



Gloucester Shire Council

# Water Efficient Housing

Development Control Plan

December 2003

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## **1.0 Introduction**

The value of water is immeasurable but it is often something taken for granted. With increasing domestic, agricultural and industrial demand for water, careful management of this precious natural resource is a necessity. Gloucester Shire Council is committed to improving water supply and the sustainable use of water within the Shire.

Water efficiency involves both reducing the use of expensive and scarce potable water as well as controlling and using rainwater and waste water from the site. This Development Control Plan (DCP) focuses on the sustainable use and management of domestic water.

Many water efficiency measures are very cost effective especially since there is increasing legislative pressures for 'user pays' systems. It is usually more costly to fit water controls after a dwelling is built, so they should be incorporated in each new development or when major alterations or additions are being carried out.

The use of rainwater tanks is a key component of this DCP. Rainwater tanks can be utilised to supplement reticulated supply, save money on water bills, can be designed to reduce the impacts of stormwater and can assist households to sustainably use water during periods of drought and water supply/quality problems. In the past the installation of rainwater tanks was only seen as a necessity in rural areas of the Gloucester Shire where a reticulated supply was not available. In the urban areas of Gloucester and Barrington where reticulated water is supplied, the installation of a rainwater tank has often been overlooked.

This DCP has been developed to implement a number of requirements on new housing developments to incorporate water efficiency.

### **1.1 Objectives**

The objectives of this water efficient housing DCP are to:-

- Use potable water in an efficient and sustainable way.
- Reduce stormwater runoff.
- Reduce demand on downstream drainage infrastructure.
- Reduce pollutants in rivers and groundwaters.
- Reduce sewer overflows during periods of wet weather.
- Operational savings for the home owner.
- Improve viability of aquatic ecosystems.
- Reduce the impact of storm water on waste disposal systems.

Key components of this DCP aimed to improve water efficiency and to achieve the objectives listed above include:

- The installation of rainwater tanks for all new dwellings and major alterations/additions to existing dwellings.
- The use of water efficient appliances and fittings.
- Reduction of hardstand surfaces.
- On-site detention.
- Water efficient landscaping.

By implementing all or a combination of the above measures for new developments and encouraging existing housing to 'upgrade', housing within the Shire of Gloucester can be more water efficient.

## **1.2 Where and to What Does the DCP Apply?**

This DCP applies to all land in the Gloucester Local Government Area that is able to be serviced by a reticulated water supply and where a house/dwelling and/or unit development is permitted under the *Gloucester Local Environment Plan 2000* and is approved by Council.

Any property that is not serviced by a reticulated water supply is encouraged to comply with this DCP.

Under section 79C of the *Environmental Planning and Assessment Act 1979*, the contents of this DCP must be considered by Council (or other consent authority) when determining development applications.

## **1.3 Variations to the DCP**

Any application to vary any of the provisions of this DCP must be in writing and clearly demonstrate that the application meets the objectives of the DCP or that the DCP is unreasonable in the specific circumstance of the proposed development.

## **1.4 Definitions**

**DCV** is a dual check valve used for backflow prevention in accordance with the requirements of Australian Standard 3500 and the NSW Code of Plumbing Practice.

**Dual Occupancy** is development consisting of two (2) dwellings (whether attached or detached) on a single allotment of land.

**Hardstand Areas** are areas including the building foot print, garages, awnings, carports, out buildings, and non-porous driveways, paths and courts.

**Major Alteration and Addition** are defined as being additions and alterations that exceed 50% of the existing buildings floor area.

**RPZ** is a reduced pressure zone device designed for backflow prevention in accordance with AS3500 and the NSW Code of Plumbing Practice.

## 2.0 Water Efficiency Requirements

All new single dwellings, major alterations/additions to existing dwellings, villas or town houses and urban housing developments that are able to be serviced by reticulated water are required to:

- Install a rainwater tank that is used for internal toilet flushing and laundry use as well as external use such as watering gardens and washing cars.

Or

- Install a rainwater tank for external uses (minimum 5000L) and demonstrate that there is a minimal hardstand area and submit a plan illustrating water efficient landscaping.

Requirements for all Single dwellings, major alterations/additions, villas or town houses, and urban housing developments that are able to be serviced by reticulated water:

- All new and replacement toilets to be dual flush (half flush = 3 litres, full flush = 6 litres).
- AAA flow regulators fitted to bathroom basins, kitchen sinks and laundry tubs.
- New or replacement bathroom or kitchen taps, showerheads, toilet cisterns and dishwashers are minimum AAA rated.
- AAA rated fixtures to achieve:
  - Shower heads – 9 litres or less per minute.
  - Basins – 9 litres or less per minute.
  - Kitchen sinks – 9 litres or less per minute

## 3.0 Performance Criteria for Water Efficiency

### 3.1 Rainwater Tanks

The installation of rainwater tanks is to meet the following design criteria:

- Tanks are required to be installed and maintained for new residential developments and major additions in urban and rural areas.
- Tank stands shall have a maximum height of 450mm above ground. Area below shall not be enclosed or used for storage.
- Maximum installed height above ground level of 1.8 metres, including any stand if less than 900mm from side boundary, otherwise maximum height is 3 metres.
- All tanks and associated structures, including stands shall be installed in accordance with manufacturer's/designer's specifications.
- Tank stands shall not rest on footing of building or rely upon wall for support.
- Design of the rainwater tank should make provision for:
  - a minimum storage volume – 20% - (to ensure that water supply is always available).
  - a rainwater storage volume, and
  - an air space for additional stormwater management.
- Any required pump is to be enclosed in a noise attenuating enclosure and shall not create a noise problem.
- All tanks to have a fixed sign stating “Rainwater”
- All tanks are to direct overflow to the stormwater reticulation system. In urban areas the

reticulation being the street or interallotment drainage and in rural areas, where the stormwater reticulation is not available, a rubble drain equal to 3m cubed prior to disposal in the natural water drainage.

- Tanks are required to be maintained to prevent mosquito breeding.
- The tank must be fully enclosed and be designed to prevent children entering the tank either wilfully or accidentally.

#### *Rainwater tanks (internally plumbed) - Additional requirements*

- All tanks are required to be installed in accordance with AS/NZS 3500.
- The tank must have a minimum capacity of 5,000 litres for all developments other than villas or townhouses (1 per dwelling) where the tank must have a minimum capacity of 2,500 litres.
- The tank must be fitted with a 'first flush' diversion to remove surface contamination and a facility for periodic de-sludging.
- The tank must have sufficient capacity and be connected so as to supplement water for the following services on the site:
  - toilet flushing;
  - laundry;
  - garden irrigation and external washing (cars, paved areas, etc).
- An approved backflow prevention device shall be installed by a licensed plumber in accordance with AS/NZS 3500 as follows:
  - Tank installations, which include gravity reticulation to provide an alternative water supply for internal services (e.g. toilet flushing and laundry uses) with town water top-up require that the water meter servicing the property incorporates integral dual check valves (DCV).The tank must have an 'air space' top-up facility at less than 9 litres per minute.
  - Tank installations involving the connection of a booster pump will require the installation of an approved, and testable, Reduced Pressure Zone (or RPZ) device.
- Supplemental inflow should not take place until tank is at least 80% empty. This allows for the tank to buffer stormwater flows to local drainage. If the volume of the stored water falls below 20% capacity, the shortfall can be overcome by topping up the tank with mains water to the required level. A simple float valve system can be installed to do this automatically.
- All rainwater tanks internally plumbed shall be registered with Council.

### **3.1.1 Health Issues Associated with Rainwater Use**

There is no water quality guideline existing for non-consumption uses of rainwater (roof) collected in a water tank. If the collected water is only to be used for garden irrigation, laundry and toilet flushing, tank maintenance regimes (eg. Mesh screens to prevent debris and mosquitoes entering tank, a first flush device, cleaning of gutters regularly etc.)should still be employed to ensure the quality of water.

NSW Health advises that the use of rainwater tanks for drinking purposes is not recommended where a reticulated potable water supply is available.

**Note:** Rainwater that is used for drinking purposes should not be collected from roofs coated with lead or bitumen based paints, or from asbestos cement roofs. Roofs constructed from galvanised

iron, Colourbond, Zinalume, slate, concrete or ceramic tiles provide acceptable water quality. Special roof guttering is not required for rainwater collection. Normal guttering is sufficient provided that it is kept clear of leaves and debris.

Further Reading: NSW Health – “Rainwater Tanks” brochure – available at:  
[www.hprb.health.nsw.gov.au/public-health/ehb/water/rainwater.html](http://www.hprb.health.nsw.gov.au/public-health/ehb/water/rainwater.html)

### **3.2 Hardstand**

Hardstand areas:

- Hardstand areas shall be limited to a maximum of 65% of the lot area; and
- Hardstand areas within the front setback shall not exceed 40% of the setback area.

Porous concrete or plastic modular pavers placed on a sand base are recommended for car parks, car wash area, driveways, paths and courtyards. Such materials will not be included in the calculation of hardstand area for the lot.

### **3.3 Water Efficient Landscaping**

- Landscaping should be based on plants indigenous to the locality of the dwelling. This will minimise requirements for water, energy, fertilisers and herbicides. This includes the use of native plants and grasses. The landscaping should seek to capture runoff through the use of depressions, swales, rock channels, ridges, sub-surface reed beds or similar.
- Where practical, low-lying areas suitable for treatment ponds or wetlands can be used as a focal point in the site design.

This DCP requires that the following additional Water Efficient Landscaping matters be included in the Landscaping Plan:

- Low water use plant species (see Appendix 1 for local species list).
- Hydrozoning, or grouping species of similar water needs together.
- Efficient use of lawn areas.
- Use of mulch.
- Landscaping designed to maximise capture of rainfall and prevent runoff.
- Deciduous trees to control solar access in summer and winter.

## 4.0 References

Coombes, P. Kuczera, G. (2001), *Rainwater Tank Design for Water Supply and Stormwater Management*, University of Newcastle, Newcastle.

Hastings Council (2003), *Energy Efficient Water Wis Residential Buildings ;Development Control Plan No. 48*, Hastings Council, Port Macquarie.

Lower Hunter and Central Coast Regional Environmental Management Strategy (LHCCREMS) (2002), *Rainwater tanks: Practice Note 4*, (LHCCREMS) Hunter Regional Organisation of Councils.

NSW Health (2002), *Rainwater Tanks* (brochure), NSW Health.

Singleton Shire Council (2001) *Stormwater Management: Residential and Commercial*, Singleton Shire Council, Singleton.

## 5.0 Appendices

### 5.1 APPENDIX 1; Water Efficient Landscaping - List of Suitable Local Species

Common Name	Botanical Name
Cedar Wattle	<i>Acacia elata</i>
Lilly Pilly	<i>Acmena smithii</i>
Heath Banksia	<i>Banksia ericifolia</i>
Coast Banksia	<i>Banksia integrifolia</i>
Illawarra Flame Tree	<i>Brachychyton acerifolium</i>
Crimson Bottlebrush	<i>Callistemon citrinus</i>
Willow Bottlebrush	<i>Callistemon salignus</i>
Weeping Bottlebrush	<i>Callistemon viminalis</i>
Port Jackson Pine	<i>Callitris rhomboidea</i>
NSW Christmas Bush	<i>Ceratopetalum gummiferum</i>
Tuckeroo	<i>Cupaniopsis anacardioides</i>
Blueberry Ash	<i>Elaeocarpus reticulatus</i>
Iron bark	<i>Eucalyptus leucoxydon</i>
Narrow Leafed Peppermint	<i>Eucalyptus nicholii</i>
Peppermint Gum	<i>Eucalyptus scoparia</i>
Native Frangipanni	<i>Hymenosperum flavum</i>
Coastal Tea Tree	<i>Leptospermum laevigatum</i>
Paperbark Spp.	<i>Melaleuca alternifolia</i>
"	<i>Melaleuca armillaris</i>
"	<i>Melaleuca biconvexa</i>
"	<i>Melaleuca bracteata</i>
"	<i>Melaleuca decora</i>
"	<i>Melaleuca groveana</i>
"	<i>Melaleuca linariifolia</i>
"	<i>Melaleuca nodosa</i>
"	<i>Melaleuca quinquenervia</i>
"	<i>Melaleuca sieberi</i>
"	<i>Melaleuca squamea</i>
"	<i>Melaleuca styphelioides</i>
"	<i>Melaleuca tamariscina</i>
"	<i>Melaleuca thymifolia</i>
"	<i>Melaleuca thymifolia</i>
"	<i>Melaleuca toritfolia</i>
Lomandra Spp.	<i>Lomandra brevis</i>
"	<i>Lomandra confertifolia</i>
"	<i>Lomandra elongata</i>
"	<i>Lomandra filiformis</i>
"	<i>Lomandra fluviatilis</i>
"	<i>Lomandra glauca</i>
"	<i>Lomandra gracilis</i>

“	<i>Lomandra hystrix</i>
“	<i>Lomandra laxa</i>
“	<i>Lomandra leucocephala</i>
“	<i>Lomandra longifolia</i>
“	<i>Lomandra montana</i>
“	<i>Lomandra multiflora</i>
“	<i>Lomandra obliqua</i>
“	<i>Lomandra spicata</i>
Pittosporum Spp.	<i>Pittosporum oreillyanum</i>
“	<i>Pittosporum revolutum</i>
“	<i>Pittosporum rhombifolium</i>
“	<i>Pittosporum undulatum</i>
Brown Pine	<i>Podocarpus elatus</i>
Lilly Pilly	<i>Syzygium luehmannii</i>
Bangalow Palm	<i>Archontophoenix cunninghamiana</i>
Cabbage Palm	<i>Livistonia australis</i>

Source: Brown, D.M., Hines, H.B., Ferrier, S. and McKay, K. *Establishment of a biological information base for regional conservation planning in north-east New South Wales 1991-1995*. Occasional Paper 26. NSW National Parks and Wildlife Service, June 2000.