

Guideline – activities in a watercourse, lake or spring associated with mining operations

1. Summary

This Guideline may be used by the holder of a mineral development licence or mining lease under the *Mineral Resources Act 1989* (the ‘Holder’) when destroying native vegetation, excavating, or placing fill in a watercourse, lake or spring (an ‘activity’)ⁱ necessary for and associated with mining operations.

The Holder may carry out an activity provided the activity is carried out in accordance with this Guideline, which is permitted under sections 49, 50 and 51 of the Water Regulation 2002 (the Regulation). Such activities may proceed without a permit granted under section 269 of the *Water Act 2000* (the Act).

This Guideline applies only to activities within a watercourse, lake or spring that are also:

- within the area of the Holder’s mineral development licence or mining lease;
- necessary for, or associated with, mining operations authorised under the Holder’s mineral development licence or mining lease; and
- carried out by the Holder, or their contractors or subcontractors.

Mining operations associated with activities in a watercourse, lake or spring typically include construction and maintenance of haul roads, temporary access crossings for draglines, cable and pipeline crossings, access tracks and drainage and discharge structures.

Under this Guideline, the Holder accepts the responsibility to actively self-manage its activities and those of its contractors and subcontractors to ensure compliance with this Guideline at all times. Any activity that is inconsistent with this Guideline, or for which compliance with this Guideline cannot be reasonably achieved, will require a riverine protection permit (subject to the chief executive granting or refusing part or all of the application).

This Guideline does not apply to activities in:

- a wild river area declared under the *Wild Rivers Act 2005*; or

ⁱ See definitions

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- springs in which the water is connected to artesian water, or subartesian water connected to artesian water, within the area covered by the *Water Resource (Great Artesian Basin) Plan 2006*.

2. Purpose of this guideline

The purpose of this guideline is to allow reasonable and necessary activities for mining operations to proceed, without the need for a riverine protection permit, whilst minimising adverse impacts on the physical integrity of watercourses, lakes or springs and providing for the long-term sustainable use of river systems across the State.

3. Limitation on activities

Activities must not exceed an amount necessary to achieve the required outcomes. To remove any doubt this Guideline does not apply to:

1. excavation for obtaining riverine quarry material from a watercourse of lake;
2. excavation or placing fill in a way that would interfere with the flow of water in a watercourse, lake or spring, including works that divert the flow of a watercourse, to the extent a water licence would be required under the Act. (Note: If it is anticipated that works or activities may conserve water or retard the flow of water downstream (impound water) or may redirect the flow of water then a licence to interfere with the flow of water may be required and advice is to be sought from NRW before commencing activities);
3. subsidence of a watercourse, lake or spring through mining operations.

In addition to point 2 above, activities carried out under this Guideline, in a channel that diverts the course of a watercourse that is authorised under a water licence to interfere and development permit, must not result in any permanent change to the works associated with the development permit.

4. Legislative responsibilitiesⁱⁱ

Activities carried out in accordance with this Guideline are permitted only for the purposes of the Act. Compliance with this Guideline does not remove the Holder's obligation to fully comply with all other relevant legislation and policies, including:

- *Aboriginal Cultural Heritage Act 2003*
- *Environmental Protection Act 1994*
- *Fisheries Act 1994*
- *Integrated Planning Act 1997*
- *Land Act 1994*
- *Land Protection (Pest and Stock Route Management) Act 2002*
- *Native Title Act 1993 (Cth)*
- *Nature Conservation Act 1992*
- *Plant Protection Act 1989*
- *River Improvement Trust Act 1940*
- *Vegetation Management Act 1999*

ⁱⁱ All Queensland government Acts are listed under website for the Office of the Queensland Parliamentary Counsel www.legislation.qld.gov.au/OQPCHome.htm.

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- *Wet Tropics World Heritage Protection and Management Act 1993*
- *State Planning Policy 2/02 Guideline: Planning and Managing Development involving Acid Sulfate Soils and Instructions for the treatment and management of acid sulphate soils*

5. Planning activities

When planning for construction and maintenance projects, the Holder must consider all relevant matters to determine what activities will be undertaken and the potential impacts from those activities. The Holder must investigate and collate data concerning the potential impacts and document proposed measures to minimise them. The level of investigation and data collection will reflect the potential for the activities to adversely impact on the watercourse, lake or spring. This information must be made available to NRW on request.

Matters that must be considered in planning activities and assessing potential impacts include:

- (a) the affects of the proposed activity on water quality;
- (b) the quantity of vegetation to be destroyed or material to be excavated or placed;
- (c) the type of vegetation to be destroyed or material to be excavated or placed;
- (d) the seasonal factors influencing the watercourse, lake or spring from time to time;
- (e) the position in the watercourse, lake or spring of the vegetation to be destroyed or the proposed excavation or placing of fill;
- (f) the reasons for carrying out the activity;
- (g) whether, and to what extent, the activity may have an adverse affect on the physical integrity of the watercourse, lake or spring.

5.1. Impact statement

The measures necessary to mitigate the impact of activities at individual sites must be considered at the planning and design stage of each project or activity. For this purpose, the Holder must compile and record relevant information for each activity site including:

- the identity of each watercourse, lake or spring that will be subjected to activities;
- the location within the watercourse, lake or spring that would be impacted by the proposed activities;
- details of the proposed project including the purpose, activities involved and timing of activities;
- the potential impacts on the physical integrity of the watercourse, lake or spring, including changes to hydraulic capacity, water quality, vegetation density and bank stability;
- the type and area of native vegetation to be destroyed, and the proposed method of destruction;
- estimated volumes of material to be excavated from, or fill to be placed.

5.2. Planning and design of structures

Design of structures and planning for their construction and maintenance/operation must be carried out with consideration for the following:

- where practical, alignment of structures perpendicular to the direction of water flow;
- where practicable, alignment of cuttings in watercourse banks in the downstream direction;
- the alignment and shape of structures to minimise the potential for scour;
- positioning of structures within relatively straight reaches of watercourses rather than on bends;
- general hydrologic and hydraulic characteristics of the site and potential impacts resulting from the presence of the structure;
- preservation of natural controls for waterholes in the bed of the watercourse, e.g. by not lowering or otherwise destabilising them during the activities;

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- maintenance of the existing course of the low flow channel of the watercourse;
- measures to minimise interference with the flow of water during high flow events and minimise the potential for changes to flood heights and flood flow paths e.g. appropriate sized pipe culverts for a road crossing;
- not impounding or otherwise unduly interfering with the flow of water in the watercourse or spring including provision to convey low flows past the site;
- measures to prevent potential migration of adverse impacts upstream or downstream of the structure, where appropriate;
- inclusion of erosion control and prevention measures (e.g. rock protection works in the activity site to prevent bed and/or bank erosion);
- locating new infrastructure in previously disturbed areas;
- using existing crossings for temporary access during the construction or maintenance of infrastructure, where possible.

6. Impact management during activities

The Holder must take all reasonable and practical measures to ensure that adverse impacts of activities are minimised.

Activities that could result in adverse impacts include erosion, bank instability and temporary hydraulic changes. The Holder must consider measures to control such impacts in accordance with the following principles:

- the area of disturbance should be no greater than the minimum area necessary for the purpose;
- the area of bed and banks disturbed by the activities should be stabilised regardless of previous stability;
- the extent and duration of bare surface exposure should be minimised, and protected from weathering, rain drop impact, and water runoff (e.g. stabilised with hydro-mulching or grass/grass seeds or ripping and then tree seeding);
- water run-off should be diverted around areas of disturbance where practicable;
- bed and bank stability should be managed to minimise erosion and reduce sedimentation i.e. avoiding scouring from abrupt changes in flow direction caused by a structure;
- where practicable, sediment should be captured and retained on-site;
- machinery to be used in carrying out the activities should be selected to achieve minimal disturbance of the site;
- all machinery used in the activities is to be stored, refuelled and maintained outside the high banks of the watercourse or lake;
- constructed drainage and discharge structures must not alter the natural bed and bank profile.

The minimum mitigation measures to be undertaken by the Holder for each activity in order to protect the riverine environment are outlined below.

6.1. Destruction of vegetation

When destroying vegetation the Holder must observe the following conditions:

- the destruction must be confined to the minimum area necessary for the activity;
- limits of disturbance must be delineated in the field by clearly marking the vegetation on the outer perimeter of the activity site e.g. with flagging tape or paint;
- mature trees may be destroyed only where there is no reasonable alternative;
- where possible, trees must be cut near or at ground level to retain the root mass in the ground;

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- progressive stabilisation and revegetation of disturbed areas must occur as soon as possible after completion of activities.

6.2. Excavating and placing of fill

When excavating or placing fill the Holder must operate in accordance with the following:

- in order to minimise adverse impact on water quality, where practicable activities in watercourses must be timed to coincide with periods of no or low flow;
- activities should be completed as quickly as possible;
- activities must be undertaken in a way that minimises inference with the flow of water to downstream users (including the environment);
- sediment traps must be installed to retain sediment generated by activities in order to minimise water turbidity outside the work site. Routine visual monitoring must be undertaken and if sediment plumes are detected outside contained areas, excavation and filling is to cease and the sediment traps are to be rectified before activities re-commence;
- material excavated that is not waste must be spread evenly within the bed and banks of the watercourse such that it does not interfere with the flow of water;
- fill must be clean and free from potential pollutants.

6.3. Waste management

The following waste management hierarchy lists an order of principles with examples that should be followed.

Principle	Example
1. Waste avoidance	Minimise the area of vegetation to be destroyed. Where possible, minimise the amount of waste created on site.
2. Waste re-use	Suitable spoil material excavated from beds and banks should be used for backfill around in-stream structures and to return the bank profile to pre-disturbance condition.
3. Waste recycling	Cleared vegetation, excluding weed species, should be mulched on-site and used in rehabilitating disturbed areas.
4. Waste disposal	Waste is contained at least 50m from the high banks of watercourses and lakes. Upon completion of the activities, all remaining waste materials should be removed from the site and disposed of appropriately.

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6.4. Rehabilitation

Upon completion of activities, the site must be rehabilitated to a condition that will ensure the ongoing physical integrity and natural ecosystem values of the site. Rehabilitation must aim to achieve maintenance or betterment of water quality and bank stability by:

- revegetating areas disturbed by the activity with for example, native trees, shrubs and grasses endemic to the area; and/or
- preventing erosion where appropriate using bed and bank stabilisation measures such as rock revetment, reinforced matting, gabions, large woody debris, log piling or similar.

6.5. Accessibility during activities

The Holder must make the site available for inspection by NRW officers on request to enable checking that activities are being/have been carried out in accordance with this Guideline.

7. Recording of activities

The Holder must maintain records of their planning, impact assessment, works, impact management and rehabilitation activities for each site. The level of detail should reflect the level of risk posed by the activity to the watercourse, lake or spring's physical integrity. These records must be retained for a minimum of 2 years after completion of the activity and be made available to NRW on request.

The Holder must record the following information for each activity site:

- planning and impact assessment details;
- activity site location and site access details;
- commencement and completion dates;
- the area of native vegetation destroyed, and the amounts of material excavated and fill placed;
- impact management and rehabilitation details.

For those activities that require a higher level of investigation and design, generally where the activities involve destruction of vegetation with an overall area of 0.25 hectares or more or excavating or placing fill of a volume of 500 cubic metres or more, the Holder must also record the following information for each activity site:

- the disposal location/s and quantity of spoil material removed;
- the disposal location/s and quantity of native vegetation removed;
- the machinery used e.g. size of excavator, number and type of trucks;
- before, during and post activity photographs of the site;
- any incidents of unanticipated failure of management methods and subsequent remedial action.

8. Definitions

activity means destroying vegetation, excavating or placing fill in a watercourse, lake or spring.¹

fill means any kind of material in solid form (whether or not naturally occurring) capable of being deposited at a place but does not include material that forms a part of, or is associated with, a structure constructed in a watercourse, lake or spring including a bridge, road, causeway, pipeline, rock revetment, drain outlet works, erosion prevention structure or fence.¹

Holder means the holder of a mineral development licence or mining lease under the *Mineral Resources Act 1989*.¹

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lake includes—

- (a) a lagoon, swamp or other natural collection of water, whether permanent or intermittent; and
- (b) the bed and banks and any other element confining or containing the water.²

mining operations means mining activities carried out on land over which there is a mineral development licence or mining lease under the *Mineral Resources Act 1989*.¹

quarry material

- 1 *Quarry material* means material, other than a mineral within the meaning of any Act relating to mining, in a watercourse or lake.
- 2 *Quarry material* includes stone, gravel, sand, rock, clay, earth and soil unless it is removed from the watercourse or lake as waste material.²

spring means the land to which water rises naturally from below the ground and the land over which the water then flows.²

vegetation means native plants including trees, shrubs, bushes, seedlings, saplings and reshoots.²

waste means left over material or an unwanted by-product of activities in a watercourse, lake or spring associated with mining operations that does not have any commercial use or value.¹

watercourse

- 1 *Watercourse* means a river, creek or stream in which water flows permanently or intermittently—
 - (a) in a natural channel, whether artificially improved or not; or
 - (b) in an artificial channel that has changed the course of the watercourse; but, in any case, only—
 - (c) unless a regulation under paragraph (d), (e) or (f) declares otherwise—at every place upstream of the point (**point A**) to which the high spring tide ordinarily flows and reflows, whether due to a natural cause or to an artificial barrier; or
 - (d) if a regulation has declared an upstream limit for the watercourse—the part of the river, creek or stream between the upstream limit and point A; or
 - (e) if a regulation has declared a downstream limit for the watercourse—the part of the river, creek or stream upstream of the limit; or
 - (f) if a regulation has declared an upstream and a downstream limit for the watercourse—the part of the river, creek or stream between the upstream and the downstream limits.
2. *Watercourse* includes the bed and banks and any other element of a river, creek or stream confining or containing water.²

¹ Definitions developed for the purpose of this Guideline

² Definitions provided by the *Water Act 2000* under Schedule 4

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9. References

State Planning Policy 2/02 Guideline: Planning and Managing Development involving Acid Sulfate Soils (2002) Department of Natural Resources and Mines and Department of Local Government and Planning. This Guideline is available for at the *Integrated Planning Act 1997* website: http://www.ipa.qld.gov.au/docs/ass_spp_oct_02.pdf

Instructions for the treatment and management of acid sulphate soils (2001). Queensland Environmental Protection Agency (EPA). This document is available from the EPA website: <http://www.epa.qld.gov.au/publications?id=1203>