1 INTRODUCTION

This Planning Procedure aims to provide direction in the protection and conservation of all water resources within the City, along with the wetland and bushland areas, including the Peel Harvey Estuary.

This Planning Procedure is intended to clearly state the City's position on urban water management and provide advice on localised information that should be considered during the preparation of water management plans.

This Planning Procedure applies to the whole of City of Rockingham, with additional requirements for development within the Peel Harvey catchment area as required by the Peel-Harvey Coastal Catchment Water Quality Improvement Plan (EPA, 2009).

This Planning Procedure applies to strategic and statutory planning proposals that may have an impact on water quality and water quantity on-site, or on adjacent sites, and may be applied to the following:-

- District Structure Plans;
- Local Planning Strategies;
- Local Structure Plans; and
- Subdivision Applications.

2 STATEMENT OF INTENT

The purpose of this Planning Procedure is to achieve effective urban water management by providing:

(i) A framework for the application of Water Sensitive Urban Design (WSUD) principles consistent with State Planning Policy 2.9: Water Resources (2006);

(ii) Guidance with the application of the Planning Bulletin 92 - Urban Water Management, which requires urban water management information to support strategic and statutory planning proposals;

(iii) Water quality, quantity and efficiency targets, and design objectives, for strategic planning, subdivision and development within the City;

(iv) Guidance on 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 Environmental Quality Criteria.

(v) The City's position on urban water management and the determination and approval processes relating thereto.

This Planning Procedure should be read in conjunction with the following:-

- Planning Policy No.3.1.1 - Rural Land Strategy;
- Planning Policy No.3.1.5 - Cockburn Sound Catchment;
- Planning Policy No.3.4.2 - POS in Residential Areas; and
- Planning Procedure No.1.6 - Preparation and Assessment of Structure Plans.

Furthermore, the following State Government literature should be consulted:-

- State Planning Policy 2.9 Water Resources;
- Liveable Neighbourhoods (2007);
- Planning Bulletin 92 - Urban Water Management;
- Better Urban Water Management;

- Environmental Protection (Peel Inlet - Harvey Estuary) Policy 1992; and
- Peel-Harvey Coastal Catchment Water Quality Improvement Plan (EPA, 2009).

3 PLANNING PROCEDURE

3.1 Water Sensitive Urban Design Principles

The following key WSUD principles are applied within the City of Rockingham:-

(i) Minimise runoff through maximum infiltration using multiple low cost management measures to reduce runoff volumes and peak flows;

(ii) Retain and restore existing elements of the natural drainage system, including waterway, wetland & groundwater features, regimes & processes and integrate these elements into the urban landscape;

(iii) Maximise water use efficiency, reduce potable water demand and m aximise the re-use of harvested water; and

(iv) Minimising pollutant inputs through implementation of appropriate non-structural and structural controls.

3.2 Implementation

3.2.1 Compliance with Environmental Quality Criteria

Within the whole of the City, development proposals and applications should be guided by the relevant environmental quality criteria outlined in Appendix 1. D emonstration of compliance may be achieved through appropriate computer models, assessments and calculations appropriate to the stage of planning and scope of the proposal.

3.2.2 Preparation of Water Management Plans

There are three levels of Water Management Plans relevant to the City, which are set out in Table 1. Different types of Water Management Plans are required for different kinds of planning proposals. The information required to be included in each type of Water Management Plan is outlined in Appendix 2.

Table 1: Water Management Plans

Water Management Plan	Strategic & Statutory Planning Proposals
District Water Management Strategy	Metropolitan Region Scheme Amendments District Structure Plans Local Planning Strategies
Local Water Management Strategy	Local Planning Scheme Amendment Local Structure Plan
Urban Water Management Plan	Subdivision Applications

3.2.3 Exemptions to the requirement for Urban Water Management Plans

It is not intended to apply these requirements to brownfield, infill or small scale subdivision, unless significant water management issues are considered likely. Also, the level of information required for these Water Management Plans will vary depending on the risks posed by the proposal, as outlined in the 'Risk Classification for Subdivision and Development' (Appendix 3).

An Urban Water Management Plan may not be required if the applicant can demonstrate to the satisfaction of the City that the proposal will have no negative impacts to the water quality and quantity of the site.

3.2.4 Peel Harvey Catchment

Planning proposals within the Peel Harvey Catchment area (Appendix 4) are required to be consistent with the Peel-Harvey Coastal Catchment Water Quality Improvement Plan (2009) and satisfy the Peel-Harvey Coastal Catchment WSUD Technical Guidelines, (October 2006) (Appendix 5). As such, Water Management Plans within the Peel Harvey Catchment should incorporate measures to ensure this compliance.

3.2.5 Lodgement of Urban Water Management Plan

In the event that an approved Local Water Management Strategy provides the detail normally associated with an Urban Water Management Plan, the lodgement of an Urban Water Management Plan may not be requested.

3.3 Application

In determining or providing advice on planning proposals, the Council will have regard to the following:-

(i) Planning and development proposals should implement the WSUD principles and strategies outlined in Section 4 of this Policy and achieve the relevant Environmental Quality Criteria as set out in Appendix 1;

(ii) Application of this Planning Policy should be practical and appropriate to the level of risk of the proposal, as contained within Appendix 3; and

(iii) Appropriate investigations should be performed and documents to support the assessment and approval of strategic and statutory planning proposals.

3.4 Determination

3.4.1 The application and approved procedures are as per Planning Bulletin No.92. With respect to District Water Management Strategies and Local Water Management Strategies, the applicant is to provide a copy to the City and the Department of Water concurrently.

The City will consider the proposed Plan and provide comments to the applicant and forward a copy to the Department of Water. In doing so, the City will request that the Department of Water not determine the Plan until its comments have been received, and any issues raised by the City have been addressed to its satisfaction.

3.4.2 With respect to Urban Water Management Plans, the City will request, as a condition of subdivision approval, that it has an approval role, and upon implementation, a clearance role.

4 INTERPRETATIONS

For the purposes of this Planning Procedure, the following definitions apply:-

Bulletin 994 - Peel Region Scheme - In 2000, the Environment Protection Authority reviewed the Peel Region Scheme to provide advice and recommendation to the Minister for the Environment. This information took the form of Bulletin 994 - Peel Region Scheme. The report outlined 4 key environmental issues to be addressed:-

1. *Regionally significant and protected flora and fauna;*
2. *Water courses, wetlands and estuaries;*
3. *Groundwater and surface water quality; and*
4. *Buffer requirements.*

Peel-Harvey Coastal Catchment Water Quality Improvement Plan - The Peel-Harvey Coastal Catchment Water Quality Improvement Plan (WQIP) is in response to the Environmental Protection (Peel Inlet - Harvey Estuary) Policy 1992 and the Ministerial Conditions imposed in Bulletin 994 "Peel Region Scheme".

The intent is to aid improvement of the water quality of the Peel-Harvey estuarine system and relates to the part of the district that resides within two sub catchments of the Peel-Harvey catchment area, which the City shares with the Shire of Serpentine-Jarrahdale.

Drainage and Nutrient Management Plan - These plans are replaced by the requirements of a Water Management Plans which provide more information related to WSUD.

Drainage, Nutrient and Water Management Plan - These plans are referred to in the Ministerial conditions for the Peel Region Scheme (Statement no 601, Aug 2002), but are now substituted with District and Local Water Management Strategy.

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

GDE - Groundwater dependent ecosystems

Non-Structural Controls - 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.

Offset - An environmentally beneficial activity undertaken to counterbalance an adverse environmental impact or harm, with the goal of achieving an approved environmental quality objective or target.

Structural Controls - 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 an 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.

5 REFERENCES

Interim Drainage and Water Management Position Statement: Constructed Lakes, 2007, Department of Water, (www.portal.water.wa.gov.au/portal/page/portal/WaterManagement/Stormwater/PositionStatements/Content/Interim%20Position%20Statement_Constructed%20Lakes_Final_July0.pdf)

Chironomid Midge and Mosquito Risk Assessment Guide for Constructed Water Bodies, 2007. Department of Health and Midge Research Group of WA (www.cockburn.wa.gov.au/midges/index.html)

Peel-Harvey Coastal Catchment WSUD Technical Guidelines, prepared for the Peel Development Commission, October 2006, Peel Harvey Catchment Council (www.peel-harvey.org.au/content/cci_projects/cci_p3_wsdp.asp).

The Peel-Harvey Coastal Catchment Water Quality Improvement Plan (WQIP) (www.epa.wa.gov.au/phwqip.asp).

6 ADOPTION

This Planning Procedure was adopted by the Council at its ordinary Meeting held on the 23 February 2010.

Appendices

1. Environmental Quality Criteria
2. Details for each Water Management Plan
3. Risk Classification for Subdivision and Development
4. Peel Harvey Coastal Catchment Location Map
5. Peel Harvey Catchment

APPENDIX 1: 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 until finalisation of the Peel-Harvey WQIP. 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 – The critical 1 in 1 year ARI event, should be infiltrated on site, with the post development discharge volume and peak flow rates 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 groundwater levels 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 Plan.

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 modeled 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 & 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. Use should be made the Interim Drainage and Water Management Position Statement: Constructed Lakes, 2007, Department of Water and Chironomid Midge and Mosquito Risk Assessment Guide for Constructed Water Bodies, 2007, Department of Health and Midge Research Group of WA.

APPENDIX 2: DETAILS FOR EACH WATER MANAGEMENT PLAN

District Water Management Strategy

The District Water Management Strategy should be summarised as a chapter in the District Structure Plan and linked as a technical appendix.

The District Water Management Strategy should incorporate:

- Objectives for total water cycle management including water quantity and water quality management objectives;
- Broad description of constraints to water management within the study area due to existing infrastructure, existing land uses, possible groundwater pollution plumes, Acid Sulphate Soils (both actual and potential) and groundwater capture zones of significant wetlands and other groundwater dependent ecosystems (GDE's);
- Desk top assessment of past land use with the potential for contamination including high nutrient levels;
- Identify water sources for drinking water and other uses, with an emphasis on alternative water supplies instead of scheme water and groundwater;
- A Sampling and Analysis Plan (SAP) including regional surface and groundwater investigations (monitoring of a minimum of 12 -24 months required), modelling and analysis to provide:
    - Groundwater level fluctuations over time to determine the maximum groundwater levels, and from this, areas suitable for development;
    - Hydrogeological parameters of the study area and relevant catchments, including surface water flow paths, 100yr flood plains (as provided by the DoW), regional groundwater flow directions, likely impacts of development on significant GDE's;
    - An assessment of regional groundwater quality and quantity, including resident catchment and aquifer conditions;
    - An assessment of the recommended land use scenario based on the above elements and any suggested modifications;
    - Strategies and recommendations for planning precincts to guide and control land uses and development where necessary;
    - Identification of specific issues/areas likely to require specialised investigation and management at later stages of planning;
    - Demonstrated understanding of Best Management Practices (BMP's) for potable and non-potable water usage, groundwater management and stormwater management and Best Planning Practices to be utilised in the study area;
    - A conceptual stormwater management system including identification of land requirements for management of the 100yr flood event, conceptual multiple use corridors and treatment trains. The ability of the system to meet any identified targets should be discussed and addressed;

- Recommendation for strategies and responsibilities for further local surface and groundwater monitoring, both pre and post development including data analysis, presentation and reporting mechanisms; and

- Recommended implementation framework identifying funding and ongoing maintenance responsibilities, and including monitoring and technical review of the regional strategy.

Local Water Management Strategy

A Local Water Management Strategy should be prepared in parallel with the development of any Local Structure Plan or major Outline Development Plan.

The Local Structure Plan/ Outline Development Plan should be consistent with the objectives and requirements of Liveable Neighbourhoods (WAPC, 2008), and comply with any current existing District Water Management Strategy. Ultimately it should seek to integrate strategic catchment management and land-use planning objectives and minimise geotechnical, hydrological and environmental impacts, and where not possible outline actions to mitigate or offset such impacts.

The Local Water Management Strategy should provide the following details:-

- Existing natural ground levels and proposed finished ground levels;

- Pre- and Post-development extent of deep rooted perennial vegetation, particularly native remnant vegetation, waterways and wetlands of conservation significance; and the extent of the buffers proposed to assist their protection;

- Pre and Post-development maximum groundwater levels;

- The proposed WSUD practices and treatment trains, including their integration into the urban landscape;

- The results of 12 months to two (2) years monitoring of ground and surface water levels, flows and quality; as well as studies of the geotechnical and biological characteristics of the study area. In sensitive areas, Council may require a longer duration of baseline monitoring and possibly further studies.

The conceptual urban water management system that should also be included containing the following:-

- Identification of land required for storage and retention of stormwater for the 1 in 100yr ARI, 1 in 10yr ARI and 1 in 1yr ARI storm events;

- Map of existing groundwater levels and any proposed Controlled Groundwater Levels (CGL) (including subsoil drains) with justification for this control including potential impacts on groundwater dependent ecosystems;

- Fit-for-purpose water use strategy - mechanisms to conserve potable water and reuse wastewater or stormwater (including those relating to development design and construction); and

- Infrastructure and management requirements for proposed water, wastewater and stormwater systems, having consideration of infrastructure already existing and identifying any necessary approvals required.

The Local Water Management Strategy should address the following:-

- Outline expected potable water consumption, groundwater quantity, groundwater quality, stormwater quantity and stormwater quality;

- Demonstrate that the stormwater quantity and stormwater quality meets Environmental Quality Criteria (Appendix 1) and, if applicable the load targets within the "Peel-Harvey Coastal Catchment Water Quality Improvement Plan" (EPA, in preparation) and outlined in Section 4.3.5.1;

- Demonstrate sufficient groundwater allocation for the development proposal; and

- Comprehensive site assessment and planning to identify constraints and opportunities including:

    - Existing and proposed natural and artificial water pathways, including multiple-use corridors;

    - Groundwater dependent ecosystems, areas of notable landscape or landform;

    - Social, cultural and heritage values of significant water resources;

    - Potential pollution export risk levels based on historical land uses, soil type, hydrology and proposed land use.

Other matters to be addressed within the Local Water Management Strategy are:-

- Any proposed constructed water body must be indicated at this stage and justified as outlined in Section 4.1(f);

- Issues to be addressed at subdivision stage (included in an Urban Water Management Plan);

- Lifecycle cost assessment of the proposed water cycle strategy; and

- Proposed implementation of strategy including roles, responsibilities and funding for monitoring and maintenance.

Urban Water Management Plan

The Urban Water Management Plan be consistent with the endorsed Local Water Management Strategy and the endorsed District Water Management Plan; and should be endorsed by council prior to commencement of ground disturbing activities. This ensures that if changes are required to the design to improve the performance of the stormwater system, these can be done prior to commencing civil works.

The level of detail of the UWMP is dependent on; the level of detail provided in the approved Local Water Management Strategy; appropriate to the size and potential risk associated with the development (as outlined in Appendix 3); as well as the degree of previous water planning and investigation and the characteristics of the site (i.e. depth to groundwater, soil type, proximity to GDEs).

The Urban Water Management Plan should provide the following:-

- Compliance with the design objectives in the endorsed Local Water Strategy Plan;

- Comprehensive site analysis (existing stormwater system in and adjacent to the site, existing services, constraints); and

- Detailed stormwater management design including the size, location and design of public open space areas and including:

- Stormwater drainage design for the development, including layout plans, design details and calculations including location of pits, pipes sizes, grades and discharge outlet details, on-site detention and retention (if required);

- Details of specific structural and non -structural s tormwater t reatment and management measures to be implemented to control the pollutants in accordance with the relevant Environmental Quality Criteria, including their function, location, maintenance requirements including the ten year annualised cost to Council, expected performance and ongoing management arrangements;

- Demonstrate integration in the surrounding area outside of the development;

- Management of gr oundwater l evels i ncluding proposed f ill volumes, t ype of f ill material, pre and post development ground level and any proposed dewatering;

- Details on how WSUD practices and treatment trains, previously identified in the Local Water Management S trategy, will be a pplied a t t he individual s ubdivision e state and/or individual allotment scale; and

- Water conservation and re-use practices to be applied throughout the study area.

Depending on the circumstances the Urban Water Management Plan may need to address:-

- Management of groundwater contamination (“hot spots”), Acid Sulphate Soils (both Actual and Potential) and other specific site conditions including identification of pollutants likely to emanate from the site (including sources, effects, and likely pathways);

- Use of Living Streams, soil amendment, vegetated soil filters or vegetated swales and buffers;

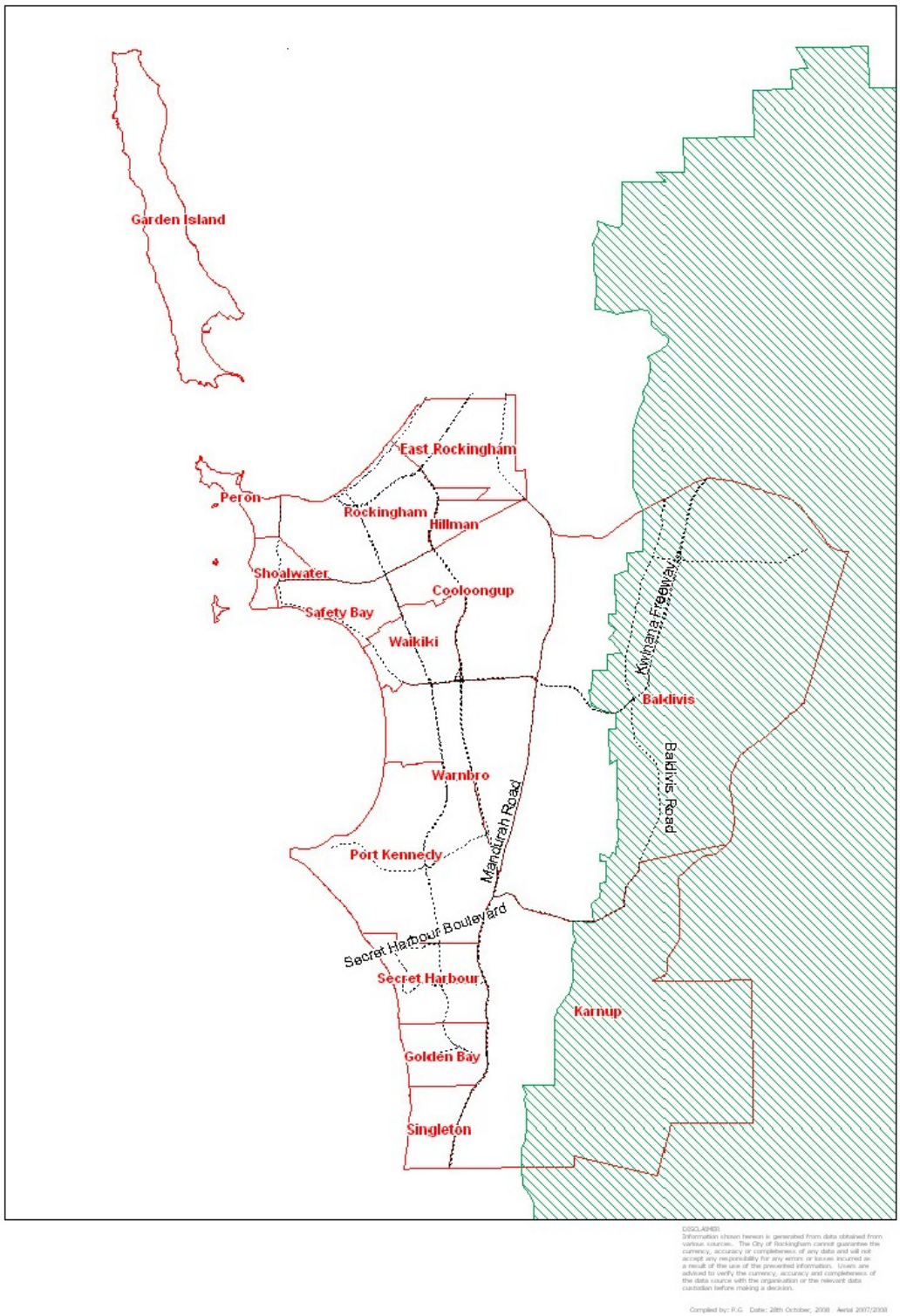
- Protection of ecological, social and cultural values of waterways, wetlands (and their buffers), remnant vegetation and ecological linkages.

APPENDIX 3: RISK CLASSIFICATION FOR SUBDIVISION AND DEVELOPMENT

RISK CLASSIFICATION FOR SUBDIVISION AND DEVELOPMENT	
Risk Level	Development
Low	Good depth to groundwater (1.2m <) and can accommodate all on site infiltration, with no significant impact on water dependent ecosystems, and no offsite discharge or regional drainage issues or Residential development connected to deep sewerage or Commercial or industrial use connected to deep sewerage or licensed under Part V of the Environmental Protection Act.
Medium	Off-site discharge is required to a local &/or regional drainage system where there are low environmental risks or impacts on a Resource Enhancement wetland or its buffer or Medium acid sulphate soils risk or Residential, commercial and industrial development not connected to deep sewerage.
High	Any proposal on land where two or more of the following apply: Maximum groundwater level is less than 1.2 metres below the natural ground surface; or Any proposed off-site drainage could lead to degradation of wetlands, or waterways, or any part of a Conservation Category wetland or its buffer, or a Bush Forever Site; or The development is situated on a floodplain; or High acid sulphate soil risk exists.

APPENDIX 4: PEEL HARVEY COASTAL CATCHMENT LOCATION MAP

As described in Schedule 1 of the Environmental Protection (Peel Inlet – Harvey Estuary) Policy 1992.



APPENDIX 5: PEEL HARVEY CATCHMENT

Requirement for developments within the Peel Harvey Catchment Area.

4.3.1 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 r eferred to the DoW, unless appropriate and acceptable information is provided to demonstrate that the subdivision or development will achieve the relevant Environmental Quality Objective or Criteria (Appendix 1).

4.3.2 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, as encapsulated in the Peel-Harvey Coastal Catchment WSUD Technical Guidelines; or other techniques acceptable to the Council.

4.3.1 Minimum Percentage Area of Deep Rooted Perennial Vegetation

All proposals should aim to maintain at least 20% of the proposed infiltration area with deep rooted perennial vegetation. This may require re-vegetation work to be undertaken by the landowner if there is insufficient remnant vegetation on site to meet this requirement. Proposals for “vegetation banking”, or “environmental offsets” consistent with the principles and practices set out in the EPA Position Statement No. 9 (Environmental Offsets) 2005 will also be considered.