

Final Terms of Reference for an Environmental Impact Statement

New Lenton Coal Project



Prepared by: Statewide Environmental Assessments Unit, Department of Environment and Heritage Protection

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Part A—About these terms of reference

1 Statutory basis

This section draws attention to the project assessment information requirements of the *Environmental Protection Act 1994* (EP Act)¹ administered by the Department of Environment and Heritage Protection (EHP). While these generic terms of reference (TOR) aim to seek information corresponding to these requirements, proponents should confirm that the EIS addresses all statutory requirements, and also meets the relevant information requirements of other Australian and Queensland regulatory authorities.

The generic TOR apply to the assessment of resource projects that require assessment under the environmental impact statement (EIS) process requirements set out in chapter 3, part 1, of the EP Act.

Resource activities that are proposed to be carried out under one or more resource tenures, in any combination, as a single integrated operation are known as resource projects. Resource projects involve undertaking resource activities such as mining, petroleum (including coal seam gas (CSG)), geothermal and greenhouse gas storage activities.

The EIS process applies to site-specific (s124) environmental authority (EA) applications for undertaking resource projects that meet any of EHP's EIS triggers in the guideline 'Environmental impact statements—Triggers for environmental impacts statements under the *Environmental Protection Act 1994* for mining, petroleum and gas activities', available from EHP's website at www.ehp.qld.gov.au.

This includes site-specific EA amendment applications for existing resource projects.

The key information requirements of the EP Act that must be addressed in an EIS are:

- the requirements of section 40 of the EP Act, which specifies the purpose of an EIS and of the EIS process
- sections 125 and 126 which set out the general information requirements for applications for an environmental authority
- the environmental objectives and performance outcomes specified in schedule 5, part 3, table 1 of the Environmental Protection Regulation 2008 (EP Regulation).

Section 139 of the EP Act states that the information stage of the environmental authority process does not apply if the EIS process under the EP Act is complete (unless there has been a subsequent change). Consequently, if the project is to proceed, it is particularly important that the EIS provide all the information needed to enable the issuing of an environmental authority for the project.

EHP has developed a set of model conditions² for resource projects, which should form the basis for draft EA conditions and general environmental protection commitments in an EIS. The EIS should discuss impact mitigation measures in the context of these model conditions. They are:

- Guideline—Mining—Model mining conditions
- Guideline—Resource activity—mining—Model water conditions for coal mines in the Fitzroy basin
- Eligibility criteria and standard conditions—Petroleum exploration activities
- Eligibility criteria and standard conditions—Petroleum pipeline activities
- Eligibility criteria and standard conditions—Geothermal exploration activities.

The generic TOR should be used by proponents to develop and submit a site-specific draft TOR and other information in accordance with section 41 of the EP Act. Following public consultation, the TOR for each project will be finalised by the chief executive of the authority administering the EP Act.

¹ See the EHP publication 'Guideline—The environmental impact statement process under the *Environmental Protection Act 1994*'.

² Available to download from the EHP website at: www.ehp.qld.gov.au

2 Accredited process for controlled actions under Commonwealth³ legislation

As the project is a 'controlled action' under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) which requires assessment by an EIS process accredited under the Bilateral Agreement, the EIS must address the 'controlling provisions' and all matters relating to them. The EIS must state the controlling provisions for the project and describe the particular aspects of the environment leading to the controlled action declaration under the EPBC Act.

The assessment of the potential impacts, mitigation measures and any offsets for residual impacts must be dealt with in a stand-alone section of the EIS that fully addresses the matters relevant to the controlling provisions. Requirements for matters of national environmental significance (MNES) are set out in section 7 of the TOR. The EIS must also address the matters prescribed in section 6 and in Schedule 1 of the EP Regulation.

3 EIS guidelines

The TOR must be read in conjunction with the EHP Guideline—'The Environmental Impact Statement Process under the EP Act', which explains the following:

- participants in the EIS process
- consultation requirements
- EIS format and copy requirements.

In addition, subject-specific guidelines are referenced throughout the TOR. Refer to Appendix 1 for a list of these policies and guidelines. Additional technical guidelines on how to comply with the TOR and information about the project or the EIS process conducted under the EP Act can be accessed from the EHP website www.ehp.qld.gov.au.

Part B—Content of the EIS

1 General approach

- 1.1 For the purposes of the EIS process, 'environment' is defined in section 8 of the EP Act.
- 1.2 The EIS should give priority to the critical matters associated with the project (specified in section 7 of the TOR).
- 1.3 The detail in which the EIS deals with matters relevant to the project should be proportional to the scale of the impacts on environmental values. When determining the scale of an impact, consider its intensity, duration, cumulative effect, irreversibility, the risk of environmental harm, management strategies and offsets provisions.

2 Mandatory requirements of an EIS

- 2.1 Describe the project including all aspects subject to this assessment. Provide details of the proponent of the project, including details of any joint venture partners. The project description should include all on and off lease activities relevant to the project including construction, operation and decommissioning activities. If the delivery of the project is to be staged, the nature and timing of the stages should be described.
- 2.2 For all the relevant matters, the EIS must identify and describe the environmental values⁴ that must be protected. Environmental values are specified in the EP Act, the EP Regulation, environmental protection policies (EPPs) and relevant guidelines.⁵

³ This section applies where the proponent has received confirmation from the Australian Government Department of the Environment that the project is a controlled action under the EPBC Act and that it is to be assessed under an EIS accredited under the bilateral agreement.

- 2.3 The assessment should cover both the short and long-term scenarios and state whether any relevant impacts are likely to be irreversible.
- 2.4 Provide all available baseline information relevant to the environmental risks of the project. Provide details about the quality of the information provided, in particular: the source of the information; how recent the information is; how the reliability of the information was tested; and any uncertainties in the information.
- 2.5 Demonstrate how the construction, operation and decommissioning (to the extent known) of the project would be consistent with best or leading practice environmental management. In general, the preferred hierarchy for managing likely impacts is: (a) to avoid; (b) to minimise or mitigate; and (c) if necessary, and possible, to offset. Where relevant, mitigation strategies should be described in the context of EHP model conditions.
- 2.6 Provide strategies in regard to all critical matters for the protection, or enhancement as desirable, of all relevant environmental values in terms of outcomes and possible conditions that can be measured and audited.
- 2.7 Impact minimisation measures should include ongoing monitoring and proposals for an adaptive management approach, as relevant, based on monitoring. The proposed measures should give confidence that, based on current technologies, the impacts can be effectively minimised over the long-term.
- 2.8 Present feasible alternatives of the project's configuration (including individual elements) that may improve environmental outcomes. Discuss the consequences of not proceeding with the project.
- 2.9 For unproven elements of a resource extraction or processing process, technology or activity, identify and describe any global relevant leading practice environmental management, where available.
- 2.10 Provide an environmental management plan as an appendix to the EIS. The environmental management plan must be consistent with the requirements of section 203 of the EP Act as it was at 14 March 2013 (i.e. prior to the EP Act amendments under the Greentape legislation).

3 Further requirements of an EIS

- 3.1 The assessment and supporting information should be sufficient for the administering authority to decide whether an approval should be granted. Where applicable, sufficient information should be included to enable approval conditions, such as the existing model EA conditions, to be utilised.
- 3.2 To the extent of the information available, the assessment should endeavour to predict the cumulative impact⁶ of the project on environmental values over time and in combination with impacts created by the activities of other adjacent and upstream and downstream developments and landholders—as detected by baseline monitoring. This will inform the decision on the EIS and the setting of conditions. The absence of a comprehensive cumulative impacts analysis need not be fatal to the project. The EIS should also outline ways in which the cumulative impact assessment and management could subsequently be progressed further on a collective basis.
- 3.3 Include a consolidated description of all the proponent's commitments to implement management measures (including monitoring programs). Should the project proceed, these should be able to be carried over into the approval conditions as relevant.

⁴ Defined in section 125(l)(i)(A) of the EP Act.

⁵ For example, the Queensland Water Quality Guidelines and the Australian and New Zealand Guidelines for Fresh (refer to

Appendix 1 Policies and guidelines for details).

⁶ Cumulative impact is defined as 'combined impacts from all relevant sources (developments and other activities in the area)'.

- 3.4 Provide all geographical coordinates throughout the EIS in latitude and longitude against the Geocentric Datum of Australia 1994 (GDA94).
- 3.5 An appropriate public consultation program is essential to the impact assessment process. The proponent should consult with local, Queensland and Australian government authorities, and potentially affected local communities.
- 3.6 The EIS should describe the consultation that has taken place and how the responses from the community and agencies have been considered, and where possible, incorporated into the design and outcomes of the project. Requirements for the public consultation plan are listed in the document 'Preparing an environmental impact statement: Guideline for proponents'.
- 3.7 Include, as an appendix, a public consultation report. The report should detail how the public consultation plan was implemented including the results.

4 Executive summary

The executive summary should describe the project and convey the most important and preferred aspects and environmental management options relating to the project in a concise and readable form. It should use plain English, avoid jargon, be written as a stand-alone document and be structured to follow the EIS. It should be easy to reproduce and distribute on request to those who may not wish to read or purchase the whole EIS.

5 Introduction

Clearly explain the function of the EIS, why it has been prepared and what it sets out to achieve. Include an overview of the structure of the document.

5.1 Project proponent

Describe the proponent's experience, including:

- the designated proponent's full name, postal address and Australian Business Number, if relevant (including details of any joint venture partners)
- the nature and extent of business activities
- environmental record, including a list of any breach of relevant environmental laws during the previous 10 years
- the proponent's environmental, health, safety and community policies.

5.2 The environmental impact assessment process

- 5.2.1 The EIS should provide an outline of the environmental impact assessment process, to ensure readers are informed of the process to be followed and are aware of any opportunities for input and participation.
- 5.2.2 Inform the reader how and when properly made public submissions on the EIS will be addressed and taken into account in the decision-making process.

5.3 Project approvals process

Provide an outline of the approvals required to enable the project to be constructed and operated. Explain how the environmental impact assessment process (and the EIS itself) informs the issue of the leases/licences/permits/consents required by the proponent before construction can commence. Provide a flow chart indicating the key approvals and opportunities for public comment. Guidance on typical associated approvals can be accessed from the Coordinator-General's website⁷.

⁷ www.dsdip.qld.gov.au/coordinator-general

6 Project description

6.1 Proposed development

The EIS must describe and illustrate at least the following specific information about the proposed project the:

- project's title
- project, its objectives, and expected capital expenditure
- rationale for the project
- nature and scale of activities to be undertaken and whether it is a greenfield or brownfield site
- regional and local context of the project's footprint (with maps at suitable scales). Map data for the project's footprint (including any off-lease transport corridors) should be in digital spatial (GIS) format such as MapInfo or Arc View shape files and KML (Google Earth) format, with associated metadata
- relationship to other coordinated projects and other major projects (of which the proponent should reasonably be aware)
- workforce numbers to be employed by the project during its various phases, where personnel would be accommodated and, where relevant, the likely recruitment and rostering arrangements to be adopted
- proposed construction staging and likely schedule of works.

6.2 Site description

- 6.2.1 Provide real property descriptions of the project land and adjacent properties; any easements; any underlying resource tenures; and identification number of any resource activity lease for the project land that is subject to application. Key transport, state-controlled roads, rail, air, port/sea and other infrastructure in the region relevant to the project and to the site should be described and mapped.
- 6.2.2 Describe and illustrate the topography of the project site and surrounding area, and highlight any significant features shown on the maps. Maps should have contours at suitable increments relevant to the scale, location, potential impacts and type of project, shown with respect to Australian height datum (AHD) and drafted to GDA94.
- 6.2.3 Where appropriate, describe and map in plan and cross-sections the geology and landforms, including catchments, of the project area. Show geological structures, such as aquifers, faults and economic resources that could have an influence on, or be influenced by, the project's activities. With regard to existing extractive resources, describe the Key Resource Area (including its transport route and separation area) overlying and adjacent to the project.
- 6.2.4 Where appropriate, describe, map and illustrate soil types and profiles of the project area at a scale relevant to the proposed project. Identify soils that would require particular management due to wetness, erosivity, depth, acidity, salinity or other features.

6.3 Climate

Describe the site's climate patterns that are relevant to the environmental assessment, with particular regard to discharges to water and air and the propagation of noise. Climate information should be presented in a statistical form including long-term averages and extreme values, as necessary.

6.4 Proposed construction and operations

Describe the following information about the proposal, including:

- existing infrastructure and easements on the potentially affected land
- proposed extractive and processing methods, associated equipment and techniques

- sequencing and staging of activities
- capacity of high-impact plant and equipment, their chemical and physical processes, and chemicals or hazardous materials to be used
- known locations of new or altered works and structures and infrastructure (including upgrades or relocation) necessary for the project at all stages of its development, whether on or off the project lease(s) or rights of way
- coal seam gas, geothermal or petroleum exploration activities
- any activity that is a prescribed environmentally relevant activity if it were not undertaken on a mining/petroleum lease
- any new or expanded quarry and screening operations (e.g. from off-site locations) required to service the project.

7 Assessment of critical matters

This section sets out the scope of critical matters that should be given detailed treatment in the EIS. 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 nuisance⁸
- considered important by the administering authority and/or there is a public perception that an activity has the potential to cause serious or material environmental harm or an environmental nuisance, or, the activity has been the subject of extensive media coverage
- identified (in a referral decision) as a specific controlling provision under the EPBC Act.

The final scope of critical matters will be determined by the administering authority when finalising the TOR. In the course of preparing the EIS, information may become available that warrants a change of scope.

7.1 Matters of national environmental significance (MNES)

The Australian Government Environment Minister has determined that the project impacts on MNES.

The project (EPBC 2012/6303) is a controlled action under the EPBC Act and EHP has approved an application to voluntarily prepare an EIS under section 72 of the EP Act.

The EIS will be prepared pursuant to the bilateral agreement between the Australian and Queensland governments for the purposes of the Australian Government's assessment under part 8 of the EPBC Act. The EIS must address potential impacts on MNES that were identified when the project was determined to be a controlled action.

This section should bring together assessments of impacts on MNES in other chapters (e.g. water resources, flora and fauna, cultural heritage, etc.) and produce a stand-alone assessment in a format suited for assessment under the EPBC Act.

The controlling provisions under the EPBC Act are:

- sections 18 and 18A (listed threatened species and communities)
- sections 20 and 20A (listed migratory species)
- sections 24D and 24E (water resources).

The project should initially be assessed in its own right, followed by an assessment of the cumulative impacts related to all known and proposed similar developments in the region with respect to each controlling provision and all identified consequential actions. Cumulative impacts not solely related to the project development should also be assessed.

Predictions of the extent of threat (risk), impact and the benefits of any mitigation measures proposed, should be based on sound science and quantified where possible. All sources of information relied upon should be identified and an estimate of the reliability of predictions should be provided.

⁸ 'Material environmental harm', 'serious environmental harm' and 'environmental nuisance' are defined in Part 3, sections 15, 16 and 17 of the *Environmental Protection Act 1994*.

The extent of any new field work, modelling or testing should be commensurate with risk and should be such that when used in conjunction with existing information, provides sufficient confidence in predictions that well-informed decisions can be made.

This section should include mapping of a scale suitable for identifying the distribution of MNES and their habitat, both on the proposal site and in a regional context.

7.1.1 Introduction

Provide background to the project, including:

- a description of the action, including location and property description, as well as planning, construction and decommissioning phases
- how the action relates to any other actions (of which the proponent should reasonably be aware) that have been, or are being, taken or that have been approved in the region affected by the action
- a list of persons and agencies consulted during the preparation of the EIS
- the names, qualifications and experience of the persons involved in preparing the EIS, including sub-consultants and reviewers
- the environmental record of the proponent, including details of their environmental policy and planning framework and details of any proceedings under a Commonwealth or state law for the protection of the environment against them
- a brief summary of social/economic impacts as a result of the project.

7.1.2 Impact on EPBC Act listed threatened species and ecological communities

Identify EPBC Act listed threatened species and ecological communities that could be affected, directly and indirectly, as a consequence of the proposal (including EPBC Act status, distribution, life history, habitats).

Consider and assess all potential impacts, both direct and indirect, to listed threatened species and ecological communities for which the project was declared a controlled action or that are found to be (or may potentially be) present in areas that may be impacted by the project. Refer to impacts on suitable habitat present irrespective of whether the species were detected in surveys. Conduct targeted surveys for listed threatened species and ecological communities in accordance with relevant departmental survey guidelines, to identify the likely presence of listed threatened species and communities, and provide a high-level of certainty of their presence or absence from the proposal site.

Describe and map, where necessary, the distribution, ecology, and habitat preferences of each listed threatened species and ecological community; including:

- all potential habitat for each species, irrespective of whether species/communities were detected in surveys
- habitat components important for each species, such as breeding, foraging or roosting habitat
- the location and source of known records (including those from databases and all surveys previously conducted in the project area).

Discuss the relationship between individuals and populations/sub-populations of EPBC Act listed threatened species and ecological communities on the proposed site and the regional context of threatened species and ecological communities.

Assess the impacts to the listed threatened species (including habitat) and ecological communities and any others that are found to be (or may potentially be) present in areas that may be impacted by the project. Also include evidence-based justification for conclusions reached on whether or not a species/community is likely to be significantly impacted. Identify which component of the project is of relevance to each species or community or if the threat of impact relates to consequential actions, resulting from:

- a decrease in the size of a population or a long-term adverse effect on an ecological community
- reduction in the area of the species' occupancy or extent of occurrence of the ecological community
- fragmentation of an existing population or ecological community
- disturbance or destruction of habitat critical to the survival of the species or ecological community
- disruption of the breeding cycle of a population
- modification, destruction, removal, isolation or reduction of the availability or quality of habitat to the extent that the species is likely to decline

- modification or destruction of abiotic (non-living) factors (such as water, nutrients or soil) necessary for the ecological community's survival
- the introduction of invasive species that are harmful to the species or ecological community becoming established
- interference with the recovery of the species or ecological community
- an action that may be inconsistent with a recovery plan or threat abatement plan.

7.1.3 List of EPBC Act listed threatened species and communities

The EIS must discuss the nature and scale of impacts associated with the proposed action for the following listed threatened species and ecological communities:

EPBC Act listed ecological communities:

- Brigalow w (*Acacia harpophylla* dominant and codominant)
- Natural Grasslands of the Queensland Central Highlands and the northern Fitzroy Basin
- Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions.

EPBC Act listed threatened species:

- Red Goshawk *Erythrorchis radiatus*
- Squatter Pigeon (southern) *Geophaps scripta scripta*
- Star Finch (eastern), Star Finch (southern) *Neochmia ruficauda ruficauda*
- Australian Painted Snipe *Rostratula australis*
- Northern Quoll *Dasyurus hallucatus*
- South-eastern Long-eared Bat *Nyctophilus corbeni*
- *Cycas ophiolitica*
- King Blue-grass *Dichanthium queenslandicum*
- Finger Panic Grass *Digitaria porrecta*
- Black Ironbox *Eucalyptus raveretiana*
- *Leucopogon cuspidatus*
- *Omphalea celata*
- *Samadera bidwillii*
- Striped-tailed Delma *Delma labialis*
- Ornamental Snake *Denisonia maculata*
- Yakka Skink *Egernia rugosa*
- Allan's Lerista, Retro Slider *Lerista allanae*
- Fitzroy River Turtle *Rheodytes leukops*.

If additional listed threatened species or ecological communities, including potential habitat, are identified during ecological surveys an assessment of impacts to these species and communities must also be included in the EIS.

7.1.4 Impact on EPBC Act listed migratory species

Identify EPBC Act listed migratory species that could be affected, directly and indirectly, as a consequence of the proposal (including distribution, life history and habitats).

Consider and assess all potential impacts, both direct and indirect, to listed migratory species for which the project was declared a controlled action or that are found to be or may potentially be present in areas that may be impacted by the project. Refer to impacts on suitable habitat present irrespective of whether the species were detected in surveys. Conduct targeted surveys for listed migratory species in accordance with departmental survey guidelines, where relevant—to identify the likely presence of listed migratory species and provide a high-level of certainty of their presence or absence from the proposal site.

Describe and map, where necessary, the distribution, ecology and habitat preferences of each listed migratory species, including:

- all potential habitat for each species, irrespective of whether species/communities were detected in surveys
- habitat components important for each species, such as breeding, foraging and roosting habitat

- the location and source of known records (including those from databases and all surveys previously conducted in the project area).

Discuss the relationship between individuals and populations/sub-populations of EPBC Act listed migratory species on the proposed site and the regional context of threatened species and ecological communities.

Assess the impacts to the listed migratory species (including habitat) and any others that are found to be or may potentially be present in areas that may be impacted by the project. Also include evidence-based justification for conclusions reached on whether or not a species is likely to be significantly impacted. Identify which component of the project is of relevance to each migratory species or if the threat of impact relates to consequential actions, resulting from:

- the substantial modification (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destruction or isolation of an area of important habitat for a migratory species
- an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species
- the serious disruption of the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

7.1.5 List of EPBC Act listed migratory species

The EIS must discuss the potential for impacts for the following listed migratory species:

- Fork-tailed Swift *Apus pacificus*
- Great Egret *Ardea alba*
- Cattle Egret *Ardea ibis*
- White-bellied Sea-Eagle *Haliaeetus leucogaster*
- White-throated Needletail *Hirundapus caudacutus*
- Barn Swallow *Hirundo rustica*
- Rainbow Bee-eater *Merops ornatus*
- Black-faced Monarch *Monarcha melanopsis*
- Satin Flycatcher *Myiagra cyanoleuca*
- Latham's Snipe *Gallinago hardwickii*.

If additional listed migratory species, including potential habitat, are identified during ecological surveys an assessment of the impacts to these species must also be included in the EIS.

7.1.6 A water resource, in relation to coal seam gas development and large coal mining development

The National Partnership Agreement on Coal Seam Gas and Large Coal Mining—to which Queensland is a signatory—specifies that all coal seam gas and large coal mining proposals that are likely to have a significant impact on water resources are to be referred to the Independent Expert Scientific Committee (IESC) for advice. The EIS must include a specific section responding to the information requirements contained in the IESC's Information Guidelines for Proposals Relating to the Development of Coal Seam Gas and Large Coal Mines, where there is a significant impact on water resources.

This section should include a description of surface and groundwater resources on the site pre-development and any impacts on these water resources including, but not limited to:

- Changes to hydrology, such as:
 - flow regimes
 - recharge rates
 - aquifer pressure or pressure relationships between aquifers
 - groundwater table levels
 - groundwater/surface water interaction
 - river/flood plain connectivity
 - inter-aquifer connectivity.
- Changes to water quality, such as:

- elevated levels of salts, trace elements and heavy metals
 - changes in pH
 - elevated levels of aluminium, barium, boron, cadmium, chromium, copper, iron, fluoride, lead, manganese, mercury and zinc
 - elevated nutrient levels.
- Changes to ecosystem function and integrity resulting in:
 - areas of the water resource being destroyed or substantially modified in a way that may have an adverse effect on water-dependent ecosystems
 - a substantial adverse change to the benefits or services provided by a water resource
 - a substantial change in the biological diversity or species composition of a water resource or its ecological connectivity to other water resources
 - the habitat or lifecycle of native species which are ecologically associated with the water resource or which are important determinants of the water resource's character being seriously affected
 - an invasive or pest species that is harmful to the ecosystem functioning or integrity of the water resource becoming established (or an existing invasive or pest species being spread) in the water resource.

This section should include an assessment of both short and long-term impacts to water resources and contain a cumulative impact assessment of surface and groundwater resources related to all known and proposed similar development in the region. Furthermore, this section should identify other users of surface and groundwater resources and any impacts, both short and long term that may occur as a result of the proposed action.

7.1.7 Avoidance, mitigation and offset measures

Describe any avoidance and mitigation measures proposed to reduce the impacts on the listed threatened species and ecological communities and water resources and include the following elements:

- a description of proposed safeguards, avoidance and mitigation measures to deal with relevant impacts of the action including mitigation measures proposed to be taken by state governments, local governments or the proponent
- an assessment of the expected or predicted effectiveness of the mitigation measures
- an explanation of any statutory or policy basis for the mitigation measures, including a discussion on how the proposed approach is not inconsistent with relevant recovery plans and threat abatement plans for listed threatened species and communities.

Describe any proposed offsets for residual impacts to listed threatened species and ecological communities, listed migratory species and water resources as a result of the proposed action.

Discuss proposed offsets with reference to the EPBC Act Environmental Offsets Policy (2013). This discussion should include details of the:

- timing of procuring the proposed offset
- location, size, habitat quality and how the proposed offset will provide a net benefit for MNES where residual impacts are likely to occur
- tenure arrangements
- proposed management measures.

7.2 Water resources

Objectives

The construction and operation of the project should aim to meet the following objectives:

- equitable, sustainable and efficient use of water resources
- environmental flows, water quality, in-stream habitat diversity, and naturally occurring inputs from riparian zones (including groundwater dependent ecosystems) support the long term maintenance of the ecology of aquatic biotic communities

- the condition and natural functions of water bodies (e.g. lakes, springs, watercourses and wetlands) are maintained—including the stability of beds and banks of watercourses.

Information requirements

Provide details of any proposed impoundment, extraction, treatment, discharge, injection, use or loss of surface water or groundwater. Identify any approval or allocation that would be needed under the Water Act 2000.

Detail any significant diversion or interception of overland flow. Include maps of suitable scale showing the location of diversions and other water-related infrastructure in relation to mining infrastructure.

Describe the options for supplying water to the project, and assess any potential consequential impacts in relation to the objectives of any water resource plan, resource operations plan and wild river declaration that may apply.

Develop hydrological models as necessary to describe the inputs, movements, exchanges and outputs of all significant quantities and resources of surface water and groundwater that may be affected by the project. The models should address the range of climatic conditions that may be experienced at the site, and adequately assess the potential impacts of the project on water resources. The models should include a site water balance. This should enable a description of the project's impacts at the local scale and in a regional context including proposed:

- changes in flow regimes from diversions, water take and discharges
- alterations to riparian vegetation and bank and channel morphology
- direct and indirect impacts arising from the development.

7.3 Social and economic

Objectives

The construction and operation of the project should aim to:

- avoid or mitigate adverse social and economic impacts arising from the project
- capitalise on opportunities potentially available to affected communities.

Information requirements

- 7.3.1 In accordance with the Coordinator-General's Social impact assessment guideline⁹, describe the direct social impacts (positive and negative) of the project on affected communities taking into account proposed mitigation and management measures developed in consultation with stakeholders, including relevant state and local government agencies.
- 7.3.2 Describe the likely impacts (positive and negative) of the project on the economies materially impacted by the project. The analysis should describe both the potential and direct economic impacts including estimated costs, if material, on industry and the community. The assessment should include the impacts of operating transitional workforces and not housing workers locally. The analysis should assess the cumulative triple bottom line impacts of all mining and construction projects in the area on the urban community, housing markets and state public services required to support non-resident workforces in the Moranbah, Glenden and Nebo townships.
- 7.3.3 The assessment should identify opportunities to capture the local and regional economic benefits of the project, including:
- strategies for ensuring local suppliers of goods and services receive full, fair and reasonable opportunity to tender for work throughout the life of the project through adopting policies such as the Queensland Resources and Energy Sector Code of Practice for Local Content administered by Queensland Resources Council
 - local housing and accommodation strategies to account for the construction and operational workforces

⁹ www.dsdp.qld.gov.au/resources/guideline/social-impact-assessment-guideline.pdf

- employment strategies for local residents, including members of Indigenous communities, women and people with a disability across Queensland
- opportunities to support the agricultural and tourism industries
- any recruitment and training programs to be offered.

7.3.4 Include an Indigenous Participation Plan, prepared in consultation with relevant parties.

7.4 Transport

Objectives

The construction and operation of the project should aim to:

- maintain the safety and efficiency of all affected transport modes for the project workforce and other transport system users
- minimise and mitigate impacts on the condition of transport infrastructure
- ensure any required works are compatible with existing infrastructure and future transport corridors.

Information requirements

- 7.4.1 The EIS should include a clear summary of the total transport task for the project, including workforce, inputs and outputs, during the construction and operational phases. Proponents should make appropriate modal choices to ensure transport efficiency and minimise impacts on the community.
- 7.4.2 Present the transport assessment in separate sections for each project affected mode (road, rail, air and sea) as appropriate for each phase of the project. Provide sufficient information to allow an independent assessment of how existing transport infrastructure will be affected by project transport at the local and regional level (e.g. local roads and state-controlled roads).
- 7.4.3 Include details of the adopted assessment methodology for:
- impacts on roads: the road impact assessment report in accordance with the Guidelines for Assessment of Road Impacts of Development
 - impacts on rail level crossings: the Australian Level Crossing Assessment Model
 - impacts on maritime operations: the Maritime Safety Queensland Guidelines for major development proposals.
- 7.4.4 Discuss and recommend how identified impacts will be mitigated so as to meet the above objectives for each transport mode. Mitigation strategies may include works, contributions or management plans and are to be prepared in close consultation with relevant transport authorities (including local government). Strategies should consider those transport authorities' works program and forward planning, and be in accordance with the relevant methodologies, guidelines and design manuals.

8 Assessment of routine matters

The following subsections list the routine matters for resource projects, with (where applicable) a reference to the objectives defined in the EP Regulation. In some cases, not all the matters may be relevant, while in others the list may not be exhaustive. Where applicable, refer to the objective of the EP Regulation (section 3) to ensure ecologically sustainable development is achieved.

For each routine matter identified below, the level of detail should be proportional to the scale of impacts. As a minimum, the proponent should supply sufficient information that confirms the risks/impacts are not significant.

8.1 Land, flora and fauna

Objectives and performance outcomes

The environmental objectives to be met under the EP Act are that the:

- activity is operated in a way that protects the environmental values of land including soils, subsoils, landforms and associated flora and fauna
- choice of the site, at which the activity is to be carried out, minimises serious environmental harm on areas of high conservation value and special significance and sensitive land uses at adjacent places
- location for the activity on a site protects all environmental values relevant to adjacent sensitive use
- design of the facility permits the operation of the site, at which the activity is to be carried out, in accordance with best or leading practice environmental management.

The performance outcomes corresponding to these objectives are in Schedule 5, Tables 1 and 2 of the EP Regulation. The proponent should supply sufficient evidence (including through studies and proposed management measures) that show these outcomes can be achieved.

Information requirements—land use

- 8.1.1 Describe potential impacts of the proposed activities on land uses in and around the project area, with reference to regional plans and local government planning schemes, taking into consideration the proposed measures that would be used to avoid or minimise impacts. The impact prediction must address:
- landscapes (including changes to visual amenity)
 - existing agricultural activities including short and long-term changes to carrying capacity and cropping yields
 - any existing mining, petroleum, geothermal and greenhouse gas storage tenures overlying or adjacent to the project site, and any to be applied for as part of this project
 - any infrastructure proposed to be located within, or which may have impacts on, the Stock Route Network.
- 8.1.2 Address the requirements of the *Strategic Cropping Land Act 2011* if the project impacts on strategic cropping land¹⁰ or any other relevant legislation protecting agricultural land.
- 8.1.3 Address the requirements of the *Forestry Act 1959* if the project would involve the planned use or removal of State-owned forest products and/or quarry material.
- 8.1.4 For surface mines and projects with activities that disturb the land surface, describe the proposed land use during and after the project. Show how the land form during and post mining will be stable and non-eroding over time (i.e. describe how current technologies will be applied).
- 8.1.5 Detail any known or potential sources of contaminated land that could be impacted by the project. Describe how any proposed land use may result in land becoming contaminated.
- 8.1.6 Identify existing or potential native title rights and interests possibly impacted by the project and the potential for managing those impacts by an Indigenous Land Use Agreement or other measure.

Information requirements—rehabilitation

- 8.1.7 The EIS should provide information based on relevant guidelines, current best or leading practice approaches and legislative requirements about the strategies and methods for progressive and final rehabilitation of the environment disturbed by the project and decommissioning.
- 8.1.8 Develop a preferred rehabilitation strategy that would minimise the amount of land disturbed at any one time, and minimise the residual loss of land and water bodies with ecological or productive value. Show the expected final topography of the site with any excavations, waste areas and dam sites on suitably scaled maps. Illustrate the proposed final land uses.
- 8.1.9 Describe and illustrate where final voids and uncompacted overburden and workings at the end of operations would lie in relation to flood levels up to and including the 'probable maximum flood level' based on the Bureau of Meteorology's 'probable maximum precipitation' forecast for the locality.
- 8.1.10 Describe rehabilitation success criteria that would be used to measure progress and completion.

¹⁰ www.nrm.qld.gov.au/land/planning/strategic-cropping/

- 8.1.11 Notwithstanding that management techniques may improve over the life of the project, and legislative requirements may change, the EIS needs to give confidence that all potential high-impact elements of the project (e.g. spoil dumps, voids, tailings and water management dams, creek diversions, subsidence areas) are capable of being managed and rehabilitated to achieve acceptable land use capabilities/suitability, to be stable and self-sustaining and to prevent upstream and downstream surface and groundwater contamination.

Information requirements—flora and fauna

- 8.1.12 Describe the likely impacts on the biodiversity and natural environmental values of affected areas arising from the construction, operation and eventual decommissioning of the project (where known). Take into account any proposed avoidance and/or mitigation measures. The assessment should include, but not be limited to, the following key elements:
- matters of state environmental significance and national environmental significance
 - terrestrial and aquatic ecosystems (including groundwater-dependent ecosystems) and their interaction
 - biological diversity including listed flora and fauna species and regional ecosystems
 - the integrity of ecological processes, including habitats of threatened, near-threatened or special least-concern species
 - the integrity of landscapes and places, including wilderness and similar natural places
 - impacts on native fauna due to wastes at the site, particularly those related to any form of toxicants in supernatant water of any tailings storage facility.
- 8.1.13 Describe any actions of the project that require an authority under the *Nature Conservation Act 1992*, and/or would be assessable development for the purposes of the *Vegetation Management Act 1999*¹¹ (VMA) and/or the *Fisheries Act 1994*.
- 8.1.14 Propose practical measures for protecting or enhancing natural values, and assess how the nominated quantitative indicators and standards may be achieved for nature conservation management. In particular, address measures to protect or preserve any threatened or near-threatened species.
- 8.1.15 Specifically 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, or Republic of Korea–Australia Migratory Bird Agreement.
- 8.1.16 Assess the need for buffer zones and the retention, rehabilitation or planting of movement corridors, and propose measures that would avoid the need for waterway barriers, or propose measures to mitigate the impacts of their construction and operation. The measures proposed for the progressive rehabilitation of disturbed areas should include rehabilitation success criteria in relation to natural values that would be used to measure the progress.
- 8.1.17 Describe how the achievement of the objectives would be monitored and audited, and how corrective actions would be managed. Proposals for the rehabilitation of disturbed areas should incorporate, where appropriate, provision of nest hollows and ground litter.

Offsets

- 8.1.18 Where Queensland legislation or a specific-issue offset policy requires an offset for a significant residual impact on a particular natural environmental value, the offset proposal(s) shall be presented in a form consistent with relevant legislation and policy.
- 8.1.19 The proposed offsets should be consistent with the requirements set out in any applicable legislation or specific-issue offset policies.

¹¹ Refer to Schedule 24 of the Sustainable Planning Regulation 2009 to determine assessable development under the *Vegetation Management Act 1999*. Refer also to www.dnrm.qld.gov.au/land/vegetation-management

8.2 Biosecurity

Objective

The construction and operation of the project should aim to ensure:

- the spread of weeds, plant diseases and pest insects and animals are minimised
- existing biosecurity threats are controlled.

Information requirements

8.2.1 Propose detailed measures to control and limit the spread of biosecurity threats on the project site and adjacent areas, including invasive plants and vertebrate pest animals under the *Land Protection (Pest and Stock Route Management) Act 2002* and Land Protection (Pest and Stock Route Management) Regulation 2003, and pests of plants (such as insects) and diseases of plants (such as fungi) under the *Plant Protection Act 1989* and weeds of national significance.

8.3 Water quality

Objective and performance outcomes

The environmental objectives to be met under the EP Act are that the activity (project) be operated in a way that:

- minimises harm to the environmental values of waters
- protects the environmental values of wetlands
- protects the environmental values of groundwater and any associated surface ecological systems.

The performance outcomes corresponding to this objective are in Schedule 5, Table 1 of the EP Regulation. The proponent should supply sufficient evidence (including through studies and proposed management measures) that show these outcomes can be achieved.

Information requirements

- 8.3.1 Detail the chemical and physical characteristics of surface waters and groundwater within the area that may be affected by the project.
- 8.3.2 Identify the quantity, quality and location of all potential discharges of water and waste water by the project, whether as point sources (such as controlled discharges from regulated dams) or diffuse sources (such as seepage from waste rock dumps or irrigation to land of treated sewage effluent). Assess the potential impacts of any discharges on the quality and quantity of receiving waters taking into consideration the environmental values to be protected, the assimilative capacity of the receiving environment and the practices and procedures that would be used to avoid or minimise impacts.
- 8.3.3 Describe how the achievement of the objectives would be monitored and audited, and how corrective actions would be managed.

8.4 Flooding and regulated dams

Objective

The construction and operation of the project should aim to ensure the risk of, and the adverse impacts from flooding hazards or dam failure are avoided, minimised or mitigated to protect people, property and the environment.

Information requirements

8.4.1 Describe current flood risk for a range of annual exceedance probabilities up to the probable maximum flood, for potentially affected waterways, and assess (through flood modelling) how the project may potentially change flooding characteristics. The assessment should consider all infrastructure associated

with the project including levees, roads and linear infrastructure and all proposed measures to avoid or minimise impacts.

- 8.4.2 List and describe all dams or levees proposed on the project site and undertake an assessment to determine the hazard category of each dam or levee (low, significant, or high), according to the criteria in the EHP Manual for Assessing Hazard Categories and Hydraulic Performance of Dams. Refer also to the requirements under the hazard and safety section of the TOR.
- 8.4.3 Identify any dam approval that would be needed under the *Water Supply (Safety and Reliability) Act 2008*.

8.5 Air

Objectives and performance outcomes

The environmental objective to be met under the EP Act is that the activity will be operated in a way that protects the environmental values of air.

The performance outcomes corresponding to this objective are in Schedule 5, Table 1 of the EP Regulation. The proponent should supply sufficient evidence (including through studies and proposed management measures) that show these outcomes can be achieved.

Information requirements

- 8.5.1 Fully describe the characteristics (through an emissions inventory) of the contaminants or materials released when carrying out the activity (point source and fugitive emissions). Emissions (point source and fugitive) during construction, commissioning, upset conditions, operation and closure should be described.
- 8.5.2 Predict the impacts of the releases from the activity on environmental values of the receiving environment using recognised quality assured methods. The description of impacts should take into consideration the assimilative capacity of the receiving environment and the practices and procedures that would be used to avoid or minimise impacts. The impact prediction must address:
- residual impacts on the environmental values (including appropriate indicators and air quality objectives) of the air receiving environment, with reference to sensitive receptors¹², using recognised quality assured methods. This should include all relevant values potentially impacted by the activity, under the EP Act, EP Regulation and Environmental Protection (Air) Policy 2008 (EPP (Air)).
 - cumulative impact of the release with other known releases of contaminants, materials or wastes associated with existing development and possible future development (as described by approved plans and publicly available project assessment application documents or existing project approvals).
 - quantify the 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).
- 8.5.3 Describe the proposed mitigation measures and how the proposed activity will be consistent with best or leading practice environmental management. Where a government plan or rail manager coal dust management plan is relevant to the activity or site where the activity is proposed, describe the activity's consistency with such plans.
- 8.5.4 Describe how the achievement of the objectives would be monitored, audited and reported, and how corrective actions would be managed.

¹² For example, the locations of existing residences, places of work, schools, etc, agricultural or ecologically significant areas/species that could be impacted.

8.6 Noise and vibration

Objective and performance outcomes

The environmental objective to be met under the EP Act is that the activity will be operated in a way that protects the environmental values of the acoustic environment.

The performance outcomes corresponding to these objectives are in Schedule 5, Table 1 of the EP Regulation. The proponent should supply sufficient evidence (including through studies and proposed management measures) that show these outcomes can be achieved.

Information requirements

- 8.6.1 Fully describe the characteristics of the noise and vibration sources that would be emitted when carrying out the activity (point source and general emissions). Noise and vibration emissions (including fugitive sources) that may occur during construction, commissioning, upset conditions, operation and closure should be described.
- 8.6.2 Predict the impacts of the noise emissions from the activity on the environmental values of the receiving environment, with reference to sensitive receptors¹⁰, using recognised quality assured methods. Taking into account the practices and procedures that would be used to avoid or minimise impacts, the impact prediction must address the:
- activity's consistency with the objectives
 - cumulative impact of the noise with other emissions of noise associated with existing development and possible future development (as described by approved plans)
 - potential impacts of any low-frequency (<200 Hz) noise emissions
 - potential impacts of ground vibration from blasting.
- 8.6.3 Describe how the proposed activity would be managed to be consistent with best or leading practice environmental management for the activity. Where a government plan is relevant to the activity, or the site where the activity is proposed, describe the activity's consistency with that plan.
- 8.6.4 Describe how the achievement of the objectives would be monitored and audited, and how corrective actions would be managed.

8.7 Waste management

Objective and performance outcomes

The environmental objective to be met under the EP Act is that any waste transported, generated, or received as part of carrying out the activity is managed in a way that protects all environmental values.

The performance outcomes corresponding to these objectives are in Schedule 5, Table 1 of the EP Regulation. The proponent should supply sufficient evidence (including through studies and proposed management measures) that show these outcomes can be achieved.

Information requirements

- 8.7.1 Describe all the expected significant waste streams from the proposed project activities (typically these would include waste rock, tailings and coarse rejects from mining and refining projects, water and salt from petroleum and gas projects), during the construction, operational and decommissioning phases of the project.
- 8.7.2 Describe the quantity, form (liquid, solid, gas), hazard, and toxicity of each significant waste, as well as any attributes that may affect its likelihood of dispersal in the environment, as well the associated risk of causing environmental harm.
- 8.7.3 Define and describe the objectives and practical measures for protecting or enhancing environmental values from impacts by wastes.

- 8.7.4 Assess the proposed management measures against the preferred waste management hierarchy, namely: avoid waste generation; cleaner production; recycle; reuse; reprocess and reclaim; waste to energy; treatment; disposal. This includes the generation and storage of waste.
- 8.7.5 Describe how nominated quantitative standards and indicators may be achieved for waste management, and how the achievement of the objectives would be monitored, audited and managed.
- 8.7.6 Detail waste management planning for the proposed project especially how these concepts have been applied to prevent or minimise environmental impacts due to waste at each stage of the project.
- 8.7.7 Provide details on natural resource use efficiency (such as energy and water), integrated processing design, and any co-generation of power and by-product reuse as shown in a material/energy flow analysis.

8.8 Cultural heritage

Objective

The construction and operation of the project should aim to ensure that the nature and scale of the project does not compromise the cultural heritage significance of a heritage place or heritage area.

Information requirements

- 8.8.1 Unless section 86 of the *Aboriginal Cultural Heritage Act 2003 (ACH Act)* applies, the proponent must develop a Cultural Heritage Management Plan in accordance with the requirements of Part 7 of the ACH Act.
- 8.8.2 For non-Indigenous historical heritage, undertake a study of, and describe, the known and potential historical cultural and landscape heritage values of the area potentially affected by the project. Any such study should be conducted by an appropriately qualified cultural heritage practitioner. Provide strategies to mitigate and manage any negative impacts on non-Indigenous cultural heritage values and enhance any positive impacts.

8.9 Hazards and safety

Objectives

The construction and operation of the project should aim to ensure the:

- risk of, and the adverse impacts from, natural and man-made hazards are avoided, minimised or mitigated to protect people and property
- community's resilience to natural hazards is maintained or enhanced
- developments involving the storage and handling of hazardous materials are appropriately located, designed and constructed to minimise health and safety risks to communities and individuals and adverse effects on the environment.

Information requirements

- 8.9.1 Describe the potential risks to people and property that may be associated with the project in the form of a preliminary risk assessment¹³ for all components of the project and in accordance with relevant standards. The assessment should include:
- potential hazards, accidents, spillages, fire and abnormal events that may occur during all stages of the project, including estimated probabilities of occurrence
 - identifying all hazardous substances, including substances listed in the Australian Goods Code, to be used, stored, processed or produced and the rate of usage
 - potential wildlife hazards, disasters¹⁴, natural events (e.g. cyclone, storm tide inundation, flooding, bushfire) and implications related to climate change
 - how the project may potentially affect hazards away from the project site (e.g. changing flooding characteristics).
- 8.9.2 Provide details on the safeguards that would reduce the likelihood and severity of hazards, consequences and risks to persons, within and adjacent to the project area(s). Identify the residual risk following application of mitigation measures. Present an assessment of the overall acceptability of the impacts of the project in light of the residual uncertainties and risk profile.
- 8.9.3 Provide a risk management plan for all stages of the project and outline the proposed integrated emergency management planning procedures (including evacuation plans, if required) for the range of situations identified in the risk assessment developed in this section.
- 8.9.4 Outline any consultation undertaken with the relevant emergency management authorities, including the Local and District Disaster Management Groups.

9 Appendices to the EIS

- 9.1 Appendices should provide the complete technical evidence used to develop assertions and findings in the main text of the EIS.
- 9.2 No significant issue or matter should be mentioned for the first time in an appendix—it must be addressed in the main text of the EIS.
- 9.3 Include a table listing the section of the EIS where each requirement of the TOR is addressed.
- 9.4 Include a glossary of terms and a list of acronyms and abbreviations.

¹³ Undertaken in accordance with AS/NZS ISO 31000:2009 Risk Management – Principles and Guidelines and HB203:2006 Environmental Risk Management Principles and Processes

¹⁴ 'Disaster' is defined in section 13 of the *Disaster Management Act 2003*

Acronyms and abbreviations

The following acronyms and abbreviations have been used in this document.

Acronym/abbreviation	Definition
ACH Act	<i>Aboriginal Cultural Heritage Act 2003</i>
AHD	Australian height datum
bilateral agreement	an agreement between the Commonwealth and the State of Queensland under section 45 of the <i>Environment Protection and Biodiversity Conservation Act 1999</i> relating to environmental assessment
EIS	environmental impact statement
EP Act	<i>Environmental Protection Act 1994</i>
EP Regulation	Environmental Protection Regulation 2008
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EPP Environmental	Protection Policy (under the EP Act)
GDA94	Geocentric Datum of Australia 1994
IESC	Independent Expert Scientific Committee
MNES	matters of national environmental significance (under the EPBC Act)
TOR	terms of reference
VMA	<i>Vegetation Management Act 1999</i>

Appendix 1 Policies and guidelines

Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand 2000, *The Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, Australian Water Association (Artarmon) and NZ Water and Wastes Association (Auckland), viewed 18 June 2013, www.environment.gov.au/water/publications/quality/nwqms-guidelines-4-vol1.html

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Maritime Safety Queensland 2013, *Guidelines for major development proposals*, May 2013, www.msq.qld.gov.au/Waterways/Major-development-proposals.aspx

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Queensland Resources Council 2013, *Queensland Resources and Energy Sector Code of Practice for Local Content*, Queensland Resources Council, Brisbane, viewed 18 June 2013, https://www.qrc.org.au/01_cms/details.asp?ID=3209

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