Environmental Impact Statement Guidelines

Woodside Energy Ltd

H2TAS Renewable Hydrogen and Ammonia Facility Long Reach

EPA TASMANIA
ENVIRONMENT PROTECTION AUTHORITY

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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 or EIS).

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

These Guidelines provide information on preparing an 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 H2TAS Renewable Hydrogen and Ammonia Facility proposed by Woodside Energy 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. In this case, the information required for the Board's assessment must be distinguished from that supplied for the purposes of LUPA Act.

Risk-based Assessment

A risk-based approach should be taken to preparing the EIS. Not all issues nominated in these guidelines have the same degree of relevance to all proposed activities. Depending on the nature of the proposed activity and its location, some issues may be more relevant than others, and some may not be applicable at all. The level of detail provided on each environmental issue should be proportionate to the significance of that issue to the proposal, based on the best available information.

During the assessment process, significant matters additional to those identified in the guidelines may emerge, from environmental studies, public comments, or other sources. These must also be considered 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,
  - potential environmental impacts, positive and negative, and
  - measures that will be taken to maximise positive outcomes and minimise adverse 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 sometimes 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 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 Board considers the EIS, as well as other relevant information, in relation to the objectives of the RMPS and EMPCS. 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 health of the environment and avoiding or mitigating adverse outcomes. The Board endeavours to make the decision which best furthers the objectives. That decision may be to approve the proposal with conditions, or, if the proposal compromises the objectives of the RMPS and EMPCS, to reject the proposal.

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.
- Technical terminology should be avoided as far as possible. Detailed technical data and supplementary reports necessary to support the main text should be included in appendices.
- All sources of information should be referenced, using a consistent referencing style throughout. In particular, assertions and assumptions should be supported by adequate argument and/or evidence, and evidence relied upon should be referenced.
- The EIS should clearly indicate how current and reliable the information is. In particular, the degree of confidence attributed to any predictions should be indicated.
- Where it would 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) is 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.[1] 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.

[1] See Coordinate, Height and Tide Datums - Tasmania | Department of Natural Resources and Environment Tasmania (nre.tas.gov.au).

- 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 a summary table as described in Section 9 of these Guidelines.
- Where appropriate, information provided in other sections should be cross-referenced to minimise duplication.
- The EIS should contain a summary table showing compliance with the guidelines.

Submission of draft and final document

Proponents are advised to consult the EPA while preparing the EIS in the case of any uncertainty, and to submit a draft EIS for review before the EIS 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 EIS Guidelines. More than one draft may be reviewed before the document is considered suitable for public release.

The EIS must be submitted in a non-editable format suitable for publishing on the internet (e.g. PDF). Proponents may choose to submit an additional copy in an editable format (e.g. Microsoft Word), but this is not required.

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

In addition to Tasmanian requirements, approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is required for an action which has, will have, or is likely to have, a significant impact on a matter of national environmental significance or on Commonwealth land. The matters of national environmental significance are:

- 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, and
- large coal mines with water quality impacts.

Information on the EPBC Act can be obtained from the Commonwealth Environment Department.[2]

The Commonwealth and Tasmanian Governments have signed a bilateral agreement relating to environmental impact assessment under section 45 of the EPBC Act. The agreement allows the Commonwealth Minister for the Environment to rely on specified assessment processes of Tasmania in assessing actions under the EPBC Act. Where the proposal is determined to be a controlled action under the EPBC Act and is being assessed in accordance with the bilateral agreement, the EIS should specifically describe the implications of the proposal for the relevant EPBC Act controlling provisions.

[2] See www.environment.gov.au/epbc/ or call 1800 803 772.

If the proposal is being assessed under the bilateral agreement, the EIS should contain a summary table showing that it addresses the matters specified in Schedule 4 of the Commonwealth *Environment Protection and Biodiversity Conservation Regulations 2000*.[3]

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.

[3] Available at http://www8.austlii.edu.au/cgi-bin/viewdoc/au/legis/cth/consol_reg/epabcr2000697/sch4.html.

Introductory contents of the EIS

Executive Summary

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 a larger EIS, 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

Provide a table of the contents of the report, with reference to relevant page numbers, and lists of figures and tables.

Glossary

Provide a list of abbreviations, acronyms and technical terms used in the EIS.

Key issues to be addressed

While the EIS should evaluate all potential effects of the proposal, it should principally be focused on the key issues identified in the table below. The detail provided on other issues should be proportionate to the significance of each issue for the proposal. Assumptions made in the assessment, or items subject to variation, must be clearly stated and discussed. The extent to which the limitations of available information 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
1 Potential impacts on air quality.
2 Potential impacts on water quality.
3 Management of dangerous goods and environmentally hazardous materials.
4 Potential impacts on flora and fauna.
5 Potential noise impacts on sensitive receptors associated with construction and operation.

Other matters deemed to be significant must also be considered, including matters that emerge following environmental studies or public comments, or otherwise during preparation of the EIS.

Survey and Study Requirements for Key Issues

The following surveys and studies will be required as part of the EIS.

Key Issue	Surveys and Studies Required	Relevant Section(s) of Guidelines
1. Air quality	• Atmospheric dispersion modelling to assess the impacts of air emissions from the facility relative to the requirements of the Tasmanian *Environment Protection Policy (Air Quality) 2004*.	5.2 and 6.1
2. Water quality	• Plume dispersion modelling to characterise any proposed discharge of wastewater to the River Tamar. • Biological survey of the proposed pipeline corridor and in the area of any proposed wastewater discharge.	5.2 and 6.2
4. Flora and fauna	• Ecological survey(s) and assessment(s) of terrestrial and aquatic natural values relating to the development footprint, undertaken in accordance with NRE Tasmania's Guidelines for Natural Values Assessments. • Survey to determine the exact location of a known White-bellied Sea-Eagle nest, and to determine whether other nests exist within 1 km of the proposal. Surveys should be undertaken between February and June.	5.2 and 6.4
5. Noise	• Noise survey including local background noise measurements for locations representative of sensitive receptors, and modelling to predict the impacts of cumulative noise emissions from the activity at such receptors, during construction and operation of the proposal.	6.5

Information to be provided

1. Introduction

Provide 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 is to be a different entity to the proponent).
- General background information on the proponent, including relevant development and operational experience.
- General background information on the proposal, including its current status, an overview of its principal components, the proposal location, anticipated establishment costs, likely markets for the product, and plans or potential for future expansion.
- A discussion of how the proposal relates to any other proposals that have been or are being developed, or that have been approved in the region affected by the proposal.
- A list of environmental legislation, standards and guidelines that will be applicable (such as policies, regulations, and industry codes of practice).
- A list of other relevant Commonwealth, State and Local Government policies, strategies, and management plans with which the proposal must comply.

2. Proposal Description

Where the proposal is to be subject to a permit application under the LUPA Act, the proposal description and site delineation must be consistent with the intended or current permit application. Any works or activities that directly facilitate the proposal (e.g. access works) must be included.

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

Describe key physical components of the proposal in detail, including their function, composition, size, capacity, operational life, performance requirements, requirements for construction, operation and maintenance, and inter-relationships with other physical components.

Where it is planned for production capacity to increase in stages over time, include details for each planned stage where relevant.

2.1 General

- Describe the key components and facilities that make up the plant, including but not limited to the:
    - raw water treatment plant,
    - electrolysis plant,
    - hydrogen storage facilities,
    - air separation unit,
    - ammonia production plant,
    - ammonia storage and export components,
    - internal recycling components, including but not limited to heat and water,
    - stormwater system,
    - any wastewater treatment plant, and
    - any trade waste facilities.

  Describe the major items of equipment (including pollution control equipment) that make up each of these components and facilities. Detailed technical information on major items of equipment may be supplied in appendices. In this case, clear references to the appendices must be provided in the text.
- Describe the industrial process in a step-by-step manner, both in overview and for each key component and facility, such as those listed above. Use explanatory diagrams and flow charts to complement the text where they would help clarify the process for general readers.
- Provide a process water balance, indicating how water will flow around the site, where it will be recycled, and where wastewater streams will be generated (including wastewater streams that will flow to any wastewater treatment facility, as well as the effluent from any wastewater treatment facility).
- Describe the ammonia export process, including the procedure that will be used to return excess ammonia and clear the ammonia pipeline of residual ammonia following ship loading.
- Specify the raw materials required for the operation of the proposal (including water). Provide details of quantities and characteristics. Where characteristics of raw materials may vary according to source, outline potential variations, and indicate the proportion of material to be obtained from each source.
- Outline significant foreseeable changes in raw material usage (including water) over the lifetime of the project.
- Outline energy requirements for the proposal and describe the means of meeting energy demands.
- Provide details of production capacity and production rates for relevant processes including peak rates, daily average rates and annual production rates.
    - This includes but is not limited to the rates of hydrogen, nitrogen, and ammonia production.
    - Describe the relative rates of hydrogen, nitrogen and ammonia production and describe any storage that will be necessary to buffer the production of these constituents and ensure a consistent overall rate of production.
- Describe plant operation during start-up, significant maintenance, and shut-down activities (e.g. annual planned shutdowns).
    - Where applicable, include specific detail on these aspects as they relate to the key components and facilities that make up the plant.
- Specify the hours of operation for the proposal (hours per day and specific days per week), including any seasonal variations.

- Specify the volume, composition, origin, destination, and route for vehicle movements (including road, rail, shipping, and air) likely to be generated during each phase of the proposal. Include a breakdown for over-dimension and heavy road vehicles.
- If the proposal is associated with an existing activity, provide reference details for existing permits and regulatory instruments, and describe any conditions or restrictions relevant to the proposal.

2.2 Construction

- Describe the significant activities that make up the construction phase of the proposal, step-by-step and in sequence. Include an indicative timetable for completion of major steps. Incorporate key construction activities for each major component or facility within the plant.
- Detail any pre-construction works, including site preparation works, and any temporary or permanent removal of vegetation. Describe any planned stockpiling of vegetation. Describe erosion control measures, and discuss the potential for pollutants (e.g. suspended solids) to escape from areas of disturbance during construction.
- Detail any pre-clearance surveys to be carried out prior to commencement of construction, including flora and fauna surveys, geotechnical studies, and land contamination surveys.
- Estimate the quantities of major raw materials required for construction (e.g., gravel, sand/aggregate, and water), state whether these will be sourced on-site and/or off-site and provide any further details on sourcing that may be relevant to the EIS.
- Describe the nature, capacity, and location(s) of temporary facilities and/or equipment required on-site during construction (such as cranes, concrete batch plants, construction camps).
- Describe any demolition of existing buildings, equipment or amenities that will occur during construction.
- For the construction phase:
    - estimate the source, nature and quantities of wastes that will be generated;
    - detail any measures proposed to monitor and manage any contaminated soil generated; and
    - detail any measures proposed to monitor and manage any groundwater generated, including contaminated groundwater.
- Provide a stormwater and sediment erosion control plan for the construction phase. The plan must:
    - detail any measures proposed to manage stormwater and sediment erosion, including any relevant performance specifications relating to these measures;
    - provide site plans for each phase of construction requiring alteration of stormwater and sediment erosion controls, showing the controls on the plans;
    - confirm that provision will be made for control measure footprints to the extent necessary;
    - detail any monitoring, maintenance and decommissioning requirements relating to stormwater and sediment erosion controls; and
    - include contingency measures for high rainfall events.
- Describe the construction plan for any intake or outfall pipeline, including the method of anchorage and whether any blasting or digging is required to remove rubble or bedrock. Detail measures that will be implemented to mitigate potential impacts to shores and surface waters, including sediment and erosion control from any shoreline works and works in and around the proposed pipeline corridor.
    - If the proposal includes blasting in the intertidal zone, it is recommended that the proponent contact NRE Tasmania's Conservation Assessments Section for further advice.

  - The plan must detail any measures proposed to monitor and manage the potential for disturbance of Acid Sulfate Soils (ASS) during construction, in accordance with the *Tasmanian Acid Sulfate Soil Management Guidelines* (the ASS Guidelines).[4]
    - The marine and intertidal sediments in the vicinity of the proposal are considered high risk for potential ASS. The ASS Guidelines require a management plan to be developed if more than 100 m^3 ASS material is likely to be disturbed during the construction phase.
  - The plan must consider the presence of 'Coastal Vulnerability – Rocky Shores' and 'Coastal Erosion Hazard' areas when describing works that may be proposed along the shoreline. It must detail any additional mitigation measures required to manage the increased risk of erosion associated with this riparian terrain.
  - Note that the shoreline adjacent to the development footprint is listed as potential bird breeding habitat, where minimal disturbance is recommended between September and March.
- Detail the volume, composition, origin, destination, and route for vehicle movements likely to be generated during the construction phase, including a breakdown for over-dimension and heavy vehicles.
- Specify the volume, composition, origin, destination, and route for marine traffic likely to be generated during the construction phase.
- Detail any measures proposed to mitigate potential disturbance to cetaceans during construction in the intertidal zone.
    - It is recommended that construction be conducted in conjunction with marine mammal observers and with established shut-down procedures to be implemented in the event of marine mammal proximity.
- Describe construction logistics. Include the number of construction workers required in the various stages of construction, sources of labour, transport of workers to and from the site, accommodation, and support servicing requirements.
- Detail the proposed hours per day and days per week of construction activities.
- Mark any areas relevant to environmental impact control on a construction-specific site plan, particularly where features differ from site plans provided in relation to ongoing operations (see below). Where relevant, illustrate changes to environmental impact controls that will take place over time during the construction phase.

2.3 Commissioning

For each key component and facility within the plant, give a step-by-step description of major commissioning activities that will follow the construction and installation of equipment. Give indicative timeframes for the completion of major steps. Indicate the likely sequencing of steps. Describe the point at which commissioning will be considered to be complete.

2.4 Definition of the Land

Provide a definition of the land on which the activity will take place. The land can be defined by:

- Cadastral boundaries (Title Reference, Property ID)
- Lease boundaries (Mining Lease, Crown Lease, Marine Farming Lease, etc.)
- Topographic features (roads, waterways, etc.)
- Surveyed grid coordinates
- Other boundary types

[4] Available at https://nre.tas.gov.au/Documents/ASS-Guidelines-FINAL.pdf

If the land is defined as the whole of an existing defined boundary, such as a title reference or lease, the definition of the land is the same as the title reference or lease name (e.g. Title Reference 123456/1). If not, it may be necessary to define the boundary with reference to specific topographic features and or surveyed grid coordinates. The boundary must be consistent with any intended or current permit application under the LUPA Act.

Provide a plan that clearly shows the boundary of the land in relation to cadastral boundaries and topographic features. The boundary of the land should also be provided to the Board in a geospatial vector format (shapefile or DXF). If required to adequately identify the land boundary, a boundary survey may be requested during the assessment process.

2.5 General location map

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

- The location of the proposal site
- Topographical features, aspect, and direction of drainage
- Road access to and from the site
- Location of waterways and drains (including ephemeral)
- The distance(s) to any nearby sensitive uses (such as residences)
- Electricity transmission lines
- Boundaries of the property on which the proposal is located
- Surrounding land tenure
- Surrounding land use(s) (including areas of conservation or recreational significance)
- Use(s) of the surrounding marine and estuarine area
- Surrounding land zoning in the local government planning scheme

2.6 Site plan

Provide a site plan or site plans that include(s) existing and proposed features of the site and surrounding area. Where relevant, this may include:

- Elevation contours and levels.
- The positions of topographic features including roads, tracks, waterways, and drains.
- The positions of facilities, buildings, structures, major items of equipment, storage areas and loading or unloading areas (existing and proposed).
- The route of any pipelines, tracks, roads, conveyors, or similar means of transporting on-site materials.
- The location of raw materials storage areas.
- The locations of temporary and permanent storage areas for fuels, oils, reagents and other hazardous goods or chemicals.
- The locations of stormwater collection systems and details of drainage control measures such as cut-off drains and sediment settling ponds.
- The locations of all planned point sources of discharge to the surrounding environment (air, water, land or other).
- Details of any screening vegetation or bund walls.
- The location of loading or unloading areas.
- The location(s) of any monitoring sites.

If the site plan is not based on a feature and level survey, and the Board determines that such information is needed to adequately assess the proposal, a feature and level survey may be requested during the assessment process.

Geospatial data included on the plan(s) must also be provided to the Board in a geospatial vector format (shapefile or DXF).

2.7 Off-site infrastructure

Describe any new infrastructure or off-site ancillary facilities required to enable the proposal to proceed (for example, water supply, electricity supply, roads, or other transport infrastructure). Summarise approvals required in relation to such infrastructure or facilities. Outline any anticipated impacts associated with the timing of off-site developments on the timeframes associated with the proposal.

3. Project Alternatives

Provide the rationale for the proposal. Transparency is strongly encouraged in relation to project alternatives and the criteria on which decisions have been based. Proponents should have regard to best practice environmental management, including those measures listed under section 4(2) of the EMPC Act, when selecting from alternative options.

- Describe the site selection process, including site selection criteria and alternative sites considered. Provide a comparison of alternatives in relation to clearly defined environmental, social, economic, and technical parameters, and justify the selection of the preferred site. Detail any effect that community consultation had on the site selection process.
- Where relevant, compare the preferred technology to other available technologies and justify its selection. Include a comparison of relative environmental performance. This should include, but not be limited to, the selection of electrolysis technology, water and wastewater treatment technologies, process water recycling opportunities, and wastewater discharge arrangement and location.
- For any part of the proposal where alternative technologies, materials, design options or management practices with different environmental consequences may exist, identify the alternatives, evaluate their relative environmental performance, and justify the selection of the proposed option.
    - This includes, but is not limited to, the major water source for the proposal.

4. Consultation

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

Early community engagement is strongly encouraged. The Board has produced a guide to community engagement, available on the EPA's website.[5]

Comments received from other agencies have been incorporated into these Guidelines. However, in addition, it is noted that Marine and Safety Tasmania (MAST) has requested to be kept informed on marine aspects of the proposal. The proponent is encouraged to contact MAST directly to establish communications and ascertain any requirements relating to marine traffic and safety.

[5] See 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 that may be affected by construction and operation of the proposal, including areas associated with any ancillary activities. Include maps, plans, photographs, diagrams, or other descriptive detail where it would help the reader understand salient features of the existing environment.

5.1 Planning aspects

- If a permit is required for the proposal under the LUPA Act, provide:
  - the Use Class of the proposed activity under the applicable Planning Scheme.
  - a statement on the permissibility of the activity under the applicable Planning Scheme.
- Provide the land tenure classification and property boundaries of the proposed site, with certificate of title details.
- Provide land zonings for the proposed site and surrounding areas.
  - Note that pipelines associated with the project appear to pass through an Environmental Management Zone near to the shore. Ensure that the EIS details the scope of works planned for this zone. The EIS must note any activities proposed in any Conservation Area and describe how those activities would be consistent with Schedule 1, Column 2 of the *National Parks and Reserve Management Act 2002* (NPRM Act).
- Detail any rights of way, easements and covenants affecting the site.
  - If any changes to rights of way, easements or covenants affecting the site are required to facilitate the proposal, provide details.
- Describe the land use and planning history of the site, including the potential for the site to have previously been contaminated[6], the present use, and any existing buildings and significant structures.
- Describe land use and ownership in the vicinity of the site and in areas that may be affected by the proposal, including:
  - The location and nature of industrial facilities, including marine industries.
  - Any sensitive uses[7] 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 potential sensitive uses within applicable attenuation distances of the proposal site, which have been or which are likely to be granted approval under the local planning scheme.

5.2 Environmental aspects

- Describe the general physical characteristics of the site and surrounding area, including topography, local climate, geology, geomorphology, soils (including erodibility and acid sulphate soils), vegetation, fauna, groundwater, and surface drainage (including waterways, lakes, wetlands, coastal areas etc).

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

[7] 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.'

- Describe natural processes of particular importance for the maintenance of the existing environment (*e.g.* fire, flooding, etc).
- Identify any existing conservation reserves located on or within 500 metres of the site.
- Identify any high-quality wilderness areas identified in the *Tasmanian Regional Forest Agreement* in the vicinity of the site.
- Describe any World and National Heritage values relevant to the proposal.
- Identify and describe species, sites or areas of aesthetic, wilderness, scientific or otherwise special conservation significance that may be affected by the proposal. Relevant information resources include the LIST[8] and the Natural Values Atlas.[9]
- Provide an assessment of the vulnerability of the site to natural hazards (*e.g.,* flooding, seismic activity, fire, landslips, or strong winds).
- Provide any available ambient monitoring results for 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. Results may be discussed in the body of the EIS and attached as appendices.
- If the proposal is associated with an existing activity, summarise current regulatory approvals and licences, and discuss the proponent's historical compliance or otherwise with the conditions of these that relate to environmental aspects.

[8] See www.thelist.tas.gov.au.

[9] See https://www.naturalvaluesatlas.tas.gov.au.

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 along with commitments to environmentally relevant restrictions. Notwithstanding, sufficient technical detail must be provided to enable an appropriate level of assessment. If unsure about what level of detail is sufficient, proponents should contact the EPA to discuss.

For each potential impact the following information should be provided.

Existing conditions

Outline the existing conditions relevant to the impact. In the case of a proposal that involves expansion or redevelopment of an existing activity, summarise public complaints received in recent years, discuss the operator's response(s), and describe how the current proposal may be affected.

Performance requirements

Detail applicable environmental performance standards for each environmental impact, identify their source, and provide evidence to demonstrate that the proposal can meet or exceed them. These may be standards or requirements specified in legislation, codes of practice, state policies or national guidelines, or as determined by agreement with the assessing agencies. Industry best practice standards should be referenced where appropriate. **Unsupported assertions that performance requirements will be achieved are not adequate.**

Potential impacts

Outline the potential environmental, social and economic impacts of all stages of the proposal including construction, operation and closure, in the absence of special control measures. Both positive and negative impacts should be included. Identify any foreseeable variations in impacts during the start-up and operational phases. Analyse the significance of the relevant impacts.

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

The evaluation of potential impacts should identify **plausible worst-case consequences**, assess the vulnerability of the affected environment to the potential impacts, and describe the reversibility of the impacts. Consider potential cumulative impacts of this proposal in light of other activities underway or approved. Identify any interactions between biophysical, socio-economic and cultural impacts.

Predictions and evaluations of impacts should be based on scientifically supportable data. For existing operations, include the results of any monitoring of existing emissions. Methods 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 selection of a particular methodology over alternatives should be justified. Where impacts are not quantifiable, they should be clearly described.

Where positive benefits are claimed, specify the measures that will be taken to ensure that those positive outcomes are realised and sustained.

Avoidance and mitigation measures

Having regard to best practice environmental management as defined in EMPC Act, describe the measures proposed to avoid or mitigate potential adverse impacts and achieve environmental performance standards. Measures may include, for example, installation of pollution control technology or implementation of management practices. Specify the extent to which control measures will mitigate the anticipated impacts. Where there are clear alternative measures that may be taken, review the alternatives and justify the preferred option.

Where pollution control equipment and/or treatment processes are key factors in achieving satisfactory environmental performance, discuss contingency measures that will be implemented in the event of breakdown or malfunction of the equipment or processes. It should be demonstrated that the maintenance of pollution control equipment can be undertaken without compromising environmental performance.

Where measures to control environmental impacts are necessary but will be undertaken by parties other than the proponent, identify the means by which the proponent will ensure that the necessary measures are implemented (*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 must address the project phases (construction, operation, major maintenance, decommissioning) separately.

Assessment of net impacts

Provide an assessment of the overall impacts of the development on the environment after allowing for implementation of the proposed avoidance and mitigation measures. Evaluate the significance of residual impacts, including the potential for emissions to cause environmental and health impacts. Compare these with current environmental conditions (for existing activities) and with state, national and international regulations and standards.

Discuss the constraints the proposal 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.

Identify any net benefits likely to result from the proposal.

Offsetting unavoidable adverse impacts

If adverse residual environmental impacts from the proposal cannot be avoided despite the adoption of best practice avoidance and mitigation measures, then proposals to offset these 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. Offsets must be genuine and proportionate to the predicted loss. **Offset actions must have a measurable and relevant net benefit which would not otherwise have been realised, and which is not accounted for by any other project or proposal.**

6.1 Key Issue 1: Air Quality

Discuss potential impacts of the proposal on the local and regional air environment.

- Identify and describe all possible sources of emissions to air from the proposed facility. Include consideration of:
    - point sources,
    - fugitive sources,
    - odour, and
    - dust.

  Mark the locations of the sources on a site map.
- Identify all sensitive receptors that may be affected by atmospheric emissions from the proposed facility. Mark the locations of the sensitive receptors on an area map.
- Describe potential atmospheric emissions from all sources including, but not limited to, receipt and storage of materials, production line, flares, vents, cooling towers, pipes and waste handling. Identify all pollutants and characterise the potential emissions of each pollutant in terms of quantity, frequency, predicted emission rate and (where applicable) in-stack concentration. Consider average and worst-case scenarios.
- Describe potential atmospheric emissions during the construction and commissioning phases of the project.
- Undertake atmospheric dispersion modelling to assess the impacts of air emissions from the facility relative to the requirements of the Environmental Protection Policy (Air Quality) 2004. Where performance requirements are not specified in Air EPP Schedules, appropriate national or international standards should be quoted for comparison purposes. Modelling should be conducted by a suitably qualified specialist in accordance with the Tasmanian Atmospheric Dispersion Modelling Guidelines.
    - 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.
- Provide a detailed description of all proposed air emission management measures, including but not limited to emission control systems. Consider and describe measures that will be employed during maintenance phases or other periods when emission control equipment may not be fully functional, including temporary measures. Consider construction, commissioning and operational phases of the project.
- Describe the potential environmental and/or health impacts that may result from the air emissions.

Legislative and policy requirements – air quality

Consideration should be given to the requirements of the Tasmanian *Environment Protection Policy (Air Quality)*.[10]

6.2 Key issue 2: Water Quality (Surface and Discharge)

Discuss potential impacts of the proposal on surface water.

- Describe all wastewater streams generated in the process, including, but not limited to, those that will flow into any wastewater treatment plant and that which will flow from any part of the plant to the environment. Characterise the physico-chemical properties of each wastewater stream, including the expected temperature, pH, electrical conductivity, concentrations of salts and metals and any other contaminants of concern. Characterise the

[10] See http://epa.tas.gov.au/policy-site/Pages/Air-Quality-EPP.aspx.

average peak, daily and seasonal flow rates of each wastewater stream and discuss whether the wastewater generation is continuous or intermittent.

- Identify and provide a map of the location of all point sources of liquid emissions (wastewater and stormwater) associated with the activity, and indicate whether each point source is new or existing.
    - Note that wastewater means water used or contaminated in the course of carrying out the activity, and does not include clean stormwater arising from rainfall on the proposal site.
- Characterise the receiving water environment. Discuss tidal fluxes and salinity, temperature and density gradients in the water column. Detail relevant tidal, seasonal, and weather characteristics. Support the discussion with historical monitoring results where available, including but not limited to baseline monitoring undertaken as part of the proposal, and current flow measurements using an Acoustic Doppler Current Profiler or equivalent.
    - Note that both historical water quality and hydrodynamic modelling data may be available from NRM North – TEER Program.[11]
- Detail benthic habitats along any proposed pipeline corridor and in the area of any proposed wastewater discharge. These discussions should be supported by a biological survey.
- Detail any baseline monitoring of water quality, biota and/or sediment that has been undertaken.
- Detail any outfall diffuser design and construction, including location, dimensions, anchorage, and the arrangement of discharge ports.
- Provide the results of an analysis of plume dispersion. Identify the minimum instantaneous dilution at the point of discharge. Determine limiting parameters for plume attenuation. Determine the plume extent, including the depth profile. Take into account the effect of salinity and temperature of the wastewater and the water column.
- Provide any other relevant information necessary to accurately assess the potential impact of the proposal, such as ecotoxicological data or information on potential hydrological changes.
- Determine the potential for the proposal to impact benthic flora and fauna as a result of discharges to the receiving water environment.
- Determine whether water quality objectives will be met at any point of discharge of liquid to the environment, or whether a mixing zone will be required at the outfall location, as defined by the *State Policy on Water Quality Management 1997*.
    - Describe how analytes used in the assessment were selected.
    - Include an analysis of the by-products of any disinfection methods used in wastewater treatment.
    - Specify all analytes by their chemical name, not by brand name or class of chemical.
    - Note that wastewater contaminated with treatment agents such as biocides and descalers must not be discharged directly to surface waters. It must be demonstrated that use of such chemicals will be managed such that any potential discharge, as a result of either routine operations or incidents, will be prevented through treatment or segregation, and managed as trade waste.
- Assess and describe the cumulative impact of discharges to the marine environment at the proposed discharge location.
- Assess and describe the potential impact of the proposal on any nearby marine farming leases. If adverse impacts are anticipated, describe the management measures that will be adopted to mitigate these.

[11] See https://nrmnorth.org.au/.

- Detail plans to monitor wastewater, ambient water quality and ambient biota. Plans should be sufficient to
    - confirm that effluent quality is consistent with design specifications,
    - confirm the accuracy of pre-construction plume dispersion modelling,
    - accurately monitor the impacts or otherwise of wastewater discharges on the receiving environment water quality, and
    - accurately monitor ecological changes to the benthic environment, and reliably determine the impacts or otherwise of wastewater discharges on any such changes.
- Detail any contingency measures that will be implemented in the event of any incidents, accidents or malfunctions that may impact receiving environment water quality.
- Detail stormwater management measures, including those that will be implemented during reasonably foreseeable flood events. Assess and describe the potential for pollutants to become entrained in stormwater.
- Provide a map of the location of stormwater collection systems and details of drainage control measures such as cut-off drains and sediment settling ponds.
- Detail the design annual exceedance probabilities for stormwater management system components, and performance criteria for sediment control infrastructure.
- If discharge to a municipal sewerage system is anticipated (including tankered waste), a suitably detailed agreement with the operator of the municipal sewerage system should be negotiated. Note any such negotiations, past or proposed, in the EIS.

Legislative and policy requirements – water quality (surface and discharge)

Justify any proposed emission to surface water with reference to the principles outlined in the *State Policy on Water Quality Management 1997*.[12] Apply a 'weight of evidence' approach consistent with the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*.[13]

Reference should be made to published or scientifically determined (site-specific) water quality guideline values for receiving environments. For information on the water quality management framework and evaluation criteria in Tasmania, refer to *Technical Guidance for Water Quality Objectives (WQOs) Setting for Tasmania, August 2020*.[14]

6.3 Key issue 3: Dangerous goods and environmentally hazardous materials

Provide a preliminary analysis (appropriate to the scale of the project) of the potential for a major hazard event (such as an explosion) that may cause impacts to the environment to occur, and proposed safeguards to prevent such an occurrence. The preliminary analysis should systematically identify all potential major environmental hazards (internal and external) to people and the environment associated with the construction, operation, maintenance and decommissioning of the proposal.

Discuss the storage, conveyance and use of dangerous goods and environmentally hazardous materials, and potential associated impacts on the environment. This includes any substance or mixture of substances of a nature or held in quantities that present a reasonably foreseeable risk of causing serious or material environmental harm if released to the environment, and includes ammonia, hydrogen, electrolytes, catalysts, fuels, oils, waste, and other chemicals.

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[12] See http://epa.tas.gov.au/policy-site/Pages/Water-Quality-Policy.aspx.

[13] See https://www.waterquality.gov.au/guidelines/anz-fresh-marine.

[14] See https://epa.tas.gov.au/Documents/Technical%20Guidance%20for%20Water%20Quality%20Objectives%20(WQOs)%20Setting%20for%20Tasmania.pdf.

- Describe the nature, quantity (including annual use) 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.
- Provide a map showing
    - the location of temporary and permanent storage areas for ammonia, hydrogen, fuels, oils, and other dangerous goods or chemicals, and
    - the location of pipelines used to convey these materials within the proposal site.
- Detail the measures (such as leak detection mechanisms, online monitoring, venting procedures, bunded areas, spill trays, or other) that will be adopted to prevent or control any accidental releases of dangerous goods and environmentally hazardous materials, including from locations where they are stored, conveyed in pipelines, or used in production.
- Describe contingency plans for when control measures fail, equipment breaks down or accidental releases to the environment otherwise occur. Include proposed emergency and clean-up measures and notification procedures.
- Identify any safety management measures required to protect human health and safety beyond the boundary of the land.

6.4 Key issue 4: Biodiversity and natural values

Discuss impacts of the proposal on biodiversity and nature conservation values (terrestrial and aquatic).

- Provide a map of existing vegetation types and communities, and of recorded locations of threatened species of flora and fauna.
- Provide the results of an ecological survey and assessment of terrestrial and aquatic natural values relating to the development footprint, including the proposal site and wastewater pipeline route, undertaken by a suitably qualified person in accordance with the *Guidelines for Natural Values Assessments*.[15]
- Discuss potential impacts on flora, vegetation communities and habitat, with particular reference to rare and threatened species, communities, and habitats, including those listed under the relevant Schedules of the Commonwealth EPBC Act and the Tasmanian *Threatened Species Protection Act 1995* (TSP Act).
    - Note that there are numerous records in the area for flora listed under the TSP Act and/or the EPBC Act.
    - Note that the development footprint is partly mapped as *Melaleuca ericifolia* swamp forest, which is a listed threatened native vegetation community under the *Nature Conservation Act 2002* (NC Act).
    - Additionally, vegetation primarily comprising *Eucalyptus ovata* may be intersected. Note that some *E. ovata* communities are listed as threatened under the NC Act. The ecological survey described above must clarify which native vegetation communities are present within the development footprint.
- Discuss potential impacts on fauna, including impacts on species, communities, and habitats, with particular reference to rare and threatened species, migratory species, communities and habitats, including those listed under the relevant Schedules of the Commonwealth EPBC Act and the TSP Act. Assessment of impacts should not be limited to clearing or disturbance and may include noise, lights, vehicle movements or other issues.

[15] The guidelines can be found at: https://nre.tas.gov.au/conservation/development-planning-conservation-assessment/survey-guidelines-for-development-assessments.

  - Note that there are numerous records of threatened fauna occurring within 5 km of the proposal site. The ecological survey described above must determine whether any potential habitat for these species is present within the development footprint and should include a check for hollows that may provide potential nesting sites for Masked Owls, Swift Parrots or Tasmanian Devils.
  - If the survey identifies any threatened fauna, nests, dens or hollows, further guidance should be sought from NRE Tasmania (Conservation Assessments) before any development works commence.
  - If any potential den sites for the Tasmanian Devil are recorded within the site, and are likely to be impacted by the proposal, these should be managed in accordance with the *Tasmanian Devil Survey Guidelines and Management Advice for Development Proposals* (The Devil Guidelines).[16] Any dens that cannot be avoided will require a 'permit to take' under the NC Act.
- There is a record of a White-bellied Sea-Eagle (*Haliaeetus leucogaster*) nest located less than 150 m from the proposed development. A survey must be undertaken by a suitably qualified and experienced person to determine the exact location of the nest relative to the proposed activity, and whether other, unknown nests (or potential habitat) exist within 1 km of the proposal. Searches for the presence of nests should be undertaken between February and June, outside of the breeding season management period (July to January inclusive).
- Discuss potential impacts on identified areas or habitats of conservation significance, including designated conservation areas, areas relating to the requirements of international treaties (*e.g.* Japan-Australia and China-Australia Migratory Bird Agreements (JAMBA/CAMBA) and Ramsar Convention on Wetlands), or wetlands listed in *A Directory of Important Wetlands in Australia*.
- For any area of the existing environment likely to be altered by the proposal, identify any freshwater ecosystems of high conservation management priority using the Conservation of Freshwater Ecosystem Values (CFEV) database.[17] EISs should reference Conservation Management Priority Potential, which is the most appropriate CFEV data for development proposals.
  - Consider the presence of a wetland as mapped on the CFEV Wetlands – Integrated Conservation Value, when designing stormwater infrastructure. This feature is bounded by the Biodiversity Code (Priority Habitat) in the *George Town Interim Planning Scheme 2013*. The wetland includes a Threatened Native Vegetation Community (*Melaleuca ericifolia* swamp forest) listed in Schedule 3A of the NC Act. Works that may affect the wetland should be referred to NRE Tasmania (Conservation Assessments Section).
- Discuss impacts on sites of geoconservation significance (such as fluvial or coastal features), including sites of geoconservation significance listed on the Tasmanian Geoconservation Database.
- Discuss impacts on existing conservation reserves that may be affected by the proposal, with reference to the management objectives of the reserve(s) and the reserve management plan(s) (if any).
  - Note that pipelines associated with the project appear to pass through land that is subject to a Conservation Covenant, 'C934275', created under section 34 of the

[16] Accessible at https://nre.tas.gov.au/conservation/development-planning-conservation-assessment/survey-guidelines-for-development-assessments

[17] Accessible at https://wrt.tas.gov.au/cfev.

Nature Conservation Act 2002, as well as land classed as Private Sanctuary. The EIS must describe how any activities proposed in the Covenant area align with the content of the covenant (noting, for example, that clearance of native vegetation must not occur). Further, in relation to the Private Sanctuary, the EIS must describe how any activities proposed would be consistent with and have regard to Schedule 1, Column 2 of the NPRM Act. Any impacts to land protected under covenant will require the covenant to be amended or revoked and may also require a significantly larger offset to compensate for the impact. It is recommended that the proponent contact NRE Tasmania's Private Land Conservation Program in relation to these issues.[18]

- Discuss impacts on any high-quality wilderness areas identified in the *Tasmanian Regional Forest Agreement* (Tasmanian RFA) that may be affected by the proposal.
- Discuss impacts on other species, sites, or areas of special conservation significance, including areas of wilderness, scientific, or geodiversity value.
- Describe any planned clearing of native vegetation and habitat associated with the construction and maintenance of the proposal and discuss the impact of any clearing on sites, species, or ecological communities of special conservation significance, including any impact on the:
    - comprehensive, adequate and representative reserve system identified as part of the Tasmanian RFA;
    - maintenance of forest communities under the *Permanent Native Forest Estate Policy*;[19]
    - wildlife habitat strips under the *Tasmanian Forest Practices Code 2015*;[20] and
    - non-forest communities.
- Discuss the potential for migration and/or introduction of pests, weeds and plant and animal diseases as a result of the proposal.
- Where impacts cannot be avoided, present proposed measures to mitigate and/or compensate for adverse impacts on biodiversity and nature conservation values.
- Describe plans for rehabilitation of disturbed areas following the completion of construction activities and following cessation of the activity, including any proposed seed collection and progressive rehabilitation programme.

Requirements for surveys – biodiversity and natural values

Any flora and fauna surveys must, as a minimum, comply with the requirements of the relevant Survey Guidelines for Development Assessments published by the Department of Natural Resources and Environment Tasmania (NRE).[21] The methodology for surveys should be developed in consultation with the Department.

6.5 Key issue 5: Noise emissions

Discuss impacts of the proposal on ambient noise levels, during both the construction and operational phases.

[18] The Private Land Conservation Program can be contacted at PrivateLandConservation.Enquiries@nre.tas.gov.au.

[19] See https://www.stategrowth.tas.gov.au/energy_and_resources/forestry/native-forest.

[20] See http://www.fpa.tas.gov.au.

[21] Accessible at https://nre.tas.gov.au/conservation/development-planning-conservation-assessment/survey-guidelines-for-development-assessments.

- Identify, describe, and provide a map marking the locations of all sensitive receptors that may be affected by noise generated by the proposal.[22] This includes, but is not limited to, residential areas in Rowella and Hillwood.
- Identify and describe all major fixed and mobile sources of noise associated with the development (during both construction and operational phases) and mark their locations on a map. Where relevant, provide
    - descriptions of noise attenuation features,
    - details of estimated sound power levels,
    - hours of operation including daily duration and frequency of emissions, and
    - 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.
- Provide local background noise measurements for locations representative of sensitive receptors. Base the measurements on 7-day noise monitoring for daytime, evening and night-time periods.
- Predict cumulative noise emissions from the activity as received at the nearest sensitive premises. Provide noise propagation maps that take topography into account and show noise propagation from the proposed operations.
- Describe the potential for noise emissions to cause sleep disturbance and/or other health impacts at sensitive receptors. Take into account predicted noise levels and changes in noise characteristics such as tonal components, noise levels and variance aspects such as modulation, impulsivity and intermittence.
- Assess and describe the potential for noise emissions to cause nuisance for nearby land users and at sensitive receptors, based on criteria set out in the *Environment Protection Policy (Noise) 2009* and elsewhere as appropriate.[23]
- Assess and describe the potential for noise emissions to affect terrestrial, marine and freshwater wildlife and livestock (if any).
- Investigate best-practice environmental management measures that can be employed at each stage of the process to contain noise emissions within the site boundary and to ensure that noise emissions will not affect the existing acoustic environment of sensitive receptors. Describe the management measures that will be employed.
- All methods of measurement must be in accordance with the Tasmanian Noise Measurements Procedure Manual.

Legislative and policy requirements - noise

Consideration should be given to the requirements of the Tasmanian *Environment Protection Policy (Noise) 2009*.

6.6 Groundwater

Discuss potential impacts of the proposal on groundwater (quality and quantity).

[22] 'Noise sensitive premise' is defined as: residences and residential zones (whether occupied or not), schools, hospitals, caravan parks and similar land uses involving the presence of individual people for extended periods, except in the course of their employment or for recreation.

[23] See https://epa.tas.gov.au/policy/statutory-policies/state-policies-and-environment-protection-policies/environment-protection-policy-%28noise%29-2009.

- Provide a map showing the location of any existing or proposed groundwater bores relevant to monitoring the impacts of the proposal.[24]
- Provide a conceptual groundwater model for local and regional aquifer flows.

Legislative and policy requirements - groundwater

It must be demonstrated that the proposal is consistent with the objectives and requirements of all relevant water management policies and legislation, including the *Water Management Act 1999* and the *State Policy on Water Quality Management 1997*.

6.7 Waste Management

Discuss the impacts of waste generated by the proposal that are not addressed in other sections.

- Identify the source, nature and quantities of all liquid, gaseous or solid wastes likely to be generated at each stage of production, including but not limited to general refuse and by-products.
    - Note that most impacts relating to air quality should be addressed by section 6.1 and most impacts relating to wastewater should be addressed by section 6.2.
- Describe methods and facilities proposed to collect, store, reuse, treat or dispose of each waste stream. Describe any related maintenance requirements.
- Describe the source, nature, quantity, and methods of treatment, storage and disposal for each controlled waste that will be generated. Note that 'controlled waste' is defined in the EMPC Act and associated regulations.[25]

Legislative and policy requirements – waste management

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

- avoidance
- re-use
- recycling
- energy recovery
- repository storage for future resource recovery
- stabilisation treatment
- disposal

6.8 Marine and Coastal

Identify any potential impacts of the proposal on marine and coastal areas not addressed in other sections. Identify measures to avoid and mitigate any possible adverse impacts and assess the net impacts on marine and coastal areas following implementation of the proposed avoidance and mitigation measures. Cross-reference to other relevant sections dealing with conservation values (marine flora and fauna, geoconservation) and coastal impacts, where appropriate.

Legislative and policy requirements – marine and coastal

It must be demonstrated that the proposal is consistent with the objectives and requirements of all relevant marine and coastal policies and legislation, including the *Living Marine Resources*

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

[25] A non-exhaustive list of categories of controlled waste can be found at http://epa.tas.gov.au/regulation/waste-management/controlled-waste.

Management Act 1995, State Policy on Water Quality Management 1997, and the *Tasmanian State Coastal Policy 1996.*

6.9 Greenhouse gases and ozone depleting substances

For proposals that may release significant volumes of greenhouse gases or ozone depleting substances, discuss potential impacts of such releases.

- Describe the direct and indirect effects of the proposal on greenhouse gas production and ozone depleting substances, including any related benefits.
- Demonstrate that the development will implement cost-effective best practice measures to achieve ongoing minimisation of greenhouse gas emissions.
- Estimate 'whole of life' greenhouse gas emissions for the proposed development. Include details of the calculation. Detail proposed measures to minimise emissions and discuss the expected effectiveness of these measures. Where less emissions-intensive options are not adopted, provide justification and/or identify mechanisms to offset greenhouse gas emissions.

Legislative and policy requirements – greenhouse gases and ozone depleting substances

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. Proponents must determine whether they are required to report to the Commonwealth under the *National Greenhouse and Energy Reporting Act 2007*.

6.10 Lighting

Describe all non-negligible sources of light that may emit light beyond the boundary of the Land, including:

- the purpose of the lights,
- what times of day (24hr) and days of the week the lights will be used,
- the intensity of each type of light source, and
- how light from the proposed activity will be managed to avoid creating nuisance for surrounding land users and at sensitive receivers.

Impacts of lighting on biodiversity and natural values (particularly underwater lighting) should be addressed in section 6.4 ('Biodiversity and natural values').

6.11 Socio-economic issues

Discuss the social and economic impacts of the proposal. Relevant details may include:

- An estimate of total capital investment for the proposal and where that capital will be expended (particularly in relation to the source of large capital items of processing equipment).
- Operational expenditures and revenues.
- The impacts on local and State labour markets for both the construction and operational phases of the proposal, including the number and nature of direct and indirect jobs arising from the proposal, and implications for skills and training opportunities.
- The impacts on upstream/downstream industries, both locally and for the State.
- The extent to which raw materials, equipment, goods, and services will be sourced locally.
- A qualitative assessment of impacts on local social amenity and community infrastructure, including recreational, cultural, health and sporting facilities and services. Any proposals to enhance or provide additional community services or facilities should be described.
- Community demographic impacts (changes to cultural background, occupation, incomes).
- Impacts on land values, and demand for land and housing.

- Impacts on the local, regional, state, and national economies.
- Any publicly funded subsidies or services to be relied upon for the construction or operation of the proposal.
- Any impacts on Local, State and Federal Government rate, taxation and royalty revenues.

The description of socio-economic issues should be proportionate to the nature and extent of any negative impacts or risks to the environment from the proposal. For example,

- Modest proposals with relatively low-level and localised environmental impacts or risks may be adequately represented by details of intended capital expenditure, operational expenditures, revenues, and employment (distinguishing between direct and indirect employment) and a qualitative discussion of other socio-economic aspects of particular relevance.
- Proposals with high-level or broad-scale environmental impacts will need a more comprehensive analysis of economic and social benefits to allow the Board to compare the benefits and adverse impacts of the proposal. It may be appropriate to include an explanation of the methods used to model impacts and to describe the manner and results of engagement with the local community to determine their needs and aspirations in relation to the proposal.

6.12 Fire risk

Discuss the potential fire risk associated with the proposal.

- Consider environmental impacts that may result from fire within the site or fire escaping from the site.
- Consider the potential impacts of wildfire originating outside the development, so far as they may relate to the proposal.
- Summarise objectives, management principles and management measures that will be adopted to prevent and respond to potential fire events.

Where a fire response plan is appropriate, it should be fully integrated with other relevant plans for the region, such as a Tasmania Fire Service Local Area Fire Management Plan, a Forestry Tasmania Fire Management Plan and/or a Parks and Wildlife Service Fire Action Plan.

6.13 Infrastructure and off-site ancillary facilities

Discuss potential environmental impacts of the proposal on any significant off-site facilities or infrastructure, including increased use of existing infrastructure, such as roads, ports and quarries. Identify measures to avoid and mitigate potential adverse impacts, and assess the net impacts assuming implementation of proposed avoidance and mitigation measures.

Identify roads and other infrastructure that will be used by vehicles related to the proposal during both construction and operation. Assess and discuss potential environmental impacts associated with construction and use of such infrastructure.

6.14 Environmental Management Systems

Provide any relevant information on strategic matters relating to environmental management of the proposal.

- Describe any environmental management systems or environmental policies implemented or proposed by the proponent that are relevant to the environmental management of the proposal.
- Summarise the organisational structure relevant to the proposal and indicate where environmental responsibility lies within that structure.

- Summarise procedures and instructions to employees (including contractors) related to minimising adverse environmental impacts of the proposal. This may include employee induction and education programs. Where these procedures are integral to environmental management measures, they should be described as such in the relevant EIS sections.

6.15 Cumulative and interactive impacts

Where relevant, provide an assessment of the potential cumulative impacts of the proposal in the context of existing and approved developments in the region, if such impacts have not been addressed in previous sections. Include consideration of light pollution. Other proposals that have been formally proposed, and for which there is sufficient information available to the proponent to allow a meaningful assessment of their impacts, should be considered. Uncertainties about potential impacts in such cases should be described.

Discuss any interactions between biophysical, socio-economic, and cultural impacts of the proposal.

6.16 Environmental Impacts of Traffic

Identify the likely traffic routes and the volume, nature and timing of traffic related to the proposal, during construction and operation phases. Compare anticipated new traffic to the current road usage. Discuss environmental impacts associated with current and altered traffic flows and road usage. This may include noise and dust impacts on other roads users and residences adjacent to roads. The assessment should focus on roads within and specific to the land defined by the proposal, but should also consider indirect impacts on public roads.

If the proposal will generate an increase of night-time traffic of more than ten percent, this is considered significant in regard to likely impacts on the Tasmanian Devil (*Sarcophilus harrisii*). It is recommended that roadkill mitigation measures be implemented in accordance with the *Tasmanian Devil Survey Guidelines and Management Advice for Development Proposals*.[26]

Where this issue has already been considered in other sections, cross-references may be provided.

7. Monitoring and Review

Outline proposed monitoring, review and reporting programmes. Such programmes 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.

Provide a map showing the location of all monitoring sites and a table summarising the proposed monitoring programme, including:

- location of monitoring points,
- frequency of recording and/or sampling,
- physical characteristics, chemical analytes and/or process parameters to be monitored, and

[26] Available at https://nre.tas.gov.au/conservation/development-planning-conservation-assessment/survey-guidelines-for-development-assessments.

- other metadata to be recorded, if any.

8. Decommissioning and Rehabilitation

Describe the proponent's approach to decommissioning and rehabilitation. Best practice is to adopt an ongoing, staged approach to site decommissioning and rehabilitation throughout the life of the proposal.

Outline a preliminary Decommissioning and Rehabilitation Plan or Closure Plan, so far as may reasonably be foreseen at the time the EIS is submitted.

9. Management Measures

Present a consolidated management measures table listing all of the management measures described in the EIS. Measures must be sequentially numbered and unambiguous statements of intent. The table must specify when each measure will be implemented and must refer to the section of the EIS in which the measure is detailed.

10. Conclusion

Describe the proposal and draw together the critical environmental, social and economic impacts, 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 any positive impacts can be promoted and sustained. Describe how the proposal meets and furthers the objectives of relevant Commonwealth and State legislation, policies, plans and strategies. Itemise the RMPS and EMPCS objectives and comment on how the proposal addresses each of the objectives.

11. References

Provide details of authorities consulted, reference documents and other material relied upon to support the EIS.

12. Appendices

To improve readability of the EIS, include detailed technical information that supports the EIS in appendices. The salient features of the appendices should be summarised in the body of the EIS. Take care to avoid inconsistencies between technical content of Appendices and the EIS itself. If inconsistencies are unavoidable they must be 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 EMPC Act
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
JAMBA/CAMBA	Japan-Australia and China-Australia Migratory Bird Agreements
NC Act	*Nature Conservation Act 2002*
NPRM Act	*National Parks and Reserve Management Act 2002*
RMPS	Resource Management and Planning System of Tasmania objectives to be found in Schedule 1 of EMPC Act

Tasmanian RFA	Tasmanian Regional Forest Agreement
TSP Act	*Threatened Species Protection Act 1995*

Appendix A: Other issues and agency contacts

In addition to a permit under the LUPA Act and the EMPC Act, your proposal may require other permits, licences or landowner consent to proceed. 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 these Guidelines. Should your proposal require assessment or approval outside of the Board's responsibilities, you must engage directly with the relevant agency. The following list identifies some of the key agencies you may need to contact.

Conservation Assessments, Department of Natural Resources and Environment Tasmania

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

Telephone: (03) 6165 4396

Email: conservationassessments@nre.tas.gov.au

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

Heritage Tasmania

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 are 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.

Telephone: (03) 6165 3700

Email: enquiries@heritage.tas.gov.au

Website: www.heritage.tas.gov.au

Aboriginal Heritage Tasmania

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

Telephone: 1300 487 045

Email: aboriginal@heritage.tas.gov.au

Website: www.aboriginalheritage.tas.gov.au

Parks and Wildlife Service

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

Telephone: (03) 6169 9015

Email: PropertyServices@parks.tas.gov.au

Website: www.parks.tas.gov.au

Department of State Growth

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

Telephone: (03) 6166 3369

Email: permits@stategrowth.tas.gov.au

Website: www.transport.tas.gov.au

Mineral Resources Tasmania

Purpose: Mining leases

Telephone: 03 6165 4800

Email: info@mrt.tas.gov.au

Website: www.mrt.tas.gov.au

Agriculture and Water, Department of Natural Resources and Environment Tasmania

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

Telephone: (03) 6165 3222

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

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

ENVIRONMENT PROTECTION AUTHORITY