

Local Planning Policy

Water Sensitive Urban Design

Prepared by Planning and Sustainability Services
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Background

Most of the developed and developable areas of the Shire of Murray are situated in areas of high hydrological constraint, be it high groundwater, seasonal inundation or part of the internationally recognised Peel Harvey catchment system. In response to the development pressure upon these areas and the significant water management that this engenders the Department of Water produced the Murray Drainage and Water Management Plan for the greater Murray catchment.

With a view to converting the depth of information available into the best possible outcomes for the Shire, it is important that Council have a policy to ensure that all development occurs with a focus on total water cycle management for the region and not just localised 'end of pipe' drainage solutions.

The following Local Planning Policy for Water Sensitive Urban Design (WSUD) has been developed by the Shire, in line with the Western Australian Planning Commission's 'Better Urban Water Management Framework'.

Application/Definition

WSUD is a holistic approach to water management and stormwater drainage, focusing on total water cycle management. It addresses water quality and quantity, protection of ecosystems and provision of aesthetic and recreational values, rather than traditional stormwater solutions.

In 2008, the Western Australian Planning Commission adopted WSUD as a policy outlined in its 'Better Urban Water Management Framework'. WSUD is now considered best practice throughout the planning and land development sector of Western Australia.

The framework for WSUD implementation at each stage of the planning process is illustrated in figure 1 below.

Figure 1 –
– Integrating water planning with the land planning process



1 Policy Objectives

- 1.1 To improve the achievement of total water cycle management outcomes via the planning and development approvals process, consistent with State Planning Policy 2.9: Water Resources (2006).
- 1.2 To achieve better integration of land and water planning which results in improved water management outcomes for the Peel-Harvey catchment; and
- 1.3 To ensure that land use planning decisions are compatible with achievement of the objectives and maintenance of the Environmental Quality Criteria in the *Environmental Protection (Peel Inlet - Harvey Estuary) Policy 1992*, the Ministerial Conditions imposed in Bulletin 994 "*Peel Region Scheme*" and the Peel-Harvey Coastal Catchment Water Quality Improvement Plan (EPA, 2008).

2 Policy Purpose

This policy aims to protect the environmental values of the Peel Inlet Harvey Estuary Catchment area by providing reference to:

- 2.1 A framework for the application of Water Sensitive Urban Design (WSUD) management practices at each stage of the planning process, consistent with State Planning Policy 2.9: Water Resources (2006).
- 2.2 Water quality, quantity and efficiency targets and design objectives for strategic planning, subdivision and development.
- 2.3 Guidance on investigations and information required to support strategic planning exercises and statutory planning proposals; and
- 2.4 Advice, if applicable, on mechanisms to aid achievement and maintenance of the environmental quality objectives in the *Environmental Protection (Peel Inlet - Harvey Estuary) Policy 1992*, the *Peel-Harvey Coastal Catchment Water Quality Improvement Plan (EPA, 2008)* and the interim design objectives in Appendix 1.

3 Interpretation

For the purpose of interpreting this policy, all terms shall have the meaning given under the provisions of Council's Town Planning Scheme No 4. In addition, the following definitions apply.

Best Management Practice (BMP) – Devices, practices or methods for removing, reducing or preventing targeted pollutants from reaching receiving waters and for reducing runoff volumes and velocities. This includes structural and non-structural controls.

Controlled Groundwater Level (CGL) - The controlled (i.e. modified) groundwater level (measured in metres Australian Height Datum) at which drainage inverts are set.

Environmental Quality Objective – Water quality, quantity, conservation and management objectives, which form the basis for the design and management of land uses and developments.

MGL – Maximum Groundwater Level - means this level must be determined, through modelling and/or measurement. Where this information is not available from the DoW, local studies shall be undertaken and endorsed by the DoW. The Shire of Murray requires that where the level is at or within 1.2 metres of the surface, the imposition of clean fill and/or the provision of sub-surface drainage will be required to ensure that adequate separation of building floor slabs from groundwater is achieved. In such instances, the sub-surface drainage will need to be placed at a DEC/DoW controlled groundwater level.

Murray Drainage and Water Management Plan (DWMP) – Document released by the Minister for Water in 2011 providing detailed water cycle information for the Murray catchment.

Non-Structural Practices - institutional and pollution prevention practices that prevent or minimise pollutants from entering stormwater runoff and/or reduce the volume of stormwater requiring management. They do not involve fixed permanent facilities and they usually work by changing behaviour through government regulation, persuasion and/or economic instruments. Such practices use alternative maintenance procedures, regulatory measures, economic incentives, education of management and technical personnel, or planning and design of structures to reduce the amount of pollutants entering stormwater and accumulating on impervious areas.

Structural Practices – Structural stormwater quality and quantity best management practices are permanent, engineered devices implemented to control and improve stormwater quality and restore natural hydrological flows and velocities. Structural controls should be installed at or near the source of run-off/pollutant inputs, to prevent or treat pollution and manage the quantity of stormwater as high in the catchment as possible.

Total water cycle management - water supply, stormwater, groundwater and sewage services are interrelated components of catchment systems, and therefore must be dealt with using a holistic water management approach that reflects the principles of ecological sustainability. Water efficiency, re-use and recycling are integral components of total water cycle management.

Water Quality Objective - Quantitative physical, biological or chemical water quality measurements which if achieved are likely to prevent the loss or degradation of an Environmental Value.

4 Application

This policy is applicable to the whole of the Shire of Murray.

This policy should be used and applied in the preparation of:

- Regional/District/Local Structure Plans.
- Outline Development Plans.
- Development/Subdivision Guide Plans.
- Local Planning Policies.
- Precinct Plans.
- Subdivision Applications; and
- Development Applications

As such, this Policy does not apply to rural zoned land, except where non-rural development is proposed or where the land is the subject of a Scheme Amendment which would enable the development of residential, commercial or industrial uses, in which case it would apply.

5 Policy Provisions

In determining or providing advice on strategic or statutory proposals, planning decision-making by local government will have regard to the following provisions.

- 5.1 Strategic plans and proposals shall aim to achieve and maintain the relevant Environmental Quality Criteria as set out in Appendix 1.
- 5.2 Stormwater Management Systems should comply with the principles, objectives and guidelines in the *Stormwater Management Manual for Western Australia* (DoW, 2007).
- 5.3 WSUD outcomes shall be achieved through compliance with the principles addressed in Section 6 of this Policy, preferentially applied using an integrated approach, consistent with the Peel-Harvey Coastal Catchment WSUD Technical Guidelines, prepared for the Peel Development Commission (October 2006).

- 5.4 Application of this policy shall be practical and appropriate to the level of risk of the proposal. (Guidance on level of risk is contained within Table 1 below).
- 5.5 Planning and development proposals shall implement the WSUD strategies outlined in Section 7 of this policy.
- 5.6 WSUD practices prescribed in strategic planning instruments shall be linked to a planning mechanism that ensures implementation and requires performance monitoring; and
- 5.7 Appropriate investigations shall be performed and documented to support the assessment and approval of strategic plans, scheme amendments, structure plans, subdivision and development proposals, consistent with the Peel-Harvey Coastal Catchment WSUD Technical Guidelines (PDC, 2006).

Table 1 – Risk Classification for Subdivision and Development:

Risk Classification for Subdivision and Development		
Risk Level	Subdivision	Development
Low	<p>Good depth to groundwater. Can accommodate all on site infiltration, with no offsite discharge or regional drainage issues.</p> <p>Low-medium density residential subdivision creating less than four lots.</p> <p>Commercial, Industrial, or Rural Residential subdivision applications that create no more than three lots.</p>	<p>Residential development connected to deep sewerage.</p> <p>Commercial or industrial use connected to deep sewerage or licenced under Part V of the <i>Environmental Protection Act</i>.</p>
Medium	<p>Offsite discharge is required to a local &/or regional drainage system and there are low environmental risks.</p> <p>Medium acid sulfate soils risk.</p> <p>Low-medium density residential subdivision creating four to 20 lots and less than 20ha.</p> <p>Commercial, Industrial, or Rural Residential subdivision applications that create no more than 15 lots.</p>	<p>Residential, commercial and industrial development not connected to deep sewerage.</p>
High	<p>Any proposal on land where two or more of the following apply:</p> <ul style="list-style-type: none"> • MGL less than 1.2 metres below the natural ground surface. • Any proposed off-site drainage could lead to the degradation of wetlands or waterways. • Contains a floodplain. • High acid sulfate soils risk. 	<p>Any proposal on land where two or more of the following apply:</p> <ul style="list-style-type: none"> • MGL less than 1.2 metres below the natural ground surface. • Any proposed off-site drainage could lead to the degradation of wetlands or waterways. • Contains a floodplain. • High acid sulfate soils risk.

	<ul style="list-style-type: none"> • Contains any part of a Conservation Category wetland or its buffer. • Phosphorus input is likely to exceed the 15kg per hectare per annum; or • Nitrogen input is likely to exceed 150kg per hectare per annum. 	<ul style="list-style-type: none"> • Contains any part of a Conservation Category wetland or its buffer. • Phosphorus input is likely to exceed the 15kg per hectare per annum; or • Nitrogen input is likely to exceed 150kg per hectare per annum.
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6 WSUD Principles

The *Peel-Harvey Coastal Catchment Water Sensitive Urban Design Technical Guidelines* (October 2006) is the technical document which supports and forms part of this policy. The *Technical Guidelines* should be referred to at all stages of the planning process.

The principles of Water Sensitive Urban Design should be applied when undertaking strategic and statutory planning within the Shire of Murray. These principles, in order of priority, are as follows:

- 6.1 Provide protection to life and property from flooding that would occur in a 100 year Average Recurrence Interval (ARI) flood event.
- 6.2 Manage rainfall events to minimise runoff as high in the catchment as possible. The one-year-one-hour (1 in1) ARI event should be retained on-site or as close to source as possible. Infiltration should be encouraged in permeable areas through mechanisms such as soakwells, landscaping and flush kerbing. Drainage systems should minimize run off and maximize on-site infiltration where possible.
- 6.3 Retain and restore existing elements of the natural drainage system, including waterway, wetland and groundwater features, regimes and processes, and integrate these elements into the urban landscape, possibly through a multiple use corridor. These features should effectively manage mosquito populations and require approval by councils Environmental Health section.
- 6.4 Maximise water use efficiency, reduce potable water demand, and maximise the re-use of water harvested.
- 6.5 Minimise pollutant inputs through implementation of appropriate non-structural source controls (such as town planning controls, strategic planning controls, pollution prevention procedures, education and participation programs and regulatory controls) and structural controls (that manage the quantity and quality of stormwater runoff and prevent or treat stormwater pollution).
- 6.6 Drainage sump construction is discouraged and any development adjacent to existing sumps should be encouraged to retrofit the area into a multiple-use site if deemed appropriate by council.

Modified from Department of Water's *Stormwater Management Manual for Western Australia, 2004 - current*.

7 WSUD Strategies

The following strategies should be applied in planning and development proposals to achieve improved water management outcomes:

- 7.1 **Compliance with environmental quality criteria**
Strategic plans and proposals shall demonstrate compliance with relevant environmental quality criteria as outlined in Appendix 1. Demonstration of compliance may be achieved through appropriate computer models, assessments and calculations appropriate to the stage of planning and scope of the proposal, as supported by the DoW.

7.2 Compliance with stormwater management policies

Stormwater management systems shall comply with the principles, objectives and guidelines in the Stormwater Management Manual for Western Australia (DoW, 2007), the Murray Drainage and Water management Plan (DoW, 2011) where applicable and be designed in accordance with the Decision Process for Stormwater Management in WA.

7.3 Application of WSUD treatment trains

All plans and proposals shall incorporate appropriate structural and non-structural practices to improve water management outcomes. Best management practices should be applied using a treatment train approach, consistent with recommendations in the Murray Drainage and Water Management Plan (DoW, 2011) and the *Peel-Harvey Coastal Catchment Water Sensitive Urban Design Technical Guidelines* (PDC, 2006).

7.4 Preparation of water management strategies

The preparation of an Urban Water Management Proposal will be needed for all Strategic Plans and Development Proposals. The level of detail required in the proposal will be dependent upon the stage of development, site specifics including potential water quality impacts, proximity to water bodies, clearance to groundwater, scale of development and any other site specific factors.

7.5 Soil Amendment

Any proposal to subdivide or develop land on sandy or duplex soils where the annual maximum groundwater level is less than 1.2 metres below natural ground level should incorporate soil amendment to maximise the phosphorus retention capability of the soil. This should be undertaken in accordance with the Guidelines (PDC, 2006).

7.6 Total Phosphorus and Total Nitrogen Import and Export Criteria

Any subdivision or development likely to result in a nutrient input rate above the current average estimated rates of 15kg/phosphorus/ha per annum or 150kg/nitrogen/ha per annum are considered environmentally unacceptable and shall be referred to the EPA unless appropriate and acceptable information is provided to demonstrate that the subdivision or development will achieve the relevant Environmental Quality Objective (Appendix 1).

7.7 Local Deep Rooted Perennial Vegetation

All proposals should aim to retain where possible deep rooted perennial vegetation of local native provenance in areas of public open space. If it is determined that there is insufficient remnant vegetation on site for the development proposed then re-vegetation work will be required to be undertaken by the land owner.

7.8 Building and Landscaping Guidelines

Local Structure Plans for new subdivision estates should include Building and Landscaping Guidelines. The guidelines should also apply to land ceded to Council, i.e. public open space.

7.9 Construction and Building Site Management

Construction and Operational activities on landholdings within the policy area should be consistent with an approved Construction and Building Site Management Plan. The plan should be submitted and approved prior to the start of site works.

8 Implementation

Implementation of this Local Planning Policy should be consistent with *Peel-Harvey Coastal Catchment WSUD Technical Guidelines where applicable*, the *Murray DWMP* where applicable and the Shire of Murray Engineering Standards.

8.1 Application Requirements

Any application for Council's planning consent shall meet all requirements set out in the Shire of Murray's Town Planning Scheme No 4 and satisfy the requirements of the Shire of Murray Engineering Standards as well as other relevant policies and guidelines.

8.2 Assessment Criteria

In assessing any application within the Peel-Harvey Coastal Catchment, the Shire of Murray shall have regard to the provisions of this policy.

Application of the framework shall be based on the following principles.

- *Informed decision-making* – land use planning decision-making should be based on an appropriate level of information.
- *Relevance* – only issues that are relevant to the site require investigation and discussion, recognising that the planning process may not occur in an orderly fashion and that a practical approach should be applied where regional/district-level information is lacking, particularly in areas of development pressure; and
- *Risk management* – relevant issues should be investigated at a scale consistent with land use planning decision making and to an extent that addresses the level of risk to the community and environment.

This policy needs to be read in conjunction with the Shire of Murray Engineering specifications which are available from the Shire Technical Services department. These specifications are reviewed and revised periodically to keep abreast of new technologies, information and legislation.

9 Delegated Authority

The Director Planning and Development Services shall be granted authority to deal with applications under this policy.

10 References

Further information may be obtained from the following resources:

- Environmental Protection (Peel Inlet - Harvey Estuary) Policy 1992, available from the EPA website: www.epa.wa.gov.au
- Peel-Harvey Coastal Catchment Water Sensitive Urban Design Technical Guidelines (PDC, October 2006), available from the Peel-Harvey catchment Council Website: www.peel-harvey.org.au
- Stormwater Management Manual for Western Australia, (DoW, February 2004), available from the DoW website: www.water.wa.gov.au
- State Planning Policy 2: Environmental and Natural Resource Policy
- State Planning policy 2.1: Peel-Harvey Coastal Plain Catchment Policy prepared by the Western Australian Planning Commission (February 1992)
- State Planning Policy 2.9: Water Resources prepared by the Western Australian Planning Commission (December 2006)
- Water Quality Improvement Plan for the Rivers and Estuary of the Peel-Harvey System – Phosphorous Management (November 2008), available from the EPA website: www.epa.wa.gov.au
- Better Urban Water Management (October 2008), available from the WAPC website: www.planning.wa.gov.au

Appendix - Environmental Quality Criteria

The Environmental Quality Criteria for the protection of environmental values (including beneficial uses) within the Policy Area are those set out as parameters, targets, standards and criteria in the following documents, and any amendments thereto:

1. The Peel-Harvey Water Quality Improvement Plan (which may also be transcribed into Council's Local Planning Strategy).
2. A District Water Management Strategy prepared and applicable to the subject land that is endorsed by the Department of Water as consistent with the documents detailed in Section 10 of this policy.
3. A Local Water Management Strategy prepared and applicable to the subject land that is endorsed by the Department of Water as consistent with the documents listed in Section 10 of this policy.
4. An Urban Water Management Plan prepared and applicable to the subject land that is endorsed by the relevant Local Government as consistent with the documents detailed in Section 10 of this policy.
5. Further environmental quality criteria as set out below.

In the event of any deficiency or inconsistency arising between the parameters, standards or criteria set out above shall be applied in the following order:

1. In the first instance an applicable District Water Management Strategy endorsed by the Department of Water.
2. An applicable Local Water Management Strategy endorsed by the Department of Water.
3. The Peel-Harvey Water Quality Improvement Plan.
4. The environmental quality criteria set out below.

Environmental Quality Criteria

The following environmental criteria are proposed to be used as a guide for development of the urban water management system for strategic planning, subdivision and development. Demonstration of compliance with these design objectives may be through appropriate computer modelling or other assessment methods acceptable to the DoW.

Water Conservation – Potable and Wastewater

Principle

No potable water should be used outside of homes and buildings.

Design Objectives

Consumption target for potable water of 40-60kL/person/yr.

Water Quantity Management

Principle

Post development annual discharge volume and peak flow be maintained relative to pre-development conditions, unless otherwise established through determination of Ecological Water Requirements for sensitive environments.

Criteria

Ecological Protection - For the critical 1 in 1 year ARI event, the post development discharge volume and peak flow rates shall be maintained relative to pre-development conditions in all parts of the catchment. Where there are identified impacts on significant ecosystems, maintain or restore desirable environmental flows and/or hydro periods as specified by the DoW.

Flood Management

Manage the peak flows and discharge volume to the receiving water body (waterway / wetland/ groundwater or coastal marine area), for the 100yr ARI major event and the minor ARI design flood event as required in the relevant Water Management Strategy.

If an approved Water Management Strategy covering the development area has not been prepared, peak flows and discharge volumes should be maintained at pre-development levels

Water Quality Management

Principle

Maintain surface and ground water quality at pre-development levels (median concentrations) and, if possible, improve the quality of water leaving the development area to maintain and restore ecological systems in the (sub) catchment in which the development is located.

Criteria

Contaminated Sites

To be managed in accordance with the Contaminated Sites Act 2003.

All other Land

If the pollutant outputs of development (measured or modelled median concentrations) exceed catchment ambient conditions, the proponent shall achieve water quality improvements within the development area or, alternatively, arrange equivalent water quality improvement offsets within the catchment. If catchment ambient conditions have not been determined, the development should meet relevant water quality guidelines stipulated in the *National Water Quality Management Strategy* (ARMCANZ and ANZECC, 2000).

Stormwater Modelling Criteria

If it is proposed to use a computer stormwater modelling tool to demonstrate compliance with design objectives the following design modelling parameters are recommended. As compared to a development that does not actively manage stormwater quality:

- At least 80% reduction of total suspended solids.
- At least 60% reduction of total phosphorus.
- At least 45% reduction of total nitrogen.
- At least 70% reduction of gross pollutants.

Disease Vector and Nuisance Insect Management



To reduce health risk from mosquitoes, retention and detention treatments should be designed to ensure that between the months of November and May, detained immobile stormwater is fully infiltrated within a time period not exceeding 96 hours. Permanent water bodies are discouraged, but where accepted by the DoW, must be designed to maximise predation of mosquito larvae by native fauna to the satisfaction of the Local Government on advice of DoW and Department of Health.

Administration

Directorate		Officer Title	
Planning and Sustainability		Director Planning and Sustainability	
Version	Decision to Advertise	Decision to Adopt/Amend	Current Status
1	OCM07/152 26/7/2007	OCM11/240 – 20/12/2011	Adopted

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