Government of Western Australia
Department of Water

Securing Western Australia's water future

Water quality protection note 81
April 2015

Tracks and trails near sensitive water resources

Background and purpose

Many Western Australians enjoy bush walking, hiking, horse riding and cycling in the natural environment. Not only are these recreational activities highly valued at a community level, they are also popular with interstate and overseas visitors attracted to our unspoilt landscapes. The Department of Water supports the establishment of tracks and trails that are appropriately located, designed, constructed and maintained.

Poorly designed, located and maintained tracks and trails (collectively termed 'tracks' in this note) can have a significant impact on the sensitive environments they pass through. Tracks that have inadequate drainage and weed management will contribute to soil erosion and the degradation of water quality within our wetlands, waterways and drinking water resources. Litter from campsites, inappropriate disposal of human waste and badly maintained visitor amenities can also negatively affect the experience of visitors and harm the environment, including water quality.

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 current views on the development and use of tracks near sensitive water resources
- guidance on acceptable practices to protect the quality of water resources.

Appendices provide additional advice relevant to this note, including:

A. Information on sensitive water resources, note limitations and updates
B. Relevant statutes and administering agencies
C. Data needed to support project assessments
D. Useful contacts, followed by the references, note disclaimer and advice on how to provide feedback.

Scope

This note applies to tracks used for recreational activities such as walking/hiking, cycling and horse riding near sensitive environments (see Appendix A). It covers track planning, development, construction, maintenance and use, and is aimed at users of tracks, land managers responsible for their development or maintenance, and organisations with a vested interest in land planning or recreation. It complements the Department of Water's

Operational policy 13: *Recreation within public drinking water source areas on Crown land* (reference 6a).

This note does not cover tracks constructed for or used by motorised vehicles.

Advice and recommendations

Development planning of tracks

Variable geology, soils, topography, vegetation and climate can occur along a single track. Erosion from poorly designed and constructed tracks can significantly affect water quality, as runoff during rain events can carry topsoil into nearby waterways and wetlands. Planning the design and location of tracks is essential to minimise soil and vegetation disturbance.

1 Factors that should be considered when planning tracks include:
   a The purpose of the track and its likely uses (tourism, hiking, cycling or bridle trail).
   b Volume of traffic anticipated, including seasonal variations.
   c Potential environmental impacts associated with increased access to the area.
   d Potential impacts on rare and endangered flora, fauna or heritage sites.
   e Soil type (ease of construction).
   f Risk to nearby wetlands.
   g Contamination risk posed by exposure of acid sulfate soils.
   h Erosion hazards and impacts of traffic/drainage runoff.
   i Track drainage and stream crossings.
   j Topographic restrictions (steep slopes, rocky outcrops, seasonally inundated areas).
   k Potential mass earth movement (e.g. areas with steep or unstable slopes).
   l Impact on vegetation form, density and size (including minimising impact on damp land vegetation.
   m Site feasibility assessment – examine merits of viable alternatives (reference 2).

2 Tracks should follow natural land contours wherever practical to minimise earthworks, disturbance to vegetation and erosion.

3 If practical, multiple-use tracks should be used. One track might be used for several compatible activities, or another might be constructed using existing/disused tracks with previously cleared vegetation. In forested areas, tracks along firebreaks should be considered.

4 Disused railway lines and service corridors may be developed as tracks to minimise the infrastructure and resources needed for establishment. These facilities are also sufficiently wide to support vehicle access for evacuation in the event of emergencies.

5 Tracks should not be developed within the riparian zone of waterways or wetlands. Our Water quality protection note (WQPN) 6 *Vegetated buffers to sensitive water resources* (reference 6c) provides detailed guidance. However, tracks that bridge waterways as part of existing essential service crossings may be approved. Tracks should retain

adequate vegetation buffers from the edge of waterways or wetlands. Where possible, disturbance to natural vegetation may be reduced by grouping structures and providing common access points.

6 Tracks should not be established in locations subject to seasonal flooding. Advice on flood prone land is available from this department.

7 Track construction or enhancement on land controlled by the state government (e.g. national parks, state forest and reserves) may be subject to development approval from the Department of Parks and Wildlife or the Swan River Trust. In other areas, the local government planning scheme can provide information on suitable trail locations

8 The International Mountain Bicycling Association (IMBA) provides online information on track construction at <www.imba.com>, select *resources* > *trail building and design*. A list of relevant publications with advice on track construction techniques is provided, such as *Trail solutions – IMBA's guide to building sweet singletrack* (reference 7).

Location within public drinking water source areas (PDWSAs)

9 Tracks are not supported within reservoir protection zones (RPZs), see reference 6a. RPZs are defined in drinking water source protection reports and are usually located within 2 km of the high watermark of drinking water reservoirs. These zones are established to protect the quality of drinking water by limiting the activities within the area closest to where drinking water is drawn under provisions of the *Metropolitan Water Supply, Sewerage and Drainage Act 1909* or *Country Areas Water Supply Act 1947*.

10 New toilet facilities are not acceptable within RPZs or wellhead protection zones to safeguard water used as a drinking source.

11 New tracks are not supported in the outer catchments of PDWSAs (see our Operational policy 13, reference 6a). Explanatory information is provided in the State Legislative Council enquiry into recreation within PDWSA, September 2010 (reference 10).

12 The maintenance of established tracks in outer catchments of PDWSA is supported, but not their expansion.

Amenities

13 Appropriate facilities (e.g. toilets, drinking water, cooking facilities) should be provided at designated campsites along any tracks that permit overnight camping. Signage should direct track users to take their rubbish with them for subsequent bin disposal.

14 Toilet facilities should be located at least 200 m away from any water resource (waterway, wetland or local drinking water source) with at least 2 m clearance to groundwater for free-draining soils.

15 When deciding on the type of toilet facility to install, factors to consider include climate, soil type, flood risk, distance to surface water and groundwater sources, predicted usage and ongoing maintenance requirements. Alternative sewerage treatment systems (e.g. composting toilets) should be models approved for use by the Department of Health and be installed and maintained according to the manufacturer's instructions. Sealed (pump out) systems may also be acceptable.

16 Huts, campsites, picnic facilities and public amenities along tracks should be placed in areas that minimise disturbance to fauna habitat and vegetation, preferably in areas of sparse vegetation (to minimise the risk of fire damage).

Waterway crossings

17 When planning and constructing tracks, waterway crossings involving wading or immersion should be avoided if practicable. Where track crossings are required, the following principles should be considered:

   a Avoid changing stream flow regimes via flow barriers as these may increase flooding or waterlogging of upstream land.

   b The crossing should replicate the natural cross-sectional area and shape of the waterway so that flows are not concentrated. Summary information on the crossing's hydraulic calculations and backwater impacts should be provided to the Department of Water with any development submission.

   c Barriers or impediments to the migration of aquatic species should be avoided. The number, size, shape and location of any culverts should be selected to minimise the impacts on fish passage and habitat. Ensuring sufficient light penetration in a crossing, recessing a culvert below bed level, or fitting a rock baffle or other flow velocity control along the base of a culvert are techniques for enhancing fish passage. Fish-ways or fish ladders can also be installed to allow migrating fish to overcome barriers. Several types of fish-ways can be built to provide passage along the length of the river. For more information see our Water note 26 *Simple fish-ways* (reference 6b).

   d Avoid alteration to natural waterway beds and banks. A permit to interfere with beds and banks may be required from Department of Water if construction is on a waterway proclaimed under the *Rights in Water Irrigation Act 1914* (see Appendix B).

   e Minimise removal or impact on riparian vegetation.

   f Measures to prevent significant erosion of stream banks (e.g. rock armouring).

   g Avoid crossings at channel bends. Crossings should be aligned at approximately 90 degrees to the main flow channel.

   h Avoid meandering or dynamic waterways where the channel change process is active and is likely to continue in the future. Crossings interfere with the natural process of meander progression and structural damage to bridges may occur, as well as increased channel erosion.

18 Where bridges or culverts are impractical, the construction of riffles (low-level rocky fords) as alternative crossings over rivers, streams and low-flow creeks should be considered. This causes less interference with the water flow regime and aquatic habitat.

   For further information on the construction of riffles, refer to our River restoration manual *Stream stabilisation* and Water note 6 *Livestock management: construction of livestock crossings* (reference 6b).

Wetlands

19 Tracks should not have adverse effects on conservation valued wetlands and other significant wetlands (see Appendix A). Where tracks are required, the following principles should be considered:

a Avoid altering the wetland's natural hydrological regime (by land filling or constructed barriers). A raised boardwalk allowing free surface-water flow should be used. Care should be taken to use appropriate materials in the construction of any boardwalk to minimise disturbance to the wetland (e.g. leaching of chemicals from treated wood).

b Avoid removing and degrading wetland vegetation. A carefully constructed raised boardwalk will allow plant regeneration to occur under and around the walkway and enable ecological connectivity to be retained within the wetland.

c Avoid creating barriers that may impede the migration of native aquatic and terrestrial fauna. A carefully constructed raised boardwalk will allow fauna movements throughout the wetland.

d Avoid the use of chemicals (including paints and preservatives) that may leach into natural waters.

Construction of trails

20 The finished surface of trails should be suited to the volume of traffic, type of track (tourism, hiking, cycling or bridle trail), soil type and local climatic conditions to prevent erosion. Soil tracks may be hardened by the addition of gravel, wood waste, coarse sand or synthetic soil hardeners (e.g. geo-synthetics). Rock armouring, using large rocks to pave an area of a trail, may be beneficial in wet areas. Raised walkways should be considered in areas where ecological or erosion safeguards are needed.

21 Tracks, boardwalks and waterway crossings should be constructed during the dry times of the year (summer and autumn in southern parts of Western Australia).

Drainage, earthworks and revegetation

22 Adequate measures should be taken during trail construction to minimise disturbance to soil and vegetation and ensure no deterioration to the quality of runoff water. Clearing of natural bushland may require a permit. Before any vegetation disturbance or construction, Department of Environment Regulation should be contacted to determine if formal approval is required (Appendix B).

23 Track gradients should not exceed 1:10 unless appropriate drainage controls have been installed to prevent erosion. Zigzag pathways are typically used to maintain low gradients along a contour. If this type of pathway is the preferred option, measures such as long segments should be used to limit creation of informal shortcut trails.

24 Effective surface drainage controls are essential so that runoff from trails does not concentrate and reach erosive speeds, which can pollute waterways and wetlands. These help to minimise the spread of fungal disease such as *Phytophthora cinnamomi* (dieback) and boggy sections.

25 Tracks and structures should result in minimal change to the area's natural drainage patterns. This can be achieved by:

a Including grade reversals (nicks and rolling grade dips) or water bars (rock, rubber or timber barriers), benching and out-sloping into track and trail design. For further information, see *Trail solutions* reference 7.

b Retaining drainage lines and their associated vegetation in their natural state. In particular, water flow in streams, creeks and natural drainage swales should not be altered by changing the channel shape and surface (e.g. constructing a concrete culvert) or by damming.

c Confining construction to the minimum practical area.

d Not filling or building over seasonally wet areas.

e Diverting track runoff to well-vegetated surfaces rather than direct discharge to waterways.

26 Appropriate track drainage structures (e.g. contour drains into vegetated zones) should be included in the design of waterway crossings to accommodate changes in drainage patterns associated with the crossing and prevent soil erosion.

27 Natural regeneration of disturbed land should be encouraged. Spoil (excess soil or rock) should not be pushed over vegetation at the side of the track. This material may be used to fill low points in the trail or for local rehabilitation. Stockpiled topsoil and brush, which is rich in seeds and nutrients, should be used to spread over areas that have been cleared after track construction. Soil used for rehabilitation should be free from weeds and dieback disease. Soil reuse should take place as soon as possible to maximise germination of seeds and encourage successful revegetation. Further advice and reading on revegetation and direct seeding can be obtained from the Department of Agriculture and Food (reference 1).

28 Any landscaping should use local indigenous plant species. Where replanting of indigenous species is undertaken, restoration should occur with a natural mix of indigenous trees, shrubs and groundcovers. Fertiliser use should be minimised.

29 Care should be taken to contain any fuel or other chemical spillage from construction machinery. Chemicals should not be stored on-site, but if this is unavoidable, chemicals should be securely stored and contained to prevent accidental spillage.

Maintenance and use of tracks and trails

30 The trail should be regularly maintained to control soil erosion and ensure it remains free from obstructions and safe to use.

31 Track users should be aware that domestic animals (including dogs) are not permitted within national parks, nature reserves, conservation parks and on publicly owned land within PDWSAs, except in designated areas.

32 Huts, campsites and public amenities should be effectively managed and maintained to minimise environmental harm by the agency with vested responsibility, such as the local government or the Department of Parks and Wildlife.

33 Constructed toilet facilities should be used, where provided. If this is not practical, human waste should be buried at least 30 cm deep and 100 m away from the edge of any waterway or wetland.

34 Camping in any PDWSAs is not permitted, except in designated campsites.

35 Dishes and equipment should be cleaned away from any waterway or wetland and wherever possible use of soaps or detergents should be avoided. If necessary, use only biodegradable detergents. Many tracks within Western Australia do not have serviced waste bins, therefore all rubbish should be carried out and then disposed of in a serviced bin (reference 8).

Weed and pest management

36 Where practical, pest control measures for timber structures (such as huts) and track maintenance should consider the following:

- a Where possible, pest control of structures should be done off-site and pre-treated copper-chrome-arsenic infused timbers used.
- b A pest-specific control system should be used to minimise impacts on other terrestrial or aquatic invertebrates.
- c Direct application methods for pesticides should be used rather than spraying.
- d Follow the chemical registration conditions (normally shown as label directions).
- e Avoid treatment with water-soluble or mobile chemicals when rain is predicted within 48 hours.
- f Spillage control and remedial measures should be in place before application to prevent pesticides entering nearby waterways, wetlands or drinking water reservoirs.
- g Pesticide operators should be qualified, experienced and educated on managing the local environmental risks.
- h All waste materials should be removed from the area for safe disposal at an approved site.

37 Herbicides approved for use within PDWSAs are given in *PSC 88 Use of herbicides in water catchment areas* (reference 3). Any variation to this must be approved by the Department of Health's Pesticides advisory committee (known as PeAC).

38 Pesticide use in any PDWSA should follow the advice given in our Statewide policy 2 *Pesticide use in public drinking water source areas* (reference 5a), which supports catchment protection by-laws.

39 For information on the use of herbicides around wetlands refer to our Water note 22 *Herbicide use in wetlands* (reference 6b).

Signage and education

40 Trails present an excellent opportunity to inform the community about protecting the environment. Interpretive signage can be used to:

- a Inform track users about local flora, fauna, geology and conservation areas
- b Advise users of their presence in a drinking water catchment, access constraints and the importance of protecting local water resources from contamination

c Encourage appropriate behaviour, such as staying on the tracks at all times and removing rubbish to minimise the spread of dieback, erosion and disturbance to the environment.

41 Signs should be placed near facilities such as viewing platforms and amenities to minimise vegetation disturbance and enhance the interest of visitors. Direction signs should be clearly visible at all intersections to ensure visitors stay on tracks.

42 Tracks and trails should be classified and sign posted to harmonise with the landscape, according to accessibility and degree of difficulty. Australian Standard 2156.1–2001 *Walking tracks – classification and signage* (reference 9) details a classification system for walking tracks, ranging from Class 1 (wheel chair accessible) to Class 6 (unmodified terrain). The Department of Parks and Wildlife's Policy statement No. 18: *Recreation, tourism and visitor services* (reference 2) presents their views on recreation in areas that agency manages. The IMBA guide (reference 7) provides a five-grade mountain-bike-trail rating system ranging from easy to extremely difficult.

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> 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

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 PDWSAs, see our Geographic Data Atlas, available <www.water.wa.gov.au>.

For recreation access to PDWSAs, refer to the Department of Water's Operational policy 13 (reference 6a).

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>.

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>, 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> 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*. 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.

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>, phone 9278 0900 or email: 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>), 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> 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> select *policies and guidelines > environmental assessment guidelines > guidance statements.*

The Department of Parks and Wildlife is the custodian of the state wetland datasets. Please contact the department for more information <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*
- *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>.

Appendix B: Statutory approvals relevant to this note include:

What's regulated?	Western Australian statutes	Regulatory office
Regulation of prescribed premises that could pollute	*Environmental Protection Act 1986,* Part V Environmental regulation	Department of Environment Regulation <www.der.wa.gov.au> Department of Parks and Wildlife <www.dpaw.wa.gov.au>
Protection of native flora and fauna	*Wildlife Conservation Act, 1950;Conservation and Land Management Act 1984*	
Land clearing, controls over discharge of specified contaminants	Environmental Protection Regulations	
Management of human wastes Community health issues	*Health Act 1911*	Department of Health <www.health.wa.gov.au> Local government
Transport, storage and handling of fuels, solvents, explosive and other dangerous goods	*Dangerous Goods Safety Act 2004* Dangerous goods safety regulations 2007	Department of Mines and Petroleum – Resources Safety Division <www.dmp.wa.gov.au>

What's regulated?	Western Australian statutes	Regulatory office
Licence to take surface water, groundwater or disturb waterways	*Rights in Water and Irrigation Act 1914*	Department of Water – regional office <www.water.wa.gov.au>
Impact on the waters of managed waterways	*Waterways Conservation Act 1976*	
Development in proclaimed public drinking water source areas	*Metropolitan Water Supply, Sewerage and Drainage Act 1909; Country Areas Water Supply Act 1947*	
Emergency response planning	*Fire and Emergency Services Authority of WA Act 1998*	Department of Fire and Emergency Services <www.fesa.wa.gov.au>
Statutory policies covering wetlands, drinking water catchments and estuaries	*Environmental Protection Act 1986,* Part III Environmental protection policies	Minister for the Environment advised by the Office of the Environmental Protection Authority <www.epa.wa.gov.au>
Impact of development proposals on the values and ecology of land or waters	*Environmental Protection Act 1986,* Part IV Environmental impact assessment	
Impacts on the Swan-Canning estuary	*Swan and Canning Rivers Management Act 2006*	Swan River Trust <www.swanrivertrust.wa.gov.au>
Land zoning and development approval	*Planning and Development Act 2005*	Western Australian Planning Commission Department of Planning <www.planning.wa.gov.au> Local government

Relevant statutes are available from the *State Law Publisher* at <www.slp.wa.gov.au>.

Appendix C: Information needed to assess development proposals

Where facilities are to be constructed or upgraded near sensitive waters, the proponent should supply a notice of intent to this department, including the following details:

1 Name and address, organisation and other relevant contact information.

2 A site plan showing the location of the project relative to lots, leases and roads.

3 Land contours, soil profile description, vegetation cover and water features for the length of the trail.

4 The present landowner or manager, local government land use zoning and summary of land use history. Include data on any site contamination history and its remediation.

5 Description of nature and scale of the activities planned for the project site. Intended usage of trail (walking, equestrian, bicycle, motorised vehicle or mixed). A description of clearing, drainage, earthworks, trail cover materials and any planned structures (including provision for crossing of waterways) should be provided.

6 Description of any materials/chemicals stored or handled in significant quantities on-site during construction or for maintenance purposes.

7 Details and locations of any amenities to be provided (camping or picnic facilities, fences, fireplaces, gates, sightseeing or rest points, signs, toilets, litter facilities, water supplies, and parking at access points).

8 Description of the types and anticipated quantities of waste expected to be generated along the trail (if duration between amenities exceeds three hours).

9 Proposals for waste containment, environmental management processes and waste disposal (with design sketches).

10 Details of inspection and maintenance procedures planned and who will be responsible for their implementation.

11 Details of any contingency measures proposed to minimise the impacts of chemical spills, trail erosion, fire, flood or other emergency.

Appendix D: Useful contacts

- Bibbulmun Track Foundation, <www.bibbulmuntrack.org.au>
- Department of Parks and Wildlife, <www.dpaw.wa.gov.au>
- Department of Sport and Recreation, <www.dsr.wa.gov.au>
- Mundi Biddi Trail Foundation, <www.mundabiddi.org.au>
- Outdoors WA, <www.outdoorswa.org>.

References and further reading

1 Department of Agriculture and Food publications, on direct seeding and revegetation available online at <www.agric.wa.gov.au> select *land, water and environment.*

2 Department of Parks and Wildlife publications, available online at <www.dpaw.wa.gov.au>

Policy statement No. 18: *Recreation, tourism and visitor services*, available <http://www.dpaw.wa.gov.au/images/documents/about/policy/Recreation_tourism_and_visitor_services_Policy_18.pdf> .

3 Department of Health publications, available online at <www.public.health.wa.gov.au> select *health hazards* > *chemicals and pesticides*> *hazardous chemicals*

PSC 88: Use of pesticides in water catchment areas.

4 Department of Planning (NSW) publication, available online from <www.planning.nsw.gov.au> use search engine to find archived document *Guidelines for the planning, construction and maintenance of tracks*, LWC, NSW 2004.

5 Department of Sport and Recreation publication available online at <www.dsr.wa.gov.au>, select *recreation* > *trails*

Western Australian trails strategy 2009–2015.

6 Department of Water publications, available online at <www.water.wa.gov.au> select *publications* > *find a publication* > *series browse*

a Policies, select *statewide policies*

- Statewide policy 2 – *Pesticide use in public drinking water source areas*
- Operational policy 13 – *Recreation within public drinking water source areas on Crown land.*

b Waterways guidance, select *River restoration manual* or *Water notes*
- River restoration manual, report 10 *Stream stabilisation*
- Water note 6 *Livestock management: construction of livestock crossings*
- Water note 7 *Livestock management: water points and pumps*
- Water note 22 *Herbicide use in wetlands*
- Water note 26 *Simple fishways*.

c Water source protection, select *guidelines or water quality protection notes*
- Water quality protection guideline 13 *Environmental guidelines for horse facilities and activities*
- Water quality protection note 6 *Vegetated buffers to sensitive water resources*
- Map – *Protecting our drinking water catchments – recreation in the Perth Hills and south west.*

7 International Mountain Bicycle Association 2004, *Trail Solutions – IMBA's guide to building sweet singletrack*, IMBA, US: available for purchase from <www.imba.com> select *resources > trail building and design*.

8 *Leave no trace Australia* publications available online at <www.lnt.org.au> *Seven principles of leave no trace.*

9 Standards Australia publications available for purchase from <www.saiglobal.com/shop/script/search.asp>.
AS2156.1-2001 *Walking tracks – Classification and signage.*

10 Western Australian Government- Legislative Council- Standing committee on public administration, Report 11 - *Recreation activities within public drinking water source areas*, September 2010. This report is available online at <http://www.parliament.wa.gov.au/parliament/commit.nsf/RelatedReportsLookup/2367D34B5845C685482578310040D2A5?OpenDocument>.

Disclaimer

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 us, citing the note topic and version.

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