Environmental Impact Statement
Project Specific Guidelines
for
Hazell Bros. Group Pty Ltd
Leslie Vale Quarry – Increase in Capacity
Leslie Vale, Tasmania

June 2022

EPA TASMANIA

ENVIRONMENT PROTECTION AUTHORITY

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General Information for the Proponent

Purpose of the Guidelines

The *Environmental Management and Pollution Control Act 1994* (the EMPC Act) requires the Board of the Environment Protection Authority (the Board) to provide guidance to the proponent about what should be included in the case for assessment (the Environmental Impact Statement).

The Board will assess environmental aspects of the proposal. The relevant Planning Authority (Council) will assess planning aspects if the *Land Use Planning and Approvals Act 1993* (the LUPA Act) applies.

These Guidelines provide information on preparing an Environmental Impact Statement (EIS) for an activity being assessed by the Board under the EMPC Act. They have been prepared based on the Notice of Intent for the proposed Leslie Vale – Increase in capacity by Hazell Bros. Group Pty Ltd.

Information solely for the purpose of assessment under the relevant Planning Scheme should be supplied to the Planning Authority either:

- as required under s54 of the LUPA Act, where the planning application has commenced the environmental assessment process; or
- where it is intended to submit an EIS (draft or final) with the planning application, a combined planning and environmental report can be prepared. However, the information required for the Board's assessment must be distinguished from that supplied for the purposes of the LUPA Act.

Risk Based Assessment

The EIS should be prepared using a risk-based approach. Not all issues nominated in these guidelines will have the same degree of relevance to all proposed activities. The level of detail provided on each issue should be appropriate to the level of significance of that environmental issue to the proposal.

As well as the issues identified in the guidelines, other significant matters may emerge during preparation of the EIS from environmental studies, public comments, or other sources, which will need to be factored into the EIS. The assessment process may also change the understanding of the level of risk associated with some of the issues. This may in turn change the level of detail needed in the EIS.

After the public consultation phase, additional information may be requested from the proponent in response to public and government agency submissions. This generally takes the form of a supplement to the EIS.

Objectives of the EIS

The EIS should:

- Provide information for individuals and groups to gain an understanding of the proposal, the need for the proposal, the alternatives, the environment that it could affect, the positive and negative environmental impacts that may occur and the measures that will be taken to maximise positive outcomes, and minimise any adverse environmental impacts, including specific management measures;
- Provide a basis for public consultation and informed comment on the proposal;

- Provide a framework against which decision makers, particularly the Board, and the relevant Planning Authority, can consider the proposal and determine the conditions under which any approval might be given;
- demonstrate that the proposal is consistent with the objectives of the relevant laws and policies, including the Tasmanian Resource Management and Planning System (RMPS) and the Environmental Management and Pollution Control System (EMPCS).

How the Board uses the EIS

- The EIS is the basis on which the Board makes its assessment. The Board considers the EIS, as well as other relevant information, against the objectives of the RMPS and EMPCS objectives. These objectives focus on the concept of sustainable development, which requires consideration of the economic and social needs of people now and in the future, while sustaining the environment and avoiding or mitigating adverse effects. The Board will consider the objectives and endeavour to make the decision which best furthers them, when considered together. That decision may be to approve the proposal with conditions, or in some cases, the Board may decide the objectives cannot be upheld and the proposal is rejected.

Structure and Formatting of the EIS

The following points should be considered when writing the EIS:

- The title page should include the proponent's name, the activity name, the proposal address or location, the EIS version number (where relevant) and the month and year of publication.
- The main text of the EIS should be written in a clear and concise style that is easily understood by the general reader.
- Assertions and assumptions should be supported by adequate argument and/or evidence, and evidence relied upon should be referenced.
- Technical terminology should be avoided as far as possible. The detailed technical data and supplementary reports necessary to support the main text should be included in appendices.
- All sources of information should be referenced and the style of referencing should be consistent throughout. An indication should also be given about how current the information is and how its reliability was tested. In particular, the degree of confidence attached to any predictions should be indicated.
- Where necessary, to enhance understanding of the proposal, information should be presented in maps, plans, diagrams and photographs. These must be of high quality and reproducible in monochrome with all text and relevant features clearly visible. Maps and plans should include a north arrow and scale.
- When spatial information (including maps, plans, grid coordinates and heights) are provided or referred to, the coordinate reference system must be specified. It is recommended that the following coordinate reference systems are used:
    - **Horizontal** – Geocentric Datum of Australia 2020, Map Grid of Australia Zone 55 (GDA94 MGA55)
    - **Vertical** – Australian Height Datum (Tasmania) (AHD83)

  Information on coordinate reference systems used in Tasmania can be found on the NRE website (Coordinate, Height and Tide Datums - Tasmania | Department of Natural Resources and Environment Tasmania).
  Please note that although the Geocentric Datum of Australia 2020 (GDA2020) is the new official datum for recording the horizontal location of spatial information in Australia,

implementation of this new datum in Tasmania is not yet complete and the Geocentric Datum of Australia 1994 (GDA1994) remains in use.

- Any sensitive information should be provided in a separate, confidential appendix. A comment should be made in the EIS that the information has been provided in this way.
- Specific management measures must be clearly identified in the text and included in the summary table referred to in Section 9 of these Guidelines.
- Where appropriate, information provided in other sections should be referenced to minimise duplication.
- The EIS should contain a summary table showing compliance with the guidelines.

Submission of draft and final document

Close consultation with the EPA while preparing the EIS is recommended. It is advisable for the proponent to submit a draft EIS for review before it is finalised. Please note that a draft document may be rejected without detailed review if it is incomplete, contains significant formatting or typographical errors, or does not comply with the Project Specific Guidelines. More than one draft may be necessary before the document is considered suitable for public release.

The EIS is to be submitted in electronic format (such as Microsoft Word), and suitable for publishing on the internet (PDF format). Printed copies may also be required for public consultation.

Once the proposal is advertised for public comment, copies of the EIS must be made available to the public on request, in either printed or electronic format. The EIS will also be available on the EPA website.

Commonwealth environmental assessment

The ecological study included with the Notice of Intent concluded that the proposal does not require referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) based on specific management measures to avoid significant impacts on Matters of National Environmental Significance.

The Commonwealth Government may still have a role in the environmental assessment and approval of the proposal, and the proponent should continue to make themselves aware of their responsibilities under the EPBC Act as the assessment progresses.

Approval under the EPBC Act is required for an action which has, will have, or is likely to have, a significant impact on Commonwealth land or the matters of national environmental significance listed below:

- World Heritage properties;
- National Heritage Places;
- Wetlands of international importance (RAMSAR wetlands);
- Nationally listed threatened species and communities;
- Nationally listed migratory species;
- Commonwealth marine areas;
- Nuclear actions;
- large coal mines with water quality impacts.

Information on the EPBC Act can be obtained from the Commonwealth Department of Environment and Energy's website at www.environment.gov.au/epbc/ or by calling 1800 803 772.

False or misleading statements

Under section 43A of the EMPC Act, the EIS must not include information that is known to be false or misleading; and nothing should be omitted if it is known that without it the EIS would be false or misleading.

Contents of the EIS

Executive Summary

An executive summary of the EIS should be included to provide a clear and concise overview of the proposal, its environmental implications, the approvals process, and the function of the EIS in the context of the approvals process.

For larger EISs, it is recommended that the executive summary be written as a stand-alone document, able to be provided on request to interested parties who may not wish to read or acquire the full EIS.

Table of Contents

A table of the contents of the report with reference to the relevant page numbers. It should also contain a list of figures and tables.

List of Abbreviations

A list of the abbreviations, acronyms and, if relevant, a glossary of terms used in the EIS.

Key Issues to be addressed

While the EIS should evaluate all potential effects of the proposal, it should be principally focused on the key issues identified in the table below. The level of detail provided on other issues should be appropriate to the level of significance of that issue for the proposal. Variables or assumptions made in the assessment must be clearly stated and discussed. The extent to which the limitations, if any, of available information which may influence the conclusions of the environmental assessment should be discussed.

The key issues identified for this proposal, which should be the focus of the EIS, are:

Key Issues
Noise impacts on surrounding sensitive receptors
Dust impacts on surrounding sensitive receptors
Impacts on local surface water quality and flow
Impact on biodiversity and natural resources

Other matters deemed to be significant or matters that emerge as significant from environmental studies, public comments or otherwise during preparation of the EIS, must be included in the assessment.

Information to be provided

1. Introduction

Provide information on the following:

- Title of the proposal.
- Proponent details:
    - Name of proponent (legal entity);
    - Name of proponent (trading name);
    - Registered address of proponent;
    - Postal address of proponent;
    - ABN number;
    - ACN number (where relevant).
- Contact person's details:
    - Name;
    - Telephone;
    - Email address.
- Activity operator details (if the operator will be a different entity to the proponent);
- General background information on the proponent, such as relevant development and operational experience;
- General background information on the proposal, including location, objectives, current status and an overview of the principal components;
- Brief description of anticipated establishment costs, likely markets for the product, and the possibilities for future expansion;
- Examination of how the proposal relates to any other approved or proposed projects in the region;
- Applicable environmental legislation, standards, and guidelines (such as policies, regulations, and industry codes of practice);
- Other relevant Commonwealth, State and Local Government policies, strategies, and management plans with which the proposal would be expected to comply;
- Details of any proceedings against the proponent under a Commonwealth, State or Territory environmental law;
- Details of the proponent's environmental policy and planning framework.

2. Proposal Description

Where the proposal is to be subject to a permit application under the LUPA Act, the proposal description and specification of the site must be consistent with the intended or current permit application. Any works or activity that are for the purpose of the proposal (e.g., access works) must be included.

Provide a full description of the proposal, including construction, commissioning, operational and decommissioning phases, as well as any infrastructure and off-site ancillary facilities required for the proposal.

Notwithstanding the requirements below, the proposal description should contain sufficient information about the proposal to allow a full assessment of the environmental impacts.

2.1 Definition of the Land

Provide a definition of the Land on which the activity will take place. The boundary must be consistent with any intended or current permit application under the LUPA Act. Information requirements will vary depending on how the Land is defined.

See: Spatial and visual information requirements for detailed mapping instructions.

2.1.1 Existing defined boundary

If 'the Land' is delineated by an existing defined boundary, the definition of the Land may be indicated by:

- Cadastral boundaries (Title Reference, Property ID), e.g., Title Reference 136529/1;
- Lease boundaries (Mining Lease, Crown Lease, Marine Farming Lease), e.g., Mining Lease 9011P/M.

2.1.2 Other boundary

If the Land is not delineated by an existing defined boundary, it may be necessary to define a new boundary by reference to specific topographic features and or surveyed grid coordinates. A boundary survey may be requested during the assessment process if it is required to adequately identify the Land. In this case:

- Provide a plan which clearly shows the boundary of the Land in relation to topographic features or grid coordinates;
- Provide the boundary of the Land in a geospatial vector format (shapefile or DXF).

2.2 General location map

Provide a general location map (e.g., 1:25,000 scale or better as appropriate) identifying the following features:

- The location of the proposal site;
- Topographical features, aspect and direction of drainage;
- Geological mapping and sections of the proposal footprint;
- Road access to and from the site;
- Location of water features (including ephemeral water bodies);
- The distance(s) to any nearby sensitive uses (such as residences);
- Electricity transmission lines / substations;

- The land boundary;
- Surrounding land tenure;
- Surrounding land use (identify areas of conservation or recreational significance);
- Surrounding land zoning in the local government planning scheme;
- Locations of historical workings.

2.3 Site plan

Site plans are required which identify:

- The proposal site including the project components listed in Section 2.5;
- The layout and total footprint of construction activities (see Section 2.7).

Boundary information must be consistent with any intended permit application under the LUPA Act. Coordinates of the Land should be provided.

2.4 Timing

Timetable for proposal including anticipated month / years, including best and most likely case of:

- Start of construction;
- Start of commissioning;
- Start of operation;
- Start of closure;
- Completion of closure.

2.5 Key components

Provide detailed description of the following key physical components of the proposal, including function, composition, size, footprint area, capacity, operational life, technical and performance requirements, inter-relationships accompanied by clear plans and sections as necessary to adequately describe the proposal and its environmental impacts.

This should clearly distinguish between:

- Existing components that will receive more use due to the increase in activity;
- Existing components that will be expanded or otherwise changed due to the increase in activity;
- New components introduced due to the increase in activity.

2.5.1 Quarry Pits

For each of the quarry pits (Dolerite pit, Red gravel pit, White rock pit), describe:

- Location, layout, working area boundaries;
- Any earthworks, bunds, screening, buffer zones;
- A description (in geological terms) of the resource and any associated waste rock or overburden;
- Quarry plan presenting a sequential description of quarrying methods including:
    - Indicative timeframes for appropriate stages in the life of the quarry and at closure;
    - Drilling and blasting activities, including the measures required to remain within permitted limits for noise and vibration;
    - Extraction methods, direction of works;
    - Pit design bench heights, ramping;

  - How the proposal will minimise the area of disturbance and allow for progressive rehabilitation (cross-referencing rehabilitation description – see Section 7) of the site as appropriate;
  - Plans and sections of pits for appropriate stages in the life of the quarry and at closure.
- Any proposed stockpiles for temporarily storing product and waste rock;.

2.5.2 Processing

Description of all areas, plant, and buildings associated with processing the material to be quarried as part of the expansion, clearly stating what is existing and what, if any, new facilities, will be installed. This should include:

- Crushing and screening plant;
- Equipment for material handling;
- Material storage facilities.

2.5.3 Supporting infrastructure

Description of any on site facilities supporting the expanded quarrying, clearly stating what is existing and what, if any, new facilities, will be installed. This should include:

- Offices, amenities, carparks;
- Workshop facilities including type of maintenance activities to be carried out;
- Facilities for managing solid waste;
- Facilities for vehicle fuelling and fuel storage;
- Hazardous material storage;
- Ground profile (cuttings, earthworks, surfaces, hardstands);
- Facilities for washing vehicles and large equipment;
- Facilities for the management of solid waste (other than waste rock);
- Power generation, power supply corridors and (if applicable) means of site generation;
- Facilities for storing fuel and other hazardous materials, including capacities;
- Pollution monitoring and control instrumentation and infrastructure;
- Communication, telemetry and control systems (as relevant to environmental management);
- Power source, power supply corridors and (if applicable) means of site generation;
- Site lighting;
- Any on-site facilities not listed above.

2.5.4 Access Roads

- Haul roads, access roads and associated infrastructure;
- Internal access and haul roads (size, surface, drainage);
- Works to existing roads and intersections.

2.5.5 Water management

Physical components

- Infrastructure to collect, transfer and treat other surface water runoff including drains, cut offs, retention basins and runoff discharge points, presented on a plan of site;
- Details of diversions or other works to existing creeks, drainage lines or water bodies;
- Details of design for infrastructure to collect and treat any effluent or wastewater including:
  - Description of the function, design criteria and anticipated performance in removing contaminants;

  - Description of any active measures to control pollution including bunding and sediment management structures;

- Infrastructure to collect, transfer and store water for use by the proposal, e.g., for dust suppression or firefighting;
- Any surface or groundwater abstractions;
- Location and design of all wastewater discharge points.

Water balance

A quantitative water balance for the proposal (for low, average, and high rainfall scenarios) including:

- In flows to the proposal (such as surface water, abstracted water, quarry pit water/ intersected groundwater, and precipitation);
- Out flows from the proposal (such as evaporation, stormwater, groundwater infiltration, point source and diffuse or point emissions of wastewater) including:
  - Site runoff (subject to contamination by contact with the proposal);
  - Quarry pit water;
  - Drainage from process or refuelling area hardstands;
  - Domestic wastewater;
  - Any other wastewater.
- Water use requirements;
- Water storage, re-use and recycling;
- Effect of changing precipitation and evaporation rates due to climate change during operation of the proposal and after closure based on appropriate IPCC climate change scenarios (see Section 7 in relation to closure assumptions).

2.6 Other proposed infrastructure on site

- Pollution monitoring and control instrumentation and infrastructure for each component of the project;
- Facilities for the management of solid waste (other than waste rock);
- Haul roads, access roads and associated infrastructure;
- Power generation, power supply corridors and (if applicable) means of site generation;
- Pipelines and associated infrastructure including leak detection systems;
- Facilities for storing fuel and other hazardous materials, including capacities;
- Communication, telemetry and control systems (summarising aspects relevant to environmental management);
- Power source, power supply corridors and (if applicable) means of site generation;

2.7 Construction

Describe the key activities required to construct the proposal, including (but not limited to):

- A plan of all potential areas that may be disturbed during construction including any borrow areas;
- A step-by-step description and timetable for significant construction activities including:
  - Diversions or other works to existing utilities or infrastructure;
  - Temporary or permanent removal of vegetation;
  - Stockpiling of soil, vegetation and other materials;

  - Proposed use of cleared vegetation, such as timber sale, habitat creation, closure material;
  - Ground preparation and methods for construction;
  - Building construction and equipment installation.

- Temporary construction infrastructure including site offices, temporary working areas, construction access roads, laydown areas, and temporary stockpiles, including maps showing locations;
- Estimates of the quantities, types and sources of raw materials required for construction including proposed use of materials to be sourced on site;
- Any proposed borrow areas for construction materials including location, material type, properties and suitability for proposed use, estimated reserves, method of extraction and conveyance to site;
- Systems to manage runoff during construction including details of drainage control measures such as cut-off drains, sediment settling ponds discharge points, monitoring facilities;
- Type, number and capacity of construction equipment required on-site;
- Number, type, origin, destination, timing and routes for construction vehicle movements, including a breakdown for over-dimension and heavy vehicles;
- The number of workers identified as construction personnel, sources of labour, transport of workers to and from the site, accommodation, and support servicing requirements;
- Proposed hours per day and days per week of construction activities;
- Areas to be rehabilitated following temporary use during construction and description of proposed rehabilitation measures;
- Areas from which construction activity will be excluded and how these will be demarcated.

2.8 Operation

Describe the operation of the proposal, including (but not limited to):

2.8.1 General operational details

- Operational life of the quarry;
- Hours of operation (hours per day and days per week);
- Estimated daily maximum, daily average, and annual production rates, including for:
  - Excavated rock;
  - Product (by type);
  - Overburden or any waste rock.
- Raw materials (type, rate of consumption);
- Wastes generated (other than waste rock) (types, rate of production, proposed management);
- Water demand;
- Energy use;
- Maintenance requirements (e.g. frequency of maintenance activities, equipment access, shutdowns, etc.) and design life.

2.8.2 Vehicles and mobile plant

- Type and quantity of vehicles and mobile plant on site;
- Overall fuel demand, fuel storage capacity, and refuelling arrangements;
- Type, route, daily vehicle movements and hours of operation for:
  - Internal haulage;

- External product delivery;
- Staff vehicles.

- Any proposed bus services for personnel.

2.8.3 Personnel

- The number of workers identified as operational personnel, sources of labour, transport of workers to and from the site, accommodation, and support servicing requirements.

3. Project Rationale and Alternatives

3.1 Project rationale

Describe the rationale for the proposal and explain the consequences of it not proceeding.

3.2 Project alternatives

Describe any alternative means to achieve the aims of the proposal that were considered during its development.

Alternatives should have regard to best practice environmental management, including those measures listed under section 4(2) of the EMPC Act.

4. Public Consultation

Provide details of the nature and results of public consultation undertaken by the proponent during project planning and preparation of the EIS, as well as any proposals for further public consultation during and beyond project implementation.

Early community engagement often leads to better outcomes for all and is strongly encouraged. The Board has produced a guide to community engagement which is available on the EPA website at: http://epa.tas.gov.au/assessment/assessment-process/guidance-documents.

5. The Existing Environment

Describe the proposed site location and provide an overview of the existing environment, which may be affected by construction, and operation of the proposal, including areas associated with any ancillary activities.

Include details of salient features of the existing environment and, where appropriate, include maps, plans, photographs, diagrams, or other descriptive detail.

The following details should be included.

5.1 Planning aspects

Provide a summary of the planning aspects of the proposal and proposal site, including:

- If a permit is required for the proposal under the LUPA Act provide:
    - Use Class of the proposed activity under the applicable Planning Scheme;
    - Permissibility of the activity under the applicable Planning Scheme;
- Information on land tenure and property boundaries on which the proposal is located, with certificate of title details;
- Land zonings for the proposal footprint and surrounding areas;
- Any rights of way, easements and covenants affecting the proposal footprint;
- Land use and planning history of the proposal footprint, including the potential for site contamination[1], present use and any existing buildings and significant structures;
- A description of land use and ownership in the vicinity of the proposal and those areas which may be affected by the proposal:
    - The location and nature of industrial facilities;
    - Any sensitive uses[2] or residential zones within applicable attenuation distances including the location of individual residences, schools, hospitals, caravan parks and similar sensitive uses, and the location of any tourist or recreation facilities or routes (such as camping areas, picnic areas, walking tracks, historic routes);
    - Any proposed or potentially sensitive uses potentially affected by the proposal, which have been or are likely to be granted approval under the local planning scheme, should also be considered.

5.2 Environmental aspects

Avoiding unnecessary repetition with the more detailed 'Existing conditions' descriptions in Section 6, provide a summary of the environmental aspects of the proposal site, including:

- General physical characteristics of the proposal footprint and surrounding area;
- Natural processes of importance for maintenance of the existing environment (e.g., fire, flooding, etc);
- Any existing conservation reserves located on or within 500 metres of the proposal footprint;

[1] Information on potentially contaminating activities and contaminated site assessment can be found online at http://epa.tas.gov.au/regulation/contaminated-sites.

[2] Defined in the State Planning Provisions as 'a residential use or a use involving the presence of people for extended periods except in the course of their employment such as a caravan park, childcare centre, dwelling, hospital or school.'

- The landscape, including topography, water features, geology and soils;
- The climate, including wind, precipitation and temperature;
- Any high-quality wilderness areas identified in the *Tasmanian Regional Forest Agreement* in the vicinity of the proposal;
- Species, sites or areas of landscape, aesthetic, wilderness, scientific or otherwise special conservation significance which may be affected by the proposal. Relevant information resources include the LIST (www.thelist.tas.gov.au) and the Natural Values Atlas (https://www.naturalvaluesatlas.tas.gov.au);
- Vulnerability of the proposal footprint to natural hazards (*e.g.,* flooding, seismic activity, fire, landslips, or strong winds);
- Any available ambient monitoring results in the vicinity of the proposed development (in tabular or graphical form). The results may be summarised (*e.g.,* as annual averages) if the summary will provide adequate information.

5.3 Socio-economic aspects

Briefly describe the existing social and economic environment that may be affected by the proposal, which may include information on the following:

- A summary of the social or demographic characteristics of the population living in the vicinity of the proposal footprint, identifying any special characteristics which may make people more sensitive to impacts from the proposal than might otherwise be expected;
- A summary of the characteristics of the local and regional economy.

6. Potential Impacts and Their Management

Guide to preparing this section

While some details of the proposal may not be finalised at the time the EIS is submitted, the information in the document should be as up to date as possible. Where information is unavailable or details have not yet been finalised, estimates and the range of alternative options should be provided. However, sufficient technical detail must be provided to enable an appropriate level of assessment. For each potential impact the following should be discussed.

Existing conditions

Describe in detail the features of the existing environment affected by the impacts discussed in this section.

Performance requirements

Identify the environmental performance requirements to be achieved for each environmental impact and provide evidence to demonstrate that these can be complied with. These may be standards or requirements specified in legislation, codes of practice, state policies, national guidelines (including relevant recovery plans and conservation advice) or as determined by agreement with the assessing agencies. Industry best practice standards should be referred to where appropriate. **Unsupported assertions that performance requirements will be achieved will not be considered adequate.**

Potential impacts

Outline the short-term and long-term potential environmental, social, and economic impacts of the proposal (positive and negative) through all stages, including construction, operation, and closure, in the absence of special control measures. Any foreseeable variations in impacts during the start-up and operational phases should be identified.

Include an analysis of the significance of the relevant impacts. When determining significance of impacts to MNES, the EIS should refer to the *EPBC Act Policy Statement 1.1 Significant Impact Guidelines – Matters of National Environmental Significance*.

The level of detail provided on each issue should be appropriate to the level of significance of that environmental issue to the proposal.

The evaluation of potential impacts should identify **plausible worst-case consequences**, the vulnerability of the affected environment to the potential impacts, and the unpredictability or reversibility of the impacts. Potential cumulative impacts of this proposal in light of other activities underway or approved also need to be addressed. Interactions between biophysical, socio-economic, and cultural impacts should be identified.

Predictions and evaluations of impacts should be based on scientifically supportable data. Direct, indirect, cumulative, and facilitated impacts should all be identified. The methodologies used or relied on should be referenced, together with the relevant research and investigations supporting them. Assumptions, simplifications, and scientific judgements should be stated clearly, and the nature and magnitude of uncertainties should be clearly defined. Where relevant, the choice of a particular methodology over alternative methodologies should be explained. Where impacts are not quantifiable, they should be adequately described.

Where positive benefits are claimed it will generally be appropriate to explain what measures are to be taken to ensure that those positive outcomes are realised and sustained.

Avoidance and mitigation measures

Describe the measures proposed to avoid or mitigate potential adverse environmental impacts (having regard to best practice environmental management as defined in EMPCA in order to achieve the environmental performance requirements (such as through pollution control technology or management practices). The extent to which they will overcome the anticipated impacts should be specified. The ongoing management and monitoring measures, and the party responsible for each measure. Where there are clear, alternative avoidance or mitigation measures for a particular adverse environmental impact, the alternatives should be reviewed and the preferred option justified. Discussion of the achievability of the measures, including affordability, should be included.

Where pollution control equipment and/or treatment processes are key factors in achieving satisfactory environmental performance, contingencies in the event of breakdown or malfunction of the equipment or processes should be discussed. It should be demonstrated that the maintenance of pollution control equipment can be provided for without causing performance requirements to be exceeded.

Where measures to control environmental impacts are necessary, but will not be undertaken by the proponent, the means by which the proponent will ensure that the necessary measures are implemented should be identified (*e.g.,* lease conditions, trade waste agreement, contractual arrangement or other binding third party commitment). **Mitigation measures over which the proponent has no control will generally not be considered adequate**.

Specific measures can be presented in the form of a management plan, such as an Environmental Management Plan (EMP) that sets out the framework for management, mitigation and monitoring of relevant impacts of the action, including any provisions for independent environmental auditing. The EMP needs to address the project phases (construction, operation, decommissioning) separately.

Assessment of residual impacts

An assessment of the overall impacts of the development on the environment after allowing for the implementation of proposed avoidance and mitigation measures. This should include an evaluation of the significance of impacts, the potential for emissions to cause environmental and health impacts and comparison with state, national and international regulations and standards. Any net benefits likely to result from the proposal should be identified.

Discuss the impacts of the proposal in terms of the constraints or benefits it may place on the current or future use of land within the proposal site and surrounding area as a result of environmental impacts or emissions, including impacts on other uses, particularly sensitive uses.

Describe the residual impacts on the MNES that are likely to occur as a result of the proposed action in its entirety, after proposed avoidance and/or mitigation measures are considered. If applicable, this should include the reasons why avoidance or mitigation of impacts cannot be reasonably achieved.

Offsetting unavoidable adverse impacts

If adverse residual environmental impacts from the proposal are considered unavoidable despite the adoption of best practice environmental management avoidance and mitigation measures, then proposals to offset such impacts should be detailed. For example, if the loss of conservation values, community assets or amenities is considered unavoidable, measures to compensate for those losses should be proposed in proportion to the loss. Any offset actions proposed must be

demonstrated to be 'real' actions. That is, **the offset actions must have a measurable and relevant benefit which would otherwise not have occurred.**

Offsetting for significant residual impacts to MNES

If residual impacts to MNES are likely to be significant, an offset package must be proposed to compensate for residual impacts to MNES. This should consist of an offset proposal and key commitments and management actions for delivering and implementing the proposed offset (e.g., an Offset Management Plan). Note, an offset management plan should be prepared as a separate document and attached as an appendix to the documentation.

Offsets must deliver an overall conservation outcome that improves or maintains the ongoing viability of the species and ecological communities, as compared to what is likely to have occurred if neither the action nor the offset had taken place. The proposed offset must meet the requirements of the Commonwealth *EPBC Act Environmental Offsets Policy* (October 2012) available at: www.environment.gov.au/epbc/publications/epbc-act-environmental-offsets-policy.

The *Offset Assessment Guide* can be used to calculate the area of offset required to adequately compensate for the residual impacts of the project, it is available at: www.environment.gov.au/epbc/publications/epbc-act-environmental-offsets-policy. The offset proposal will be assessed using the offset assessment guide.

Offsets required by the State can contribute to offset obligations under the EPBC Act if those offsets also meet the requirements of the *EPBC Act Environmental Offsets Policy*.

6.2 Key Issue 1. Noise emissions

6.2.1 Assessment requirements

Scope

For construction, operation and closure assess potential noise and vibration impacts, including:

- Noise and vibration impacts from activities at quarry locations (including drilling, blasting, excavation), access roads, rock breaking and processing plants, materials handling and storage, and off-site traffic on sensitive receptors[3];
- Noise and vibration impacts from off-site vehicle movements on sensitive receptors[3];
- Noise impacts on sensitive ecological receptors (this may be incorporated into the assessment described in Section 6.4);
- Air over-pressure and ground vibration impacts on sensitive receptors[3] due to blasting.

Method

The noise assessment must include:

- Identify, describe and map all sensitive receptors potentially affected by noise and vibration from the proposal (see scope above);
- Identify all major fixed and mobile sources of noise as the proposal evolves over the quarry's operating lifetime and provide:
    - Description, mapped location and estimated sound power levels;
    - Expected number of blasts per year and the notional blast plan;
    - Daily duration / frequency of emissions;
    - Route and proposed changes in traffic flows for both day and night times;
    - Measures that will be employed to control emissions.
- Describe local environmental conditions that would influence noise impacts, including:
    - Wind speed and direction;
    - Atmospheric conditions;
    - Terrain and topography.
- Local ambient and background noise measurement based on 7-day ambient noise monitoring for daytime, evening and night-time periods, at locations representative of sensitive receptors to be included in the noise model (see below) including those to the:
    - North (Leslie Vale including McKenzies Road and Leslie Road)
    - West (Sandfly)
    - Southwest (Sandfly Road and Allens Rivulet)
    - East (Kingston outskirts including Jamiesons Road).
- Results of noise modelling of proposed activities to predict the 30, 35, 40 and 45 dB(A) noise level contours for normal and reasonable worst-case scenarios for operating activities and meteorological conditions, which should include noise generation from additional vehicle traffic on affected roads;
- Results of ground vibration modelling of proposed activities to predict peak particle velocity contours out to 1mm/s;

[3] This includes local residents, any other people potentially exposed, sensitive land uses or commercial activities, buildings or structures.

- Results of airblast overpressure modelling of proposed activities to predict dB(lin) level contours out to 100 dB(lin). This should include specific modelling for blasting at the Whiterock quarry;
- Describe the impacts from noise and vibration at sensitive receptors taking into account the predicted levels and changes in noise characteristics such as tonal components, increases in noise level, the time varying nature of emissions (e.g., modulation, impulsive or intermittent noise) and the temporal span of the noise emissions;
- Describe the potential impacts on structures from vibration.
- Assess potential for impacts from noise and vibration on sensitive receptors based on criteria set under the *Environment Protection Policy (Noise) 2009* and elsewhere as appropriate.

Noise monitoring and modelling should be conducted by a suitably experienced and qualified specialist and undertaken according to the Noise Measurement Procedures Manual[4].

It is strongly recommended that the scope and method of noise monitoring and modelling are discussed with the EPA's Noise Officer prior to the assessment.

6.2.2 Legislative and policy requirements

Consideration should be given to the requirements of the Tasmanian *Environment Protection Policy (Noise) 2009* (see http://epa.tas.gov.au/policy/statutory-policies/state-policies-and-environment-protection-policies/environment-protection-policy-(noise)-2009).

6.3 Key issue 2. Air Quality

6.3.1 Assessment requirements

Scope

For construction, operation and closure determine potential impacts on local air quality, including:

- Impacts of nuisance or environmental harm from fugitive dust emissions resulting from activities at quarry locations, access roads, processing plants, material handling and storage, and off-site traffic on sensitive receptors[5];
- Impacts from fugitive dust emissions on sensitive ecological receptors (this may be incorporated into the assessment described in Section 6.4).

Method

The air quality assessment must:

- Identify, describe and map all sensitive receptors potentially affected by fugitive dust emissions from the proposal;
- For each proposal stage, identify, describe, and map all potential sources of dust emissions as the proposal evolves over the quarry's operating lifetime, including:
    - Ground disturbance from blasting, excavation, storage of material on site and earthworks;
    - Material handling, processing including crushing, screening, loading the product and transport;

[4] Noise Measurement Procedures Manual Second Edition July 2008 Environment Division Department of Environment, Parks, Heritage and the Arts https://epa.tas.gov.au/Documents/Noise_Measurement_Procedures_Manual_2008.pdf

[5] This includes local residents, any other people potentially exposed, sensitive land uses or commercial activities, buildings or structures.

- On-site and off-site vehicle movements.

- For the proposal stages provide a detailed emission inventory. This should include, for each source:
  - Activity rates (number of hours per annum) and frequency for the various areas.
  - Composition of emitted material (Total Suspended Particles (TSP), particulate matter (PM10 and PM2.5)) and conservative emission rates for each emitted pollutant.
  - Average emission rates calculated with and without emission controls, information about the proposed control measures and anticipated resultant emission reduction.
- For the proposal stages undertake atmospheric dispersion modelling of dust impact from the proposal. Modelling should be:
  - Conducted by a suitably experienced and qualified specialist;
  - Undertaken in accordance with the EPA's Atmospheric Dispersion Modelling Guidelines[6];
  - Include the impacts during reasonable worst case meteorological conditions.

  It is strongly recommended that the scope and method of atmospheric dispersion modelling is discussed with the EPA's Air Modelling Officer prior to commencement of modelling;
- Based on modelling results and explaining the role of local terrain, meteorological conditions including direction and strength of prevailing winds, and surrounding land uses, describe the potential environmental impact of emissions from the proposed activity on affected sensitive receptors;
- Describe measures that will be employed to control emissions, including:
  - Any measures to be implemented to reduce dust movement from the site such as watering or sealing roads, covering truck loads, reduced vehicle speed, road surfacing/maintenance details, enclosures, water sprays, or windbreaks, revegetation/stabilisation;

6.3.2 Legislative and policy requirements

Consideration should be given to the requirements of the Tasmanian *Environment Protection Policy (Air Quality)* (see http://epa.tas.gov.au/policy-site/Pages/Air-Quality-EPP.aspx) and the design criteria for particulate matter in 'Board Statement: Update to Air Pollutant Design Criteria used in the Environmental Impact Assessment Process[7].

Given that the *Environment Protection Policy (Air Quality) 2004* does not include criteria for dust deposition and Total Suspended Particles (TSP) and that the criterion for PM10 is not in accord with the current national air quality standards, the predicted impact of dust emissions from the expanding quarry should be assessed with respect to the criteria provided in *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (EPA NSW), revision November 2016, Table 7.1 page 26 (https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/air/approved-methods-for-modelling-and-assessment-of-air-pollutants-in-nsw-160666.pdf).

[6] https://epa.tas.gov.au/Documents/Atmospheric%20Dispersion%20Modelling%20Guidelines.pdf

[7] https://epa.tas.gov.au/Documents/Board%20Statement%20-%20Update%20to%20Air%20Pollutant%20Design%20Criteria%20used%20in%20the%20EIA%20Process%20-%20January%202022.pdf

6.4 Key Issue 3. Biodiversity and natural values

6.4.1 Assessment requirements

Scope

For construction, operation, and closure phases, assess potential impacts of the proposal on biodiversity and natural values, including:

- Potential impacts on native vegetation and ecological communities, including those due to:
    - Direct loss and fragmentation from site clearance;
    - Degradation such as through physical disturbance, introduction of weeds and pathogens, and dust from adjoining clearance / operation;
    - Degradation due to changes to water quality, hydrology and groundwater conditions.

  This should include specific assessment of any communities listed under the Tasmanian *Nature Conservation Act 2002 (NCA)*, including:

    - *Eucalyptus ovata* forest and woodland (DOV)[8].
- Potential impacts on native flora, including those due to:
    - Direct loss from site clearance;
    - Loss through degradation of habitat, adjacent to cleared areas such as through physical disturbance, altered runoff, dust;
    - Introduction of weeds and pathogens;
    - Loss through changes to hydrology and groundwater conditions.

  This should include specific assessment of those species listed under State and Commonwealth legislation, including:

    - *Epacris curtisiae*, *Epacris virgata* Kettering (pretty) heath, vulnerable (TSPA);
- Potential impacts on native terrestrial and avian fauna, including those due to:
    - Loss, fragmentation and degradation /alteration of fauna habitat;
    - Disturbance to foraging, breeding, nesting, or migratory behaviour;
    - Injury / mortality to individuals during vegetation clearance;
    - Injury / mortality to individuals due to interaction with onsite vehicles and machinery;
    - Injury / mortality to individuals due to interaction with offsite vehicle movements.

  This should include assessment of species listed under State and Commonwealth legislation, including:

    - *Accipiter novaehollandiae*, Grey Goshawk endangered (TSPA);
    - *Aquila audax subsp. fleayi* (Tasmanian wedge-tailed eagle)
    - *Dasyurus viverrinus* (eastern quoll) (EPBCA) endangered;
    - *Dasyurus maculatus subsp. maculatus* (spotted-tailed quoll) (TSPA) rare (EPBCA) vulnerable;
    - *Haliaeetus leucogaster*, White-bellied Sea-eagle vulnerable (TSPA);

[8] The ecological survey work submitted with the NOI indicated that the affected areas of DOV community do not constitute the EPBC Critically Endangered Threatened Ecological Community (TEC) 'Tasmanian Forests and Woodlands dominated by Black Gum or Brookers Gum (*Eucalyptus ovata/E. brookeriana*). Should further work change this interpretation, advice should be sought from the Commonwealth Department of Agriculture, Water and the Environment.

- *Lathamus discolor*, Swift parrot (TSPA) endangered (EPBCA) critical;
- *Lissotes menalcas*, Mount Mangana stag beetle. (TSPA) vulnerable
- *Littoria raniformis*, Green and gold frog (TSPA) vulnerable (EPBCA) vulnerable;
- *Perameles gunnii* (eastern barred bandicoot) (EPBCA) vulnerable;
- *Sarcophilus harrisii* (Tasmanian devil) (TSPA) endangered (EPBCA) endangered;
- *Tyto novaehollandiae subsp. castanops*, Masked Owl (Tasmanian) endangered (TSPA), Vulnerable (EPBC).

- Potential impacts on the habitat and ecology of watercourses, including those due to:
  - Changes to drainage pattern;
  - Changes to flows, including due to groundwater (see Section 6.6);
  - Changes to water quality;
- Other species, sites or areas of landscape, aesthetic, wilderness, scientific, geodiversity or otherwise special conservation significance.

Method

General requirements for biodiversity and natural values assessment

The assessment of biodiversity and natural values should be adequate to inform the assessment of impacts as described in the scope above and any other effects predicted in the EIS, and should:

- Include flora and fauna survey data with detailed, representative spatial and temporal coverage sufficient to establish a baseline for the assessment of ecological impacts for all impacts listed under 'Scope' undertaken in accordance with the Guidelines for Natural Values Assessments – Terrestrial Development Proposals[9];
- Include baseline data gathered in a staged approach comprising first a detailed vegetation community and fauna habitat survey of the area potentially affected by the proposal, followed by targeted surveys for specific species and groups identified as being potentially present in the area. Scope and method of targeted surveys for specific species and groups should be discussed with the EPA and NRE prior to commencing field work;
- Use up-to-date survey information gathered within 2 years of their submission date;
- Be undertaken by a suitably qualified person;
- Use methodologies for surveys developed in consultation with the EPA;
- Include the following information:
  - Details of surveys undertaken, including survey effort, coverage (with mapping and GPS data on survey locations and transects as appropriate), timing, and an assessment of the adequacy of the surveys;
  - Description of any uncertainties, data gaps and assumptions.
  - Include clear mapping with adequate detail to inform the statements made in the impact assessment;
  - Details of any areas that were not surveyed such as those deemed by the survey team to be physically inaccessible;
  - Description of any aerial surveys, remote sensing, geospatial or other methods used to substitute for or augment ground-based surveys;

[9] Natural and Cultural Heritage Division (2015) Guidelines for Natural Values Surveys - Terrestrial Development Proposals. Department of Primary Industries, Parks, Water and Environment (DPIPWE) (http://dpipwe.tas.gov.au/conservation/development-planning-conservation-assessment/survey-guidelines-for-development-assessments

- Information detailing known/recorded populations and known or potential habitat, including habitat in the area surrounding the proposed action;
- Details on whether any impacts are likely to be unknown, unpredictable, or irreversible;
- Identification of measures to mitigate impacts, which should include:
    - Where impacts cannot be avoided, details of proposed measures to mitigate and/or offset adverse impacts on biodiversity and nature conservation values;
    - Details of proposed rehabilitation of disturbed areas following the completion of construction activities, including any proposed seed collection and progressive rehabilitation program;
    - Description of any ecological monitoring proposed in advance of and during construction;

Native vegetation communities and flora species

The assessment of native vegetation communities and flora species must, for all areas potentially affected by the proposal, include:

- Survey of native vegetation communities according to Guidelines for Natural Values Assessments including condition of the vegetation in accordance with TASVEG Vegetation Condition Assessment Manual;
- Threatened flora surveys conducted at appropriate times of the year to detect threatened flora, including spring and summer flowering plants;
- Description of measures to minimise impacts on the vegetation communities and protected flora species, including specific plans to minimise impacts on *Epacris virgata* Kettering (pretty) heath;
- The quantity of each vegetation community to be removed;
- Description of how clearance, conversion, and further disturbance of native vegetation have, where practical, been minimised;
- Description of proposed offsetting for Eucalyptus ovata forest and woodland. Development of offsetting strategy should be discussed with NRE Tasmania.

Avifauna

The assessment of avifauna must include:

- A survey for wedge tailed eagle nests, in areas of moderate to high nesting habitat suitability, based on data extracted from the Nesting Habitat Model (represented by a grid score of >5), in the proposal footprint and an area 1 km from its boundary[10]. The survey should:
    - Be undertaken in accordance with advice from NRE, with reference to the FPA's Wedge Tailed Eagle guidance[11];
    - Be undertaken outside the eagle breeding season which generally extends from July to January inclusive, but advice should be sought prior to survey work as this period can extend;

10 Breeding eagles are sensitive to aircraft (in particular helicopters) approaching the nest which they may attack. Searches for eagle nests must be undertaken outside the breeding season (the timing of which should be confirmed with DPIPWE or the Forest Practices Authority).

[11] Forest Practices Authority 2014, 'Eagle nest searching, activity checking and nest management', Fauna Technical Note No. 1, Forest Practices Authority, Hobart https://www.fpa.tas.gov.au/__data/assets/pdf_file/0003/225273/Fauna_Tech_Note_1_Eagle_nest_management_May_2015.pdf

  - Include all habitat within 500m of the disturbance footprint and within 1km line-of-sight of the disturbance footprint;
  - Include a site-specific determination, by an experienced specialist, of an appropriate "nest reserve" boundary for potentially affected nest sites including #2665 and #2666;
  - Provide a nest reserve design consistent with FPA Fauna Technical note #1.
- A targeted grey goshawk nest search carried out in mature trees within the proposal footprint;
- A targeted survey for Tasmanian Masked Owl in habitat potentially affected by the proposal;
- A targeted survey for Swift parrot in habitat potentially affected by the proposal.

Terrestrial fauna

The assessment of terrestrial fauna must include:

- For Tasmanian Devil, Spotted-tailed quoll and eastern quoll;
  - Surveys carried out in accordance with the Tasmanian Devils – Devil Survey Guidelines and Advice (the Devil Guidelines)[12];
  - Assessment of quality and extent of Tasmanian Devil breeding and foraging habitat;
  - Description of how any potential Tasmanian Devil den sites found to exist within the site will be managed in accordance with the Devil Guidelines;
  - Mapping of denning habitat to assist in determining a site layout that minimises impacts on devils and quolls;
  - Analysis of roadkill risk associated with the proposed action as described in Section 2. The analysis should include specific focus on the scenarios where anticipated construction and operational traffic increases night-time traffic (i.e., between one hour before dusk and one hour after dawn) by more than 10% on existing roads and analysis of roadkill risk on all new roads/tracks proposed, identifying high-risk roadkill areas, and on impacts associated with offsite vehicle movements. The analysis should include the cumulative impact of the proposal combined with other current and future activities and/or proposals in the region;
  - Description of roadkill mitigation measures implemented in accordance with the Devil Guidelines, including description of how staff movements, to and from the proposal footprint will be managed to minimise potential impacts to nocturnal, native fauna along prescribed access roads.
- A targeted survey for Mt Mangana Stag Beatle in habitat potentially affected by the proposal;
- A targeted survey for Green and gold frog in the creeks and dams within and close to the footprint of the proposal.

Habitat and ecology of watercourses

The assessment of habitat and ecology of watercourse impacts must include:

- Assessment to identify any freshwater ecosystems of High Conservation Management Priority Potential using the Conservation of Freshwater Ecosystem Values (CFEV) database;
- Macro-invertebrate surveys for all streams potentially impacted by the activity, including listed freshwater molluscs.

12 Tasmanian Devil Survey Guidelines and Management Advice for Development Proposals (http://dpipwe.tas.gov.au/conservation/development-planning-conservation-assessment/survey-guidelines-for-development-assessments)

Pests, weeds and plant and animal diseases

- Mapping of weed occurrences particularly for areas to be disturbed by the proposal, including any weeds declared under the *Weed Management Act 1999*, including the following recorded within 5 km of the proposed development:
    - English broom (*Cytisus scoparius*);
    - Spanish heath (*Erica lusitanica*);
    - Blackberry (*Rubus fruticosus*).
- Mapping of any occurrences of *Phytophthora cinnamomi* (PC);
- Identifying vectors, such as increased external truck and other vehicle movements, for importing weeds and pathogens to the site and spreading within. Assess the risk of the proposal spreading weeds and pathogens;
- Preparation of a Weed and Pathogen Management Plan, in accordance with the Weed and Disease Planning Hygiene Guidelines[13], for any activities with potential to import or export weeds or pathogens to the proposal footprint or spread them within it.

6.4.2 Legislative and policy requirements

Regard should be given to the Australia's Biodiversity Conservation Strategy 2010-2030, Natural Heritage Strategy for Tasmania (2013-2030) and the Threatened Species Strategy 2021-2031, *Threatened Species Protection Act 1995* and associated regulations, *Nature Conservation Act 2002* and associated regulations, *Forest Practices Act 1985*, *Forest Practices Regulations 2017*, the Forest Practices Code 2015 and Policy for Maintaining a Permanent Native Forest Estate 2017.

All surveys should refer to relevant survey guidelines, including an assessment of the adequacy and appropriateness of the surveys with respect to these guidelines. Documents regarding listed threatened and migratory species can be found at: http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl.

6.5 Key Issue 4. Surface Water

6.5.1 Assessment requirements

Scope

For construction, operational phases and closure assess any potential impacts of the proposal on surface water (quality and flow), including:

- Potential impacts on the flow and distribution of drainage in the North West Bay River and Browns River catchments, detailing impacts on directly affected tributaries, specifically:
    - Mafeking creek and sub-tributaries;
    - Minor tributaries on the west side of the lease close to the expanded white rock pit;
    - Boddys creek and sub-tributaries;
    - Any other watercourse potentially affected by the expansion.

    This should include impacts due to:

    - Changes to local runoff caused by the proposal (such as stream diversions, cut off drains, site drainage);
    - Changes in local runoff from discharge of water pumped from excavated pits;

[13] Department of Primary Industries, Parks, Water and Environment (2015). Weed and Disease Planning and Hygiene Guidelines - Preventing the spread of weeds and diseases in Tasmania. (Eds.) Karen Stewart and Michael Askey-Doran. Department of Primary Industries, Parks, Water and Environment, Hobart, Tasmania.

  - Impacts surface water flows from changes to groundwater levels / flows due to quarrying.

- Potential impacts on water quality of affected watercourses from the discharge of wastewater by the proposal, including:
  - Diffuse sediment laden runoff;
  - Diffuse leaching of residues from quarrying activities such as blasting;
  - Discharges from sediment capture and treatment systems;
  - Discharge of groundwater pumped from pits;
  - Point discharges of wastewater from any domestic or industrial wastewater treatment systems (see Section 2.5.5);
  - Any other discharges to the local aquatic receiving environment.
- Potential impact on the condition of aquatic and riparian habitat of affected watercourses, including:
  - Changes to water quality;
  - Diversion of watercourses;
  - Change to flows;
  - Deposition of sediment;
  - Loss or damage to riparian vegetation.

Method

The assessment should include:

- Baseline information, sufficient to determine relevant ANZG 2018 guidance criteria for surface water quality for watercourses affected by the proposal including for Mafeking Creek, North West Bay River upstream and downstream of Mafeking Creek and any other water body likely to be substantially affected by the proposal. This should include:
    - General desktop ecological survey information;
    - Identified Protected Environmental Values (PEVs);
    - Indicative water quality for regional streams;
    - Any relevant historical recorded data;
    - Where proposed discharges have potential for substantial changes in water quality, baseline monitoring covering at least a 12-month period.
  - Description of aquatic and riparian ecology (see Section 6.4);
- Mapped location, quantity (frequency, volume, daily and annual flow rates) and composition (including contaminant concentrations and mass loads, turbidity, TSP, acidity, pH for total nitrogen, total ammonia-nitrogen and nitrate-nitrogen) for:
  - Proposed discharges from sediment basins (for low flow, average and reasonable worst-case runoff scenarios, and annual probability of capacity exceedance, based with reference to sediment basin designs (see Section 2.5.5);
  - Groundwater pumped from pits;
  - Other proposed wastewater discharges;
- Appropriate quantitative analysis of the effects of point and diffuse discharges on Mafeking Creek, North West Bay River downstream of Mafeking Creek and any other water body likely to be substantially affected by the proposal;

- Description of potential impacts of the proposal on affected watercourses including comparison against relevant water quality guideline values (see EPA technical guidelines regarding determination of guidelines values)[14];
- Assessment should examine the cumulative impact of the quarry expansion proposals on the North West Bay River and Browns River (Boddys Creek) immediately downstream of all potentially affected watercourses;
- Identification of measures to mitigate impacts, which should include:
    - Size and design criteria for settling basins and any other wastewater treatment processes design (where necessary cross referencing the proposal description);
    - Detail surface stormwater management systems including design annual exceedance probabilities for drainage infrastructure;
    - Measures to reduce sedimentation at source such as erosion control and progressive rehabilitation;
    - Any proposed buffer zones around watercourses;
    - Other measures to reduce risk of contaminating watercourses.
- Details of surface water monitoring programs during construction and operation;
- Details of sewage and wastewater management.
- Assessment of how differing climate change scenarios (see water balance in Section 2.5.5), would influence potential changes to surface water flows and quality.

6.5.2 Legislative and policy requirements

Define the Protected Environmental Values (PEVs) potentially affected by the proposal.

Demonstrate that the proposal is consistent with the objectives and requirements of relevant water management policies and legislation including the *State Policy on Water Quality Management 1997*, the *State Stormwater Strategy 2010*, and the *Inland Fisheries Act 1995*.

Provide justification for any proposed emission of contaminants to surface water in accordance with the principles under the *State Policy on Water Quality Management 1997* and with application of a 'weight of evidence approach' consistent with the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Reference should be made to published or determined (site specific) water quality guideline values for receiving environments. For information regarding the water quality management framework and evaluation criteria in Tasmania refer to *Technical Guidance for Water Quality Objectives (WQOs) Setting for Tasmania, August 2020*.

6.6 Groundwater

6.6.1 Assessment requirements

Scope

For construction, operation and closure phases, assess potential impacts of the proposal on groundwater. This should include:

- Potential impacts on the level, flows and recharge of local groundwater from dewatering of the quarry pits and any proposed abstractions for water use, including:
    - Impacts on water resources;
    - Impacts on flows in surface water bodies;

[14] Environment Protection Authority (2020) Technical Guidance for Water Quality Objectives (WQOs) Setting for Tasmania, Environment Protection Authority, Hobart, Tasmania.

- Impacts on ecosystems.

- Potential impacts on the quality of groundwater including those due to:
  - Contamination by construction activities;
  - Contamination by operational activities;

Method

The assessment should include, as a minimum:

- Identification and description of groundwater uses and values;
- Description of local groundwater conditions, including:
  - A conceptual groundwater model for regional and local aquifer flows;
  - Estimates of volume and quality of groundwater to be pumped from the quarry pits
  - Should the proposed works result in substantial changes to groundwater levels / flows, numerical modelling of groundwater to assess the effect of the project on rate and extent of water table drawdown and post closure recovery.
- A map showing the location of any existing and proposed groundwater abstraction or monitoring bores;
- Establishment of baseline or reference monitoring sites to assess impact over time;
- Identification of measures to mitigate impacts.

Information on groundwater in Tasmania is available at: http://wrt.tas.gov.au/groundwater-info

6.6.2 Legislative and policy requirements

Provide justification for any potential impact to groundwater in accordance with the principles under the State Policy on Water Quality Management 1997 and with reference to likely groundwater community values, associated guideline values and guideline values for receiving surface waters. For information regarding the water quality management framework and evaluation criteria in Tasmania refer to *Technical Guidance for Water Quality Objectives (WQOs) Setting for Tasmania, August 2020*

6.7 Waste management

6.7.1 Assessment requirements

Scope

Except for waste rock (which is addressed elsewhere) for construction and operation and closure phases, assess the impacts of all types of waste generated by the proposal.

Method

The assessment of waste impacts must describe:

- The source, nature and quantities of all wastes, (liquid, atmospheric or solid) likely to arise, including sludges / residues, by-products from the various processing stages and general refuse;
- All solid waste streams not dealt with elsewhere in these guidelines (including their physical and chemical composition);
- Methods and facilities proposed to collect, store, reuse, treat or dispose of each waste stream should be identified;
- Maintenance requirements for all waste facilities;

- The source, nature, quantity, and method of treatment, storage, and disposal for any controlled wastes.

6.7.2 Legislative and policy requirements

Waste management measures must be in accordance with the following hierarchy of waste management, arranged in decreasing order of desirability:

- avoidance;
- recycling/reclamation;
- re-use;
- treatment to reduce potentially adverse impacts;
- disposal.

Controlled waste is defined in the EMPC Act and associated regulations. A non-exhaustive listing of categories of Controlled waste can be found on the internet at http://epa.tas.gov.au/regulation/identify-a-material-as-a-controlled-waste

6.8 Dangerous goods and environmentally hazardous materials

6.8.1 Assessment requirements

Scope

For construction, operation and closure phases, assess the impacts of the proposal in relation to dangerous goods and environmentally hazardous materials (any substance or mixture of substances of a nature or held in quantities which present a reasonably foreseeable risk of causing serious or material environmental harm if released to the environment and includes fuels, oils, waste and chemicals).

Method

The assessment of waste impacts must include:

- Description of nature, quantity and storage location of all environmentally hazardous materials including Dangerous Goods (as defined in the Australian Code for the Transport of Dangerous Goods by Road and Rail) that will be used during the construction and operation of the proposal;
- A map showing the location of temporary and permanent storage areas for fuels, oils, and other dangerous goods or chemicals;
- The measures (such as bunded areas or spill trays) to be adopted to prevent or control any accidental releases of dangerous goods and environmentally hazardous materials;
- Contingency plans for control measure failure, equipment break down or accidentally spills to the environment, including proposed emergency and clean-up measures and notification procedures;
- Identify any safety management requirements for the protection of human health and safety affecting the community;
- Particular reference should be made to the management of fuels, lubricants, processing inputs (reagents etc.) required for equipment during construction, processing and maintenance activities.

6.9 Greenhouse gases and ozone depleting substances

6.9.1 Assessment requirements

Scope

For construction, operation and closure phases assess the impacts of the proposal in relation to Greenhouse Gases and ozone depleting substances.

Method

The assessment of greenhouse gas and ozone depleting substances must describe the direct and indirect effects of the proposal on greenhouse gas production and ozone depleting substances and any greenhouse benefits of the proposal.

- Provide an estimate of greenhouse gas emissions, energy production, and energy consumption for a year of operation. Calculators are available on the Australian Government Clean Energy Regulator website;
- Demonstrate that the development will use cost-effective greenhouse best practice measures to minimise future greenhouse gas emissions;
- Include details of proposed measures to minimise emissions and the anticipated effectiveness of these measures. Where less emissions-intensive options are not adopted, provide sufficient justification and/or mechanisms to offset greenhouse gas emissions;
- Discuss impacts of the proposal in terms of the evolving national response to climate change and greenhouse gas emissions and the targets set in the Climate Change Action Plan 2017-2021.

6.9.2 Legislative and policy requirements

Discuss impacts of the proposal in terms of the evolving national response to climate change and greenhouse gas emissions and the targets set in the *Climate Change State Action Act 2008* and *Climate Smart Tasmania: A 2020 Climate Change Strategy*. Proponents will need to determine whether they are required to report to the Commonwealth under the *National Greenhouse and Energy Reporting Act 2007*.

6.10 Socio-economic issues

6.10.1 Assessment requirements

Scope

For construction, operation and closure phases assess the social and economic impacts of the proposal, including:

- Economic costs and benefits of the scheme to the local, regional, state economy;
- Impact on social and community amenity values or facilities including recreational, cultural, health and sporting facilities and services;
- Impacts on community demographics, employment, access to services;
- Impacts on land values, and demand for land and housing;

Method

Details may include the following:

- A qualitative assessment of economic impacts with economic data on the scale of the proposal, including:
  - The direct and indirect jobs, skills and training opportunities arising from the proposal;
  - An estimate of the intended capital expenditure, operational expenditures, revenues, and employment (distinguishing between direct and indirect employment);
  - Any impacts on Local, State and Federal Government rate, taxation and royalty revenues;
  - The impacts on local and State labour markets for both the construction and operational phases of the proposal;
  - The extent to which raw materials, equipment, goods and services will be sourced locally;
  - The impacts on upstream/downstream industries, both locally and for the State;
  - Any publicly funded subsidies or services to be relied upon for the construction or operation of the proposal.
- A qualitative assessment of impacts on the community, including:
  - Any proposals to enhance or provide additional community services or facilities;
  - Impact on ongoing community use of shared infrastructure including Mount Nicholas Road;
  - Any changes to demographics, employment, or access to services.
- A qualitative assessment of impacts on land-use including potential loss of alternative future uses of the land.

6.11 Hazard analysis and risk assessment

Provide a preliminary analysis (appropriate to the scale of the proposal) of the potential for major hazard events to occur and proposed safeguards to prevent such an occurrence.

6.12 Infrastructure and off-site ancillary facilities

Discuss impacts of the proposal on any significant off-site or infrastructure facilities (including increased use of existing infrastructure, such as roads, ports and quarries), identify measures to avoid and mitigate any possible adverse impacts and assess the overall impacts following implementation of the proposed avoidance and mitigation measures. For example, upgrading or re-routing of roads, rail or other services required as a result of the proposal, should be detailed.

Identify roads and other infrastructure to be used by vehicles for the proposal (during both construction and operation). Potential environmental impacts associated with construction and use of such infrastructure should be assessed.

6.13 Cumulative and interactive impacts

The EIS must assess the potential cumulative impacts of the proposal in combination with other current or future proposed actions within the mining lease, including but not limited to:

- Concrete batching;
- Any other commercial activities withing the mining lease.

Specifically, the assessment should describe the cumulative impacts relating to:

- Listed threatened species and vegetation communities, described in Section 6.4;
- Surface water quality impacts;
- Noise and air quality impacts from off-site truck movements.

7. Site Decommissioning and Closure

Provide a detailed closure plan for the quarry sufficient to demonstrate the feasibility of all measures proposed, which describes:

- Environmentally and ecologically sustainable post-closure land use objectives and criteria;
- Demonstration of how the proponent will meet these objectives, including:
    - Methods for decommissioning and rehabilitation of the site, specifically addressing the approach to decommission each of the project components (see Section 2.5);
    - Description of progressive rehabilitation and how the staged rehabilitation of the quarry will be designed to minimise impacts and hasten recovery of affected natural values.
    - Proposed final landform, drainage and revegetation to support post mining land use, how the long-term stability of post closure landforms will be ensured;
    - Approximate quantities, types and sources of suitable cover materials required for closure including any rock, clay and soils, and any resulting requirements for borrow areas.
- With reference to the requirements of Section 6, an assessment of potential environmental social and economic risks of failure to meet the post-closure land use objectives;
- Detailed description of how the site would be managed to ensure safety and prevent environmental pollution in the case of an unanticipated closure / temporary suspension of activity;
- Monitoring and maintenance required to ensure the long-term performance and integrity of rehabilitated structures/areas including the monitoring and maintenance;
- Cost estimates for both unexpected early and planned final closure and demonstration of the proponent's ability to support them;
- Assessment of how differing climate change scenarios, would influence the long-term behaviour of the closure concepts for the site;

8. Monitoring and Review

Provide a summary of all monitoring, review and reporting programs as described in detail within Section 6 and include a map showing the location of all monitoring sites and table (s) summarising the proposed monitoring regimes including location, parameters, frequency, and reporting.

Note that description of monitoring proposals within the relevant parts of Section 6 should be designed to meet the following objectives:

- Monitoring compliance with emission standards and other performance requirements identified in the EIS;
- Assessing the effectiveness of the performance requirements and environmental safeguards in achieving environmental quality objectives;
- Assessing the extent to which the predictions of environmental impacts in the EIS have eventuated;
- Assessing compliance with management measures defined in the EIS.

9. Management systems

Provide an outline of the management systems which will be employed to implement the measures described in the EIS. Include, as relevant:

- Proposed environmental policies, environmental management systems, and environmental management plans;
- Organisational structure and environmental responsibility within that structure for the proposal;
- An outline Construction Environment Management Plan, summarising management arrangements required for the implementation of mitigation during the construction phase.

Provide a consolidated management measures table listing all management measures detailed throughout the EIS. Measures must be sequentially numbered, unambiguous statements of intent. For each measure, the table must specify when it is to be implemented and refer to the section of the EIS where the measure is detailed.

10. Conclusion

Describe the proposal and draw together the critical environmental, social and economic impacts of the proposal, both positive and negative. Present a balanced overview of the net impacts of the proposal, and the extent to which any adverse impacts can be satisfactorily avoided, mitigated, remediated or compensated and positive impacts promoted and sustained.

The conclusion should also describe how the proposal meets and furthers the objectives of relevant Commonwealth and State legislation, policies, plans and strategies. This should be done by itemising the RMPS and EMPCS objectives and providing a commentary about how the proposal addresses each of the objectives.

11. References

This section should provide details of authorities consulted, reference documents etc.

12. Appendices

As a means of improving readability of the EIS document, detailed technical information which supports the EIS should be included in appendices. The salient features of the appendices should be included in the main body of the EIS. Care should be taken to avoid inconsistencies between technical content of Appendices and the EIS itself, unless carefully explained.

13. Glossary

EIS – Environmental Impact Statement

EMPC Act – Environmental Management and Pollution Control Act 1994

EMPCS - Environmental Management and Pollution Control System objectives to be found in Schedule 1 of the EMPC Act

EPBC Act - Environment Protection and Biodiversity Conservation Act 1999 (Cth)

EPBC Regulations – Environment Protection and Biodiversity Conservation Regulations 2000 (Cth)

MNES – Matter of National Environmental Significance (under the EPBC Act)

NoI – Notice of Intent

PAF - Potentially Acid Forming

RMPS – Resource Management and Planning System of Tasmania objectives to be found in Schedule 1 of the EMPC Act

Runoff - water which flows over the surface of the land following precipitation (also called 'stormwater'.

Tasmanian RFA - Tasmanian Regional Forest Agreement

Wastewater - any water released to the receiving environment that has been contaminated or physically changed by the proposal.

Appendix A: Other issues and agency contacts

In addition to a permit under the LUPA Act and the EMPC Act, there may be other legal requirements to allow your proposal to proceed. These may include other permits, licences or landowner consent. You may also need to contact other Government agencies to obtain information for the purpose of assessment under the LUPA Act or the EMPC Act.

Your proposal may have been referred to other agencies in the process of preparing Guidelines. Should assessments or approval outside of the Board's responsibilities be required, you should engage with the respective agency to progress them. The following list identifies some of the key agencies you may need to contact.

Conservation Assessments, Department of Natural Resources and Environment Tasmania

Telephone: (03) 6165 4396

Email: conservationassessments@nre.tas.gov.au

Website: www.nre.tas.gov.au/conservation

Purpose: Natural values including flora, fauna, and geoconservation values, or permits to deal with threatened species.

Heritage Tasmania

Telephone: (03) 6165 3700

Email: enquiries@heritage.tas.gov.au

Website: www.heritage.tas.gov.au

Purpose: Historic cultural heritage, including State-level site listings, impacts and permits as required under the Historic Cultural Heritage Act 1995. Where works are proposed in or in close proximity to a heritage place entered on the Tasmanian Heritage Register or likely to be of heritage significance to the whole of Tasmania, and a permit is required under the *Land Use Planning and Approvals Act 1993*, the proposal will be referred to Heritage Tasmania by the planning authority. There may also be additional sites listed under local planning schemes, impacts on which are assessed by the relevant planning authority.

Aboriginal Heritage Tasmania

Telephone: 1300 487 045

Email: aboriginal@heritage.tas.gov.au

Website: www.aboriginalheritage.tas.gov.au

Purpose: Aboriginal heritage, including desktop assessment, artefact survey requirements, permits and advice.

Parks and Wildlife Service

Telephone: (03) 6169 9015

Email: PropertyServices@parks.tas.gov.au

Website: www.parks.tas.gov.au

Purpose: Impacts on parks and reserves managed by Parks and Wildlife, or Crown Land.

Department of State Growth

Telephone: (03) 6166 3369

Email: permits@stategrowth.tas.gov.au

Website: www.transport.tas.gov.au

Purpose: State roads, including where any proposal requires works on or access from a State-managed road.

Mineral Resources Tasmania

Telephone: 03 6165 4800

Email: info@mrt.tas.gov.au

Website: www.mrt.tas.gov.au

Purpose: Mining leases

Agriculture and Water, Department of Natural Resources and Environment Tasmania

Telephone: (03) 6165 3222

Email: Water.Enquiries@dpipwe.tas.gov.au

Website: www.dpipwe.tas.gov.au/water

Purpose: Water licences and works impacting natural waterway flow (e.g., dams or fords)