

Scoping Requirements for Avonbank Environment Effects Statement

Environment Effects Act 1978

AUGUST 2020

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Environment,
Land, Water
and Planning

List of abbreviations

AH Act	<i>Aboriginal Heritage Act 2006</i>
CHMP	Cultural Heritage Management Plan
DELWP	Department of Environment, Land, Water and Planning
EE Act	<i>Environment Effects Act 1978</i>
EES	Environment effects statement
EMF	Environmental management framework
EP Act	<i>Environment Protection Act 1970</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
FFG Act	<i>Flora and Fauna Guarantee Act 1988</i>
HMC	Heavy mineral concentrate
km	Kilometre
MNES	Matters of national environmental significance
MRSD Act	<i>Mineral Resources (Sustainable Development) Act 1990</i>
P&E Act	<i>Planning and Environment Act 1987</i>
TRG	Technical reference group

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1. Introduction

In light of the potential for significant environmental effects, on 17 August 2019 the Minister for Planning (the Minister) determined under the *Environment Effects Act 1978* (EE Act) that WIM Resource Pty Ltd (the proponent) is to prepare an environment effects statement (EES) for the proposed Avonbank Mineral Sands Project (the project). The purpose of the EES is to describe the project and assess its potential effects on the environment¹ including measures to avoid, minimise, mitigate or offset the 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 to conclude the EES process and inform statutory decision-makers responsible for the project's approvals.

These *Scoping Requirements for the Avonbank Mineral Sands Project* set out the specific matters to be investigated and documented in the EES for the project. The Minister issued the scoping requirements for the EES following consideration of public comments received on a draft exhibited for three weeks between July and August 2020.

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 those relevant to statutory decisions informed by the assessment.

1.1 The project

The proposed project is located approximately 15 km northeast of Horsham, with a disturbance footprint of approximately 3,600 ha (Figure 1). The Avonbank deposit contains approximately 300 million tonnes of ore and is proposed to produce a heavy mineral concentrate (HMC) containing zircon, rare earths and titanium minerals over a projected mine life of 30 years.

The proposal includes developing a mineral sands mine, mining unit plants, wet concentrator plant, starter ore and overburden stockpiles, slurry pipelines and additional infrastructure (roads, offices, warehouses, workshops, laydown areas, fuel storage, pipelines, power lines and rail loading facilities).

Conventional dry mineral sands mining and processing techniques would produce between 350,000 and 600,000 tonnes/annum of HMC. Progressive mining and rehabilitation throughout the mine life will return most of the materials back to the pit. HMC will be transported to port via road or rail for export overseas. The workforce is expected to stay in accommodation in Horsham and the local area.

1.2 Minister's requirements for this EES

In light of the potential for significant environmental effects, the Minister decided that an EES was required to assess the project's potential environmental effects. The Minister published procedures and requirements applicable to the preparation of the EES, in accordance with section 8B(5) of the EE Act (see Appendix A). In the procedures and requirements, the Minister identified key environmental effects that would need to be addressed in the EES, namely:

- effects on the land uses of the site and surrounding areas, including the implications for agricultural productivity;
- effects on land stability, erosion and soil productivity associated with the construction and operation of the project, including progressive rehabilitation works;
- effects of project construction and operation on air quality, noise and visual amenity of nearby sensitive receptors (particularly residences);
- effects on surface water environments, including local waterways and the broader catchment, as well as groundwater (hydrology, quality, uses and dependent ecosystems);
- solid and liquid waste that might be generated by the project during construction and operation;
- both positive and adverse socio-economic effects, at local and regional scales, potentially generated by the project, including increased traffic movement and indirect effects of the project construction workforce on the capacity of local community infrastructure;

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).

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- effects on biodiversity and ecological values within and in the vicinity of the site, and associated with adjacent road reserves and crown land, including native vegetation, listed threatened ecological communities and species of flora and fauna, and other habitats values; and
- effects on Aboriginal and non-Aboriginal cultural heritage values.

These 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 EE Act 1978* (Ministerial Guidelines).

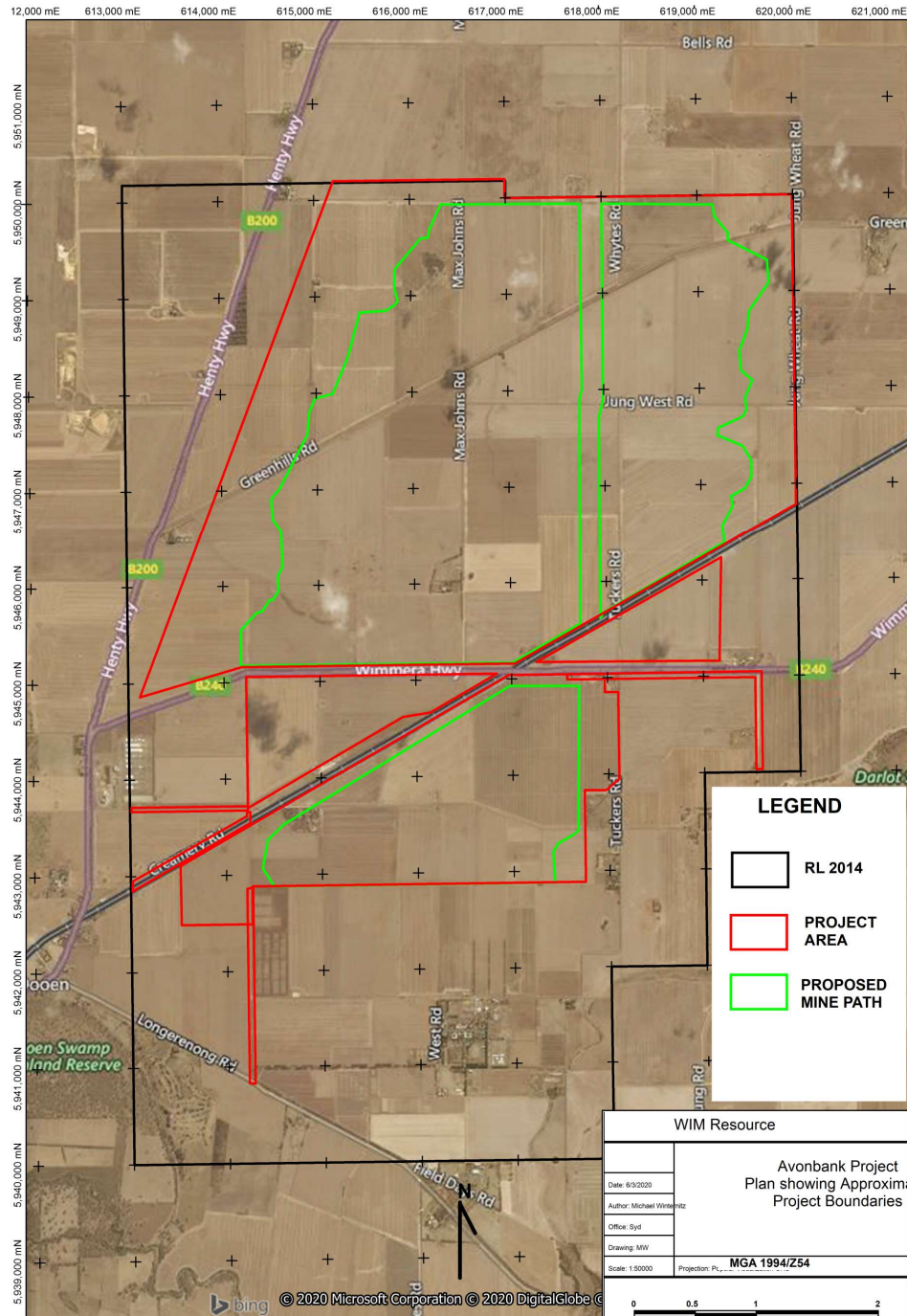


Figure 1: Location of the project (source: WIM Resource Pty Ltd).

2. Assessment process and required approvals

2.1 What is an EES?

An EES describes a project and its potential environmental effects. It should enable stakeholders and decision-makers to understand how the project works are to be designed, constructed and operated and the likely environmental effects of doing so. An EES has two main components as follows.

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 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 (completed);
- preparation and exhibition of draft scoping requirements by DELWP on behalf of the Minister with public comments received during the advertised exhibition period (completed);
- finalisation and issuing of scoping requirements by the Minister (this document);
- review of the proponent's EES studies and draft documentation by DELWP and a technical reference group;³
- 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;
- 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 government agencies and Horsham Rural City Council. The TRG will advise 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 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.⁴

2. Further information on the EES process can be found at planning.vic.gov.au.

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

4. <https://www.planning.vic.gov.au/environment-assessment/browse-projects/projects/avonbank-mineral-sands#overview>.

The consultation plan needs to:

- 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 the approvals procedures, consultation and public notice requirements.

The key approvals required under Victorian legislation are an approved work plan and a mining licence under the *Mineral Resources (Sustainable Development) Act 1990* (MRSD Act) and an approved cultural heritage management plan under the *Aboriginal Heritage Act 2006*. 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, approvals under the P&E Act may be required for associated infrastructure (e.g. processing facilities in the Wimmera Intermodal Freight Terminal Precinct).

To facilitate the integrated consideration of issues assessed within the EES and the timely completion of required approval processes, the EES is expected to include a draft work plan that is consistent with the requirements of the MRSD Act and regulations.

Other approvals may be required; these will be identified throughout the course of the EES.

2.3 Accreditation of the EES process under the EPBC Act

The project was also 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 July 2020 that the project is a controlled action⁵, as it is likely to have a significant impact⁶ 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); and
- protection of the environment from nuclear actions (sections 21 and 22A).

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 EE Act.

⁵ Under the EPBC Act, projects are considered actions. For the purposes of this document the term project also means action.

⁶ What are generally termed effects in the EES process correspond to impacts defined in sections 82 and 527E of the EPBC Act.

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 and risk-based approach⁷. The EES should put forward a sound rationale for the level of assessment and analysis undertaken for any environmental effect or combination of environmental effects⁸ arising from all components and stages of the project. The EES should 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 predictions or estimates;
- proposed avoidance or mitigation measures to reduce predicted effects;
- likely residual effects and their significance, including significant residual impacts on MNES, assuming the proposed measures to avoid and mitigate environmental effects are implemented; and
- the 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, 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 and that the EES has effective internal quality assurance in place. Close consultation with DELWP and the TRG during the investigations and preparation of the EES will be necessary to minimise the need for revisions prior to authorisation of the EES for public exhibition.

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;
- an overview of the proponent, including experience in developing and operating projects as well as health, safety and environmental policies and track record, including past performance and incidences of non-compliance with the EPBC Act;
- a description of the entire project, including its objectives, rationale, key elements, associated requirements for new infrastructure, resource use and use of existing infrastructure;
- a description of the approvals required for the project to proceed, and their relationship to 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 a preferred alternative if nominated);
- descriptions of the existing environment, where this is relevant to the assessment of potential effects;
- appropriately detailed assessments⁹ 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, including a statement of commitment to implement these measures;

7. See Ministerial Guidelines, p. 3.

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

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

- 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 on environmental values, including the identified MNES;
- assessment of cumulative impacts with other approved or proposed developments in the region (including other mineral sand mines);
- 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 against the principles and objectives of ecologically sustainable development¹⁰; and
- conclusions on the significance of impacts 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 during all phases of the project (see Section 3.8).

The proponent may choose to prepare a website with interactive functionality to provide an alternative form of access to EES information, which may compliment the conventional EES main report and technical documents. Such an approach should be discussed with DELWP, should be integrated with the preparation of the EES package and may need to be reviewed 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 of the EES 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 the basis for selecting the proposed project location and implications of the project not proceeding.
- Geological context and estimated mineral resources and ore reserves.
- Meteorological data that could have implications including for air quality, end land uses and rehabilitation.
- Characterisation of physical and chemical properties of all mine materials, wastes and products with potential environmental, rehabilitation or public health implications.
- Land use activities (including beneficial and sensitive uses) 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 proposed mine and associated facilities and infrastructure; and
 - cross-sections of proposed extraction areas.
- Predictions of energy use and greenhouse gas emissions.
- An overview of the project life.
- Details of all project components, including:
 - location, disturbance footprint, layout and access arrangements during all project phases;
 - design, methods, staging and scheduling of the proposed mining, volumes to be mined, total production and production rate and integration of rehabilitation with mining;
 - function, operation and design principles and capacity of main components of works, including overburden handling, ore extraction, mineral separation, tailings and mining by-products management, use of reagents, handling of products and water management;
 - proposed construction techniques;

10. See Ministerial Guidelines, p. 3.

- water requirements and proposed sources, including water balance, details on storage provisions, supply infrastructure, and proposed usage 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;
- any proposed or potential use of mine voids for disposal of material from other projects/sites;
- transport type and route of product from the mine;
- electricity and gas requirements;
- lighting, telecommunications, safety and security requirements;
- any workforce accommodation facilities including location, size and required services; and
- hours of operation, workforce requirements (total work force) and recruitment policies.

3.4 Rehabilitation

The EES is to document the proponent's approach to progressive rehabilitation¹¹ and closure 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 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 (such as potential for return of agricultural land-uses post mining) including consultation with landholders and local communities;
- planning for progressive rehabilitation and mine closure, 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, including for offsite infrastructure where appropriate;
- proposed measures to protect land stability and beneficial uses, manage erosion and maintain agricultural productivity;
- 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 about drying and consolidation and identify implications for rehabilitation;
- proposed methods for restoring soil profiles, drainage and productivity, as well as landscape rehabilitation in the context of the mine path and decommissioning of structures/facilities;
- 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
- proposed program for monitoring and maintenance of rehabilitation and closure activities including contingency measures if proposed rehabilitation and closure criteria are not achieved.

¹¹ The term 'rehabilitation' is considered to include all decommissioning activities for the project.

3.5 Project alternatives

The EES should document the proponent's process that lead to the project alternative(s) and design presented in the EES. The EES should document and explain the proponent's assessment of feasible alternatives, including an explanation of how and why specific alternatives were shortlisted for evaluation within the EES, including offsite infrastructure alternatives considered. The EES should document the likely environmental effects of all feasible alternatives, particularly where these offer a potential to minimise and/or avoid significant environmental effects whilst meeting the objectives of the project. The assessment of feasible alternatives and their effects should include:

- the basis for selecting the area proposed to be mined, mine layout and staging;
- the site selection process for all ancillary infrastructure, including the processing facilities;
- the technical feasibility and environmental implications of alternative construction, mining, ore processing, tailings management and rehabilitation methods; and
- alternative locations and designs for electricity, water, gas and fuel supply, site access, any worker accommodation, transport of products and workers and solid and liquid waste disposal.

Where appropriate, the assessment of environmental effects of design and layout alternatives is to address the matters set out in the subsequent sections of this document. The depth of investigation of alternatives should be proportionate to their potential to minimise potentially significant adverse effects as well as meet project objectives.

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. Please note recent changes to the EP Act that are expected come into effect at a date yet to be proclaimed, and any subsequent updates to its subordinate legislation.

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 EPBC Act policy statements, conservation advices, 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 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, operation, rehabilitation and closure 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 framework should include the following:

- required approvals and consents post-EES;
- any environmental management system to be adopted;
- organisational responsibilities and accountabilities for environmental management;
- the environmental management measures proposed in the EES to address specific issues, including commitments to mitigate adverse effects and enhance environmental outcomes and timing of implementation;
- a register of environmental risks, which is to be maintained over the life of the project;

- arrangements for managing and accessing baseline and monitoring data, to ensure transparency and accountability and to contribute to the improvement of environmental knowledge;
- a framework for management of any environmental incidents and emergencies; and
- proposed performance criteria and monitoring requirements (including parameters, locations and frequency) to confirm effectiveness of management measures and trigger contingency responses.

The EMF will propose a program for community consultation, stakeholder engagement and communications for all stages of the project. 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, as outlined in the Ministerial Guidelines (p. 14). 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 could document its assessment of effects for each evaluation objective.

1. **Identify key issues** 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 significance of the effects e.g. through reducing their extent, duration or likelihood. 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 adverse effects on the environment 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 avoided.
 - c. Rehabilitation/restoration: measures taken to improve a degraded environment following exposure to impacts that cannot be 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 assuming implementation of design and mitigation measures.
6. **Propose performance criteria and management** to evaluate whether the project's effects are maintained within permissible levels and propose contingency approaches if they are not.

The description and assessment of effects must not be confined to the immediate area of the project, but also consider the potential of the project and any of its offsite components to impact on nearby or downstream environmental values for all stages of the project. In addition, the cumulative effects of the project in combination with other activities in the broader area/region should be assessed for all significant adverse effects.

4.1 Resource development

Evaluation objective

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

Key issues

- Efficient and environmentally sustainable development of the mineral sands 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 ore body.
- Identify the socioeconomic context of the project in relation to local workers and suppliers of goods and services that could support the project.
- Describe local industries and other commercial activities that could be affected by the project.

Mitigation measures

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

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 efficiency of mineral sands resource recovery through the project.

Performance objectives and management

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

4.2 Social, land use and infrastructure

Evaluation objective

Minimise adverse social, land use and infrastructure effects.

Key issues

- Potential for adverse effects and benefits for the existing and future beneficial uses of the land, including agriculture and other local businesses.
- Potential impacts to existing infrastructure for residential use, water supply, irrigation, wastewater collection and power supply, etc.
- Potential effects on the local and regional socio-economic environment.
- The potential for changes to social networks and availability of accommodation or community facilities or services.
- Potential reduced safety on and damage to local and regional road transport routes.
- The potential to change risk of bushfires.
- Potential cumulative impacts of other approved or proposed mining projects on socio-economic and land use values of the region.

Existing environment

- Characterise existing and planned land uses, agricultural productivity, businesses and other beneficial uses.
- Describe policies and provisions of the Horsham Planning Scheme and other land use planning strategies and identify implications for the project.
- Describe existing land stability, erosion and soil physical and chemical characteristics and agricultural productivity.
- To the extent possible, identify any areas of potentially contaminated land.
- Describe existing infrastructure for residential use, water supply, irrigation, wastewater collection and power supply, etc.
- 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.
- Describe proposed transport routes during construction and operations (for employees, product and other project-related transportation).
- Describe existing emergency response infrastructure and resources.
- Describe the characteristics of the existing community in the vicinity of the project area, having regard to demographic, socio-economic and societal connection factors and benchmarks.

- Describe existing accommodation and community facilities and services.
- 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.

Mitigation measures

- Outline and assess design and mitigation measures that address the potential for adverse land use effects including protecting land stability, managing erosion and maintaining soil and agricultural productivity.
- Outline measures to manage contaminated soil.
- Outline measures to enhance potential economic benefits to local and regional businesses and minimise potential adverse effects to local land-uses and businesses.
- Outline measures to minimise impacts on existing infrastructure.
- Outline the required transport infrastructure upgrades and 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 and availability of accommodation and community facilities and services and maximise potential opportunities.
- Outline measures to minimise dislocation due to reduced access to farm land.
- Outline measures to prevent bushfires associated with the project.

Likely effects

- Assess social and economic effects of changed land use across the project area.
- Evaluate the consistency of the project with the policies and provisions of the Horsham Planning Scheme and other land use planning strategies.
- Assess effects on land stability, soil quality, erosion and soil and agricultural productivity.
- Assess the economic effects (beneficial and adverse) due to the project, including any impacts on opportunities for new and existing businesses.
- Assess the effects on workforce development opportunities in the local and wider region as a result of the project.
- Predict likely traffic volume increase in the vicinity of the project and along proposed transport routes due to the project.
- 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 effects on social cohesion and well-being of the communities in the vicinity of the project.
- Assess social effects of changed availability of accommodation and community facilities and services.
- Assess implications of the project for the risk of bushfire.
- Assess potential cumulative impacts from other approved or proposed projects on socio-economic aspects of the local community and land use.

Performance objectives and management

- Describe a framework for identifying and responding to unexpected social, land use, economic and infrastructure effects for nearby communities.

4.3 Amenity and environmental quality

Evaluation objective

Protect the health and wellbeing of the community, and minimise effects on air quality, noise, visual and social amenity.

Key issues

- The potential for risks to amenity or public health and safety due to exposure to dust, noise, lighting, vibration, radiation and hazardous materials.
- The potential for effects on the landscape values and visual amenity for residents and visitors to the area.
- Potential cumulative impacts of other approved or proposed mining projects on amenity and landscape values of the region.

Existing environment

- Describe the physical and chemical characteristics of overburden, ore, product, tailings, and mining by-products relevant to air quality and radiation (including radiological content and activity levels).
- Identify dwellings and any other potentially sensitive receptors (e.g. community centres, schools, recreation facilities and agricultural businesses) that could be affected by the project's potential effects on air quality, noise, vibration, lighting and radiation levels.
- Monitor and characterise background air quality in accordance with the Protocol for Environmental Management¹² requirements, including air pollution indicators (dust, PM₁₀, PM_{2.5}, crystalline silica, airborne metals, etc.), noise, vibration and lighting in the vicinity of the project, including adjacent sensitive receptors and along potential transport routes.
- Compile meteorological data to support amenity impact assessments.
- Characterise background radiation levels within the mine site and the broader project area.
- Evaluate the suitability of existing road/rail conditions, traffic conditions and port facilities for transport, storage and shipping of product.
- Characterise the visual character and associated landscape values of the project area and surrounds.
- Identify viewsheds where project features can be seen, including from residences.

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;
 - noise, vibration and lighting;
 - adverse changes to the background radiation levels in the vicinity of the project (including the radionuclide content of vegetation, surface water and groundwater);
 - public safety hazards; and
 - landscape and visual changes.

Likely effects

- Predict likely atmospheric concentrations of particulate matter and other relevant Class 1, 2 or 3 indicators in surrounding areas during all project phases, using an air quality impact assessment undertaken in accordance with the State Environment Protection Policy (Air Quality Management) and the incorporated Protocol for Environmental Management. The air quality impact assessment is to also include an assessment using the State Environment Protection Policy (Ambient Air Quality) environmental objectives.¹³
- Assess any effects of dust emissions on surrounding agricultural industry and local water supplies, including private rainwater tanks.
- Predict likely noise, vibration and lighting increases and assess impacts at sensitive receptors in the vicinity of the project and along the proposed transport route.
- Assess human health and ecological risks from the transport, handling, storage and disposal of processing reagents or hazardous chemicals used or wastes produced by the project.
- Predict likely radiation doses to sensitive receptors and assess radiation effects associated with the project during all project phases.

¹² <https://www.epa.vic.gov.au/about-epa/publications/1191> (or updates)

¹³ This should take into consideration the changes in the EP Act which are expected come into effect on 1 July 2021, and any subsequent updates to subordinate legislation.

- Assess the effects of the project and feasible alternatives on landscape and visual amenity values, including with respect to views from public vantage points and representative local residences.
- Assess likely effects to human health and well-being of the communities in the vicinity of the project.
- Assess safety hazards to the public arising from the project.
- Assess the potential for cumulative impacts of the project on amenity and landscape values in conjunction with other approved or proposed projects in the region.

Performance objectives and management

- Describe a framework for identifying and responding to unexpected amenity, environmental quality, health and social wellbeing effects for nearby communities.

4.4 Cultural heritage

Evaluation objective

Avoid or minimise adverse effects on Aboriginal and historical cultural heritage.

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 Barengi Gadjin Land Council 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.

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 cultural heritage management plan to the satisfaction of the Barengi Gadjin Land Council Aboriginal Corporation.
- Develop an archaeological management plan and chance finds procedure to manage any impacts on historical heritage values.

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.

Performance objectives and management

- Describe a framework for identifying and responding to unexpected Aboriginal cultural heritage or historical heritage effects.

4.5 Biodiversity and habitats

Evaluation objective

Avoid, minimise or offset adverse effects of the project on biodiversity values including native vegetation, listed threatened species and communities and habitat for these species 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 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.
- 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, radiation 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 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, including Buloke Woodlands of the Riverina and Murray Darling Depression Bioregion;
 - 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 including Wimmera Rice-flower (*Pimelea spinescens* subsp. *pubiflora*), Turnip Copperburr (*Sclerolaena napiformis*), Greencomb Spider-orchid (*Caladenia tensa*), Plains Rice-flower (*Pimelea spinescens* subsp. *spinescens*), Floodplain Rustyhood (*Pterostylis cheraphila*) Slender Darling-pea (*Swainsona murrayana*), Growling Grass Frog (*Litoria raniformis*) and Striped Legless Lizard (*Delma impar*); 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 advices 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.

Mitigation measures

- Identify potential alternatives and proposed design options and measures that could avoid or minimise impacts on biodiversity values, for example, revegetation.
- Develop hygiene controls for vehicle and machinery movement to minimise the spread of pathogens and weeds.
- Describe measures to protect remaining biodiversity and native vegetation values.
- Justify and describe the assumptions and level of uncertainty associated with the proposed measures achieving their desired outcomes.

Likely effects

- Assess direct and indirect effects of the project and feasible alternatives, on native fauna and flora, EPBC Act and FFG Act listed communities, and other protected species.
- Assess effects (direct, indirect and cumulative) of the project, including transport route construction/upgrades and use, on biodiversity values, including:
 - 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; and
 - the presence of any declared weeds, pathogens and pest animals within and in the vicinity of the project area.
- Assess the potential for the project to result in effects from radiation on wildlife. This should utilise, as a minimum, the method described in the Guide for Radiation Protection of the Environment (2015) published by the Australian Radiation Protection and Nuclear Safety Agency.

Performance objectives and management

- 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 that can be secured or are proposed to satisfy both commonwealth¹⁴ and state¹⁵ 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 offsets must meet the requirements of the *EPBC Act Environmental Offsets Policy* (October 2012)¹⁶.
- Describe a framework for identifying and responding to unexpected effects on biodiversity values.

4.6 Catchment values

Evaluation objective

Minimise effects on water resources and on existing and potential future beneficial and licensed uses of surface water, groundwater and related catchment values over the short and long-term.

Key issues

- The potential for adverse effects of the project on the functions and values of nearby and downstream water environments and beneficial uses including downstream swamps and wetlands.
- The potential for adverse effects on licensed uses of groundwater and surface water due to the project's activities.
- Ore, product, overburden, tailings and mining by-products management, in the context of potential water quality impacts including those arising from erosion, sedimentation, release of radionuclides, other contaminants and pollutants, acid sulphate soils, acid/metalliferous drainage formation, or salinity.

¹⁴ Proposed offsets must meet the requirements of the EPBC Act Environmental Offsets Policy (October 2012) or updates.

¹⁵ Refer to the DELWP Guidelines for the Removal, Destruction or Lopping of Native Vegetation (2017) or updates.

¹⁶ Available at www.environment.gov.au/epbc/publications/epbc-act-environmental-offsets-policy.

Existing environment

- Identify and characterise groundwater and surface water environments potentially impacted by the project, including watercourses, swamps and wetlands, in terms of their existing and future beneficial uses and 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).

Mitigation measures

- Describe proposed design options and measures that could avoid or minimise significant effects on beneficial uses 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.

Likely effects

- Develop a water balance model to quantify the project's demand (both quantity and quality) 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 mine and water supply bores during construction and operation, and the expected timing and scale of recovery of groundwater levels as mining progresses and post-closure (spatial and temporal groundwater modelling);
 - mounding and migration of groundwater from the backfilled tailings material along the mine path (including predicted volume, timing and water characteristics);
 - impacts on the hydrology and/or water quality of watercourses, swamps and wetlands;
 - changes to availability of surface water and groundwater for beneficial uses 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 including at Darlot and Dooen swamps;
 - 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 of salinity, radionuclides, processing reagents and other contaminants, as well as effects on ecological values.

Performance objectives and management

- Describe a framework for identifying and responding to unexpected effects on catchment values.

Appendix A

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 document the investigation and avoidance of potential environmental effects of the proposed project, including for any relevant alternatives (such as for the mining extent, methods for mining and processing, water supply and transport of mining outputs), as well as associated environmental avoidance, mitigation and management measures. In particular the EES should address:
 - a. Effects on the land uses of the site and surrounding areas, including the implications for agricultural productivity;
 - b. Effects on land stability, erosion and soil productivity associated with the construction and operation of the project, including progressive rehabilitation works;
 - c. Effects of project construction and operation on air quality, noise and visual amenity of nearby sensitive receptors (in particular residences);
 - d. Effects on surface water environments, including local waterways and the broader catchment, as well as groundwater (hydrology, quality, uses and dependent ecosystems);
 - e. Solid and liquid waste that might be generated by the project during construction and operation.
 - f. Both positive and adverse socio-economic effects, at local and regional scales, potentially generated by the project, including increased traffic movement and indirect effects of the project construction workforce on the capacity of local community infrastructure;
 - g. Effects on biodiversity and ecological values within and in the vicinity of the site, and associated with adjacent road reserves and crown land, including: native vegetation; listed threatened ecological communities and species of flora and fauna; and other habitats values; and
 - h. Effects on Aboriginal and non-Aboriginal cultural heritage values.
- (ii) The matters to be investigated and documented in the EES will be set out in detail in scoping requirements prepared by the Department of Environment, Land, Water and Planning (the department). 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 level of detail of investigation for the EES studies should be consistent with the scoping requirements issued for this project and be adequate to inform an assessment of the potential environmental effects (and their acceptability) of the project and any relevant alternatives, in the context of the Ministerial Guidelines.
- (iv) The proponent is to prepare and submit to the department a draft EES study program to inform the preparation of scoping requirements.
- (v) The department is to convene an inter-agency Technical Reference Group (TRG) to advise the proponent and the department, as appropriate, on scoping and adequacy of the EES studies during the preparation of the EES, as well as coordination with statutory approval processes.
- (vi) The proponent is to prepare and submit to the department its' proposed EES Consultation Plan for consulting the public and engaging with stakeholders during the preparation of the EES. Once completed to the satisfaction of the department, the EES Consultation Plan is to be implemented by the proponent, having regard to advice from the department and the TRG.
- (vii) The proponent is also to prepare and submit to the department its proposed schedule for the studies, preparation and exhibition of the EES, following confirmation of draft scoping requirements. This is to enable effective management of the EES process on the basis of an agreed alignment of the proponent's and department's schedules, including for TRG review of technical investigations and the EES documentation.
- (viii) The proponent is to apply appropriate peer review and quality management procedures to enable the completion of EES studies and documentation to an acceptable standard.

Scoping Requirements for Avonbank Environment Effects Statement

- (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.

Appendix B

Decision under section 75 of the Environment Protection and Biodiversity Conservation Act 1999



Australian Government
 Department of Agriculture,
 Water and the Environment

**Notification of
 REFERRAL DECISION AND DESIGNATED PROPONENT – controlled action
 Avonbank Heavy Minerals Sands Project, Horsham, Victoria (EPBC 2019/8586)**

This decision is made under section 75 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

proposed action	To construct and operate a mineral sands mine including processing plant, stockpiles and associated infrastructure, 15 km north-west of Horsham, Victoria [see EPBC Act referral 2019/8586].
decision on proposed action	The proposed action is a controlled action. The project will require assessment and approval under the EPBC Act before it can proceed.
relevant controlling provisions	<ul style="list-style-type: none"> Listed threatened species and communities (sections 18 & 18A) Nuclear actions (sections 21 & 22A)
designated proponent	WIM Resource Pty Ltd ABN: 59 159 389 929
assessment approach	The project will be assessed under the assessment bilateral agreement with the State of Victoria.

Decision-maker

Name and position Richard Miles
A/g Assistant Secretary
Assessments and Governance Branch

Signature



date of decision 3 July 2020
