



Draft Scoping Requirements Fosterville Gold Mine Sustained Operations Project Environment Effects Statement

Environment Effects Act 1978

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OFFICIAL



Environment,
Land, Water
and Planning

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List of abbreviations

CHMP	Cultural heritage management plan
CIL	Carbon-in-leach
DELWP	Department of Environment, Land, Water and Planning
EE Act	<i>Environment Effects Act 1978</i> (Vic)
EES	Environment effects statement
EMF	Environmental management framework
EP Act	<i>Environment Protection Act 2017</i> (Vic)
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth)
FFG Act	<i>Flora and Fauna Guarantee Act 1988</i> (Vic)
FGM	Fosterville Gold Mine Pty Ltd
MNES	Matters of national environmental significance
MRSD Act	<i>Mineral Resources (Sustainable Development) Act 1990</i> (Vic)
P&E Act	<i>Planning and Environment Act 1987</i> (Vic)
Project	Fosterville Gold Mine Sustained Operations Project
RAP	Registered Aboriginal Parties
RM Act	<i>Road Management Act 2004</i> (Vic)
TRG	Technical reference group

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1. Introduction

In light of the potential for significant environmental effects, on 10 November 2021 the Minister for Planning determined under the *Environment Effects Act 1978* that Fosterville Gold Mine Pty Ltd (FGM) is to prepare an environment effects statement (EES) for the proposed Fosterville Gold Mine Sustained Operations Project (the project). The purpose of the EES is to provide a sufficiently detailed description of the project, assess its potential effects on the environment¹ and assess alternative project layouts, designs and approaches to avoid and mitigate effects. The EES will inform and seek feedback from the public and stakeholders. The Minister will issue an assessment of the project's environmental effects under the Environment Effects Act to conclude the EES process. The Minister's assessment will then inform statutory decision-makers responsible for making decisions about the project.

These *Draft Scoping Requirements for the Fosterville Gold Mine Sustained Operations Project Environment Effects Statement* set out the proposed specific matters to be investigated and documented in the EES. The draft scoping requirements presented here are for public review and comment. The Minister will issue the final scoping requirements for the EES following consideration of public comments received on this draft. While the scoping requirements are intended to cover all relevant matters, the EES will also need to address other issues that emerge during the EES investigations, especially potential impacts and environmental issues relevant to statutory decisions that will be informed by the assessment.

1.1 The project

Fosterville Gold Mine is an underground gold mine operated by FGM which is a wholly owned subsidiary of Agnico Eagle Mines Ltd. Fosterville Gold Mine is located on Mining Licence 5404 (MIN5404), approximately 20 kilometres from the city of Bendigo in central Victoria, Australia (Figure 1).

The key objective of the project is to support the continued operation of the Fosterville Gold Mine beyond the next two years. The project will continue mining operations at the Fosterville Gold Mine from previously unmined areas of MIN5404 and provide adequate additional storage space for mine-generated waste products (e.g. tailings, waste rock, mine water) for around another ten years of mining.

The project consists of the following proposed components and activities (Figure 2):

- underground mining development extending to the north and south;
- open pit mining at three existing open cut pits;
- an above ground waste rock dump at the existing Harrier pit (at the conclusion of backfilling operations of the existing open pit);
- two new above-ground tailings storage facilities;
- in-pit tailings storage facilities within existing open pits;
- construction of two new of the carbon-in-leach (CIL) tailings hardstands;
- potential for CIL tailings to be sold and transported offsite by a third party;
- construction and operation of a new brine evaporation pond;
- managed aquifer recharge;
- water storages for underground mine water;
- relocating existing ancillary infrastructure as required, including pipelines; and
- ancillary components of the project including two new vent shafts from the underground mine to the surface, construction of an embankment the existing around Hunt's pit, upgrades to existing internal haul roads, a borrow pit, topsoil storage areas and a combined services corridor.

The project is proposed to be delivered in staged, over a 10 year period. The timing and sequence of the delivery of the project components and activities would be informed by the progress of operations at the Fosterville Gold Mine.

With the exception of managed aquifer recharge, which is not currently undertaken at the mine, all other project components are a continuation of existing operations at the mine, albeit within new areas of the

1. For assessment of environmental effects under the EE Act, the meaning of 'environment' includes physical, biological, heritage, cultural, social, health, safety and economic aspects (Ministerial Guidelines, p. 2).

mining lease. It is not proposed to increase mining rates above the nominal capacity of the existing processing plant or make changes to the existing approved mining and processing methods. Truck routes to and from the mine would remain the same. References to “the project” throughout these draft scoping requirements relate to the proposed works/activities outlined in this section, rather than the existing mining operations at the Fosterville Gold Mine and approved works at the mine that are yet to be undertaken.

1.2 Minister’s requirements for this EES

In light of the potential for significant environmental effects, the Minister decided that an EES is required to assess the potential environmental effects of the project. The Minister published procedures and requirements applicable to the preparation of the EES, in accordance with section 8B(5) of the Environment Effects Act (see Appendix A). The investigations and assessments are to include relevant alternatives as well as associated avoidance, mitigation, and management measures. In particular the EES needs to address:

- effects on biodiversity and ecological values within and near the site including native vegetation, threatened communities and species (flora and fauna) listed under the *Flora and Fauna Guarantee Act 1988* and *Environment Protection and Biodiversity Conservation Act 1999*;
- effects on water resources and their environmental values, including as a result of possible changes to groundwater, stream flows, discharge of sediment and contamination from mine tailings;
- effects on existing land uses, local amenity, considering potential changes in air quality, noise and vibration for nearby sensitive receptors, as well as visual amenity and landscape values of the area;
- effects on Aboriginal and historic cultural heritage values;
- effects from a cumulative perspective, including the above-mentioned values, considering the proposed works, existing mining activities and approved works yet to be undertaken at the mine.

These draft scoping requirements provide further detail on the matters to be investigated in the EES as required by the *Ministerial guidelines for assessment of environmental effects under the Environment Effects Act 1978* (Ministerial Guidelines).

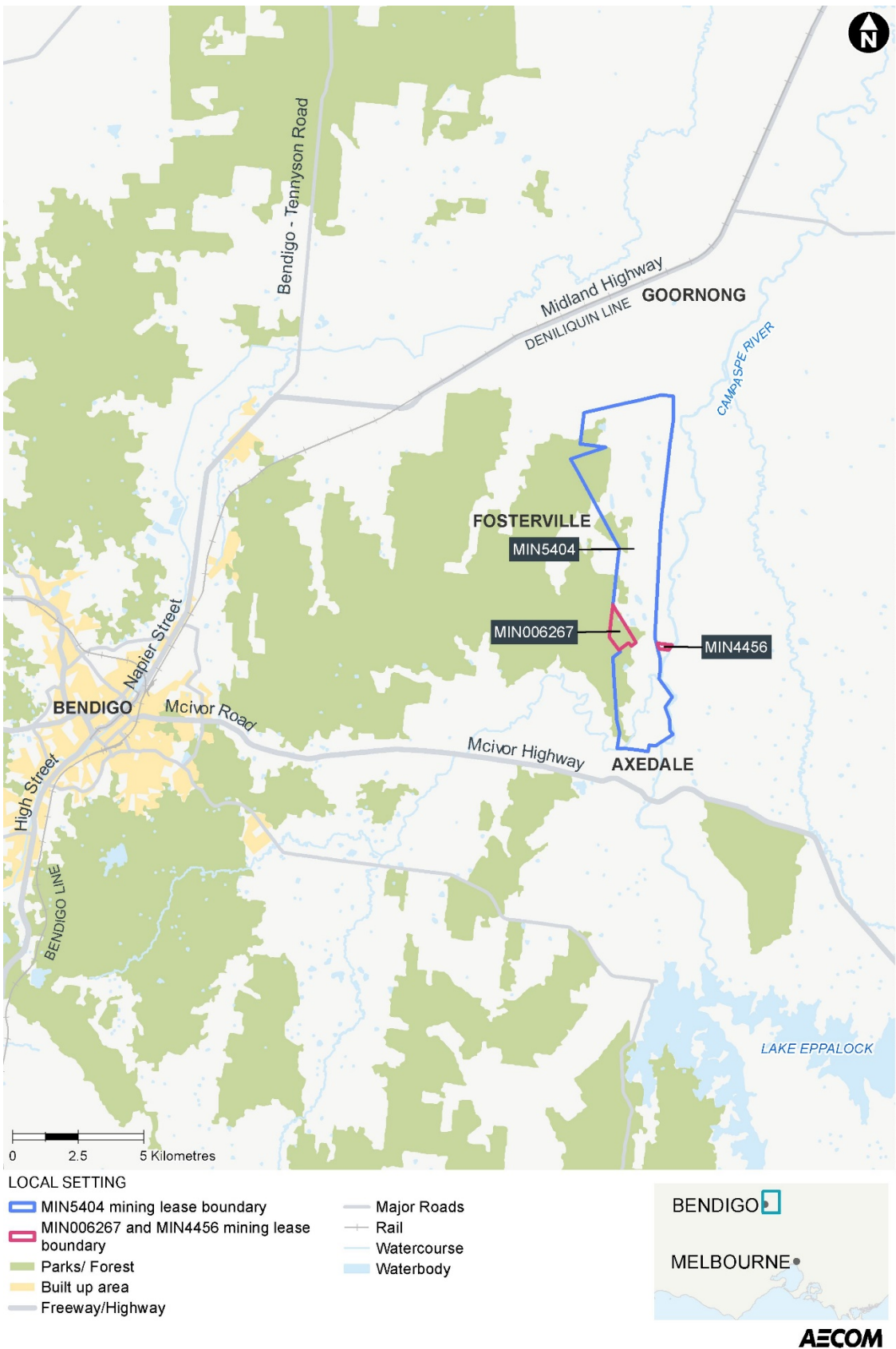
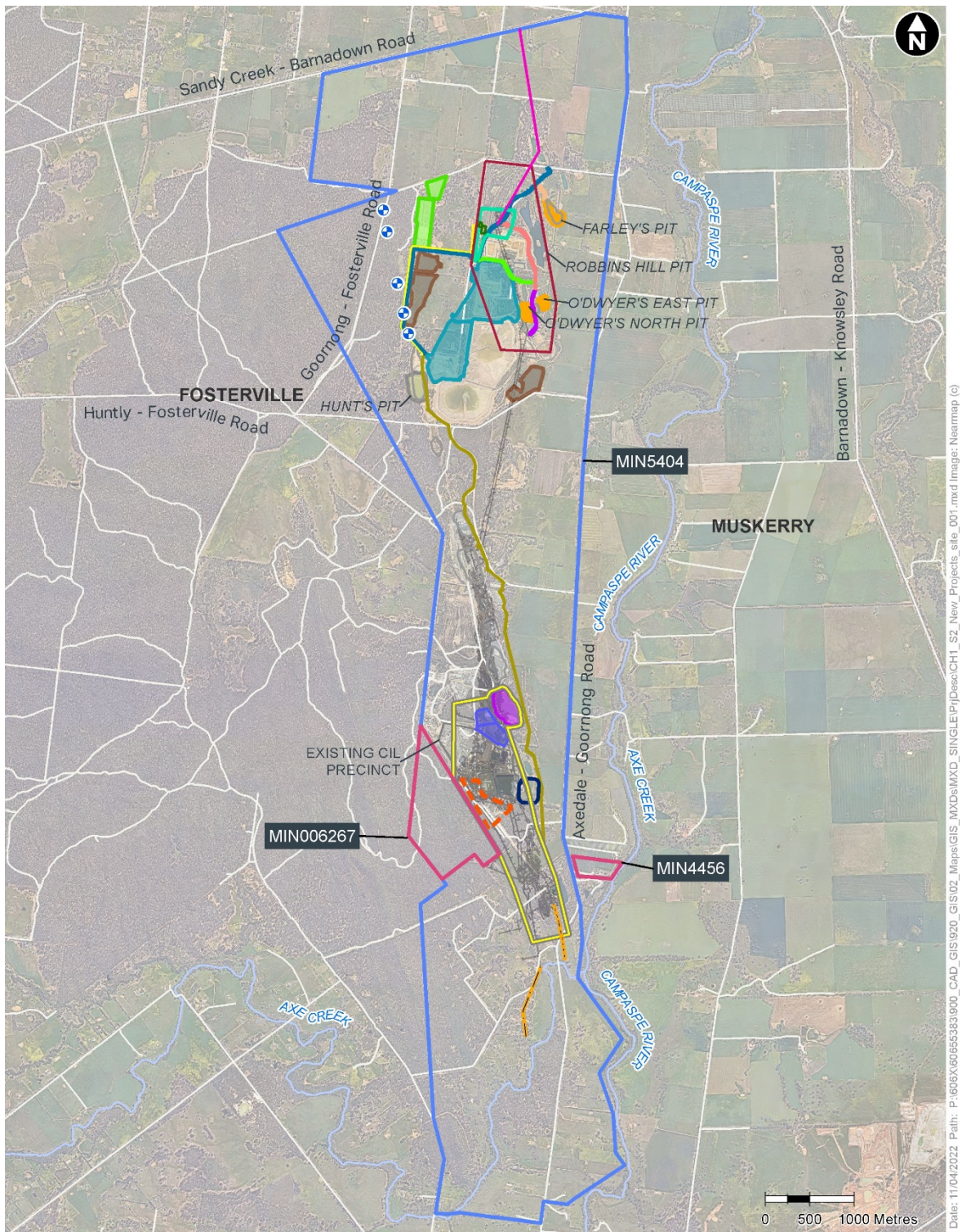


Figure 1: Location of the Fosterville Gold Mine Sustained Operations Project (source: AECOM)



SUSTAINED OPERATIONS PROJECT

- | | | | |
|---|----------------------------------|--|-----------------------------|
| MIN5404 mining lease boundary | Brine ponds | Southern UG mining precinct | Haul 2 |
| MIN006267 and MIN4456 mining lease boundary | Top soil stockpile | Northern vent shaft area | Haul 3 |
| Open pit cutbacks | Northern Infrastructure Precinct | Borrow pit | Haul 4 |
| CILHS 5 and HS 6 | South vent shaft | Mining to date | Haul 5 |
| Harrier Waste Rock Dump | Hunts Pit embankment | Proposed managed aquifer injection bores | Ancillary services corridor |
| TSF 5 and TSF 6 | Northern UG mining precinct | Haul 1 | North UG exploration |
| | | | South UG exploration |



Figure 2: Proposed site layout for the Fosterville Gold Mine Sustained Operations Project (source: AECOM).

2. Assessment process and required approvals

2.1 What is an EES?

An EES describes a project, its rationale/benefit and its potential environmental effects. It should enable stakeholders and decision-makers to understand how the project is proposed to be implemented and the likely environmental effects of doing so. An EES has two main components:

1. The EES main report – an integrated, plain English document that assesses the potential impacts of the project and examines avoidance, mitigation or other measures to reduce the environmental effects. The main report draws on technical studies, data and statutory requirements such as specific limits for surface water and groundwater quality and waste discharge to the environment and should clearly identify which components of the scope are being addressed throughout.
2. The EES technical reports – specialist studies, investigations and analyses that provide the basis for the EES main report. These reports will be exhibited in full, as appendices to the main report.

2.2 The EES process

The proponent is responsible for preparing an EES, including conducting technical studies and undertaking appropriate stakeholder consultation. The Department of Environment, Land, Water and Planning (DELWP) is responsible for managing the EES process². The EES process has the following steps:

- preparation of a draft study program and draft schedule by the proponent;
- preparation and exhibition of draft scoping requirements by DELWP on behalf of the Minister with public comments received during the advertised exhibition period;
- finalisation and issuing of scoping requirements by the Minister;
- review of the proponent's EES studies and draft documentation by DELWP and a technical reference group³;
- completion of the EES by the proponent;
- review of the complete EES by DELWP to establish its adequacy for public exhibition;
- exhibition of the proponent's EES and invitation for public comment by DELWP on behalf of the Minister;
- appointment of an inquiry panel by the Minister to review the EES and public submissions received, conduct public hearings and provide a report to the Minister; and finally
- following receipt of the inquiry report, preparation of an assessment on whether the project's environmental effects are acceptable by the Minister for the consideration of statutory decision-makers.

Technical reference group

DELWP has convened a technical reference group (TRG) of state and commonwealth government agencies, Registered Aboriginal Parties (RAP) and local councils. The TRG will be used for the EES process to facilitate the provision of advice from relevant agencies to DELWP and the proponent on:

- applicable policies, strategies and statutory provisions;
- the scoping requirements for the EES;
- the design and adequacy of technical studies for the EES;
- the proponent's public information and stakeholder consultation program for the EES;
- responses to issues arising from the EES investigations;
- the technical adequacy and completeness of draft EES documentation; and
- coordination of statutory processes.

Consultation plan

The proponent is responsible for informing and engaging the public and stakeholders to identify and respond to their issues and keep them informed of the EES studies. Stakeholders include potentially affected parties, interested community organisations and government bodies. Under its consultation plan the proponent informs the public and stakeholders about the EES investigations and provides opportunities for input and

2. Further information on the EES process can be found at planning.vic.gov.au/environment-assessment/what-is-the-ees-process-in-victoria.

3. For critical components of the EES studies, peer review by an external, independent expert (or panel of experts) may be appropriate.

engagement during the EES investigations. The consultation plan is reviewed and amended in consultation with DELWP and the TRG before it is published on the planning website. The final consultation plan will:

- identify stakeholders;
- characterise public and stakeholders' interests, concerns and consultation needs, local knowledge and inputs;
- describe consultation methods and schedule; and
- outline how public and stakeholder inputs will be recorded, considered and/or addressed in the preparation of the EES.

Statutory approvals and the EES process

The project will require a range of approvals under Victorian legislation if it is to proceed. DELWP coordinates the EES process as closely as practicable with approvals, procedures, consultation and public notice requirements.

The key approvals required under Victorian legislation are an approved work plan variation(s) under the *Mineral Resources (Sustainable Development) Act 1990* (MRSD Act); a permission under the *Environment Protection Act 2017* (EP Act) may be required for the managed aquifer recharge project; an approved cultural heritage management plan (CHMP) under the *Aboriginal Heritage Act 2006*; works on waterways permits, and approval of underground disposal under s76 and a Licence to construct a dam under s67 under the *Water Act 1989*; permits for road closure, diversion or opening under the *Road Management Act 2004* (RM Act).

No planning permit under the *Planning and Environment Act 1987* (P&E Act) will be required for mining-related works within the mining licence, provided the requirements of section 42(7) of the MRSD Act are fulfilled. However the project may require a planning scheme amendment for the implementation of a traffic management plan outside of the mining licence.

To facilitate the integrated consideration of issues assessed within the EES and the timely completion of required approval processes, the EES must clearly document, for all components of the project, how the project's potential effects would be managed and regulated through work plan variation(s) under the MRSD Act. To achieve this, during the EES and in consultation with the TRG, the EES must document the process of obtaining a work plan variation(s) and the likely content of such work plan variation(s). This content of the EES needs to set out how this would allow for sufficient management of the impacts identified by the EES into the future, and could include an example work plan variation in-line with the requirements of the MRSDA Act as a supporting document.

Other approvals may be required; these will be identified in the EES.

2.3 Accreditation of the EES process under the EPBC Act

The project was referred to the Commonwealth under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). A delegate for the Commonwealth Minister for the Environment determined on 3 November 2021 that the project is a controlled action as it is likely to have a significant impact⁴ on the following matters of national environmental significance (MNES), which are protected under Part 3 of the EPBC Act (see Appendix B):

- listed threatened species and communities (section 18 and 18A).

The EES process is accredited to assess impacts on MNES under the EPBC Act through the Bilateral Assessment Agreement between the Commonwealth and the State of Victoria.

The Commonwealth Minister or delegate will decide whether the project is approved, approved with conditions or refused under the EPBC Act, after having considered the Minister for Planning's assessment under the *Environment Effects Act 1978*.

4. Note that 'relevant impacts' defined in section 82 of the EPBC Act correspond to what are generally termed 'effects' in the EES process.

3. Matters to be addressed in the EES

3.1 General approach

Preparation of the EES should be consistent with the principles of a systems approach and a risk-based approach to the identification of issues for assessment. The EES needs to put forward a sound rationale for the level of assessment and analysis undertaken for any environmental effect or combination of environmental effects⁵ arising from all components and stages of the project. The EES needs to provide an analysis of the significance of the potential effects of the project, with consideration of:

- the potential effects on individual environmental assets – magnitude, extent and duration of change in the values of each asset;
- the likelihood of adverse effects, including those caused indirectly as a result of proposed activities, and associated uncertainty of available predictions or estimates;
- proposed avoidance or mitigation measures to reduce predicted effects;
- likely residual effects and their significance, including significant residual impacts on MNES, that are likely to occur assuming the proposed measures to avoid and mitigate environmental effects are implemented; and
- proposed approach to managing and monitoring environmental performance and contingency planning.

3.2 Content and style

Together with the Minister's reasons for decision, the published procedures and requirements and the Ministerial Guidelines, the content of the EES and related investigations is to be guided by these scoping requirements. To facilitate decisions on required approvals, the EES should address statutory requirements associated with approvals that will be informed by the Minister's assessment, including decision-making under the MRSD Act, EPBC Act, the EP Act, the P&E Act and other applicable legislation. The EES should also address any other significant issues that emerge during the investigations. Ultimately, it is the proponent's responsibility to ensure that adequate studies are undertaken and reported to support the assessment of environmental effects arising from the project.

The EES should provide a clear, objective and well-integrated analysis of the potential effects of the proposed project, including proposed avoidance, mitigation and management measures, as well as feasible alternatives. Overall, the main report should include:

- an executive summary of the potential environmental effects of the project, including potential effects on identified MNES;
- a description of the entire project, including its objectives, rationale, key elements, how those elements relate to current operations at the Fosterville Gold Mine and any relevant existing approved works, associated requirements for new infrastructure, resource use and use of existing infrastructure;
- a description of the proponent and their environmental performance credentials, including experience in developing and operating projects and their health, safety and environmental policies
- a description of the approvals required for the project to proceed, and their relationship to relevant laws, policies, strategies, guidelines and standards;
- a description of feasible alternatives capable of substantially meeting the project's objectives that may also offer environmental or other benefits (as well as the basis for the choice where a preferred alternative is nominated);
- description of the scope, timing and method for studies or surveys used to provide information on the values of the project areas. This needs to be identified in consultation with the TRG. Surveys should be undertaken by suitably qualified persons and adhere to Commonwealth and/or DELWP survey guidelines where relevant. Records and other data from local sources should also be gathered and considered as appropriate;
- descriptions of the existing environment, where this is relevant to the assessment of potential effects;

5. Effects include direct, indirect, combined, facilitated, consequential, short and long-term, beneficial and adverse effects.

- appropriately detailed assessments⁶ of potential effects of the project (and feasible alternatives) on environmental assets and values, relative to the “no project” scenario, together with an estimation of likelihood and degree of uncertainty associated with predictions;
- clear, active measures for avoiding, minimising, managing and monitoring effects of the project, including a statement of commitment to implement these measures;
- predictions of residual effects of the project assuming implementation of proposed environmental management measures;
- any proposed offset measures where avoidance and other mitigation measures will not adequately address effects of the project on environmental values, including the identified MNES;
- assessment of cumulative impacts with other existing and proposed developments in the region;
- documentation of the process and results of the consultation undertaken by the proponent during the preparation of the EES, including the issues raised by stakeholders or the public and the proponent’s responses to these issues, in the context of the EES studies and the associated consideration of mitigation measures;
- evaluation of the project against the principles and objectives of ecologically sustainable development; and
- conclusions on the significance of impacts of the project on local, regional, state and federal matters.

The EES should also include an outline of a program for community consultation, stakeholder engagement and communications proposed for implementation during the construction, operation, decommissioning and closure of the project, including opportunities for local stakeholders to engage with the proponent to seek responses to issues that might arise during project implementation.

The proponent may choose to prepare a website with interactive functionality to provide an alternative form of access to EES information, which may complement the conventional EES chapters and technical documents. Such an approach should be discussed with DELWP Impact Assessment Unit and should be integrated with the preparation of the EES package, including review of the EES by the TRG.

The proponent must also prepare a concise, graphical-based non-technical summary document (hard copy A4, no more than 25 pages) for free distribution to interested parties. The EES summary document should include details of the EES exhibition, public submission process and availability documentation.

3.3 Project description

The EES is to describe the project in sufficient detail both to allow an understanding of all components, processes and development stages, and to enable assessment of their likely potential environmental effects. The project description should cover the following:

- Objectives and rationale for the project, including its relationship to statutory policies, plans and strategies, and implications of the project not proceeding.
- Characterisation of physical and chemical properties of the project materials, wastes and products with potential environmental, rehabilitation or public health implications.
- Land use activities (including beneficial and sensitive uses and environmental values) in the project area and vicinity, supported by plans and maps drawn at an appropriate scale that show:
 - the location of relevant sensitive receptors;
 - the extent of Crown and private lands and waterways;
 - the general layout of the new mine components proposed as part of the project, including associated facilities and infrastructure; and
 - cross-sections of proposed new extraction areas.
- Other necessary works directly associated with the project, such as road upgrades and/or connections.
- Predictions of energy use and greenhouse gas emissions associated with the project.
- An overview of the project life.
- Details of all the project components in the context of how existing mine operations would change including, including:
 - location, disturbance footprint, layout and access arrangements during all project phases;

6. Assessments of assets, values and potential effects must be adequately timed to ensure they are accurately representative of seasonal weather patterns of the area.

- design, methods, staging and scheduling of the proposed mining, volumes to be mined, total production and production rate and opportunities for progressive rehabilitation;
- proposed construction techniques;
- function, operation and design principles and capacity of main components of works including waste rock handling, gold extraction, tailings management, use of reagents;
- water management, including a water balance, details on usage, storage provisions, water management infrastructure, and proposed usage and management for each project phase;
- necessary works directly associated with the project, such as provision of or changes to roads, infrastructure or services;
- solid waste, wastewater and hazardous material generation and management, including transportation, storage and disposal of hazardous material on-site and off-site;
- proposed or potential sale/transfer of mine wastes (e.g. CIL) to other projects/sites;
- transport type and route of product(s) from the mine;
- electricity and/or gas requirements;
- lighting, telecommunications, safety and security requirements;
- workforce accommodation facilities including location, size and required services; and
- hours of operation, workforce requirements (total work force) and recruitment polices.

3.4 Rehabilitation

The EES is to document the proponent's approach to progressive rehabilitation⁷ and closure of the proposed project components to ensure stable rehabilitated landforms capable of supporting future use of the project area. The description of rehabilitation and closure should canvass changes in topography, groundwater conditions, drainage and vegetation cover during mining operations and at the end of the mine life. Rehabilitation and closure planning in the EES should be informed by the outcomes and adopted recommendations of the specialist studies within the EES (e.g. water, soils, landscape and visual, social, biodiversity, cultural heritage, etc.) and corresponding evaluation objectives.

The EES should include a draft rehabilitation and closure plan that integrates the new project components and incorporates:

- proposed design criteria relating to landform and geology to achieve a safe, stable and sustainable landform that is capable of supporting the proposed land uses after rehabilitation;
- approach to identifying end land uses of the project area and proposed project components including consultation with landholders and local communities;
- planning for progressive rehabilitation and mine closure, where possible, including rehabilitation milestones;
- proposed design criteria for landscape and visual values;
- proposed rehabilitation objectives for each of the distinct areas (domains) of the project that require differing rehabilitation approaches and methodologies;
- proposed measures to protect land stability and beneficial uses;
- proposed depth of topsoil to be extracted, storage and management of stockpiled topsoil and subsoils and treatment measures;
- tailings characterisation and test work to inform predictions and identify implications for rehabilitation;
- proposed methods for restoring soil profiles, drainage and productivity, as well as landscape rehabilitation;
- approach for establishing sustainable vegetation cover (consistent with end land uses);
- proposed management of surface water and groundwater flows and quality, including erosion and flood risks, and consideration of project area drainage;
- proposed fire and emergency management measures;
- proposed contingency measures for rehabilitation in the event of unplanned/forced closure;
- assessment of risks that the rehabilitated areas may pose after completion of rehabilitation and proposed program for managing those risks (e.g. geotechnical risks);
- proposed rehabilitation and closure criteria for all environmental, geophysical and structural elements of rehabilitation in respect of each of the distinct areas (domains) of the project; and

⁷ The term 'rehabilitation' is considered to include all decommissioning activities for the project.

- proposed program for monitoring and maintenance of rehabilitation and closure activities including contingency measures if proposed rehabilitation and closure criteria are not achieved.

3.5 Project alternatives

The EES needs to document the proponent's identification and assessment of alternatives, including the preferred alternative(s) and design. This will need to encompass an explanation of how and why specific alternatives were selected for detailed evaluation within the EES. The EES needs to document the likely environmental effects of feasible alternatives, particularly where these offer a potential to avoid and/or minimise significant environmental effects whilst meeting the objectives of the project. The assessment of feasible alternatives and their effects is required to include:

- the basis for selecting the proposed project layout and design;
- identification of methods and environmental criteria for selection of preferred alternatives;
- description of how information arising during the EES process was used to refine the preferred project layout and other project alternatives;
- the technical feasibility and environmental implications of alternative construction, management and rehabilitation methods; and
- assessment and comparison of the technical feasibility and environmental implications of alternative options considered.

The implications of the "no project" option also need to be outlined, including in the context of potential climate change scenarios.

3.6 Applicable legislation, policies and strategies

In addition to the EE Act and the EPBC Act, the EES will need to identify relevant legislation, policies, guidelines and standards, and assess their specific requirements or implications for the project, particularly in relation to required approvals.

The proponent will also need to identify and address other relevant policies, strategies, subordinate legislation and related management or planning processes that may be relevant to the assessment of the project. These include but are not limited to the Victorian guidelines for vegetation removal⁸, EPBC Act policy statements, conservation advice, threat abatement plans and recovery plans for nationally listed threatened species and communities.

3.7 Evaluation objectives

Evaluation objectives are provided in Section 4 for each of the topics to be addressed in the EES. The draft evaluation objectives identify desired outcomes in the context of key legislative and statutory policies, as well as the principles and objectives of ecologically sustainable development and environment protection, including net community benefit. In accordance with the Ministerial Guidelines, they provide a framework to guide an integrated assessment of environmental effects and for evaluating the overall implications of the project.

3.8 Environmental management framework

An environmental management framework (EMF) is needed for project construction and operation to achieve predicted environmental outcomes, statutory requirements and stakeholder confidence. The EMF will articulate clear accountabilities for managing and monitoring environmental effects and risks associated with all project elements and phases.

The EMF needs to include the following:

- required approvals and consents, including any anticipated requirements for related environmental management plans, whether for project phases or elements;
- how the project would be integrated into the existing site environmental management system;
- organisational responsibilities and accountabilities for environmental management;

⁸ Including the DELWP Procedure for the removal, destruction or lopping of native vegetation on Crown land (2018)

- the environmental management measures proposed in the EES to address specific issues, including commitments to mitigate adverse effects and enhance environmental outcomes, with regard for the general environmental duty under the EP Act;
- a register of environmental risks associated with each phase of the project which would need to be maintained during project implementation and integrated into the existing site risk register;
- arrangements for management of, and access to, baseline and monitoring data, to ensure transparency and accountability and to contribute to the improvement of environmental knowledge;
- integration of the project into existing site frameworks for management of any environmental incidents and emergencies; and
- a proposed monitoring program including monitoring objectives, indicators and requirements (e.g. parameters, locations, frequency and auditing). Justification needs to be provided for any aspects where monitoring is not proposed.

The EMF will propose a program for community consultation, stakeholder engagement and communications for all stages of the project, that would need to be integrated into existing site consultation plans. This will include opportunities for local stakeholders to engage with the proponent to seek responses to issues that might arise during project implementation and a process for complaints recording and resolution.

The EMF will set the scope for later development and review of environmental management plans for all project phases.

The EMF will outline internal and external auditing and reporting requirements to review and continuously improve the effectiveness of environmental management and to ensure compliance with statutory conditions.

4. Assessment of specific environmental effects

Preparation of the EES and the necessary investigation of effects should be proportional to the environmental risk posed by the project, as outlined in the Ministerial Guidelines (p. 14). The Minister's decision requiring an EES (Appendix A) articulates the primary matters/potentially significant effects that need to be examined in the EES. A risk-based approach should be adopted during the EES studies, so that a greater level of effort is directed at investigating and managing those matters that pose relatively higher risk of adverse effects.

The following structure sets out how the EES should document assessment of the project's effects for each evaluation objective.

1. **Identify key issues or risks** that the project poses to the achievement of the evaluation objective.
2. **Characterise the existing environment** to underpin impact assessments.
3. **Identify the potential effects** of the project on the existing environment (pre-mitigation).
4. **Present design and mitigation measures** that could substantially reduce and/or mitigate the likelihood, extent and/or duration of potential effects. All design and mitigation measures must apply the mitigation hierarchy with justification of why higher order measures cannot be applied.
 - a. Avoidance: measures taken to avoid creating adverse effects from the outset, such as careful spatial or temporal placement of infrastructure or disturbance.
 - b. Minimisation: measures taken to reduce the duration, intensity and extent of impacts that cannot be completely avoided.
 - c. Rehabilitation/restoration: measures taken to improve degraded or removed ecosystems following exposure to impacts that cannot be completely avoided or minimised.
 - d. Offsets: measures taken to compensate for any residual, adverse impacts after full implementation of the previous three steps of the mitigation hierarchy.
5. **Assess the likely residual effects** of the project on the existing environment and evaluate their significance to illustrate the likely effectiveness of the proposed mitigation measures.
6. **Propose performance criteria and management** to evaluate whether the project's effects are minimised as far as practicable, maintained within permissible levels and propose contingency approaches if they are not.

The description and assessment of the project's effects must not be confined to the immediate area of the project but also consider the potential of the project to impact on nearby environmental values. In addition, the cumulative effect of the project in combination with existing mining activities and approved works yet to be undertaken at the mine, and other existing and planned activities in the broader area/region should be assessed for all significant adverse effects.

4.1 Resource Development

Achieve the best use of available resources, in an economically and environmentally sustainable way.

Key issues

- Efficient and environmentally sustainable development of the gold resource.
- Best use of the land's resources considering environmental, social and economic values.
- Impacts on project sustainability, for example, from commodity price fluctuation, costs, infrastructure access, competition.

Existing environment

- Identify the extent, nature and development potential of the additional proposed ore body for extraction.
- Identify the socioeconomic context of the project in relation to local workers and suppliers of goods and services that could support the sustained operation of the project.
- Describe local industries and other commercial activities that could be affected by the project.

Likely effects

- Assess the project's feasibility in terms of its predicted economic costs and benefits, including from capital investment, operating expenditure, employment and business opportunities, taxes and royalties to the regional, state and national economies, and the temporary and permanent impacts on other industries/commercial activities.
- Compare this proposed use of the land's resources with existing and other feasible land uses in terms of environmental, social and economic values.
- Assess the potential safety, hazards and risks associated with the project.
- Assess the efficiency of gold resource recovery through the project.

Mitigation measures

- Describe proposed approach for management and disposal of tailings and waste rock material to avoid and minimise potential sterilisation of future reserves.
- Describe proposed approach to optimise rehabilitation, including potential for future beneficial land uses.

Performance criteria

- Describe a framework for identifying and responding to unexpected effects on environmental, social and economic values.
- Describe the program for monitoring the efficiency and environmental sustainability of resource recovery.

4.2 Biodiversity and ecological values

Evaluation objectives

Avoid, and where avoidance is not possible, minimise potential adverse effects on native vegetation, species of flora and fauna (particularly listed threatened species and their habitat and listed ecological communities), as well as address offset requirements (if required) consistent with state and Commonwealth policies.

Key issues

- Loss or degradation of native vegetation and listed communities, including those listed under the EPBC Act, the *Flora and Fauna Guarantee Act 1988* (FFG Act) and/or DELWP advisory lists.
- Loss or degradation of habitat for flora and fauna listed under the EPBC Act, the FFG Act and/or DELWP advisory lists.
- Direct, indirect, and cumulative impacts on fauna and listed communities.
- Disturbance or degradation of adjacent or nearby habitat that may support listed species or communities, native vegetation or native species, including but not limited to the Mt Sugarloaf Nature Conservation Reserve and Campaspe River.

- Habitat loss or degradation resulting from other changes, such as edge effects, surface water or groundwater quality or hydrological changes, groundwater drawdown, groundwater mounding, dust deposition, traffic, noise, vibration, light, or the introduction of weeds/pathogens.
- Disruption to the movement of fauna between areas of habitat across the broader landscape.
- Cumulative impacts on biodiversity, listed species and communities and habitat with other approved components of the mine site or other approved or proposed developments.
- The availability of suitable offsets for the loss of native vegetation and habitat for listed threatened species, communities and migratory species under the FFG Act and/or EPBC Act.

Existing environment

- Characterise the type, distribution and condition of native vegetation, terrestrial and aquatic habitat and habitat corridors or linkages that could be impacted by the project.
- Identify the existing or potential presence of any species listed under the EPBC Act, FFG Act and DELWP advisory lists that could be impacted by the project, as well as declared weeds, pathogens and pest animals.
- Identify the existing or likely presence of communities listed under the EPBC Act and/or FFG Act.
- Identify and characterise any areas of native vegetation and groundwater dependant ecosystems that may be affected by groundwater mounding, groundwater drawdown or changes to groundwater chemistry.
- Describe the biodiversity values that could be affected by the project. Investigation effort should focus on:
 - native vegetation and communities listed under the EPBC Act and/or FFG Act;
 - presence of, or suitable habitats for, native flora and fauna species, in particular, species listed under the EPBC Act, FFG Act, and DELWP advisory lists; and
 - large old trees as defined by the Guidelines for the Removal, Destruction or Lopping of Native Vegetation (DELWP, 2017).
- Describe the existing threats to biodiversity values, including:
 - removal of listed species or destruction of habitat;
 - historical or ongoing disturbance or alteration of habitat conditions (e.g., habitat fragmentation, severance of wildlife corridors or habitat linkages, changes to water quantity or quality, fire hazards, etc.);
 - any declared weeds, pathogens and pest animals within and near the project area; and
 - any other threatening processes that may affect biodiversity values.
- Characterisation of the existing environment is to be informed by a literature review and appropriate seasonal or targeted surveys of the potential and actual presence of threatened species and communities, in line with Commonwealth and state survey guidelines, conservation advice and threatened species recovery plans. Where surveys do not identify a listed species, but past records and/or habitat analysis suggest that it may occur locally, justification will need to be provided if further investigations or mitigation measures are not proposed.

Likely effects

- Assess effects (direct, indirect and cumulative) of the project and feasible alternatives, including transport route construction/ upgrades and use, on native fauna and flora, EPBC Act and FFG Act listed communities, other protected species, and biodiversity values, including but not limited to the following species and communities:
 - Grey Box (*Eucalyptus macrocarpa*) Grassy Woodland and Derived Native Grassland of South-eastern Australia;
 - Swift Parrot (*Lathamus discolor*);
 - Pink-tailed Worm-lizard (*Aprasia parapulchella*);
 - Murray Cod (*Macchullochella peelii*); and
 - Sturdy Leek-orchid (*Prasophyllum validum*).
- The assessed effects should include, but are not limited to:
 - direct removal of individuals or destruction of habitat;
 - disturbance or alteration of habitat conditions (e.g. habitat fragmentation, severance of wildlife corridors or habitat linkages, changes to water quantity or quality, fire hazards, etc.);
 - increased mortality rate of listed threatened fauna;

- the presence of any declared weeds, pathogens and pest animals within and in the vicinity of the project area;
- indirect and downstream impacts such as brine pond failure, changes in water regimes, impacts on land from discharge of mine water, and alterations to flow regimes of the Campaspe River and Gunyah Creek.

Mitigation measures

- Identify potential alternatives and proposed design options and measures that could avoid or minimise impacts on biodiversity values.
- Develop hygiene controls for vehicle and machinery movement to minimise the spread of pathogens and weeds.
- Describe measures to avoid and mitigate remaining biodiversity and native vegetation values.
- Justify and describe the assumptions and level of uncertainty associated with the proposed measures achieving their desired outcomes.
- Evaluate the feasibility and limitations of implementing mitigation measures proposed and describe and justify the level of uncertainty associated with whether they are expected to achieve their desired outcomes.

Performance criteria

- Describe and evaluate proposed measures to manage residual effects of the project on biodiversity values and MNES, including an offset strategy and offset management plan that sets out and includes evidence of the offsets proposed to be secured to satisfy both Commonwealth and Victorian offset policy or guideline requirements.
- Describe how the offset/s will be secured, managed and monitored, including management actions, responsibility, timing, performance measures and the specific environmental outcomes to be achieved.
- Proposed EPBC Act offsets (if required) must meet the requirements of the *EPBC Act Environmental Offsets Policy* (October 2012).⁹
- Describe a framework for identifying and responding to unexpected effects on biodiversity values.

⁹ environment.gov.au/epbc/publications/epbc-act-environmental-offsets-policy

4.3 Water resources and environmental values

Evaluation objective

Avoid and, where avoidance is not possible, minimise adverse effects on water resources and on existing and potential future environmental values and licensed uses of surface water, groundwater and related catchment values over the short and long-term.

Key issues

- Potential for adverse effects on licensed uses of groundwater and surface water due to the project's activities.
- Waste rock, tailings and underground mine water management, in the context of potential water quantity or quality impacts including those arising from erosion, sedimentation, nutrients, other contaminants and pollutants, acid sulphate soils, acid/metalliferous drainage formation, or salinity.
- Potential effects to groundwater and surface water values associated with the proposed managed aquifer recharge.

Existing environment

- Identify and characterise groundwater and surface water environments potentially impacted by the project in terms of their existing and future environmental values, existing drainage functions and behaviours and catchments.
- Characterise the ground and surface water relationships between the project area and any potential groundwater dependent ecosystems.
- Identify existing groundwater and surface water users and allocations in the broader area, including downstream of the mine site and in areas where there is potential for surface or groundwater impacts.
- Characterise the interaction between surface water and groundwater.
- Model the area's hydrogeology with the current allocations, extractions and uses of groundwater and surface water (e.g. irrigation use, stock and domestic use and environmental flows) in the broader area of the mine site, including downstream of the site.
- Characterise existing surface water and groundwater quality.
- Characterise the physical and chemical properties of the project area soils/mine geological materials including the potential environmental risks (e.g. potential for erosion, salinity, nutrients and acidification).

Likely effects

- Integrate the proposed project, including relevant alternatives, into the mine site's water balance model (both quantity and quality) to quantify the project's demand on groundwater and/or surface water resources, including volume to be extracted, stored and released during all project phases.
- Use appropriate methods, including modelling, to identify and evaluate effects of the project on groundwater and surface water environments, including:
 - the likely extent, magnitude and duration of groundwater level drawdown in the vicinity of the underground mine void and any dewatering bores during construction and operation, and the expected timing and scale of recovery of groundwater levels post-closure (spatial and temporal groundwater modelling);
 - mounding and migration of groundwater from tailings storage facilities, managed aquifer recharge and other mine water management infrastructure (including predicted volume, timing and water characteristics);
 - impacts on the hydrology and/or water quality of watercourses and wetlands;
 - changes to availability of surface water and groundwater for environmental values including from drawdown and rebound of groundwater levels (e.g. licenced users and/or ecological values), accounting for climate risks and the potential effects of climate change;
 - impacts to vegetation and habitat that may be groundwater dependent;
 - risks associated with saline or potential acid forming materials (soil and rock) that may be disturbed or exposed by mining activities; and

- changes to groundwater and surface water quality at all project phases, including effects salinity, nutrients, processing reagents and other contaminants, as well as effects on ecological values.

Mitigation measures

- Describe proposed design options and measures that could avoid or minimise significant effects on environmental values of surface water, groundwater and downstream water environments, accounting for climate risks and the potential effects of climate change.
- Identify relevant guidelines and standards to be met for management of stormwater runoff, erosion and sediment control, and flood risk.

Performance criteria

- Describe monitoring programs and appropriate monitoring activities with **specific, measurable, attainable, relevant, time-based** indicators for monitoring and thresholds for action to be implemented to ensure prompt detection of any adverse water and catchment effects associated with the project.
- Describe possible contingency actions to respond to adverse effects identified through the monitoring program as well as for cases where risks to achieving project benefits/objectives are identified.

4.4 Cultural heritage

Evaluation objective

Avoid, or minimise where avoidance is not possible, adverse effects on Aboriginal and historic cultural heritage values.

Key issues

- Destruction or disturbance of sites or places of Aboriginal or historical cultural heritage significance.

Existing environment

- Review land use history, previous studies and relevant registers to identify areas with Aboriginal cultural heritage value or potential Aboriginal cultural heritage value.
- Identify and characterise any Aboriginal cultural heritage sites or areas of sensitivity potentially impacted by the project area through consultation and investigations to the satisfaction of the Dja Dja Wurrung Clans Aboriginal Corporation.
- Identify any Aboriginal intangible heritage associated with the project area.
- Identify and document any known and previously unidentified places and sites of historical cultural heritage significance within the project area and its vicinity, including any necessary investigations to supplement past studies. Assessments are to be undertaken in accordance with the Heritage Act 2017 and Heritage Victoria's Guidelines for Conducting Archaeological Surveys (2020) or updates.

Likely effects

- Assess direct and indirect effects of the project on identified sites or places of Aboriginal cultural heritage significance, and whether they can be avoided.
- Assess effects on any Aboriginal intangible heritage associated with the project area.
- Assess direct and indirect effects of the project on sites and places of historical cultural heritage significance, having regard to Heritage Victoria's Guidelines for Investigating Historical Archaeological Artefacts and Sites (2015) or updates.

Mitigation measures

- Describe and evaluate proposed design, management and site protection measures that could avoid or minimise impacts on Aboriginal and historical cultural heritage values.
- Develop a CHMP to the satisfaction of Dja Dja Wurrung Clans Aboriginal Corporation.

- Develop an Archaeology Management Plan which includes protocols for the identification, reporting and management of previously unrecorded historical archaeological remains (including features, deposits and/or artefacts).

Performance criteria

- Describe a framework for identifying and responding to unexpected Aboriginal cultural heritage effects.
- Develop an Archaeology Management Plan which includes the details of relevant *Heritage Act 2017* requirements; current assessments of known sites; a survey of all areas of proposed works to identify currently unrecorded sites; recommendations for any required site avoidance, mitigation or site investigation processes; and the development of an Unexpected Finds Protocol, all conducted by a qualified and experienced historical archaeologist.

4.5 Amenity, socio-economic and land use

Evaluation objective

Avoid or minimise, where avoidance is not possible, potential adverse social, amenity, greenhouse gas, land use effects, including impacts on existing infrastructure and open space, as well as potential adverse effects to landscape values of the area.

Key issues

- Potential for adverse effects and benefits for the existing and future beneficial uses of the land.
- Potential adverse effects (including cumulative impacts of approved components of the mine site or other approved or proposed projects) on socio-economic, amenity and land use values of the region.
- Potential for project, during all project phases, to affect landscape amenity values and experiences of park settings and surrounding landscapes, including the Mount Sugarloaf Nature Conservation Reserve.

Existing environment

- Describe the physical and chemical characteristics of topsoil, ore, waste rock and tailings material for proposed project components relevant to air quality.
- Identify dwellings and any other potentially sensitive receptors (e.g. community centres, schools, recreation facilities, rainwater tanks) that could be affected by the project's potential effects (including potential cumulative effects associated with existing mine operations) on air quality, noise, vibration and lighting.
- Monitor and characterise background air quality, dust, noise, vibration and lighting in the vicinity of the project, including adjacent sensitive receptors.
- Compile meteorological data to support amenity impact assessments.
- Describe policies and provisions of the Greater Bendigo Planning Scheme and other land use planning strategies and identify implications for the project.
- Characterise the current transport infrastructure including traffic conditions, road infrastructure and road users in terms of capacity, condition and structural integrity, travel times, safety and accessibility.
- As they may change from the current operations, describe proposed transport routes during construction and operations (for project-related transportation). This should include description of the capacity for existing roads to accommodate project traffic.
- Describe existing emergency response infrastructure and resources.
- Describe community attitudes to the existing environment and the potential changes brought by the project.
- Describe the bushfire hazard for the project area.
- Identify and describe any land use constraints with potential implications for the project.
- Identify existing and reasonably foreseeable land uses, adjacent to, or otherwise affected by impacts from the project.

- Identify visual and landscape values near the project including public and private vantage points including from the Mount Sugarloaf Nature Conservation Reserve, from which elements of the project may be visible.

Likely effects

- Predict quantitatively likely air pollutant concentrations and greenhouse gas emissions, in surrounding areas during all project phases using an air quality impact assessment in accordance with the requirements of *EPA document 1961: Guidelines for Assessing and Minimising Air Pollution*.
- Predict likely noise, vibration (including mine induced seismic events) and lighting increases and assess impacts at sensitive receptors in the vicinity of the project.
- Evaluate the consistency of the project with the policies and provisions of the Greater Bendigo Planning Scheme and other land use planning strategies.
- As they may change from the existing approved mining operations, predict likely traffic volume increase in the vicinity of the project and along proposed transport routes due to the different project phases.
- Assess impacts to existing infrastructure for residential use, water supply, irrigation, wastewater collection and power supply, etc.
- Assess effects of the project on the structural condition of public roads and use of existing transport infrastructure having regard to relevant design standards in the context of historical and predicted future use.
- Assess implications of the project for the risk of bushfire.
- Describe the likely extent and duration of any temporary disruption to existing land use, land access (including access for emergency services) and infrastructure.
- Assess potential visual or landscape impacts of the project.
- Assess the social and economic effects of the project, including effects on social cohesion and well-being of the communities in the vicinity of the project.
- Assess potential safety hazards to the public arising from project construction, operation and post-closure.
- Assess the potential for cumulative impacts on amenity and land use values in conjunction with any other existing or planned projects and land uses.

Mitigation measures

- Identify potential and proposed design responses and/or other mitigation measures in accordance with best management practice, to avoid, reduce and/or manage significant effects for sensitive receptors, during all project phases, arising from:
 - Air pollution indicators;
 - Greenhouse gas emissions
 - Noise, vibration and lighting;
 - Public safety hazards; and
 - Landscape and visual changes.
- Outline and assess design and mitigation measures that address the potential for adverse land use effects including protecting land stability and managing erosion.
- Outline the any additional maintenance or traffic management required to protect public safety and address operational performance of the existing transport infrastructure.
- Outline measures to avoid, minimise or mitigate potential adverse effects on local communities.
- Outline measures to prevent bushfires associated with the project.

Performance criteria

- Describe the approach to monitor effects and develop contingency measures to be implemented in the event of adverse residual effects on social, amenity, greenhouse gas emissions and land use values and infrastructure requiring further management.
- Describe any further measures that are proposed to enhance social, amenity and land/waterway use outcomes, to form part of the EMF (see Section 3.8).

Appendix A: Procedures and requirements

Procedures and requirements under section 8B(5) of the *Environment Effects Act 1978*

The procedures and requirements applying to the EES process, in accordance with both section 8B(5) and the *Ministerial guidelines for assessment of environmental effects under the Environment Effects Act 1978* (Ministerial Guidelines), are as follows:

- (i) The EES is to investigate and document the potential environmental effects of the proposed project, including for any relevant alternatives, as well as associated avoidance, mitigation and management measures. In particular, the EES needs to address:
 - a. effects on biodiversity and ecological values within and near the site including native vegetation, threatened communities and species (flora and fauna) listed under the *Flora and Fauna Guarantee Act 1988* and *Environment Protection and Biodiversity Conservation Act 1999*;
 - b. effects on water resources and their environmental values, including as a result of possible changes to groundwater, stream flows, discharge of sediment and contamination from mine tailings;
 - c. effects on existing land uses, local amenity, considering potential changes in air quality, noise and vibration for nearby sensitive receptors, as well as visual amenity and landscape values of the area;
 - d. effects on Aboriginal and historic cultural heritage values;
 - e. effects from a cumulative perspective, including the above-mentioned values, considering the proposed works, existing mining activities and approved works yet to be undertaken at the mine.
- (ii) The matters to be investigated and documented in the EES will be set out more fully in scoping requirements prepared by the Department of Environment, Land, Water and Planning (DELWP). Draft scoping requirements will be exhibited for 15 business days for public comment, before being finalised and then issued by the Minister for Planning.
- (iii) The proponent is to prepare and submit to DELWP a draft EES study program to inform the preparation of scoping requirements.
- (iv) The level of detail of investigation for the EES studies should be consistent with the scoping requirements issued for this proposal and be adequate to inform an assessment of the significance and acceptability of the potential environmental effects of the proposal and any relevant alternatives, in the context of the Ministerial Guidelines.
- (v) DELWP will convene an inter-agency technical reference group (TRG) to advise DELWP and the proponent, as appropriate, on the scoping requirements, the design and adequacy of the EES studies during the preparation of the EES, as well as coordination with statutory approval processes.
- (vi) The proponent is also to prepare and submit to DELWP its proposed EES consultation plan for engaging with the public and stakeholders during the preparation of the EES. Once completed to the satisfaction of DELWP, the EES consultation plan is to be implemented by the proponent, having regard to advice from DELWP and the TRG.
- (vii) The proponent is also to prepare and submit to DELWP its proposed schedule for the completion of studies, preparation and exhibition of the EES, following confirmation of the scoping requirements. This schedule is intended to facilitate the alignment of the proponent's and DELWP's timeframes, including for TRG review of technical studies.
- (viii) The proponent is to apply appropriate peer review and quality management procedures to enable the completion of EES studies and documentation to a satisfactory standard.

- (ix) The EES is to be exhibited for a period of 30 business days for public comment, unless the exhibition period spans the Christmas-New Year period, in which case 40 business days will apply.
- (x) An inquiry will be appointed under the *Environment Effects Act 1978* to consider and report on the environmental effects of the proposal.