CORPORATE POLICY STATEMENT NO. 51

PLANNING FOR WASTEWATER MANAGEMENT AFFECTING THE SWAN CANNING DEVELOPMENT CONTROL AREA

March 2017

1. OBJECTIVE

The objective of this policy is to ensure land use, development, and other permitted works, acts and activities that comprise, include or use wastewater management systems in or affecting the Swan Canning Development Control Area (DCA):

- do not result in further water quality degradation of the Swan Canning river system, and where possible, improve the situation; and
- protect and enhance the ecological health, community benefits and amenity of the river system.

2. SCOPE

This policy provides direction and guidance regarding how the Department of Parks and Wildlife (the department) assesses development and permit applications involving wastewater management in accordance with the *Swan and Canning Rivers Management Act 2006* (SCRM Act) and the Swan and Canning Rivers Management Regulations 2007 (SCRM Regulations). It also provides direction and guidance regarding how the department provides advice on proposed development and land use changes in accordance with the Metropolitan Region Scheme (MRS), and water management plans and strategies prepared in accordance with *Better Urban Water Management* (Western Australian Planning Commission, 2008). This includes proposals in and adjacent to the DCA as well as those that may not immediately adjoin the DCA but are in the Swan Canning catchment and may affect waters in the river system through surface and/or groundwater connections (for example through leaching of nutrients from new on-site sewage disposal systems).

This policy applies to proposals or applications that comprise, include or use wastewater management systems such as reticulated sewerage, private pump stations, on-site sewage disposal, and industrial wastewater facilities. This policy provides guidance to proponents and other decision-making authorities regarding the department's position in relation to wastewater management. It recognises and refers to other relevant State government policies and provides additional guidance relevant to the Swan Canning river system.

In this policy, the Swan Canning river system means the Swan, Canning, Helena, Southern and Avon (to Moondyne Brook) rivers and includes the adjacent and nearby land areas within the DCA.

All guidance documents identified in this policy should be taken to refer to the most current published version.

3. CONTEXT

Wastewater, or sewage, comes from bathrooms, kitchens, laundries and toilets, and can include trade waste from business and industry. Reticulated sewerage is the most reliable, efficient and environmentally acceptable method of managing wastewater. Reticulated sewerage delivers wastewater to sewage treatment plants, which are regulated to ensure that the quality of treated sewage is suitable for environmental release or beneficial re-use, without an unacceptable impact on the environment and with the highest regard for human health. Delivering a reticulated sewerage scheme as part of greenfield subdivision is much more cost-effective in the long-term than retrofitting services in an established area. Providing reticulated sewerage up front avoids community expenses such as retrofitting in the future and the financial, environmental and social costs of mitigating nutrient leaching to estuaries and rivers. Management programs to reduce nutrient inputs to waterways are costly, and the resulting impacts (e.g. algal blooms and fish kills) can reduce the community's use and enjoyment of our waterways.

The Swan Canning river system is under significant pressure from high nutrient concentrations, which lead to algal growth, low oxygen levels, fish kills and loss of biodiversity. On-site sewage disposal systems are a key source of nutrients to the river system. Predictive modelling undertaken to support the *Swan Canning Water Quality Improvement Plan* (SCWQIP) (Swan River Trust, 2009) identified that septic tanks contribute significant amounts of both nitrogen (18 per cent total nitrogen) and phosphorus (8 per cent total phosphorus) to the Swan Canning river system. To meet objectives based on the maximum acceptable nutrient load to the Swan Canning river system, the SCWQIP aims for a 49 per cent reduction in nitrogen load and a 46 per cent reduction in phosphorus load. Achieving zero nutrient contribution from sewage is one of 13 key recommended management measures identified in the SCWQIP.

While there have been technological improvements in on-site sewage treatment, these systems can still be a significant source of nutrients to the river system given the soil and groundwater conditions in extensive areas of the Swan Canning Catchment, particularly on the Swan Coastal Plain, are poor for achieving nutrient retention and attenuation. Aerobic Treatment Units (ATUs) that do not have a specific nitrogen or phosphorus removal capability are likely to contribute a similar amount of phosphorus and possibly greater amounts of nitrogen than septic systems[1]. Secondary treatment systems also require frequent maintenance to ensure consistent and effective performance. Due to risks associated with installation, operation and maintenance, on-site sewage disposal systems servicing individual lots are not generally an appropriate alternative to reticulated sewage for most subdivision and development. Where reticulated sewerage cannot be provided, the capacity of the site to sustain the proposed land use or development and the associated on-site sewage disposal without resulting in a new source of nutrients or contaminants to the river system is an important consideration.

Phosphorus is often the focus of management measures because it is generally limiting with respect to algal blooms in freshwater systems and can usually be more readily managed. However, in estuarine systems phosphorus is not always limiting, and in the Swan Canning in particular, the system is likely to experience enough variation that carbon, nitrogen and phosphorus are all limiting at some stage. The department has committed to reducing total nitrogen (TN) as well as total phosphorus (TP) in the river system, and where possible, both TN and TP should be addressed.

Historically, horizontal and vertical setback distances for on-site sewage disposal systems have been based on human health impacts rather than environmental protection. Movement of phosphorus is dependent on soil phosphorus retention index (PRI), not soil water content, while leaching of nitrogen is immediate because there is no absorption and retention in soils or groundwater unless conditions allow microbial denitrification[1]. For this reason, the setback distances for the Swan Canning river system identified in this policy, take both de-nitrification rates and phosphorus retention uncertainties into account.

Since leaching of nitrogen from on-site sewage disposal systems is immediate (unless soil and groundwater conditions are suitable for losses of nitrogen through microbial denitrification), it is necessary to control system density to minimise the impacts of nitrogen from unsewered systems. Net inputs of nitrogen to receiving water bodies for septic densities of above 0.5 per hectare can be an order of magnitude greater than natural background limits[1]. The policy addresses system density by establishing a minimum lot size.

There are a number of relevant State and national policies, guidelines and standards; some current and some under review. The Department of Planning has released for consultation a draft *Government Sewerage Policy*, which is a revision and consolidation of the *Government Sewerage Policy – Perth Metropolitan Region* (1996) and the *Draft Country Sewerage Policy* (2003). *Australian/New Zealand Standard On-Site Domestic Wastewater Management* (AS/NZS 1547:2012) highlights the importance of applying local knowledge when establishing environmental and land application criteria for onsite effluent disposal systems. The Department of Health has prepared a *Code of Practice for Onsite Sewage Management – Consultation Draft* (2012) which is to be read in conjunction with AS/NZS 1547:2012 and will be finalised when the Government Sewerage Policy is finalised. A list of currently approved wastewater treatment systems is provided on the Department of Health (WA) website. There are also Australian Standards for septic tanks and aerated wastewater treatment units. The department will assess the need for review and update of this corporate policy as other relevant policies, guidelines and standards are finalised.

State Planning Policy 2.9 Water Resources (WAPC, 2006) recognises that land use planning can assist in protecting, conserving, managing and enhancing the State's water resources. In addition, *State Planning Policy 2.10 Swan Canning River System* (WAPC, 2006) acknowledges the significance of the river system and the need to protect and improve water quality where possible.

The department will have due regard for the *Swan Canning River Protection Strategy* and its subsidiary documents, such as the *Land and Waterway Use Plan* (in preparation) and *Swan River System Landscape Description* (SRT, 1997) when assessing proposals made under the SCRM Act. This policy is to be read and applied together with *Corporate Policy Statement No. 42: Planning for Land Use, Development and Permitting Affecting the Swan Canning Development Control Area*.

A glossary that supports this policy is provided at Appendix 1.

1. Gerritse R 2002, *Movement of nutrients from onsite wastewater systems in soils*, prepared for Department of Health, Water and Rivers Commission, Department of Environmental Protection and Department of Planning and Infrastructure.

4. LEGISLATION

Under section 70 of the SCRM Act all development in the DCA is subject to approval and control. The term 'development' includes: physical development; any material change of use of land or waters; and any act or activities defined as development under the SCRM Regulations.

In undertaking its statutory planning role, the department typically assesses and provides advice and recommendations to the Minister for Environment regarding development in the DCA. The CEO of the department is authorised to approve certain classes of development in the DCA under section 85. The CEO is also responsible for approving other works, acts and activities declared not to constitute development or controlled for Riverpark and DCA protection by the SCRM Regulations, under a permit.

In performing its statutory planning functions, the department assesses and provides advice and recommendations to the Western Australian Planning Commission (WAPC) and local governments on a range of land use, subdivision and development proposals adjoining and affecting the DCA. These proposals are often subject to control under the MRS and are prepared in accordance with the *Planning and Development Act 2005*. The department assesses and provides advice on development applications prepared in accordance with Clause 30A of the MRS under delegated authority of the Swan River Trust.

In performing its statutory planning functions, the department also assesses and provides advice to other agencies on wastewater proposals which may impact on waters within the DCA.

5. POLICY

In undertaking its statutory planning roles and functions the department will:

Land use change

5.1 Recommend that proposals for land use change or intensification are managed to prevent the mobilisation of nutrients or contaminants from the subject site to the Swan Canning river system. Where practicable, land use changes should not result in further water quality degradation but should improve the situation.

5.2 Where the highest known groundwater level is less than 0.5 metre below the natural ground level, only support the rezoning of land for urban development where reticulated sewerage will be provided.

5.3 Where land is already zoned for urban development, only support subdivision and development in accordance with the provisions of the local planning scheme if the proponent demonstrates that appropriate engineered drainage solutions or fill can be used to achieve the required separation from groundwater, and such works are environmentally acceptable.

5.4 Where relevant, recommend that information addressing wastewater management is incorporated into any water management plan or strategy that is prepared in accordance with *Better Urban Water Management* (WAPC, 2008), commensurate with the scale and nature of the planning proposal.

Reticulated sewerage

5.5 Recommend that all subdivision and development be connected to reticulated sewerage. Possible exceptions are outlined in section 5.10. Proponents should demonstrate that infrastructure and services can be provided in the manner proposed, including identifying the need for any dewatering, which is to be managed in accordance with *Corporate Policy Statement No. 50: Planning for Dewatering Affecting the Swan Canning Development Control Area*.

5.6 Where a reticulated sewerage scheme is provided, recommend that all dwellings be connected as soon as practicable in accordance with national plumbing standards and by-laws.

Pump stations

5.7 Only support applications for, or including, pump stations that include management measures to minimise the mobilisation of nutrients or contaminants from the site to the river system, including during emergencies. The emergency storage capacity of wastewater pump stations is to be determined individually depending on its size, location and the discharge consequences. The department may request a maintenance schedule and contingency planning to address pump station failure.

On-site sewage disposal

5.8 Consider the potential cumulative impacts of on-site sewage disposal and minimise detrimental impacts on the water quality of the Swan Canning river system. Land use intensification proposals that include on-site sewage disposal will be assessed on a case-by-case basis recognising the water quality risks associated with their installation, operation and maintenance.

5.9 Except for areas outside the Swan Coastal Plain and more than 100 metres from the river system or a surface or subsurface drainage system that discharges to the Swan and Canning rivers or their tributaries, have a presumption against new septic systems in the Swan Canning Catchment.

5.10 Only support exemptions from the requirement for connection to reticulated sewerage where it has been demonstrated that:

- The site and the proposed development cannot reasonably be connected to existing or proposed reticulated sewerage schemes (technical advice should be sought from the sewerage service provider).
- On-site sewerage servicing will not result in unacceptable impacts to the ecological health, community benefits and amenity of the river system.
- The minimum lot size for residential subdivisions is one hectare, or for non-residential lots is determined on a case-by-case basis.
- The land has the capacity to treat and dispose of all sewage and contain associated buffers within the property boundary and the proposed on-site sewage disposal system is:

  a) at the discharge point, at least 1.2 to 1.5 metres, depending on the permeability and nutrient retentive properties of the soil, above the highest known groundwater level;

b) set back a minimum of 100 metres from the river system or a surface or subsurface drainage system that discharges to the Swan and Canning rivers or their tributaries. The setback is to be measured from the outer edge of riparian or wetland vegetation. The department may consider reduced setbacks for existing lots on a case-by-case basis, in these instances the setback is to be maximised within the lot to the extent practicable;

c) located outside any area subject to inundation and/or flooding in a 10 per cent Annual Exceedance Probability (AEP) rainfall event; and

- The proposed on-site sewage disposal system has been approved for use in Western Australia by the Department of Health and the proposed system has been selected in response to the site and soil conditions, vulnerability of the receiving environment and nature of the proposal. In the Swan Canning Catchment, secondary treatment systems with nutrient removal are to be used:

  a) on the Swan Coastal Plain; and

  b) outside of the Swan Coastal Plain where setbacks of less than 100 metres from waterways or drainage systems are proposed, or where relevant in heavy soils and/or rock.

5.11 Where relevant, recommend that a site and soil evaluation is undertaken in accordance with AS/NZS 1547:2012 *On-Site Domestic Wastewater Management* including details of soil type, groundwater, proposed vegetation clearing, buffer requirements and/or earthworks. Site evaluation procedures should identify nutrient discharge restrictions and appropriate nutrient reduction measures. The scale and nature of the evaluation should be proportionate to the level of risk associated with the proposal. Proposed servicing strategy concepts for water supply, sewage management, stormwater management and sewage treatment system requirements are to address the site and soil evaluation.

Maintenance

5.12 Recommend that applications for, or including, on-site sewage disposal systems identify the regulatory and institutional arrangements that will be in place to ensure the installation, operation, maintenance and monitoring requirements associated with the on-site sewage systems are met. Systems are to be operated as recommended by the manufacturer and maintained to achieve optimum treatment performance, including nitrogen and phosphorus removal efficiency.

5.13 Where on-site sewage disposal systems are proposed, encourage local government to consider its capacity to undertake compliance with the Department of Health endorsed maintenance schedules and operating standards.

Decommissioning

5.14 Where there is an intensification or material change in use and/or a property is connected to sewer, recommend that any disused on-site sewage disposal system is decommissioned, including all tanks and pipes and associated drainage systems (soakwells or leach drains), in accordance with the Health (Treatment of Sewerage and Disposal of Effluent and Liquid Waste) Regulations 1974. Any remaining wastewater in the system is to be pumped out and taken away by an approved liquid waste contractor and the system removed. Proof of decommissioning should be provided in the form of either certification from a licensed plumber or a statutory declaration from the landowner/applicant, confirming that the site has been inspected and all septic tanks, soakwells, leach drains and any associated pipework have been removed.

Industrial wastewater

5.15 Recommend that industrial wastewater is discharged to reticulated sewerage wherever practicable, or managed in an appropriate on-site wastewater treatment facility. Industrial wastewater may contain a range of environmentally hazardous materials that must not be discharged to the environment (refer to the Environmental Protection (Unauthorised Discharges) Regulations 2004 and the Environmental Protection (Controlled Waste) Regulations 2004), is subject to acceptance criteria for discharge to sewer (set by local government, the Water Corporation or other water providers' systems) and may require on-site treatment.

5.16 Only support industrial wastewater facilities which are located outside areas with a near surface water table that are prone to waterlogging or may be flooded during a one per cent AEP rainfall event. This includes land that is seasonally wet, requires artificial drainage or diversion of natural watercourses, or where construction will affect sensitive waters.

6. POLICY IMPLEMENTATION STRATEGIES

To implement this policy the department will:

Swan River Trust

6.1 Consult with the Swan River Trust when assessing proposals under Part 5 of the SCRM Act and preparing strategic documents and corporate policies and guidelines.

6.2 Implement delegated powers from the Swan River Trust under the Metropolitan Region Scheme.

6.3 Keep the Swan River Trust informed of development, including permitted works, acts and activities approved within the DCA.

Planning authorities (Department of Planning, local governments and redevelopment authorities)

6.4 Regularly consult with relevant planning authorities when providing advice on planning proposals and assessing development and other permitted works, acts and activities in and around the DCA.

Referral agencies

6.5 Ensure there is a clear understanding of the role of referral agencies, how their advice will be considered in assessing proposals and 'clearing' conditions of approval.

Assessment of proposals

6.6 Seek appropriate advice when assessing proposals. Advice may be sought from planning authorities, referral agencies, contractors, consultants, or other stakeholders and from the department's specialist branches and regional locations. Where expertise is available from within the department it will be utilised prior to seeking advice from external parties.

6.7 Ensure relevant staff, contractors and consultants have the necessary qualifications, skills and expertise when assessing planning and development proposals.

6.8 Maintain records of discussions, advice and decisions when undertaking the department's statutory planning roles with respect to the SCRM Act in accordance with the *State Records Act 2000.*

7. CUSTODIAN

Director Rivers and Estuaries.

8. PUBLICATION

This policy will be made available on the department's website and intranet.

9. KEY WORDS

Swan, Canning, river, Development Control Area, wastewater, sewage, reticulated sewerage, on-site sewage, primary treatment, secondary treatment, nutrient removal, industrial wastewater, land use change, pump station.

10. REVIEW

Further reviews will be at the discretion of the Director General and in the context of the update/finalisation of the Government Sewerage Policy, with a review undertaken after five years from the date it is signed.

11. SWAN RIVER TRUST ENDORSEMENT

Endorsed by

Hamish Beck
CHAIRMAN Date: 7 March 2017

12. DIRECTOR GENERAL APPROVAL

Approved by

Jim Sharp
DIRECTOR GENERAL Effective date: 7 March 2017

GLOSSARY

For the purpose of this policy:

Industrial wastewater, or **trade waste** includes contaminated stormwater, cooling water, process waters and wash-down waters, but does not include sewage from staff amenities or offices.

Primary treatment is the separation of suspended material from sewage in septic tanks, primary settling chambers or other structures (including those which may be used to treat trade waste), before discharge to a leach drain or secondary treatment system.

Reticulated sewerage is a network of sewers managed by a water service provider that conveys sewage from any development or subdivision for treatment and disposal off-site.

Secondary treatment systems with nutrient removal have a microbial digestion, physical settling, filtering and decomposition process of sewage received from a primary treatment unit, and are to discharge treated sewage with phosphorus and nitrogen concentrations of less than 1 mg/L and 10 mg/L, respectively.

Wastewater, or **sewage**, includes nightsoil, faecal matter or urine, and any waste composed wholly or in part of liquid. This may include trade waste as defined under the *Water Services Act 2012*, but does not generally include stormwater, surface water or groundwater. Sewage contains nutrients, metals, salts, organic matter, endocrine (or hormone) disrupting chemicals, bacteria, viruses and other pathogens.