



CODE OF PRACTICE FOR LOW RISK MINES

Requirements, recommended practice, and
practical guidance under the *Mineral Resources
(Sustainable Development) Act 1990*

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ABBREVIATIONS

CMA	Catchment Management Authority
DEDJTR	Department of Economic Development, Jobs, Transport and Resources (DEDJTR)
DELWP	Department of Environment, Land, Water and Planning
DPI	Department of Primary Industries (now known as DEDJTR)
EPA	Environment Protection Authority, Victoria
EP Act	<i>Environment Protection Act 1970</i>
ERR	Earth Resources Regulation (within DEDJTR)
MRSD Act	<i>Mineral Resources (Sustainable Development) Act 1990</i>
MRSD Regulations	<i>Mineral Resources (Sustainable Development) (Mineral Industries) Regulations 2013</i>
SEPP	State Environment Protection Policy

1

INTRODUCTION

In Victoria, mineral exploration and mining activities are regulated under the *Mineral Resources (Sustainable Development) Act 1990* (MRSD Act). The purpose of the MRSD Act is to encourage an economically viable mining industry that makes the best use of mineral resources in a way that is compatible with the economic, social and environmental objectives of the state.

The MRSD Act provides for the creation of codes of practice to provide practical guidance on complying with legislative obligations. An amendment to the MRSD Act in 2014 allowed holders of prospecting or mining licences, where engaged in mining activities defined as low risk, to comply with a binding Code of Practice rather than submit a work plan.

This Code of Practice for Low Risk Mines (the Code) provides practical guidance about how low risk mining projects should be managed in Victoria to meet regulatory requirements and environmental standards under the MRSD Act or the *Mineral Resources (Sustainable Development) (Mineral Industries) Regulations 2013* (MRSD Regulations). Mining projects seeking to operate under the Code must have a licence area of 5 hectares or less, and must not involve underground operations, blasting, clearing of native vegetation or the use of chemical treatments.

The Code has been developed in accordance with the requirements of Section 89A of the MRSD Act. It has been developed on the expectation that well-planned and managed mining projects should have little or no lasting impact on the environment and impose minimal disruption to other land users and the community.

The Code will be regularly reviewed to incorporate advances in technology, new environmental information, public submissions, field and administration experience, as well as changes in legislation and policy.

1.1 EARTH RESOURCES REGULATION

Within the Department of Economic Development, Jobs, Transport and Resources (DEDJTR), Earth Resources Regulation (ERR) regulates the mineral, extractive, petroleum, pipeline, greenhouse gas storage and geothermal industries in Victoria including off-shore Victorian waters. It provides a consistent and transparent tenement management regime, together with environmental standards, monitoring and enforcement that ensures these industries comply with their obligations and meet community expectations.

ERR regulates the minerals industry through the administration of the MRSD Act and subordinate legislation. DEDJTR's regulatory role is principally the assessment of applications, the issuing of licences, the approval of works, and the inspection of operations. In addition, DEDJTR also provides advice to licensees on how to meet their obligations under the MRSD Act.

1.2 LEGISLATIVE FRAMEWORK

The Code applies to all Crown and private land within the State of Victoria where low risk mining activities are permitted under prospecting or mining licences. It does not cover petroleum or geothermal activities administered under separate legislation, nor address the reporting requirements of the MRSD Act.

Prior to carrying out any mining activities on land, miners are required to hold a prospecting or a mining licence and to have been granted permission to commence mining activities by DEDJTR. The MRSD Regulations prescribe various procedures, details, royalties, fees, forms, information required in documents and other matters authorised by the MRSD Act.

Licensees may also be required to hold approvals under other legislation prior to undertaking any mining activities on land. Such legislation may include the *Planning and Environment Act 1987*, *Flora and Fauna Guarantee Act 1988*, *Wildlife Act 1975*, *Heritage Act 1995*, *Aboriginal Heritage Act 2006*, *Water Act 1989* and the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*. Where applicable, the Code provides information in relation to the requirements of related laws and policies. However, the Code does not address the requirements under the Commonwealth *Native Title Act 1993* or the associated *Indigenous Land Use Agreements*¹.

Under the MRSD Act (Part 8A Codes of Practice), a Code of Practice made in accordance with the Act has legal standing and failure to comply with the code is an offence.

The Code does not replace other related laws and policies and to the extent that there is conflict between the Code and other related laws and policies, the laws and policies will prevail.

1.3 PURPOSE OF THE CODE OF PRACTICE

The purpose of the Code is to set out the legally enforceable requirements of licensees operating under the Code and to provide recommended practice that will help them meet these requirements. The requirements set out in the Code are listed in Appendix 1.

The Code encourages licensees to adopt an active and committed approach to compliance, and promotes mining practices that prevent or minimise impacts on the environment, infrastructure, community and other land users.

1.4 HOW TO USE THE CODE OF PRACTICE

Licensees must make sure that they understand the legally enforceable requirements set out under the Code (Appendix 1). They should familiarise themselves with the recommended practice in relation to each requirement and consider how the practice relates to their proposed mining activities.

It is recognised that there are many methods and practices that will achieve compliance with the Code. Accordingly, licensees should keep up to date with best practices and new technologies within the industry. Licensees who adopt alternative methods and practices to those set out in the Code must be able to demonstrate that the alternative methods and practices enable them to comply with the Code requirements.

The Code is primarily for use by licensees engaged in low risk mining activities. However, it will also provide useful information about mining and recommended practice to a range of other stakeholders, including community members (such as landowners/occupiers), environment groups, contractors and consultants.

1.5 TRANSITIONAL ARRANGEMENTS

Under the MRSD Act, all new prospecting and mining licences that meet the definition of a low risk mine (see Section 2.2) are exempt from the requirement to have an approved work plan, unless declared otherwise by the Minister. These prospecting and mining licences must instead comply with the Code.

Existing prospecting and mining licences that meet the definition of a low risk mine and have a work plan approved prior to 1 November 2014 can continue to operate according to the approved work plan. Alternatively, licensees can seek approval to move to the Code. Licensees seeking to move to the Code from an approved work plan should seek advice from the ERR District Manager and the appropriate planning authority.

Variations to an existing work plan, or the renewal of a licence, will trigger the need for sites that meet the low risk definition to move to the Code.

If a work plan for a proposed low risk mine was submitted prior to 1 November 2014 but has not been approved, the work plan cannot be approved, unless declared otherwise by the Minister. The applicant will instead be required to work according to the Code and the granted licence.

2

LOW RISK MINES

2.1 GENERAL MINING BACKGROUND

Minerals, as defined by the MRSD Act, include both metallic minerals such as gold and base metals, and non-metallic minerals such as gypsum, kaolin, zircon, rutile, ilmenite, coal and coal seam gas. They do not include petroleum (oil and gas), which is administered under the *Petroleum Act 1998*. The definition of minerals also excludes stone, such as hard rock, and sand, gravel and clay, which are extracted by the State's extractive industries (quarries).

Methods of mining include shallow surface mining, open-cut mining and underground mining. Shallow surface mining is the shallow extraction of alluvial deposits, soil or weathered rock. Open-cut mining usually involves removal of surface vegetation, topsoil and any overburden to uncover mineral deposits that are deeper, but still located close to the surface. Underground mining is not covered by this Code.

2.2 DEFINITION OF LOW RISK MINES

One of the objectives of the MRSD Act is to ensure that operations are carried out within safe operating standards and in a manner that enables rehabilitation of land to a safe and stable landform. This Code has been developed to support this objective in relation to certain mines that are considered low risk and are granted an exemption from the work plan requirements of the MRSD Act.

In February 2014, the Mineral Resources (Sustainable Development) Amendment Bill was passed, which altered section 40 of the MRSD Act to state that:

(1) A licensee who proposes to do work under the licence must lodge a work plan with the Department Head.

(2) Subsection (1) does not apply to –

- (a) a licensee who proposes to carry out only low impact exploration work; or*
- (b) a licensee who holds a mining licence that –*
 - (i) covers an area of 5 hectares or less; and*
 - (ii) does not involve underground operations, blasting, clearing of native vegetation or the use of chemical treatments; or*
- (c) a licensee who holds a prospecting licence that does not involve underground operations, blasting, clearing of native vegetation or the use of chemical treatments – unless the Minister declares, in writing, that the licensee must lodge a work plan.*

The above changes link with the amendments to section 26 of the MRSD Act, which adds in a new subsection:

(2A) If, because of section 40(2)(b) or (c), a person holding a mining or prospecting licence is not required to lodge a work plan, the Minister may impose a condition requiring compliance with a Code of Practice on that mining licence or prospecting licence.

In summary, proposed works under a prospecting or mining licence cannot be considered low risk under the MRSD Act if the licence area exceeds 5 hectares or if the works involve underground operations, blasting, clearing of native vegetation or the use of chemical treatments.

The Minister can request the preparation of a work plan even for projects that may be considered low risk under the above criteria.

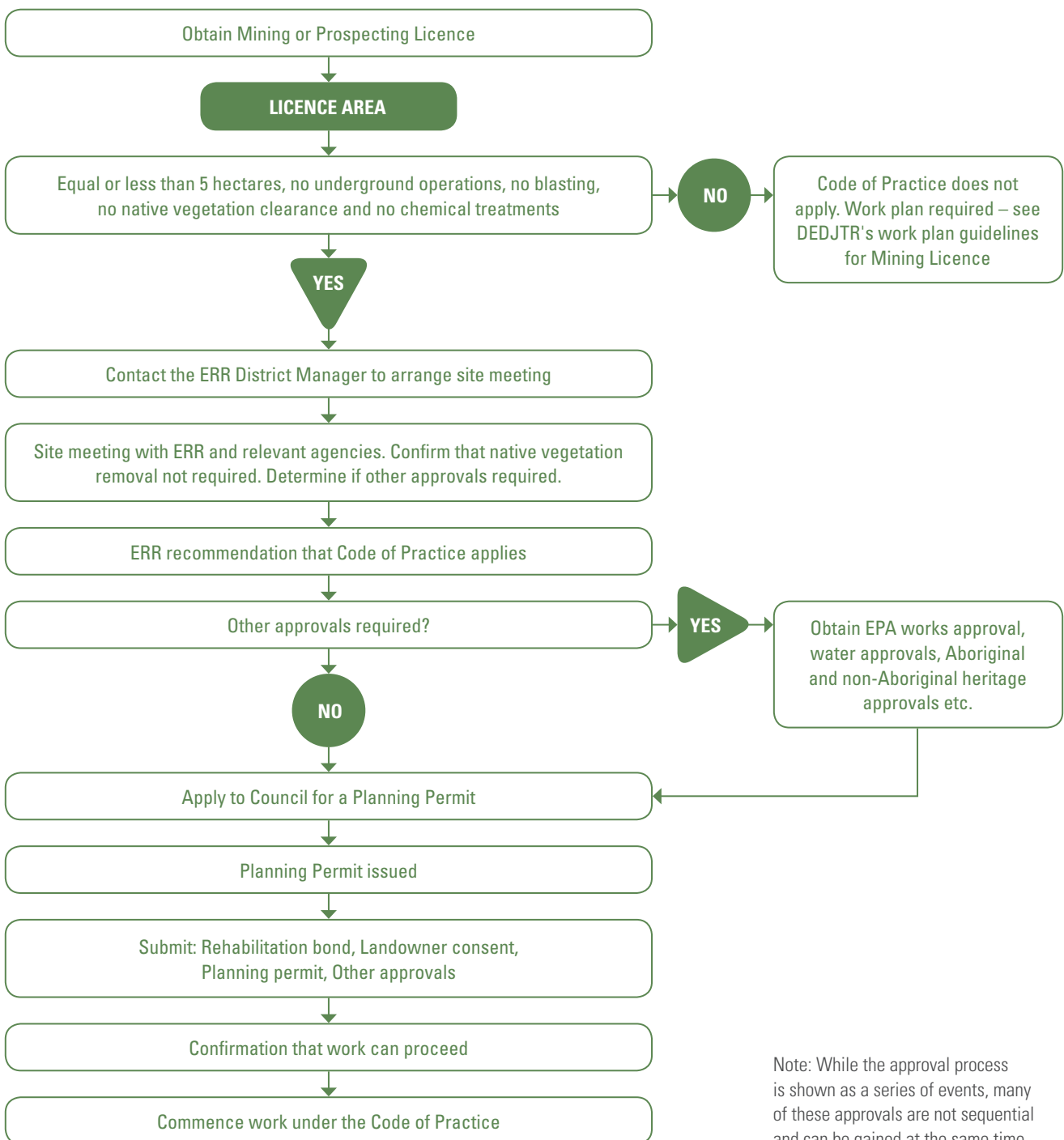
Note that the Code will not apply to coal seam gas projects.

3

APPROVAL REQUIREMENTS

Key approval requirements for low risk mines are summarised in Figure 1.

Figure 1 – Approvals process flow diagram



Note: While the approval process is shown as a series of events, many of these approvals are not sequential and can be gained at the same time.

A licensee intending to undertake mining under the Code should contact the relevant ERR District Manager to organise an initial on-site meeting. The purpose of the meeting will be to assess whether the proposed project is eligible to operate under the Code and to help identify the additional approvals that may be required.

The licensee must attend the site meeting with DEDJTR and other relevant agencies to discuss the proposal and identify the approval requirements. The licensee is ultimately responsible for ensuring that all relevant agencies have been contacted and approvals identified.

The Department of Environment, Land, Water and Planning (DELWP) should be involved in the meeting to confirm whether or not the proposed mining activities will involve the removal of native vegetation. Following the site meeting, the ERR District Manager will assess whether the project satisfies the criteria for a low risk mine and, if so, will make a recommendation that the project fall under the Code.

Operators must hold a prospecting or mining licence under the MRSD Act and must have received written permission to proceed by DEDJTR prior to commencing work on a mine.

Once other relevant approvals have been obtained, the licensee should submit the following to DEDJTR:

- > a rehabilitation bond
- > landowner consent
- > the Planning Permit
- > other applicable consents
- > in the case of restricted Crown land, the Crown land Minister's consent.

Rehabilitation bonds for small mines operating under the Code are determined on a per hectare basis as specified in Appendix 3 of the publication *Establishment and Management of Rehabilitation Bonds for the Mining and Extractive Industries* (DPI 2010), unless otherwise assessed by DEDJTR. Per hectare rates are only applicable for small mines that satisfy the criteria listed in Appendix 3 of the publication. For other sites, the bond is based on the assessment of rehabilitation liability using the rehabilitation bond calculator (DPI 2010).

Once confirmation that work can proceed has been received from DEDJTR, works may commence subject to licence conditions and the requirements set out in the Code.



Potential impacts on current landuses should be considered when obtaining the landowner's consent

4

MINE DESIGN AND PLANNING

Prior to constructing and operating a mine, it is important to carefully consider the design and layout of the mine. A well-planned design and layout will lead to efficient extraction, lower operating costs and will reduce the effort required to meet safety, environmental and community requirements.

The selection of a site, the design and construction of site access, the location of plant and equipment, potential effects on local landowners/occupiers, site security, and final land-use should all be carefully planned prior to the commencement of work.

Planning and site selection:

- > Ensure there is sufficient resource in the proposed mine to make the project financially viable, taking into account rehabilitation expenses.
- > Plan mining activities to minimise ground disturbance.
- > Locate the site at a sufficient distance from waterways and adopt water management controls to ensure that turbid waters from the site do not enter a waterway.
- > If the mine is located on a floodplain (for example within a Flood or Land Subject to Inundation overlay) or requires disturbance to waterways, discuss the design with the CMA² for that region.
- > A plan of drainage works and the final drainage pattern should generally be developed prior to beginning work (see Figure 2). If located on a floodplain or waterway, the layout will need to consider the form and function of the waterway and floodplain (eg to avoid loss of flow conveyance or flood storage). Significantly changing the drainage pattern of a site may require water authority approval.
- > Prior to commencing mining, consult the private landowner/ occupier and/or Crown land manager about the proposed mining activities, the location of facilities and infrastructure, and potential amenity issues.
- > Ensure that all easements are identified and, where applicable, protected.



Effective planning is an important component of a successful mining operation

Figure 2 – Typical drainage plan to manage water across the work site



Adapted from Quarry Code of Practice, Department of Primary Industries, Water and Environment, Tasmania 1999

Road and access design:

- > Where practicable, make use of existing roads and tracks for use as internal roads.
- > Locate the entrance gate away from sensitive land-uses such as local residences or schools.
- > Install appropriate road signage, including at intersections between mine roads and public roads, in consultation with the relevant authority responsible for roads.
- > Construct roads with sufficient diversion drains and culverts to ensure that clean stormwater is diverted away from them.
- > Minimise road gradients to avoid erosion of the road or fast-flowing runoff.
- > Ensure drainage from roads is directed to a vegetated area.
- > Parking areas should be of sufficient size and should allow safe pedestrian access to site facilities.

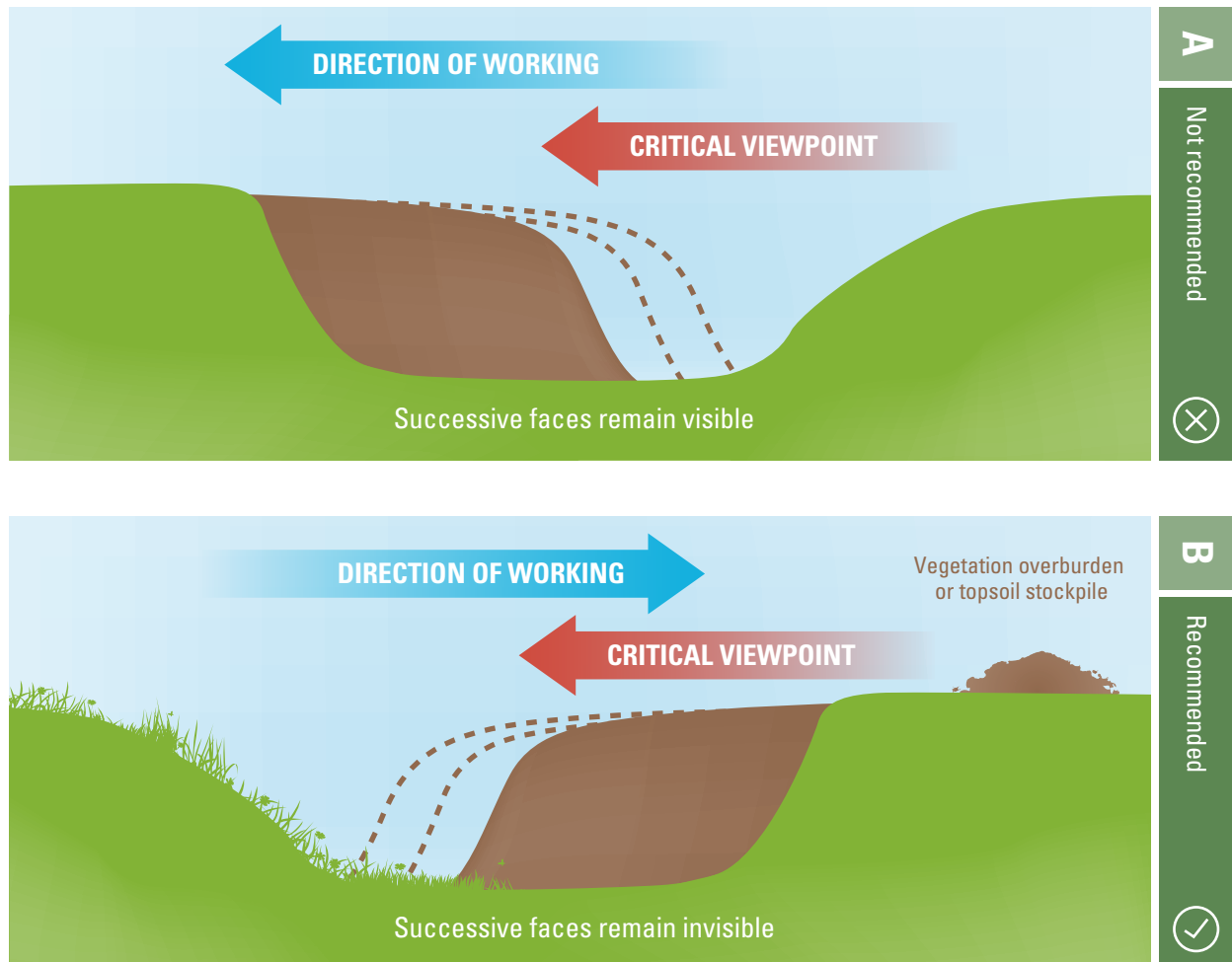
Visual amenity, noise and dust:

- > Locate fixed plant and mine facilities to minimise potential visual, dust or noise impacts on adjacent land users. For example, avoid siting machinery likely to cause a dust nuisance upwind of a sensitive land-use.
- > Consider using topographical features or stockpiles to form a barrier between mine facilities and the surrounding sensitive land-uses.
- > When locating the entry to a mine, use available natural screening to reduce the view into the site (Figure 3).
- > Choose the direction of mining so that the working face is shielded from the most critical views (Figure 4).

Figure 3 – Preferred location of access roads to reduce visual impact



Figure 4 – Designing pit development to minimise visual impact



Weeds:

- > Identify existing noxious weeds within the licence area (see the declared weed species under the *Catchment and Land Protection Act 1994*) and develop a plan to control them.
- > Establish vehicle and equipment hygiene practices to prevent the spread of weeds and pathogens. This may include wash down facilities/areas.

Site security:

- > Use gates and fences where required to prevent unauthorised entry to active areas and regularly inspect and repair them.
- > Install signs at any hazardous locations on the site indicating the type of hazard and keep a record of their locations.

Planning for final land use:

- > Identify land-use conditions prior to mining and agree on the final landform and use of the site. This should be in consultation with an ERR Inspector, private landowner/occupier and/or Crown land manager, the local council and the relevant CMA. Typical final land-uses include grazing land, cropping land, dams³, wetlands, native vegetation and plantation forest.
- > For most agricultural land, the aim of rehabilitation is to return the land to its previous use. However, with the agreement of the private landowner/occupier and/or Crown land manager, land use may be changed.

5

OPERATIONAL MANAGEMENT

Under the MRSD Act, non-compliance with licence conditions, or any site-specific conditions applied to a particular licence or work plan, is a breach of the Act. For projects operating under the Code, the licence conditions will require the project to comply with the requirements of the Code.

On private land and some categories of Crown land (for example, restricted Crown land), the consent of the private landowner/occupier and/or Crown land manager is required before mining may be undertaken. In these situations, additional site-specific conditions over and above those presented in the Code may be applied by ERR to prospecting or mining licences.

The requirements under the Code are listed below along with the recommended practice that will help licensees to meet them. A consolidated list of the requirements is provided in Appendix 1. A licensee may choose not to follow recommended practice, but must still comply with all requirements, including any additional conditions specified in the licence.

Licensees are liable to enforcement action if the requirements of the Code are not met. Compliance is monitored by ERR. Licensees must ensure that any staff and contractors are familiar with, and observe, requirements applicable to their mining project or activities.

5.1 LOW RISK MINING

Background

Mining operations that have been approved to operate under the Code must maintain their status as low risk mining operations throughout the life of the project.

Requirement

- R1 The licensee must not undertake underground mining operations, blasting, native vegetation clearance or use chemical treatments at the project site while operating under the Code.

5.2 PUBLIC SAFETY

Background

Public safety needs to be considered at all times within the licence area, on adjacent lands and along access roads used by mine vehicles. The public should not have unauthorised access to the licence area.

Requirements

- R2 The licensee must ensure that public safety is maintained within the licence area at all times, through the use of fencing, gates and signage as required around the work area.
- R3 The licensee must ensure that all fences are maintained to prevent access to the work site and that all gates are locked when the work site is unattended.
- R4 Ensure that the operation is located at a safe distance from public infrastructure (such as roads) and waterways.

Recommended practice

- > All mine sites are considered work places and are subject to the *Occupational Health and Safety Act 2004*. The Victorian WorkCover Authority should be contacted for advice on how to comply with this legislation.
- > Use gates and fences where required to prevent unauthorised entry to the licence area. Ensure they are regularly inspected and repaired.
- > Roads may only be constructed with the consent of the private landowner/occupier and/or Crown land manager.
- > Ensure mine access roads are of adequate width for safe use. As a guide, in the case of one-way traffic, the road should be twice the width of the widest vehicle that will use it. In the case of two-way traffic, the road should be three times the width of the widest vehicle to use it.
- > Ensure drivers of trucks or machinery are properly licensed and appropriately trained in road safety. Mine-related vehicles and machinery must be well maintained.
- > Fit open topped vehicles carrying loose bulk loads such as mined materials with tarpaulins, load covers or load nets to restrain loose particles and objects.
- > Contact the relevant authority responsible for roads for information on road construction and signage, including at intersections between mine roads and public roads.
- > Install signs at any hazardous locations on the site indicating the type of hazard and keep a record of their locations.

5.3 COMMUNITY ENGAGEMENT

Background

Potentially affected communities should be consulted during the early planning and design of a mining project and then throughout operations and rehabilitation. Relevant stakeholders could include local residents and interest groups, local council and state government. Open and transparent communication is essential to establish and maintain good working relationships between miners and the community and to ensure the effective management of community issues or any project impacts. An effective process for recording complaints and tracking responses is essential.

Further information about consultation processes is provided in the following guidelines:

- > Department of Primary Industries (2008) *Community Engagement Guidelines for Mining and Exploration in Victoria*.

Requirements

R5 The licensee must establish and maintain a complaints register.

R6 In response to a complaint, the licensee must record the following information in the complaints register:

- a) the date and time of the complaint
- b) who the complaint was from
- c) specific issue/s raised in the complaint
- d) actions taken to address the specific issue/s raised in the complaint.

Recommended practice

- > Identify how the proposed mining activities may impact on the local environment, people and their surroundings and take measures to reduce the risk of adverse impacts.
- > Identify and consult with the potentially affected community (eg local residents and interest groups, local council and state government agencies).
- > Be contactable and flexible in dealing with community concerns and issues.
- > Listen to all community concerns and facilitate a reasoned response to all issues raised.
- > A pro forma for recording complaints may be used and is provided in Appendix 2.
- > Maintain records of community consultation. These records should include the date and nature of the consultation (meeting, phone call, email etc), the issue discussed, the people or groups involved and the outcomes of the consultation.



It is important to consult with adjacent land users to understand and manage their concerns

5.4 GROUND DISTURBANCE

Background

The greater the area disturbed, the greater the risk of environmental impacts such as dust generation, weed invasion and erosion caused by stormwater runoff. Such impacts can lead to on-site and off-site problems and increased management requirements in the future.

Requirement

R7 The licensee must minimise the area of ground disturbance throughout the life of the mining operation.

Recommended practice

- > Work a site in separate stages so that the minimum area is exposed at any one time, subject to seasonal constraints.
- > Mark out areas to be disturbed for machinery operators using boundary markers, like stakes or flagging tape.
- > Supervise machinery operators to ensure that they are limiting disturbance to required areas only.
- > Stabilise disturbed land as soon as practicable to minimise dust and erosion.

5.5 SOIL MANAGEMENT

Background

Low risk mining typically occurs on agricultural land and maintaining soil structure helps ensure future productivity. Soil structure decline and erosion can occur as a result of disturbance from mining activities resulting in lost fertility and increased sedimentation in nearby waterways. Erosion, the loss of nutrients and soil salinity are major land degradation issues in Victoria. By implementing good soil management, rehabilitation costs will be minimised.

Seeds, nutrient cycling processes and many important microbes in soil are reliant on the presence of oxygen. When stripped topsoil has to be stockpiled, oxygen within the soil reduces and the fertility of the topsoil deteriorates. Soil structure can deteriorate if topsoil is collected when saturated, if the soil is compacted during handling or if soil stockpiles are too high.

Requirement

R8 The licensee must take all reasonable measures to minimise adverse impacts on the physical and biological health of soil within the licence area.



Mesh fencing to prevent ground disturbance by earthmoving equipment within the drip line of the tree



Separate stockpiling of topsoil and subsoil

Recommended practice

- > Where practicable, use existing roads and tracks for vehicle and heavy machinery movements.
- > Progressively strip topsoil from areas of ground disturbance for use in rehabilitation.
- > Where practicable, immediately reuse stripped topsoil to rehabilitate worked out areas. Immediate reuse minimises the decline in soil fertility, seed viability and microbial activity.
- > If immediate reuse is not practicable, then topsoil should be placed in stockpiles of less than 2m in height.
- > To maintain soil structure, avoid stripping topsoil when it is saturated or very dry, minimise handling of topsoil and avoid driving on stockpiles.
- > When deeper excavation is required, topsoil, subsoil, associated organic matter (leaf litter and humus) and other excavated materials should be maintained in separate stockpiles.
- > Stockpiled topsoil and other excavated materials should be returned in their original order.
- > Align stockpiles parallel to the slope contour in stable heaps away from traffic, drainage lines and sources of pollution.
- > Place stockpiles adjacent to the excavation to allow for easier respreading.
- > Protect topsoil stockpiles from erosion and install drainage measures to allow drainage through or around large soil stockpiles.
- > Avoid burying topsoil.
- > Grow vegetation (shrubs and grasses) on stockpiles to reduce erosion and help maintain biological activity in the soil.
- > Control and/or prevent the spread or establishment of noxious weeds.
- > Soil should only be imported onto a site with the agreement of an ERR Inspector and with permission from the private landowner/occupier and/or Crown land manager. Licensees must not import topsoils that may contain noxious weed seeds and soil pathogens such as *Phytophthora cinnamomi*.

5.6 EROSION, DRAINAGE AND WATER QUALITY CONTROLS

Background

Erosion leads to instability of faces and slopes and also allows the movement of sediment off-site, which can adversely affect waterways. Drainage control measures should be used to control the direction, volume and speed of stormwater flow and to maximise infiltration.

Stormwater should be diverted around disturbed areas to minimise erosion and avoid contamination of the stormwater with sediment or other contaminants. Sediment capture systems should be used to prevent eroded sediment from contaminating off-site areas or waterways.

Licensees should consult with the Crown land manager, private landowner/occupier, and relevant CMA before conducting activities in or within 200 metres of waterways, including on banks or in beds. Appropriate permits and licences must be obtained before activities commence.

Requirement

R9 The licensee must design, install and maintain erosion, drainage and sediment controls to prevent erosion of areas of disturbed land and sedimentation of waterways, and to prevent contaminated runoff from entering waterways.

Recommended practice

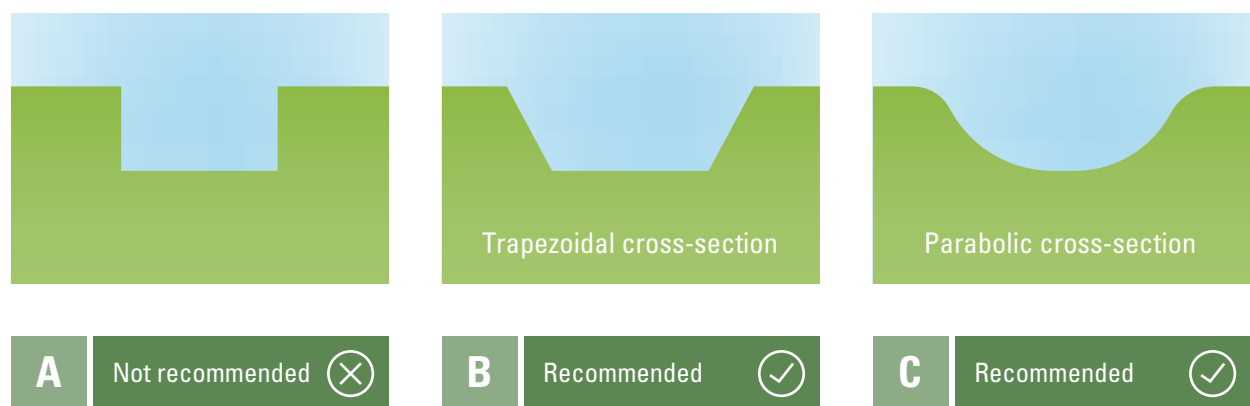
Waterway buffer zones

- > Maintain a sufficient buffer width around mining activities to prevent direct runoff into waterways.
- > Buffers should be established in accordance with the requirements of the Crown land manager, relevant CMA and/or the private landowner/occupier.
- > Exclude excavations, dams, stockpiles and any other mining infrastructure from buffer zones. Machinery may only be allowed in the buffer zone under special circumstances (for example, construction of a stream crossing).

Runoff and drainage control

- > Use diversion drains, contour drains or bund walls to direct clean stormwater away from disturbed areas and minimise the amount of water flowing through the site.
- > Contain or otherwise manage runoff from disturbed areas (including roads, campsites and ablution areas) to ensure waterways are not polluted.
- > Construct surface drains with parabolic cross-sections and appropriate slopes to prevent erosion or scouring. A slope of 1:100 is appropriate for earthen drains (Figure 5).
- > Stabilise drains and channels where required using stone, concrete or vegetation.
- > Ensure stormwater from roofed areas is directed to stormwater drains.
- > Reuse water from sediment ponds for dust control purposes or for watering vegetation.

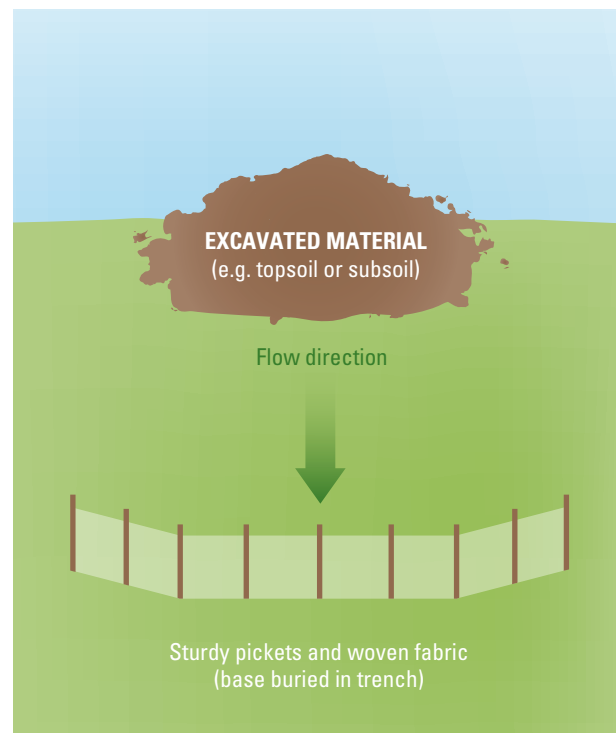
Figure 5 – Recommended cross-section for diversion drains



Sediment control

- > Install sediment control structures such as sediment fences and sediment ponds downgradient of disturbed areas (including washing, screening and processing areas) to prevent sediment from entering waterways (Figure 6).
- > Remove sediment from sediment traps and ponds on a regular basis to maintain sufficient capacity.
- > Dispose of sediment removed from traps and ponds so as to avoid polluting downstream waterways.
- > Continuously assess the effectiveness of sediment control measures and make necessary improvements.
- > Design sediment ponds and other drainage measures to contain and control rainfall for a one in two year storm event for temporary structures, and for a one in five year event for permanent structures (EPA 1996). Upstream of sensitive areas such as aquatic reserves, wetlands and lakes, more stringent design criteria may be required and the relevant CMA should be consulted.
- > Where finer particles such as clay are present in sediment ponds, flocculation treatment or a 24-hour or longer retention period in sediment ponds may be required.
- > Sediment pond outlets and drain outlet points will usually require erosion protection mechanisms. Such mechanisms may include spillways to undisturbed natural drainage lines, level sill outlets, pond decant pipes, riprap outlets or other methods of energy dissipation.

Figure 6 – Use of sediment fence for temporary sediment control



An attempt to control gully erosion using riprap and sediment release using hay bales

Discharge

- > Ensure any stormwater or wastewater discharge complies with the *Environment Protection Act 1970* and the State Environment Protection Policy (SEPP): Waters of Victoria (2003).
- > Direct discharge of all treated stormwater should be to vegetated areas.
- > Maintain a filter strip of undisturbed vegetation adjacent to all waterways as this is one of the best available means of protecting water quality.
- > Water licensing requirements are described in *Water Act 1989: Guidelines for Quarries and Mines* (DSE 2004).

5.7 SLOPE STABILITY

Background

A mine should be carefully constructed so that the landform poses no slope failure, slumping or collapse risk to employees, the public, public infrastructure, the environment or the viability of the operation. All landforms on a mine site should be safe and stable.

Requirements

- R10 The licensee must ensure that all slopes/batters including excavations, roadways, stockpiles and dumps must be designed, constructed and maintained to ensure stability.
- R11 Should a significant slope failure event occur, the licensee must cease all operations, notify DEDJTR and not recommence operations until authorised.

Recommended practice

- > Construct benches to be self-draining.
- > Inspect all slopes on a regular basis, documenting any signs of potential instability.
- > Establish drainage and sediment controls around unstabilised stockpiles and batters.
- > The angle of working faces should be safe and stable as determined by the nature of material, in general:
 - Clay should have an overall slope of no greater than 1:1 (vertical to horizontal)
 - Sand should have an overall slope of no greater than 1:1.5 (vertical to horizontal)
 - Vertical faces should be less than two metres.

The above working face slopes are a guide only, as individual materials or situations may vary. If in doubt consult an ERR Inspector.

5.8 WATER DAMS

Background

Privately owned water storage dams, on a waterway or with embankment heights and storage capacities above certain thresholds must be appropriately licensed under the *Water Act 1989* as described in the *Water Act 1989: Guidelines for Quarries and Mines* (DSE 2004).

The relevant water corporation should be contacted for more information regarding the construction of dams, and the relevant CMA for more information regarding the construction of outlet works to a waterway, or any access that crosses over waterways.

Requirements

- R12 The licensee must ensure that the location, design, construction, operation and safety management of water dams on the licence area are undertaken to avoid environmental damage.
- R13 Should a significant failure event occur, the licensee must cease all operations, notify DEDJTR and not recommence operations until authorised.

Recommended practice

- > Water storage dams should be constructed and managed in accordance with *Your dam your responsibility: A guide to managing the safety of farm dams* (DSE 2007).
- > Dams should be visually inspected on a regular basis to ensure there are no potential causes for failure, including: cracks, leakage, deformation, and spillway or outlet blockage.
- > Dam outlets and drain outlet points will usually require erosion protection mechanisms. Such mechanisms may include spillways to undisturbed natural drainage lines, level sill outlets, pond decant pipes, riprap outlets or other methods of energy dissipation.
- > If there are concerns over the management of the dam or its ongoing stability, DEDJTR and other relevant authorities should be contacted.

5.9 TAILINGS MATERIALS AND STORAGE FACILITIES

Background

Tailings means any waste mineral or other material that was produced during the course of mining, and includes any mineral, stone or material that is or was discarded from plant or machinery used for extracting minerals. Tailings are stored in a tailings storage facility. Management of tailings is one of the main environmental issues to be addressed by the mining and extractive industries.

The production of tailings by processes involving chemical treatment requires an approved work plan. In these circumstances, the project is not permitted to operate under the Code.

Requirements

R14 The licensee must take all reasonable measures to minimise the generation of tailings.

R15 The licensee must ensure that the location, design, construction, operation and safe management of tailings storages within the licence area is undertaken in a way that prevents the release of tailings to the environment.

Recommended practice

- > Where it is proposed to store water for use in tailings storage facilities, licensing could be required under the *Water Act 1989* and the relevant water corporation should be contacted for advice.
- > Manage tailings and tailings storage facilities in accordance with DEDJTR recommended practice and guidelines.
- > Design tailings storage facilities to promote rapid drying and consolidation.
- > Consider backfilling mined-out voids with tailings if deemed a stable and safe form of storage and compatible with final rehabilitation.
- > Ensure that tailings storage facilities are securely fenced and appropriate signs are in place to warn of potential hazards.
- > Undertake regular inspection and maintenance of tailings pipelines, pumps and bunding and tailings storage facilities.
- > Control dust from dried tailings.
- > Cover tailings with topsoil and rehabilitate as quickly as practicable after tailings have dried sufficiently.

5.10 GROUNDWATER

Background

Water extraction for supply or dewatering purposes can cause environmental harm to waterways, and wetlands, damage to aquifers and adversely affect other water users.

Requirements

R16 The licensee must ensure that all practicable measures are taken to prevent impacts on groundwater quality.

R17 If groundwater is encountered when dry mining, the licensee must inform the ERR District Manager and the relevant water licensing authority and required approvals must be obtained.

Recommended practice

- > Comply with all requirements of the *Water Act 1989*, water corporation approvals and/or SEPP (Groundwaters of Victoria).
- > Manage the quality of water in and surrounding a site to reduce the potential for impacts on groundwater.
- > Ensure permission is obtained from the relevant water corporation before installing a groundwater bore for groundwater investigation or extraction purposes or prior to the collection and pumping of groundwater intersected during mining.

5.11 NOXIOUS WEEDS AND PESTS

Background

Plant diseases, weeds and pest animals can destroy vegetation and permanently reduce the productivity of the land. This includes the root rot pathogen *Phytophthora cinnamomi* which causes vegetation dieback. The principle legislation relating to the control of weeds and pest animals is the *Catchment and Land Protection Act 1994* (CaLP Act). Depending on the catchment and region, operators may be responsible for control or eradication of noxious weeds.

The movement of machinery is a major risk factor in the spread of plant diseases and weeds in Victoria. This risk has increased with the use of contracted equipment and the large distances travelled between jobs. Weeds or diseases may also be introduced during rehabilitation, or through the importation of mulches or soil. The CaLP Act also requires that reasonable steps be taken to manage noxious weed movement away from a site on vehicles, plant or extracted materials.

Mining activities can create habitat for pest animals such as rabbits and foxes. Poor housekeeping and unsecured waste bins can also attract pest animals to the area.

Requirements

R18 The licensee must take all reasonable measures to control and eradicate noxious weeds and pest animals within the licence area.

R19 The licensee must ensure that all soil and aggregate that is imported into and exported out of the licence area is free of declared noxious weeds, pest animals and plant diseases.

Recommended practice

- > Contact DELWP for advice on the control and eradication of plant diseases (e.g. *Phytophthora cinnamomi*), weeds and pest animals. Information on biosecurity is provided under Agriculture and Food at www.economicdevelopment.vic.gov.au.
- > Become familiar with noxious weeds in the area and regularly inspect the site for the presence of noxious weeds.
- > Consult the private landowner/occupier and/or Crown land manager about any plant disease, weed or pest animal management issues in the intended work area.

- > Consult DELWP to determine permitting requirements before using chemicals to control weeds and pests.
- > Implement a plan to manage noxious weeds and pest animals.
- > Ensure material imported for construction (for example, hardstand areas, drill pads, tracks and roads) is sourced from 'clean' pits and is free from soil pathogens, noxious weed seeds or any other part of a noxious weed that is capable of growing.
- > Ensure soil used for rehabilitation (including imported topsoil) does not contain pathogens, noxious weed seeds or any other part of a noxious weed that is capable of growing.
- > Thoroughly clean all heavy equipment entering or leaving work sites in a designated onsite wash-down area. During the cleaning process, the undersides of vehicles, plant and equipment will require particular attention.
- > Provide animal-proof bins for contractors and employees at locations where food is consumed and ensure bins are regularly emptied to an appropriate off-site facility.



Cleaning equipment in a washdown bay to prevent the transfer of plant diseases and weeds

5.12 HAZARDOUS MATERIALS MANAGEMENT

Background

During mining activities, fuels, lubricants and other hazardous materials may be used for various purposes. Hazardous materials are known to pose serious risks if released to the environment. The management of hazardous materials must therefore include the appropriate storage of these materials, and preparation for leaks and spills to ensure that the risk of hazardous materials being released into the environment is minimised.

Requirement

R20 The licensee must manage the storage, use and handling of hazardous materials in a way that minimises the risk of environmental harm.

Recommended practice

- > Minimise the storage of fuels, lubricants and/or hazardous materials onsite.
- > Ensure that all fuels, lubricants and/or hazardous materials are stored in accordance with the relevant requirements of AS1940:2004 The Storage and Handling of Flammable and Combustible Liquids.
- > Securely store fuels and lubricants within an impervious lined bunded area or on mobile sump platforms with a volume of at least 125% of the volume being stored:
 - Locate storage areas away from waterways or areas prone to flooding.
 - Install bund walls or diversion drains to divert surface water away from areas dedicated to the storage of hazardous materials.
 - Ensure bund heights are at least 150mm.
- > For sites where only a few drums are to be stored (less than 1200L), storage without bunding is acceptable provided that:
 - Recovery of spilt material is possible.
 - They are located undercover and on an impervious base.
 - They are away from stormwater drains and pits.
 - Good operational procedures are used.
 - Absorbent materials are on hand.
- > Store hazardous materials off the ground in storage cabinets that conform to applicable Australian standards.

- > Ensure that the risk and impact of spills or leaks is minimised. These may arise from the use, refuelling, servicing and repair of equipment and mobile fuel storage tanks. To do this:
 - Install trays, thick plastic mats or similar apparatus beneath stationary machinery to protect the soil from oil or fuel leaks or spills.
 - Maintain fuel pipelines to prevent leaks or uncontrolled discharge.
 - Avoid the on-site maintenance and servicing of mobile equipment, other than emergency repairs, or essential maintenance of stationary equipment such as a crusher.
 - Avoid the refuelling, servicing and repair of equipment near environmentally sensitive areas such as waterways or wetlands.
 - Ensure that appropriate spill kits and clean-up equipment are readily accessible during refuelling of mobile equipment and other activities where spills or leaks may occur.
 - Maintain a supply of oil-absorbent material (such as sawdust) at the work site and use it to clean up even minor spills.
- > Ensure that spills of fuels, lubricants and/or hazardous materials are cleaned up as quickly as practicable. Such spillage must not be cleaned up by hosing, sweeping or otherwise releasing such contaminants into waterways.
- > Equipment which cannot be salvaged and soil contaminated by fuels, lubricants, hazardous materials or clean up substances must be disposed of in an approved waste facility.

5.13 AIR EMISSIONS, DUST AND LIGHTING

Background

Potential air emissions from mining activities include windblown dust from disturbed land, pits and stockpiles, and combustion emissions from machinery. Dust can have amenity and health impacts on nearby residences and sensitive land users. As a general rule, dust should be confined to the licence area. However, activities such as land clearance, earthworks, excavation, crushing and screening can be a significant source of dust and certain weather conditions make dust control difficult.

Source control is the most cost-effective method for managing air emissions. When considering management techniques, mining operations will also need to identify the nearest receptors (such as residences) that may be impacted and alternative techniques available to address the issues. These alternatives may require further approvals. For example, a water extraction licence under the *Water Act 1989* may be required in order to use water for dust suppression.

The EPA's *Protocol for Environmental Management – Air quality for mining and extractive industries*, which is an incorporated document of the SEPP (Air Quality Management), provides information about how to model, measure and manage air emissions.

Light or odour generation from operational activities can also cause annoyance to local land users and local wildlife.

Requirement

R21 The licensee must take all reasonable measures to prevent adverse impacts as a result of the mining-related release of dust, odour and/or emission of light.

Recommended practice

- > Dust control measures may include:
 - Keeping disturbed areas to a minimum, and revegetating disturbed areas as soon as practicable.
 - Postponing work in unfavourable conditions. Considering the direction of prevailing winds when designing the work area, plant, work faces and stockpile layouts to minimise dust nuisance.
 - Minimising vehicle movements and reducing speed, especially under dry or windy conditions.
 - Using suitable water to spray unsealed access tracks, internal roads and disturbed areas.
 - Covering or dampening loads leaving a site.
 - Revegetating stockpiles that will not be used for some time.
 - Using topography and embankments to shield stockpiles and working areas from prevailing winds.
 - Installing dust controls on dust generating equipment (for example, fitting bag filters or a cyclone).
- > Reduce lighting to the minimum required for safe operation to avoid impacting nearby residents and disturbing faunal habitats. Directional lighting should be used for mining activities.

5.14 NOISE

Background

Significant noise can be generated from motorised and other mechanical equipment engaged in mining activities including:

- > earthmoving machinery
- > heavy transport
- > crushing, screening and processing equipment
- > compressors and power generators.

Where practicable, licensees should locate and manage mining activities to ensure that any nearby residents, land users, livestock and faunal habitats are protected against nuisance noise, especially at night.

Working hours at mine sites are often restricted to reduce the impacts of noise. Such restrictions may apply to the site as a whole or to specific activities undertaken on the site (such as excavation or processing).

Noise limits for rural areas are specified in the EPA Publication: *Noise from industry in rural Victoria* (NIRV) (2011). NIRV sets out allowable variations to noise levels for certain mining activities (such as site clearing or rehabilitation).

Requirements

R22 The licensee must take all reasonable measures to ensure that noise emissions are minimised to avoid nuisance noise.

R23 The licensee should consult with the EPA regarding requirements for noise control where there are nearby sensitive land users.

Recommended practice

- > Limiting mining activities to day time and week days may be desirable to minimise nuisance noise where there are nearby sensitive land users. For example, it may be appropriate to restrict mining activities to between 0700 and 1800 hours on Mondays to Fridays and from 0700 to 1300 hours Saturdays, with no work on Sundays or public holidays.

- > Adopt measures for minimising noise levels as required, depending on the location of sensitive land users. These measures include:
 - Locating crushing, screening and other noise-generating equipment in appropriate locations to reduce noise impacts.
 - Ensuring equipment is used in accordance with manufacturer’s specifications and is properly maintained and lubricated.
 - Using existing features or stockpiles as noise barriers.
 - Fitting equipment with mufflers, housing or silencers where necessary. Reversing beepers may be able to be replaced with ‘broadband’ or ‘smart’ alarms, or inaudible warning systems.
 - Identifying access routes to and from the mine that minimise nuisance noise, and directing trucks to use these routes.

5.15 VISUAL AMENITY

Background

The visible impact of mines on the landscape can be significant. High visual impact could be due to the location or design of a site, its inconsistencies with the visual appearance of surrounding areas, or its proximity to sensitive landuses.

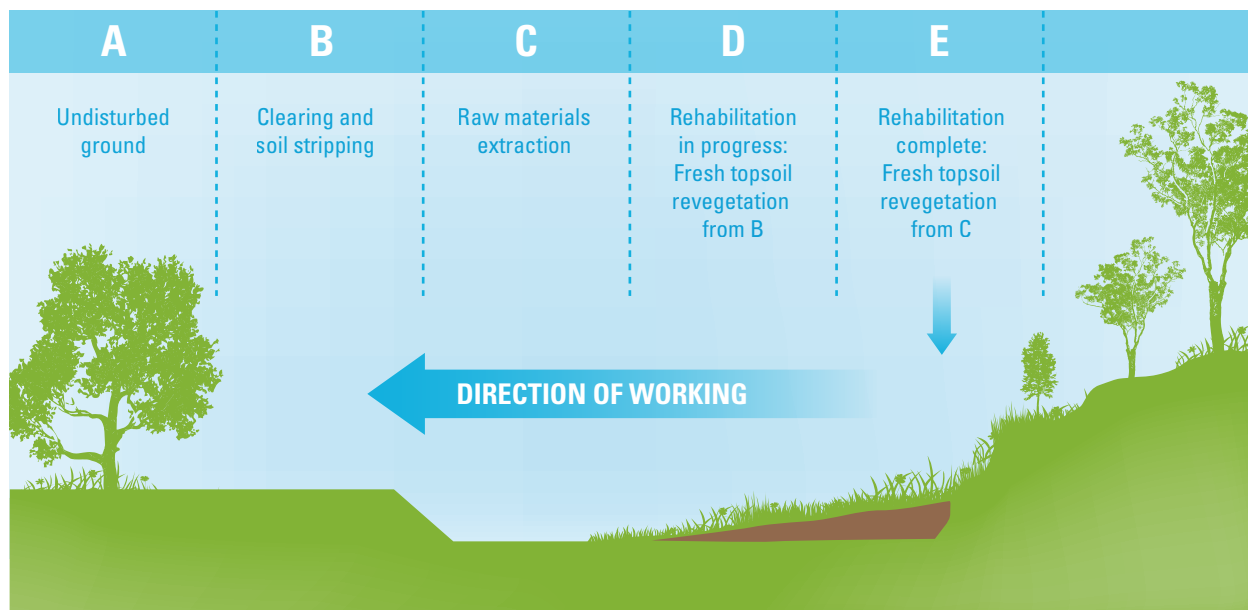
Requirement

R24 The licensee must take reasonable measures to reduce visual impact on the surrounding area.

Recommended practice

- > Choose the direction of mining to shield the working face from the most critical views (Figure 7).
- > Provide visual screening or use natural features to screen mine activities from sensitive land users.
- > Keep disturbed areas to a minimum, and revegetate disturbed areas as soon as practicable.
- > Minimise the height of overburden, topsoil or other stockpiles.
- > Where practicable, develop the size and shape of any bunds or stockpiles to blend in with existing landforms.

Figure 7 – Progressive rehabilitation to maximise visual amenity



Adapted from Quarry Code of Practice, Department of Primary Industries, Water and Environment, Tasmania 1999

6

REHABILITATION AND MINE CLOSURE

Background

The term rehabilitation encompasses any measures taken to repair disturbed or degraded land and return it to a stable and non-polluting state, suited to the proposed future use of the land. All areas disturbed during mining within the boundaries of a prospecting or mining licence including: internal roads (unless pre-existing), pits, stockpiles and plant sites must be rehabilitated.

As new mine sections are opened, worked out areas should be progressively rehabilitated to avoid increasing the total disturbed area of a mine. Rehabilitation should be timed appropriately. For instance, earthworks should not be undertaken when soil is waterlogged.

Depending on local conditions, revegetation is generally best undertaken from autumn to early spring. On private land, rehabilitation requirements should also be set out in the compensation or consent agreement.

Mine closure refers to the period of time when mining operations have ended or nearly ended, and final decommissioning and rehabilitation is being undertaken. The objective of mine closure is to create a safe, stable and non-polluting landform suitable for the intended final use of the land. Following the completion of decommissioning and final rehabilitation, the licence area can be relinquished.

Where mining related infrastructure is to remain after closure, the written consent of the private landowner/occupier and/or Crown land manager must be obtained stating that they will assume responsibility for the infrastructure.

Requirements

R25 The licensee must ensure that disturbed land is rehabilitated as soon as practicable.

R26 The licensee must ensure that the site is returned to a safe, stable and non-polluting state.

6.1 EARTHWORKS

Recommended practice

- > Areas affected by earthworks should be reshaped to blend in with the surrounding landscape.
- > Backfill worked-out excavations where practicable to return the land as closely as possible to the pre-existing landform.
- > Reduce all slopes to a safe and stable gradient taking into account the nature of the material.
- > Use contour banks, reverse incline benches or other means to control drainage and reduce flow velocities.
- > Once a stable landform has been created, respread topsoil uniformly over the area at a suitable depth to support revegetation.
- > Do not spread soil when saturated or sticky, as compaction and other damage to the soil structure will occur.
- > Extreme care should be taken when importing topsoils, clean fill or other materials that may contain weed seeds and soil pathogens like *Phytophthora cinnamomi*. The consent of an ERR Inspector is required before importation occurs.
- > Deep rip compacted areas along the contour, either before or after spreading topsoil. Ripping after soil spreading will help to 'key' in the soil to the underlying material. To increase soil break-up, carry out ripping when the soil is relatively dry.
- > Ensure the final landform is in accordance with the landholder agreement.

6.2 EROSION PREVENTION

Recommended practice

- > Slow down surface runoff by retaining drainage controls like diversion drains, contour banks and rock filters upslope of the area being rehabilitated.
- > Leave surfaces in a rough or uneven state. Rough surfaces will capture more water and allow rainfall to infiltrate rather than flow away.
- > Where beneficial, retain any sediment ponds on-site with the consent of the private landowner/occupier. Ponds will need to be periodically cleaned out for the first year or more.
- > Apply surface mulches around growing seedlings on steep batters to reduce erosion, restrict weed establishment, conserve soil moisture and add nutrients to the soil.
- > Return logs or vegetation stockpiled during mine clearance activities to disturbed areas to help control erosion and assist revegetation.

6.3 PROGRESSIVE REHABILITATION

Recommended practice

- > Undertake progressive rehabilitation where practicable to minimise the total area disturbed at any one time.
- > Agree on the final landform and use of a site with the private landowner/occupier and/or Crown land manager in consultation with an ERR Inspector and the local council.
- > Where practicable, fully work out each section of the mine and commence progressive rehabilitation works as soon as practicable.
- > As the final landform is progressively established, revegetate areas to stabilise the landform to give the vegetation maximum time to establish while the mine is still in operation.



Disturbed areas should be rehabilitated as soon as practicable

6.4 REVEGETATION

Recommended practice

- > Prior to the commencement of a mining activity, agree on the type of revegetation with the private landowner/occupier and/or Crown land manager. Revegetation should be consistent with the proposed final land-use.
- > Generally, the vegetation type that existed before the disturbance will regenerate most successfully and should be used where practicable for revegetation.
- > Where required, replant vegetation following initial establishment (usually after 12 months) to ensure adequate overall survival.
- > Protect revegetation where required, such as by the use of temporary fencing, until the vegetation is successfully established.

6.5 MONITORING AND MAINTENANCE

Recommended practice

- > Inspect rehabilitated areas regularly to assess the health of the vegetation and to check for erosion, damage from grazing and weed infestation.
- > In areas where germination has failed, carry out enrichment planting of seedlings into unstocked areas or spot sowing by hand sowing of seed into small, cultivated patches.
- > Apply fertiliser if poor growth and yellow leaves indicate nutrient deficiencies.
- > Where significant erosion has occurred, bring machines back onsite to repair the landform and install more effective drainage as quickly as possible.

6.6 DECOMMISSIONING AND CLOSURE

Recommended practice

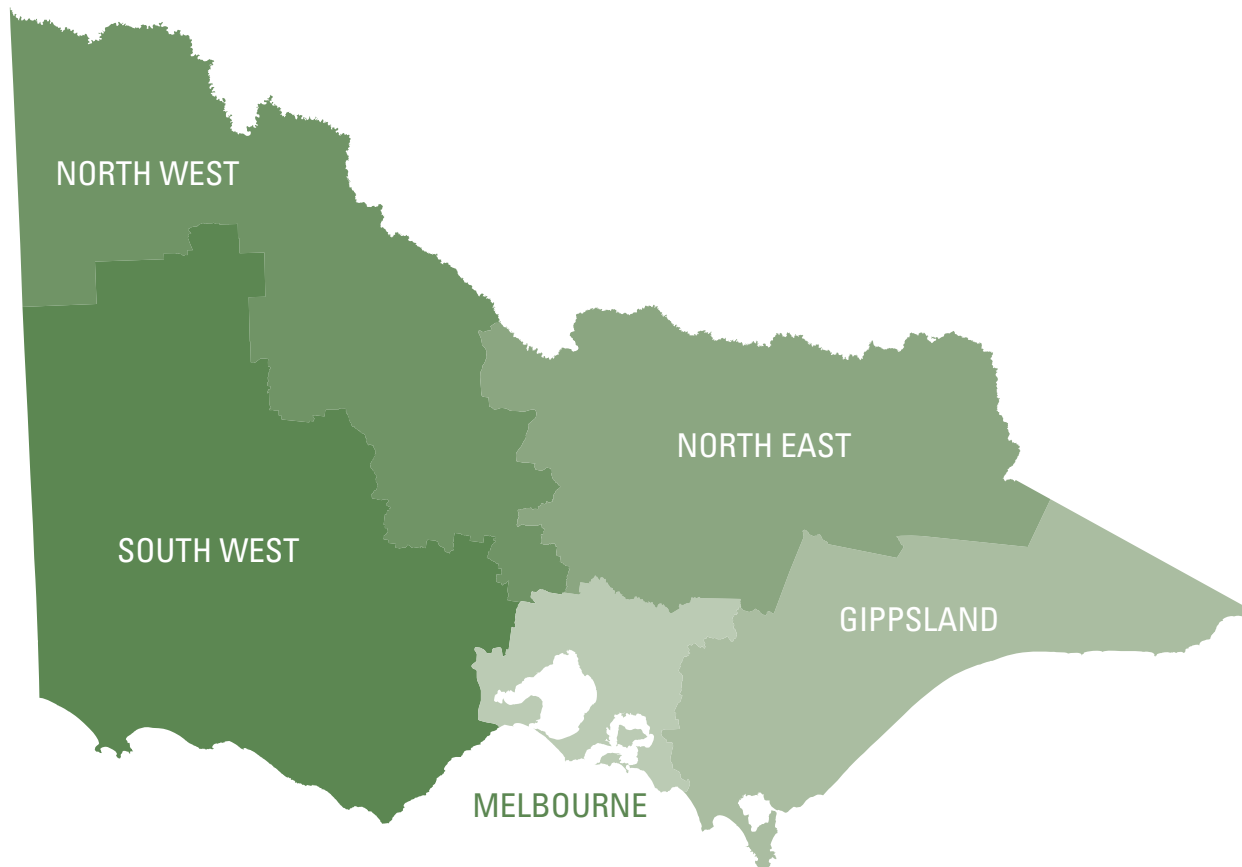
- > Remove all plant and equipment from the licence area.
- > Remove all temporary and permanent structures including dams unless required for an agreed future use.
- > Rehabilitate redundant fuel and lubricant storage areas by removing the liner of the bunded area and recycling or appropriately disposing of it, and levelling the bund walls.
- > Level off any bunds and stockpiles, or shape to an appropriate form for the site's final land-use requirements.
- > Identify and dispose of all waste materials and contaminated materials to appropriately licensed landfills.
- > Break up and remove concrete slabs, unless required for future use.
- > Where practicable, sell scrap iron, concrete or other waste materials to licensed operators for recycling, or dispose of at a recycling facility.
- > Remove office sites and hardstand areas where necessary and rehabilitate roads.

6.7 FINAL REHABILITATION

Recommended practice

- > Consult with an ERR Inspector regarding any proposed final land-use and rehabilitation of a site that was agreed to by the private landowner/occupier and/or Crown land manager prior to commencing decommissioning works.
- > Where applicable, address the safety and stability of pit faces, and public access to voids and water bodies. This should be discussed with an ERR Inspector.
- > At the completion of decommissioning, ensure that any voids have been left in a stable, safe and visually acceptable manner.
- > Where mining-related infrastructure is to remain, obtain the written consent of the private landowner/occupier and/or Crown land manager that they will assume responsibility for the infrastructure.

EARTH RESOURCES REGULATION CONTACTS



CONTACT DETAILS FOR ERR DISTRICT MANAGERS

Melbourne District

Ph: +61 03 9092 1954
Mobile: 0419 593 303

South West District

Ph: +61 03 5336 6802
Mobile: 0408 334 751

Gippsland District

Ph: +61 03 5160 9011
Mobile: 0429 400 569

North East District

Ph: +61 03 5761 1501
Mobile: 0408 218 383

North West District

Ph: +61 03 5430 4692
Mobile: 0409 541 160

For more information and a detailed list of contacts, please visit

www.energyandresources.vic.gov.au

DEFINITIONS

Batter	The face of a slope.
Bench	That part of a mine where material is loaded and hauled away.
Bund	An earthen mound that may be used to direct drainage or contain spillage of liquid materials. A bund may also be used for noise attenuation or visual screening.
Contour bank	An earthen mound or similar, constructed approximately along the contour, which is designed to slow down and control water runoff.
Contour drain	A drainage channel constructed approximately along the contour, which is designed to slow down and direct the flow of water across disturbed land to a sediment trap for sediment removal.
Crown land	From the MRSD Act: Land that is, or that is by any Act deemed to be, unalienated land of the Crown, and includes: (a) land of the Crown that is reserved permanently or temporarily by or under any Act; and (b) land of the Crown occupied by a person under a lease, licence or other right under the MRSD Act or any other Act – but does not include land which is the subject of a licence granted under Part 3A of the <i>Victorian Plantations Corporation Act 1993</i> .
Disturbed land	Any area of land where the natural surface has been removed, excavated, shaped or otherwise altered from its natural condition.
Diversion drain	A ditch and/or earthen bank constructed to direct clean water from uphill of a disturbed area around the disturbed area.
Drip line	The area defined by the outermost circumference of a tree canopy where water drips onto the ground.
Flocculation treatment	The addition of an approved agent to water with high-suspended sediment levels that causes the suspended material to clump together and fall out of solution as sediment.
Hardstand area	An open area having a prepared surface used for storing material and standing vehicles.
Land occupier	From the MRSD Act: (a) in relation to private land, any person lawfully in possession of the land; and (b) in relation to Crown land, the Secretary (as defined in the <i>Conservation, Forests and Lands Act 1987</i>).
Landowner	From the MRSD Act: (a) in relation to Crown land, means the Crown land Minister; and* (d) in relation to private land under the <i>Transfer of Land Act 1958</i> (other than land in an identified folio under that Act), the person who is registered or entitled to be registered as the proprietor of the land; and (e) in relation to other private land - (i) if the land is mortgaged, the mortgagor; and (ia) if the land is subject to a licence granted under Part 3A of the <i>Victorian Plantations Corporation Act 1993</i> , the licensee, under that Part, of the land; and (ii) in any other case, the person who has the fee in the land. * definition of owner amended in MRSD Act to remove (b) and (c)

Level sill outlet	A pond or drain outlet point that causes water to spread evenly across a level surface to dissipate energy before being released to the environment.
Licence	A mining licence or prospecting licence under Part 2 of the MRSD Act.
Licensee	The holder of a licence.
Mineral	From the MRSD Act: Any substance which occurs naturally as part of the earth's crust – (a) including – (i) oil shale and coal; and (ii) hydrocarbons and mineral oils contained in oil shale or coal or extracted from oil shale or coal by chemical or industrial processes; and (iii) any substance specified in Schedule 4; (b) excluding water, stone, peat or petroleum.
Noxious weed	(a) State prohibited weed; or (b) regionally prohibited weed; or (c) regionally controlled weed; or (d) restricted weed; under the <i>Catchment and Land Protection Act 1994</i> .
Overburden	Material which overlays the resource being mined. Overburden excludes soil and topsoil.
Pest animal	(a) a restricted pest animal; or (b) an established pest animal; under the <i>Catchment and Land Protection Act 1994</i> .
Private land	Any land that is not Crown land (from the MRSD Act).
Phytophthora cinnamomi	A microscopic, soil borne pathogen (disease causing organism) that attacks and destroys plant root systems causing plants to die through lack of water and nutrients. Also called Cinnamon Fungus.
Rehabilitation bond	An amount of money, often in the form of a bank guarantee, which is forfeited if the rehabilitation of a site is not successfully completed in the allocated time or to an acceptable standard.
Relevant agencies	The relevant Catchment Management Authority, Local Government Authority, Department of Environment, Land, Water and Planning, Rural Water Authority and/or Urban Water Authority, Environment Protection Authority and Aboriginal Affairs Victoria with statutory obligations that may relate directly or indirectly to low risk mining operations.
Sediment trap	Collects waterborne sediment running off areas of disturbed land using devices, such as structures, pond barriers, sediment fences, hay bales or grassed strips.
Sediment pond	Collects highly turbid water and stores it while suspended sediments fall out of solution and discharge it to a vegetated area.
Sediment fence	A sediment fence (or silt fence) is a temporary barrier designed to intercept and retain sediment in water travelling across disturbed land. It consists of fabric partially entrenched into the ground and held in place by supporting pickets.
Sensitive landuse	Residential areas and zones (whether occupied or not), hospitals, schools, caravan parks, and other similar uses involving the presence of individual people for extended periods, except in the course of their employment or for recreation.
Significant slope failure event	A slope failure event that causes (or has the potential to cause) a public risk, an impact outside the licence boundary or the need to review the design of the mine.

Tailings	Any waste mineral, stone or other material that was produced during the course of mining, and includes any mineral, stone or material that is or was discarded from plant or machinery used for extracting minerals (from the MRSD Act).
Topsoil	Refers to the surface layer of a soil profile, which is usually more fertile, darker in colour, better structured and supports greater biological activity than underlying layers. It is generally not greater than about 300 mm in depth.
Turbid water	Muddy or opaque water, which carries suspended sediment or foreign particles.
Waterway	A river, creek, stream, lake, lagoon, swamp, marsh or watercourse, or a channel in which water may flow. A more detailed definition is provided in the <i>Water Act 1989</i> .
Work plan	A work plan lodged under section 40 of the MRSD Act.

REFERENCES

DPI (2008) *Community Engagement Guidelines for Mining and Exploration in Victoria*.
Department of Primary Industries. Website: www.energyandresources.vic.gov.au

DPI (2010). *Establishment and Management of Rehabilitation Bonds for the Mining and Extractive Industries*.
Earth Resources Regulation Victoria. Website: www.energyandresources.vic.gov.au

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DSE (2007) *Your dam your responsibility: A guide to managing the safety of farm dams*.
Department of Sustainability and Environment. Website: www.delwp.vic.gov.au

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EPA (2001). *SEPP (Air Quality Management)*. Website: www.epa.vic.gov.au

EPA (2003). *SEPP (Waters of Victoria)*. Website: www.epa.vic.gov.au

EPA (2011). *Noise from industry in regional Victoria*. Website: www.epa.vic.gov.au

ENDNOTES

- Information on these issues is provided in the guidelines: *Processing of Mineral and Petroleum Tenements under the Commonwealth Native Title Act 1993*, DPI, 2011 (currently under revision).
- Melbourne Water Corporation should be consulted if the licence area is located in the Port Phillip and Westernport region.
- A water licence and/or a works licence for construction may be required and consideration should be given to securing water licences at the start of the project.

APPENDICES

APPENDIX 1: REQUIREMENTS

Low risk mining

R1 The licensee must not undertake underground mining operations, blasting, native vegetation clearance or use chemical treatments at the project site while operating under the Code.

Public safety

R2 The licensee must ensure that public safety is maintained within the licence area at all times, including through the use of fencing, gates and signage as required around the work area.

R3 The licensee must ensure that all fences are maintained to prevent access to the work site and that all gates are locked when the work site is unattended.

R4 Ensure that the operation is located at a safe distance from public infrastructure (such as roads) and waterways.

Community engagement

R5 The licensee must establish and maintain a complaints register.

R6 In response to a complaint, the licensee must record the following information in the complaints register:

- e) the date and time of the complaint
 - f) who the complaint was from
 - g) specific issue/s raised in the complaint
 - h) actions taken to address the specific issue/s raised in the complaint.
-

Ground disturbance

R7 The licensee must minimise the area of ground disturbance throughout the life of the mining operation.

Soil management

R8 The licensee must take all reasonable measures to minimise adverse impacts on the physical and biological health of soil within the licence area.

Erosion, drainage and water quality controls

R9 The licensee must design, install and maintain erosion, drainage and sediment controls to prevent erosion of areas of disturbed land and sedimentation of waterways, and to prevent contaminated runoff from entering waterways.

Slope stability

R10 The licensee must ensure that all slopes/batters including excavations, roadways, stockpiles and dumps must be designed, constructed and maintained to ensure stability.

R11 Should a significant slope failure event occur, the licensee must cease all operations, notify DEDJTR and not recommence operations until authorised.

Water dams

R12 The licensee must ensure that the location, design, construction, operation and safety management of water dams on the licence area are undertaken to avoid environmental damage.

R13 Should a significant failure event occur, the licensee must cease all operations, notify DEDJTR and not recommence operations until authorised.

Tailings materials and storage facilities

- R14 The licensee must take all reasonable measures to minimise the generation of tailings.
- R15 The licensee must ensure that the location, design, construction, operation and safe management of tailings storages within the licence area is undertaken in a way that prevents the release of tailings to the environment.
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Groundwater

- R16 The licensee must ensure that all practicable measures are taken to prevent impacts on groundwater quality.
- R17 If groundwater is encountered when dry mining, the licensee must inform the ERR District Manager and the relevant water licensing authority and required approvals must be obtained.
-

Noxious weeds and pests

- R18 The licensee must take all reasonable measures to control and eradicate noxious weeds and pest animals within the licence area.
- R19 The licensee must ensure that all soil and aggregate that is imported into and exported out of the licence area is free of declared noxious weeds, pest animals and plant diseases.
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Hazardous materials management

- R20 The licensee must manage the storage, use and handling of hazardous materials in a way that minimises the risk of environmental harm.
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Air emissions, dust and lighting

- R21 The licensee must take all reasonable measures to prevent adverse impacts as a result of the mining-related release of dust, odour and/or emission of light.
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Noise

- R22 The licensee must take all reasonable measures to ensure that noise emissions are minimised to avoid nuisance noise.
- R23 The licensee should consult with the EPA regarding requirements for noise control where there are nearby sensitive land users.
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Visual amenity

- R24 The licensee must take reasonable measures to reduce visual impact on the surrounding area.
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Rehabilitation and mine closure

- R25 The licensee must ensure that disturbed land is rehabilitated as soon as practicable.
- R26 The licensee must ensure that the site is returned to a safe, stable and non-polluting state.
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APPENDIX 2: PRO FORMA FOR RECORDING COMPLAINTS

COMPLAINTS YEAR ENDING 30 JUNE

LICENCE NO

LICENSEE

Complainant name and address	Date received	Received by	Complaint details	Action taken	Responsible person	Date resolved

Notes:

1. List all complaints (provide the issue on which the complaints are based and the number of complaints).
2. Attach additional sheets as necessary. Include the licence number and date at the head of each sheet.

