Terms of reference for an environmental impact statement

Esmeralda Graphite project

September 2025

DELIVERING FOR QUEENSLAND

Queensland Government

The Department of State Development, Infrastructure and Planning connects industries, businesses, communities and government (at all levels) to leverage regions' strengths to generate sustainable and enduring economic growth that supports well-planned, inclusive and resilient communities.

Acknowledgement of Country

The department acknowledges the First Nations peoples in Queensland: Aboriginal and Torres Strait Islander peoples and their connections to the lands, winds and waters we now all share. We pay our respect to Elders, past, present and emerging. We also acknowledge the continuous living culture of First Nations Queenslanders – their diverse languages, customs and traditions, knowledges and systems. We acknowledge the deep relationship, connection and responsibility to land, sea, sky and Country as an integral element of First Nations identity and culture.

The Country is sacred. Everything on the land has meaning and all people are one with it. We acknowledge First Nations peoples' sacred connection as central to culture and being. We acknowledge the stories, traditions and living cultures of First Nations peoples and commit to shaping our state's future together. The department recognises the contribution of First Nations peoples and communities to the State of Queensland and how this continues to enrich our society more broadly.

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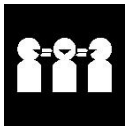

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Copies of this publication are available on our website at **www.statedevelopment.qld.gov.au/cg** and further copies are available upon request.

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Part A About this terms of reference

Introduction

This terms of reference (TOR) sets out the matters to be addressed in an environmental impact statement (EIS) for the Esmeralda Graphite project (the project) under the *State Development and Public Works Organisation Act 1971* (SDPWO Act).

The purpose of an EIS is to:

- assess the potential adverse and beneficial environmental, economic and social impacts of the project
- assess management, monitoring, planning and other measures proposed to minimise any adverse environmental impacts of the project and for the proponent to prepare environmental management plan(s)
- consider feasible alternative ways to carry out the project
- contain enough information for the proponent to prepare well-informed environmental management plan(s)
- contain sufficient information for State authorities to assess the project and develop relevant recommended, stated and/or imposed conditions of approval.

The project

The proposed project is a greenfield graphite mine and processing plant located approximately 70 kilometres south of Croydon in the Croydon Shire local government area.

The project includes the following:

(a) conventional open-cut mine

(b) mine infrastructure area (including offices, workshops, laydown areas, washing bays, effluent and liquid waste storage, fuel storage and refuelling facilities, and airfield)

(c) on-site processing plant, magazine

(d) water management infrastructure (including permanent watercourse diversion, flood levee, dams, drains, bunds, pipes and pumps)

(e) accommodation facility and associated sewage and water treatment plants

(f) mine access tracks, haul roads, and internal roads

(g) solar farm and energy storage system, transmission infrastructure and back-up diesel generators

(h) ROM pad, tailing storage facilities, product stockpiles and loading area, waste rock dumps.

Graphite ore would be concentrated via conventional flotation methods at the mineral processing plant located within the proposed mining lease. The concentrate would then be trucked to Townsville for further refinement and distribution.

The EIS should give priority to the critical matters associated with the project, including:

- rehabilitation (Section 13)
- water resources (Section 14)
- flooding (Section 16)
- waste management (Section 17).

A critical matter is an aspect of the proposal that has one or more of the following characteristics:

- a high or medium probability of causing serious or material environmental harm or a high probability of causing an environmental nuisance
- it is considered important by the Coordinator-General, and/or there is a public perception that an activity has the potential to cause serious or material environmental harm[1] or an environmental nuisance, or the activity has been the subject of extensive media coverage
- it is relevant to a controlling provision under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- it raises obligations under any other legislation applicable for the project (e.g. *Water Act 2000*).

Statutory basis

The Coordinator-General has declared the project to be a 'coordinated project for which an EIS is required' under section 26(1)(a) of the SDPWO Act. This declaration initiates the statutory environmental impact assessment procedure of Part 4 of the SDPWO Act, which requires the proponent to prepare an EIS for the project.

On 23 June 2025, the Australian Government Minister for the Environment and Water determined the project is not a controlled action (EPBC reference 2025/10140). Accordingly, this TOR does not relate to, or include provisions relating to, matters of national environmental significance (MNES).

Indigenous recognition and native title

This TOR acknowledges and respects the rights, culture, and interests of Queensland's Aboriginal peoples and Torres Strait Islander peoples.

The project is located on lands that that the Federal Court of Australia has confirmed native title exists to preserve lands for the benefit or use of First Nations peoples.

The Tagalaka People received acknowledgement of their native title rights and interests on 10 December 2012 (Native Title Determination: Tagalaka People #2, Federal Court Number: QUD60202001). The determination recognised non-exclusive native title over 29,817 square kilometres.

Accepting statutory processes and regulated decision-making requirements, as far as practicable, the proponent is to demonstrate engagement and consideration of the views of Aboriginal peoples, and if relevant, Torres Strait Islander peoples.

More information

Information about the project, or the coordinated project declaration and EIS process under the SDPWO Act, can be found at **www.statedevelopment.qld.gov.au/coordinator-general.**

[1] Serious and material environmental harm are defined in sections 16 and 17 of the *Environment Protection Act 1994*.

Part B Developing the EIS

1. Structure and general approach

General approach

1.1 The EIS is to address all matters as specified in the TOR for the project.

1.2 Each technical chapter of the EIS must identify and describe the relevant environmental values to be protected.

1.3 Proponents should use cross-referencing within the EIS to avoid repetition of information. It is suggested that proponents follow the heading structure as set out in Part C of this TOR.

1.4 For the purposes of the EIS process, 'environment' is defined in Schedule 2 of the SDPWO Act and includes social and economic matters.[2]

1.5 The detail required in the EIS to address each relevant project matter is to be proportionate to the potential significance of the impact on environmental values. When determining the significance of an impact, consider:

(a) the sensitivity of the environmental value

(b) the extent, intensity, duration, cumulative effect, unpredictability and/or irreversibility of the impact

(c) the risk of environmental harm, and

(d) the effectiveness of any proposed mitigation measures.

1.6 The EIS must address other matters not covered in the TOR in the following circumstances:

(a) studies reveal a matter that had not been foreseen when the TOR was finalised

(b) an issue not previously identified is considered contentious by the public, and addressing this issue is in the public interest

(c) the Coordinator-General directs the proponent in writing to address a matter as an information request under section 34B of the SDPWO Act

(d) new or amended legislation or policies come into effect after the TOR has been finalised[3]

(e) the proponent makes amendments to the proposed project that would result in a change in the nature, timing or location of any impacts.[4]

1.7 The EIS should address matters relevant to the environmental objectives and performance outcomes specified in schedule 8 of the Environmental Protection Regulation 2019 (EP Regulation) to allow appropriate conditions to be developed.

Requirements of an EIS

1.8 The EIS must:

(a) be prepared in accordance with, and meet the minimum requirements of, Schedule 1 of the State Development and Public Works Organisation Regulation 2020

[2] Consider also the definition of 'environment' provided in section 8 of the *Environmental Protection Act 1994*.
[3] Transitional arrangements or exemptions may apply for individual projects.
[4] The proponent is to notify the Coordinator-General of any amendments to the proposed project as described in the project's initial advice statement.

(b) be prepared in accordance with relevant policies, standards and guidelines, including those identified in this TOR, and any others identified during development of the EIS in consultation between the Coordinator-General, the proponent and advisory agencies

(c) address the requirements of sections 125, 126A, 126B, 126C and 126D of the *Environmental Protection Act 1994* (EP Act) to enable the issuing of an environmental authority (EA) and progressive rehabilitation and closure plan (PRCP) schedule for the project

(d) be prepared by suitably qualified and experienced professional(s), relevant to the field of expertise required for each subject matter

(e) characterise the existing environment and clearly define environmental values that may be impacted by the project. This should be supported by site-specific and relevant baseline information sufficient to identify seasonal and long-term variations at a scale relevant to the project

(f) identify the project's relevant impacts and analyse their significance. When determining the significance of an impact, consider the sensitivity of the relevant environmental value, the extent, intensity, duration, cumulative effect and irreversibility of the impact, the risk of environmental harm, and the effectiveness of proposed mitigation measures. Where impacts are not quantifiable, proponents should describe the impacts qualitatively, in as much detail as reasonably practicable

(g) be supported by appropriate scientific and/or specialist studies that include details of their methodology, reliability, and any relevant assumptions or scientific judgements

(h) provide detailed mitigation measures and strategies for the protection or enhancement of relevant environmental values. Mitigation measures should include a scientifically robust and evidence-based assessment of the known, expected and or predicted effectiveness of the mitigation measures for dealing with the project's relevant impacts. Mitigation measures should be specific to the identified impacts, have a clear action or process, be linked to measurable outcomes and align with the preferred hierarchy to:

    (i) avoid

    (ii) minimise or otherwise mitigate

    (iii) remedy and

    (iv) if necessary, offset

(i) provide detail about the quality of the information, in particular:

    (i) the source of the information

    (ii) how recent the information is

    (iii) how the reliability of the information was tested, and any assumptions, exclusions and limitations. Justify the use of information that is incomplete, time-limited or has low levels of reliability, and explain how these limitations have been overcome

(j) present a clear narrative that connects the existing environment and environmental values, project activities, their impacts, how mitigation measures will manage those impacts, and the acceptability of any residual impacts. Conclusions should be supported by objective analysis and relevant evidence

(k) provide plans and drawings of sufficient detail to support the approvals being sought and to enable the Coordinator-General and relevant agencies to evaluate and condition the project

(l) use consistent and clearly defined nomenclature and terminology.

Format and copy requirements

1.9 The proponent must submit a draft EIS for the Coordinator-General's consideration. To ensure the draft EIS is evaluated in a timely manner, documents must be easy to navigate and meet the below criteria:

- an electronic copy in Portable Document Format (PDF)
- an electronic table of contents (PDF or HTML) with hyperlinks to each chapter
- each chapter should include a table of contents, which is hyperlinked to subsections within the chapter (to 3 heading levels)
- hyperlink any external websites referred to in the draft EIS.

1.10 The proponent must provide all supporting data, modelling and input/output information used in the EIS in an appropriate electronic format (e.g. shapefiles or Microsoft Excel files in accordance with the requirements of Table A1.2 of Appendix 1).

1.11 The proponent must provide spatial data for all project components in accordance with the requirements of Table A1.3 of Appendix 1

1.12 Once the Coordinator-General is satisfied the draft EIS addresses the TOR and is suitable for public notification, the proponent must meet the requirements of Table A1.1 of Appendix 1. A PDF version of the draft EIS will be published on the Coordinator-General's website at the commencement of the public notification period, and all advertising material will direct the public to that website. The proponent must not make the draft EIS publicly available until the Coordinator-General provides written advice that the draft EIS may be released. The Coordinator-General recommends visual aids or presentations are provided by the proponent during public notification to enhance stakeholder engagement.

1.13 Documents that do not meet the format and copy requirements will be returned to the proponent.

Part C Content requirements of the EIS

2. Executive summary

2.1 Provide an executive summary that describes and conveys the most important aspects of the project, its potential impacts and how they will be managed, in a concise and readable form. It is to use plain English, avoid jargon, be written as a stand-alone document and broadly follow the structure of the EIS.

3. Introduction

3.1 Provide an introduction that clearly explains the function of the EIS, why it has been prepared and what it sets out to achieve. The introduction should set the context for the detailed assessment of the project and describe the structure of the document.

About the project

3.2 Provide a brief description of the project including:

(a) project title

(b) project location, including street address, locality, lot on plan, and local government area

(c) maximum life of the project

(d) key components of the project

(e) rationale for the project, including a clear outline of the project's objectives and background to the project's development

(f) how the project relates to any other projects, of which the proponent should be reasonably aware that have been, or are being, taken or that have been approved in the area affected by the project

(g) the project's most current status

(h) the consequences of not proceeding with the project.

Project proponent

3.3 Provide the following proponent information:

(a) the proponent's full name, postal address, Australian Business Number or Australian Company Number as applicable, and details of any joint venture partners

(b) the nature of the proponent's business activities and experience in resource projects

(c) the proponent's (including directors) experience in relevant technologies and developing and implementing comparable major projects

(d) the proponent's (including directors) environmental record in Australia, including a list of any breach of, or proceedings against the proponent under an Australian or state law for the protection of the environment or the conservation and sustainable use of natural resources (an environmental law), for at least the previous ten years

(e) the proponent's environmental, health, safety and community policies

(f) experience, qualifications and certification of all suitably qualified consultants and subconsultants engaged by the proponent to complete the EIS

(g) all potential or actual conflicts of interest for the proponent and all consultants and subconsultants engaged by the proponent.

Environmental impact assessment process

3.4 Briefly describe the environmental impact assessment process under the SDPWO Act.

3.5 Describe:

(a) the opportunities for public submission on the EIS, including details on the process for a properly made submission, and

(b) how and when public submissions are addressed and considered in the assessment and decision-making process under the SDPWO Act and any other relevant legislation.

3.6 Briefly discuss how the EPBC Act applies to the environmental impact assessment process, given the relevant EPBC Act decision.

3.7 Describe the environmental management framework to be applied to the project, including the approach to developing environmental management plans.

4. Project description

Proposed development

4.1 Clearly define the project footprint and total disturbance area in hectares (including buffer zones). Define the broader project site, if applicable.

4.2 Provide a description of the project's phases (e.g. pre-construction, construction, operations, decommissioning and rehabilitation), including likely timing and sequencing of phases and the physical layout of the project during each project phase. If the delivery of the project is to be staged, describe the nature and timing of proposed stages, including triggers and hold points.

4.3 Describe project activities across each project phase and identify whether any of the activities are located off lease.

4.4 Describe the proposed mine life, the annual and total quantity of run-of-mine (ROM) ore, waste rock material to be mined, and ore to be processed onsite.

4.5 Describe the resource base, including total seam/ore body thickness and seam/ore body depths.

4.6 Describe the proposed methods, equipment and techniques for extraction and resource separation, beneficiation and processing, including chemicals to be used and expected by-products.

4.7 Describe the project costs, including across each of its phases.

4.8 Describe the proposed delivery model for the project and commercial arrangements for delivery of the project.

4.9 With regards to external/enabling infrastructure, identify and describe:

(a) existing infrastructure that will be impacted by the project across each of its phases (e.g. roads, ports, water, wastewater, stormwater, electricity transmission and supply, telecommunications, waste disposal, housing, etc.)

(b) any external/enabling infrastructure upgrades proposed as part of the project (to be assessed as part of the EIS)

(c) any external/enabling infrastructure upgrades not proposed as part of the project, and how project-related impacts on this infrastructure would be managed.

4.10 Describe any project components subject to change or refinement through detailed design. Discuss alternative options that remain under consideration.

4.11 Describe any project components or activities that are proposed to be assessed separately to the EIS process, including details of the assessment and approvals process.

4.12 Identify whether any project infrastructure or facilities will be shared with other developments.

Site description

4.13 Describe and illustrate with suitably scaled maps the existing environment and features within the project footprint and surrounding area, including:

(a) property descriptions, easements, underlying tenure (including existing, historic and under application resource authorities), land use and ownership information for all land impacted by the project footprint and adjacent properties, including detail of any special attributes of land and/or waters

(b) all existing infrastructure and services relevant to the project, including transport corridors, private roads, local and state-controlled roads, pipelines, energy and gas infrastructure, sewerage, stormwater, communications, rail, air services, maritime, etc.[5]

(c) waterways as defined by the *Fisheries Act 1994*; and lakes, springs, aquifers, floodplain areas (including wetlands), unmapped features, watercourses, and drainage features as defined by the *Water Act 2000* (Water Act).

4.14 Describe and map, in both plan and cross-section view, the geology, topography and landforms of the project area and any relevant areas within the project surrounds (including the boundaries of water catchment areas). Show geological structures (such as aquifers and faults), economic resources (such as agricultural, timber, quarries, mining and gas (including historic)), and any other relevant projects and known development proposals that could have an influence on, or be influenced by, the project and its construction and operational activities.

4.15 Describe, map and illustrate soil types and profiles of the project area including added fill and/or exposed ground surface at a scale relevant to the proposed project and in accordance with relevant guidelines. Identify soils that would require specific management due to wetness, erosivity, sodicity, depth, acidity, salinity or other features.

Project footprint

4.16 Within the context of the existing environment,[6] define and map the location and boundaries of the project footprint, including all infrastructure elements, extent of disturbance (including clearing of vegetation), any off lease infrastructure requirements, and development necessary for the project. Show all key aspects including excavations, spoil and waste dumps, stockpiles, subsidence areas, services infrastructure, plant locations, levees, water storages and dams, tailings storage facilities, existing and proposed groundwater bores, drainage systems, spill containment bunds, buildings, waterway crossings (including type), watercourse and surface water diversions, haul and access roads (identifying sealed and non-sealed), causeways, stockpile areas and loading and unloading facilities, airfields, on-site accommodation, sewage treatment plant and disposal location. Include a discussion of any environmental design features of these facilities (for example, bunding of plant and storage facilities).

4.17 Describe with concept and layout plans, in both plan and cross-section views, requirements for constructing, upgrading or relocating all infrastructure to service the project. Show the locations and dimensions (including clearing) of any necessary infrastructure easements on the plans, including infrastructure such as roads, rail (and the rail corridor), tracks and pathways, environmental no-go areas, fencing, dams and weirs, bores, energy transmission infrastructure,

[5] 'Air services' is defined in the Queensland Government, *State Development Assessment Provisions*, 2024.
[6] As described in Chapters 8 to 30.

power lines and other cables, wireless technology (such as microwave telecommunications), pipelines for any services.

Project phases

4.18 Describe for each project phase (pre-construction, construction, operation, decommissioning and rehabilitation) and stage (if relevant):

(a) timing and sequencing of activities, and any implications where project staging is proposed

(b) disturbance areas for each project component, including buffer zones

(c) workforce numbers expressed as annual average full-time equivalent positions and proposed shifts, as applicable

(d) anticipated workforce recruitment and rostering arrangements, including proposed travel to and from work, such as fly-in, fly-out[7] and drive-in, drive-out

(e) where and how personnel are to be accommodated

(f) the type, quantity, origin, routes, delivery modes, storage and laydown requirements/locations for materials

(g) the precise location (within and outside the project footprint) of works to be undertaken, structures to be built or components of the project that may have relevant impacts

(h) how the works are to be undertaken and design parameters for aspects of the structures, or components, of the project that may have relevant impacts

(i) requirements for new infrastructure, or the upgrading, retention, relocation and/or decommissioning of existing infrastructure on and offsite to service the project.

4.19 For the pre-construction phase, include a description of:

(a) results of pre-disturbance surveys and how this information is or will be used in the final design and construction of the project

(b) proposed development, upgrades, modifications, realignments, relocation, deviation or restricted access to roads and other infrastructure including water, power and telecommunications.

4.20 For the construction phase, include a description of:

(a) proposed hours of construction (including night-time works)

(b) the construction program/stages and key work streams

(c) the proposed construction methodology

(d) any temporary construction areas, and how and when temporary construction areas will be rehabilitated

(e) any resource requirement (e.g. water supply, quarry material, construction materials and components, electricity supply, etc.) and the quantity, source and proposed timing of requirement of each resource

(f) any supporting developments that are required, within and outside the project area, such as quarries, borrow pits, water storage, site offices, laydown areas, roads, etc.

[7] Fly-in, fly-out worker for a large resource project means a worker who travels to the project by aeroplane, or another means, from a place that is not a nearby regional community for the project – Schedule 1 of the *Strong and Sustainable Resource Communities Act 2017*.

(g) any project construction components proposed to be shared with other projects.

4.21 For the operation phase, include a description of:

(a) proposed hours of operation

(b) proposed operational workforce, including proposed shifts and transport demand

(c) with appropriately scaled maps, mining sequence of each seam/ore body/structural unit and cross-sections showing profiles and geological strata and faults

(d) type, quality and quantity of resources mined or extracted at each major stage of the project

(e) water supply requirements and sources

(f) energy demand and sources

(g) other operational service requirements including sewer, waste and stormwater.

4.22 For the decommissioning and rehabilitation phase, include a description of:

(a) the strategy for decommissioning and rehabilitation of all components of the project consistent with the progressive rehabilitation and closure plan

(b) if any infrastructure is proposed to remain on site, identify the owner of this infrastructure and describe long-term use and relevant approvals required (e.g. landholder agreements, council approvals, etc.)

(c) proposed timing and extent of rehabilitation works (including progressive rehabilitation) and where relevant, restoration works[8] with maps at suitable scales showing the location of disturbance areas

(d) the site after final rehabilitation, including mapped final landforms, post-mining land uses and any non-use management areas.

5. Project rationale and alternatives

5.1 Describe the objectives and rationale for the project, including strategic, economic, environmental, and social implications, technical feasibility and commercial drivers. Describe the markets the project is proposed to service and specify if the product will be for export, local markets, or both.

5.2 Demonstrate the need and scale of the project including in a regional, state and national context. Consider this in the context of other major relevant infrastructure projects proposed and/or under development in the region.

5.3 Provide a summary of the current status of similar technologies in Australia and globally, known environmental impacts associated with similar operations, and how these impacts are managed/mitigated.

5.4 Describe the expected benefits and opportunities associated with the project and the relevant recipients of these benefits and opportunities (supported by relative evidence).

5.5 Describe the process and criteria used in selecting the site and defining the project footprint and alignment options for new or existing infrastructure. Where relevant, the multi-criteria analysis is

[8] See Queensland Government, *RPI Act Statutory Guideline 09/14 – How to determine if an activity has a permanent impact on strategic cropping land*, which provides the definition of restoring land. Restoring land means that the land is returned not only to its pre-activity use but also that it is returned to its pre-activity productive capacity or potential productive capacity.

to assess the shared used of common user infrastructure with nearby mines/projects, in accordance with Queensland Government common user infrastructure assessment principles.[9]

5.6 Describe the feasible alternatives to the project and project infrastructure configuration, including conceptual, technological, scale, locality and alignment alternatives that may improve environmental and coexistence outcomes. Detail the criteria used to determine the alternatives. Provide sufficient detail to support selection of the preferred option(s).

5.7 Describe the options assessed for transport of materials and workers to site, and why the preferred option was selected with reference to managing health and safety considerations.

5.8 Where project options or alternatives are still under consideration, provide a description and assessment of each option and a timeframe of when the option will be confirmed. Briefly describe how the potential impacts of these options have been assessed, for example, consideration of worst case or greatest disturbance scenarios.

5.9 Demonstrate why the preferred option(s) has been selected by summarising the comparative environmental, social and economic impacts of each project option (supported by a cost-benefit analysis), with particular regard to the principles of ecologically sustainable development.

5.10 Describe the consequences of not proceeding with the project or any component of the project.

6. Legislative requirements and project approvals

6.1 Identify the statutory approvals (local, State and Commonwealth) that are likely to be required for the project. The list of statutory approvals should be in the format provided at Appendix 2 and describe the approval, relevant statutory provision, trigger, administering authority, when the approval is required (relative to the completion of the EIS process) and any exemptions that apply. Clearly define approvals for which conditions are being sought through the EIS process and approvals for which conditions will be sought separate to the EIS.[10]

6.2 Describe any legislative requirements that would need to be met in relation to the project's potential impacts on protected areas, reserves, declared fish habitat areas and State forests. If the project's potential impacts are considered to be inconsistent with the values of these areas, describe how the inconsistencies will be addressed.

6.3 Provide an overview of the land use planning instruments relevant to the project, such as applicable local government planning schemes, development schemes for a State development area, development schemes or interim land use plans for a priority development area, State regional plans or other land use planning document that regulates development and land use of the site.

6.4 Provide information required under section 125(1) of the EP Act in support of the project's application for an EA for any proposed environmentally relevant activities (ERAs). List each ERA separately and identify the appropriate ERA number and activity name and identify and justify the relevant threshold (see Schedule 2, EP Regulation for a list of ERAs). Environmental values, information and approval requirements are specified in the EP Act, the EP Regulation, environmental protection policies (EPP) and relevant guidelines. The assessment and supporting information, where relevant, is to be sufficient for the administering authority to decide whether an approval should be granted.

6.5 Assess the extent to which the project is consistent with the relevant statutory approvals, and that the intended outcomes are consistent with current legislation, policies, plans, guidelines

[9] Queensland Government, Queensland Treasury, *Common user infrastructure principles*, available at www.treasury.qld.gov.au/programs-and-policies/common-user-infrastructure-assessment-principles/.

[10] Approvals for which conditions are being sought should consider the provisions of Part 4 of the SDPWO Act.

and government priorities for the region. If there is a conflict, explain how the project can be approved.

6.6 Describe any approvals, authorisations or entitlements required under the Water Act, Water Regulation 2016, or applicable water plans. Detail any legislative requirements and processes for gaining access to water for the project (including any relevant exemptions), including discussion of the applicable provisions of any applicable protocols.

7. Stakeholder consultation and engagement

7.1 In preparing the EIS, consult with potentially impacted people, communities and key stakeholders, including but not limited to directly and indirectly affected land and tenure holders, Native Title holders, Aboriginal peoples and Torres Strait Islander peoples, local, State and Australian government agencies, local and regional commerce, community and conservation groups, and social and public service providers. Utilise the community and stakeholder engagement methodologies outlined in the *Social Impact Assessment Guideline* (SIA Guideline)[11] and *Social Impact Assessment Supplementary material for assessing and managing the social impacts of projects under the Coordinator-General's Social Impact Assessment Guideline* (July 2025) (SIA Supplementary Material).[12]

7.2 Describe in a stakeholder consultation and engagement report, the consultation and engagement activities undertaken during the preparation of the EIS. Include the dates of consultation and describe the information that was provided to stakeholders. Demonstrate that engagement methods and processes have clearly described the project and its potential impacts, and are effective, transparent, accessible, timely, well-recorded, provide appropriate content and context, and encourage and facilitate participation.

7.3 Identify issues raised during stakeholder engagement and explain how feedback from stakeholders has been considered and/or resolved during the EIS process and been incorporated into project design and outcomes.

8. Tenure including Native Title

Existing environment

8.1 For the project footprint and surrounding area:

(a) identify the tenure of the land

(b) identify the registered owner of the land

(c) identify any registered interests in the land

(d) identify and describe any proposed use of State land and Commonwealth land

(e) identify any tenure arrangements or commercial arrangements that the proponent has in place to access the land in association with the project

(f) identify any stock route under the *Stock Route Management Act 2002*

(g) identify any underlying resource authorities or applications.

8.2 Confirm whether any quarry materials or forest products in the project footprint are the property of the State and whether such quarry materials or forest products will be interfered with, used, or potentially sterilised.

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[11] Queensland Government, *Social impact assessment guideline*, July 2025.

[12] Queensland Government, Supplementary material for assessing and managing the social impacts of projects under the *Coordinator-General's Social Impact Assessment Guideline (July 2025)*, July 2025. Consideration should also be given to the Australian Government, Department of Climate Change, Energy the Environment and Water, *The Interim Engaging with First Nations People and Communities on Assessments and Approvals under the Environment Protection and Biodiversity Conservation Act 1999 (interim guidance),* 2023 (or subsequent revision).

8.3 Identify any native title rights and interests that apply to the project footprint, including:

(a) a native title assessment that determines the presence, or otherwise, of Native Title over all land or waters

(b) land or waters where Native Title has been determined to exist by the Federal Court

(c) land or waters that are covered by a Native Title determination application

(d) land or waters that are covered by a registered Indigenous Land Use Agreement

(e) land or waters where Native Title has been determined not to exist.

Impact assessment

8.4 Identify any tenure proposed to be applied for as part of the project, including anticipated timeframes, approvals or owner's consent requirements.

8.5 Describe potential temporary and permanent impacts on the tenure of the land.

8.6 For impacts on overlapping tenures, describe the outcomes of consultation with the landholders and occupiers with respect to access to land, impact assessment and mitigation measures.

8.7 Identify whether the project involves any proposed impact on Native Title.

Mitigation measures

8.8 Identify any existing or proposed arrangements to manage impacts on Native Title.

8.9 Describe pathways for resolving Native Title considerations that comply with the *Native Title (Queensland) Act 1993* and the Queensland Government's Native title work procedures (such as the negotiation and registration of an Indigenous Land Use Agreement).[13]

8.10 Detail proposed mitigation measures for potential impacts on the tenure of the land, including measures to maintain ongoing functionality of the land.

9. Land use planning

Existing environment

9.1 For the project footprint and surrounding area identify and describe all current and historic land use, including the following detail:

(a) lot on plan descriptions

(b) key infrastructure

(c) recreational sites and tourist destinations

(d) residential, commercial, and industrial areas

(e) key resource areas

(f) findings of the Agricultural Land Audit (including land of agricultural state interest under the State Planning Policy)[14]

(g) areas of regional interest under the *Regional Planning Interests Act 2014*

[13] Queensland Government, *Native title work procedures*, accessible online https://www.qld.gov.au/firstnations/environment-land-use-native-title/native-title-work-procedures. **https://www.qld.gov.au/firstnations/environment-land-use-native-title/native-title-work-procedures**

[14] The Queensland Agricultural Land Audit identifies land important to current and future production and the constraints to development, highlighting the diversity and importance of Queensland's agricultural industries. For more information visit: www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/business/expand/land-audit.

(h) any land that is listed on the environmental management register or the contaminated land register, or that has been subject to a notifiable activity under the EP Act

(i) any non-statutory and statutory soil conservation plans under the *Soil Conservation Act 1986*

(j) any restricted areas and any unavailable land under section 97 of the Mineral Resources Regulation 2013.

9.2 Identify any land use planning instruments that apply to the project footprint, including:

(a) relevant provisions of the State Planning Policy

(b) the applicable regional plan that applies to the land, including the relevant provisions of the regional plan

(c) relevant provisions of the *Regional Planning Interests Act 2014*

(d) the applicable local government planning scheme, including the relevant provisions of the local government planning scheme

(e) relevant State codes under the State Development Assessment Provisions (SDAP).[15]

Impact assessment

9.3 Assess the project against the land use planning instruments that apply to the project.

9.4 If the project is exempt from compliance with a land use planning instrument, identify the exemption and extent, along with any limitations on the exemption.

9.5 Where non-compliance with a land use planning instrument is identified, provide commentary setting out whether the non-compliance is appropriate and provide reasons for the non-compliance.

9.6 Describe potential temporary and permanent changes to land uses within the project footprint and adjacent to the project footprint, including identifying any incompatible land uses.

9.7 For any impacts on mining or resource exploration activities, liaise with relevant authorised tenement holders. Describe consultation outcomes and potential impacts on tenement holders.

9.8 Provide an assessment against the relevant prescribed solution(s) for any priority living area impacted by the project, if relevant.[16]

Mitigation measures

9.9 Detail proposed mitigation measures for potential impacts on land uses.

9.10 Demonstrate how the project will meet the environmental objectives and performance outcomes relevant to land use in Schedule 8 of the EP Regulation.

10. Land – geology, geomorphology, topography and soils

10.1 The following guidance is relevant for the assessment of land, including geology, geomorphology, topography and soils:

(a) Queensland Government, *Land – EIS information guideline*, ESR/2020/5303

(b) Queensland Government, *Rehabilitation – EIS information guideline*, ESR/2020/5308

[15] Further information regarding SDAP requirements can be accessed from **www.planning.qld.gov.au/planning-framework/state-assessment-and-referral-agency/state-development-assessment-provisions-sdap**. If any off-lease infrastructure requires assessment through the EIS process, the EIS must provide an assessment against the relevant SDAP provision(s).

[16] Schedule 2, Part 3, Section 7, Regional Planning Interests Regulation 2014.

(c) Queensland Government, *Contaminated land – EIS information guideline*, ESR/2020/5300

(d) Queensland Government, *Quarry material – EIS information guideline*, ESR/2020/5306

(e) Queensland Government, *Application requirements for activities with impacts to land*, ESR/2015/1839

(f) Queensland Government, *Queensland Land Resource Assessment Guidelines* – Volume 1: Soil and land resource assessment, 2021

(g) Queensland Government, *Queensland Land Resource Assessment Guidelines* – Volume 1: Field tests, 2020

(h) Queensland Government, *Queensland Soil and Land Resource Survey Information Guideline*, VEG/2018/4460

(i) Soil Science Australia, *Guideline for soil survey along linear features*, 2015

(j) International Erosion Control Association, *Best Practice Erosion and Sediment Control*, 2008.

Existing environment

10.2 Describe, map and illustrate the topography and geomorphology of the project footprint and surrounding area.

10.3 Describe and map the geology and mineralogy of the project footprint and surrounding area, with reference to the physical and chemical properties of surface and sub-surface materials within the proposed areas of disturbance. This should include information regarding the presence of any naturally occurring hazardous materials (e.g. radioactive material or asbestos).

10.4 Describe and map geological structures and properties that could affect ground stability and influence the nature and location of project activities.

10.5 Describe and map soil types, soil profiles and unique map areas within the project footprint at a detailed property level scale[17] relevant to project disturbance.

10.6 Describe physical and chemical soil properties relevant to erosion, stability, salinity, acidity, rehabilitation and agricultural suitability and productivity supported by site-specific soil data.

10.7 Where excavated rock or spoil is to be used or placed within the project footprint, analyse the potential for acid generation, or generation of other potential pollutants of air, land or waters, supported by site-specific geochemical data.

10.8 Discuss how geology, geomorphology, topography, soils and relevant environmental values have informed the project design (e.g. constraints).

Impact assessment

10.9 Identify and assess the impacts of project activities and disturbance on geology and geomorphology. Analyse and describe the significance of these impacts on the structural stability of affected strata and landforms and their ability to support environmental values.

10.10 Identify and assess the impacts of project activities and disturbance on soils during each project phase and identify soil types requiring particular management. Analyse and describe the significance of these impacts on environmental values, current and future land use and

[17] The scale of mapping must be in accordance with section 5 of the *Queensland Soil and Land Resource Survey Information Guideline*, VEG2018/4460.

management requirements, including consideration of erosion, stability, salinity, acidity, rehabilitation and agricultural productivity.

10.11 Assess the risks of project activities resulting in land contamination.

10.12 Where irrigation water or effluent is proposed to be applied to land:[18]

(a) identify the irrigation area

(b) describe irrigation water or effluent quality (including pH, salinity, biological oxygen demand, total solids, nutrients, and microbiology)

(c) provide design irrigation rates

(d) identify contingency storage

(e) demonstrate the avoidance of soil and land degradation (e.g. soil structure decline, secondary salinisation, erosion), and protection of soil composition and condition and associated environmental values, supported by irrigation modelling (e.g. MEDLI (model for effluent disposal using land irrigation)).

Mitigation measures

10.13 Describe proposed measures to avoid and minimise predicted impacts to land or soils, and the environmental values they support. Demonstrate how proposed measures are consistent with best practice environmental management.

10.14 Demonstrate how the proposed project will meet the environmental objectives and performance outcomes for land in Schedule 8 of the EP Regulation.

10.15 Demonstrate that the disposal to land of any liquid wastes from onsite sewage treatment would meet the environmental objectives and performance outcomes in Table 1 (Operational assessment), Part 3, Schedule 8 of the EP Regulation.

10.16 Describe how unplanned impacts to land will be managed, including measures to avoid, identify, remediate and manage land that is contaminated or may become contaminated.

10.17 Describe how the achievement of environmental objectives and associated performance outcomes would be monitored, audited and reported, and how corrective/preventative actions and continual improvement would be managed.

10.18 Where actual or potential acid sulfate soils will be disturbed by the project, prepare an acid sulfate soil management plan in accordance with accepted industry guidelines to avoid or minimise adverse effects on environmental values.[19]

10.19 Where excavated material is potentially acid-forming or otherwise potentially polluting, prepare an excavated material management plan in accordance with accepted industry guidelines[20] to avoid or minimise adverse effects on environmental values.

[18] Relevant guidelines for projects which trigger ERA63: Queensland Government, *Model operating conditions ERA 63—Sewage Treatment*, ESR/2015/1668 and Queensland Government, *Disposal of effluent using irrigation – Technical Guideline*, (2020).
[19] Queensland Government, *Queensland Acid Sulfate Soil Technical Manual - Soil Management Guidelines,* Version 5.1 (or subsequent revision); Queensland Government, *State Planning Policy – state interest guidance material, Emissions and hazardous activities*, 2018 (or subsequent revision).
[20] Australian Government, *Managing Acid and Metalliferous Drainage Leading Practice Sustainable Development Program for the Mining Industry*, 2016; International Network on Acid Prevention, *Global Acid Rock Drainage Guide*, 2024.

11. First Nations cultural heritage

Existing environment

11.1 Identify the Aboriginal peoples who are the Traditional Custodians of the land and waters within the project footprint, surrounding area and potential impact area.

11.2 Identify the existing and potential Aboriginal peoples' cultural heritage values and the environmental values of the cultural landscape of the affected area in terms of the physical and cultural integrity of lands and waters potentially affected by the project. This is to be undertaken in consultation with relevant Aboriginal peoples consistent with consultation and engagement requirements identified in Section 7 of this document.

11.3 Any desktop assessment must be verified and supported by a field survey of the project footprint. The survey must be sufficient to support the preparation of a cultural heritage management plan (CHMP) in accordance with the *Aboriginal Cultural Heritage Act 2003*.

Impact assessment

11.4 Detail potential impacts on Aboriginal peoples' cultural heritage in accordance with the *Aboriginal and Torres Strait Islander cultural heritage – EIS information guideline*.[21] Consider every aspect of the environment that has a cultural dimension.

Mitigation measures

11.5 Develop a CHMP for the project in accordance with the requirements of Part 7 of the *Aboriginal Cultural Heritage Act 2003* and identify any associated agreements that have been reached.[22] The area covered by the CHMP must include the project's potential impact area being assessed in the EIS.

12. Non-Indigenous cultural heritage

Existing environment

12.1 Describe the known and potential historic heritage values that are protected under the *Queensland Heritage Act 1992*, which may be impacted by the project.

12.2 Undertake a study of, and describe the known and potential historic heritage values that may be affected by the project in accordance with the *Non-Indigenous cultural heritage – EIS information guideline*.[23] After identifying local and State values, assess the values against the respective thresholds using recognised criteria.

12.3 In consultation with the Queensland Museum, review and assess the extent and stratigraphic context of fossil deposits (if any) within the project footprint to determine their value to the community, such as age, species, rarity and representation, if relevant.

Impact assessment

12.4 Detail potential impacts on non-Indigenous cultural heritage values.

Mitigation measures

12.5 Propose mitigation measures to avoid and minimise harm to non-Indigenous cultural heritage values in accordance with the *Non-Indigenous cultural heritage – EIS information guideline*. Management and mitigation strategies should include provisions for discoveries of potentially

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[21] Queensland Government, *Aboriginal and Torres Strait Islander cultural heritages – EIS information guideline*, ESR/2020/5296.
[22] Unless section 86 of the *Aboriginal Cultural Heritage Act 2003* or the *Torres Strait Islander Cultural Heritage Act 2003* applies.
[23] Queensland Government, *Non-Indigenous cultural heritage – EIS information guideline*, ESR/2020/5302.

significant archaeological artefacts in accordance with section 89 of the *Queensland Heritage Act 1992* and include reference to the *Guideline - Archaeological Investigations* and *Assessing cultural heritage significance: Using the cultural heritage criteria*.[24]

12.6 In consultation with the Queensland Museum, identify strategies to mitigate and/or manage impacts on fossils should they be found within the project footprint, if relevant.

13. Rehabilitation and closure

13.1 The following guidance is relevant to rehabilitation:

(a) Queensland Government, *Rehabilitation – EIS information guidelines*, ESR/2020/5308

(b) Queensland Government, *Progressive rehabilitation and closure plan (PRCP plans) – Statutory guideline*, ESR/2019/4964

(c) Queensland Government, *Common issues with Progressive Rehabilitation and closure plan applications – Information Sheet*, ESR/2021/5775

(d) Queensland Government, *Voids in Floodplains – Information sheet*, ESR/2019/4966

(e) Queensland Government, *Non-use management areas – Information sheet*, ESR/2019/4954

(f) Queensland Government, *Incorporating greenfield sites and exploration disturbance into progressive rehabilitation and closure plans – Information sheet*, ESR/2024/6766.

13.2 Describe the rehabilitation strategy which demonstrates how the project infrastructure will be decommissioned and removed, and area rehabilitated, including timing and agreed final landforms and use. Where infrastructure is proposed to remain, identify the owner of this infrastructure.

13.3 Demonstrate that the rehabilitation of the environment disturbed by construction, operation and decommissioning of the project can meet the environmental objectives and performance outcomes in Schedule 8A of the EP Regulation.

13.4 Where relevant, describe restoration works proposed for areas of regional interest under the *Regional Planning Interests Act 2014*.[25]

Progressive rehabilitation and closure plan

13.5 Provide a proposed PRCP for the project in accordance with *Submission of a progressive rehabilitation and closure plan* and best practice approaches about the strategies and methods for progressive and final rehabilitation.[26] The PRCP must show how and where activities will be carried out on land in a way that maximises the progressive rehabilitation of the land and waterways to a stable condition and provides for the condition to which the holder must rehabilitate the land before the EA may be surrendered.[27] The PRCP must consist of two components:

(a) rehabilitation planning part

(b) PRCP schedule.

[24] Queensland Government, *Guideline – Archaeological Investigations* (Department of Environment and Science, 2019); Queensland Government, *Assessing cultural heritage significance – using the cultural heritage criteria*, 2017.
[25] See: State Government, *Areas of Regional Interest* (website) available at: **https://www.planning.qld.gov.au/planning-issues-and-interests/areas-of-regional-interest**.
[26] Queensland Government, *Submission of a progressive rehabilitation and closure plan*, ESR/2019/4957.
[27] Stable condition is defined in section 111A of the EP Act.

Rehabilitation planning part

13.6 Provide rehabilitation planning part of the proposed PRCP, by addressing the following:

(a) describe each resource tenure, including the area of each tenure

(b) describe the relevant activities and the likely duration of the relevant activities

(c) describe all water needs and the proposed authority under which the water would be taken to do this work by defining the location, source of water take, and volumes required

(d) include a detailed description, including maps, of how and where the relevant activities are to be carried out

(e) include details of the consultation undertaken in developing the proposed PRCP, including infrastructure proposed to be retained onsite

(f) if infrastructure is proposed to be retained, state the required actions to ensure it is safe, stable and does not cause environmental harm

(g) include details of how ongoing consultation will be undertaken to discuss rehabilitation to be carried out under the plan

(h) include details of how waterway barriers will be removed, or if not removed, how fish passage will be reinstated

(i) state the extent to which each proposed post-mining land use or non-use management area is consistent with the outcome of consultation with the community in developing the plan and any strategies or plans for the land of a local government, the state government or the Australian government

(j) for each proposed post-mining land use, state the proposed methods or techniques for rehabilitating the land to a stable condition in a way that supports the rehabilitation milestones under the proposed PRCP schedule

(k) identify the risks of a stable condition for land identified as a proposed post-mining land use not being achieved, and detail measures to manage or minimise the risks

(l) demonstrate how the post-mining land use aligns with the surrounding regional ecosystems and promotes connectivity of habitats, where relevant

(m) demonstrate how the post-mining land use aligns with surrounding land uses (e.g. grazing, cropping) and how the values and productivity of these land uses will be achieved and maintained on rehabilitated areas, where relevant

(n) for each proposed non-use management area, state the reasons why the area cannot be rehabilitated to a stable condition because of either of the below:

  (i) carrying out rehabilitation of the land would cause a greater risk of environmental harm than not carrying out the rehabilitation or

  (ii) the risk of environmental harm as a result of not carrying out rehabilitation of the land is confined to the area of the relevant resource tenure and the proponent considers, having regard to each public interest consideration, that it is in the public interest for the land not to be rehabilitated to a stable condition

(o) include copies of reports or other evidence relied on for each proposed non-use management area

(p) for each proposed non-use management area, state the proposed methodology for achieving best practice management of the area to support the management milestones under the proposed PRCP schedule for the area

(q) include other information requirements outlined in G*uideline – Progressive rehabilitation and closure plans*.[28]

13.7 Show a comparison of pre-activity site topography and the expected final topography of the site. Illustrate the location of proposed infrastructure (including tailing storage facilities, dams, voids and waste rock dumps, disturbed and rehabilitated areas) in relation to the flood plain as defined by section 41C(3) of the Environmental Protection Regulation and determined in accordance with the *Guideline – Progressive rehabilitation and closure plans* and the *Voids in Flood Plains information sheet*[29].

13.8 Describe how the costs of rehabilitation have been considered in the proposed rehabilitation outcomes for the project. Provide an estimation of rehabilitation costs for the project in its year of maximum rehabilitation liability, demonstrated to be in accordance with the approved calculation methodology in *Estimated rehabilitation cost under the Environmental Protection Act 1994, Estimated rehabilitation cost calculator – mining,* and *User guide for estimated rehabilitation cost calculator user guide – mining.*[30]

PRCP schedule

13.9 Provide a proposed PRCP schedule which describes time-based milestones for achieving each post-mining land use or non-use management areas for the project.[31] Present the proposed PRCP schedule in the table template included in *Submission of a progressive rehabilitation and closure plan.*[32]

13.10 The proposed PRCP schedule, must identify:

(a) all land within the resource tenure as either a post-mining land use or non-use management area

(b) when land becomes available for rehabilitation or improvement

(c) rehabilitation milestones to achieve a post-mining land use

(d) management milestone to achieve a non-use management area

(e) milestone criteria that demonstrate when each milestone has been completed

(f) completion dates for each milestone to be achieved

(g) a final site design

(h) all milestone criteria must be consistent with the SMART principles.[33]

13.11 Demonstrate that effective, long-term planning for rehabilitation over the life of the mine has been included in the mine planning in line with matters raised in *Guideline – Progressive rehabilitation and closure plans.*[34]

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[28] Queensland Government, *Statutory Guideline – Progressive rehabilitation and closure plans*, ESR/2019/4964.
[29] Queensland Government, *Voids in floodplains – Information sheet*, ESR/2019/49662.
[30] Queensland Government, *Guideline – Estimated rehabilitation cost under the Environmental Protection Act 1994*, ESR/2018/4425; Queensland Government, *Estimated rehabilitation cost calculator – mining*, ESR/2015/1824; Queensland Government, *User Guide for Estimated Rehabilitation Cost Calculator for Mining*, ESR/2019/4626.
[31] Queensland Government, *Guideline – Progressive rehabilitation and closure plans* (PRC Plans), ESR/2019/4964.
[32] Queensland Government, *Submission of a progressive rehabilitation and closure plan*, ESR/2019/4957.
[33] SMART milestones are: Specific – it is clear what must be done; Measurable – it must be possible to know when it has been achieved; Achievable – it is capable of being achieved; Reasonable/relevant – there is a clear connection between the milestone and the desired outcomes. The requirement is reasonable; Time Specific – it is clear when the milestone will be completed.
[34] Queensland Government, *Guideline – Progressive rehabilitation and closure plans* (PRC Plans), ESR/2019/4964.

14. Water resources

14.1 The following guidance is relevant for the assessment of water resources:

(a) Queensland Government, *Water – EIS information guideline*, ESR/2020/5312

(b) Queensland Government, *Groundwater dependent ecosystems – EIS information guideline*, ESR/2020/5301

(c) Queensland Government, *Application requirements for activities with impacts to water*, ESR/2015/1837

(d) Queensland Government, *Stormwater and environmentally relevant activities*, ESR/2015/1653

(e) Queensland Government, Our policies (website), available at: **www.dlgwv.qld.gov.au/about-us/our-policies**

(f) Queensland Government, *Requirement for site-specific and amendment applications-underground water rights – Guideline*, ESR/2016/3275.

Existing environments

14.2 Describe the legislative context for water resources in the project footprint and surrounding area, including the *Water Act 2000*, provisions (e.g. outcomes, strategies and objectives) of the relevant water plan(s), water management protocols and other relevant water planning instruments relevant to the project.

14.3 Describe, map and illustrate water features within the existing surface water environment in the project footprint, surrounding area and potential impact area including:

(a) natural, modified, ephemeral and perennial waterways, watercourses,[35] drainage features, lakes (including waterholes, lagoons, wetlands and swamps) and springs

(b) drainage patterns, catchments, stream order, sediment processes and geomorphology

(c) hydrology and streamflow characteristics, including the frequency, duration and magnitude of flow events, and seasonal variations (supported by site-specific hydrological modelling)

(d) flooding and overland flow patterns, including flood-prone or low-lying land within the project footprint

(e) waterways providing for fish passage, and natural or artificial waterway barriers

(f) alterations or interferences with the flow regime, including impoundments (dams, weirs, etc.) diversions, levees and stormwater management systems

(g) groundwater-surface water interactions, including identification of waterways as gaining or losing streams, and potential for groundwater baseflow to other water features (e.g. wetlands)

(h) current and potential surface water uses and users, including supported environmental values (e.g. aquatic ecosystem health), licenced and unlicenced abstraction (including location, purpose and volumes where relevant) their existing condition and the streamflow required to support uses and users

(i) the significance of water features within the local and regional surface water environment

[35] Note that the terms 'watercourse' and 'waterway' are defined in the EP Act and the *Fisheries Act 1994*. The terms 'watercourse' and 'drainage feature' are defined in the *Water Act 2000*. Watercourses can be identified at https://www.business.qld.gov.au/industries/mining-energy-water/water/maps-data/watercourse-map.

(j) the sensitivity of the surface water environment to change, particularly within the context of project-related changes.

14.4 Describe, map and illustrate the existing groundwater environment within the project footprint, surrounding area and potential impact area, including for each relevant groundwater formation:

(a) its nature, type, geology/lithology, stratigraphy, thickness and depth

(b) its hydraulic properties, vertical and horizontal connectivity (including inter-aquifer connectivity, groundwater-surface water interaction and barriers to flow) and the effects of geological structures (e.g. faults and dykes)

(c) hydrostratigraphical characteristics including groundwater flow, recharge and discharge, current and historical groundwater levels (supported by hydrographs), seasonal variations and other trends, contours and flow directions

(d) current and potential groundwater uses and users, including supported environmental values (e.g. GDEs, water supply bores, etc.), authorised (licenced and unlicenced) abstraction (including purpose and volumes where relevant), location and source of existing groundwater supply facilities (e.g. bores or wells) and the groundwater levels required to support uses and users

(e) its significance within the local and regional environment

(f) its sensitivity to change, particularly within the context of project-related impacts.

14.5 Develop an ecohydrological conceptual model using illustrations, maps and cross-sections that represents the groundwater and surface water components and how they interact with ecological and human uses and users within the project footprint, surrounding area and potential impact area in consideration of the *Information Guidelines Explanatory Note – Using impact pathway diagrams based on ecohydrological conceptualisation in environmental impact assessment*.[36]

14.6 Describe investigation and monitoring programs to support characterisation of the existing water environment (including sediment), and demonstrate that it is supported by sufficiently robust site-specific data, and is in accordance with relevant guidelines and best practice by:[37]

(a) justifying the number and spatial extent of monitoring locations (including reference locations), relevant to the existing environment and proposed project activities or infrastructure

(b) justifying the frequency and duration of monitoring periods

(c) providing monitoring bore stratigraphy and drilling logs

(d) describing monitoring and sampling methods and equipment

(e) describing any limitations of the monitoring network or dataset (e.g. reliance on third party access) and how and when these limitations will be addressed

(f) justifying the representativeness and suitability of the monitoring network to characterise the existing environment, establish baseline conditions (including natural variations) and monitor project-related impacts.

[36] Australian Government, *Information Guidelines Explanatory Note – Using impact pathway diagrams based on ecohydrological conceptualisation in environmental impact assessment,* 2024. Note, these guidelines are best practice and are to be considered independent of any controlling provisions under the EPBC Act.

[37] Queensland Government, *Monitoring and sampling manual – Environmental Protection (Water) Policy 2009*, 2nd edition, 2018; National Uniform Drillers Licensing Committee, *Minimum Construction Requirements for Water Bores in Australia*, 4th edition, 2020; Australian and New Zealand Governments, *Australian and New Zealand guidelines for fresh and marine water quality*, 2018.

Impact assessment

14.7 Identify the location of all project activities, disturbance footprint and infrastructure in relation to the existing water environment.

14.8 Describe and map project water management infrastructure including water storages, regulated structures, inundation areas, drains, diversions, levees, water treatment plant, water pipelines, irrigation areas, discharge points and monitoring points. Provide the flow rate and dimensions of water flow diversions and the dimensions and volumes of impoundments.

14.9 Describe the project's water supply requirements for each stage of the project. Identify and evaluate all water supply options for the project, including any options available under the relevant water plan. Detail the source(s)/location(s), type(s) (e.g. potable, raw), volumes required, storage locations, security, availability and quality of supply, expected rates of usage and water treatment requirements.

14.10 Describe any temporary or permanent watercourse diversion and include scaled plans and cross-sections of the proposed diversion. Demonstrate how the proposed functional design of any diversion would address the key principles and achieve each of the outcomes of *Works that interfere with water in a watercourse for a resource activity—watercourse diversions authorised under the Water Act 2000* in sufficient detail to facilitate assessment.[38]

14.11 Describe the project's direct and indirect water take/interference, including groundwater dewatering, and alteration of drainage characteristics (e.g. diversion or interception of waterways or overland flow) to facilitate project water management.

14.12 Provide a detailed water balance for the project across all project stages. Include groundwater collected during dewatering, and management of incident rainfall on disturbed areas such as spoil piles. Quantify the water balance analysis including evaporative and seepage losses from relevant infrastructure. Identify quantities of water the project will require to release and any proposed measures to reduce the volume of water to be released (suitability and quantities used for dust suppression, irrigation, evaporation, etc.).

14.13 Describe and map any waterway barrier works that may interfere with fish passage. Include any upstream inundation areas caused by project infrastructure; and impacts to downstream flow regimes that may impact fisheries resources that are reliant on environmental flows. Measure and document the main channel and bankfull widths of each impacted waterway at representative points throughout the impacted area.

14.14 Describe and map any activities or disturbance in, or within 40 metres of, the bed and banks of a watercourse, lake or spring as defined by the Water Act. Describe, map and justify the extraction of materials obtained from the bed and banks of the watercourse, lake or spring. Describe any exemptions or approvals that may be required for these activities and provide the relevant information.[39]

14.15 Describe the proposed water supply and direct and indirect water usage/interference, including the details and timing of relevant authorisations and approvals (e.g. allocations, licences, agreements, exemptions, unallocated water). Identify the water that is regulated under the relevant legislative instruments, and how it applies/does not apply to the project. Describe how the project, including proposed authorisations and approvals for all project stages (including post-closure), would address and satisfy the relevant criteria in the *Water Act 2000* and the relevant water plan(s).

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[38] Queensland Government, *Works that interfere with water in a watercourse for a resource activity—watercourse diversions authorised under the Water Act 2000,* OSW/2019/4599.
[39] Queensland Government, *Riverine protection permit exemption requirements*, WSS/2013/726.

14.16 If seeking unallocated water as a water supply for the project, as either surface water under the Water Plan (Gulf) 2007 and/or groundwater under the Water Plan (Great Artesian Basin and Other Regional Aquifers) 2017, describe how the project meets the requirements for releasing strategic or state reserve unallocated water under the respective water plan, including:

(a) eligibility requirements for accessing strategic or state reserve unallocated water

(b) the availability of water in the plan area for the proposed purpose

(c) the efficiency of existing and proposed water use practices

(d) the impact of the proposed taking of water may have on existing authorisations in the plan area, as well as other known potential projects in the immediate and surrounding area

(e) the availability of an alternative water supply for the purpose of which the water is required, including why alternatives are not suitable for the project

(f) the impact the proposed taking and use of water may have on natural ecosystems and the environmental outcomes of the water plan

(g) impact the proposed taking and use of water may have on cultural and spiritual values under the cultural outcomes of the plan.

14.17 Supported by hydrological modelling, prepare a detailed water balance for the project including for each stage of the project, considering temporary and long-term water requirements. Identify and assess the impacts of project activities, disturbance and infrastructure on surface water resources, existing or potential water users and uses, and relevant environmental values. Analyse and describe the significance of direct, indirect and cumulative impacts on water features, hydrology and flow characteristics, drainage patterns, sediment processes, geomorphology, groundwater-surface water interactions, and the environmental values supported by these features and characteristics (e.g. dry season refugia, recreation facilities). Analyse and describe the significance of impacts in the context of local and regional water resources, and with reference to provisions of the relevant water plan(s), water management protocols and other water planning instruments relevant to the project.

14.18 Develop a numerical groundwater model in accordance with the relevant guidelines that:[40]

(a) is consistent with the ecohydrological conceptual model

(b) predicts project-only and cumulative groundwater changes to:

(i) groundwater drawdown or pressure changes in affected formations

(ii) groundwater flows, inter-aquifer connectivity, recharge and discharge

(iii) groundwater-surface water connectivity

(iv) groundwater uses and users

(c) simulates groundwater impacts for the life of project and post closure, with sufficient timeframe to assess long term impacts, evaporation losses from a residual void and potential plume behaviour and aquifers recovery

(d) connects model outputs to groundwater monitoring design and defines adaptive management strategies (e.g. drawdown thresholds or contaminant concentrations)

(e) is peer reviewed by an independent third-party specialist, and accompanied by a peer review report

[40] Australian Government, *Australian groundwater modelling guidelines*, 2012.

(f) is accompanied by a numerical model report that details all relevant parameters, conditions and assumptions used.

14.19 Supported by numerical groundwater modelling, identify and assess the impacts of project activities, disturbance and infrastructure on groundwater resources and environmental values. Analyse and describe the significance of direct and indirect impacts on aquifers and other relevant groundwater units, including groundwater levels and pressure, groundwater flows, inter-aquifer connectivity, recharge and discharge, groundwater-surface water connectivity, and the environmental values supported by these features and characteristics (e.g. GDEs, water supply bores, etc.). Analyse and describe the significance of impacts in the context of local and regional water resources, and with reference to provisions of the relevant water plan(s) and other relevant water planning instruments relevant to the project.

14.20 Provide an assessment against the relevant prescribed solution(s) for any area of regional interest impacted by the project, if relevant.[41]

Mitigation measures

14.21 Provide a project water management strategy (including site layout and conceptual plans) that details stormwater and wastewater management systems and structures including any significant diversion or interception of overland flow, capacity of onsite detention systems, details of water sensitive urban design measures, sediment basins, discharge locations, and measures to treat, reuse or dispose of water. Demonstrate that project water management systems have been designed to minimise the likelihood of uncontrolled discharges and avoid or minimise impacts to the receiving environment.

14.22 Describe proposed measures to avoid, minimise, mitigate or offset the predicted impacts to surface water and groundwater resources, existing or potential water users and uses, and relevant environmental values. Demonstrate how proposed measures are consistent with best practice environmental management.

14.23 Demonstrate how the proposed project will meet the environmental objectives and performance outcomes in Schedule 8 of the EP Regulation.

14.24 Describe how the achievement of water resources objectives in relevant water plan(s) would be monitored, audited, reported, and how corrective/preventative actions and continual improvement would be managed. Provide measurable criteria, standards and/or indicators that will be used to assess the condition of environmental values and the receiving water environment.

14.25 Provide an assessment against SDAP *State code 10: Taking or interfering with water* for any assessable operational works that take or interfere with water required for the project, including construction activities, if relevant.

14.26 Provide an assessment against SDAP *State code 15: Removal of quarry material from a watercourse or lake* for any assessable operational works required for the project, including construction activities, if relevant.

14.27 Provide an assessment against SDAP *State code 20: Referable dams* for any assessable operational works requiring the development of a referable dam required for the project, if relevant.

[41] Schedule 2, Regional Planning Interests Regulation 2014.

Water-related cultural values

Existing environment

14.28 Discuss Aboriginal peoples' cultural and spiritual values and water-related cultural use as relevant to the project and recognised under the *Human Rights Act 2019*.

Impact assessment and mitigation measures

14.29 Describe the project's potential impacts on water-related cultural values, uses and aspirations of water resources for Aboriginal peoples, including consideration for cultural outcomes of the relevant water plans.

14.30 Describe how water-related cultural values, uses and aspirations of water resources for Aboriginal peoples will be protected and/or promoted through water allocation and management strategies, relevant to the project.

14.31 Where country may be affected by existing or proposed projects in the area, assess the cumulative impacts of these projects on the water-related cultural values, uses and aspirations linked to water for Aboriginal peoples.

15. Water quality

15.1 The following guidance is relevant for the assessment of water quality:

(a) Queensland Government, *Water – EIS information guideline*, ESR/2020/5312

(b) Queensland Government, *Groundwater dependent ecosystems – EIS information guideline*, ESR/2020/5301

(c) Queensland Government, *Monitoring and Sampling Manual: Environmental Protection (Water) Policy*, 2018

(d) Queensland Government, *Application requirements for activities with impacts to water*, ESR/2015/1837

(e) Queensland Government, *Technical guideline - Wastewater release to Queensland waters*, ESR/2015/1654

(f) Queensland Government, *Using monitoring data to assess groundwater quality and potential environmental impacts*, 2021

(g) Queensland Government, *Stormwater and environmentally relevant activities*, ESR/2015/1653.

Existing environment

15.2 With reference to the Environmental Protection (Water and Wetland Biodiversity) Policy 2019 and section 9 of the EP Act, identify, map and describe the environmental values of surface water and groundwater in the project footprint, surrounding area and potential impact area.

15.3 Identify and describe the relevant water and sediment quality objectives and guidelines applicable to the environmental values. Where there are no scheduled EPP water or sediment quality objectives for the project site, these are required to be locally derived in accordance with relevant guidelines,[42] supported by complying water quality monitoring data submitted as part of the EIS.

[42] Queensland Government, *Queensland Water Quality Guidelines*, 2013; Queensland Government, *Deciding aquatic ecosystem indicators and local water quality guideline values*, 2022.

15.4 Describe current and historical surface water, groundwater and sediment quality in terms of physical, chemical and biological characteristics in the project footprint, surrounding area and potential impact area. Characterise the nature and extent of any existing surface and groundwater contamination sources, including licenced releases from other developments, that may interact with project activities.

15.5 Analyse water quality variability to identify and describe trends, including those associated with seasonal or climatic factors, variability of freshwater flows and responses to natural and anthropogenic events/changes. This analysis should be supported by raw and quality assured data (including removal of statistical outliers where relevant), clearly presented statistical summaries, time-series graphs and comparisons against relevant water quality objectives and/or water quality guideline values. Use suitable reference locations and statistically robust site-specific data to adequately establish baseline condition and define natural variation, including seasonal variation. All surface water quality data should be presented alongside corresponding flow conditions at the time of sampling.

15.6 Within the project footprint, surrounding area and potential impact area, describe:

(a) the relationship of water quality to location, rainfall, stream flow and groundwater movement supported by site-specific and local catchment data

(b) existing water quality issues (e.g. stratification, eutrophication and deoxygenation) and/or exceedance of existing water quality objectives and/or water quality guideline values

(c) the confirmed or likely causes of existing water quality issues, including how they are managed (if known)

(d) correlations between groundwater quality data and surface water quality data to inform groundwater-surface water interactions.

15.7 Surface water samples must as a minimum be analysed for electrical conductivity, temperature, pH, sulfate, fluoride, dissolved oxygen, turbidity, total suspended solids, nutrients, dissolved and total metals and metalloids, total recoverable hydrocarbons and major anions and cations, plus any other potential contaminants relevant to the project. Groundwater samples must be analysed for the same parameters (except turbidity and total suspended solids) as a minimum. Sediments should be analysed for relevant metals (e.g. those elevated above normal crustal abundance and relevant potential contaminants) and relevant influential factors (e.g. sediment particle size for metals). Sample analysis should be appropriate for relevant water quality objectives to be assessed (e.g. laboratory reporting limits appropriate for the relevant objectives).

15.8 Discuss how the environmental values relating to water quality informed the project design (i.e. constraints, impact mitigation).

Impact assessment

15.9 Describe and map all potential and/or proposed controlled and uncontrolled discharges of water and contaminants[43] by the project, including the predicted quantity, quality, location, source (point or diffuse) timing and duration. Discharges may include controlled water releases to surface waters, uncontrolled discharges when the design capacity of storages is exceeded, management of spills of products during loading or transportation, stormwater discharge, and contaminated run-off or seepage from operational areas of the site. Address the following matters for each potential discharge:

(a) describe the circumstances in which controlled and uncontrolled discharges might occur

[43] Defined under sections 440ZD and 440ZF of the EP Act and Schedule 10 of the EP Regulation.

(b) describe chemical and physical discharge properties, including predicted concentrations of contaminants, at the point of entering natural surface waters along with toxicity of discharge contaminants to relevant environmental values (e.g. aquatic ecosystems, irrigation water etc.)

(c) provide receiving environment stream flow data, discharge rates and other relevant information to estimate the potential for in-stream dilution, mixing and resultant water quality

(d) provide an assessment of the available assimilative capacity of the receiving waters given existing water quality and other potential point source discharges in the catchment. Investigate options for controlled discharge at times of natural stream flow to ensure that adequate flushing of wastewater is achieved

(e) provide draft contaminant release limits and receiving water conditions, with detailed scientific justification to ensure the protection of aquatic ecosystem health, other relevant environmental values and to protect other water uses.

15.10 Identify and assess the impacts of project activities (including point source and diffuse discharges), disturbance and infrastructure on groundwater and surface water and sediment quality and relevant environmental values. Analyse and describe the significance of direct, indirect and cumulative impacts on physical, chemical and biological characteristics in the receiving environment in the context of the assimilative capacity, supported environmental values and relevant water and sediment quality objectives and/or guideline values. This should include potential impacts from air deposition of contaminants from stack point source emissions.

Mitigation measures

15.11 Describe proposed measures to avoid, minimise, mitigate or offset predicted impacts to surface water and groundwater quality, and relevant environmental values.

15.12 Describe the management framework for controlled discharges, including:

(a) treatment options and requirements prior to discharge

(b) receiving environment flows

(c) discharge water quality limits and receiving environment conditions designed to comply with water quality objectives and/or water quality guideline values and protect environmental values within the receiving environment.

15.13 Describe how unplanned or indirect impacts (including uncontrolled discharges) to water quality will be managed, including measures to:

(a) avoid, identify, remediate and manage water that is contaminated or may become contaminated

(b) limit the impacts of flooding and extreme weather events.

15.14 Demonstrate how the project will meet the environmental objectives for water and performance outcomes in Schedule 8 of the EP Regulation.

15.15 Describe how water quality will be monitored, audited, reported, and how corrective/preventative actions and continual improvement would be managed. Provide measurable criteria, standards and/or indicators that will be used to assess the condition of environmental values and the receiving water environment.

15.16 Develop proposed conditions for any proposed release to waters and receiving environment monitoring that meet the requirements of relevant guidelines and are designed to protect environmental values, prevent environmental harm and allow for responsive management and reporting actions.

16. Flooding and regulated structures

16.1 The following guidance is relevant for the assessment of flooding and regulated structures:

(a) Queensland Government, *Water – EIS information guideline*, ESR/2020/5312

(b) Australian Government, Australian Rainfall and Runoff: *A Guide to Flood Estimation*, 2019

(c) Queensland Government, *Regulated structures – EIS information guideline*, ESR/2020/5307

(d) Queensland Government, *Structures which are dams or levees constructed as part of environmentally relevant activities*, ESR/2016/1934.

Existing environment

16.2 Provide a hydraulic and hydrological flood model demonstrating the design flood peak discharges for the project footprint and surrounding area which exist in the pre- and post-development scenarios for all flood and stormwater events. This should include at least the following flood and stormwater events: 86.5%, 63.2%, 50%, 20%, 10%, 5%, 2%, 1% and 0.1% Annual Exceedance Probability (AEP), and Probable Maximum Flood.

16.3 Describe the likelihood and history of flooding (from all sources) within the project footprint and surrounding areas that may be modified by the project or have the potential to impact on the project. Evaluate flood-related constraints and considerations in the existing environment relevant for the impact assessment.

Impact assessment

16.4 Describe and map where project infrastructure would lie in relation to the existing and predicted flood risk from all sources for the following flood and stormwater events: 86.5%, 63.2%, 50%, 20%, 10%, 5%, 2%, 1% and 0.1% AEP, and Probable Maximum Flood. The maps and modelling are to detail the location of infrastructure prior to disturbance, during operations (including progressive development and rehabilitation of infrastructure such as waste rock dumps, tailings storage facilities, dams and voids) and at the end of operations.

16.5 Use flood modelling (and any additional data) to assess how the project may potentially change flooding and run-off characteristics within the project footprint, and both upstream and downstream of the project footprint. The assessment must consider all project infrastructure and all design measures to avoid or minimise impacts. Mapping (afflux, water level/depth and velocity) should be provided to clearly illustrate the pre-development scenario, and the post development impacts for all relevant design events. The flood modelling assessment should consider impacts and risks to people, property (including damage to other properties), community and environmental values during flooding events.

16.6 Assess the project's vulnerabilities to climate change (e.g. changing patterns, frequencies and severities of rainfall, hydrology, temperature and extreme weather events) and demonstrate that flood storage capacity is maintained.

16.7 Identify, map and describe (including their purpose) existing or proposed dams, levees and regulated structures in the project footprint.

16.8 Undertake a consequence category assessment to determine the consequence category (low, significant or high) for each dam, levee, or potential regulated structure according to criteria outlined in the relevant guidelines.[44] The assessment must be undertaken for the 3 different

[44] Queensland Government, *Manual for assessing consequences categories and hydraulic performance of structures*, ESR/2016/1933.

failure event scenarios, i.e. seepage, overtopping and dam break. Provide copies of the consequence category determination for each structure assessed.

16.9 Develop environmental objectives and performance outcomes for dams, levees and regulated structures with reference to guidelines published by the Australian National Committee on Large Dams as well as other relevant guidelines.

16.10 Assess the potential impact on regulated structures in accordance with relevant guidelines.

Mitigation measures

16.11 Describe how the project has been designed to avoid or minimise flood risks.

16.12 Describe management actions to minimise impacts of flooding to mine infrastructure and manage mine pit water post-flooding, if required.

16.13 Describe how risks associated with dam failure, seepage, and overtopping will be avoided or minimised to protect people, property and environmental values.

16.14 Describe how dams, levees and regulated structures would be monitored and managed during periods of high incidental rainfall and/or flooding to minimise potential impacts.

16.15 Demonstrate how the project will meet the environmental objectives and performance outcomes in Schedule 8 of the EP Regulation.

17. Waste

17.1 The following guidance is relevant for the assessment of waste:

(a) Queensland Government, *Waste – EIS information guideline*, ESR/2020/5311

(b) Queensland Government, *Application requirements for activities with waste impacts*, ESR/2015/1836.

Existing environment

17.2 Describe any current waste management infrastructure/facilities relevant to the project, including location, capacity, and accepted waste streams. Evaluate waste-related constraints and considerations relevant for the impact assessment.

17.3 Describe and map any actual or potential contaminated material, including any emerging contaminants within the project footprint, including details of relevant site investigations and details of management or disposal obligations/requirements.

Impact assessment

17.4 Provide a waste inventory for all expected project waste streams generated by project activities during the construction, operational, rehabilitation and decommissioning phases. Describe the source, quantity/volume, and waste type (solid, liquid, regulated (category 1, category 2) etc.). Discuss whether waste would be reused, recycled, disposed or managed under an end of waste approval.

17.5 Describe the quantity, and physical, chemical and toxicological characteristics of each waste stream, any contaminants of concern, any attributes that may affect its management (dispersal, chemical reactivity and persistence in the environment), and its associated risk of causing environmental harm. Describe how waste would be stored, handled, transported, treated, disposed or managed in another way at each stage of the project to minimise risks to environmental values.

17.6 Detail the geochemistry of all waste rock, including spoil, tailings and rejects. Assess potential risks associated with this waste stream and describe the management of progressive placement and any disposal strategy to minimise any potential impacts on environmental values.

17.7 Describe waste treatment, reuse, recycling and recovery processes to be carried out within the project footprint, including end uses.

17.8 Identify the likely destination for waste streams to be disposed of or recycled off-site and determine the capacity of waste disposal facilities to accept project waste.

17.9 If relevant, provide information on proposed on-site disposal of general and/or regulated waste relevant to ERA 60, by referring to relevant policies and guidelines.[45]

17.10 Provide relevant information on existing and proposed sewage infrastructure relevant to ERA 63, by referring to relevant policies and guidelines,[46] depending on the proposed sewage collection and treatment infrastructure the reuse and/or disposal of treated wastewater and sewage wastes generated. Provide details of the sewage treatment process and related infrastructure, including daily peak design capacity and the amounts and compositions of waste solids, liquids and gases.

17.11 Undertake water balance modelling applying appropriate techniques (MEDLI) to ascertain suitable wet weather storage volume(s), sufficient irrigation area(s), suitable effluent irrigation rates and suitable vegetation to be irrigated to ensure sustainable effluent irrigation for the predicted volume of sewage that will be generated and treated, then land irrigated.

17.12 Identify end of waste codes under the *Waste Reduction and Recycling Act 2011* which may be relevant for the project.[47]

17.13 Discuss any obligations under the *National Environment Protection (National Pollutant Inventory) Measure 1998* (NPI NEPM) and ensure data provided meets the requirements of the NPI NEPM and its subordinate legislation. Identify the types and amounts of certain substances being emitted to air, land, and water and both on-site and off-site waste transfers that may need to be reported.

Mitigation measures

17.14 Describe proposed measures to avoid or minimise environmental impacts as a result of waste storage, handling, transport, disposal, or other management at each stage of the project. Demonstrate that proposed measures are consistent with best practice environmental management, including the waste management hierarchy.

17.15 Demonstrate how the project will meet the environmental objectives and performance outcomes in Schedule 8 of the EP Regulation.

17.16 Describe how the achievement of environmental objectives and associated performance outcomes would be monitored, audited and reported, and how corrective/preventative actions and continual improvement would be managed.

18. Flora and fauna

18.1 Guidance material relevant for the flora and fauna assessment includes:

(a) Queensland Government, *Aquatic ecology – EIS information guidelines*, ESR/2020/5295

(b) Queensland Government, *Terrestrial ecology – EIS information guideline*, ESR/2020/5309

[45] Queensland Government, *Model operating conditions ERA 60 – Waste disposal*, ESR/2015/1667.
[46] Queensland Government, *Assessment guideline – Assessing applications for sewage treatment works*, ESR/2015/1652.
[47] A list of current end of waste codes are available at: **https://www.business.qld.gov.au/running-business/environment/waste-management/regulated-waste/eow-codes**.

(c) Queensland Government, *Groundwater dependent ecosystems – EIS information guideline*, ESR/2020/5301

(d) Queensland Government, Water – EIS information guideline, ESR/2020/5312

(e) Queensland Government, Business Queensland, Fish salvage (website), available at: **www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/development/waterways/salvage**

(f) Queensland Government, Policy for Vegetation Management, VEG/2014/1084

(g) Queensland Government, Waterway Barrier Works (website), available at: **https://www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/development/waterways/barriers**.

Existing environment

18.2 Describe the legislative context for flora and fauna in the project footprint and surrounding area, including the protection and conservation status of each identified ecological value under the *Nature Conservation Act 1992* (NC Act), *Vegetation Management Act 1999* (VM Act), *Fisheries Act 1994*, *Marine Parks Act 2004* (MP Act), EP Act, EPBC Act, local government planning scheme and any other relevant statutory instrument.

18.3 Identify and describe matters of national environmental significance (MNES), matters of state environmental significance (MSES), matters of local environmental significance (MLES), fauna and flora of cultural significance to Aboriginal peoples and/or Torres Strait Islander peoples, state and regionally significant biodiversity, and the environmental values of the terrestrial and aquatic ecosystems likely to be impacted by the project.[48] The description should include flora and fauna environmental values in the project area, and surrounding areas, identified in desktop analysis and field surveys, and shown on maps in relation to their habitat and connectivity in the landscape (including upstream and downstream of the project). This includes, but is not limited to the following:

(a) regulated vegetation under the VM Act

(b) regional ecosystems and biodiversity status

(c) connectivity areas

(d) wetlands and waterways

(e) threatened ecological communities and wildlife habitat

(f) migratory species

(g) protected areas and conservation areas

(h) waterways providing for fish passage

(i) designated precincts in a strategic environmental area under the Regional Planning Interests Regulation 2014

(j) biodiversity offset areas approved by the State or Australian governments (if any).

[48] The Queensland Government, *State Planning Policy* (2017) definition of MSES should be considered in the context of describing flora and fauna values in the project footprint. Consider also: Queensland Government, *Aquatic ecology-EIS information guidelines*, ESR2020/5295; Queensland Government, *Terrestrial Ecology- EIS information guideline*, ESR/2020/5309; Queensland Government, *Business Queensland, Fish salvage* (website), available at www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/development/waterways/salvage; Queensland Government*, Policy for Vegetation Management*, VEG/2014/1084; Queensland Government, Regional ecosystem descriptions, available at www.qld.gov.au/environment/plants-animals/plants/ecosystems/descriptions**https://www.qld.gov.au/environment/plants-animals/plants/ecosystems/descriptions**; Queensland Government, Marine Plants (website), available at: https://www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/development/marine-plants; Queensland Government, Waterway Barrier Works (website), available at: https://www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/development/waterways/barriers.

18.4 Describe, with photographs and detailed mapping (at a suitable scale), the context of the project footprint in relation to surrounding MSES/MLES (or any matter identified at TOR item 18.3) including the location of project activities, disturbance footprint, infrastructure and buffers.

18.5 Provide details of the scope, methodology, timing, effort and results of the field surveys (including spatial data for the survey sites, extent and location of transects, and fauna and flora records on site) undertaken in the EIS.[49] Field surveys should appropriately cover seasonal fluctuations in conditions (i.e. wet and dry seasons). Ecological survey reports (including field proformas and data sheets) should be provided as searchable and hyperlinked appendices.

18.6 Describe, using relevant literature, habitat mapping, and the results of surveys, the natural and existing upstream and downstream movement and habitat requirements of all aquatic and terrestrial flora and fauna species in the project area and surrounding area. Identify sensitivity to change of aquatic and terrestrial flora and fauna groups, REs, and significant species.

18.7 Describe the existing quality and suitability of habitat for all flora and fauna species that are known to occur, likely to occur, or have the potential to occur in the project footprint. Provide the area of existing habitat in hectares for each species in the project footprint based on field verification. For habitat area calculations, identify the use (if any) of high value regrowth vegetation and non-remnant areas.

18.8 Discuss how the environmental values relating to flora and fauna informed the project design (i.e. constraints, impact mitigation).

18.9 Address any obligations imposed by State or Commonwealth legislation or policy or international treaty obligations, such as the China–Australia Migratory Bird Agreement, Japan–Australia Migratory Bird Agreement, Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) (if relevant) or Republic of Korea–Australia Migratory Bird Agreement.

Impact assessment

18.10 Describe all relevant impacts (direct, indirect, cumulative and facilitated) on biodiversity and natural environmental values identified at TOR item 18.3 (including the type of habitat impacted, such as breeding, roosting, nesting and foraging habitat) from the project across all stages. The assessment should consider known and potential impacts of the project, and must include:

(a) terrestrial and aquatic ecosystems including groundwater-dependent ecosystems[50]

(b) biological diversity

(c) the integrity of ecological processes, including habitats of listed threatened, near threatened or special least concern species

(d) connectivity within and between aquatic and terrestrial habitats and ecosystems

(e) identification of analogous (reference) sites and the collection of sufficient baseline information to inform rehabilitation criteria post mining

(f) the integrity of landscapes and places, including wilderness and similar natural places

(g) chronic, low-level exposure to contaminants or the bioaccumulation of contaminants

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[49] Guidance materials relevant to survey methods include: Queensland Government, *Methodology for survey and mapping of regional ecosystems and vegetation communities in Queensland*, Version 7.0, 2023 (or subsequent revision); Queensland Government, *Flora Survey Guidelines – Protected Plants*, NCS/2016/2534; Queensland Government, *Terrestrial Vertebrate Fauna Survey Guidelines For Queensland*, Version 4.0, 2022 (or subsequent revision).
For targeted survey guidelines see: Queensland Government, Terrestrial vertebrate fauna survey guidelines (webpage) at www.qld.gov.au/environment/plants-animals/biodiversity/vertebrate-survey#download.

[50] Queensland Government, *Groundwater dependent ecosystems - EIS information guideline*, ESR/2020/5301. Consider: Australian Government, *Information Guidelines Explanatory Note – Assessing groundwater-dependent ecosystems*, 2019.

(h) direct and indirect impacts on terrestrial and aquatic species and ecosystems, whether due to: vegetation clearing; hydrological changes; discharges of contaminants to water, air or land; noise; artificial light; and other relevant matters

(i) impacts of waterway barriers on fish passage in all waterways (consider waterways that are mapped on the Queensland Waterways for Waterway Barrier Works spatial data layer and waterways that are present on the ground that are not mapped), including details of any significant diversion or interception of water flows and the effects of subsidence and groundwater drawdown.

18.11 When identifying impacts, ensure figures are appropriately scaled and provided for each activity/component and for each phase of the project.

18.12 Describe any actions of the project that require an authority under the NC Act, and/or would be assessable development for the purposes of the VM Act, *Regional Planning Interests Act 2014*, *Fisheries Act 1994,* and *Planning Act 2016*. Features to consider include RE, environmentally sensitive areas, wetlands, nature refuges, protected areas and strategic environmental areas.

18.13 Identify where any proposed clearing is accepted or exempt development under relevant planning instruments.

18.14 Provide an assessment against the relevant prescribed solution(s) for strategic environmental areas impacted by the project, if relevant.[51]

18.15 Provide an assessment against SDAP *State code 16: Native vegetation clearing* addressing the relevant assessment benchmarks,[52] if relevant.

18.16 Provide an assessment against SDAP *State code 18: Constructing or raising waterway barrier works in fish habitats* for any assessable waterway barrier works required for the project, including construction activities,[53] if relevant.

Mitigation measures

18.17 Demonstrate how the proposal avoids native vegetation clearing, or where avoidance is not reasonably possible, minimises clearing to conserve vegetation, avoid land degradation and maintain ecological processes.

18.18 Describe how the project will be designed, constructed and operated to avoid direct or indirect impacts on ecological environmental values.

18.19 Where impacts to MSES cannot reasonably be avoided, describe measures to minimise and then mitigate the direct or indirect impacts on ecological values.

18.20 Assess how nominated quantifiable indicators and standards may be achieved for nature conservation management. Address measures to protect or preserve any listed threatened, near threatened or special least concern species. Describe the practicality, effectiveness and risks for each avoidance and mitigation measure. Include the timeframes in which results would

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[51] Schedule 2, Part 5, Section 15, Regional Planning Interests Regulation 2014.
Including the following (or subsequent revisions) available at: https://www.qld.gov.au/environment/land/management/vegetation/clearing-approvals/development-approvals/sdap: *Guide to State Development Assessment Provisions State code 16: Native vegetation clearing*, *Coordinated project - agriculture*, *Coordinated project - all other purposes*, *Coordinated project - extractive industry*.

[53] Queensland Government, *Waterway barrier works* (website) at www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/development/waterways/barriers; Queensland Government, *Waterways in Queensland* (website) at www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/development/waterways/qld; Queensland Government, *Accepted development requirements for operational work that is constructing or raising waterway barrier works, 2018* (or subsequent revision); Queensland Government, *Queensland waterways for waterway barrier works mapping version 3 update*, 2023; Queensland Government, *SDAP Guideline State code 18: Constructing or raising waterway barrier works in fish habitats*, 2022 (or subsequent revision); Queensland Government, *Fisheries development approvals and accepted development* (webpage) at www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/development/approvals.

be achieved, frequency of monitoring, and how corrective actions will be managed for all phases of the project.

18.21 Justify how applying all proposed avoidance and management measures would result in acceptable outcomes for terrestrial and aquatic ecology. Describe how achieving the measures successfully will be monitored, measured and audited. Include provisions to regularly evaluate all the mitigation measures so that improvements may be made as new technologies and best practices evolve.

18.22 Propose measures that would avoid the need for waterway barriers. Where waterway barrier works cannot be reasonably avoided, propose measures to mitigate the impacts of their construction and operation.

18.23 Describe, illustrate, and demonstrate how the project provides safe and adequate upstream and downstream aquatic fauna passage, including all monitoring and maintenance measures.

18.24 Detail measures to ensure waterway diversions are designed and constructed to resemble the natural waterway they replace. Demonstrate waterway diversions tie in with the natural bed and banks of waterways upstream and downstream of the diversion. Demonstrate any proposed diversion will function as a natural waterway and will provide and maintain similar connectivity, hydrological, hydraulic and environmental conditions and include similar profiles, fish habitat and fish passage features.

18.25 Describe and illustrate any screening incorporated to prevent the entrainment of fish into water pumping infrastructure.

18.26 Assess the need for buffer zones and the retention, rehabilitation or planting of movement corridors. The assessment must take into account the role of buffer zones in maintaining and enhancing riparian vegetation and wetlands to improve water quality, promote habitat connectivity and provide habitat.

18.27 Propose rehabilitation criteria, in relation to natural values, that would be used to measure progressive rehabilitation of disturbed areas. Describe how the achievement of the objectives will be monitored and audited, and how corrective actions will be managed. Proposals for rehabilitation of disturbed areas must, in suitable habitat, describe terrestrial and aquatic fauna habitat features to achieve rehabilitation outcomes.[54]

18.28 Demonstrate how the project will meet the environmental objectives and performance outcome of the EP Regulation.

Environmental offsets

18.29 After demonstrating that all reasonable steps have been taken to avoid and then mitigate impacts, identify whether the project will result in a significant residual impact (SRI) to MSES/MLES requiring an environmental offset with reference to the Queensland Environmental Offsets policy, *Significant Residual Impact Guideline*, and Queensland environmental offset framework.[55] Characterise the scale of SRI in hectares.

18.30 Propose offsets consistent with the relevant State legislation or policies for any SRI. If an SRI will occur on a prescribed environmental matter as outlined in the Environmental Offsets

[54] Consider: Queensland Government, *Rehabilitation – EIS information guideline*, ESR/2020/5308.
[55] State Government, *Environmental Offsets – Legislation – Environmental offset framework* (webpage) at www.qld.gov.au/environment/management/environmental/offsets/legislation. See also: Queensland Government, *General guide for the Queensland Environmental Offsets Framework*, EPP/2021/5541; Queensland Government, *Queensland Environmental Offsets Policy*, EPP/2015/1658; Queensland Government, *Queensland Environmental Offsets Policy: Significant Residual Impact Guideline*, 2014 (or subsequent revision); Queensland Government, *Significant Residual Impact Guideline: For matters of state environmental significance and prescribed activities assessable under the Sustainable Planning Act 2009 – Queensland Environmental Offsets Policy*, 2014 (or subsequent revision). Note: Environmental Offsets Regulation 2014 (Qld) defines prescribed environmental matters including MSES and MLES.

Regulation 2014, offset(s) must be consistent with the requirements of the *Environmental Offsets Act 2014* and the latest version of the Queensland Environmental Offsets Policy.[56]

18.31 In addition to TOR item 18.30, propose environmental offsets, that at a minimum:

(a) consider the full extent of potential impacts on prescribed environmental matters for the entire project as part of the SRI assessment

(b) identify whether an SRI to MSES will be addressed through a financial or proponent driven offset (land-based offset)

(c) evaluate how the proposed offset will achieve a conservation outcome for the impacted matter

(d) for land-based offsets:

(i) provide results of a habitat quality assessment on both the impact area and the proposed offset area(s) to compensate for impacts[57]

(ii) assess the vulnerability and resilience of any proposed offset site(s) under climate change scenarios (e.g. reduced water availability, increased bushfire risk, increased flood risk, sea level rise)

(iii) describe any active restoration actions that would be undertaken to improve, enhance and manage native vegetation or threatened species habitat at the proposed offset site

(e) for financial offsets, provide a financial offset calculation.

18.32 Describe how the achievement of the offset will be monitored and audited, and how corrective actions will be managed.

18.33 Describe any proposed measures that would be used to avoid, minimise, or mitigate any impact on agricultural land of state or regional significance when meeting environmental offset requirements required for the project.

19. Biosecurity

19.1 The following guidance is relevant for the biosecurity assessment:

(a) Queensland Government, *Biosecurity – EIS information guideline*, ESR/2020/5297.

Existing environment

19.2 Survey terrestrial and aquatic pest animals and weeds and describe their current distribution and abundance in the project footprint and surrounds.[58] Field surveys should appropriately cover seasonal fluctuations in conditions (i.e. wet and dry seasons). Provide maps showing pest animal and weeds distribution in relation to the project footprint and ecologically significant areas identified as containing, or likely to contain, listed flora, fauna, and ecological communities of MSES or MNES. This survey is to include prohibited and restricted matters listed in the *Biosecurity Act 2014* and *Biosecurity Regulation 2016*, Weeds of National Significance, pests and weeds declared under local laws, and designated pests under the *Public Health Act 2005*.

[56] Queensland Government, *Queensland Environmental Offsets Policy*, EPP/2015/1658.
[57] Queensland Government, *Guide to determining terrestrial habitat quality*, Version 1.3 (or latest version)
[58] Guidance materials relevant to survey methods include: Queensland Government, *Methodology for survey and mapping of regional ecosystems and vegetation communities in Queensland*, Version 7.0, 2023 (or subsequent revision); Queensland Government, *Flora Survey Guidelines – Protected Plants*, NCS/2016/2534; Queensland Government, *Terrestrial Vertebrate Fauna Survey Guidelines For Queensland*, Version 4.0, 2022 (or subsequent revision). For targeted survey guidelines see: Queensland Government, Terrestrial vertebrate fauna survey guidelines (webpage) at **www.qld.gov.au/environment/plants-animals/biodiversity/vertebrate-survey#download.**

Impact assessment

19.3 Describe for each project phase, the potential spread of terrestrial and aquatic pest animals, terrestrial and aquatic weed species, and disease within the project footprint, construction and operations access routes, and into adjoining properties (where relevant).[59]

Mitigation measures

19.4 Propose detailed measures using best practice to prevent, remove, control and limit the spread of pests, weeds, diseases, pathogens and contaminants within and surrounding the project footprint and adjacent areas. Detail alignment with any relevant local government area Biosecurity Plans and pest management priorities or initiatives undertaken by Biosecurity Queensland. Include a discussion on minimising any susceptibility to biosecurity risks with the introduction and/or expansion of temporary and permanent infrastructure.

19.5 All proposed measures are to be in accordance with any relevant biosecurity surveillance or prevention measures authorised under the *Biosecurity Act 2014*, any requirements under the VM Act or *Planning Act 2016* and aligned with local government pest management priorities.

19.6 Detail a monitoring program that would audit the success of biosecurity measures, identify whether objectives have been met, and describe corrective actions to be used if monitoring indicates objectives are not being met. Performance outcomes should correspond to the relevant policies, legislation and guidelines, and sufficient evidence should be supplied (through studies and proposed management measures) to show these outcomes can be achieved.

20. Social

20.1 Describe the project within the legislative context of the *Strong and Sustainable Resource Communities Act 2017* (SSRC Act), including provisions for large resource projects.

20.2 Prepare a social impact assessment (SIA) for the project consistent with the relevant requirements in the SIA Guideline[60] and SIA Supplementary Material.[61]

20.3 The SIA is to be developed in consultation with the Office of the Coordinator-General. The SIA is to describe the potential social impacts (both positive and negative) of the project and must identify relevant and effective impact mitigation and benefit enhancement measures.

21. Economics

Existing environment

21.1 Describe the existing economic environment consistent with the *Economic Impact Assessment Guideline*.[62] The analysis is to describe the local and regional economies likely to be impacted by the project, identify the relevant stakeholders, and include:

(a) the regional economy's key industries and their contribution to regional output

(b) relevant economic indicators

(c) existing, approved and proposed projects in the region.

21.2 Describe the existing and future demand for the project's products in both domestic and international markets over the life of operations, including alternative demand scenarios and detail any assumptions underpinning the demand scenarios.

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[59] Queensland Government, *Biosecurity – EIS information guideline*, ESR/2020/5297.
[60] Queensland Government, *Social impact assessment guideline*, March 2018.
[61] Queensland Government, *Supplementary material for assessing and managing the social impacts of projects under the Coordinator-General's Social Impact Assessment Guideline* (March 2018), 2023.
[62] Queensland Government, *Economic impact assessment guideline*, 2017.

21.3 Describe the preferred project delivery model (including funding sources) and expected timeframes, outlining assumptions on economic externalities that have the potential to impact on the delivery model and/or expected timeframes.

Impact assessment and mitigation measures

21.4 Identify the net economic impacts of the project on the local and regional area and the State, ensuring the analysis is consistent with the *Economic Impact Assessment Guideline*.

21.5 The economic impact assessment is to address matters including, but not limited to:

(a) labour demand, including the ability for labour (including specialists) to be drawn from the existing local, regional and state workforce, and the potential effects this may have on local and regional businesses

(b) raw input demand, including the ability of existing local, regional and state suppliers to provide relevant raw and manufactured inputs

(c) the anticipated value of offsets required for all components of the project.

21.6 Provide a demand analysis as justification for the scale and scope of the project, relative to the demand scenarios examined in TOR item 21.2, with sensitivity analysis for potential changes in product prices.

21.7 Undertake a regional impact assessment (RIA) in accordance with the *Economic Impact Assessment Guideline* that quantifies the employment by industry (including an estimate of supply chain employment) and value-added contribution of the project to the local, regional and state economies. The RIA is to estimate the changes in key indicators including:

(a) gross regional product

(b) gross state product

(c) employment by industry

(d) gross value added by industry.

21.8 Undertake a cost-benefit analysis (CBA) in accordance with the *Economic Impact Assessment Guideline* that identifies the structure of the project and the relevant direct costs and benefits from the project. The CBA is to consider:

(a) key construction inputs and milestones in the form of a project timeline

(b) relevant renewal costs related to the project (including projected repair/replacement of infrastructure)

(c) operational costs, including all input costs of production

(d) costs associated with environmental management, monitoring, mitigation, rehabilitation and offsets associated with the project, including abatement of greenhouse gas (GHG) emissions

(e) benefits, including revenue projections (and stipulating unit/price assumptions)

(f) expected project life and any residual value over the assessment period.

21.9 The CBA should also consider all direct, indirect, and external social costs and benefits. These would include:

(a) external net benefits to third parties who are providing inputs to the project

(b) external net costs (to third parties, community, local and state government) as a direct result of the project

(c) comparisons of all direct, indirect and external costs and benefits and valuing those direct, indirect and external costs and benefits in monetary terms

(d) assumptions for benefits and costs, including risk assessments

(e) all beneficiaries (e.g. individuals, the community, local and state government) of the project.

21.10 The CBA should consider any alternative sites, alignments and/or designs for project components and infrastructure, including shared use of common user infrastructure with other projects, which provide for lower impact.

21.11 Subject to any confidentiality requirements, discuss any economic aspirations identified through engagement with Aboriginal peoples and/or Torres Strait Islander peoples that are enabled via the project, especially for areas where native title exists. Where agreements have been entered into with Aboriginal peoples and/or Torres Strait Islander peoples, describe the net benefit provided by these agreements and how they align with any identified economic aspirations.

22. Hazards, health and safety

22.1 The following guidance is relevant for the assessment of hazards, health and safety:

(a) Queensland Government, *Queensland Emergency Risk Management Framework Risk Assessment Process Handbook*, 2018

(b) Queensland Government, *Health considerations – Environmental Impact Statement – Guidelines for Proponents*, 2016

(c) Queensland Government, *Guideline: Dam Safety Management*, 2024

(d) Queensland Government, *Regulated structures – EIS information guideline*, ESR/2020/5307

(e) Queensland Government, *Structures which are dams or levees constructed as part of environmentally relevant activities*, ESR/2016/1934

(f) Queensland Government, *Guideline for failure impact assessment of water dams*, 2018

(g) Standards Australia, *Risk Management – Guidelines* (Australian Standard ISO 31000:2018)

(h) Standards Australia, *Managing environmental-related risk* (Australian Standard HB203:2006)

(i) Queensland Government, *QGL 1: Guideline for management of Naturally Occurring Radioactive Material (NORM) in metalliferous mines*, 2014

(j) Queensland Government, *Land contaminated by radioactive material - A guide to assessment, management and remediation*, 2020

(k) Queensland Government, Business Queensland, Recognised standards, guidelines and guidance notes relating to mining and quarrying activities in Queensland (website), available at: **www.business.qld.gov.au/industries/mining-energy-water/resources/safety-health/mining/legislation-standards/recognised-standards**.

Existing environment

22.2 Describe the likelihood and severity of hazards, health, and safety risks in the project footprint and surrounding area, including but not limited to, storms, floods, bushfires, drought, earthquakes, landslides, and heatwaves. Evaluate hazard-related vulnerabilities, constraints and considerations in the area, which are relevant for the impact assessment.

22.3 Describe the likelihood and severity of hazards, health, and safety risks due to the mineralogy of the project footprint and surrounding area.

Impact assessment

22.4 Prepare a risk assessment and describe the potential risks to people, property, and environmental values that may be impacted by the project taking into account climate projections for the region, for all components and stages of the project. The assessment is to include:

(a) identification of potential hazards and estimated probabilities of occurrence, including:

(i) consideration of project activities and disturbance

(ii) consideration of natural events (e.g. storms, cyclones, flooding, bushfires, earthquakes,[63] heatwaves,[64] landslides) that may affect the site with at least a one per cent annual exceedance probability or 100-year average reoccurrence interval level

(iii) consideration of the mineralogy of the project footprint and surround area

(iv) consideration of all hazardous substances (including fuels, chemicals, hazardous waste and explosives) to be used, transported, stored, processed or produced[65]

(v) consideration of whether the site or operation will meet the threshold of a major hazard facility either temporarily or permanently

(vi) consideration of potential hazards associated with dam failure, petroleum and gas pipelines, abandoned mines, explosive magazines

(vii) consideration of hazards posed by wildlife interactions (including mosquitos)

(viii) consideration of hazards away from the project footprint where hazard characteristics may be changed by the project

(ix) consideration of the cumulative impact of several natural hazards occurring at the one time

(x) mapping of potential hazard areas within the project footprint

(b) hazard analysis and risk assessment in accordance with relevant guidelines and standards. [66]

22.5 Detail any consultation undertaken with the relevant state, district and local emergency response authorities and organisations (including local disaster management groups, where relevant) to support the risk assessment and proposed mitigation measures.

22.6 Demonstrate compliance with the provisions of the *Explosives Act 1999*, the *Mining and Quarrying Safety and Health Act 1999* the *Radiation Safety Act 1999* and if applicable, Part 7 Subdivision 4 – Major hazard facilities of the Mining and Quarrying Safety and Health

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[63] The State Earthquake Risk Assessment includes probabilities of major seismic events for all local government areas and is to be used to inform risk consideration and management – Queensland Government, *State Earthquake Risk Assessment*, 2019.
[64] In accordance with Queensland Government, *State Heatwave Risk Assessment*, 2019.
[65] In accordance with Standards Australia, *Explosives - Storage, transport and use – storage (*Australian Standard AS2187.1).
[66] Standards Australia, *Risk management – Guidelines* (Australian Standard ISO 31000:2018); Standards Australian, *Managing environment-related risk* (Australian Standard ISO HB 203:2012). Consider also: *Explosives Act 1999*, *Mining and Quarrying Safety and Health Act 1999*; *Petroleum and Gas (Production and Safety) Act 2004*; Queensland Government, *Queensland Emergency Risk Management Framework Risk Assessment Process Handbook*, 2018. Consider also the risk assessments provided in the relevant Local Disaster Management Group Plans and the Queensland State Risk Assessment available at: **https://www.disaster.qld.gov.au/plans** (State heatwave assessment, State Earthquake Risk assessment, Sever Wind Hazard Assessment); Queensland Government, *Climate action resources*, available at: **https://www.qld.gov.au/environment/climate/climate-change/resources**;Queensland**;** Queensland Government, *Queensland Future Climate Dashboard,* available at: https://longpaddock.qld.gov.au/qld-future-climate/dashboard/; Queensland Government, *Queensland Emergency Risk Management Framework,* available at: **https://www.disaster.qld.gov.au/queensland-emergency-risk-management-framework.**

Regulation 2017. Discuss the contents and implementation of the relevant safety and health management system(s), including any engagement with Resources Safety and Health Queensland.

Mitigation measures

22.7 Describe how the project has been designed to avoid or mitigate project-related risks to people, property, and environmental values, including the need for fire breaks, overland flow and flood zones, no-go areas etc.

22.8 Detail safeguards and mitigation measures that will reduce the likelihood and severity of hazards, consequences and project-related risks to people, property, and environmental values. Identify the residual risk following the application of mitigation measures. Present an assessment of the overall acceptability of residual project risks with consideration of uncertainties and risk profiles.

22.9 Where emergency response or hazard management plans are proposed to address scenarios and hazards identified in the risk assessment, provide a plan outline, including key measures and procedures, and consultation with relevant groups. As part of the emergency response plan, include the following:

(a) a bushfire management plan, certified by a suitably qualified person, in consultation with the Queensland Fire Department and Rural Fire Service Queensland addressing construction and operations, and including the following information at a minimum:

(i) a bushfire hazard analysis

(ii) mitigation strategies to achieve the relevant development outcomes in Part E of the State Planning Policy– Natural Hazards, Risk and Resilience[67]

(iii) provides details of the proposed ongoing management of fuel loads across the subject site through grazing or mechanical means including the asset protection zone proposed

(b) a safety and emergency management plan addressing construction and operations, and including the following information at a minimum:

(i) evacuation plans for the construction and operation phases of the development

(ii) safety management plans and emergency response procedures in consultation with the state and regional emergency service providers (including Queensland Fire Department and Rural Fire Service Queensland) and provide an adequate level of training to staff who will be tasked with emergency management activities.

22.10 Demonstrate how the project will meet the environmental objectives and performance outcomes in Schedule 8 of the EP Regulation.

22.11 Describe how risk management would be monitored, audited, and reported. Detail how corrective/preventative actions and continual improvement would be managed.

23. Air quality

23.1 The following guidance is relevant for the assessment of air quality:

(a) Queensland Government, *Air – EIS information guideline*, ESR/2020/5294

(b) Queensland Government, *Guideline – Application requirements for activities with impacts to air*, ESR/2015/1840.

[67] Queensland Government, *State Planning Policy*, 2017.

Existing environment

23.2 Identify and map the location of any sensitive receptors and environmental values of the project footprint and surrounding areas that may be impacted by air emissions from the project.[68]

23.3 Provide baseline data on local and regional meteorology up to the airshed scale. Parameters should include air temperature, wind speed and directions, atmospheric stability, mixing depth and other parameters necessary for input to the model.

23.4 Discuss the existing local and regional airshed and air quality, referencing available data from any site-specific air monitoring, the National Pollutant Inventory reporting, and/or ambient air quality monitoring undertaken by the Queensland Government, including background/ambient levels and sources of particulates, gaseous and odorous compounds, and any major constituent and contaminants. Identify/illustrate any existing significant sources of contaminants.

Impact assessment

23.5 Identify, quantify and describe the air emissions from the project (point, diffuse and fugitive emission sources) in an emissions inventory.

23.6 Tabulate the air quality criteria and objectives applicable to the air emissions from the project.

23.7 Detail the potential impacts of air emissions from the project on environmental values and sensitive receptors, including identifying any exceedances of the air quality criteria in accordance with the Environmental Protection (Air) Policy 2019 (EPP (Air)), *Air – EIS information guideline*, and *Application requirements for activities with impacts to air*.[69] The potential impacts must include the quantification of human health risk and amenity impacts associated with emissions from the project for all contaminants whether or not they are covered by the National Environmental Protection (Ambient Air Quality) Measure or the EPP (Air).

23.8 Where there is potential for nuisance odours to impact on sensitive receptors, an odour impact assessment should be undertaken in accordance with *Guideline – Odour Impact Assessment from Developments*.[70]

23.9 Detail the compatibility of air quality impacts from the project on existing and approved land uses in the project footprint and surrounding area.

23.10 Demonstrate how the project will meet the environmental objectives and performance outcomes relevant to air in Schedule 8 of the EP Regulation.

Mitigation measures

23.11 Describe the mitigation measures that will be applied to the project to:

(a) achieve the air quality criteria that has been developed for the project

(b) avoid, minimise and/or mitigate adverse air quality impacts to sensitive receptors

(c) protect the environmental values of the air environment.

23.12 Describe the monitoring and auditing processes to achieve the air quality criteria that has been developed for the project.

23.13 Describe the process for corrective actions to address any exceedance of the air quality criteria.

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[68] For clarity, for the purpose of this TOR, the assessment must include Aboriginal cultural heritage sites and places. See also: Queensland Government, *Air – EIS information guideline*, ESR/2020/5294.

[69] Queensland Government, *Air – EIS information guideline*, ESR/2020/5294; Queensland Government, *Application requirements for activities with impacts to air*, ESR/2015/1840.

[70] Queensland Government, *Guideline – Odour Impact Assessment from Developments*, ESR/2024/6828.

24. Noise and vibration

24.1 The following guidance is relevant for the assessment of noise and vibration:

(a) Queensland Government, *Noise and vibration – EIS information guideline*, ESR/2020/5305

(b) Queensland Government, *Guideline – Application requirements for activities with noise impacts*, ESR/2015/1838.

Existing environment

24.2 Identify and map the location of any sensitive places and environmental values of the project footprint and surrounding areas that may be impacted by noise emissions or vibrations from the project.[71]

24.3 Describe the existing background noise within the project footprint, including noise and vibration sources. The data must be collected in accordance with quality-assured, best practice methodologies and as per the *Noise Measurement Manual*.[72]

Impact assessment

24.4 Identify and quantify the noise and vibration sources emitted from the project (point and general emission sources). Describe whether the sources will be continuous, intermittent, fluctuating, vibrating or impulsive.

24.5 Tabulate the noise and vibration objectives applicable to the noise and vibration emissions from the project.

24.6 Detail the potential impacts of noise and vibration emissions from the project on environmental values and sensitive places, including identifying any exceedances of the acoustic quality criteria. The assessment must address low-frequency (<200 Hz) noise emissions.

24.7 If the project involves blasting, describe the locations, frequency and expected size of blasts, and predict the noise levels, air blast overpressure, and ground vibration that would result from the blasts.

24.8 Detail the compatibility of noise and vibration impacts from the project on existing and approved land uses in the project footprint and surrounding area.

24.9 Demonstrate how the project will meet the environmental objectives and performance outcomes relevant to noise in Schedule 8 of the EP Regulation.

Mitigation measures

24.10 Describe the mitigation measures that will be applied to the project to:

(a) achieve the noise and vibration criteria that have been developed for the project

(b) avoid, minimise and/or mitigate adverse noise and vibration impacts to sensitive receptors

(c) protect the environmental values of the acoustic environment

(d) control background creep in noise as outlined in the Environmental Protection (Noise) Policy 2019.

24.11 Describe the monitoring and auditing processes to achieve the noise and vibration criteria developed for the project.

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[71] For clarity, for the purpose of this TOR, the assessment must include Aboriginal cultural heritage sites and places.
[72] Queensland Government, *Noise Measurement Manual*, ERS/2016/2195.

24.12 Describe the process for corrective actions to address any exceedance of the noise and vibration criteria.

25. Traffic and transport

25.1 The following guidance is relevant for the assessment of traffic and transport:

(a) Queensland Government, *Transport – EIS information guideline*, ESR/2020/5310

(b) Queensland Government, *Guide to Traffic Impact Assessment*, 2018

(c) Queensland Government, *Assessable development under the Planning Act*, available at **www.tmr.qld.gov.au/Community-and-environment/Planning-and-development/Planning-and-development-assessment-under-the-Planning-Act/Assessable-development**

(d) Queensland Government, Technical publications (website), available at **www.tmr.qld.gov.au/business-industry/Technical-standards-publications**.

Existing environment

25.2 Describe the existing and future (as planned by state or local government) transport network and corridors including detailed maps to appropriate scales showing relevant:

(a) construction laydown areas and workers accommodation areas

(b) locations where project components cross or are located in proximity to or located within existing and planned:

(i) State or local government road corridors and road infrastructure

(ii) railway corridors and rail infrastructure

(iii) airports and airstrips

(iv) sea ports

(v) other relevant approved or known projects.

Impact assessment

25.3 Describe the total transport activities associated with each project phase. The information should include, but not be limited to:

(a) background traffic growth and existing traffic data that is expected via the state-controlled road network and via local government roads

(b) expected annual volumes, weights and origins/destinations of materials, products, hazardous goods, and wastes

(c) details concerning road transportation for each major transport task (e.g. fuel, plant and equipment, consumables, wastes) including heavy vehicle classification, load size (highlighting over-mass and over-sized loads) (swept paths to be provided), number of trips, service frequency, likely timing and duration, and maps of routes highlighting any vulnerable bridges or other structures along the proposed routes

(d) potential impacts to time sensitive agricultural freight (e.g. exports, horticulture, livestock)

(e) traffic generated by workforce personnel and service providers during each phase of the project

(f) a multi-criteria analysis and/or a cost benefit analysis of the economic, social, and environmental impacts for logistics management alternatives being considered, including shared use of common user infrastructure

(g) detail appropriate choices for modes of transport to ensure efficiency and minimise impacts on the community.

25.4 Identify and map the main access to the project (include latitude and longitude coordinates). Include an assessment of the suitability for the proposed use and any required upgrades in accordance with relevant local and/or state policies, standards, and manuals.

25.5 Prepare a transport impact assessment in accordance with *Transport – EIS information guideline.*[73] Present the transport assessment in separate sections for each project-affected mode (road, rail, air services and port) as appropriate for each phase of the project, including the proposed transportation and delivery of pre-assembled modules or components to site. The assessment must be completed by a Registered Professional Engineer of Queensland and include:

(a) how the existing and future safety, condition, and performance of transport infrastructure (local and state) will be impacted by each phase of the project

(b) details of the adopted assessment methodology for impacts on roads within the road impact assessment report in accordance with *Guide to Traffic Impact Assessment* (GTIA) for state-controlled roads and the local government impact assessment methodologies for local government roads[74]

(c) for state-controlled roads, all impact types, such as road safety, access and frontage, intersection delay, road link capacity, pavement, and transport infrastructure (including bridges, culverts, and grids), as detailed in the GTIA are considered and mitigated. Particular emphasis is to also be placed on the following sections of the GTIA:

(i) section 8.4.2 Heavy Vehicle Routes

(ii) section 9 Road Safety

(iii) section 13 Pavement

(d) for impacts on level crossings, the Australian Level Crossing Assessment Model.

25.6 Provide a detailed assessment for the project's impacts on local government roads in accordance with the relevant local government's impact assessment methodology.

Mitigation measures

25.7 Demonstrate that any necessary transport impact mitigation works will not compromise existing and future transport infrastructure corridors planning and works, with reference to the latest version of the Department of Transport and Main Roads (DTMR's) *Queensland Transport and Roads Investment Program* and the Development Assessment Mapping System.[75]

25.8 Demonstrate how project impacts for each transportation mode will be mitigated to maintain the safety, efficiency and operational integrity of all affected transport modes for the project workforce and other transport systems. Mitigation measures are to be prepared in consultation with relevant transport authorities (e.g. local governments, DTMR, Civil Aviation Safety Authority, relevant port authorities, Maritime Safety Queensland, Queensland Rail and Queensland Police Service) and must consider the transport authorities' works programs and forward planning, and be in accordance with the relevant methodologies, guidelines, and design manuals.

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[73] Queensland Government, *Transport – EIS information guideline*, ESR/2020/5310.
[74] Queensland Government, *Guide to Traffic Impact Assessment*, 2018, available at: **www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Guide-to-Traffic-Impact-Assessment**.
[75] Queensland Government, *Queensland Transport and Roads Investment Program*, published annually, available at: **www.tmr.qld.gov.au/QTRIPonline**; Queensland Government, *Development Assessment Mapping System*, available at: **sppims-dams.dsdilgp.qld.gov.au/dams/?tab=layers&accordions=SARA+DA+MAPPING**.

26. Climate

26.1 The following guidance is relevant for the assessment of climate:

(a) Queensland Government, *Climate – EIS information guideline*, ESR/2024/5298.

Existing environment

26.2 Describe the existing climate in accordance with the *Climate – EIS information guideline.* The description should include, but not be limited to:

(a) the local and regional climate relevant to the project, with regard to its seasons and its susceptibility to extreme events such as droughts, cyclones, flooding and bushfires

(b) rainfall patterns (including magnitude and seasonal variability of rainfall)

(c) overland flow paths

(d) air temperature, evaporation, humidity, wind (direction and speed), atmospheric pressure and any other special factors (e.g. temperature inversions) that may affect the management of the project.

Impact assessment

26.3 Conduct an assessment in accordance with the *Climate – EIS information guideline.*[76]

26.4 Describe the project area's climate patterns that are relevant to the environmental impact assessment, particularly the project's discharges to water and air, and propagation of noise. Climate information is to be presented in a statistical form including long-term averages and extreme values reflecting extreme weather events (e.g. droughts, floods and bushfires), as necessary. It should also be illustrated by bar charts, wind rose diagrams, or other relevant graphic means as necessary.

26.5 Assess the project's vulnerabilities to projected climate change (e.g. changing patterns of temperature, rainfall, hydrology and extreme weather events). In the assessment of climate hazards and risks, reference relevant climate projection data (e.g. Queensland Future Climate high-resolution climate projection data) and employ appropriate risk assessment methodology.[77]

Mitigation measures

26.6 Describe the adaptation strategies and/or activities designed to minimise climate change impacts to the project, subsequent land uses on that site (e.g. rehabilitation projects) and surrounding land uses. Adaptation activities must be designed to avoid perverse outcomes, such as increased emissions of GHGs, temperature rise, an increase in frequency and intensity of severe weather events, or maladaptive outcomes for surrounding land uses.

27. Greenhouse gas

27.1 The following guidance is relevant for the assessment of GHG emissions:

(a) Queensland Government, *Guideline – Greenhouse gas emissions*, ESR/2024/6819 (GHG Guideline).

[76] Queensland Government, *Climate – EIS information guideline,* ESR/2020/5298.
[77] Consider all climate resources to assess the potential climate change provided in Queensland Government, *Climate – EIS information guideline,* ESR/2020/5298.

Existing environment

27.2 Describe nearby activities or sources that may emit GHG emissions (point source or diffuse) including naturally occurring (potential or actual) sources.

Impact assessment

27.3 Provide an emissions inventory identifying the GHGs to be emitted by source from all components of the project and the phase of the project at which the emissions will occur.

27.4 Provide information regarding GHG emissions and energy production and consumption consistent with requirements of *National Greenhouse and Energy Reporting Act 2007* (Cth) and its subordinate legislation, including methodology, assumptions, emissions factors, activity data and calculations used to estimate the project's GHG emissions.

27.5 Demonstrate how the project will contribute to Queensland's GHG emission reduction targets as legislated in the *Clean Economy Jobs Act 2024* and the *Energy (Renewable Transformation and Jobs) Act 2024* over the life of the project.

27.6 Undertake an assessment of GHG emissions, including:

(a) an estimate of the projected annual and cumulative Scope 1 and Scope 2 CO_2 equivalent emissions[78] over the life of the project. Include both unabated emissions and emissions after all avoidance and abatement measures have been accounted

(b) for medium to high emitting projects,[79] provide an estimate of annual and cumulative Scope 3 emissions[80] and total Scope 3 emissions over the life of the project.

27.7 Identify risks and likely magnitude of impacts to environmental values from abated Scope 1, 2 and 3 emissions (noting that only medium to high emitters are required to consider the impact of Scope 3 emissions).[81]

Mitigation measures

27.8 For medium to high emitting projects,[82] provide a GHG abatement plan that meets the requirements of the GHG Guideline, Appendix A. The GHG abatement plan must also address the following:

(a) as part of the assessment of project alternatives, detail, compare and quantify conceptual, technological, locality, configuration, scale and individual elements or components of feasible alternatives that were considered to avoid or reduce the project's emissions

(b) identify any voluntary initiatives, or research into reducing the lifecycle and embodied energy carbon intensity of the project's processes or products

(c) provide a comparison of estimated annual and cumulative abated project GHG emissions with the global, national and state estimated annual emissions and remaining emission budgets up to 2050. Include all Scope 3 emissions identified in the project estimate when comparing with the remaining global comparison, and relevant Scope 3 emissions for national and Queensland comparisons

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[78] In accordance with the GHG Guideline (chapter 5) Scope 1 emissions mean 'GHG emissions released to the atmosphere as a direct result of an activity. This includes direct emissions and fugitive emissions.' For the purposes of a Coordinated Project, vegetation clearing is taken to be a Scope 1 emission. The GHG Guideline (chapter 5) defines Scope 2 emissions as 'GHG emissions released to the atmosphere from the indirect consumption of an energy commodity that was produced elsewhere.

[79] Section 3.2, GHG Guideline.

[80] The GHG Guideline (chapter 5) defines Scope 3 emissions as 'indirect GHG emissions, other than Scope 2 emissions, that are generated in the wider economy, either in Australia or overseas. They occur as a consequence of the activities of a relevant activity, but from sources not owned or controlled by that activity.'

[81] Section 3.4, GHG Guideline.

[82] Section 3.2, GHG Guideline.

(d) where offsets have been identified as the primary option for compliance, develop a comprehensive carbon offsets management plan. This plan must estimate the volume of carbon offsets required for compliance over the life of the project, detail expected market availability limitations of offset credits, and demonstrate how the project will secure the required supply of offsets

(e) for projects proposing to offset more than 30% of their emissions limits or offset outside of Queensland, provide as part of the EIS an independent review by an appropriately qualified person. This review will assess and confirm findings of the EIS that on-site GHG emission avoidance, reduction and substitution measures have been expended and why suitable and/or sufficient offsets are not available within Queensland

(f) when multi-year emissions reduction targets are proposed to take into account emerging technologies over that period, ensure the same emissions result will be delivered at the end of the multi-year period such that the trajectory of the Queensland emissions targets are met. A multi-year monitoring period should not be more than 5 years

(g) describe the assumptions and data inputs applied to develop the project emissions reduction targets. The calculation of baseline should follow the methodology outlined in the *National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015.*

27.9 For low emitting projects,[83] detail proposed GHG management practices to demonstrate that all reasonable and practical measures have been applied to manage GHG emissions through best practice design, process, technology, and management following the GHG abatement hierarchy: avoid, reduce, substitute and offset.[84]

28. Visual amenity

28.1 The following guidance is relevant for the assessment of visual amenity:

(a) Australian Institute of Landscape Architects, *Guidance Note for Landscape and Visual Assessment*, 2018

(b) Landscape Institute, *Photography and photomontage in landscape and visual impact assessment*, 2018

(c) Landscape Institute and Institute of Environmental Management and Assessment, *Guidelines for Landscape and Visual Impact Assessment*, 2013.

Existing environment

28.2 Characterise the existing visual landscape by describing, mapping and illustrating landscape aspects that influence visual amenity, including:

(a) topography and natural landscape features (inclusive of species habitat)

(b) land use and character

(c) settlements, built features and infrastructure.

28.3 Identify visually sensitive locations, including residential properties, public viewpoints, recreation areas, tourist destinations, culturally relevant features (in consultation with Traditional Custodians), etc.

28.4 Evaluate the sensitivity of the existing visual landscape and its ability to absorb change.

[83] Sections 3.2 and 3.3, GHG Guideline.
[84] Figure 1, GHG Guideline.

Impact assessment

28.5 Identify key project features during all stages of project development that will be visually obtrusive, including project lighting,[85] and undertake a viewshed analysis to identify locations from which project features will be visible.

28.6 Assess the significance of project impacts on landscape character and visual amenity, supported by photomontage analysis from visually sensitive locations.

Mitigation measures

28.7 Describe proposed mitigation measures to avoid or minimise predicted impacts on landscape character and visual amenity, including:

(a) how the project has been designed to integrate with the existing landscape

(b) strategies to protect visual amenity at visually sensitive locations

(c) how the obtrusive effects of diffuse and direct lighting have been minimised.

29. Cumulative impacts

29.1 Provide a cumulative impact assessment that considers the combined effect of potential impacts of different components/aspects of the project on the same environmental value (i.e. intra-project cumulative impacts) and the impacts of other relevant projects acting in combination on the same environmental value (i.e. inter-project cumulative impacts). The cumulative impact assessment must identify potential cumulative environmental, social, economic and cultural impacts for each phase of the project on identified environmental values, including consideration of the likelihood, intensity, duration, magnitude and extent of impacts.

29.2 Describe how identified cumulative impacts may be affected by climate change, including the frequency and intensity of extreme weather events.

29.3 Describe how the cumulative impact assessment and management measures could be progressed further on an inter-project basis.

29.4 Discuss the impact of the project on overall state and national GHG inventories and targets.

29.5 Describe measures that would be used to avoid, minimise, or mitigate any identified cumulative impacts.

30. Environmental management plans

30.1 Provide a project environmental management strategy (EMS) that includes sufficiently detailed environmental management plans (EMPs) to demonstrate that project impacts from the construction, operation, decommissioning and rehabilitation phases of the project will be appropriately managed. The EMS should:

(a) provide a strategic framework for project environmental management and compliance with relevant legislation

(b) include a document hierarchy for the implementation of EMPs, sub-plans, programs, processes and procedures

(c) detail the project's environmental management system, which should include key objectives, principles and commitments

(d) describe the environmental risk assessment process to identify and manage ongoing risks

[85] In accordance with Standards Australia, *Control of Obtrusive Effects of Outdoor Lighting* (Australian Standard 4282). Consider also, Australian Government, *National Light Pollution Guidelines for Wildlife*, 2023.

(e) outline high-level roles and responsibilities for environmental management.

30.2 EMPs should be developed from, and be consistent with, the impact avoidance and mitigation strategies proposed in the EIS. Mitigation measures and commitments should be SMART and should align with best practice environmental management to protect identified environmental values.[86] The EMPs are to be presented as stand-alone documents (appendices to the EIS).

30.3 EMPs must:

(a) summarise relevant project activities and potential impacts on environmental values

(b) set out the environmental objectives and performance outcomes the proponent has committed to achieving for the project (i.e. expected levels of environmental harm, performance standards and associated measurable indicators, including progressive and final rehabilitation)[87]

(c) clearly describe impact avoidance and mitigation strategies, including measures to avoid, minimise and rehabilitate all impacts identified in the EIS

(d) identify management measures that have been developed in consultation with, or based on feedback from relevant stakeholders, and provide for ongoing stakeholder engagement as the project proceeds

(e) identify future scopes of work and relevant hold points required before the EMP can be implemented

(f) outline monitoring and compliance programs to detect potential impacts and confirm the effectiveness of management measures in achieving environmental objectives and performance outcomes

(g) include a process for implementation of preventative and corrective actions (including use of trigger action response plans where suitable) as well as documentation, notification and response obligations following identified non-compliance

(h) include a program for regular reporting and auditing on EMP compliance and implementation, as well as EMP reviews and updates to ensure continual improvement.

31. Conclusions and commitments

31.1 The EIS must include an overall conclusion that sets out:

(a) a summary of predicted project impacts

(b) a description of the impact avoidance and mitigation strategies the proponent will implement to avoid, then minimise and mitigate the predicted project impacts

(c) an overall evaluation of the project that considers the balance of predicted environmental, economic and social impacts and benefits.

31.2 The EIS must include a consolidated list of commitments and conditions that are proposed to apply to the project to protect environmental values and achieve predicted outcomes.

[86] SMART commitments are: Specific – it is clear what must be done; Measurable – it must be possible to know when it has been achieved; Achievable – it is capable of being achieved; Reasonable/relevant – there is a clear connection between the commitment and the desired outcome. The requirement is reasonable; Time Specific – it is clear when the milestone will be completed.

[87] Consider: Queensland Government, *Rehabilitation – EIS information guideline*, ESR/2020/5308; Australian Government, *Environmental management plan guidelines*, 2024.

32. Appendices to the EIS

32.1 Appendices are to provide the complete technical evidence used to develop assumptions, statements and findings in the main text of the EIS. No significant issue or matter is to be mentioned for the first time in an appendix; such matters are to be addressed in the main text of the EIS.

32.2 The EIS must also include the following appendices:

(a) a table listing the section of the EIS (to the lowest possible subsection) where each requirement of the TOR is addressed

(b) a list citing all reference material used or relied on in the EIS

(c) a glossary of terms and a list of acronyms and abbreviations

(d) a consolidated commitment register that lists all mitigation measures (including monitoring programs and management plans) proposed in the EIS to protect or enhance environmental values.

Glossary and acronyms

The definitions of terms frequently used in this TOR includes but is not limited to the below.

Table 1 Glossary

Term	Definition
approvals	Means approvals, authorisations, permits, designations, licences or other instruments that approve development or works under State law.
environmental value	Consistent with section 9 of the EP Act, means: • a quality or physical characteristic of the environment that is conducive to ecological health or • a quality or physical characteristic of the environment that is conducive to public health, safety or amenity or • a quality or physical characteristic of the environment that contributes to its biological diversity and integrity, intrinsic or attributed scientific value or interest, amenity, harmony and sense of community or • another quality of the environment identified and declared to be an environmental value under an environmental protection policy or regulation.
land use planning instruments	Means any applicable local government planning scheme, development scheme for a State development area, land use plan for strategic port land, development schemes or interim land use plans for a priority development area or other land use planning document that regulates development and land use of the site.
matters of national environmental significance or MNES	The nine matters protected by the EPBC Act - world heritage properties, national heritage places, wetlands of international importance ('Ramsar Wetlands'), nationally threatened species and ecological communities, migratory species, Commonwealth marine areas, the Great Barrier Reef Marine Park, nuclear actions (including uranium mining), and a water resource in relation to coal seam gas development and large coal mining development.[88]
matters of state environmental significance or MSES	Means MSES as defined in Queensland Government, *State Planning Policy*, 2017. For the purpose of environmental offsets, prescribed environmental matters – matters of state environmental significance are defined in Schedule 2 of the Environmental Offsets Regulation 2014.
project	Means the project as described in the EIS.
project footprint	Means the physical area (above and below ground) occupied by the project and includes all buffers, accesses and temporary areas that support the project.
residual impact	An impact that remains following the implementation of mitigation measures.
resource authority	Means any of the listed authorities as listed in section 10 of the *Mineral and Energy Resources (Common Provisions) Act 2014*.
sensitive place	As described in the *Noise and vibration – EIS information guideline*[89]; includes a sensitive receptor as defined in the Environmental Protection (Noise) Policy 2019.

[88] Australian Government, Department of the Environment, Water, Heritage and Arts, *Significant Impact Guidelines 1.1 - Matters of National Environmental Significance,* 2013, page 2.
[89] Queensland Government, *Noise and vibration – EIS information guideline*, ESR/2020/5305.

Table 2 Acronyms and abbreviations

Acronym/abbreviation	Definition
AEP	Annual Exceedance Probability
AHD	Australian Height Datum
CBA	cost-benefit analysis
CHMP	Cultural Heritage Management Plan
CO^2	carbon dioxide
CSG	coal seam gas
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DETSI	Department of Environment, Tourism, Science and Innovation
DIDO	drive-in, drive-out
DIN	dissolved inorganic nitrogen
DTMR	Department of Transport and Main Roads
EA	environmental authority
EIS	environmental impact statement
EMP	environmental management plan
EMR	environmental management register
EMS	environmental management strategy
EP Act	*Environmental Protection Act 1994*
EP Regulation	Environmental Protection Regulation 2019
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999* (Cth)
EPP	environmental protection policies
EPP (Air)	Environmental Protection (Air) Policy 2019
EPP (Water and Wetland Biodiversity)	Environmental Protection (Water and Wetland Biodiversity) Policy 2019
ERA	environmentally relevant activity
FIFO	fly-in, fly-out
GBR	Great Barrier Reef
GDA2020	Geocentric Datum of Australia 2020
GDE	groundwater dependent ecosystem
GHG	greenhouse gases including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulphur (or sulfur) hexafluoride (SF_6), hydro fluorocarbons (HFCs) and perfluorocarbons (PFCs)
GHG Guideline	Queensland Government, *Guideline – Greenhouse gas emissions*, ESR/2024/6819
GTIA	Queensland Government, *Guide to Traffic Impact Assessment*, 2018
Ha	hectares
HAT	highest astronomical tide
IESC	Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development
ILUA	Indigenous Land Use Agreements
MLES	matters of local environmental significance

Acronym/abbreviation	Definition
MNES	matters of national environmental significance
MSES	matters of state environmental significance
NC Act	*Nature Conservation Act 1992*
NGER Act	*National Greenhouse Energy Reporting Act 2007*
NPI NEPM	*National Environment Protection (National Pollutant Inventory) Measure 1998* (Cth)
OAMP	Offset Area Management Plan
Offsets Policy	EPBC Act Environmental Offset Policy
PDF	Portable Document Format
PMST	Protected Matters Search Tool
PRCP	progressive rehabilitation and closure plan
Queensland Heritage Act	*Queensland Heritage Act 1992*
RE	regional ecosystem
RIA	regional impact assessment
ROM	run of mine
SDAP	State Development Assessment Provisions
SDPWO Act	*State Development and Public Works Organisation Act 1971*
SIA	social impact assessment
SIA Guideline	Social impact assessment guideline
SIA Supplementary Material	Supplementary material for assessing and managing the social impacts of projects under the Coordinator-General's Social Impact Assessment Guideline (March 2018)
SIMP	social impact management plan
SPRAT	Species Profile and Threats
SRI	significant residual impact
SSRC Act	*Strong and Sustainable Resource Communities Act 2019*
TOR	Terms of Reference
VM Act	*Vegetation Management Act 1999*
Water Act	*Water Act 2000*

Appendix 1. Formatting

Table A1.1 Requirements for public notification of the draft EIS

Document requirements	
☐	An unsecured version of the draft EIS in PDF format. The PDFs must allow for text to be copied and pasted. The unsecured version is for internal working purposes only and will not be made publicly available.
☐	A secured version of the full draft EIS in PDF, that meets the format and spatial requirements in Table A1.2 and Table A1.3.
☐	High resolution versions of all maps/diagrams/figures used in the draft EIS (excluding technical reports) in JPEG format (minimum resolution 300 dpi). These images are for internal use only, for possible reproduction in the Coordinator-General's evaluation report.
Electronic and printed copies available on request	
☐	Produce a small number of copies of the draft EIS on A4-size paper, with maps and diagrams of A4 or A3 size (discuss the copy and distribution requirements with the Office of the Coordinator-General in the early stages of the EIS process). These hard copies may be required for public viewing locations, such as libraries.
☐	Produce a small number of electronic copies of the draft EIS for public distribution by the proponent on request. Discuss this requirement with the Office of the Coordinator-General, as the requirements may vary depending on the location of the audience.

Table A1.2 Format requirements

Document size	Each PDF file should not be larger than 20 MB and must meet the accessibility requirements described in the 'creating accessible PDFs' guidance information, available at **www.helpx.adobe.com/au/acrobat/using/creating-accessible-pdfs.html**
Format and style	The format and style of the document is to be appropriate for publication on the Internet.
Plans, maps, diagrams and other illustrative material	All plans, maps, diagrams, and other illustrative material is to be provided at a suitable scale and must be included in a PDF format so they are legible and easily understood.
	Plans, maps and diagrams are to be located within the appropriate draft EIS chapter(s), as close as possible to where referenced in the text.
	Plans, maps and diagrams are to be to scale on A4 or A3 size with the scale clearly displayed on each. The plan, map or diagram is also to state the original size (e.g. A1). Each should be in colour, where possible, and have a resolution between 300 and 900 dpi.
	Maps must contain the following information: • relevant features of interest • feature names • a legend containing map symbology • north point • scale shown as a multiple of either 1K, 2.5K, 5K or 10K, • title, version and date • inset reference map showing regional location.
Locations	Coordinates are to be in Geocentric Datum of Australia 2020 latitude/longitude (decimal degrees) in preference to eastings/northings and should be to 6 decimal places (e.g. -27.47522,153.02578).
Elevations	Elevations detailed in the draft EIS are to be provided to the Australian Height Datum. Plans, maps and diagrams included in the draft EIS should have contours at suitable increments relevant to the scale, location, potential impacts and components of the project.

Supporting data	Supporting data (e.g. sampling and monitoring data) should be provided in PDF format as an appendix to the EIS, as well as an accompanying Excel spreadsheet. To provide clarity of information, all data must contain descriptive attributes.
References	All sources must be appropriately referenced using the Harvard standard. The reference list should include the address of any Internet webpages used as data sources.

Table A1.3 Spatial data file format requirements

Required information	The draft EIS must be accompanied by relevant supporting spatial information to facilitate project review and evaluation. This should include project information (e.g. project layout) and relevant information on the existing environment (e.g. ecological survey maps, water monitoring locations).
File types	Spatial data must be compatible with Queensland Globe, which supports the following file types: GPX, KML, KMZ, SHP (zipped), JSON and CSV. Shapefiles must be < 2MB, other file types <10MB and cannot include more than 1,000 features. Shapefiles should be provided in the geographic coordinate system and in the Australian geodetic datum reference system - GDA2020, in unprojected geographic coordinate format (Lat/Long).
EA and PRCP requirements	Where an environmental authority (EA) and/or progressive rehabilitation and closure plan (PRCP) is an approval sought through the coordinated project process, the draft EIS must also be accompanied by a separate package of spatial data which complies with the relevant guidelines on Spatial Information Submission (ESR/2018/4337), Progressive Rehabilitation and Closure Plans (ESR/2019/4964) and any other relevant guidelines. This spatial package should be emailed to OCG separately to other spatial data.

Appendix 2. Project approvals

The environmental impact statement (EIS) must include a comprehensive list of approvals required for the project, including the detail of any environmentally relevant activities and development approvals. The EIS must nominate whether conditions of an approval are being sought through the EIS process, and if so, whether these would be imposed, stated or recommended conditions. Where an exemption from obtaining an approval applies, this must be clearly described.

The table below provides a template and examples of approvals that may be required for the project. This is not an exhaustive list.

Table A2.4 Project approvals

Relevant legislation	Approval	Decision-maker / regulatory authority	Approval trigger and project relevance	Conditions being sought through the EIS process (imposed, recommended or stated)
Commonwealth				
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	EPBC Act referral and approval (if a controlled action)	Australian Government Minister for the Environment and Water (Australian Government Environment Minister) / Department of Climate Change, Energy, the Environment and Water (DCCEEW)	The proponent should provide confirmation that a referral for the project has or will be made, or that a referral is not required. If a controlled action decision has been made, detail: • the controlling provisions • the assessment approach • who the designated proponent is for the EPBC Act.	
EPBC Act Environmental Offsets Policy (2012)	Controlled action offset strategy and offset area management plan (OAMP)	Australian Government Minister for the Environment and Water (Australian Government Environment Minister) / DCCEEW	The proponent must identify if significant impacts on matters of national environmental significance (MNES), which will be determined in the EPBC referral, cannot be mitigated or avoided. The proponent must outline the approach to offset the project's impacts and submit an OAMP.	
Native Title Act 1993	Indigenous Land Use Agreement or other future act validation process	National Native Title Tribunal / Queensland Department of [insert]	The proponent must set out details of the relevant native title parties for the project footprint and the compliance pathway under the *Native Title Act 1993.*	No. Agreement required prior to commencement of construction

Relevant legislation	Approval	Decision-maker / regulatory authority	Approval trigger and project relevance	Conditions being sought through the EIS process (imposed, recommended or stated)
Further Commonwealth project approvals may be required				
Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (ATSIHP Act)	Compliance with the ATSIHP Act and Cultural Heritage Management Plan (CHMP) The ATSIHP Act) can be used by Aboriginal and Torres Strait Islander people to make applications to protect places and objects from injury or desecration.	Department of [insert]	In response to an application, the Commonwealth Minister for the Environment and Water can use the ATSIHP Act to make a declaration to protect an area or object for a specified period of time. A declaration is a legislative instrument and it is an offence to breach a declaration.	
Airports Act 1996	Approval for 'controlled activity'	Department of [insert]	Proponent to specify	
Airspace Act 2007	Airspace change proposal	Civil Aviation Safety Authority	Proponent to specify	
Great Barrier Reef Marine Park Act 1975 Great Barrier Reef Marine Park Regulations 2019	EPBC Act referral for controlled provisions relating to the Great Barrier Reef Marine Park. Permit for [insert]	Great Barrier Reef Marine Park Authority	Proponent to specify	
Maritime Transport and Offshore Facilities Security Act 2003	Maritime security plan	Department of Home Affairs	Proponent to specify	
National Greenhouse Energy Reporting Act 2007	Apply to register on National Greenhouse and Energy Register	Clean Energy Regulator	Proponent to specify	
Underwater Cultural	Permit for activities which may impact specified	DCCEEW	Proponent to specify	

Relevant legislation	Approval	Decision-maker / regulatory authority	Approval trigger and project relevance	Conditions being sought through the EIS process (imposed, recommended or stated)
Heritage Act 2018	protected underwater cultural heritage, a specified protected zone and/or specified foreign underwater cultural heritage.			
State				
Aboriginal Cultural Heritage Act 2003 and the *Torres Strait Islander Cultural Heritage Act 2003*	CHMP	Department of [insert]	The proponent must engage in an approved CHMP (or develop a native title agreement or Indigenous Land Use Agreement pursuant to section 86 of the *Aboriginal Cultural Heritage Act 2003*) and demonstrate compliance with the cultural heritage duty of care. Traditional Owners are to be engaged early in project development and CHMP (or native title agreement or Indigenous Land Use Agreement pursuant to section 86 of the *Aboriginal Cultural Heritage Act 2003*) approved prior to project construction	No
Environmental Protection Act 1994	Environmental authority for an environmentally relevant activity (ERA) for: [Include detail of each environmentally relevant activity that is triggered by the project]	Department of [insert]	The proponent must identify ERA thresholds triggered under the Environmental Protection Regulation 2019, including concurrence and prescribed ERAs.	E.g. Yes, stated conditions for the environmental authority
Planning Act 2016 Planning Regulation 2017	Development permit for [insert]	Department of [insert] and relevant local government	The proponent must identify each relevant assessment trigger under the Planning Regulation 2017 or the relevant local	

Relevant legislation	Approval	Decision-maker / regulatory authority	Approval trigger and project relevance	Conditions being sought through the EIS process (imposed, recommended or stated)
			government planning scheme. The proponent must identify any referral agency trigger under the Planning Regulation 2017. The proponent must ensure that the EIS contains the information required to support the application.	
Strong and Sustainable Resource Communities Act 2017 (SSRC Act)	Coordinator-General's evaluation report	Coordinator-General	The proponent must outline obligations under the SSRC Act and trigger for undertaking a social impact assessment.	Yes, stated conditions
Further state project approvals may be required				
Acquisition of Land Act 1967	Acquisition of land	Department of [insert]	Proponent to specify	
Biosecurity Act 2014	General biosecurity obligation	Department of [insert]	Proponent to specify	
Building Act 1975	Permit for accepted development	Local government or private certifier	Proponent to specify	
Electricity Act 1994	Transmission authority, distribution authority, generation authority and/or special approval	Department of [insert]	Proponent to specify	
Environmental Offsets Act 2014 Environmental Offsets Regulation 2014	Offset delivery plan	Department of [insert]	Proponent to specify	
Environmental Protection Act 1994 Mineral and Energy Resources (Financial Provisioning) Regulation 2019	Progressive Rehabilitation and Closure Plan and Schedule and Estimated Rehabilitation Calculation	Department of [insert]	Proponent to specify	

Relevant legislation	Approval	Decision-maker / regulatory authority	Approval trigger and project relevance	Conditions being sought through the EIS process (imposed, recommended or stated)
Explosives Act 1999 Explosives Regulation 2017	Explosives authority	Department of [insert]	Proponent to specify	
Fisheries Act 1994	Development permit for operational works for [insert]	Department of [insert]	Proponent to specify	
Forestry Act 1959	Permit for interfering with or using State owned quarry material or State-owned timber or forest products	Department of [insert]	Proponent to specify if State owned quarry material and/or timber or forest products will be interfered with, used or sterilised during the project. Includes where quarry material is dredged within a *Land Act 1994* lease issued over tidal waters.	
Geothermal Energy Act 2010	Geothermal tenure [specify]	Department of [insert]	Proponent to specify	
Greenhouse Gas Storage Act 2009	Greenhouse gas authority [specify]	Department of [insert]	Proponent to specify	
Land Act 1994	Tenure arrangements on State land, such as permit to occupy and/or creation of easement	Department of [insert]	Proponent to specify	
Marine Parks Act 2004	Approval for works under a Zoning Plan or State Marine Park	Department of [insert]	Proponent to specify	
Mineral Resources Act 1989	Mining lease	Department of [insert]	A mining lease is required to conduct large-scale mining operations. Proponent to specify.	
Nature Conservation Act 1992 Nature Conservation	Permit for [insert]	Department of [insert]	Proponent to specify.	

Relevant legislation	Approval	Decision-maker / regulatory authority	Approval trigger and project relevance	Conditions being sought through the EIS process (imposed, recommended or stated)
(Animals) Regulation 2020 Nature Conservation (Plants) Regulation 2020				
Petroleum and Gas (Production and Safety) Act 2004	Petroleum authority [specify]	Department of [insert]	Proponent to specify	
Plumbing and Drainage Act 2002	Compliance certificate for regulated plumbing works	Department of [insert]	Proponent to specify	
Public Health Act 2005	Compliance with the *Public Health Act 2005*	Department of [insert]	Proponent to specify	
Queensland Heritage Act 1992	Approval for disturbance to heritage site	Department of [insert]	Proponent to specify	
Regional Planning Interests Act 2014	Regional Interests Development Approval	Department of [insert]	Proponent to specify	
Stock Route Management Act 2002	Approval for impacts on stock routes	Department of [insert]	Proponent to specify	
Transport Infrastructure Act 1994	Approval or permit for [insert]	Department of [insert]	Proponent to specify	
Transport Operations (Marine Safety) Act 1994 *Transport Operations (Marine Pollution) Act 1995* *Transport Operations (Road Use Management) Act 1995*	Compliance with the Acts	Department of [insert]	Proponent to specify	
Vegetation Management Act 1999	Operational work to clear native vegetation	Department of [insert]	Proponent to specify	

Relevant legislation	Approval	Decision-maker / regulatory authority	Approval trigger and project relevance	Conditions being sought through the EIS process (imposed, recommended or stated)
Waste Reduction and Recycling Act 2011	Compliance to waste management hierarchy and/or operation under an End of Waste code	Department of [insert]	Proponent to specify	
Water Act 2000	[insert relevant licence, permit and/or water allocation] e.g. Quarry Material Allocation Notice	Department of [insert] e.g. Department of Local Government, Water and Volunteers	Proponent to specify e.g. Removal of riverine quarry material.	
Work Health and Safety Act 2011 Work Health and Safety Regulation 2011	Major Hazard Facility Licence and/or [insert]	Workplace Health and Safety Queensland	Proponent to specify	
Local				
Insert relevant local approvals				

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