

# **Draft terms of reference for an environmental impact statement:**

## **Winchester South project**

**June 2019**

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## Part A. About these terms of reference

### 1. Introduction

- 1.1 This document outlines the draft terms of reference (TOR) for the Winchester South project (the project), proposed by Whitehaven WS Pty Ltd and being assessed under the *State Development and Public Works Organisation Act 1971* (SDPWO Act).
- 1.2 The project is located within the Bowen Basin, approximately 200 kilometres (km) south-east of Mackay and 30 km south-east of Moranbah. The project proposes to extract up to 8 million tonnes per annum (mtpa) of product coal for approximately 30 years, with the majority of this being metallurgical (coking) coal for steel making.

### 2. Statutory basis

- 2.1 The Coordinator-General has declared the project to be a 'coordinated project for which an environmental impact statement (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 a proponent to prepare an EIS for the project.
- 2.2 These TOR set out the matters the proponent is to address in an EIS for the project and are approved by the Coordinator-General under section 30 of the SDPWO Act.

### 3. Accredited process for controlled actions under Commonwealth legislation

- 3.1 On 13 May 2019, the proponent referred the project as three separate proposed actions for a 'controlled action' decision under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) (EPBC 2019/8458, EPBC 2019/8459, EPBC 2019/8460). These referrals are under consideration by the Commonwealth Department of the Environment and Energy.
- 3.2 Should the Commonwealth Minister for the Environment (or delegate) determine the project a 'controlled action' under the EPBC Act, the EIS process for the project under the EPBC Act may be conducted under the Bilateral Agreement between the Commonwealth and the State of Queensland under Section 45 of the EPBC Act relating to environmental assessment (Bilateral Agreement). If so, the EIS is to address the controlling provisions for the project and describe the aspects of the environment and the project that are subject to the controlled action decision.
- 3.3 If the EIS process for the EPBC Act is to be conducted under the Bilateral Agreement, the assessment of the controlling provisions, mitigation measures and any offsets for residual impacts are to be described and illustrated in a stand-alone report in the EIS that fully addresses the matters relevant to the controlling provisions. Requirements for matters of national environmental significance (MNES), if the project is determined to be a controlled action, are set out in Section 11 of this TOR.

### 4. EIS guidelines

- 4.1 This TOR must be read in conjunction with *Preparing an environmental impact statement: Guideline for proponents* (refer Appendix 1), which explains the following:
  - i. participants in the EIS process

- ii. consultation requirements
  - iii. EIS format and copy requirements.
- 4.2 In addition, subject-specific policies and guidelines are referenced throughout this TOR and are listed in Appendix 1.

## 5. More information

- 5.1 For information about the project or the EIS process conducted under the SDPWO Act, visit [www.dsdmip.qld.gov.au/cg](http://www.dsdmip.qld.gov.au/cg)

## Part B. General approach and requirements

### 6. General approach

- 6.1 The objectives of the EIS are to provide a detailed description of the proposed project and to ensure that all relevant environmental, social and economic impacts of the project are identified and assessed, and to outline the management, monitoring, and other mitigation measures proposed to avoid and minimise and/or mitigate any adverse impacts. The EIS should demonstrate that the project is based on sound environmental principles and practices.
- 6.2 For the purposes of the EIS process, 'environment' is defined in Schedule 2 of the SDPWO Act and includes social and economic matters.
- 6.3 The detail at which the EIS deals with matters relevant to the project should be proportional to the scale of the potential 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 ability to be offset.
- 6.4 The EIS is to be prepared in accordance with relevant policies, standards and guidelines. Application of such guidelines, standards and policies will be confirmed throughout the development of the EIS in consultation between the Coordinator-General, the proponent and advisory agencies.

### 7. Mandatory requirements of an EIS

- 7.1 For all the relevant matters, the EIS is to identify and describe the environmental values that must be protected. Environmental values are specified in the *Environmental Protection Act 1994* (EP Act),<sup>1</sup> the Environmental Protection Regulation 2008 (EP Regulation), environmental protection policies (EPPs) and relevant guidelines.<sup>2</sup>
- 7.2 The assessment should cover the short to long term impacts of the project and state whether any relevant impacts are likely to be irreversible. The assessment should also discuss scenarios of unknown and unpredictable impacts.
- 7.3 Provide all available baseline information relevant to the environmental risks of the project including seasonal and long-term variations. Provide details about the quality of the information provided, in particular: the source of the information; how recent the information is; how the

<sup>1</sup> Part 3, Division 2, Subdivision 1, section 9.

<sup>2</sup> For example, the *Queensland Water Quality Guidelines* and the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (refer to Appendix 1 for details).

reliability of the information was tested; and any assumptions and uncertainties in the information.

- 7.4 Provide detailed strategies regarding all 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. In general, the preferred hierarchy for managing likely impacts is: (a) to avoid; (b) to minimise/mitigate; and (c) if necessary, and possible, to offset.
- 7.5 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 and/or reversed over the long-term.
- 7.6 Each matter assessed in the EIS (as described in Section 11 of this TOR) should include a concise summary of the potential impacts of the project and the measures proposed by the proponent to avoid, minimise, mitigate, manage and/or offset those impacts.
- 7.7 Present feasible alternatives of the project's configuration (including individual elements), including conceptual, technological and locality. Provide sufficient detail to provide understanding for preferred option/s and discuss the consequences of not proceeding with the project.
- 7.8 Summarise the comparative environmental, social and economic impacts of each alternative, with particular regard to the principles of ecologically sustainable development. Describe how the selected project configuration results in best-case outcomes for each impact over alternative project configurations.
- 7.9 For unproven elements of a resource extraction or processing process, technology or activity, identify and describe any global leading practice environmental management that relate to the elements, where available. Demonstrate that the design of the project and its predicted outcomes are consistent with best practice environmental management during construction, operation, and decommissioning of the proposed project.
- 7.10 Assess the extent to which the construction, operation and decommissioning (to the extent known) of the project meets all statutory and regulatory requirements of the State and Commonwealth and that the intended outcomes are consistent with current state policies (including uncommenced legislation) and guidelines. If there is a conflict, provide comment on the planning merit of the project.
- 7.11 The proponent is to identify in the EIS the scope of all government approvals relevant to the project, and all approvals sought through the EIS process. 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 to be decided.
- 7.12 To the extent of the information available, the assessment should endeavour to predict the cumulative impact<sup>3</sup> of the project on social, economic and environmental values (of land, air and water, public health and the health of terrestrial and aquatic ecosystems) over time and in combination with impacts (in the dimensions of scale, intensity, duration or frequency of the 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 EIS should also outline ways in which the

<sup>3</sup> Cumulative impact is defined as 'combined impacts from all relevant sources (developments and other activities in the area)'.

cumulative impact assessment and management could subsequently be progressed further on a collective basis.

- 7.13 Include a consolidated description of all the proponent's commitments to implement management measures (including monitoring programs). Sufficient evidence and detail is to be provided in the EIS to demonstrate that the predicted outcomes for the proposed project can be achieved. Should the project proceed, these management measures should be able to be carried over into the approval conditions as relevant.
- 7.14 Provide all geographical coordinates throughout the EIS in latitude and longitude against the Geocentric Datum of Australia 1994 (GDA94) (or updated datum sets).
- 7.15 An EIS is to also describe (supported by relative evidence) the expected benefits and opportunities associated with the project.
- 7.16 An appropriate public consultation program is essential to the impact assessment process. The proponent should consult with Local, State and Commonwealth government agencies, and potentially affected local communities.
- 7.17 The EIS is to describe the consultation that has taken place and how the responses from the community and agencies have been incorporated into the design and outcomes of the project.
- 7.18 Include, as an appendix, a public consultation report detailing how the public consultation plan was implemented, and the results.
- 7.19 The detail in which the EIS deals with all matters relevant to the proposed project should be proportional to the scale of the impacts on environmental values. When determining the scale of an impact, consider the impact's intensity, duration, cumulative effect, irreversibility, the risk of environmental harm, management strategies and offset provisions.

## **Part C. Suggested EIS structure**

### **8. Executive summary**

- 8.1 The executive summary is to describe the project and convey the most important 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.

### **9. Introduction**

- 9.1 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.

### **Project proponent**

- 9.2 Describe the following:
  - i. the proponent's full name, postal address and Australian Business Number, if relevant (including details of any joint venture partners)
  - ii. the nature and extent of business activities
  - iii. proponent's experience



- iv. proponent's (including directors) environmental record in Australia, including a list of any breach of relevant environmental laws during the previous ten years
- v. proponent's environmental, health, safety and community policies
- vi. experience and qualifications of consultants and sub-consultants engaged by the proponent to complete the EIS.

## The environmental impact assessment process

- 9.3 Provide an outline of the environmental impact assessment process, including the role of the EIS in the Coordinator-General's decision-making process. The information in this section is required to ensure readers are informed of the process to be followed and are aware of any opportunities for input and participation.
- 9.4 Inform the reader how and when properly made public submissions on the EIS will be addressed and considered in the decision-making process.

## Project approvals process

- 9.5 Describe the approvals, and the entities granting each approval, 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. Clearly identify the approvals to which the EIS process will relate and any approvals, where relevant, that are separate to the EIS process. Provide a flow chart indicating the key approvals, stages, timing and opportunities for public comment.
- 9.6 The State Development Assessment Provisions (SDAP) prescribed in the Planning Regulation 2017 (Planning Regulation) sets out the matters of interest to the state for development assessment where the chief executive of the *Planning Act 2016* (Planning Act) is the assessment manager for development applications. If the proponent intends to satisfy the information requirements of future development assessment decisions under SDAP for any component of the project during this coordinated project EIS process, the material provided in accordance with sections 6-11 of this TOR should be sufficient to permit those assessments to be completed for that project component. Further information on SDAP requirements can be assessed from: <https://planning.dsdmip.qld.gov.au/planning/better-development/the-development-assessment-process/the-states-role/state-development-assessment-provisions>
- 9.7 Describe the assessment process under the Bilateral Agreement, if relevant.
- 9.8 The EIS is to provide, where relevant, the information required under section 125 of the EP Act in support of the project's environmentally relevant activities (ERA). Any ERA to be conducted as part of the project should be listed separately with the appropriate ERA number, activity name and required threshold (see EP Regulation, Schedule 2 for a list of ERAs). The assessment and supporting information should be sufficient for the administering authority to decide whether an approval should be granted. Environmental values and approval requirements are specified in the EP Act, the EP Regulation, EPP and relevant guidelines.



## 10. Project description

### Proposed development

- 10.1 The EIS is to describe and illustrate at least the following specific information about the proposed project:
- i. project title
  - ii. project description
  - iii. project objectives
  - iv. expected capital expenditure
  - v. rationale for the project
  - vi. regional and local context of the project's footprint (with maps at suitable scales)
  - vii. relationship to other major projects and/or development (of which the proponent should reasonably be aware)
  - viii. workforce numbers to be employed by the project during all project phases and source of local workforce (including peak, direct workforce numbers and estimated proportion of fly-in, fly-out (FIFO) workforce)
  - ix. where personnel would be accommodated
  - x. where relevant, the likely recruitment of workers from local and regional communities and workers who will live in regional communities; and rostering arrangements for local, regional and FIFO workers to be adopted
  - xi. proposed construction staging and likely schedule of works including details of early works.

### Site description

- 10.2 Provide real property descriptions of the project land and adjacent properties; any easements; any underlying resource tenures (including exploration permits and identification number of any resource activity lease for the project land that is subject to application); applications for mining leases and approved mining leases; restricted and reserve land; conservation tenures; overlying resource tenure such as forests; native title interests; native title claims; Indigenous land use agreements; land and infrastructure held by government owned corporations; and agricultural land uses identified in the Queensland Agricultural Land Audit.
- 10.3 Describe and map key transport, all local government and state-controlled roads, private and government owned corporation energy, rail, air, port/sea and other infrastructure or services in the region and impacted by the project.
- 10.4 Describe and map proximate rural premises, business precincts, and public facilities (e.g. childcare and education facilities, health facilities).
- 10.5 Describe and map the topography of the project site and surrounding area, highlighting any significant features shown on the maps. Maps should include a scale and 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 (or updated datum sets).
- 10.6 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. Describe

exploration history at the site, the targeted seams and Joint Ore Reserves Committee (JORC) resources and reserves (as appropriate).

- 10.7 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 specific management due to wetness, erosivity, depth, acidity, salinity or other features.
- 10.8 Describe the site in the context of planning schemes, regional plans, state policies, government priorities for the project area.
- 10.9 Describe the findings of the agricultural land audit and any land identified as strategic cropping land, priority agricultural area, priority living area or strategic environmental area for the project area.
- 10.10 Describe tourist destinations and sites used for recreation in and adjoining the product delivery routes.
- 10.11 Provide plans and drawings with sufficient detail to enable the Coordinator-General and relevant agencies to adequately assess the project in the context of the approvals being sought.

## Climate

- 10.12 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.

## Proposed construction, operations and rehabilitation

- 10.13 Describe the following information about the proposed project:

### Pre-construction

- i. all pre-construction activities including the staging and sequencing (e.g. vegetation clearing, site access, interference with watercourses and floodplain areas including wetlands)
- ii. proposed infrastructure on and off the mining lease
- iii. proposed vegetation clearing, top- and sub-soil removal and stockpiling
- iv. project site access arrangements where access to the site is on tenure not held by the proponent
- v. proposed upgrades, realignments, relocation, deviation or restricted access to roads and other infrastructure including water, power and telecommunications
- vi. all environmentally relevant activities on and off the mining lease, and all notifiable activities
- vii. environmental management measures included as part of the project design
- viii. existing infrastructure and easements on the potentially affected land

### Construction

- i. the construction timetable, sequencing and staging plans (provide detailed plans, drawings and maps to illustrate these matters where relevant)
- ii. water storage requirements and volumes required during construction

- iii. site drainage, erosion and stormwater management, flood protection and waste water management
- iv. dimensions of earth and rock works and excavations
- v. the known locations of new or altered works and structures and infrastructure necessary for the project at all stages of its development, whether on or off the project sites or right of way, and intersections required with existing infrastructure (e.g. pipeline, rail, road, power, etc)
- vi. disturbance areas
- vii. the type, amount and source of construction materials required for the project.

## Operation

- i. the proposed mining and processing methods, associated equipment and techniques
- ii. the type and capacity of high-impact plant and equipment utilised to construct and operate the project, their chemical and physical processes
- iii. type, volume and rate of chemicals and hazardous materials to be used
- iv. waste rock management
- v. the proposed extractive and processing methods, associated equipment and techniques
- vi. any new or expanded quarry and screening operations (for example, from off-site locations) required to service the project.

## Rehabilitation

- i. the proposed scheduling and extent of rehabilitation works including maps at suitable scales showing the location of disturbance areas, relevant ERA infrastructure and associated disturbance areas and the sequence of mining and progressive rehabilitation (i.e. the method and timing of restoration of areas disturbed during construction/operation)
- ii. the proposed methods or techniques for rehabilitating the land to achieve the rehabilitation goals for each proposed final land use proposed in the rehabilitation programme
- iii. for each final land use area, provide a description and map (at a scale which allows for easy interpretation) of the area (name, size in hectares, disturbance type (hardstand, stockpile, pit etc.), final proposed tenure
- iv. closure and decommissioning stage, works to be undertaken for removal of plant, equipment, concrete footings, hardstand and storage tanks and actions take to clean up, manage and dispose of contaminated soils.

10.14 Identify the type, quantity, origin, routes, delivery modes, storage and laydown requirements for materials required during the pre-construction, construction and operation of the project for works:

- i. at the mine site
- ii. at the project component sites, to the degree it is required for subsequent approval processes
- iii. for the product delivery route.

## Infrastructure requirements

- 10.15 This section should detail, with concept and layout plans, requirements for new infrastructure, or the upgrading, retention, relocating and/or decommissioning of existing infrastructure on and offsite to service the project. Infrastructure to be considered should include, but is not limited to, resource extraction areas, access roads including connections to public roads and proposed road/rail interfaces, bridges, conveyors, water supply, energy supply, telecommunications, stormwater, waste disposal, sewerage (including location and size of the sewage treatment plant, the sewage collection system, wet weather storage and any pipelines and waste disposal areas associated with the plant), and locations of any infrastructure easements.
- 10.16 Describe the timing of requirements for this infrastructure (starting with construction of the project) and detail the decommissioning schedule for all project related infrastructure.
- 10.17 Provide details of the alignment options assessed for the raw water supply pipeline, rail spur, and electricity transmission line, including justification for the preferred and final alignments chosen.

## 11. Assessment of project matters

- 11.1 This section sets out the scope of project specific matters that should be given detailed treatment in the EIS.
- 11.2 The final scope of project specific matters will be determined by the Coordinator-General when finalising the TOR. In the course of preparing the EIS, information may become available that warrants a change of scope.

## Land

### Objectives

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

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

The performance outcomes corresponding to these objectives are in Schedule 5, Part 3, Table 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.

### Land use and tenure

#### Existing environment

- 11.3 Detail the existing land use values for all areas associated with the proposed project.

- 11.4 Discuss the compatibility of the project with the surrounding area and the Isaac region, taking into consideration the proposed measures that would be used to avoid or minimise impacts. The discussion should include:
- i. existing and proposed land uses, in and around the project area, referring to the Mackay, Isaac and Whitsunday Regional Plan and the Isaac Region Planning Scheme
  - ii. any tenures overlying and adjacent to the project site, and any to be applied for as part of this project
  - iii. consideration of state interests identified in the State Planning Policy (SPP)
  - iv. locational factors influencing the choice of site.

#### **Impact assessment**

- 11.5 The assessment of impacts on land is to be in accordance with DES *application requirements for activities with impacts to land* (ESR/2015/1839) (or updates as they become available).
- 11.6 Discuss potential impacts of the proposed land uses taking into consideration the proposed measures that would be used to avoid, minimise or mitigate impacts. The impact prediction must address:
- i. landscape (including visual amenity), designated sites, soils, contamination, land suitability and land uses in and around the project area, referring to regional plans and local government planning schemes
  - ii. the topography, geology, geomorphology of the project sites and adjoining areas
  - iii. the geological properties that could impact upon ground stability
  - iv. agricultural land considered as a priority agricultural area and/or strategic cropping land, and any other matters identified in the *Regional Planning Interests Act 2014* (RPI Act) and Region Planning Interests Regulation 2014.
  - v. 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 and the potential for resource sterilisation
  - vi. any infrastructure proposed to be located within, or which may have impacts on, the Stock Route Network.
- 11.7 For surface mines and projects with activities that disturb the land surface, show how the landform during and post mining will be stable and non-eroding over time (describe how current and/ or expected technologies will be applied).
- 11.8 Address the cumulative impacts of the proposed land uses in conjunction with existing and potential future impacts to the land. This includes impacts from contaminants, materials or wastes associated with existing development and possible future development (as described by approved plans and existing project approvals).

#### **Mitigation measures**

- 11.9 Identify the measures that would be used to avoid, minimise or mitigate any impact on land values, including the management of existing infrastructure remaining on reconfigured land parcels.
- 11.10 Identify the measures to avoid, minimise or mitigate potential impacts of the project on soil values.
- 11.11 Describe all proposed measures to avoid, minimise or mitigate potential impacts on landscape character and visual amenity.

## Rehabilitation

- 11.12 The EIS is to provide information based on relevant guidelines, current best practice approaches and legislative requirements about the strategies and methods for progressive and final rehabilitation of the environment disturbed by the project and decommissioning.
- 11.13 Develop a plan of a proposed scheduling and extent of rehabilitation works 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 a comparison of pre-activity site topography and 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. Provide tabulated details containing milestones with completion dates for achieving progressive rehabilitation of the mine site.
- 11.14 Describe and illustrate where final voids, mined areas and uncompacted overburden and workings at the end of operations would lie in relation to the Isaac River floodplain and 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.
- 11.15 Describe rehabilitation completion criteria that would be used to measure progress and completion for the project.
- 11.16 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 etc.) 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.

## Native Title

- 11.17 Identify the current tenure of all land within the project area, including freehold tenure, resource tenures, conservation tenures, State and Commonwealth tenures, and traditional owner access to land determinations. Identify land on which native title has been extinguished, land the subject of native title claims and approved Indigenous Land Use Agreements.

## Flora and fauna

### Objective

Biodiversity including matters of state environmental significance are identified and appropriately safeguarded to support healthy and resilient ecosystems and ensure the sustainable, long-term conservation of biodiversity and the social, economic, cultural and environmental benefits it provides.

## Existing environment

- 11.18 Identify and describe matters of state environmental significance (MSES), State and regionally significant biodiversity and natural environmental values of the terrestrial and aquatic ecology likely to be impacted by the project. Where MSES have been addressed in the section on MNES, cross referencing may be appropriate.



## Impact assessment

- 11.19 Describe the potential direct and indirect impacts on the biodiversity and natural environmental values of affected areas arising from the construction, operation and eventual decommissioning of the project (where known) in accordance with DES *EIS information guidelines relevant to terrestrial and aquatic ecology* (see Appendix 1).
- 11.20 Assess the need for buffer zones and the retention, rehabilitation or planting of movement corridors. Detail measures that would avoid the need for waterway barriers or measures to mitigate the impacts of their construction and operation where unavoidable.
- 11.21 Describe how the achievement of the rehabilitation objectives would be monitored and audited, and how corrective actions would be managed.
- 11.22 Taking into account all proposed avoidance and/or mitigation measures, The assessment should include, but not be limited to, the following key elements:
- i. MSES
  - ii. terrestrial and aquatic ecosystems (including groundwater-dependent ecosystems) and their interaction
  - iii. biological diversity including listed flora and fauna species and regional ecosystems
  - iv. the existing integrity of ecological processes, including habitats of threatened, near-threatened or special least-concern species
  - v. the integrity of landscapes and places, including wilderness and similar natural places
  - vi. 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*<sup>4</sup>
  - vii. chronic, low-level exposure to contaminants or the bio-accumulation of contaminants
  - viii. impacts on native fauna due to wastes on the site, particularly those related to any form of toxicants in supernatant water of any tailings storage facility.
- 11.23 Include maps at suitable scales showing the location of disturbance areas, estimates of disturbance for MSES likely to be impacted as a result of the project, and quantify the extent of habitat for listed threatened species and communities adjacent to the project site to provide clarity on the regional context of these habitats on the project site. Where MSES have been addressed in the section on MNES, cross referencing may be appropriate.
- 11.24 Describe the cumulative impacts of the proposed project, in conjunction with existing development and possible future development (as described by approved plans and existing project approvals), to flora and fauna.

## Mitigation measures

- 11.25 Propose practical measures for protecting or enhancing natural values and assess how the nominated quantitative indicators and standards are to be achieved for nature conservation management. In particular, address measures to protect or preserve any threatened or near-threatened species.

<sup>4</sup> This is notwithstanding that the *Vegetation Management Act 1999* does not apply to mining projects on resource tenements. Refer also to <https://www.qld.gov.au/environment/land/management/vegetation/exemptions>



- 11.26 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 and adjust practices if necessary to ensure success over time.
- 11.27 Proposals for the rehabilitation of disturbed areas should incorporate, where appropriate, provision of nest hollows, watering points and ground litter.

## Offsets

- 11.28 The EIS should identify whether the project will result in a significant residual impact on MSES with reference to the *Queensland Environmental Offsets Policy, Significant Residual Impact Guideline 2014* (see Appendix 1).
- 11.29 Identify and illustrate the extent of any overlap between MNES and MSES.
- 11.30 For any significant residual impact, propose offsets that are consistent with the following requirements as set out in applicable State and Commonwealth legislation or policies:
- where a significant residual impact will occur on a prescribed environmental matter as outlined in the Environmental Offsets Regulation 2014, the offset proposal(s) must be consistent with the requirements of Queensland's *Environmental Offsets Act 2014* and the latest version of the Queensland Environmental Offsets Policy (Version 1.6) 2018 (see Appendix 1)
  - where Commonwealth offset policy requires an offset for significant residual impacts on a MNES, the offset proposal(s) must be consistent with the requirements of the EPBC Act Environmental Offsets Policy (October 2012), the Offsets assessment guide and relevant guidelines.
- 11.31 For staged offsets, the full extent of potential impacts on prescribed environmental matters from the entire proposal needs to be taken into account as part of the significant residual impact test.

## Biosecurity

### Objective

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

- the spread of weeds, pest animals and vector agents are minimised
- existing weeds and pests are controlled.

### Existing environment

- 11.32 Detail any known issues with weeds, pest and vector agents within the project area.

### Impact assessment

- 11.33 Detail the potential impacts of project operations on the spread of weeds, pest and vector agents within and adjacent to the project area.

### Mitigation measures

- 11.34 Propose detailed measures to control and limit the spread of restricted matters including noxious fish, invasive plants and invasive animals on the project site and adjacent areas as per Schedule 2 of the Biosecurity Regulation 2016, and any relevant local government area Biosecurity Plans.

- 11.35 Provide information relating to the distribution and abundance of invasive plants which are considered to be weeds of national significance (WoNS) on the project sites.
- 11.36 Provide details of any proposed vertebrate pest and weed control programs to be implemented by the project.

## Water quality

### Objectives

Development is planned, designed, constructed and operated to protect environmental values of Queensland waters and supports the achievement of water quality objectives.

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

- (a) protects the environmental values of waters
- (b) protects the environmental values of wetlands
- (c) protects the environmental values of groundwater and any associated surface ecological systems.

The performance outcomes corresponding to this objective are in Schedule 5, Part 3, 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.

### Existing environment

- 11.37 Describe the water related environmental values and describe the existing surface water and groundwater regime within the study area in terms of water levels, discharges and freshwater flows.
- 11.38 With reference to the EPP (Water) Policy 2009, section 9 of the EP Act and SPP *State Interest Guideline – Water Quality*, identify the environmental values of surface water and groundwater within the project area and immediately downstream that may be affected by the project, including any human uses of the water and any cultural values.
- 11.39 At an appropriate scale, detail the chemical, physical and biological characteristics of surface waters and groundwater within the area that may be affected by the project. Include a description of water quality variability within the study area associated with climatic and seasonal factors, variability of freshwater flows and extreme events.

### Impact assessment

- 11.40 The assessment of impacts on water is to be in accordance with DES guideline *Application requirements for activities with impacts to water* (ESR/2015/1837) (or updates as they become available) (see Appendix 1).
- 11.41 State how any proposed exercise of underground water rights for the life of the project would be carried out on site and describe the aquifers affected or likely to be affected; movement of underground water to and from the aquifer; area where the water level is expected to decline; the predicted quantities of water to be taken or interfered with; the environmental values that will be affected; and assessment of cumulative impacts to the quality of the groundwater.
- 11.42 Identify the quantity, quality and location of all potential discharges of water and wastewater 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 assimilative capacity of the receiving environment and the practices and procedures that would be used to avoid or minimise impacts.

- 11.43 Describe the cumulative impacts of the proposed project, in conjunction with existing development and possible future development (as described by approved plans and existing project approvals), to water quality.

### **Mitigation measures**

- 11.44 Demonstrate how mitigation strategies would mitigate significant impacts of water discharges on the receiving environment. Information is to be supported with references to relevant legislation, policies, guidelines and modelling.
- 11.45 Describe how the achievement of the objectives would be monitored and audited, and how corrective actions would be managed.

## **Water resources**

### **Objectives**

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

- (a) equitable, sustainable and efficient use of water resources
- (b) environmental flows, water quality, in-stream habitat diversity, and naturally occurring inputs from riparian zones to support the long-term maintenance of the ecology of aquatic biotic communities
- (c) the condition and natural functions of water bodies, lakes, springs and watercourses are maintained—including the stability of beds and banks of watercourses
- (d) volumes and quality of groundwater are maintained, or alternate water supply is provided and current lawful users of water (such as entitlement holders and stock and domestic users) and other beneficial uses of water (such as surface water users, spring flows and groundwater-dependent ecosystems) are not adversely impacted by the development.

### **Existing environment**

- 11.46 Describe the water related environmental values and describe the existing surface water and groundwater regime within the study area and the adjoining waterways in terms of water levels, discharges and flows.
- 11.47 Describe any existing and/or constructed waterbodies including any watercourse, lake or spring adjacent to the project.
- 11.48 Identify the location and source aquifer of all authorised groundwater extraction bores in areas potentially impacted by the project.

## Impact assessment

- 11.49 The assessment of impacts on water is to be in accordance with DES guideline *Application requirements for activities with impacts to water* (ESR/2015/1837) (or updates as they become available) (refer Appendix 1).
- 11.50 Provide details of any proposed monitoring, impoundment, extraction, discharge, injection, use or loss of surface water or groundwater.
- 11.51 Identify any approval or allocation that would be needed under the *Water Act 2000*.
- 11.52 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.
- 11.53 Identify any quantitative standards and indicators which will be used to describe the ecological values and health of surface water environments.
- 11.54 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 throughout all phases of the project, and adequately assess the potential cumulative impacts of the project on water resources including to the post-decommissioning phase. 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:
- i. surface waters:
    - (a) changes in flow regimes from diversions, water take and discharges
    - (b) alterations to riparian vegetation and bank and channel morphology direct and indirect impacts arising from the project.
  - ii. groundwaters:
    - (a) geology and stratigraphy
    - (b) aquifer types (confined, unconfined, karst)
    - (c) flow directions
    - (d) recharge and discharge processes
    - (e) yields and aquifer/hydraulic parameters through field tests
    - (f) groundwater-surface water interactions, and potential impacts to the Great Barrier Reef and others.
- 11.55 Provide information on the proposed water usage by the project, including details about:
- i. the ultimate supply required to meet the demand for full occupancy of the development, including timing of demands
  - ii. the quality and quantity of all water supplied to the site during the construction and operational phases based on minimum yield scenarios for water reuse, rainwater reuse and any bore water volumes
  - iii. a water balance analysis
  - iv. a site plan outlining actions to be taken in the event of failure of the main water supply.

- 11.56 Determination of potable water demand must be made for the project, including the temporary demands during the construction period. Include details of any existing town water supply to meet such requirements. Detail should also be provided to describe any proposed on-site water storage and treatment for use by the site office during construction and operational phases.
- 11.57 Describe the options for supplying water to the project and assess any potential consequential impacts in relation to the objectives of the *Water Plan (Fitzroy Basin) 2011* and any water management protocol that may apply (see Appendix 1).
- 11.58 Describe the cumulative impacts of the proposed project, in conjunction with existing development and possible future development (as described by approved plans and existing project approvals), to water resources.

### Mitigation measures

- 11.59 Describe the proposed management of existing and/or constructed waterbodies including any watercourse, lake or spring on the project site to maintain water quality.
- 11.60 Describe how the achievement of the water quality objectives would be monitored, audited, reported, and how corrective/preventative actions would be managed. Describe measurable criteria, standards and/or indicators that will be used to assess the condition of the ecological values and health of surface water environments, mitigation strategies and contingency plans for:
  - i. potential accidental discharges of contaminants and sediments during construction and operation
  - ii. stormwater run-off from the project facilities and associated infrastructure
  - iii. flooding of relevant river systems, and other extreme events
  - iv. management of acid sulfate soils.

## Air

### Objectives

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, Part 3, 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.

### Existing environment

- 11.61 Describe the existing air quality that may be affected by the project in the context of environmental values.
- 11.62 Discuss the existing local and regional air shed environment, including:
  - i. background levels and sources of particulates, gaseous and odorous compounds and any major constituent
  - ii. pollutants (including greenhouse gases)
  - iii. baseline monitoring results, sensitive receptors.

- 11.63 Provide baseline data on local meteorology and ambient levels of pollutants for later modelling of air quality. Parameters should include air temperature, wind speed and directions, atmospheric stability, mixing depth and other parameters necessary for input to the model.
- 11.64 The assessment of environmental values is to describe and map at a suitable scale the location of all sensitive air receptors adjacent to all project components. An estimate of typical background air quality levels should be based on surveys at representative sites where data from existing DES monitoring stations cannot be reliably extrapolated.

### Impact assessment

- 11.65 The assessment of impacts on air from all components of the project (i.e. on-mine site and off-mine site) is to be in accordance with DES *application requirements for activities with impacts to air* (ESR/2015/1840) (or updates as they become available).
- 11.66 Fully describe the characteristics of the contaminants or materials released as a result of the construction and operation of the project, including point source and fugitive emissions (e.g. equipment and pipe leaks, storage tanks and wastewater treatment systems), treatment and discharge systems. An emissions inventory (point source and fugitive) during construction, commissioning, operations, maintenance, closure and a range of possible/likely upset conditions is to be included.
- 11.67 Predict the impacts of the releases from the relevant 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 is to:

- i. address residual impacts on the environmental values (including appropriate indicators and air quality objectives) of the air receiving environment, with reference to sensitive receptors,<sup>5</sup> 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)).
- ii. address the 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 existing project approvals).
- iii. 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).

### Mitigation measures

- 11.68 Describe the proposed mitigation measures and how the proposed activity will be consistent with best practice environmental management and relevant government plans.
- 11.69 Describe how the achievement of the objectives would be monitored, audited and reported, and how corrective actions would be managed.

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<sup>5</sup> For example, the locations of existing residences, places of work, schools, etc., agricultural or ecologically significant areas/species that could be impacted.



## 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 the objectives are in Schedule 5, Part 3, 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.

### Existing environment

- 11.70 Describe the existing noise and vibration environment that may be affected by the project in the context of the environmental values.
- 11.71 Describe and illustrate on maps at a suitable scale, the location of all sensitive receptors adjacent to all project components and estimate typical background noise and vibration levels based on surveys at representative sites.
- 11.72 If the proposed project could adversely impact on the noise and vibration environment, undertake baseline monitoring at a selection of sensitive receptors potentially affected by the project. Describe the results of any baseline monitoring.

### Impact assessment

- 11.73 The assessment of impacts on noise and vibration is to be in accordance with DES *Application requirements for activities with noise impacts* (ESR/2015/1838) (or updates as they become available).
- 11.74 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.
- 11.75 Predict the impacts of the noise emissions from the activity on the environmental values of the receiving environment, with reference to sensitive receptors, using recognised quality assured methods. Taking into account the practices and procedures that would be used to avoid or minimise impacts, the impact prediction is to address the:
  - i. activity's consistency with the objectives
  - ii. cumulative impact of the noise with other known emissions of noise associated with existing development and possible future development (as described by approved plans)
  - iii. potential impacts of any low-frequency (<200 Hz) noise emissions.
- 11.76 Describe the cumulative impacts of the proposed project, in conjunction with existing development and possible future development (as described by approved plans and existing project approvals), to the existing noise and vibration environment.

### Mitigation measures

- 11.77 Describe how the proposed activity would be managed to be consistent with best 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.



- 11.78 Describe any expected exceedances of noise and vibration goals or criteria following the provision and/or application of mitigation measures, and how any residual impacts would be addressed.
- 11.79 Describe how the achievement of the objectives would be monitored and audited, and how corrective actions would be managed.

## 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 the objectives are in Schedule 5, Part 3, 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.

### Impact assessment

- 11.80 The assessment of impacts on waste is to be in accordance with DES *Application requirements for activities with waste impacts* (ESR/2015/1836) (or updates as they become available).
- 11.81 Define and describe the objectives and practical measures for protecting or enhancing environmental values from impacts by wastes.
- 11.82 Describe all the expected significant waste streams<sup>6</sup> from the proposed project activities (typically these would include waste rock, tailings and coarse rejects from mining and refining projects), during the construction, operational and decommissioning phases of the project.
- 11.83 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.
- 11.84 Describe the cumulative impacts of the proposed project, in conjunction with existing development and possible future development (as described by approved plans and existing project approvals), waste matters.

### Mitigation measures

- 11.85 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.
- 11.86 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.

<sup>6</sup> Waste includes overburden, tailings and any materials (liquid, solid or gaseous) generated by the project that is not product.

- 11.87 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.
- 11.88 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.

## Transport

### Objectives

The construction and operation of the project should aim to:

- (a) maintain the safety and efficiency of all affected transport modes for the project workforce and other transport system users
- (b) avoid and mitigate impacts including those on the condition of transport infrastructure
- (c) ensure any required works are compatible with existing infrastructure and future transport corridors.

### Existing environment

- 11.89 Describe and map the existing transport infrastructure and corridors. Provide an assessment on existing road, active transport and rail traffic in the project area.
- 11.90 Describe how the project complies with the *Queensland Level Crossing Safety Strategy 2012-2021* on new road/rail interfaces and the impacts on existing road/rail interfaces.

### Impact assessment

- 11.91 The EIS should include a clear summary of the total transport task for the project, including workforce, inputs and outputs, during the construction, operational and closure phases. Proponents should make appropriate modal choices to ensure transport efficiency and minimise impacts on the community.
- 11.92 Conduct transport assessments and present the transport assessment in separate sections for each project-affected mode (road, rail, port 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).
- 11.93 Include details of the adopted assessment methodology:
  - i. for impacts on roads: the road impact assessment report in accordance with the *Guidelines for Assessment of Road Impacts of Development*
  - ii. for impacts on rail level crossings: the Australian Level Crossing Assessment Model.

### Mitigation measures

- 11.94 Detail and discuss 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), should consider those authorities' works program and forward planning,

and be in accordance with the relevant transport authorities' methodologies, guidelines and design manuals.

## Social

### Objectives

The construction and operation of the project should aim to:

- (a) avoid or mitigate adverse social impacts arising from the project
- (b) enhance benefits for local and regional communities.

### Information requirements

- 11.95 Prepare a social impact assessment (SIA) for the project that is consistent with the requirements of the *Strong and Sustainable Resource Communities Act 2017* (SSRC Act) and the Coordinator-General's SIA Guideline (March 2018) (refer Appendix 1).
- 11.96 The SIA is to be developed in consultation with the Coordinated Project Delivery Division in the Office of the Coordinator-General (OCG), Department of State Development, Manufacturing, Infrastructure and Planning.<sup>7</sup>
- 11.97 The SIA is to describe the potential social impacts (both positive and negative) of the proposed project.
- 11.98 The SIA is required to include detailed assessment of the following key matters in accordance with the SIA guideline.
  - i. community and stakeholder engagement
  - ii. workforce management
  - iii. housing and accommodation
  - iv. local business and industry procurement
  - v. health and community well-being.
- 11.99 The information provided in the EIS (including the SIA) will inform the Coordinator-General's decision under Section 12 of the SSRC Act on whether personnel employed during the construction phase of the project will be workers for the purposes of the SSRC Act.
- 11.100 The SIA is to include an analysis of the capacity of towns within 125 km radius of the main access to provide workers for the construction and operational phases of the project and the impacts of a resident workforce on housing and social infrastructure.

### Community and stakeholder engagement

- 11.101 The SIA is to be informed by an inclusive and collaborative community and stakeholder engagement process. Community and stakeholder engagement is to be iterative throughout the SIA process and engagement with local government should commence at an early stage.
- 11.102 The SIA is to demonstrate evidence of engagement outcomes from local government, state agencies, local and regional employment and training providers, public and private housing providers, local and regional commerce and community development groups, social and public

<sup>7</sup> Contact the Coordinated Project Delivery Division on [SIA@coordinatorgeneral.qld.gov.au](mailto:SIA@coordinatorgeneral.qld.gov.au)

services providers, and local communities. The SIA must be informed by the results from community and stakeholder engagement.

### Key social impact assessment outcomes

- 11.103 The SIA must include a social impact management plan (SIMP) with solutions to mitigate the impacts identified in the detailed assessment of the five key matters listed above and enhance social benefits in accordance with the SIA guideline. In particular the SIMP must:
- i. provide solutions for barriers that may impact choice for people in local and regional communities to engage in project employment opportunities, and for workers to permanently reside in local and regional communities during the construction and operational phases of the project
  - ii. provide solutions to accommodate workers to ensure availability and affordability of local and regional housing is not adversely impacted.
- 11.104 The SIMP will describe solutions, a practical basis for the implementation of management measures identified through the SIA process. The SIMP is to include timeframes for implementation of solutions, key performance indicators, roles and responsibilities, stakeholders and potential partnerships. The SIMP must include a process of review throughout the project lifecycle to ensure solutions continue to be effective and ineffective solutions are amended to appropriately mitigate impacts.
- 11.105 The SIA must describe how the recruitment hierarchy for workers in section 9(3A) of the SSRC Act will be implemented.
- 11.106 The SIA will need to assess a target of no more than 50 per cent FIFO workforce during construction and no more than 25 per cent FIFO during operations to ensure the project benefits local communities. All FIFO workforces must be justified.
- 11.107 The SIA must clearly identify solutions for managing any FIFO workforce in accordance with the SIA guideline and with reference to sections 6 and 8 of the SSRC Act and relevant provisions in the *Anti-Discrimination Act 1991*.

## 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.

### Existing environment

- 11.108 With reference to the *Aboriginal Cultural Heritage Act 2003* (ACH Act) and the *Queensland Heritage Act 1992* (Heritage Act) describe and identify the cultural heritage values within the project area and the adjoining waterways/ water bodies that may be affected by the project.

### Indigenous Cultural Heritage

#### Impact assessment and mitigation measures

- 11.109 Describe the extent section 86 of the ACH Act applies to the project. The EIS should provide details of the Cultural Heritage Management Plan, or plans, in accordance with the

requirements of Part 7 of the ACH Act, and any associated agreements that have been reached.

## Non-Indigenous Cultural Heritage

### Impact assessment

- 11.110 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.
- 11.111 Any such study is to be conducted by an appropriately qualified cultural heritage practitioner.

### Mitigation measures

- 11.112 If Heritage Act requirements are triggered, provide strategies to mitigate and manage any negative impacts on non-Indigenous cultural heritage values and enhance any positive impacts.
- The non-Indigenous historical heritage impact assessment should also separately confirm if any known family grave sites would be impacted by the project works and provide strategies to mitigate and manage any negative impacts on the historical family grave sites and enhance any positive impacts.

## Economic

### Objectives

The construction and operation of the project should aim to:

- (a) avoid or mitigate adverse social and economic impacts arising from the project
- (b) capitalise on opportunities potentially available for capable local industries and communities where this does not have a significant negative impact on the project or reduce net economic benefits to the State
- (c) create a net economic benefit to the region and state.

### Information requirements

- 11.113 Identify the potential adverse and beneficial economic impacts of the project on the local and regional area and the State. Estimate the costs and benefits and economic impacts of the proposal using both regional impact analysis and cost–benefit analysis. The analysis is to be consistent with the Coordinator-General's *Economic impact assessment guideline* (April 2017). Separately address each major stage of the proposed project (e.g. construction, operation and decommissioning, rehabilitation).
- 11.114 Compare the estimated costs and benefits of the site's proposed final land use against the estimated costs and benefits of the following alternative final land uses:
- i. Full rehabilitation of the site with no non-use management areas;
  - ii. Optimum partial rehabilitation with partial backfilling of final voids.
- 11.115 Identify any existing or proposed incompatible land uses within and adjacent to the site, and including the impacts on economic resources and the future availability and viability of the resource including extraction, processing and transport location to markets.

## Hazards, health and safety

### Objectives

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

- (a) the risk of, and the adverse impacts from, natural and human-made hazards are avoided, minimised or managed and mitigated to protect people and property
- (b) the community's resilience to natural hazards is enhanced
- (c) 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.

### Impact assessment

- 11.116 Describe the potential risks to public safety, people and property that may be associated with the project in the form of a preliminary risk assessment for all components of the project and in accordance with relevant standards. The assessment should include:
- i. potential hazards, accidents, spillages, fire and abnormal events that may occur during all stages of the project, including estimated probabilities of occurrence
  - ii. identifying all hazardous substances to be used, stored, processed or produced and the rate of usage
  - iii. potential hazards posed by wildlife interactions, natural events (for example, cyclone, storm inundation, flooding, bushfire) and implications related to climate change
  - iv. how the project may potentially affect hazards away from the project site (e.g. changing flooding characteristics).

### Flooding

- 11.117 Describe flood risk from rainfall events for a range of annual exceedance probabilities (including Probable Maximum Flood) for the site and assess how the project may change flooding characteristics.
- 11.118 The assessment should consider all infrastructure associated with the project including culverts or levees, roads and linear infrastructure and all proposed measures to avoid or minimise risks to life, property, community (including damage to other properties) and the environment during flood events.

### Chemical Leaks and Spills

- 11.119 Describe the proposed procedures and safeguards built into the design and management/operational practices to:
- i. reduce the potential for chemical leaks and spills
  - ii. enable the detection of spills and leaks and management measures to be implemented to rectify
  - iii. provide procedures for managing water in containment areas
  - iv. outline an inventory and describe the characteristics and management involved in the handling, storage, spill management, transport and disposal of all chemicals, products/by-products and potential contaminants as a result of construction, operation, maintenance, commissioning and decommissioning.



Include identification of buffer zones and all means that will be incorporated to ensure human health and the environment are not impacted.

### **Mitigation measures**

- 11.120 Provide details on the mitigation measures 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 with consideration to the residual uncertainties and risk profile.
- 11.121 Provide an outline of 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.
- 11.122 Outline any consultation undertaken with the relevant emergency management authorities, including the Local Disaster Management Group.

## **Flooding and regulated dams**

### **Objectives**

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.

### **Existing environment**

- 11.123 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 and be affected by floods. The flood modelling assessment should consider all infrastructure associated with the project including levees, roads and linear infrastructure and all proposed measures to avoid or minimise impacts.

### **Impact assessment**

- 11.124 List and describe all dams and levees proposed on the project site and undertake an assessment to determine the consequence category of each dam or levee assessed (low, significant, or high), consistent with the criteria in the *DES Manual for assessing consequence categories and hydraulic performance of structures* (ESR/2016/1933).

### **Mitigation measures**

- 11.125 Illustrate how any regulated structure on site would be managed during periods of high incidental rainfall and/or flooding on site so that any potential impacts to land or water are minimised.

## **Matters of national environmental significance**

### **Background and context**

- 11.126 On 13 May 2019, the proponent referred the project as three separate proposed actions for a 'controlled action' decision under the EPBC Act (EPBC 2019/8460 Mine Site and Access Road;



EPBC 2019/8459 Water Pipeline; EPBC 2019/8458 Electricity Transmission Line). It is expected that the EIS will relate to all three proposed actions.

- 11.127 The Commonwealth Minister for the Environment may determine that the project will have or is likely to have a significant impact upon the following matters of national environmental significance under the EPBC Act:
- i. For the Winchester South Mine Site and Access Road (EPBC 2019/8460):
    - listed threatened species and communities (sections 18 and 18A)
    - listed migratory species (sections 20 and 20A)
    - a water resource, in relation to coal seam gas and large coal mining (sections 24D and 24E).
  - ii. For the Winchester South Water Pipeline (EPBC 2019/8459):
    - listed threatened species and communities (sections 18 and 18A).
  - iii. For the Winchester South Electricity Transmission Line (EPBC 2019/8458):
    - listed threatened species and communities (sections 18 and 18A).
- 11.128 If the EIS is to be prepared pursuant to the Bilateral Agreement, it must meet the impact assessment requirements under both Commonwealth and Queensland legislation. The project would then require approval from the responsible Commonwealth minister under Part 9 of the EPBC Act before it can proceed.
- 11.129 Therefore, this section should provide a stand-alone description and detailed assessment of the impacts for each relevant proposed action, inclusive of any avoidance, mitigation and offset measures.
- 11.130 Once the EIS has been prepared to the satisfaction of the Coordinator-General and MNES addressed to the satisfaction of the Commonwealth Department of the Environment and Energy, the EIS would be made available for public comment.
- 11.131 The proponent may be required by the Coordinator-General or the Department of the Environment and Energy to provide additional material to address matters raised in submissions on the EIS.
- 11.132 At the conclusion of the environmental assessment process, the Coordinator-General would provide a copy of the report to the Commonwealth Minister for the Environment, in accordance with Part 13, section 36(2) of the State Development and Public Works Organisation Regulation 2010 (Qld).
- 11.133 After receiving the evaluation report and sufficient information about the relevant impacts of the action, the Commonwealth Minister for the Environment would have 30 business days to consider whether the impacts of the proposal are acceptable, or not, and to decide whether or not to approve each controlling provision.
- 11.134 The minister's decision is separate to the approval decisions made by Queensland state agencies and other entities with jurisdiction on state or local matters.
- 11.135 If the EIS process for the EPBC Act is to be conducted in accordance with the Bilateral Agreement, for each proposed action the EIS is to:
- i. assess all relevant impacts that the proposed action has, will have or is likely to have;

- ii. provide enough information about the proposed action and its relevant impacts to allow the Commonwealth Minister for the Environment and Energy to make an informed decision whether or not to approve the action under Part 9 of the EPBC Act; and
  - iii. address the matters mentioned in Division 5.2 of the Environment Protection and Biodiversity Conservation Regulations 2000 (Cth) (EPBC Regulations).
- 11.136 A cross-reference to the relevant sections in the EIS that addresses each of the matters mentioned in Division 5.2 of the EPBC Regulations should be provided.
- 11.137 Consideration is to be given to any relevant advice, policy statements and guidelines (available at **www.environment.gov.au**) including but not limited to:
- i. *Significant impact guidelines 1.1 - Matters of National Environmental Significance* (see Appendix 1)
  - ii. *Significant impact guidelines 1.3 - coal seam gas and large coal mining developments – impacts on water resources* (see Appendix 1)
  - iii. *Environmental Protection and Biodiversity Conservation Act 1999*
  - iv. Environmental Offsets Policy (see Appendix 1); and
  - v. any approved conservation advice, recovery plans and threat abatement plans (as relevant) for listed threatened species and ecological communities.

### Assessment requirements

- 11.138 The EIS is to provide background to each proposed action and describe in detail all aspects of each proposed action, including but not limited to, the construction, operational and (if relevant) decommissioning aspects, including:
- i. the precise location of all works to be undertaken (including associated offsite works and infrastructure), structures to be built or elements of each aspect that may have impacts on any matter protected under each relevant controlling provision; and
  - ii. details on how the works are to be undertaken (including stages of development and their timing) and design parameters for those parts of the structures or elements that may have relevant impacts.
- 11.139 The EIS must also provide details on the current state of each proposed action as well as the consequences of not proceeding with each proposed action and the project as a whole.
- 11.140 To the extent reasonably practicable, the EIS is to include a discussion of feasible alternatives for each proposed action in accordance with Schedule 4, section 2.01(g) of the EPBC Regulations. The short, medium and long-term advantages and disadvantages of the alternatives must be discussed.
- 11.141 Each proposed action should initially be assessed in its own right and address how each proposed action relates to the other proposed actions.
- 11.142 The EIS should include an assessment of the cumulative impacts, with respect to each controlling provision for each proposed action and all identified consequential actions related to each proposed action and all known developments (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 each proposed action.
- 11.143 With respect to each controlling provision for each proposed action, describe any avoidance measures proposed to reduce the impact on MNES and the anticipated result of proposed

avoidance measures. Supporting evidence should be provided to demonstrate the appropriateness of avoidance measures proposed. Where the likely success of avoidance measures cannot be supported by evidence, identify and assess contingencies in the event the avoidance is not successful.

- 11.144 With respect to each controlling provision for each proposed action, describe any mitigation measures proposed to reduce the impact on MNES and the anticipated result of proposed mitigation measures. Supporting evidence should be provided to demonstrate the appropriateness of mitigation measures proposed. Where the likely success of mitigation measures cannot be supported by evidence, identify contingencies in the event the mitigation is not successful.
- 11.145 With respect to each controlling provision for each proposed action, describe the expected residual impacts of each proposed action after all proposed avoidance and mitigation measures are implemented and any compensatory measures applied.
- 11.146 With respect to each controlling provision for each proposed action, include maps at suitable scales showing the location of disturbance areas, estimates of disturbance for MNES likely to be impacted as a result of the project, and quantify the extent of habitat for listed threatened species and communities adjacent to the project site to provide clarity on the regional context of these habitats on the project site.

### Listed threatened species and communities

- 11.147 For each proposed action the EIS is to:
- i. describe the relevant listed threatened species and ecological communities (including EPBC Act listing status, distribution, life history and habitat);
  - ii. provide details of the scope, methodology, timing and effort of surveys for each proposed action (including areas outside of each proposed action area which may be impacted by each proposed action); and include details of:
    - (a) the application of best practice survey guidelines;
    - (b) how studies or surveys are consistent with (or a justification for divergence from) published Australian Government guidelines and policy statements;
  - iii. describe and assess the impacts to listed threatened species and ecological communities identified below and any others that are found to be or may potentially be present in areas that may be impacted by each proposed action in accordance with the *Significant impact guidelines 1.1 - Matters of National Environmental Significance*, EPBC Act
  - iv. identify which aspect of each proposed action is of relevance to each listed threatened species or ecological community or if the threat of impact relates to consequential actions; and
  - v. where relevant, have regard to any approved conservation advice.
- 11.148 Where relevant, the EIS is to demonstrate that each proposed action will not be inconsistent with:
- i. Australia's obligations under:
    - (a) the Biodiversity Convention;
    - (b) the Convention on Conservation of Nature in the South Pacific (Apia Convention);
  - ii. a recovery plan or threat abatement plan.

### List of potential listed threatened species

11.149 The EIS is to address impacts on, but not limited to, the following listed threatened species for each proposed action:

#### Bird

- i. Red Goshawk (*Erythrorhynchus radiatus*) – vulnerable;
- ii. Squatter Pigeon (southern) (*Geophaps scripta scripta*) – vulnerable;
- iii. Painted Honeyeater (*Grantiella picta*) – vulnerable;
- iv. Star Finch (eastern) (*Neochmia ruficauda ruficauda*) – endangered;
- v. Australian Painted Snipe (*Rostratula australis*) – endangered;
- vi. Curlew Sandpiper (*Calidris ferruginea*) – migratory, critically endangered;

#### Fish

- vii. Murray Cod (*Maccullochella peelii*) – vulnerable;

#### Mammal

- viii. Northern Quoll (*Dasyurus hallucatus*) – endangered;
- ix. Ghost Bat (*Macroderma gigas*) – vulnerable;
- x. Corbens Long-eared Bat (*Nyctophilus corbeni*) – vulnerable;
- xi. Greater Glider (*Petauroides volans*) – vulnerable;
- xii. Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) (*Phascolarctos cinereus* (combined populations of Qld, NSW and the ACT)) – vulnerable;

#### Reptile

- xiii. Southern Snapping Turtle (*Elseya albagula*) – critically endangered;
- xiv. Fitzroy River Turtle (*Rheodytes leukops*) – vulnerable;
- xv. Yakka Skink (*Egernia rugosa*) – vulnerable;
- xvi. Dunmall's Snake (*Furina dunmali*) – vulnerable;
- xvii. Allan's Lerista (*Lerista allanae*) – endangered;
- xviii. Ornamental Snake (*Denisonia maculata*) – vulnerable;

#### Flora

- xix. Marlborough Blue (*Cycas ophiolitica*) – endangered;
- xx. King Blue-grass (*Dichanthium queenslandicum*) – endangered;
- xxi. Quassia (*Samadera bidwillii*) – vulnerable;

### List of potential listed threatened ecological communities

11.150 The EIS is to address impacts on, but not limited to, the following listed threatened ecological communities for each proposed action:

- i. Brigalow (*Acacia harpophylla* dominant and co-dominant) – endangered; and
- ii. Natural Grasslands of the Queensland Central Highlands and the northern Fitzroy Basin – endangered.

## Listed migratory species

11.151 For the proposed mine site and access road (EPBC 2019/8460) the EIS is to:

- i. describe the listed migratory species identified below (including distribution, life history, and habitat);
- ii. provide details of the scope, methodology, timing and effort of surveys for the proposed action (including areas outside of the proposed action area which may be impacted by the proposed action); and include details of:
  - (a) the application of best practice survey guidelines;
  - (b) how studies or surveys are consistent with (or a justification for divergence from) published Australian Government guidelines and policy statements;
- iii. describe and assess the impacts to the listed migratory species identified below and any others that are found to be or may potentially be present in areas that may be impacted by the proposed action in accordance with the *Significant impact guidelines 1.1 – Matters of National Environmental Significance*, EPBC Act; and
- iv. identify which aspect of the proposed action is of relevance to each species or if the threat of impact relates to consequential actions.

11.152 Where relevant, demonstrate that the proposed action will not be inconsistent with:

- i. Australia's obligations under:
  - (a) Convention on the Conservation of Migratory Species of Wild Animals (the Bonn Convention);
  - (b) China-Australia Migratory Bird Agreement (CAMBA);
  - (c) Japan-Australia Migratory Bird Agreement (JAMBA); and
  - (d) an international agreement approved under subsection 209(4) of the EPBC Act.

## List of potential listed migratory species

11.153 The EIS is to address impacts on the following migratory species:

- i. Fork-tailed Swift (*Apus pacificus*) – migratory;
- ii. Oriental Cuckoo (*Cuculus optatus*) – migratory;
- iii. Black-faced Monarch (*Monarcha melanopsis*) – migratory;
- iv. Yellow Wagtail (*Motacilla flava*) – migratory;
- v. Common Sandpiper (*Actitis hypoleucos*) – migratory;
- vi. Sharp-tailed Sandpiper (*Calidris acuminata*) – migratory;
- vii. Curlew Sandpiper (*Calidris ferruginea*) – migratory, critically endangered;
- viii. Pectoral Sandpiper (*Calidris melanotos*) – migratory;
- ix. Latham's Snipe (*Gallinago hardwickii*) – migratory;
- x. Osprey (*Pandion haliaetus*) – migratory;
- xi. Common Greenshank (*Tringa nebularia*) – migratory;
- xii. Magpie Goose (*Anseranas semipalmata*) – marine;
- xiii. Great Egret, White Egret (*Ardea alba*) – marine;
- xiv. Cattle Egret (*Ardea ibis*) – marine;
- xv. Black-eared Cuckoo (*Chrysococcyx osculans*) – marine;

- xvi. White-bellied Sea-Eagle (*Haliaeetus leucogaster*) – marine;
- xvii. Rainbow Bee-eater (*Merops ornatus*) – marine;
- xviii. Painted Snipe (*Rotratula benghalensis (sensu lato)*) – endangered.

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

- 11.154 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.
- 11.155 In relation to the proposed mine and access road (EPBC 2019/8460), the EIS is to provide details on the use and interference with current state of groundwater and surface water in the region as well as any use of these resources.
- 11.156 The EIS is to describe and assess the impacts to water resources giving consideration to the *Significant Impact Guidelines 1.3: Coal seam gas and large coal mining developments – impacts on water resources* (see Appendix 1).
- 11.157 The EIS is to address the information requirements contained in the *Information guidelines for proponents preparing coal seam gas and large coal mining development proposals* and provide a cross-reference table to identify where each component of the guidelines has been addressed (see Appendix 1).

## **Offsets**

- 11.158 The EIS is to describe the residual impacts of each proposed action for each relevant matter protected by the EPBC Act, after all proposed avoidance and mitigation measures are applied.
- 11.159 The EIS is to identify whether the residual impacts are significant with reference to the *Matters of National Environmental Significance, Significant impact guidelines 1.1*, EPBC Act.
- 11.160 If those residual impacts are significant the EIS is to propose offsets for relevant matters protected by the EPBC Act consistent with the Commonwealth Environmental Offsets Policy.

## **Assumptions and/or predictions**

- 11.161 If the EIS utilises predictions of the extent of threat (risk), impact and/or any benefit of any mitigation measures proposed, this must be based on sound science and quantified where possible with the underlying assumptions and principles appropriately described.
- 11.162 The EIS is to reference all sources of information relied upon and an estimate of the reliability of predictions must be provided.
- 11.163 Any positive impacts may also be identified and evaluated.
- 11.164 The EIS should describe any additional new field work, modelling or testing that, when used in conjunction with existing information, provides sufficient confidence in predictions that well-informed decisions can be made. The extent of any new field work, modelling or testing should be commensurate with risk.



## Conclusion

- 11.165 The EIS is to include an overall conclusion for each proposed action as to the environmental acceptability of the proposed action on each relevant matter protected by the EPBC Act, including:
- i. a discussion on the consideration with the requirements of the EPBC Act, including the objects of the EPBC Act, the principles of ecologically sustainable development and the precautionary principle;
  - ii. reasons justifying undertaking the proposed action in the manner proposed, including the acceptability of the avoidance and mitigation measures; and
  - iii. if relevant, a discussion of residual impacts and any offsets and compensatory measures proposed or required for residual impacts on relevant matters protected by the EPBC Act, and the relative degree of compensation and acceptability.

## Other required information

- 11.166 The EIS is to include details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against:
- i. the person proposing to take the action; and
  - ii. for an action for which a person has applied for a permit, the person making the application.
- 11.167 If the person proposing to take the action is a corporation—details of the corporation’s environmental policy and planning framework must also be included.
- 11.168 The social and economic impacts of each proposed action, both positive and negative, is to be analysed, including but not limited to:
- i. the social and economic impacts at the local, regional and national levels for each proposed action and the project as a whole
    - (a) further to the social and economic impacts for the State’s considerations (detailed at Section 11.95 to 11.108 and 11.111 to 11.116 of this document), this may include projected economic costs and benefits of each proposed action, including the basis for their estimation through cost/benefit analysis or similar studies;
  - ii. details of the relevant cost and benefits of alternatives to each of the proposed actions
    - (a) further to the social and economic impacts for the State’s considerations (detailed at Section 11.95 to 11.108 and 11.111 to 11.116 of this document), this may include employment and other opportunities expected to be generated by each proposed action (including construction and operational phases) and the project as a whole;
  - iii. identification of affected parties, including a statement mentioning any communities that may be affected and describing their views
    - (a) further to the social and economic impacts for the State’s considerations (detailed at Section 11.11311.95 to 11.108 and 11.111 to 11.116 of this document), this may include:
      - details of any public consultation activities undertaken, and their outcomes; and



- details of any consultation with Indigenous stakeholders.

## **12. Appendices to the EIS**

- 12.1 Appendices should provide the complete technical data collected, and evidence used to develop assertions and findings in the main text of the EIS.
- 12.2 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.
- 12.3 Include a table listing the section and sub-sections of the EIS where each requirement of the TOR is addressed.
- 12.4 Include a glossary of terms and a list of acronyms and abbreviations.

## Part D. Acronyms and abbreviations

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

<b>Acronym/abbreviation</b>	<b>Definition</b>
AHD	Australian Height Datum
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> (Cwlth)
EPP	Environmental Protection Policy (under the EP Act)
GDA94	Geocentric Datum of Australia 1994
MNES	matters of national environmental significance (under the EPBC Act)
MSES	Matters of state environmental significance
SDPWO Act	<i>State Development and Public Works Organisation Act 1971</i>
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, *The Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, Australian Water Association (Artarmon) and NZ Water and Wastes Association (Auckland), 2000, [www.environment.gov.au/system/files/resources/53cda9ea-7ec2-49d4-af29-d1dde09e96ef/files/nwqms-guidelines-4-vol1.pdf](http://www.environment.gov.au/system/files/resources/53cda9ea-7ec2-49d4-af29-d1dde09e96ef/files/nwqms-guidelines-4-vol1.pdf)

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Queensland Government, *Environmental offsets and environmental offsets framework*, Department of Environment and Heritage Protection, Brisbane, 2015, <http://www.qld.gov.au/environment/pollution/management/offsets>

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