



## Mechanical equipment wash down

### Purpose

Wash down of mechanical equipment is widely practised not only for aesthetic reasons, but also for operational efficiency, safe mechanical servicing, and preventing the spread of weeds and fungal diseases. Wash down poses a risk to water resources if soil, fuel, oil, grease, tars or solvents are washed into surface waters, or soluble contaminants leach into groundwater. If these wastes enter water resources, they could disrupt the surface and groundwater ecology, interfere with recreational use, and pollute water drawn from reservoirs, wells and bores used for drinking, irrigation or other purposes.

The Department of Water is responsible for managing and protecting the state's water resources. It is also a lead agency for water conservation and reuse. This note offers:

- our views on the contamination risks posed by land use activities and facilities to water resources
- guidance on acceptable practices and statutory measures employed to protect the quality of our water resources
- a basis for the development of a multi-agency code or guideline designed to balance the views of industry, government and the community, while sustaining a healthy environment.

Appendices provide additional background and technical advice as follows:

- A. Information on sensitive water resources, note limitations and updates
- B. Relevant statutes and administering agencies
- C. Data needed for assessing developments, followed by references and further reading, note disclaimer and how to provide feedback.

### Scope

This note applies to any facilities and processes used to clean contaminants from vehicles, earth moving plant and other mechanical equipment. The main focus of the note is on small-scale (those disposing of less than 5 kL of wastewater per day), and non-automated wash down facilities.

Large, automated wash down facilities that discharge wastewater to the environment require individual assessment of water quality and community risks. Conditions may be set by regulatory agencies, especially if the facilities are located near sensitive water resources (Appendix A). The recommendations in this note apply throughout Western Australia.

For mobile wash down of vehicles and equipment, see our Water quality protection note (WQPN) 29 *Mobile mechanical servicing and cleaning*.

## Advice and recommendations

### Location

- 1 Wash down facilities should not be located close to sensitive water resources (Appendix A), unless:
  - a adequate facilities are provided to contain, treat and then dispose of waste residues at an approved location, without causing harm to sensitive waters
  - b wastewater treatment facilities are designed, operated and maintained so that any effluent discharge to the environment is compatible with the quality of receiving waters and conforms to national water quality criteria to maintain local water quality values (reference 1).
- 2 Where existing approved commercial wash down premises are located nearby, consideration should be given to using these rather than building a new facility, as this option may offer financial and sustainable environmental benefits.

### *Within public drinking water source areas*

For explanatory information on management of public drinking water source areas (PDWSAs), see WQPN 25 *Land use compatibility in public drinking water source areas*, WQPN 36 *Protecting public drinking water source areas* and WQPN 75 *Proclaimed public drinking water source areas* (reference 3b).

- 3 Within designated priority areas P1 and P2, wellhead and reservoir protection zones (Appendix A), the establishment or expansion of automotive businesses, mechanical servicing, service stations and similar activities including wash down facilities are considered to be incompatible with the management objectives for the water resource. This department will oppose development or expansion of wash down facilities in these areas or zones.
- 4 Within designated priority areas P3, wash down facilities are considered 'compatible with conditions' provided best environmental management practices are used. Unless any project-specific regulatory conditions are set, acceptable environmental management practice is provided in this note.
- 5 Wash down areas and associated drainage facilities should have a minimum vegetated separation distance from water bodies as described in our WQPN 6 *Vegetated buffers to sensitive water resources* (reference 3b).

### *Near natural waterways*

Waterways managed by the Department of Water include all natural creeks, streams, brooks, rivers, inlets, estuaries and surface open drainage systems.

- 6 Wash down facilities should not be established on land subject to seasonal flooding, within defined flood plains or within foreshore areas of waterways (reference 3c).
- 7 An adequate separation distance should be maintained between wash down management facilities and waterways (including foreshore areas) to protect their ecological and social values and prevent water quality degradation. Foreshore areas are determined on the basis of the waterway values, vulnerability to contamination

threats and biophysical criteria as described in our Foreshore policy 1 – *Identifying the foreshore area* (reference 3a).

- 8 Our water note 23 and river restoration report 16, both titled *Determining foreshore reserves*, provide supporting information on defining foreshore areas (reference 3c).
- 9 Natural vegetation buffers can improve water quality by filtering contaminated water before it enters a water body. However, the following points should be considered:
  - a Vegetated buffers may not act as an effective protection barrier to prevent discharge of petroleum hydrocarbons to the environment, though they may slow their passage into wetlands and waterways.
  - b Vegetation density and landform are important considerations when determining appropriate separation distances between land uses and waterways. For advice on buffer selection, see our WQPN 6 *Vegetated buffers to sensitive water resources* (reference 3b).
- 10 For development approval near natural waterways or any waters in a proclaimed management area, project details (Appendix C) should be provided and advice sought from this department's local regional office.
- 11 Information on the location of sensitive water resources and waterway values is available from our local regional office (see <[www.water.wa.gov.au](http://www.water.wa.gov.au)> select *Contact us*). For online location information, see <[www.water.wa.gov.au](http://www.water.wa.gov.au)> select *Tools and data > maps and atlases > geographic data atlas*. These interactive maps show proclaimed *waterways management areas* in the southwest of the state by opening the *Environment* layer. For general online information on waterways and guidance on best management practice see <[www.water.wa.gov.au](http://www.water.wa.gov.au)> select *managing our water > managing our rivers and estuaries*.

#### *Within proclaimed waterways management areas*

Five management areas have been declared under the *Waterways Conservation Act 1976* (Appendix B) to provide special protection to some rivers, inlets and estuaries. These areas are considered especially vulnerable to degradation. These management areas are the Albany Waterways, Avon River, Leschenault Inlet, Peel-Harvey Estuary and Wilson Inlet.

- 12 Development approval from the department is required in proclaimed management areas. Proponents should contact our local regional office and provide the relevant project details (Appendix C) for assessment. To discuss any technical aspects, contact our Waterways branch in Perth by phone on (08) 6364 7600.

#### *Disturbance to bed or banks of a waterway*

- 13 A permit may be required from the department under the *Rights in Water and Irrigation Act 1914* to undertake any works that will alter the bed or banks of a waterway within a proclaimed river, surface water management area or irrigation district. Permits, if granted, may contain conditions such as a requirement to stabilise waterway banks or restore waterway vegetation.

### *Within Swan River Trust management area*

14 The Swan River Trust is responsible for the protection and management of the Swan-Canning River system to safeguard its ecological and social values under the *Swan and Canning Rivers Management Act 2006*. Approval from the trust is needed for any land- or water-based development within the Swan, Canning, Helena or Southern rivers and their associated foreshore areas - the *Swan River Trust development control area (DCA)*. Activities and development close to these areas are likely to have an effect on the waters of the river system. Development proposals within or abutting the DCA should be referred to the trust for comment.

Developments distant from the DCA, but near river tributaries or drainage systems, that could affect waters within the area, for example by leachate in groundwater flow, should also be referred to the trust for assessment and advice. For detailed information, see online advice at <[www.swanrivertrust.wa.gov.au](http://www.swanrivertrust.wa.gov.au)>, phone +61(8) 9278 0900 or email: [planning@swanrivertrust.wa.gov.au](mailto:planning@swanrivertrust.wa.gov.au).

### *Near conservation valued wetlands*

Chemicals or contaminated waters should not enter the environment close to sensitive waters such as wetlands (Appendix A).

15 Wetlands require an adequate buffer to protect their ecology from harm (such as the effects of excessive nutrients and mobile pollutants) and to maintain their ecological processes and functions. The width of the buffer should be based on the values of the wetland, the threats posed by the adjacent land use and the protective management techniques used at the facility to maintain or improve wetland values. Recommended buffer distance criteria for the Swan coastal plain are provided in *Position statement - wetlands* 2001. Online information is available from <[www.dpaw.wa.gov.au](http://www.dpaw.wa.gov.au)>.

16 Advice from the Department of Parks and Wildlife should be sought when any development is located within 500 m of a wetland.

### *Near private water supply sources*

Under some circumstances it may be impractical to carry out scientific studies to define site-specific separation distances, such as for small-scale developments or where a potential buffer zone has been severely disturbed. The separation distance from the external perimeter of wash down facilities should be a minimum of 100 m from the full supply level of surface drinking water source reservoirs, their primary feeder streams, production bores or wells; and any in-ground aquaculture ponds (excluding tanks). For all other water supply uses, the minimum separation distance should be 50 m.

### *Other location constraints*

18 A minimum vertical separation distance of 2 m to the maximum (wet season) watertable is recommended at effluent discharge points for free-draining soils to avoid water-logging, allow for soil contaminant filtration and aerobic microbial action.

19 Wash down should not occur on steep land (slope exceeding 1 in 10), unless effective measures are installed to prevent water run-off and soil erosion.

20 Areas subject to periodic flooding (at average return interval less than 20 years) should also be avoided (reference 5).

### Development approval

21 Proposed wash down facilities development applications near sensitive waters should be submitted to the relevant local government authority, who in turn should refer the development proposal to the local regional office of the Department of Water for assessment and response. The submission should include relevant information described in Appendix C.

### Construction of wash down facilities

22 Equipment wash down should be contained on an impervious pad, such as reinforced concrete or plastic liner (for temporary facilities), with a perimeter kerb or bund wall (ideally within a weather-proof building). If unroofed, the pad should be kept to the smallest practical surface area to minimise stormwater access and fully contain wash down residue. The wash down pad should drain to a collector pit.

23 Water collected from the wash down pad should drain from the collector pit via a pipe or culvert into a sediment basin to settle and allow removal of soil and other solid contaminants. The basin should provide for effective gravity settling of solids with a minimum water detention capacity of one hour under peak flow conditions.

24 If quick-break emulsion cleaning agents are used, then any oily waste floating on the surface should pass via a skimmer into a de-emulsification basin, where sufficient detention time is provided for natural or induced emulsion breakdown.

25 Any de-emulsification basin should overflow via a trapped (tee piece) weir. The effluent should be transferred to an oil separator (inclined plate, chemical coagulation or dissolved air flotation) with a rated capacity designed to deal with the peak wastewater flow. These basins should be designed by an experienced water treatment professional to match the anticipated contaminant loading. Treated effluent quality from the oil separator, measured as *total petroleum hydrocarbons* should not exceed 15 mg/L, with C6-C9 aromatics such as benzene, toluene, ethyl-benzene and xylene (BTEX) as described in the *Indicative wastewater discharge criteria* table further on in this note.

26 Sediment traps, de-emulsification basins and water treatment vessels should have an impervious lining and minimum freeboard to contain wash-water and any captured stormwater from a minimum two-year return frequency, 24-hour storm. Methods to calculate runoff from storms are described in *Australian rainfall and run-off* (reference 5).

### Operational management

27 All equipment wash down should occur on a contained impervious pad that drains to wastewater detention and treatment facilities.

28 High pressure water, steam cleaning, scrubbing or quick-break detergents should be the first choices for cleaning mechanical equipment. Chemical solvents may be used sparingly as necessary for baked on grime.

- 29 The settled soil material and sludge in any sediment traps should be monitored and periodically removed for disposal at a registered landfill or disposal facility.
- 30 Where use of organic solvents and similar chemical cleaners that create stable emulsions are essential to remove adhered material, artificial methods to break-down resultant emulsions should be used (such as chemical coagulation), before oil separation occurs. Where chemical coagulation is used to break oily emulsions, coagulated effluent may need further treatment such as. pH adjustment and solids separation prior to effluent disposal.
- 31 Petroleum hydrocarbons recovered by the oil separator and emulsion break residues should be collected and securely stored in weather-proof containers for recycling, destruction by incineration or disposal at a site approved in accordance with the *Health Act 1911* and the *Environmental Protection Act 1986*.
- 32 Absorbent materials such as sand or inert porous material (such as 'kitty litter') should be kept on-site to assist clean-up of any chemical spills. Sawdust is not recommended as it presents a fire hazard. Spilt fluids should be initially recovered using absorbent matter, prior to any floor wash down. Used litter should be disposed of at an approved site.
- 33 Site staff should be trained and assigned to manage chemical spills and similar emergencies to limit the risk of environmental harm.

#### Wastewater disposal

- 34 Treated wastewater should be recycled, reused, exported for disposal at an approved facility or discharged to sewer (if available and matched to the industrial waste acceptance criteria of the water services provider).
- 35 Where the above options are impractical and the wash down facility is remote from sensitive environments, effectively treated excess wastewater may discharge to a surface soak pit or evaporation basin. Any soak pits should be designed to foster aerobic biological breakdown of residual petroleum hydrocarbons. Small quantities of garden fertiliser (typically 50 g/m<sup>2</sup> of open pit base, applied once a year in early summer) may be mixed with damp oil stained soils to improve microbial oil breakdown.
- 36 Wastewater (treated or otherwise) should not be discharged to:
  - a stormwater pipes or drains, unless prior written approval is obtained from the owner or operator of the drain (normally your local government authority or the water services provider for main drains)
  - b waterways or wetlands (as toxic residues are likely to harm water birds and aquatic ecology). For detailed advice on wastewater and stormwater disposal in built up areas, see references 3d and 8.
- 37 The quality of any treated waters discharged to soakage should be compatible with all the existing environmental values of the downstream water resources within 1 km of the disposal point. As an indicative guide, discharged waters should as a minimum meet the criteria given in the following table.

### Indicative wastewater discharge criteria

Measured component	Limiting criteria
pH	Within the range 5.5 to 8.5
Salinity (measured as electrical conductivity)	1800 µS/cm (maximum)
Surfactants (detergents)	5 mg/L (maximum)
Total petroleum hydrocarbons	15 mg/L (maximum)
BTEX (benzene, toluene, ethyl benzene and xylene)	10 µg/L (cumulative maximum)
Other toxic soluble contaminants	Ten times the guideline criteria or investigation trigger for local water values as published in the relevant National water quality management strategy guideline criteria to protect local water resource values (references 1a and 1b).

### Solid wastes

38 Solid wastes should be fully contained and dewatered, pending disposal offsite at an approved facility for that type of waste.

### Monitoring and reporting

- 39 A maintenance inspection of any wastewater treatment and disposal system should occur at least weekly. The waste treatment system's operating performance should be checked at least every three months. Any necessary remedial action should be taken immediately. All inspection results, analytical data, and corrective actions should be recorded in an operating log. This data should be retained on-site for a minimum of two years in a running operations logbook.
- 40 Where required by regulatory authorities, the site operator should take representative samples at six-monthly minimum intervals of any liquids discharged to the environment. These liquids should be analysed by a laboratory registered by the National Association of Testing Authorities (NATA) for the relevant test parameters, such as pH, electrical conductivity, suspended solids, biochemical oxygen demand, chemical oxygen demand, total petroleum hydrocarbons, BTEX and surfactants. Operators should effluent analysis results on site for a period of two years for scrutiny by regulators.

## Appendix A: Information on sensitive water resources, note limitations and updates

### Sensitive water resources

Our water resources sustain ecosystems, aquatic recreation and aesthetic values as well as providing drinking, industry and irrigation supplies. Along with breathable air, uncontaminated water is essential for viable communities. Natural water resources should remain within defined quality limits to retain their ecological, social and economic values. Hence they require appropriate protection measures to minimise contamination risks.

Information on water quality parameters and processes to maintain water values are published in the Australian Government's national water quality management strategy papers. These papers are available online at <[www.environment.gov.au](http://www.environment.gov.au)> select *water* > *water policy and programs* > *water quality*.

The Department of Water strives to improve community awareness of catchment protection measures (for both surface water and groundwater) as part of a multi-barrier protection approach to sustain acceptable water resource quality. Human activity and many land uses pose a risk to water quality if contaminants in significant quantities are washed or leached into water resources.

Sensitive waters include estuaries, natural waterways, wetlands and groundwater. These waters support one or more of the environmental values described below.

### Public drinking water sources

#### *Overview*

Public drinking water source area (PDWSA) is the collective name given to any area proclaimed to manage and protect a community drinking water source. PDWSA include underground water pollution control areas, water reserves and catchment areas administered by the Department of Water under the provisions of the *Metropolitan Water Supply, Sewerage and Drainage Act 1909* or the *Country Areas Water Supply Act 1947*.

For online information on the location of PDWSA, see <[www.water.wa.gov.au](http://www.water.wa.gov.au)> select *tools and data* > *maps and atlases* > *geographic data atlas*, then open *environment* > *public drinking water source areas*.

Within PDWSA, priority areas are defined (P1, P2 or P3) via publicly consulted drinking water source protection plans or land use and water management strategies. Priority areas are used to guide land planning, rezoning and development approval processes. Priority areas are assigned considering the current local planning scheme zoning, land tenure, the water source's strategic value and its vulnerability to harm. Each priority area is managed using a specific risk-based strategy to provide for effective water resource protection. The Department of Water develops these documents in consultation with other government agencies, landowners, industry and the community.

P1 areas are defined to ensure human activity does not degrade a water source. These areas are declared over land where the provision of high-quality drinking water for public use is the primary beneficial land value. P1 areas typically cover land controlled by the state government or one of its agencies. These areas are managed under the principle of *risk avoidance*, so most land development and human activity is normally opposed.



P2 areas are defined to ensure there is *no increased risk of pollution* to the water source once a source protection plan has been published. These areas are declared over land where low-intensity development exists (involving rural usage such as dry land grazing or cropping). Protection of public water supply sources is a high priority in P2 areas. These areas are managed in accordance with the principle of *risk minimisation*, and so the intensity of development should be restricted (via management conditions) and activities with a low water contamination risk are normally considered acceptable.

P3 areas are defined to *manage the risk of pollution* to the water source. These areas are declared over land where public water supply sources must co-exist with other land uses such as residential, commercial and/or light industrial development. Protection of P3 areas is mainly achieved through land use management measures e.g. contamination barriers. Environmental guidance (such as these notes) or site-specific development approval conditions are used to limit the water resources contamination risk from the land use or activity. If, however, the water source becomes contaminated, then water supplied from P3 sources may need to be more intensively treated or an alternative water supply source commissioned.

Additional protection zones are defined close to the point where drinking water is extracted or stored. These zones are called *wellhead protection zones (WHPZ)* and *reservoir protection zones (RPZ)*. Statutory land use constraints apply to activities within these zones surrounding sources to safeguard these waters most vulnerable to contamination.

WHPZ are assigned around water production wells based on hydrological factors. Statutory land use restrictions apply within these zones as groundwater moves rapidly towards wells due to aquifer depressurisation by pumping. Any contaminants leaching from the ground surface in a WHPZ could rapidly migrate into scheme water supplies (before effective remedial action can occur). In sedimentary basins, WHPZ are usually circular, with a radius of 500 m in P1 areas and 300 m in P2 and P3 areas. These zones do not extend outside PDWSA boundaries.

RPZ are defined over and around public water supply storage or pipe-head reservoirs. Statutory access and land use restrictions apply in RPZ. The aim is to restrict the likelihood of contaminants being deposited or washing into water sources in any runoff. RPZ are normally within state-controlled areas encompassing land up to 2 km measured outward from the reservoir top water-level and include the inundated area when the reservoir is full.

For additional explanatory information on PDWSA, see our Water quality protection note (WQPN) 25 *Land use compatibility in public drinking water source areas*, WQPN 36 *Protecting public drinking water source areas*, WQPN 75 *Proclaimed public drinking water source areas*, note 76 *Land use planning in PDWSA* and WQPN 77 *Risk assessment in PDWSA*. These notes are available online at <[www.water.wa.gov.au](http://www.water.wa.gov.au)> select *publications* > *find a publication* > *series browse*.

#### *Established activities within PDWSAs*

Many land use activities were approved and established before publication of a source protection plan or land use and water management strategy.

Activity operators should ensure that modern environmental facilities and practices are progressively implemented and maintained so that the water resource contamination risk is minimised (within practicable and economic constraints).

### *New or expanded activities in PDWSA*

Any development proposals that could affect a drinking water source should be referred to this department's local regional office with detailed supporting information for an assessment and written response.

The development proposal may be:

- approved (with or without conditions)
- delayed pending receipt of additional information before a decision is made; or
- opposed due to a statutory or policy conflict or inadequate protective measures provided to safeguard the water source.

To assist the assessment, operators should demonstrate that under all operating conditions the facilities and processes used on-site do not pose a significant water contamination risk.

### *Buffers to water supply sources*

Native vegetation buffers should be used to separate compatible land use areas from the sources of drinking water including the full supply margins of reservoirs, their primary feeder streams and/or production bores. Advice on suitable buffer forms and dimensions is provided in WQPN 6 *Vegetated buffers to sensitive water resources*.

### *Within clearing control catchments*

Controls on vegetation clearing for salinity management in country areas are provided under Part IIA of the *Country Areas Water Supply Act 1947*.

These controls apply in the Wellington Dam, Harris River Dam, Mundaring Weir and Denmark River catchment areas and the Kent River and Warren River water reserves.

Details of clearing controls may be obtained from our regional offices, see online information at <[www.water.wa.gov.au](http://www.water.wa.gov.au)>, select *Contact us*.

### **Private water supply sources**

Private water sources vulnerable to contamination include:

- drinking water sources for people or domesticated animals
- commercial or industrial water supply sources (requiring specific qualities that support activities such as aquaculture, cooling, food and mineral processing or crop irrigation)
- urban or municipal irrigation sources (where water quality may affect vegetation performance or people's health and wellbeing).

### **Underground ecosystems**

Important underground ecological functions that may be at risk of contamination include groundwater- and cave-dwelling animals and microorganisms (generally located within soils that have open pore spaces such as sand, gravel and limestone).

### **Waterway ecological and social values**

Waterways that have high social and conservation significance are described in the Western Australian Environmental Protection Authority (EPA) Guidance statement 33 *Environmental guidance for planning and development*, section B5.2.2. This statement is

available online at <[www.epa.wa.gov.au](http://www.epa.wa.gov.au)> select *policies and guidelines* > *environmental assessment guidelines* > *guidance statements*.

The Department of Water manages natural waterways under Section 9 of the *Water Agencies (Powers) Act 1984* and the *Rights in Water and Irrigation Act 1914*. For online information, see <[www.water.wa.gov.au](http://www.water.wa.gov.au)> and select *managing water*. Apart from aquatic ecosystems and water sources, waterways provide social values including aesthetic appeal, drainage pathways and recreational opportunities for watercraft use, fishing, tourism, swimming and related aquatic activities. Engineered drains and constructed water features are normally not assigned ecological values because their primary function and operational factors outweigh their ecological value.

This department also administers the *Waterways Conservation Act 1976* which defines Western Australian waterways subject to specific regulatory controls. Currently proclaimed waterways include the Avon River, Peel-Harvey Inlet, Leschenault Inlet, Wilson Inlet and Albany waterways management areas.

### Within the Swan-Canning Estuary catchment

The Swan River Trust is responsible for the protection and management of the Swan-Canning River system. The trust safeguards ecological and social values under the *Swan and Canning Rivers Management Act 2006*. Written approval is needed for any land- or water-based development within the Swan, Canning, Helena or Southern rivers and their associated foreshore areas within the *Swan River Trust development control area (DCA)*. Human activity and development close to these areas are likely to have an effect on the waters of the river system. Development proposals within or abutting the DCA should be referred to the trust for assessment.

Developments outside the DCA, but near river tributaries or drainage systems should also be referred to the trust for assessment and advice. This is because water quality within the area may be affected by chemicals leached into groundwater flow. For detailed information, see online advice at <[www.swanrivertrust.wa.gov.au](http://www.swanrivertrust.wa.gov.au)>, phone (08) 9278 0900 or email: [planning@swanrivertrust.wa.gov.au](mailto:planning@swanrivertrust.wa.gov.au) .

### Wetland ecology

Many important wetlands have been given conservation status under the Ramsar convention (described online at <[www.ramsar.org](http://www.ramsar.org)>), Japan and Australia migratory bird agreement (JAMBA), China and Australia migratory bird agreement (CAMBA), and Republic of Korea and Australia migratory bird agreement (ROKAMBA).

Wetlands are also protected under various national and Western Australian government policies. Conservation wetland data to guide land planning and development activities is provided via the following publications:

- *Directory of important wetlands in Australia* defines wetlands scheduled by the Australian Government. It is available online at <[www.environment.gov.au](http://www.environment.gov.au)> select *water* > *water topics* > *wetlands*.
- Wetlands with defined high conservation significance are described in the EPA (WA) guidance statement 33 *Environmental guidance for planning and development* (section B4.2.2). This statement is available online at <[www.epa.wa.gov.au](http://www.epa.wa.gov.au)> select *policies and guidelines* > *environmental assessment guidelines* > *guidance statements*.

The Department of Parks and Wildlife is the custodian of the state wetland datasets, and is responsible for maintaining and updating relevant information. Further information is available <[www.dpaw.wa.gov.au](http://www.dpaw.wa.gov.au)>.

Wetlands datasets identified for conservation value or for resource enhancement include *Geomorphic wetlands of the Swan Coastal Plain*, *South coast significant wetlands* and *Geomorphic wetlands Augusta to Walpole* (this dataset awaits detailed evaluation).

Wetlands that are highly disturbed by land use, or have been landscaped to provide a social amenity or drainage control function in urban settings, may not be assigned conservation values unless they are actively managed to maintain these values.

### Note limitations

Many Western Australian aquifers, waterways and wetlands await detailed scientific evaluation, present data on their quality is sparse and their values remain unclassified. Unless demonstrated otherwise, any natural waters that are slightly disturbed by human activity are considered to have sensitive environmental values. Community support for these water values, the setting of practical management objectives, provision of sustainable protection services and effective implementation are vital to protecting or restoring water resources for both current needs and those of future generations.

This note provides a general guide on environmental issues, and offers solutions based on data searches, professional judgement and precedents. Recommendations made in this note do not override any statutory obligation or government policy statement. Alternative practical environmental solutions suited to local conditions may be considered. This note's recommendations shall not be used as this department's policy position on a specific matter, unless confirmed in writing. In addition, regulatory agencies should not use this note's recommendations in place of site-specific development conditions based on a project's assessed environmental risks. Any regulatory conditions should consider local environmental values, the safeguards in place and take a precautionary approach.

Where a conflict arises between this note's recommendations and any activity that may affect a sensitive water resource, this note may be used to assist stakeholder negotiations. The negotiated outcome should not result in a greater water quality contamination risk than would apply if the recommended protection measures were used.

### Water quality protection note updates

This note will be updated as new information is received, industry/activity standards change and resources permit. The currently approved version is available online at <[www.water.wa.gov.au](http://www.water.wa.gov.au)> select *publications* > *find a publication* > *series browse* > *water quality protection notes*.

## Appendix B: Statutory approvals relevant to this note include

<b>What is regulated?</b>	<b>Western Australian statutes</b>	<b>Regulatory agency</b>
Impact on the values and ecology of natural waters.	<i>Environmental Protection Act 1986, Part IV Environmental Impact Assessment</i>	Department of Environment Regulation www.der.wa.gov.au
Waste discharge licenses from prescribed premises.	Environment Protection (Unauthorised Discharges) Regulations 2004	
Community health and amenity	<i>Health Act 1911</i>	Department of Health www.health.wa.gov.au Local government (council)
Transport, storage and handling of fuels, solvents, explosive and other dangerous goods	<i>Dangerous Goods Safety Act 2004</i> Dangerous goods safety regulations 2007	Department of Mines and Petroleum – Resources safety division www.dmp.wa.gov.au
Licence to take surface water and groundwater.	<i>Rights in Water and Irrigation Act 1914</i>	Department of Water, regional office www.water.wa.gov.au
Industrial sites in existing public drinking water source areas.	<i>Metropolitan Water Supply, Sewerage and Drainage Act 1909</i>	
Clearing of native vegetation in catchments: Mundaring, Wellington, Harris, Denmark, Warren or Kent	<i>Country Areas Water Supply Act 1947</i>	
Licence to discharge waters into declared waterways	<i>Waterways Conservation Act 1976</i>	
Discharge to sewer via an industrial waste permit	<i>Metropolitan Water Supply, Sewerage and Drainage Act 1909</i> <i>Country Towns Sewerage Act 1948</i>	Water Corporation www.watercorporation.com.au; other water services provider
Subdivision of land Land zoning and development approval	<i>Planning and Development Act 2005</i>	Western Australian Planning Commission, Department of Planning www.planning.wa.gov.au Local government (council)

Relevant statutes are available from the *State Law Publisher* at <[www.slp.wa.gov.au](http://www.slp.wa.gov.au)>

## Appendix C: Data needed for assessing developments

Where facilities near sensitive waters are to be constructed or upgraded, the following data should be supplied with the development proposal:

- 1 Site owner/ operating tenant's name and contact details.
- 2 A site plan showing the location of the project facilities relative to tenements, leases, lots and roads. The plan should show the topography, any remnant vegetation cover, existing and proposed development areas and onsite water features and sources.
- 3 Details of site investigation of soil strata, depth to water table (if applicable) and data on the location, extent, hydrology, quality and dependencies on local water resources (including any seasonal variations) that could be affected by site facilities or operations.
- 4 The present local government planning scheme land use zoning (where applicable). Current land use description, any site contamination history and its remediation.
- 5 Full description and scale of the activities planned for the project site, (including any site amenities, infrastructure, crops, animals, earthworks and chemical applications), construction and operating workforce and planned project operational life.
- 6 Describe the intended commissioning date, operating hours and any expansion options.
- 7 Details of any proposed vegetation clearing, environmental buffers, site earthworks and services, including water supply, sewerage and drainage provisions.
- 8 Description of all materials/ chemicals to be stored or handled on site in commercial quantities, including a water use budget.
- 9 Description of the types, quantities and quality of solid and liquid waste (if applicable) that will be generated at or disposed from the facility.
- 10 Description of planned material containment, waste management (treatment and disposal) and water recycling; with an environmental management plan and nutrient and irrigation management plan (where applicable)
- 11 Details of any environmental modelling conducted or planned monitoring system to demonstrate the effects of the project on local water resources
- 12 Planned operational and equipment maintenance procedures.
- 13 Details of any contingency measures proposed to minimise the impacts of chemical spills and safely dispose of contaminated waters that may result from storms, fire, flood, equipment malfunction or vandalism. Information should include workforce training, site monitoring and emergency response facilities.
- 14 Any project contractual agreements or regulatory approvals received.  
For significant projects, development proponents should engage the services of a qualified and experienced consultant to professionally prepare their development proposal. This should ensure that government agencies can efficiently assess and respond to the proposal without delays caused by inadequate or poorly defined information.

## References and further reading

- 1 Australian government - National water quality management strategy, available online at < [www.environment.gov.au](http://www.environment.gov.au) > select *water* > *water policy and programs* > *water quality* > *national water quality management strategy*
  - a *Australian and New Zealand guidelines for fresh and marine water quality, 2000*
  - b *Australian drinking water guidelines, 2011*
  - c *Australian guidelines for water quality monitoring and reporting, 2000.*
- 2 The previous Department of Environment and Conservation publication, now available from the Department of Parks and Wildlife <[www.dpaw.wa.gov.au](http://www.dpaw.wa.gov.au)>  
*Wetlands position statement*, Water and Rivers Commission, 2001.
- 3 Department of Water publications available online at <[www.water.wa.gov.au](http://www.water.wa.gov.au)>
  - a Water resource management policy, select *publications* > *find a publication* > *series browse* > *state-wide policies*  
*Foreshore policy 1 – Identifying the foreshore area, 2002.*
  - b Water quality protection notes (WQPN), select *publications* > *find a publication* > *series browse* > *water quality protection notes*
    - WQPN 6 *Vegetation buffers to sensitive water resources*
    - WQPN 25 *Land use compatibility in public drinking water source areas*
    - WQPN 28 *Mechanical servicing and workshop facilities*
    - WQPN 29 *Mobile mechanical servicing and cleaning*
    - WQPN 36 *Protection of public drinking water source areas*
    - WQPN 56 *Tanks for above ground chemical storage*
    - WQPN 75 *Proclaimed public drinking water source areas.*
  - c Water notes (WN), select *publications* > *find a publication* > *series browse* > *water notes* or *river restoration manual*
    - WN 10 *Protecting riparian vegetation*
    - WN 11 *Identifying the riparian zone*
    - WN 23 *Determining foreshore reserves*
    - River restoration report 16, *Determining foreshore reserves.*
  - d Stormwater manual, select *publications* > *find a publication* > *series browse* > *stormwater management manual.*  
*Stormwater management manual for Western Australia.*
- 5 Engineers Australia publications available online at < [www.engaustralia.com.au/bookshop/ebookspub.html](http://www.engaustralia.com.au/bookshop/ebookspub.html) >  
*Australian rainfall and runoff* (current edition).
- 6 Environmental Protection Authority (WA) publications available online at <[www.epa.wa.gov.au](http://www.epa.wa.gov.au)>, select *Environmental protection policies*  
*Environmental Protection (Swan Coastal Plains Lakes) Policy Approval Order 1992.*

- 7 Swan River Trust publications available online at [www.swanrivertrust.wa.gov.au](http://www.swanrivertrust.wa.gov.au), select *River science > Healthy rivers program > Drains to river Environmental management and cleaner production directory for small to medium businesses.*
- 8 Western Australian Planning Commission publication, available online at [www.planning.wa.gov.au](http://www.planning.wa.gov.au) search publications by topic *Better urban water management 2008.*

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## Feedback

We welcome your thoughts on this note. Feedback will help us prepare future versions. To comment on this note or seek any clarification, please contact our water source protection planning branch (details below), citing the note topic and version.

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