# Draft terms of reference for an environmental impact statement:

# Inland Rail - Helidon to Calvert project

## May 2017

Queensland Government

**The Department of State Development**



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Department of State Development
PO Box 15517 City East, Queensland 4002.
Level 17, 1 William Street, Brisbane Qld 4000 (Australia)

Phone: 13QGOV (137468)
Fax: 07 3220 6465
Email: **info@dsd.qld.gov.au**
Web: **www.statedevelopment.qld.gov.au**

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# Part A. About these terms of reference

## 1. Statutory basis

1.1. The Coordinator-General has declared the Inland Rail - Helidon to Calvert project (the project) to be a 'coordinated project for which an environmental impact statement (EIS) is required' under section 26(1)(a) of the *State Development and Public Works Organisation Act 1971* (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.

1.2. These terms of reference (TOR) set out the matters the proponent must address in an EIS for the project and are approved by the Coordinator-General under section 30 of the SDPWO Act.

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

2.1. On 17 March 2017, the Commonwealth Minister for the Environment and Energy determined the Inland Rail - Helidon to Calvert project is a 'controlled action' under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act), due to the likely potential impacts on matters of national environmental significance (MNES) (reference number EPBC 2017/7883).

2.2. The EIS process has been accredited under the Bilateral Agreement for the assessment of the project under the EPBC Act, hence the EIS must state the controlling provisions for the project and describe the particular aspects of the environment that led to the controlled action decision.

2.3. The assessment of the controlling provisions, mitigation measures and any offsets for residual impacts must be described and illustrated in a stand-alone report in the EIS that fully addresses the matters relevant to the controlling provisions. Requirements for MNES are set out in section 11 of this TOR.

## 3. EIS guidelines

3.1. This TOR should be read in conjunction with *Preparing an environmental impact statement: Guideline for proponents*, which explains the following:

(a) participants in the EIS process
(b) consultation requirements
(c) EIS format and copy requirements.

3.2. In addition, subject-specific guidelines are referenced throughout this TOR. Refer to Appendix 1 for a list of these policies and guidelines.

## 4. More information

4.1. For information about the project or the EIS process conducted under the SDPWO Act, visit **www.statedevelopment.qld.gov.au/cg**

# Part B. Content of the EIS

## 5. General approach

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

5.2. The EIS should address the specific matters associated with the project (specified in section 11 of this TOR).

5.3. The detail at which the EIS deals with matters relevant to the project should be proportional to the scale of the impacts on environmental values. When determining the scale of an impact, consider its intensity, duration, cumulative effect, irreversibility, the risk of environmental harm, management strategies and offsets provisions.

## 6. Mandatory requirements of an EIS

6.1. For all the relevant matters, the EIS must identify and describe the environmental values that must be protected. Environmental values are specified in the *Environmental Protection Act 1994* (EP Act),[1] the Environmental Protection Regulation 2008 (EP Regulation), environmental protection policies (EPPs) and relevant guidelines.[2]

6.2. The assessment should cover both the short term and long term and state whether any relevant impacts are likely to be irreversible. The assessment should also discuss scenarios of unknown and unpredictable impacts.

6.3. Provide all available baseline information relevant to the environmental risks of the project. Provide details about the quality of the information provided, in particular: the source of the information; how recent the information is; how the reliability of the information was tested; and any uncertainties in the information.

6.4. Provide detailed strategies in regard to all project specific 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.

6.5. 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 over the long-term.

6.6. 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 and/or offset those impacts.

6.7. Present feasible alternatives of the project's configuration (including individual elements) that may improve environmental outcomes. Discuss the consequences of not proceeding with the project.

[1] Part 3, Division 2, Subdivision 1, section 9
[2] 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).

6.8. Assess the extent to which the construction and operation of the project meets all statutory and regulatory requirements of the State and that the intended outcomes are consistent with current state policies and guidelines. If there is conflict, provide comment on the planning merit that supports the project.

# 7. Further requirements of an EIS

7.1. The assessment and supporting information should be sufficient for an authority to decide whether an approval should be granted. Where applicable, sufficient information should be included to enable approval conditions to be decided or recommended.

7.2. The proponent must identify the scope of approvals sought through the EIS process. To the extent of the information available, the assessment should endeavour to predict the *cumulative* impact[3] of the project on environmental values over time and in combination with impacts created by the activities of other adjacent and upstream and downstream developments and landholders—as detected by baseline monitoring. This will inform the decision on the EIS and the setting of conditions. The absence of a comprehensive cumulative impacts analysis need not be fatal to the project. The EIS should also outline ways in which the cumulative impact assessment and management could subsequently be progressed further on a collective basis.

7.3. Include a consolidated description of all the proponent's commitments to implement management measures (including monitoring programs). Should the project proceed, these should be able to be carried over into the approval conditions as relevant.

7.4. Provide all geographical coordinates throughout the EIS in latitude and longitude against the Geocentric Datum of Australia 1994 (GDA94).

7.5. An EIS should also describe the expected benefits and opportunities associated with the project.

7.6. 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.

7.7. The EIS should 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.

7.8. Include, as an appendix, a public consultation report detailing how the public consultation plan was implemented, and the results of the implementation.

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

# 8. Executive summary

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

# 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:

(a) the proponent's full name, postal address and ABN

(b) the nature and extent of business activities

(c) proponent's experience

(d) proponent's (including directors) environmental record in Australia, including a list of any breach of relevant environmental laws during the previous ten years

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

(f) 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 opportunities for input and participation.

9.4. Inform the reader how and when properly made public submissions on the draft EIS will be addressed and taken into account in the decision-making process.

## Project approvals process

9.5. Provide an outline of the approvals required to enable the project to be constructed and operated. Explain how the environmental impact assessment process (and the EIS itself) informs the issue of the leases/licences/permits/ required by the proponent before construction can commence. Provide a flow chart indicating the key approvals and opportunities for public comment.

9.6. Inform the reader of how the SDPWO Act, EP Act and the *Sustainable Planning Act 2009* (SPA) interact, with reference to the project. Inform the reader how a properly made submission on the EIS relates to the development application processes under SPA and the EP Act respectively.

9.7. Describe the assessment process under the Bilateral Agreement between the Commonwealth and the State of Queensland under section 45 of the EPBC Act relating to Environmental Assessment.

9.8. The State Development Assessment Provisions (SDAP) prescribed in the Sustainable Planning Regulation 2009 set out the matters of interest to the state for development assessment where the chief executive of SPA 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 10-11 of this TOR should be sufficient to permit those assessments to be completed for that project component. Further information on SDAP requirements can be accessed from **www.dilgp.qld.gov.au/planning/development-assessment/state-development-assessment-provisions.html**

9.9. Similarly, the EIS will provide, where relevant, the information required under section 125 of the EP Act in support of the project's environmental authority application for Environmentally Relevant Activities (ERAs).

# 10. Project description

## Proposed development

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

(a) project title
(b) project description
(c) project objectives
(d) expected capital expenditure
(e) rationale for the project
(f) regional and local context of the project's footprint (with maps at suitable scales)
(g) relationship to other projects for the proposed Inland Rail Programme between Melbourne and Brisbane
(h) relationship to other coordinated projects, major projects and/or developments (which are progressing through planning and approval processes and public information is available)
(i) workforce numbers to be employed by the project during its various phases
(j) where personnel would be accommodated and, where relevant, the likely recruitment arrangements to be adopted
(k) proposed timing and overall duration of the project including construction staging and likely schedule of works.

## Site description

10.2. Provide real property descriptions of the preferred alignment.

10.3. Describe and map at suitable scales key transport infrastructure including state-controlled roads, local roads, rail (including tunnels), air, and other infrastructure or services (including gas and water pipelines, and electricity transmission and distribution powerlines) existing, under construction or proposed in the region and to the site.

10.4. Describe and illustrate the topography of the preferred alignment and surrounding area, and highlight any significant features shown on the maps. Include and name rivers and creeks. 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.

10.5. Describe and illustrate specific information about the proposed project including the precise location of the preferred alignment in relation to designated areas, such as transport corridors, and protected areas.

10.6. Where relevant, 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 (such as agricultural products) that could have an influence on, or be influenced by, the project's activities.

10.7. Where relevant, describe, map and illustrate soil types and profiles of the project area at a scale relevant to the proposed project. Identify soils that would require particular management due to wetness, erosivity, depth, acidity, salinity or other relevant features.

10.8. Plans and drawings provided must be detailed enough to enable the Coordinator-General and advisory agencies to adequately assess the impacts of the project.

10.9. Describe the ability and capacity of the proposed rail corridor to support future passenger rail services between Brisbane and Toowoomba.

10.10. Describe the planning schemes, regional plans, state policies, government priorities for the preferred alignment.

## Proposed construction and operations

10.11. Describe the following information about the proposed project:

(a) all pre-construction activities (e.g. vegetation clearing, site access, interference with watercourses and floodplain areas, including wetlands)

(b) existing infrastructure and easements on the preferred alignment

(c) the proposed construction methods, associated equipment and techniques

(d) location, design and capacity of water supply, telecommunications, power generation and transmission infrastructure

(e) any infrastructure alternatives, justified in terms of ecologically sustainable development (including energy and water conservation)

(f) hours of operation for proposed construction works, including night time works

(g) the sequencing and staging of activities

(h) the capacity of high-impact plant and equipment, their chemical and physical processes, and chemicals or hazardous materials to be used

(i) the known locations of new or altered works and structures and infrastructure necessary to enable the construction and operation of the development

(j) any activity that is a prescribed ERA

(k) location of quarry operations the project may source materials from

(l) the range of land uses and site layout

(m) built form and design specifics

(n) operation detail (e.g. hours of operation for project components)

(o) the commissioning process including landscaping and the rehabilitation of affected areas after construction

(p) proposed upgrades, realignments, relocation, deviation or restricted access to roads and other infrastructure (e.g. water, electricity, telecommunications, sewerage)

(q) location and scale of parking requirements.

### Infrastructure requirements

**Objectives**

The project should provide necessary infrastructure to service the development that:

(a) maintains or enhances services to existing users

(b) ensures any required works are compatible with existing infrastructure.

10.12. Describe with concept and layout plans, requirements for new infrastructure, or the upgrading and/or relocating of existing infrastructure to service the project. Infrastructure to be considered should include sewerage and water supply, energy supply, telecommunications, stormwater, waste disposal and locations of any infrastructure easements. Describe the timing of requirements for this infrastructure.

10.13. Describe the typical service corridors or clearances for sewerage and recycled water mains in relation to other services.

10.14. Concept and layout plans should also include existing infrastructure relevant to the project.

# 11. Assessment of project specific matters

## 11.1 Matters of national environmental significance

### Background and context

11.1. This section should provide a stand-alone description and detailed assessment of the impacts of the project on the controlling provision for the project under the EPBC Act inclusive of any avoidance, mitigation and offset measures.

11.2. The Commonwealth Minister for the Environment and Energy (the Commonwealth Minister) has determined that the project (EPBC 2017/7883) is likely to impact upon listed threatened species and communities (sections 18 and 18A of the EPBC Act).

11.3. The EIS must be prepared in accordance with the bilateral agreement between the Commonwealth of Australia and the State of Queensland relating to environmental assessment[4]. This will enable the EIS to meet the impact assessment requirements under both Commonwealth and Queensland legislation.

11.4. The statutory obligations for conduct of the EIS process under the bilateral agreement are set out in Part 13 of the State Development and Public Works Organisation Regulation 2010.

11.5. Once the draft EIS has been prepared to the satisfaction of the Coordinator-General and MNES addressed to the satisfaction of the Australian Government Department of the Environment and Energy, the draft EIS will be made available for public comment.

11.6. 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.

11.7. At the conclusion of the environmental assessment process, the Coordinator-General will provide a copy of the report evaluating the environmental impacts of the project to the Commonwealth Minister.

11.8. After receiving the evaluation report and sufficient information about the relevant impacts of the action, the Commonwealth Minister for the Environment and Energy has 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.

11.9. The Commonwealth Minister's decision under Part 9 of the EPBC Act is separate to the approval decisions made by Queensland state agencies and other agencies with jurisdiction on state matters.

## Information Requirements

11.10. Consideration must be given to any relevant policy statements available from **www.environment.gov.au**, including:

(a) *Matters of National Environmental Significance: Significant impact guidelines 1.1*[5]

(b) *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*[6] and

(c) any approved conservation advice, recovery plans and threat abatement plans (as relevant) for listed threatened species and ecological communities.

[4] http://www.environment.gov.au/system/files/pages/b44206bc-d8e5-450b-a05e-4d7c26d8afa1/files/qld-bliateral-agreement-assessment-amended-2014.pdf
[5] http://www.environment.gov.au/system/files/resources/42f84df4-720b-4dcf-b262-48679a3aba58/files/nes-guidelines_1.pdf
[6] http://www.environment.gov.au/system/files/resources/12630bb4-2c10-4c8e-815f-2d7862bf87e7/files/offsets-policy_2.pdf

11.11. The EIS must:

(a) assess all the relevant impacts that the action has, will have or is likely to have, including on receiving environments of the project

(b) provide enough information about the action and its relevant impacts to allow the Commonwealth Minister to make an informed decision on whether or not to approve the action

(c) address the matters set out in Schedule 4 of the Environment Protection and Biodiversity Conservation Regulations 2000 (Cwlth) (EPBC Regulations).

11.12. The MNES section of the EIS should bring together assessments of impacts from other chapters and produce a stand-alone assessment in a format suited for assessment under the EPBC Act.

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

11.14. Predictions of the extent of threat (risk), impact and the benefits of any mitigation measures proposed, should be based on sound science and quantified where possible. All sources of information relied upon should be referenced.

11.15. An estimate of the reliability of any predictions should be provided.

11.16. Any positive impacts of the project should be identified and evaluated.

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

11.18. In accordance with Schedule 4 of the EPBC Regulations, feasible project alternatives must be discussed, including:

(a) if relevant, the alternative of taking no action;

(b) a comparative description of the impacts of each alternative on the triggered MNES protected by the controlling provision

(c) sufficient detail to make clear why any alternative or option is preferred to another.

11.19. Short, medium and long-term advantages and disadvantages of the alternatives or options must be discussed.

11.20. The information provided must 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:

(a) the person proposing to take the action

(b) for an action for which a person has applied for a permit, the person making the application.

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.

11.21. The economic and social impacts of the action, both positive and negative, must be summarised. Matters of interest should include:

(a) consideration at the local, regional and national levels

(b) any public consultation activities undertaken, and their outcomes

(c) any consultation with indigenous stakeholders

(d) identification of affected parties and communities that may be affected and a description of the views of those parties and communities

(e) economic costs and benefits of the project and project alternatives, including the basis for their estimation through cost/benefit analysis or similar studies; and

(f) employment and other opportunities expected to be generated by the project in each of the construction and operational phases.

11.22. The EIS must provide background to the action and describe in detail all components of the action for example (but not limited to), the construction, operation and (if relevant) decommissioning components of the action. This must include the location of all works to be undertaken (including associated offsite works and infrastructure), structures to be built or elements of the action that may have impacts on MNES.

11.23. The description of the action must also include details on how the works are to be undertaken (including stages of development and their timing) and design parameters for those aspects of the structures or elements of the action that may have relevant impacts.

11.24. The EIS must also provide details on the current state of groundwater and surface water in the region as well as any use of these resources.

## Listed threatened species and communities

11.25. The EIS must describe the listed threatened species and ecological communities identified below (including EPBC Act status, distribution, life history and habitat).

11.26. The EIS must consider and assess the impacts to the listed threatened species and ecological communities and any others that are found to be or may potentially be present in areas that may be impacted by the project. Impacts from each component of the project of relevance to each listed threatened species or ecological community should be identified. Impacts may result from:

(a) a decrease in the size of a population or a long-term adverse effect on an ecological community

(b) reduction in the area of occupancy of the species or extent of occurrence of the ecological community

(c) fragmentation of an existing population or ecological community

(d) disturbance or destruction of habitat critical to the survival of the species or ecological community

(e) disruption of the breeding cycle of a population

(f) modification, destruction, removal, isolation or reduction of the availability or quality of habitat to the extent that the species is likely to decline

(g) modification or destruction of abiotic (non-living) factors (such as water, nutrients or soil) necessary for the ecological community's survival

(h) the introduction of invasive species that are harmful to the species or ecological community becoming established

(i) interference with the recovery of the species or ecological community

(j) action that may be inconsistent with a recovery plan.

11.27. The EIS should describe any mitigation measures proposed to reduce the impact on the listed threatened species and ecological communities and 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.

11.28. The EIS should describe any offsets proposed to compensate for residual impacts.

### *List of potential listed threatened species and their status*

11.29. The EIS must address impacts on, but not limited to, the following listed threatened species for the proposed action:

(a) Regent Honeyeater (*Anthochaera phrygia*) – critically endangered;

(b) Australasian Bittern (*Botaurus poiciloptilus*) – endangered;

(c) Curlew Sandpiper (*Calidris ferruginea*) – critically endangered;

(d) Coxen's Fig-Parrot (*Cyclopsitta diophthalma coxeni*) – endangered;

(e) Eastern Bristlebird (*Dasyornis brachypterus*) – endangered;

(f) Red Goshawk (*Erythrotriorchis radiatus*) – vulnerable;

(g) Squatter Pigeon (southern subspecies) (*Geophaps scripta scripta*) – vulnerable;

(h) Painted Honeyeater (*Grantiella picta*) – vulnerable;

(i) Swift Parrot (*Lathamus discolor*) – critically endangered, marine;

(j) Eastern curlew (*Numenius madagascariensis*) – critically endangered, marine, migratory;

(k) Black-throated Finch (southern) (*Poephila cincta cincta*) – endangered;

(l) Australian Painted Snipe (*Rostratula australis*) – endangered, marine;

(m) Black-breasted Button-quail (*Turnix melanogaster*) – vulnerable;

(n) Mary River Cod (*Maccullochella mariensis*) – endangered;

(o) Australian lungfish (*Neoceratodus forsteri*) – vulnerable;

(p) Large-eared Pied Bat (*Chalinolobus dwyeri*) – vulnerable;

(q) Northern Quoll (*Dasyurus hallucatus*) – endangered;

(r) Spot-tailed Quoll (South east (SE) mainland population) (*Dasyurus maculatus maculatus*) – endangered;

(s) Greater Glider (*Petauroides volans*) – vulnerable;

(t) Brush-tailed Rock-wallaby (*Petrogale penicillata*) – vulnerable;

(u) Koala (*Phascolarctos cinereus*) (combined populations of Queensland, New South Wales and the Australian Capital Territory) – vulnerable;

(v) Long-nosed Potoroo (SE mainland) (*Potorous tridactylus tridactylus*) – vulnerable;

(w) New Holland Mouse (*Pseudomys novaehollandiae*) – vulnerable;

(x) Grey-headed Flying-fox (*Pteropus poliocephalus*) – vulnerable;

(y) Five-clawed Worm-skink, Long-legged Worm-skink (*Anomalopus mackayi*) – vulnerable;

(z) Collared Delma (*Delma torquata*) – vulnerable;

(aa) Dunmall's Snake (*Furina dunmalli)* – vulnerable;

(bb) Three-toed Snake-tooth Skink (*Saiphos reticulatus*) – vulnerable;

(cc) a grass (*Paspalidium grandispiculatum*) – vulnerable;

(dd) Austral Cornflower, Native Thistle (*Rhaponticum australe*) – vulnerable;

(ee) Austral Toadflax, Toadflax (*Thesium australe*) – vulnerable;

(ff) Bluegrass (*Dichanthium setosum*) – vulnerable;

(gg) *Grevillea quadricauda* – vulnerable;

(hh) Hairy-joint Grass (*Arthraxon hispidus*) – vulnerable;

(ii) *Leionema obtusifolium* – vulnerable;

(jj) Lloyd's Olive (*Notelaea lloydii*) – vulnerable;

(kk) Macadamia nut (*Macadamia integrifolia*) – vulnerable;

(ll) Miniature Moss-orchid, Hoop Pine Orchid (*Bulbophyllum globuliforme*) – vulnerable;

(mm) Mt Berryman Phebalium (*Phebalium distans*) – critically endangered;

(nn) Quassia (*Samadera bidwillii*) – vulnerable;

(oo) *Sophora fraseri* – vulnerable;

(pp) Tall Velvet Sea-berry (*Haloragis exalata subsp. Velutina*) – vulnerable; and

(qq) Wandering Pepper-cress (*Lepidium peregrinum*) – endangered.

### *List of potential listed threatened communities*

11.30. The EIS must address impacts on the following listed threatened ecological communities for the proposed action:

(a) Brigalow (*Acacia harpophylla dominant and co dominant*) ecological community – endangered;

(b) Lowland Rainforest of Subtropical Australia– critically endangered;

(c) Swamp Tea-tree (*Melaleuca irbyana*) Forest of SE Queensland – critically endangered; and

(d) White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland– critically endangered.

## Offsets

11.31 The EIS must describe the residual impacts of the action for each relevant matter protected by the EPBC Act, after all proposed avoidance and mitigation measures are taken into account.

11.32 The EIS must propose offsets for all residual impacts to matters protected by the EPBC Act consistent with the *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*.

### Conclusion

11.33 The EIS must include an overall conclusion for the action describing the acceptability of the impact of undertaking the action in the manner proposed on the protected matters, in the context of:

(a) the requirements of the EPBC Act;

(b) the principles of ecologically sustainable development and the precautionary principle; and

(c) the proposed avoidance, mitigation measures, and if relevant, offsets measures proposed to address any residual impacts.

## 11.2 Water

**Objective**

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

The construction and operation 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 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 and current lawful users of water (such as entitlement holders and stock and domestic users) and other beneficial uses of water (such as spring flows and groundwater-dependent ecosystems) are not adversely impacted by the development.

### *Existing environment*

11.34. Describe the hydrology within the study area and the adjoining waterways in terms of water levels, discharges and freshwater flows.

11.35. Detail the chemical and physical characteristics of surface waters and groundwater within the area that may be affected by the project. Include a description of water quality variability associated with climatic and seasonal factors, variability of freshwater flows and extreme events.

11.36. Describe the proposed management of existing and/or constructed waterbodies on the preferred alignment to maintain water quality.

## Water quality

### *Impact assessment*

11.37. The assessment of impacts on water will be in accordance with the Department of Environment and Heritage Protection's (DEHP) application requirements for the ERAs with impacts to water (Guideline ESR/2015/1837).

11.38. 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) or diffuse sources (such as irrigation to land of treated sewage effluent).

11.39. 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.

### *Mitigation measures*

11.40. Describe how the achievement of the objectives would be monitored and audited, and how corrective actions would be managed.

11.41. Describe mitigation strategies and contingency plans for:

(a) potential accidental discharges of contaminants and sediments during construction and operation

(b) stormwater run-off from the project facilities and associated infrastructure

(c) flooding of relevant river systems, the effects of tropical cyclones and other extreme events

(d) management of acid sulfate soils.

## Water resources

### *Impact assessment*

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

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

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

(a) changes in flow regimes from structures and water take

(b) alterations to riparian vegetation and bank and channel morphology

(c) direct and indirect impacts arising from the project.

11.45. Provide information on the proposed water usage by the project, including details about:

(a) the ultimate supply required to meet the demand for construction and full operation of the project, including timing of demands

(b) 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

(c) a site plan outlining actions to be taken in the event of failure of the main water supply.

11.46. Describe proposed sources of water supply given the implication of any approvals required under the Water Act. Estimated rates of supply from each source (average and maximum rates) must be given and proposed water conservation and management measures must be described.

11.47. 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 workforce.

11.48. Identify relevant Water Plans and Resources Operations Plans under the Water Act. Describe how the project will impact or alter these plans.

### *Mitigation measures*

11.49. Provide designs for all infrastructure utilised in the treatment of on-site water including how any on-site water supplies are to be treated, contaminated water is to be disposed of and any decommissioning requirements and timing of temporary water supply/treatment infrastructure is to occur.

11.50. Describe measures to minimise impacts on surface water and ground water resources.

## Flood management

### *Existing environment*

11.51. A desktop assessment of the rail line and surrounding catchments must be undertaken and the potential for flooding qualitatively described. The desktop assessment must also identify any high-risk watercourse crossing or floodplain locations that warrant further detailed quantitative assessment.

### *Impact assessment*

11.52. For these locations, a flood study must be included in the EIS that includes:

(a) quantification of flood impacts on properties surrounding and external to the preferred alignment from redirection or concentration of flows

(b) identification of likely increased flood levels, increased flow velocities or increased time of flood inundation as a result of the project

(c) details of all calculations along with descriptions of base data and any potential for loss of flood plain storage.

11.53. The flood study should address any requirements of local or regional planning schemes for flood affected areas.

11.54. Describe flood risk for a range of annual exceedance probabilities (including Probable Maximum Flood) for the site, and assess how the project may change flooding characteristics. Include a discussion of historical events.

11.55. The study should consider all infrastructure associated with the project including levees, roads and linear infrastructure.

11.56. The EIS should describe the consultation that has taken place with landholders along the alignment regarding modelled potential impacts of the project on flooding. Include discussion of how the results of consultation have, or will be, considered by the proponent in the EIS process.

11.57. Reference must be made to any studies undertaken by the local council(s) in relation to flooding.

#### *Mitigation measures*

11.58. Describe all proposed measures to avoid or minimise risks to life, property, community (including damage to other properties) and the environment as a result of project impacts during flood events particularly flood risks on individual properties, including in and around Grantham, Gatton, Forest Hill, Laidley, Grandchester and Calvert.

## 11.3 Land

**Objectives**

Development should be designed and operated to:

(a) improve environmental outcomes

(b) contribute to community wellbeing

(c) contribute to social, economic and environmental sustainability.

### Land use and tenure

#### *Existing environment*

11.59. Detail the existing land use values for all areas associated with the project.

11.60. Discuss the compatibility of the project with the surrounding area. The discussion should include:

(a) existing and proposed land uses, in and around the preferred alignment, referring to regional plans and the local government planning scheme/s

(b) any tenures overlying and adjacent to the preferred alignment, and any to be applied for as part of this project

(c) state interests identified in the State Planning Policy (SPP)

(d) locational factors influencing the choice of preferred alignment.

#### *Impact assessment*

11.61. Describe the potential for the construction and operation of the project to change existing and potential land uses of the preferred alignment and adjacent areas.

11.62. Discuss the proposal in the context of the applicable Regional Plan and local planning schemes.

### Native Title

11.63. Identify existing and potential Native Title rights and interests possibly impacted by the proposed project and describe how those impacts will be managed.

### Landscape and visual amenity

11.64. Describe and illustrate the visual impact of the construction and operation of the project. Include major views, view sheds, outlooks, and features contributing to the amenity of the area.

### Topography, geology and soils

11.65. The assessment of impacts on land will be in accordance with DEHP application requirements for the ERAs with impacts to land (Guideline ESR/2015/1839).

11.66. If the project impacts on Priority Agricultural Areas, Priority Living Areas, Strategic Environmental Areas, Strategic Cropping Areas, provide the approach to addressing the requirements of the *Regional Planning Interests Act 2014*.[7]

11.67. Identify potential and actual areas of acid sulfate soils. Where potential areas are identified, further investigations (including field surveys) should be undertaken in accordance with accepted industry guidelines.

## 11.4 Flora and fauna

**Objective**

Matters of environmental significance are valued 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*

11.68. Identify and describe the biodiversity and natural environmental values of the terrestrial and aquatic ecology likely to be impacted by the project which have not been addressed in the section on MNES.

#### *Impact assessment*

11.69. Describe the likely impacts on the biodiversity and natural environmental values of affected areas arising from the construction and operation of the project. The assessment should include, but not be limited to, the following key elements:

(a) matters of state environmental significance

(b) terrestrial and aquatic ecosystems (including groundwater-dependent ecosystems) and their interaction

(c) biological diversity including listed flora and fauna species and regional ecosystems

[7] Refer to: **www.dnrm.qld.gov.au/land/accessing-using-land/strategic-cropping-land**

(d) the existing integrity of ecological processes, and habitats of threatened, near-threatened or special least-concern species

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

(f) actions of the project that may require an authority under the *Nature Conservation Act 1992* and Water Act (for example, riverine protection permits) and/or could be assessable development for the purposes of the *Vegetation Management Act 1999* (VMA), the *Fisheries Act 1994*

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

(h) impacts on native fauna due to proximity to the site and site impacts (e.g. lighting, noise, waste and fencing)

(i) impacts to movement of native fauna due to barrier effect of linear infrastructure.

### *Mitigation measures*

11.70. Describe any proposed measures to avoid, minimise or mitigate potential impacts on natural values, and enhance these values. Assess how the nominated quantitative indicators and standards may be achieved for nature conservation management. In particular, address measures to protect or preserve any threatened or near-threatened species.

11.71. Assess the need for buffer zones and the retention, rehabilitation or planting of movement corridors, and propose measures that would avoid the need for waterway barriers, or propose measures to mitigate the impacts of their construction and operation.

11.72. Describe how the achievement of the objectives would be monitored and audited, and how corrective actions would be managed.

11.73. Where significant residual impact on matters of State environmental significance remain following the implementation of measures to avoid and mitigate impacts, describe any environmental offsets proposal for that impact.

## Biosecurity

**Objectives**

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

(a) the spread of weeds and pest animals is minimised

(b) existing weeds and pests are controlled.

### *Existing environment*

11.74. Provide information on the current distribution of animal pests and weeds on the preferred alignment.

### *Impact assessment*

11.75. Describe the impact the project's construction and operation will have on the spread of pest animals and weed species along the preferred alignment and into adjoining properties.

### *Mitigation measures*

11.76. Propose detailed measures to control and limit the spread of pests and weeds on the preferred alignment and adjacent areas and any relevant local government area Biosecurity Plans. This includes restricted matters listed in the *Biosecurity Act 2014* (Biosecurity Act) and Biosecurity Regulation 2016, declared plants under the *Stock Route Management Act 2002*, and designated pests under the *Public Health Act 2005*.

11.77. All proposed measures must be in accordance with any relevant biosecurity surveillance or prevention program authorised under the Biosecurity Act.

## 11.5 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 or mitigate impacts on the condition of transport infrastructure

(c) ensure any required works are compatible with existing infrastructure and future transport corridors.

### *Existing environment*

11.78. Describe and map the existing transport infrastructure and corridors. Provide data on existing road and rail traffic in the project area.

11.79. Describe where the project's preferred alignment differs from the State's strategic rail corridor and the reasons for any such deviation.

11.80. 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*

11.81. The EIS should include a clear summary of the total transport task for the project, including workforce, inputs and outputs during the construction and operational phases.

11.82. Present the transport assessment in separate sections for each project-affected mode (road and rail) as appropriate for each phase of the project.

11.83. Provide sufficient information to allow an independent assessment of how existing and proposed transport infrastructure will be affected by project transport at the local and regional level (for example, local roads and state-controlled roads).

11.84. Include details of the adopted assessment methodology for impacts on roads within the road impact assessment report in accordance with the *Guidelines for Assessment of Road Impacts of Development.*

### *Mitigation measures*

11.85. Discuss and recommend how identified impacts will be mitigated. Mitigation strategies are to be prepared in close consultation with relevant transport authorities (including Local Government).

## 11.6 Noise and vibration

**Objective**

Development is planned, designed, constructed and operated to protect the environmental values of the acoustic environment.

### *Existing environment*

11.86. Describe the existing noise and vibration environment that may be affected by the project in the context of the environmental values.

11.87. Identify sensitive noise receptors adjacent to all project components and estimate typical background noise and vibration levels based on surveys at representative sites.

11.88. If the proposed project could adversely impact on the noise environment, undertake baseline monitoring at a selection of sensitive receptors potentially affected by the project. Describe the results of any baseline monitoring.

### *Impact assessment*

11.89. Describe the characteristics of the noise and vibration sources that would be emitted when carrying out the activity (point source and general emissions). Describe noise and vibration emissions (including fugitive sources) that may occur during construction, commissioning and operation.

11.90. The assessment of impacts on noise and vibration will be in accordance with DEHP Application Requirements for ERAs with noise impacts (Guideline ESR/2015/1838).

11.91. Predict the impacts of the noise emissions from the construction and operation of the project on the environmental values of the receiving environment, with reference to sensitive receptors[8], using recognised quality assured methods.

11.92. Discuss separately the key project components likely to present an impact on noise and vibration for the construction and operation phases of the project.

11.93. Taking into account the practices and procedures that would be used to avoid or minimise impacts, the impact prediction must address the:

(a) activity's consistency with the objectives

(b) cumulative impact of the noise with other known emissions of noise associated with existing major projects and/or developments and those which are progressing through planning and approval processes and public information is available

(c) potential impacts of any low-frequency (<200 Hz) noise emissions.

[8] In accordance with EPP (Noise) 2008.

### *Mitigation measures*

11.94. Describe how the proposed project, and in particular, the key project components described above, 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.

11.95. Describe how the achievement of the objectives would be monitored and audited, and how corrective actions would be managed.

## 11.7 Air

**Objective**

Development is planned, designed, constructed and operated to protect the environmental values of air.

### *Existing environment*

11.96. Describe the existing air quality that may be affected by the project in the context of environmental values.

11.97. Discuss the existing local and regional air shed environment.

11.98. Provide baseline data on local meteorology and ambient levels of pollutants for later studies and 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.

### *Impact assessment*

11.99. Describe the characteristics of any contaminants or materials that may be released as a result of the construction or operations of the proposal, including point source and fugitive emissions. Emissions (point source and fugitive) during construction, commissioning and operations should be described.

11.100. The assessment of impacts on air will be in accordance with DEHP application the requirements for the ERAs with impacts to air (Guideline ESR/2015/1840).

11.101. Predict the impacts of the releases from the activity on environmental values of the receiving environment using recognised quality assured methods. The description of impacts should take into consideration the assimilative capacity of the receiving environment and the practices and procedures that would be used to avoid or minimise impacts. The impact prediction must:

(a) address residual impacts on the environmental values (including appropriate indicators and air quality objectives) of the air receiving environment, with reference to the air environment[9] at sensitive receptors. 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))

[9] In accordance with the EPP (Air) Policy 2008

(b) address the cumulative impact of the release with other known releases of contaminants, materials or wastes associated with existing major projects and/or developments and those which are progressing through planning and approval processes and public information is available

(c) quantify the human health risk and amenity impacts associated with emissions from the project for all contaminants covered by the National Environmental Protection (Ambient Air Quality) Measure or the EPP (Air).

### *Mitigation measures*

11.102. Describe the proposed mitigation measures to manage impacts to air quality.

11.103. Describe how the proposed activity will be consistent with best practice environmental management. Where a government plan is relevant to the activity or site where the activity is proposed, describe the activity's consistency with that plan.

11.104. Describe how the achievement of the objectives would be monitored, audited and reported, and how corrective actions would be managed.

## 11.8 Social

**Objectives**

The construction and operation of the project should aim to:

(a) avoid or mitigate/manage adverse social impacts arising from the project

(b) capitalise on opportunities potentially available for local industries and communities

### Information requirements

#### *General*

11.105. The EIS is to be consistent, and in accordance with, relevant policies, standards and guidelines in place that exist at the time of its delivery.

11.106. Conduct a social impact assessment (SIA) in accordance with the Coordinator-General's *Social impact assessment guideline* (July 2013) and the Coordinator-General's *Social impact assessment guideline (draft)* (October, 2016) or the guideline in place at the time of delivery of the SIA.

11.107. The SIA should be developed in consultation with the Office of the Coordinator-General and describe the likely social impacts (positive and negative) on affected communities. The proposed mitigation measures are to be discussed. Matters to be considered in the SIA are detailed in the following sections.

11.108. The SIA should include:

(a) a profile of key stakeholders

(b) a social baseline study of potentially impacted communities within the SIA study area

(c) an overview of state government legislation and policies and priorities which complement the mitigation measures for the project's social impacts

(d) an explanation of sources used to gather information and analysis methods used. Discuss rationale for both primary and secondary data

(e) a description of how the potentially impacted communities and affected stakeholders were engaged and consulted with during the development of the SIA

(f) identification of potential social impacts and their likely significance, including duration

(g) the proponent's proposed enhancement and mitigation/management measures in relation to project impacts

(h) details of the proponent's proposed monitoring and reporting framework.

### *Existing environment*

#### *Social impact assessment study area*

11.109. Define the project's SIA study area (including the local, district, regional and state level as relevant), taking into account the:

(a) potential for social impacts to occur

(b) location of other relevant projects (existing major projects and/or developments and those which are progressing through planning and approval processes and public information is available)

(c) location and types of physical and social infrastructure, settlements and land use patterns

(d) social values that might be affected by the project including integrity of social conditions, liveability, social harmony and wellbeing and sense of community

(e) Indigenous social and cultural characteristics, such as native title rights and interests, and cultural heritage.

#### *Social Baseline Study*

11.110. Undertake a targeted baseline study of the people residing within the project's SIA study area. This will provide a benchmark against which to identify the project's social issues, potential negative and positive social impacts, and the mitigation measures and management plans to address these impacts.

11.111. The social baseline study should be based on qualitative, quantitative and participatory methods. It should be supplemented by community engagement processes and primary data collection, and should reference relevant data contained in local and state government publications, reports, plans, guidelines and documentation, including regional and community plans.

#### *Community Engagement*

11.112. A consultative and inclusive community and stakeholder engagement process should inform the baseline study, assessment of potential social impacts and development of appropriate mitigation measures and management plans. The engagement should commence at an early stage of the EIS process. It should include consultation with a broad range of stakeholder groups including affected landholders, local residents, community groups, traditional owners, Aboriginal and Torres Strait Islander representatives, state and local government agencies, and non-government organisations.

11.113. The community and stakeholder engagement process should be adequately described and documented in the EIS report. This should include details such as stakeholders consulted and how and when they were consulted, principles and processes adopted, overview of the consultation program and key events, stakeholder feedback and issues raised (including the means by which these have been or will be addressed), and a statement of agreement/s reached, or to be negotiated, for impact mitigation and management.

## Potential impacts and mitigation

### *Impact assessment*

11.114. Assess and describe the type, level and significance of the project's social impacts (both negative and positive), based on the outcomes of the community engagement, social baseline study and impact analysis processes. This should include sufficient data to enable affected local and state authorities to make informed decisions about the project's effects. The potential social impacts will be identified by considering the potential changes to key aspects included in the social baseline study as a result of the project.

11.115. Impact assessment should include an assessment of the potential scope and significance of impacts at the local and regional level, considering factors such as:

(a) population and demographic changes
(b) workforce
(c) lifestyles and amenity
(d) community values
(e) housing
(f) local and regional planning outcomes
(g) social infrastructure
(h) the health and social/cultural wellbeing of families and communities.

11.116. The impact assessment should also evaluate and discuss the potential cumulative social impacts resulting from the proposed project in combination with other existing major projects and/or developments and those which are progressing through planning and approval processes (where public information is available) within the SIA study area. Key issues assessed should include:

(a) population
(b) workforce (construction and operation)
(c) workforce accommodation
(d) local and regional housing markets
(e) use of and access to community infrastructure, services and facilities (including social and health services and facilities).

11.117. The impact assessment should include:

(a) the impacts identified by the SIA process
(b) impacted stakeholders

(c) the timing or timeframes of impacts and the mitigation and management measures

(d) description of the mitigation and management measures

(e) defined outcomes, and the performance indicators and targets to achieve the outcomes

(f) monitoring and reporting framework

(g) residual impacts (after mitigation and management measures) and how these will be addressed.

### *Management plans*

11.118. Management plans for the following are to be provided as part of the SIA:

(a) community and stakeholder engagement

(b) workforce management

(c) housing and accommodation

(d) local business and industry content

(e) health and community wellbeing.

## 11.9 Economic

**Objectives**

The construction and operation of the project should aim to:

(a) avoid or mitigate adverse economic impacts arising from the project

(b) capitalise on opportunities potentially available for capable local industries and communities

(c) create a net economic benefit to the region and State.

### Information requirements

11.119. Identify the 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 should be consistent with the Coordinator-General's *Economic impact assessment guideline* (April 2017).

## 11.10 Hazards, health and safety

**Objectives**

(a) The risk of, and the adverse impacts from, natural hazards are avoided, minimised or mitigated to protect people and property and enhance the community's resilience to natural hazards.

(b) Developments are to be appropriately located, designed and constructed to minimise health and safety risks to communities and individuals and adverse effects on the environment.

## Information requirements

### *General*

11.120. Describe the potential risks to 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:

(a) potential hazards, accidents, spillages, fire and abnormal events that may occur during all stages of the project, including estimated probabilities of occurrence

(b) identifying all hazardous substances to be used, stored, processed or produced and the rate of usage

(c) potential wildlife hazards, natural events (for example, cyclone, flooding, bushfire and landslide) and implications related to climate change

(d) how the project may potentially affect hazards away from the preferred alignment (for example, changing flooding characteristics).

11.121. Outline measures required to ensure that the proposed project avoids the release of hazardous materials as a result of a natural hazard event.

11.122. Provide details on the safeguards that would reduce the likelihood and severity of hazards, consequences and risks to persons, within and adjacent to the project area(s). Identify the residual risk following application of mitigation measures. Present an assessment of the overall acceptability of the impacts of the project in light of the residual uncertainties and risk profile.

11.123. 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.

11.124. Outline any consultation undertaken with the relevant emergency management authorities, including the Local Disaster Management Group.

## Land contamination

11.125. Detail any known or potential sources of contaminated land within or adjoining the project area, including the location of any potential contamination identified by landholders.

11.126. Describe how any proposed land use may result in land potentially becoming contaminated.

11.127. Provide a description of the nature and extent of contamination at identified site(s).

11.128. Discuss the management of any contaminated land and potential for contamination from construction, commissioning, operation and decommissioning.

11.129. Describe strategies and methods to be used to prevent and manage any land contamination resulting from the project, including the management of any acid generation or management of chemicals and fuels to prevent spills or leaks.

11.130. Identify or detail any known potential unexploded ordnance that may occur within or adjoining the project area.

### Climate

11.131. Describe the preferred alignment's climate patterns with particular regard to discharges to water and air and the propagation of noise.

11.132. Climate information should be presented in a statistical form including long-term averages and extreme values, as necessary.

11.133. Describe the climatic conditions that may affect management of the project. This includes a description of the vulnerability of the project area to seasonal conditions, extremes of climate (for example, cyclones and prolonged rain events) and natural or induced hazards (including bushfire).

## 11.11 Waste management

**Objective**

Any waste transported, generated, or received as part of carrying out the activity is managed in a way that protects all environmental values.

### *Impact assessment*

11.134. For wastes besides wastewater (which is addressed in the Water section of this TOR), describe all the expected significant waste streams from the proposed project activities during the construction and operational phases of the project.

11.135. Define and describe the objectives and practical measures for protecting or enhancing environmental values from impacts by wastes. Take into account best practice waste management strategies as outlined in the National Waste Policy 2009 and the *Waste Reduction and Recycling Act 2011* and the Environmental Protection Regulation 2008.

### *Mitigation measures*

11.136. 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.

11.137. 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.

11.138. Detail waste management planning for the proposed project especially how these plans would be applied to prevent or minimise environmental impacts due to waste at each stage of the project.

11.139. 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.

## 11.12 Cultural heritage

**Objective**

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

### Information requirements

11.140. Unless section 86 of the *Aboriginal Cultural Heritage Act 2003* (ACH Act) applies, the proponent must develop a Cultural Heritage Management Plan (CHMP) in accordance with the requirements of Part 7 of the ACH Act. The EIS should provide details of the CHMP and any associated agreements that has been developed or reached or steps taken up to that point to develop or reach such a plan or agreement.

11.141. For non-Indigenous historical heritage, undertake a study of, and describe, the known and potential historical cultural and landscape heritage values of the area potentially affected by the project. Any such study should be conducted by an appropriately qualified cultural heritage practitioner. Provide strategies to mitigate and manage any negative impacts on non-Indigenous cultural heritage values and enhance any positive impacts.

# 12. Appendices to the EIS

12.1. Appendices should provide the complete technical 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 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.

# Acronyms and abbreviations

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

| Acronym/abbreviation | Definition |
|---|---|
| ACH | *Aboriginal Cultural Heritage Act 2003* |
| AHD | Australian Height Datum |
| CHMP | Cultural Heritage Management Plan |
| Cwlth | Commonwealth |
| EIS | environmental impact statement |
| EO Act | *Environmental Offsets Act 2014* |
| EP Act | *Environmental Protection Act 1994* |
| EP Regulation | Environmental Protection Regulation 2008 |
| EPBC Act | *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) |
| EPBC Regulations | Environment Protection and Biodiversity Conservation Regulations 2000 (Cwlth) |
| EPP | Environmental Protection Policy (under the EP Act) |
| ERA | Environmentally relevant activity |
| DEHP | Department of Environment and Heritage Protection |
| GDA94 | Geocentric Datum of Australia 1994 |
| MNES | matters of national environmental significance (under the EPBC Act) |
| SE | South east |
| SIA | social impact assessment |
| SDAP | State Development Assessment Provisions prescribed in the Sustainable Planning Regulation 2009 |
| SDPWO Act | *State Development and Public Works Organisation Act 1971* |
| SPA | *Sustainable Planning Act 2009* |
| SPP | State Planning Policy |
| TOR | terms of reference |
| VMA | *Vegetation Management Act 1999* |

# 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, viewed 2 May 2017, **www.environment.gov.au/system/files/resources/53cda9ea-7ec2-49d4-af29-d1dde09e96ef/files/nwqms-guidelines-4-vol1.pdf**

Queensland Government, *Application requirements for activities with impacts to water guideline*, Department of Environment and Heritage Protection, Brisbane, 2013, viewed 13 April 2017, **http://www.ehp.qld.gov.au/assets/documents/regulation/era-gl-water-impacts.pdf**

Queensland Government, *Application requirements for activities with impacts to air*, Department of Environment and Heritage Protection 2015, viewed 13 April 2017, **http://www.ehp.qld.gov.au/assets/documents/regulation/era-gl-air-impacts.pdf**

Queensland Government, *Application requirements for activities with noise impacts*, Department of Environment and Heritage Protection, 2014, viewed 13 April 2017, **https://www.ehp.qld.gov.au/assets/documents/regulation/era-gl-noise-impacts.pdf**

Queensland Government, *Queensland Water Quality Guidelines 2009,* Department of Environment and Heritage Protection, Brisbane, 2009, viewed 16 December 2016, **http://www.ehp.qld.gov.au/water/guidelines**

Queensland Government, *Preparing an environmental impact statement: Guideline for proponents*, The Coordinator-General, Department of State Development, Infrastructure and Planning, Brisbane, 2015, viewed 16 December 2016, **www.statedevelopment.qld.gov.au/fact-sheets-and-guidelines/coordinated-projects.html**

Queensland Government, *Social impact assessment guideline*, The Coordinator-General, Department of State Development, Infrastructure and Planning, Brisbane, 2013, viewed 21 April 2017, **http://statedevelopment.qld.gov.au/resources/guideline/social-impact-assessment-guideline.pdf**

*Social impact assessment guideline (draft)* (October, 2016), Department of State Development, Infrastructure and Planning, Brisbane, viewed 19 April 2017, **http://www.parliament.qld.gov.au/Documents/TableOffice/TabledPapers/2016/5516T2017.pdf**

Queensland Government, *Economic impact assessment guideline* (April 2017), The Coordinator-General, Department of State Development, Brisbane, 2017, viewed 27 April 2017, **https://www.statedevelopment.qld.gov.au/resources/guideline/cg/economic-impact-assessment-guideline.pdf**

Queensland Government, *Queensland Level Crossing Safety Strategy (2012-2021)*, Department of Transport and Main Roads, Brisbane, 2012, viewed 27 April 2017, **http://www.tmr.qld.gov.au/Search-results?query=queensland%20level%20crossing%20safety%20strategy&scope=tmr.qld.gov.au**

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**The Coordinator-General**
PO Box 15517, City East Qld 4002
**tel** 13 QGOV (13 74 68)
**fax** +61 7 3225 8282
**info@dsd.qld.gov.au**

**www.statedevelopment.qld.gov.au**