

Determination
TERMS OF REFERENCE

003

**Extractive mineral quarry
lease/licence applications**

Notice under section 36 of the Mining Act 1971

Acknowledgement of Country

The Department for Energy and Mining acknowledges Aboriginal people as the First Nations Peoples of South Australia. We recognise and respect the cultural connections as the traditional owners and occupants of the land and waters of South Australia, and that they continue to make a unique and irreplaceable contribution to the state.



Government of South Australia
Department for Energy and Mining

Department for Energy and Mining
www.energymining.sa.gov.au
map.sarig.sa.gov.au

Level 4, 11 Waymouth Street, Adelaide SA 5000
GPO Box 618, Adelaide SA 5001
DEM.CustomerServices@sa.gov.au
Phone: +61 8 8463 3000

MINING ACT 1971

SECTION 36

Terms of Reference for Extractive Mineral Quarry Lease/Licence Applications

An application for a mining lease (ML) for the recovery of extractive minerals must be accompanied by:

- a proposal that complies with section 36 of the *Mining Act 1971*, regulations 46 and 47 of the *Mining Regulations 2020* and any determinations set out in this Terms of Reference; and
- information that complies with regulation 30 of the *Mining Regulations 2020* and any determinations set out in this Terms of Reference; and
- a declaration of accuracy that complies with regulation 84 of the *Mining Regulations 2020*; and
- the relevant application fee.

An application for a miscellaneous purposes licence (MPL) for the recovery of extractive minerals must be accompanied by:

- a proposal that complies with section 49 of the *Mining Act 1971*, regulations 46 and 47 of the *Mining Regulations 2020* and any determinations set out in this Terms of Reference; and
- information that complies with regulations 37 and 38 of the *Mining Regulations 2020* and any determinations set out in this Terms of Reference; and
- a declaration of accuracy that complies with regulation 84 of the *Mining Regulations 2020*; and
- the relevant application fee.

In accordance with section 36 of the *Mining Act 1971* this Terms of Reference will have effect from 1 January 2021.

FORM OF APPLICATION

In accordance with section 36(1)(a) of the *Mining Act 1971* an application for a mining lease (ML) for the recovery of extractive minerals must be made in the form and contain such information as set out in this Terms of Reference, unless otherwise specified by the Minister for Energy and Mining or delegate.

For the purposes of section 36(1)(a) of the *Mining Act 1971*, it is determined that an application for an ML must contain the information as follows:

- Applicant name(s) (company and/or individual and/or related body corporate) and each applicants percentage share in the application
- Name of project
- Mineral type
- Mineral(s) to be authorised
- Primary mineral(s) sought
- Other mineral(s) sought
- Proposed lease area details including a detailed map/plan (if required)
- Native title land
- Details of relevant land ownership, notices, consents and agreements
- Declaration of accuracy
- Applicant(s) details including:
 - Name of company and/or individual
 - ABN (if applicable)
 - ACN (if applicable)
 - Registered address
 - Applicant contact details including:
 - Postal address
 - Email
 - Website
 - Phone number(s)
 - Contact person details including:
 - Name
 - Position Title
 - Email
 - Phone number(s)
 - Consent to receive electronic correspondence (or otherwise).

In accordance with section 49(1)(a) of the *Mining Act 1971* an application for a miscellaneous purpose licence (MPL) ancillary to the recovery of extractive minerals must be made in the form and contain such information as set out in this Terms of Reference, unless otherwise specified by the Director of Mines or an authorised officer.

For the purposes of section 49(1)(a) of the *Mining Act 1971*, it is determined that an application for a MPL must contain the information as follows:

- Applicant name(s) (company and/or individual and/or related body corporate) and each applicants percentage share in the application
- Name of project
- Related applications/mining operations
- Location of proposed licence including a detailed map/plan (if required)

- Purpose of proposed licence
- Pegging details relating to proposed licence area
- Native title land
- Details of relevant land ownership, notices, consents and agreements
- Declaration of accuracy
- Applicant(s) details including:
 - Name of company and/or individual
 - ABN (if applicable)
 - ACN (if applicable)
 - Registered address
 - Applicant contact details including:
 - Postal address
 - Email
 - Website
 - Phone number(s)
 - Contact Person details including:
 - Name
 - Position Title
 - Email
 - Phone number(s)
 - Consent to receive electronic correspondence (or otherwise).

An application for an ML and/or MPL must in accordance with section 36(1)(a) and 49(1)(a) of the *Mining Act 1971* be in the following form, unless otherwise specified by the Minister for Energy and Mining or delegate:

- an electronic version of the Proposal must be submitted online through the relevant online portal or submitted by email if requested by authorised officer; and
- each page, plan or other separate sheet of the Proposal must include the mineral claim, retention lease or exploration licence number(s), date of the application submission and sequential page numbering; and
- the electronic version of the Proposal must be submitted in one single Acrobat PDF file.

PROPOSAL

An application for an ML and/or MPL must be accompanied by a proposal that complies with sections 36 and 49 of the *Mining Act 1971* and regulations 46 and 47 of the *Mining Regulations 2020*, and must comply with the following determinations of this Terms of Reference as set out below:

1. DESCRIPTION OF THE EXISTING ENVIRONMENT

In setting out an assessment of the environmental impacts of the proposed authorised operations in accordance with sections 36(1)(c)(ii)(A) and 49(1)(c)(ii)(A) of the *Mining Act 1971* and regulation 46(2) of the *Mining Regulations 2020*, the Minister determines in accordance with regulation 46(7)(e) of the *Mining Regulations 2020* that a proposal must include a description and assessment of the environment as set out in this Terms of Reference. Each of the elements of the existing environment (as defined in section 6(4) of the *Mining Act 1971*) listed in clause 1.1- 1.19 must be described only to the extent that they may need to be considered in assessing the potential impacts of the proposed quarry operations. If the element is not likely to be impacted by the operation, a statement to that effect must be included.

1.1 Topography and Landscape

Provide a description and map (as per 5.1.1.1) of the topography and landscape, detailing the:

- application area; and
- general surroundings.

1.2 Climate

Provide a summary from the nearest relevant weather station of:

- annual rainfall and temperature patterns; and
- prevailing wind directions and speed (including maximum wind gusts).

1.3 Topsoil and Subsoil

Provide:

- a description of the soil profile (type and depth), and the characteristics and/or productivity of all soils on the application area (show this information on a map as per 5.1.1.2 if there is a variation in soils over the application area); and
- identify any soil characteristics that may be an issue for disturbance or rehabilitation.

1.4 Geological Environment

Provide:

- local geological or site map (as per 5.1.1.2), showing location and dimensions of the deposit and structure (dip and strike where appropriate);
- representative cross-sections (as per 5.2.1.1) of the proposed quarry area that identifies the extent of the resource and estimate any overlying overburden; and
- a description and results of any geological evaluation work carried out.

1.5 Geohazards

Provide an assessment of the potential for any of the following natural geohazards to be present in the application area:

- structural instability including slips, faults, karst features or geological unit boundaries;
- minerals that may occur in the material to be quarried (including overburden) and are hazardous to human health specifically radioactive minerals, asbestos minerals or minerals which have the potential to produce respirable silica; and
- minerals that may occur in the material to be quarried (including overburden) that may have the potential to pollute the environment - including but not limited to sulfide minerals that may generate acid.

1.6 Groundwater

Provide:

- a statement describing if the application area is within an area where the water resources are prescribed under the *Landscape South Australia Act 2019*;
- a map (as per 5.1.1.3) showing groundwater wells in the surrounding area, highlighting those used to determine the seasonally high-water table elevation;
- a cross-section (as per 5.2.1.2) showing the proposed quarrying and seasonally high-water table elevation in metres Australian Height Datum (AHD); and
- evidence to validate the estimated seasonally high-water table.

If the proposed quarry has the potential to intersect the seasonally high-water table, the following must be provided:

- details of local groundwater systems, including information on water quality and static water level (including seasonal fluctuations), recharge and discharge mechanisms, aquifer hydraulic properties, location of any aquifer and static water level of any other known drill holes; and
- an assessment of any current use of this water by the landowner, adjacent landowners and groundwater dependent ecosystems.

1.7 Surface Water

Provide a Topographic Map (as per 5.1.1.1) and description of the current drainage patterns for the application area and water catchment including:

- location of watercourses, drains, dams and wetlands;
- surface water catchment boundaries;
- direction of drainage and discharge from the application area;
- a statement describing if the application area is within an area where the water resources are prescribed under the *Landscape South Australia Act 2019*, and provide details on the current availability of water resources within the prescribed area;
- a statement describing if the application area is within a water protection area including areas under the *River Murray Act 2003*; and
- a statement as to whether the application area falls within the Murray Darling Basin.

If there is potential for changing a flow regime (including change in flow volume) or discharge into these watercourses from the proposed quarry operations, an assessment of the use of this water by the landowner, downstream users and water dependent ecosystems must be included.

1.8 Vegetation, Weeds and Plant Pathogens

Provide:

- a description and map (as per 5.1.1.1) of existing flora (native and introduced) in the application area and surroundings;
- the State conservation status and habitat value of native vegetation present in the application area;
- a description of the presence of *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* listed species and ecological communities;
- a description of the extent the application area and adjoining land is affected or potentially affected by pathogens and declared weeds, including but not limited to phytophthora and broomrape; and
- if known, a description of the history of land use to identify if the existing vegetation is the result of deliberate cultivation or natural regrowth arising from previous clearance.

1.9 Fauna

Describe the native and feral fauna that may be present in the application area noting State or Commonwealth conservation status of all species.

1.10 Caves

If the application area is within, or near to, known caves or significant limestone formations a survey for the presence of caves must be performed.

Provide a summary of the results of the survey and describe the presence of any caves in karst (limestone) areas within, or near to, the application area and show on a map (as per 5.1.1.5).

1.11 Land Use

Provide a description of:

- land use (historical and current) for the application area and the surrounding areas;
- the zoning as defined by the Planning and Design Code or relevant council development plans;
- policies relevant to the application area, including region or council wide, zone specific and sub areas within a zone;
- known plans for potential future land use changes by other parties;
- other interests or restrictions on the application area, including:
 - public utility easements;
 - if the application is within land used for defence purposes, including the Woomera Prohibited Area or the Cultana Army Training Area; and
 - any overlapping or adjacent tenements under the *Mining Act 1971* or *Energy Resources Act 2000*;

1.12 Proximity to Infrastructure and Housing

Provide information and a map (as per 5.1.1.4):

- identifying residences within and near the application area;
- identifying other human infrastructure including but not limited to schools, hospitals, commercial or industrial sites, roads, sheds, bores, dams, ruins, pumps, cemeteries, scenic lookouts, roads, railway lines, fences, transmission lines, gas and water pipelines, telephone and communication lines (both underground and above ground); and
- identifying public roads to be utilised or affected as part of proposed quarrying operations, including an estimate of the existing traffic movements.

1.13 Exempt Land

Provide a description and map (as per 5.1.1.4) of any applicable exempt land under section 9 of the *Mining Act 1971*.

1.14 Amenity

Provide a summary description of scenic or aesthetic values for the application area and immediate surrounds.

1.15 Air Quality

Provide a description of the existing levels of dust and contributors to air quality (both natural and anthropogenic).

1.16 Noise

Provide a description of existing noise levels and contributors to noise (both natural and anthropogenic).

1.17 Heritage (Aboriginal, European, Geological)

Detail and show on a map (as per 5.1.1.1):

- any registered heritage sites in or adjacent to the application areas that are protected under legislation (in so far as may be permitted under the relevant legislation).
- Include a statement concerning whether or not an Aboriginal cultural heritage survey has been conducted by the proponent and, if so, the results of the survey.

1.18 Proximity to Conservation Areas

Provide:

- information and a map (as per 5.1.1.1) showing proximity to national parks and reserves, private conservation areas, Commonwealth recognised conservation areas, heritage agreement areas and geological heritage sites
- a statement as to whether the application area falls within the Adelaide Dolphin Sanctuary, Adelaide International Bird Sanctuary or a Marine Park..

1.19 Pre-existing Site Contamination and Previous Disturbance

Provide information and a map (as per 5.1.1.1) showing:

- any known existing contamination of the site and/or any disturbance by previous mining operations or other activities.

2. DESCRIPTION OF THE PROPOSED OPERATIONS

In specifying the nature and extent of the authorised operations that are proposed in accordance with sections 36(1)(c)(i) and 49(1)(c)(i) of the *Mining Act 1971*, the Minister determines in accordance with regulation 46(7)(e) of the *Mining Regulations 2020* that a proposal must include a description of the proposed operations as set out in this Terms of Reference. Each of the elements listed in clauses 2.1–2.9 must be described only to the extent that they apply to the proposed quarry operation.

2.1 General Description and Maps/Plans of Operations

A summary description of all elements of the proposed operation must be included.

2.2 Resource and Products

2.2.1 Resource

Provide a statement of the extractive minerals proposed to be extracted, recovered and sold.

Provide a statement of the current estimated resource or reserve (or both), including:

- details of the basis of this estimate; and
- a declaration that the resource or reserve (or both) has been appropriately identified and estimated.

2.2.2 Production rate and products

State: the potential end use and products for all extractive minerals proposed to be sold.

Provide estimates of the:

- annual production rate (product and overburden);
- life of the quarry; and
- material movement over life of quarry (product and overburden).

2.3 Quarrying Activities

2.3.1 Type or types of proposed quarry operation to be carried out

Provide:

- a summary and map (as per 5.1.2.1) of the proposed site layout;
- a description of the proposed quarrying method; and
- conceptual dimensions and depth of proposed pit(s).

2.3.2 Sequence of quarrying and progressive rehabilitation

Describe conceptually and show on a map (as per 5.1.2.2):

- staging and description of each progressive quarrying stage;
- milestones that will instigate progressive rehabilitation; and
- staging and description of each progressive rehabilitation stage including:
 -

- use of overburden;
- battering of mining faces and other earthworks;
- topsoil management; and
- revegetation.

2.3.3 Stockpiles

- **Topsoil and subsoil stockpiles**

Describe and show on a map (as per 5.1.2.1):

- conceptual location, size, shape and height of topsoil/subsoil stockpiles.

- **Product stockpile**

Describe and show on a map (as per 5.1.2.1):

- conceptual location and height of product stockpiles.

2.3.4 Use of explosives

If explosives are proposed to be used, describe:

- estimated frequency of blasting; and
- whether explosives will be stored onsite.

2.3.5 Modes and hours of operation

State if the proposed quarry operation will be operated on a continuous (24 hour, 7 days a week), regular periodical or campaign basis.

If the proposed quarry operation is to be operated on a regular periodical basis or campaign basis, specify:

- proposed period(s) (daily, weekly and public holidays) to be worked; and
- proposed start and finish hours the site is to be worked per period.

2.4 Crushing, Processing and Product Transport

2.4.1 Fixed plant

Describe the specifications (to at least a conceptual standard) of fixed plant including but not limited to:

- area, size, and location of fixed plant and associated structures including as applicable concrete batching plant, wheel wash facilities, silos, fuel tanks, water tanks, chemical storage proposed to be used for processing the extractive minerals on site;
- a description of rock or sand processing; in particular crushing, washing, drying, screening and separation; and
- the type(s) of processing/value adding used on the raw material and conducted onsite including but not limited to concrete, bitumen, separation and drying.

2.4.2 Hours of operation

Describe the proposed hours of crushing, processing and product transport activities.

2.4.3 Processing wastes

If processing wastes are to be generated provide a conceptual description of:

- management of any proposed chemical additives contained within waste to prevent environmental harm;
- management and disposal of processing wastes;
- construction and geotechnical details of proposed storage facilities; and
- construction details/design of evaporation ponds and proposed use of waste material.

2.4.4 Industrial and domestic wastes

A description of management of any of the following industrial and domestic wastes must be provided:

- putrescible waste;
- oil;
- other onsite waste disposal or recycling; e.g. workshop waste, tyres, drums, oil filters; and
- a description of the type, area and layout of sewage systems installed at the site.

2.5 Supporting Surface Infrastructure

2.5.1 Access and roads

Describe:

- access route to the site and show on a map (as per 5.1.2.3);
- indicate if any new roads are to be constructed, or if existing roads or intersections (public and private) are to be upgraded; and
- transport system(s) used to and from the site and the estimated number of vehicle movements per day.

2.5.2 Accommodation and offices

Describe onsite personnel accommodation and offices, including but not limited to:

- number, area, size, type of construction and location of accommodation, office, meals or laboratory buildings, caravans or camps, and associated structures (e.g. car parks, water tanks, etc.) to be used on site; and
- if temporary or permanent.

2.5.3 Public services and utilities used by the operation

Describe:

- sources of services or utilities that are, or are to be supplied to the proposed site, such as power, water, telecommunications etc.;
- if new connections to services and utilities are required, the proposed routes for connection; and
- the effects to any existing services or utilities that have been or may be affected by the mining operations.

2.5.4 Visual screening

Describe the type of screening, including existing or proposed vegetation (i.e. species and density of plantings) and show on a map (as per 5.1.2.1 or 5.1.2.2).

2.5.5 Fuel and chemical storage

For all fuels and chemicals stored on site show the proposed location of storage on a map (as per 5.1.2.1) and provide detail on:

- types of bulk chemicals and the volumes of each; and
- proposed bunding and containment for all chemical and fuel storage vessels.

2.5.6 Site security

Describe infrastructure and measures that will be adopted to prevent unauthorised access by the public, including, but not limited to:

- fencing; and
- signage.

2.5.7 Erosion, sediment and silt control

Describe and show on a map (as per 5.1.2.1):

- location and design of sediment management structures;
- management and disposal of silt;
- strategies to control runoff on disturbed areas and rehabilitated areas; and
- storage, diversion and release of clean water.

2.6 Vegetation Clearance

If clearance of native vegetation is proposed, a description of the vegetation type to be cleared and map (as per 5.1.2.2) showing the proposed clearance area must be provided.

State the estimated quantum of significant environmental benefit (SEB) to be gained in exchange for the proposed clearance and describe how the SEB will be provided.

2.7 Site Water Management

Provide an estimate of the quantity of water to be used and the proposed source of that water. If processing water is to be used, provide a water balance including:

- approximate water volumes required for processing; and
- a summary of all water inputs and outputs.

Provide a description of all process water ponds, including:

- size, capacity, layout and location of ponds;
- design and construction methods; and
- minimum freeboard to be maintained.

2.8 Infrastructure Sharing (MPL Application Only)

If an application for a MPL proposes infrastructure, be constructed or installed on the land in respect of which the licence is being sought and the infrastructure is of a kind that is capable of being shared with other persons then the following must be provided:

- A description of any similar infrastructure that exists in the region where the land is located; and
- If infrastructure is present: a statement as to why that infrastructure cannot be used for any relevant ancillary operations; or
- If infrastructure is not identified; a statement demonstrating the benefit (if any) that the infrastructure proposed to be constructed or installed under the MPL would provide to the region where the land is located and outlining any proposal to share that infrastructure with any other person.

2.9 Description of Quarry Site at Completion

Provide a map (as per 5.1.2.4), cross-section (as per 5.2.2.2) and a conceptual description of the quarry site as it will be at completion after all rehabilitation and closure activities have been completed, including:

- potential land use options;
- landforms;
- proposed vegetation covers (including native vegetation that will not be disturbed due to proposed quarrying operations);
- any quarrying infrastructure that may remain on site and become the responsibility of the landowner;
- location, description and management of waste disposal areas;
- location of reshaped and rehabilitated areas, proposed surface contours and revegetation; and
- location of surface water infrastructure including ponds and diversions.

Provide a description of the proposed mechanism for transferring responsibility for any potential residual liability (e.g. ongoing maintenance or monitoring) subsequent to surrender of the tenement.

3. SOCIAL AND ECONOMIC

3.1 Social

Provide a description of social benefits from proposed operations, including (but not limited to):

- number of full-time equivalent employee positions that would be directly created by the proposal (not to include existing positions);
- the proportion of the workforce that would likely reside in the local community and the estimated impact on local employment;
- any programs to target and assist Indigenous or local employment at the quarry;
- training to be provided to employees and potential employees;
- approximate timelines for creation of the positions; and
- potential for local business participation, and procurement of local goods and services.

3.2 Economic

Provide a description of the economic contributions of the proposed operations, including (but not limited to):

- goods and services used in the local community, state and external to state;
- wages and other employee benefits;
- economic benefits derived from local employment;
- approximate royalty payments and other direct state government taxes; and
- any other potential economic contributions proposed during the development of the quarry, operation of the proposed quarry and post quarry completion.

4. CONSULTATION

In setting out the results of the consultation undertaken in connection with the proposed operations in accordance with sections 36(1)(c)(iv) and 49(1)(c)(iv) of the *Mining Act 1971* and regulation 47 of the *Mining Regulations 2020*, the Minister determines in accordance with regulation 46(7)(e) of the *Mining Regulations 2020* that a proposal must include:

A description of:

- the process undertaken for identifying stakeholders with an interest in, or stakeholders likely to be directly affected by the proposed quarry operation;
- the process undertaken for the delivery of information to, gathering of feedback from, and responding to those identified stakeholders;
- if any individual or group of similar affected persons were not able to be consulted, the steps taken to consult with them; and
- the extent to which the outcomes proposed in clause 4.2.2 have been developed in consultation with the landowner and any other person who may be directly affected by the proposed quarry operations.

The results of the consultation undertaken with those identified stakeholders, including:

- the persons consulted;
- any concerns/issues raised; and
- the response and steps (if any) taken or proposed to address those concerns.

5. REASONABLE PROSPECT OF ACCESS TO LAND

In preparing a statement under regulation 30(1)(e)(i) of the *Mining Regulations 2020* that demonstrates that there is a reasonable prospect that the land in respect of which an ML is sought could be effectively and efficiently mined, the Minister determines in accordance with regulation 30(2) of the *Mining Regulations 2020* that this statement must be supported by the following evidence:

- aA description of any waivers of exemption obtained, and/or information on the status of waivers of exemption yet to be negotiated/finalised under sSection 9AA of the *Mining Act 1971*; and
- aA description of any native title mining agreements obtained under the *Mining Act 1971* or Indigenous Land Use Agreements (ILUA) under the *Native Title Act 1993* (Cth).

6. OPERATOR CAPABILITY

6.1 Provide a statement of the technical, operational and financial capabilities and resources available to the applicant for the purpose of carrying out proposed operations under a mining lease.

6.2 Provide a statement by the applicant or a related body corporate outlining any contravention of, or failure to comply with, a provision of a corresponding law or designated Act in connection with authorised operations carried out by them within the preceding period of 5 years that resulted in:

- 6.2.1 The revocation or suspension of an authority to carry out authorised operations; or
- 6.2.2 A prosecution for an offence; or
- 6.2.3 The imposition of a penalty by a court; or
- 6.2.4 The issuing of a notice, direction or order that required the suspension or discontinuance of any authorised operations or the rectification of any harm to the environment or the rehabilitation of any land, place or other aspect of the environment.

7. MANAGEMENT OF ENVIRONMENTAL IMPACTS

7.1 Assessment of Environmental Impacts

In setting out an assessment of the environmental impacts of the proposed authorised operations in accordance with sections 36(1)(c)(ii)(A) and 49(1)(c)(ii)(A) of the *Mining Act 1971* and regulation 46(2) of the *Mining Regulations 2020*, the Minister determines in accordance with regulation 46(7)(e) of the *Mining Regulations 2020* that a proposal must include an assessment of the environment as set out in this Terms of Reference.

7.1.1 Elements of the environment

Describe the specific elements of the environment (the environment is defined in section 6(4) of the *Mining Act 1971*) that may reasonably be expected to be impacted on by the proposed quarry operation during construction, operation, and indefinitely post completion.

For each element of the environment identified:

- provide a summary of any issues or considerations raised by stakeholders, and any relevant legislated or recognised standards in relation to the element of the environment;
- describe all potential environmental receptors; and
- undertake an impact assessment of how the element could be potentially impacted by proposed quarry operations (during construction, operation and post completion) through the provision of the information listed in the following clause 4.1.2.

7.1.2 Potential impact events

Describe potential impact events associated with each phase of the proposed quarry operations (construction, operation and post completion) and relevant to each element of the environment.

For the purpose of the impact assessment, a potential impact event is the combination of a source, a pathway and an environmental receptor.

The source, pathway and environmental receptor of each potential impact event must be described prior to the implementation of engineering or administrative control measures.

For each potential impact event identified in clause 4.1.2, provide:

- **Source**
A description of the source of the potential impact event, which alone or in combination has the potential to cause harm to an environmental receptor.
- **Pathway**
A description of the potential pathway (with consideration of any natural barriers) by which an identified environmental receptor can be exposed to, or may reasonably be expected to be impacted by an identified source.
- **Environmental receptor**
A description of the environmental receptors that may reasonably be expected to be adversely impacted by the source, taking into account the considerations for the element of the environment described under clause 4.1.1.
- **Description of uncertainty**
Describe any significant degree of uncertainty pertaining to the evaluation of sources, pathways and environmental receptors, including (but not limited to) lack of site-specific information, limitations on modelling and quality of data.
Describe any assumptions connected with the identified uncertainty.
So far as is relevant, identify the sensitivity to change of any assumption that has been made, including whether a change in assumption may result in a new environmental impact.
- **Confirmation of potential impact events**
For each potential impact event provide:
 - an analysis of whether a source, pathway and receptor does exist (and if not, or if it remains uncertain, provide an explanation for the conclusion); and
 - a description of the likely impact from the source on the environmental receptor.

7.2 Control Measures, Uncertainty Assessment, Statement of Environmental Outcomes and Criteria

For each impact event confirmed in clause 4.1.2.5, the information listed in clauses 4.2.1—4.2.3 must be provided:

7.2.1 Control measures

In setting out an outline of the measures that the applicant intends to take to manage, limit or remedy environmental impacts as confirmed in clause 4.1.2.5 in accordance with sections 36(1)(c)(ii)(B) and 49(1)(c)(ii)(B) of the *Mining Act 1971* and regulation 46(3) of the *Mining Regulations 2020*, the Minister determines in accordance with regulation 46(7)(e) of the *Mining Regulations 2020* that a proposal must:

- include a description of the measures proposed to manage, limit or remedy each impact event;
- demonstrate that the measures proposed are commensurate with the potential impacts, achieve compliance with other applicable statutory requirements and promote progressive rehabilitation;
- include a description of any significant degree of uncertainty pertaining to the likely effectiveness of proposed control measures, including but not limited to lack of site-specific information, limitations on modelling and quality of data;
- include a description of any assumptions connected with the identified uncertainty;
- so far as is relevant, identify the sensitivity to change of any assumption that has been made and assess the likelihood of an outcome not being achieved if an assumption is later found to be incorrect.

7.2.2 Statement of proposed environmental outcomes

Statements of the environmental outcomes that are expected to occur are required in accordance with sections 36(1)(c)(ii)(C) and 49(1)(c)(ii)(C) of the *Mining Act 1971* and regulation 46(4) of the *Mining Regulations 2020* and must be made for each impact event confirmed in clause 4.1.2.5. The Minister determines in accordance with regulation 46(7)(e) of the *Mining Regulations 2020* that a proposal must:

- provide a statement of the proposed environmental outcome(s) (including completion outcomes assessed on a long term basis) for each impact event confirmed in clause 4.1.2.5;
- ensure that the statement of environmental outcome(s) describes the likely consequence of the expected impact on the environment by the proposed quarry operations subsequent to the implementation of the control measures described in clause 6.2.1; and

- provide a statement that demonstrates the environmental outcomes would be able to be achieved taking into consideration the effectiveness of the control measures (clause 4.2.1) and description of uncertainty (clause 4.2.1).

7.2.3 Draft measurement criteria

In preparing a draft statement of the criteria to be adopted to measure each of the proposed environmental outcomes in accordance with sections 36(1)(c)(iii) and 49(1)(c)(iii) of the *Mining Act 1971* and regulation 46(5) of the *Mining Regulations 2020*, the Minister determines in accordance with regulation 46(7)(e) of the *Mining Regulations 2020* that the draft criteria must as far as practical comply with the five elements set out in regulation 46(5);

- What is to be measured and the form of the measurements that are to be used; and
- The locations where the relevant measurements are to be taken, or how such locations are to be determined; and
- What is proposed to be taken to constitute to achievement of the relevant outcomes (with consideration being given to any inherent errors of measurement); and
- The frequency of any measurement or monitoring; and
- Any background or control data that is to be used, or how any such data is to be acquired; and
- include demonstration of the successful implementation of the SEB, if native vegetation is proposed to be cleared and an on ground offset proposed.

8. MAPS AND CROSS-SECTIONS

In preparing a proposal in accordance with sections 36(1)(c) and 49(1)(c) of the *Mining Act 1971* and regulation 46 of the *Mining Regulations 2020*, the Minister determines in accordance with regulation 46(7)(e) of the *Mining Regulations 2020* that all maps and plans must comply with the following requirements relating to the amount of detail or information to be provided:

- state and show the relevant datum (Australian Height Datum (AHD));
- metric units;
- title, north arrow, scale bar, text and legend;
- date prepared and author;
- be of appropriate resolution and scale for represented information; and
- be legible in both the hardcopy and electronic versions of the submission.

All cross-sections must conform to the following standards:

- state and show the relevant datum (Australian Height Datum (AHD));
- metric units;
- title, scale bar, text and legend;
- date prepared and author;
- be of appropriate resolution and scale for represented information; and
- be legible in both the hardcopy and electronic versions of the submission.

8.1 List of Maps

8.1.1 Maps required for description of the existing environment (as per clause 2)

- *Topographic Map showing:*
 - mineral claim boundaries;
 - existing surface contours; existing vegetation;
 - location of watercourses, including ephemeral and permanent rivers, creeks, swamps, streams, wetlands and any anthropogenic water management structures;
 - surface water catchment boundaries;
 - direction of drainage and discharge from the application area;
 - location and extent of all previously disturbed areas associated with previous mining; and
 - location and extent of any adjacent conservation reserves, heritage sites or any other significant areas.
- *Local Geological Map showing:*
 - mineral claim boundaries;
 - location and dimensions of the deposit; and
 - topsoil/subsoil variation if there is a variation in soils over the application area.
- *Groundwater Map showing:*
 - groundwater wells in the surrounding area highlighting those used to determine the groundwater level.
- *Land Access Map showing:*
 - mineral claim boundaries;
 - proposed tenement boundary if an area smaller than the mineral claim is proposed
 - any exempt land;
 - location of residences within and near the application area; and
 - human infrastructure as per clause 1.12.
- If relevant:
- *Caves Map showing:*
 - mineral claim boundaries;
 - potential cave hosting geology; and
 - location of the cave(s).

8.1.2 Maps required for description of the proposed quarrying operations (as per clause 3)

- *Proposed Site Layout Map* showing all components of the proposed quarry operation including, but not limited to:
 - tenement boundaries;
 - location of sediment management infrastructure;
 - if relevant location of process water dams;
 - location of haul roads;
 - if relevant location of fixed plant;
 - location of mobile plant for stage 1 of quarrying;
 - location of overburden; and
 - location and extent of topsoil/subsoil and product stockpiles.
- *Sequence of Quarrying and Progressive Rehabilitation Map* showing:
 - proposed tenement boundaries;
 - conceptual staging of each progressive quarrying stage;
 - proposed native vegetation clearance; and
 - conceptual staging of each progressive rehabilitation stage.
- *Access Route Map* showing:
 - proposed access route for heavy vehicles;
 - proposed exit route for heavy vehicles; and
 - any road upgrades or new roads to be constructed if relevant.
- *Quarry Completion Map* showing:
 - final landforms (including rehabilitated and non-disturbed areas); and
 - proposed topographical contours of the entire site (including rehabilitated and non-disturbed areas).

8.2 Summary of Cross-Sections

Following is a summary of all cross-sections required in the proposal:

8.2.1 Cross-sections required for description of the existing environment (as per clause 2)

- *Geological Cross-Section(s)* showing:
 - a representation of the geological profile within the application area; and
 - depth of the resource and any overlying overburden.
- *Groundwater Cross-Section(s)* showing:
 - the proposed depth of mining; and
 - the depth to groundwater.

8.2.2 Cross-sections required for description of the proposed mining operations (as per clause 3)

- *Proposed Quarry Operation Cross-Section(s)* showing:
 - proposed pit depth; and
 - proposed pit dimensions.
- *Quarry Completion Cross Section(s)* showing:
 - pre quarrying natural surface; and
 - proposed final rehabilitated surface.

Dated: June 2025

PAUL DE IONNO
Director Minerals Regulation
Delegate of Minister for Energy and Mining