Road and Hymix Quarry site,
- (b) waste/landfill sites including Woy Woy landfill and Mangrove Mountain landfill,
- (c) Somersby industrial area,



- (d) septic tanks, and
- (e) on-farm disposal pits.

**Note—**

The contamination sources listed in this Schedule may change during the period of this Plan. The District Office of the Department of Land and Water Conservation, shown in Appendix 2, should be contacted for a current list.

## **Schedule 5 List of high priority groundwater dependent ecosystems**

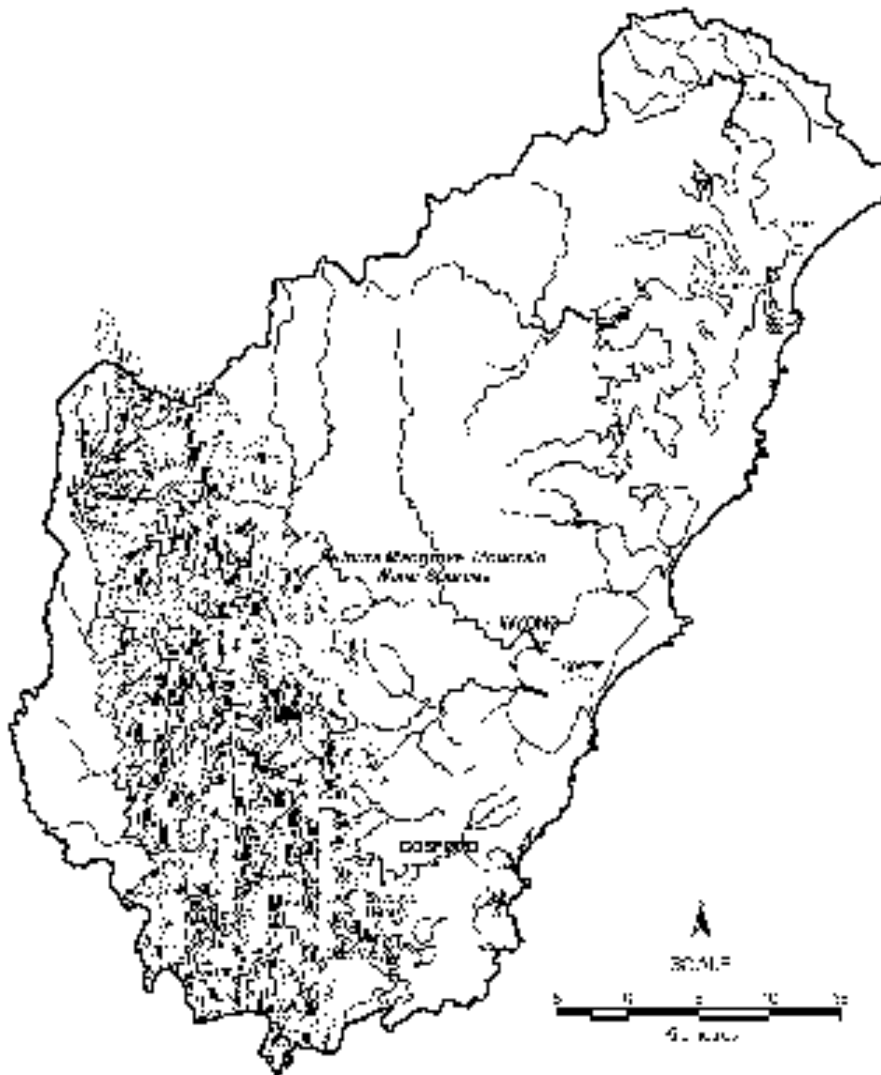
High priority groundwater dependent ecosystems in the Kulnura Mangrove Mountain Groundwater Sources are:

- (a) Sheltered Rough Barked Apple Forest,
- (b) Hawkesbury Coastal Banksia Woodland,
- (c) Sandstone Hanging Swamps and Heaths,
- (d) Coastal Sand Wallum Woodland—Heath,
- (e) Popran Creek Wetland,
- (f) Mangrove Creek Wetland, and
- (g) Mooney Mooney Creek Wetland.

**Note—**

The high priority groundwater dependant ecosystems listed in this Schedule may change during the period of this Plan. The District Office of the Department of Land and Water Conservation, shown in Appendix 2, should be contacted for a current list.

## Appendix 1 Central Coast Water Management Area



## Appendix 2 Location of maps

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

Regional Office  
Department of Land and Water Conservation  
464 King Street  
NEWCASTLE NSW 2302

District Office  
Department of Land and Water Conservation  
40 Mann Street  
GOSFORD NSW 2280

## Appendix 3 Performance indicators

### Performance indicators for the Kulnura Mangrove Mountain Groundwater Sources Water Sharing Plan

Performance indicator	Related objective	As measured by	Comments
(a) Change in groundwater extraction relative to the extraction limit.	All	<ul style="list-style-type: none"> <li>Average annual extraction volume for the groundwater source as a percentage of the extraction limit (commonly known as the sustainable yield).</li> </ul>	<ul style="list-style-type: none"> <li>Plan provisions set the mechanism to remain within the extraction limits of each groundwater source over the long-term.</li> </ul>
(b) Change in climate adjusted groundwater levels.	11 (a) 11 (b) 11 (c) 11 (d)	<ul style="list-style-type: none"> <li>Average annual frequency and duration (in days) of water level drawdown below pre-plan baseline.</li> <li>Density of extraction in critical areas.</li> </ul>	<ul style="list-style-type: none"> <li>Water levels will fluctuate with climate and resultant variable recharge. Some level declines will be expected during dry times, just as level rises are expected during wetter periods.</li> </ul>
(c) Change in water levels adjacent to identified high priority groundwater dependent ecosystems.	11 (a) 11 (b) 11 (c) 11 (i)	<ul style="list-style-type: none"> <li>Identification of groundwater dependent ecosystems (GDEs).</li> <li>Assessment of the adequacy of buffer zones or local impact restrictions by comparison of water levels near in or GDEs compared to plan baseline.</li> </ul>	<ul style="list-style-type: none"> <li>High priority groundwater dependent ecosystems are identified in Schedule 5 of this plan.</li> </ul>
(d) Change in groundwater quality.	11 (e) 11 (h)	<ul style="list-style-type: none"> <li>Trends in selected water quality parameters at selected monitoring bores that are likely to be affected by groundwater extraction.</li> </ul>	<ul style="list-style-type: none"> <li>Many water quality issues are a function of contamination by land based activities, rather than extraction.</li> </ul>
(e) Change in economic benefits derived from groundwater extraction and use.	11 (d) 11 (e) 11 (f) 11 (g)	<ul style="list-style-type: none"> <li>Change in regional gross margins.</li> <li>Change in unit price of water transferred.</li> </ul>	<ul style="list-style-type: none"> <li>There are many factors affecting economic status of a region, for example commodity prices, other sources of water (ie surface water) etc.</li> <li>Assessment undertaken as part of plan performance monitoring will make assumptions to attempt to identify the impact of this Plan's provisions.</li> </ul>

(f) Extent to which domestic and stock rights requirements have been met.	11 (e) 11 (h)	<ul style="list-style-type: none"> <li>• Monitor increase in applications for water supply work (bore) approvals.</li> <li>• Number of reports of interference between high yield extraction and basic rights, or number or domestic and stock bores deepened.</li> <li>• Assess frequency and duration of water level drawdown below critical thresholds.</li> </ul>	<ul style="list-style-type: none"> <li>• Basic rights usage figures in this Plan are estimated (not actual use).</li> </ul>
(g) Extent to which local water utility requirements have been met.	11 (e)	<ul style="list-style-type: none"> <li>• Monitor increase in access by local water utilities.</li> <li>• Monitor impact of interference between high yield extraction and local water utility extraction.</li> </ul>	
(h) Extent to which native title rights requirements have been met.	11 (i)	<ul style="list-style-type: none"> <li>• Monitor increase in applications for water supply work (bore) approvals for native title basic rights.</li> <li>• Number of reports of interference between high yield extraction and native title rights holders, or number of bores deepened.</li> <li>• Assess frequency and duration of water level drawdown below critical thresholds.</li> </ul>	
(i) Extent of recognition of spiritual, social and customary values of groundwater to Aboriginal people.	11 (i)	<ul style="list-style-type: none"> <li>• Assessment of amount and type of information collected to identify the range of values of water to Aboriginal people.</li> </ul>	<ul style="list-style-type: none"> <li>• The collection of information on the values associated with water is considered the first step in addressing the objects of the Act.</li> <li>• It would be expected that at the end of 5 years there should be relevant information collected for these groundwater sources, as a minimum requirement.</li> </ul>

## Appendix 4 Map of high priority groundwater dependent ecosystems



## Appendix 5 (Repealed)