Government of Western Australia
Department of Water

Looking after all our water needs

Water sensitive urban design

Dry or ephemeral detention areas

Summary

Dry or ephemeral detention areas are depressions that temporarily hold stormwater and release it at a slower rate than it comes in. They reduce flow velocities and so help prevent downstream erosion. They also reduce downstream flow rates. Dry or ephemeral detention areas improve stormwater quality primarily by allowing sedimentation of particle based contaminants. They are termed 'dry or ephemeral' as their lowest point is located above the maximum groundwater level. They drain after each storm event to provide the full storage volume for the next one.

This brochure is part of a series that explain various aspects of water sensitive urban design. Please see *Water sensitive urban design in Western Australia* for background information on water sensitive urban design.

Main benefits

- Dry or ephemeral detention areas reduce flow velocities to reduce pre-development flow rates.
- They help to reduce the risk of flooding.
- They can be integrated into public open space.
- Effective at removing particle based contaminants and sediment, but less effective for soluble pollutants.

Design factors

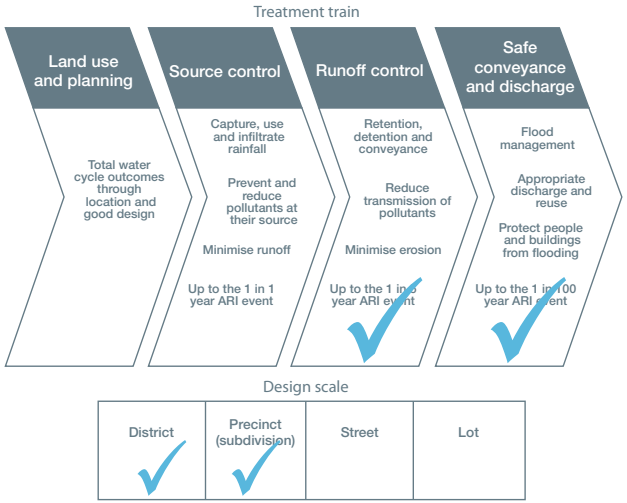
- The lowest point should be at least 300mm above maximum or controlled groundwater level.
- Access will be required for removal of collected sediments.
- Ensure they are integrated with the landscape design of public open space.
- The appropriate hydraulic residence time is an essential part of the design.
- Design for infiltration losses, depending on soil type.
- Consider the need to manage acid sulfate soils as part of the design and construction.
- Prevent mosquito breeding by correct design – no water ponding after 96 hours between November and May in the south-west of Western Australia and throughout the year in the north.

Target pollutants

- litter
- coarse sediment
- suspended solids

Koombana Cove, Bunbury

Where they can be used in the water sensitive urban design process



Park and detention basin, Bridgewater South, City of Mandurah

Shallow linear basin, Placid Waters, City of Mandurah

Cowaramup Village, Cowaramup

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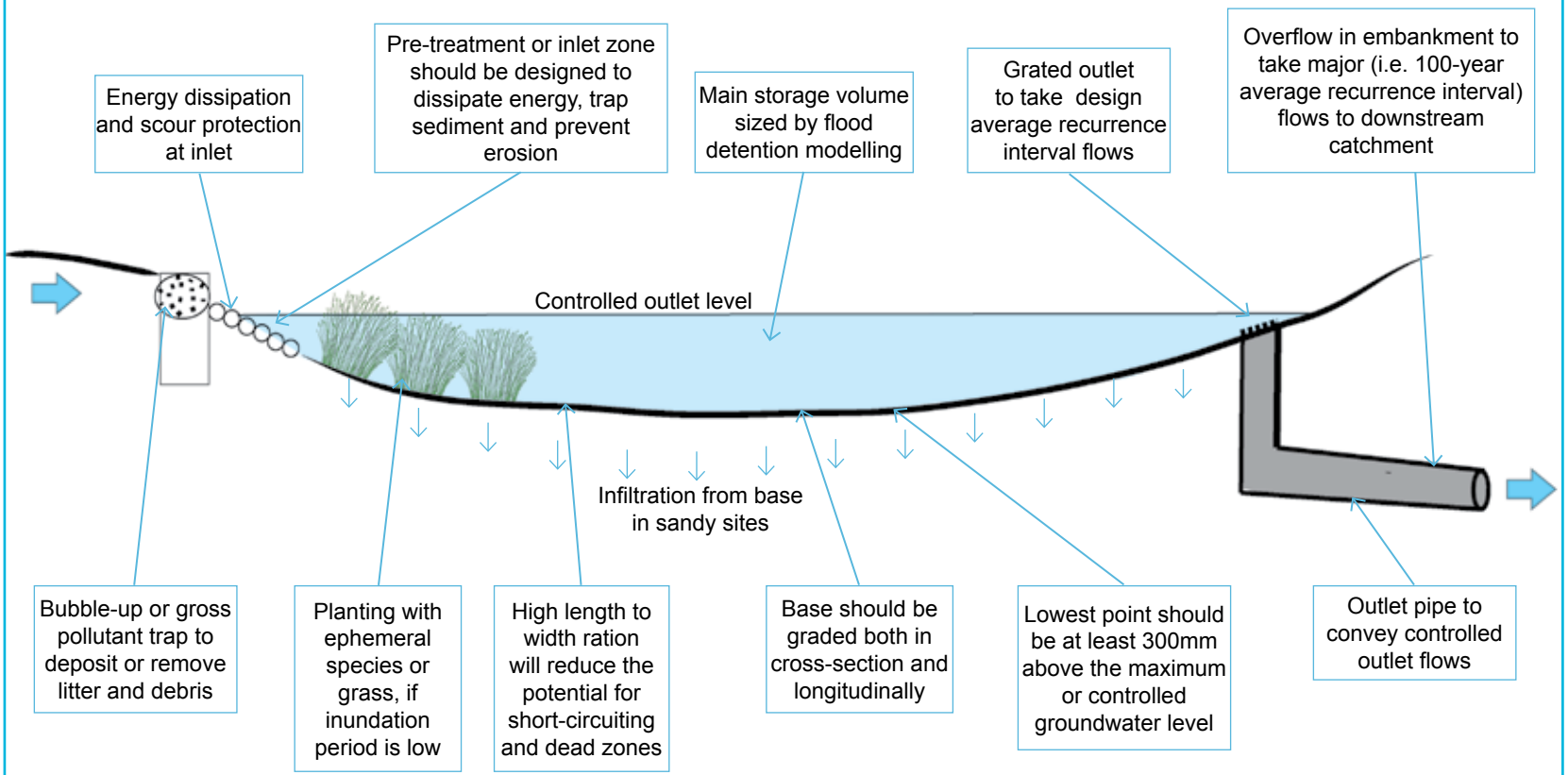
Example of a dry or ephemeral detention area



(Adapted from: Thompson McRobert Edgeloe Group 2008)

Required reading

Australian runoff quality: a guide to water sensitive urban design, 2006, Engineers Australia, available at <www.arq.org.au>.

Stormwater management manual for Western Australia, 2004–07, Department of Water, available at <www.water.wa.gov.au>. See Section 5.1 of Chapter 9 – Structural controls.

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Department of **Water**
168 St Georges Terrace
Perth Western Australia
PO Box K822 Perth
Western Australia 6842
Ph: 08 6364 7600 • Fax: 08 6364 7601
www.water.wa.gov.au

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