

APPENDIX

INLAND
RAIL 

A

Terms of Reference

INLAND RAIL—BORDER TO GOWRIE ENVIRONMENTAL IMPACT STATEMENT



**Terms of reference for an
environmental impact statement:**

Inland Rail – Border to Gowrie project

November 2018

The Department of State Development, Manufacturing, Infrastructure and Planning

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Part A. About these terms of reference

1. Statutory basis

- 1.1. The Coordinator-General has declared the Inland Rail – Border to Gowrie 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 the 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 9 April 2018, the delegate of the Commonwealth Minister for the Environment and Energy determined the Inland Rail – Border to Gowrie 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 2018/8165).
- 2.2. The EIS process for the project under the EPBC Act will be conducted under the Bilateral Agreement between the Australian Government and the State of Queensland. The EIS must address the controlling provision for the project and describe the particular aspects of the environment and the project that are subject 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 provision. 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* (refer Appendix 1), 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 guidelines.

4. More information

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

Part B. Content of the EIS

5. General approach

- 5.1. The objectives of the EIS are to ensure that all relevant environmental, social and economic impacts of the project are identified and assessed, and to recommend mitigation measures to avoid or minimise adverse impacts. The EIS should demonstrate that the project is based on sound environmental principles and practices.
- 5.2. For the purposes of the EIS process, 'environment' is defined in Schedule 2 of the SDPWO Act and includes social and economic matters.
- 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.
- 5.4. The EIS is to be generally 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.

6. Mandatory requirements of an EIS

- 6.1. For all relevant matters, the EIS must identify and describe the environmental values that must be protected. Environmental values are specified in section 9 of the *Environmental Protection Act 1994* (EP Act), the Environmental Protection Regulation 2008 (EP Regulation), Environmental Protection Policy (EPP), Water Resource Plans, State Planning Policy (SPP) and relevant guidelines¹.
- 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 values of the project, including seasonal variations. 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 (as described in section 11 of this TOR) 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 to: (a) avoid; (b) minimise/mitigate; and (c) offset once (a) and (b) have been applied. Management of impacts should be tailored to the management of hierarchy relevant to the particular EPP for the value or matter. Where relevant, strategies should be described in the context of the Department of Environment and Science (DES) 'model conditions'.

¹ Refer to Appendix 1 for the list of potentially relevant guidelines.

- 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 and suitable assessment of the nature, magnitude and duration of the potential direct and indirect and cumulative impacts of the project and the measures proposed by the proponent to avoid, minimise, mitigate, manage and/or offset those impacts.
- 6.7. Present and assess feasible alternatives (including conceptual, technological and locality alternatives) to the proposed project, including individual elements that may improve environmental, social and economic outcomes. Discuss the consequences of not proceeding with the project.
- Assessment must include the alternative route options identified in submissions on the draft TOR. Describe the criteria used to assess the alternatives and provide sufficient detail to convey why certain options or courses of action are preferred and why others are rejected. Using the principles of ecological sustainable development, summarise the environmental, social and economic impacts of each alternative.
- 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 justification on the merits of the project.

7. Further requirements of an EIS

- 7.1. The proponent must identify in the EIS the scope of government approvals sought through the EIS process.
- 7.2. The assessment and supporting information should be sufficient for the Coordinator-General and administering authorities to decide whether an approval sought through the EIS process should be granted. Where applicable, sufficient information should be included to enable approval conditions to be developed in relation to later approvals under relevant legislation, including but not limited to the *Planning Act 2016* (Planning Act), the *Water Act 2000* (Water Act), *Nature Conservation Act 1992* (NC Act), *Vegetation Management Act 1999* (VM Act), *Fisheries Act 1994* (Fisheries Act), *Land Act 1994*, *Forestry Act 1959*, *Stock Route Management Act 2002*, *Biosecurity Act 2014* (Biosecurity Act), *Queensland Heritage Act 1992*, *Transport Infrastructure Act 1994* (TI Act), *Mineral Resources Act 1989*, EP Act, *Regional Planning Interests Act 2014*, *Environmental Offsets Act 2014* (EO Act) and EPBC Act.²

² Legislation and department names are subject to change over the life of the Coordinator-General's assessment.

- 7.3. Cumulative impacts³ should be assessed over time and in combination with impacts created by the activities of other local, upstream and downstream land uses, major projects under construction, and proposed significant development progressing through the statutory assessment processes for which information is publicly available. The EIS should also propose means to suitably address predicted cumulative impacts. Outline ways in which the cumulative impact assessment and management could subsequently be progressed further on a collective basis.
- 7.4. 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.
- 7.5. Provide all geographical coordinates throughout the EIS in latitude and longitude against the Geocentric Datum of Australia 1994 (GDA94). It is preferred that all spatial data presented in the EIS is made available to the Coordinator-General in the appropriate electronic form such as shapefiles.
- 7.6. An EIS should also describe the expected benefits and opportunities associated with the project.
- 7.7. An appropriate public consultation program is essential to the impact assessment process. To ensure appropriate consideration of cross-border impacts, the proponent should consult with all relevant local and State (including New South Wales) and Commonwealth government agencies, and potentially affected landowners and local communities.
- 7.8. 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.
- 7.9. Include, as an appendix, a public consultation report detailing how the public consultation plan was implemented and the results of the implementation.

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 Australian Business Number

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

- (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 any 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. Describe 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 Planning Act interact, with reference to the project. Describe how the EIS process informs approvals required for the project, and how a properly made submission on the EIS relates to application processes and later approvals under the Planning Act and EP Act respectively.
- 9.7. Identify any statutory approvals, permits, licences and authorities (including any requirement for owner's consent) that will be required for the project to use the land, including State forest.
- 9.8. Describe the assessment process under the Bilateral Agreement between the Australian Government and the State of Queensland under section 45 of the EPBC Act.
- 9.9. The State Development Assessment Provisions (SDAP), prescribed in the Planning Regulation 2017, set out the matters of interest to the State for development assessment where the chief executive of the Planning Act is the assessment manager or referral agency 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. Refer to Appendix 1 for further information on SDAP requirements.

- 9.10. 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). Any ERAs to be conducted as part of the project should be listed separately with 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, environmental protection policies and relevant guidelines.

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 either under construction, progressing through planning and approval processes and where 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 proposed alignment.
- 10.3. Describe and map at suitable scales key transport infrastructure including national highways, state-controlled roads, local roads, rail lines and corridors, tunnels (including road and rail), airports, and other infrastructure or services (including gas and water pipelines, and electricity transmission and distribution powerlines) existing, under construction or proposed which may be impacted within the study area.

- 10.4. Describe and illustrate the topography of the proposed alignment and surrounding area, and highlight any significant features shown on the maps. Include and name all waterways and floodplains, including watercourses, 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 proposed alignment in relation to designated areas, such as transport corridors, protected areas and areas of regional interest and agricultural land uses identified in the *Queensland Agricultural Land Audit* (see Appendix 1). Consideration should also be given to Key Resource Areas (KRA's) petroleum and gas pipelines, explosive magazines (storage and manufacturing facilities) abandoned mines and mining (exploration and production) tenures.
- 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 coal and mineral resources, agricultural products and KRAs) 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, contamination 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 planning schemes, regional plans, state policies and government priorities for the proposed alignment including those that have been publicly notified. This description should include those instruments currently under development that may be implemented within the project's planning and construction timeframes.

Proposed construction and operations

- 10.10. Describe the following information about the proposed project:
 - (a) all pre-construction activities (e.g. vegetation clearing, site access, State land approvals and owners consent requirements, interference with watercourses and floodplain areas, including wetlands)
 - (b) existing infrastructure and easements on the proposed alignment
 - (c) the proposed construction methods, associated equipment and techniques
 - (d) location, design, capacity and management of all required infrastructure including water supply, sewerage, wastewater conveyance and treatment, telecommunications, power generation, fuels (gas, liquid and/or solid), accommodation of site facilities and transmission infrastructure
 - (e) any infrastructure alternatives, justified in terms of ecologically sustainable development (including energy, water conservation and wastewater management)
 - (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, explosives 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) an estimate of quarry materials required for the project, and potential sources
- (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
- (p) landscaping and the rehabilitation of affected areas after construction and during operation
- (q) proposed upgrades, closures, realignments, relocation, deviation or restricted access to roads, stock routes and other infrastructure (e.g. water, electricity, telecommunications, sewerage)
- (r) 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.

- 10.11. 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 road and utility crossings, sewerage and water supply, energy supply, telecommunications, stormwater, waste disposal and locations of any infrastructure easements. Describe the timing of requirements for this infrastructure.
- 10.12. Describe the typical service corridors or clearances for utilities such as sewerage, potable water reticulation, recycled water mains and petroleum and gas pipelines in relation to other services.
- 10.13. Concept and layout plans should also include existing infrastructure relevant to the project.

11. Assessment of project specific matters

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 delegate of the Commonwealth Minister for the Environment and Energy (the Commonwealth Minister) has determined that the project (EPBC 2018/8165) is likely to impact upon listed threatened species and communities (section 18 and 18A of the EPBC Act).
- 11.3. The EIS must be prepared in accordance with the bilateral agreement between the Australian Government and the State of Queensland relating to environmental assessment⁴. 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:

⁴ <http://www.environment.gov.au/system/files/pages/b44206bc-d8e5-450b-a05e-4d7c26d8afa1/files/qld-bilateral-agreement-assessment-amended-2014.pdf>

- (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.
- 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 existing major projects and/or development that is progressing through a publicly available planning and approval process. 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.

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

- 11.20. 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) project 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 identified in section 11.29 and 11.31 (including EPBC Act status, distribution, life history and habitat) 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.
- 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:

Flora

- (a) Mt. Berryman phebalium (*Phebalium distans*) – critically endangered;
- (b) king blue-grass (*Dichanthium queenslandicum*) – endangered;
- (c) finger panic grass (*Digitaria porrecta*) – endangered;
- (d) *Lepidium monoplocoides* – endangered;
- (e) *Lepidium peregrinum* – endangered;
- (f) *Tylophora linearis* – endangered;
- (g) *Xerothamnella herbacea* – endangered;
- (h) *Leucopogon* sp. (*Coolmunda D.Halford Q1635*) – endangered;
- (i) *Microcarpaea agonis* – endangered;
- (j) *Homopholis belsonii* – vulnerable;
- (k) hawkweed (*Picris evae*) – vulnerable;
- (l) *Macrozamia machinii* – vulnerable;
- (m) austral cornflower, native thistle (*Rhaponticum australe*) – vulnerable;
- (n) brush sophora (*Sophora fraseri*) – vulnerable;
- (o) tara Wattle (*Acacia lauta*) – vulnerable;
- (p) *Bertya opposens* – vulnerable;
- (q) satin-top grass (*Bothriochloa bunyensis*) – vulnerable;

- (r) *Dichanthium setosum* – vulnerable;
- (s) *Philothea sporadica* – vulnerable;
- (t) *Prostanthera* sp. (Dunmore D.M.Gordon 8A) – vulnerable;
- (u) toadflax (*Thesium austral*) – vulnerable;
- (v) hairy-joint grass (*Arthraxon hispidus*) – vulnerable;
- (w) Ooline (*Cadellia pentastylis*) – vulnerable;
- (x) stream clematis (*Clematis fawcettii*) – vulnerable;
- (y) shiny-leaved ironbark (*Eucalyptus virens*) – vulnerable;
- (z) *Macrozamia conferta* – vulnerable;
- (aa) *Westringia parvifolia* – vulnerable;
- (bb) tall velvet sea-berry (*Haloragis exalata* subsp. *Velutina*) – vulnerable;
- (cc) macadamia nut (*Macadamia integrifolia*) – vulnerable;
- (dd) *Sarcochilus hartmannii* – vulnerable;
- (ee) blotched sarcochilus (*Sarcochilus weinthalii*) – vulnerable;
- (ff) miniature moss-orchid (*Bulbophyllum globuliforme*) – vulnerable;
- (gg) durikai mallee (*Eucalyptus infera*) – vulnerable;

Fauna

- (a) regent honeyeater (*Anthochaera Phrygia*) – critically endangered;
- (b) curlew sandpiper (*Actitis hypoleucos*) – critically endangered;
- (c) swift parrot (*Lathamus discolor*) – critically endangered;
- (d) silver perch (*Bidyanus bidyanus*) – critically endangered;
- (e) spot-tailed quoll, tiger quoll (*Dasyurus maculatus maculatus*) – endangered;
- (f) brigalow woodland snail (*Adclarkia cameroni*) – endangered;
- (g) Australian painted snipe (*Rostratula australis*) – endangered;
- (h) dulacca woodland snail (*Adclarkia Dulacca*) – endangered;
- (i) Australasian bittern (*Botaurus poiciloptilus*) – endangered;
- (j) black-throated finch (southern) (*Poephila cincta cincta*) – endangered;
- (k) Condamine (Darling Downs) earless dragon (*Tympanocryptis condaminensis*) – endangered;
- (l) northern quoll/digul (*Dasyurus hallucatus*) – endangered;
- (m) koala (*Phascolarctos cinereus*) – vulnerable;
- (n) red goshawk (*Erythrorchis radiatus*) – vulnerable;
- (o) squatter pigeon (Southern Subspecies) (*Geophaps scripta scripta*) – vulnerable;
- (p) painted honeyeater (*Grantiella picta*) – vulnerable;
- (q) south-eastern long-eared bat (*Nyctophilus corbeni*) – vulnerable;
- (r) greater glider (*Petauroides Volans*) – vulnerable;
- (s) grey-headed flying-fox (*Pteropus poliocephalus*) – vulnerable;
- (t) Murray cod (*Maccullochella peelii*) – vulnerable;
- (u) five-clawed worm-skink, long-legged worm skink (*Anomalopus mackayi*) – vulnerable;

- (v) collared delma (*Delma torquate*) – vulnerable;
- (w) yakka skink (*Egernia rugosa*) – vulnerable;
- (x) Dunmall's snake (*Furina dunmalli*) – vulnerable;
- (y) black-breasted button-quail (*Turnix melanogaster*) – vulnerable;
- (z) large-eared pied bat (*Chalinolobus dwyeri*) – vulnerable;
- (aa) brush-tailed rock-wallaby (*Petrogale penicillate*) – vulnerable;
- (bb) long-nosed potoroo (*Potorous tridactylus tridactylus*) – vulnerable;
- (cc) new holland mouse (*Pseudomys novaehollandiae*) – vulnerable;
- (dd) border thick-tailed gecko (*Uvidicolus sphyrurus*) – vulnerable;
- (ee) Bell's turtle (*Wollumbinia belli*) – vulnerable;
- (ff) sharp-tailed sandpiper (*Calidris acuminata*) – migratory;
- (gg) white-throated needletail (*Hirundapus caudacutus*) – migratory;
- (hh) satin flycatcher (*Myiagra cyanoleuca*) – migratory;
- (ii) fork-tailed swift (*Apus pacificus*) – migratory;
- (jj) common sandpiper (*Actitis hypoleucos*) – migratory;
- (kk) pectoral sandpiper (*Calidris melanotos*) – migratory;
- (ll) oriental cuckoo (*Cuculus optatus*) – migratory;
- (mm) Latham's snipe, Japanese snipe (*Gallinago hardwickii*) – migratory;
- (nn) black-faced monarch (*Monarcha melanopsis*) – migratory;
- (oo) eastern osprey (*Pandion cristatus*) – migratory;
- (pp) osprey (*Pandion haliaetus*) – migratory;
- (qq) rufous fantail (*Rhipidura rufifrons*) – migratory;
- (rr) common greenshank (*Tringa nebularia*) – migratory;
- (ss) spectacled monarch (*Monarcha trivirgatus*) – migratory;
- (tt) yellow wagtail (*Motacilla flava*) – migratory;

11.30. The EIS must address how the impacts to each of the listed species is not inconsistent with relevant recovery plans, threat abatement plans and conservation advices.

List of potential listed threatened communities

- 11.31. The EIS must address impacts on the following listed threatened ecological communities for the proposed action:
- (a) Lowland Rainforest of Subtropical Australia – critically endangered
 - (b) Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland – critically endangered
 - (c) White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (also known as Box-Gum Grassy Woodland and Derived Grassland) – critically endangered
 - (d) Brigalow (*Acacia harpophylla* dominant and codominant) – endangered
 - (e) Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions – endangered

- (f) Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions - endangered
- (g) Weeping Myall Woodlands – endangered.

11.32. The EIS must address how the impacts to each of the listed communities is not inconsistent with relevant recovery plans, threat abatement plans and conservation advices.

Offsets

11.33. The EIS must describe any significant 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.

11.34. 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

11.35. 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,
- (c) the proposed avoidance, mitigation measures, and if relevant, offsets measures proposed to address any residual impacts.

Water

Objectives

Development is planned, designed, constructed and operated to protect environmental values of waterways 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 water resources are maintained and current lawful users of water (such as water entitlement holders, stock and domestic users) and other beneficial uses of water (such as spring flows and groundwater-dependent ecosystems), wastewater and treatment facilities are not adversely impacted by the development.

Existing environment

- 11.36. Identify 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 freshwater flows.
- 11.37. 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.
- 11.38. 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 the natural water quality variability within the study area associated with climatic and seasonal factors, and flows.
- 11.39. Describe any existing and/or constructed waterbodies adjacent to the proposed alignment.
- 11.40. Undertake a landholder bore survey to identify the location and source aquifer of licensed groundwater extraction in areas potentially impacted by the project (e.g. near cuttings and bridges).

Water quality

Impact assessment

- 11.41. The assessment of impacts on water will be in accordance with the DES *Information guideline for an environmental impact statement – TOR Guideline – Water*, where relevant, located on the DES website (refer to Appendix 1).
- 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) or diffuse sources (such as irrigation to land of treated sewage effluent).
- 11.43. 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.
- 11.44. Where significant cuttings are proposed, identify the presence of any sulphide minerals in rocks with potential to create acidic, metalliferous and saline drainage. Should they be present, describe the practicality of avoiding their disturbance. If avoidance is not practicable, characterise the potential of the minerals to generate contaminated drainage and describe abatement measures that will be applied to avoid adverse impacts to surface and groundwater quality.
- 11.45. Describe the potential impacts of in-stream works on hydrology and water quality.
- 11.46. Undertake a salinity risk assessment in accordance with Part B of the *Salinity Management Handbook*, Investigating Salinity (refer to Appendix 1).
In particular, consider how the project will change the hydrology of the project area and provide results of the risk assessment.

Mitigation measures

- 11.47. Describe how the water quality objectives identified above would be achieved, monitored and audited, and how environmental impacts would be avoided or minimised and corrective actions would be managed.
- 11.48. Describe appropriate management and mitigation strategies and provide 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 during construction and operation, including the use of appropriate best practice erosion and sediment control practices (refer to Appendix 1), and the separation of clean stormwater run-off from disturbed and operational areas of the site
 - (c) flooding of relevant river systems, the effects of tropical cyclones and other extreme events
 - (d) management of acid sulfate soils and acid producing rock and associated leachate from excavations and disturbed areas.
- 11.49. Describe treatment processes for all waste water produced as a result of the project.
- 11.50. Propose suitable measures to avoid or mitigate the impacts of in stream works on water quality and the stabilisation and rehabilitation of any such works.
- 11.51. Where a salinity risk is identified, detail strategies to manage salinity ensuring the development must be managed so that it does not contribute to the degradation of soil, water and ecological resources or damage infrastructure via expression of salinity. See Part C of the salinity management handbook *second edition*, Department of Environment and Resource Management 2011 (refer to Appendix 1).

Water resources

Impact assessment

- 11.52. Provide details of any proposed impoundment, extraction (i.e. volume and rate), discharge, use or loss of surface water or groundwater. Identify any approval or allocation that would be needed under the Water Act, *Water Supply (Safety and Reliability) Act 2008* or Planning Act.
- 11.53. Detail any significant diversion or interception of overland flow. Include maps of suitable scale showing the location of diversions and other water-related infrastructure.
- 11.54. 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, 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
 - (d) impacts to aquatic ecosystems, including groundwater dependent ecosystems and environmental flows.
- 11.55. Provide information on the proposed water usage by the project including details about:
- (a) the estimated 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 plan outlining actions to be taken in the event of failure of the main water supply
 - (d) sufficient hydrogeological information to support the assessment of any temporary water permit applications.
- 11.56. 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.
- 11.57. 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.
- 11.58. Identify relevant Water Plans and Resources Operations Plans under the Water Act. Describe how the project will impact or alter these plans. The assessment should consider, in consultation with Department of Natural Resources, Mines and Energy (DNRME), any need for:
- (a) a resource operations licence
 - (b) an operations manual
 - (c) a distribution operations licence
 - (d) a water licence
 - (e) a water management protocol.
- 11.59. Identify other water users that may be affected by the proposal and assess the project's potential impacts on other water users.
- 11.60. Identify and quantify likely activities involving the excavation or placement of fill or the removal of vegetation that will be undertaken in any watercourse, lake or spring. Where works are not consistent with the Riverine Protection Permit Exemption Requirements (Appendix 1) provide sufficient information to meet riverine protection permit requirements.

Mitigation measures

- 11.61. 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.
- 11.62. Describe measures to minimise impacts on surface water and ground water resources.
- 11.63. Provide a policy outline of compensation, mitigation and management measures where impacts are identified.

Flood management

Existing environment

- 11.64. A detailed desktop assessment of the proposed alignment and surrounding catchments, including but not limited to the Border Rivers catchment, the Macintyre River catchment, Macintyre Brook catchment and the Condamine River catchment must be undertaken and the potential for flooding qualitatively described. The assessment must include existing surface drainage patterns, flows and history of flooding including extent, levels and frequency.
- 11.65. The desktop assessment must also identify any high-risk watercourse crossing or floodplain locations that warrant further detailed quantitative assessment.

Impact assessment

- 11.66. A detailed flood study including Gowrie Creek, Dry Creek and Westbrook Creek, in addition to the catchments assessed in section 11.64 of this TOR must include:
 - (a) a description and justification of the method of modelling
 - (b) quantification of flood impacts on upstream and downstream properties, land uses, existing infrastructure and future transport corridors surrounding the proposed alignment from redirection or concentration of flows
 - (c) Identification and quantification of likely changes in flood levels, increased flow velocities, increased sediment flows or increased time of flood inundation as a result of the project
 - (d) details of all hydraulic and hydrological calculations to assess the impacts of peak discharge, any potential for loss of floodplain storage and increases in impervious area between the pre and post-development scenarios. Include the assumptions and baseline data underpinning these analyses
 - (e) current accepted best practice and statutory requirements in relation to floodplain management
 - (f) Describe and assess the flood risk for a range of annual exceedance probabilities (including probable maximum flood) within floodplains. Assess how the project may change flooding characteristics (e.g. afflux, frequency and duration of flooding, peak discharges and flow velocities) and identify affects such as erosion, sedimentation and scouring and other impacts of changed flooding regimes
 - (g) The study should consider all infrastructure associated with the project including levees, roads and linear infrastructure.

- 11.67. The flood study should incorporate the relevant aspects of:
- (a) applicable New South Wales and Queensland local planning schemes and regional plans
 - (b) the Inglewood Flood Study 2015
 - (c) the proponent's Condamine River Floodplain Study
 - (d) the draft Floodplain Management Plan for the Border Rivers Valley Floodplain 2018
 - (e) flood assessments and studies produced by relevant councils
 - (f) other relevant and publicly available information.
- 11.68. The EIS should describe the consultation that has taken place with landholders and directly affected stakeholders along the proposed alignment regarding modelled potential impacts of the project on flooding. It should also include a discussion of how the results of consultation have been considered by the proponent in the EIS process.

Mitigation measures

- 11.69. Describe all proposed measures and their effectiveness to avoid or minimise risks to life, property, infrastructure, community (including damage to other properties) and the environment as a result of project impacts during flood events particularly flood risks on individual properties and businesses.

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
- (d) mitigate impacts to the natural landscape and visual amenity.

Land use and tenure

Existing environment

- 11.70. Detail the existing land use values for all areas associated with the proposed alignment.
- 11.71. Discuss the compatibility of the project with land that includes the proposed alignment and surrounding land which will be impacted by the project. The discussion should include:
- (a) existing and proposed land uses in and around the proposed alignment, referring to regional plans and the local government planning schemes
 - (b) State interests identified in the SPP (e.g. KRA No. 120 Kildonan)
 - (c) any land characteristics that influenced the choice of the proposed alignment

- (d) a description and illustration of any tenures overlying and adjacent to the proposed alignment, and any to be applied for as part of this project and the legal implications and requirements of this tenure
- (e) an analysis of the agricultural land uses based on the Agricultural Land Audit in the project area
- (f) any petroleum and gas pipeline licence tenures and resource tenure holders within the vicinity of the proposed corridor.

Impact assessment

- 11.72. Describe the potential for impact on all land uses during construction and operation of the project. The assessment should include consideration of temporary and permanent impacts on agricultural production.
- 11.73. Describe the potential for impact on existing holders of resource tenures, including consideration of safety and resource sterilisation where appropriate.
- 11.74. Identify tenure required for the project to proceed, including, proposed easements, leases or licences including the timing of such acquisitions or tenure changes.
- 11.75. Provide evidence of consultation with the relevant owners/licensees of gas/petroleum pipelines in the vicinity of the rail corridors. Provide detail of agreed risk management strategies for project construction and operation with regard to the gas/petroleum pipelines. Demonstrate that the construction and operation of the project will not inhibit the safe and efficient operation of the pipelines.
- 11.76. Describe impacts on existing uses of State land, including State forest and uses either allowed by current tenures or publicly proposed by government at the time of preparation of the EIS.
- 11.77. Discuss the proposal in the context of the applicable regional plans and local planning schemes.
- 11.78. Describe the potential impact of the construction and operation of the project on existing land uses and land uses permitted under the relevant planning schemes along the proposed alignment and adjacent areas including impacts on stock routes, Council assets and KRAs. Discussion in relation to KRAs (including KRA No. 120 Kildonan) should describe the:
 - (a) geological properties that may influence ground stability (including seismic activity), and how this might compromise rail infrastructure and operation over short and long-term time horizons
 - (b) location, volume, tonnage and quality of natural resources present and which will be potentially impacted by the project.

Mitigation measures

- 11.79. Identify the measures that would be used to avoid or mitigate any impact on land use values, including disruptions to uses of state land, the stock route network, the management of access arrangements and existing infrastructure remaining on reconfigured land parcels. Measures should include how any infrastructure built on state land will be managed, maintained or decommissioned post construction.
- 11.80. Where coexistence with agriculture is not possible, provide mitigation and management measures to address potential associated impacts.

- 11.81. Provide an outline of the land acquisition and compensation processes for properties directly impacted by the project.
- 11.82. Provide details of measures to be undertaken to avoid, minimise and mitigate identified impacts on KRA No. 120.

Native Title

- 11.83. 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

Existing environment

- 11.84. Describe and illustrate the existing landscape character and environment, including key natural landscape features, major views, view sheds and outlooks that contribute to the amenity of the area.

Impact assessment

- 11.85. 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. Such views should be representative of public and private viewpoints, including places of residence, work, and recreation.
- 11.86. Address any applicable policy outcomes regarding regional landscape values and scenic amenity in the *South East Queensland Regional Plan 2017, Shaping SEQ Background paper 4: Sustain* and the *Darling Downs Regional Plan 2013* (refer to Appendix 1).

Mitigation measures

- 11.87. Describe any proposed measures to avoid, minimise or mitigate potential impacts on landscape character and visual amenity.

Topography, geology and soils

- 11.88. The assessment of impacts on topography, geology and soils will be in accordance with the Soil Science Guidelines of Australia, Queensland Branch (2015), in conjunction with the DES *Information guideline for an environmental impact statement – Land* and the CSIRO guidelines – *Guidelines for surveying soil and land resources* and *Australian soil and land survey field handbook* (refer to Appendix 1).
- 11.89. Discuss the projects impacts on Important Agricultural Areas as per the SPP – *State interest guideline – Agriculture* with reference to Agricultural Land Use Categories under the Queensland Agricultural Land Audit methodology (refer to Appendix 1).
- 11.90. Identify and investigate areas of salinity, sodic, dispersive and cracking clay soils, and 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 and the requirements of the *SPP – State interest guideline emissions and hazardous activities*.
- 11.91. Provide details, including maps, of the location of project works/infrastructure with respect to soil conservation works (contour banks, waterway discharge points, etc.) and existing erosion control works.

- 11.92. Identify activities or operations likely to impact on existing erosion control works and any soil conservation plans, in particular, those approved as project plans or property plans approved under the provisions of the *Soil Conservation Act 1986*.
- 11.93. Measures to avoid or mitigate potential impacts of the project on soil values, existing conservation works and erosion control works must be described.

Flora and fauna

Objective

Matters of 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

- 11.94. Identify and describe matters of state environmental significance (MSES), state, ecological areas, regionally significant 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

- 11.95. Describe the likely impacts on the biodiversity and natural environmental values of affected areas arising from the construction and operation of the project. Provide information based on relevant DES information guidelines that cover flora and fauna, aquatic ecology and groundwater dependent ecosystems (refer to Appendix 1). The assessment should include, but not be limited to, the following key elements:
- (a) MSES, matters of local environmental significance (MLES), and designated state and regional biodiversity values and conservation corridors of conservation significance. Reference should be made to the Biodiversity Planning Assessment and BioCondition assessment tools where appropriate (refer to Appendix 1)
 - (b) terrestrial and aquatic ecosystems (including groundwater-dependent ecosystems) and their interaction with surface water and groundwater hydrology and areas surrounding watercourses and wetlands
 - (c) biological diversity including listed flora and fauna species and regional ecosystems, connectivity and essential habitat
 - (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 NC Act and Water Act (e.g. riverine protection permits) and/or could be assessable development for the purposes of the VM Act, Fisheries Act (e.g. waterway barrier works) and the Planning Act
 - (g) any 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, vibration, waste and fencing)
- (i) impacts to movement of native fauna due to barrier effect of linear infrastructure
- (j) impacts on vegetation category areas identified on the regulated vegetation management maps under Queensland's vegetation management framework.

Mitigation measures

- 11.96. 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.
- 11.97. Assess the need for buffer zones and the retention, rehabilitation or construction of fauna movement corridors across the railway. Propose measures that would avoid the need for waterway barriers or mitigate the impacts of their construction and operation. With respect to the Macintyre River, reference should be made to the New South Wales Department of Primary Industries policy and *guidelines for fish habitat conservation and management* and the Queensland Department of Agriculture and Fisheries (DAF) policy and factsheets on waterways and waterway barrier works (refer to Appendix 1).
- 11.98. Describe how the achievement of the objectives would be monitored and audited, and how corrective actions would be managed.
- 11.99. 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 EO Act and the latest version of the *Queensland Environmental Offsets Policy* (refer to Appendix 1).
- 11.100. Assess the need and suitability and provide objective commitments to the provision of fauna passage between habitat fragmented by the rail corridor, of suitable design and location for affected species and their habitat.
- 11.101. Demonstrate that actions of the project avoid and minimise impacts of clearing of vegetation regulated through the VM Act/Planning Act and how any clearing maintains connectivity of the remaining mapped category B area in the landscape. Provide details on the exemptions/assessment pathway for any clearing of vegetation regulated through the VM Act/Planning Act.

Biosecurity

Objectives

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

- (a) the spread of weeds and pest animals is avoided or minimised
- (b) existing weeds and pests are controlled
- (c) comply with relevant provisions of the *Biosecurity Act 2014*.

Existing environment

- 11.102. Provide information on the current distribution of animal pests and weeds on the proposed alignment.
- 11.103. Surveys of animal pests and weeds should be undertaken in those areas identified during the desktop assessment as containing listed flora, fauna or ecological communities of national or state environmental significance (MNES or MSES defined by the EPBC and NC Acts respectively).

Impact assessment

- 11.104. Describe the impact the project's construction and operation will have on the spread of pest animals, weed species and disease along the proposed alignment and into adjoining properties.

Mitigation measures

- 11.105. Propose detailed measures to control and limit the spread of pests, weeds and disease surrounding the proposed alignment and adjacent areas. Detail any relevant local government area Biosecurity Plans. This includes restricted matters listed in the *Biosecurity Act 2014* and Biosecurity Regulation 2016 and designated pests under the *Public Health Act 2005*.
- 11.106. All proposed measures must be in accordance with any relevant biosecurity surveillance or prevention program authorised under the Biosecurity Act and any requirements of the VM Act/Planning Act. Mitigation measures should be developed in consultation with the relevant Queensland and New South Wales government agencies and local governments (e.g. baiting programs) to ensure cross border impacts are minimised.

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 negative impacts on the condition of transport infrastructure
- (c) ensure any required works are compatible with existing infrastructure and future transport corridors.

Existing environment

- 11.107. Describe and map the existing and planned transport infrastructure and corridors. Provide data on existing road, active transport and rail traffic in the project area.
- 11.108. Describe how the project complies with the *Queensland Level Crossing Safety Strategy 2012-2021* (refer to Appendix 1) on new road/rail interfaces and the impacts on existing public road/rail interfaces.

Impact assessment

- 11.109. Assess the impacts of the project on individual road/rail crossings and any cumulative impacts on the wider transport network.

- 11.110. Assess the construction impacts of the project on public railway level crossings through the Australian Level Crossing Assessment Model (ALCAM) and assess the wider construction impacts on the road and active transport network.
- 11.111. The EIS should include a clear summary of the total transport task for the project, including workforce, haulage routes, inputs and outputs during the construction and operational phases.
- 11.112. Present the transport assessment in separate sections for each project-affected mode (road, active transport and rail) as appropriate for each phase of the project.
- 11.113. 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). Discussion should also refer to emergency service access.
- 11.114. Include details of the adopted assessment methodology for impacts on roads within the road impact assessment report in accordance with the Department of Transport and Main Roads Guide to Traffic Impact Assessment and the Department of Environment and Science EIS information guideline – Transport (refer to Appendix 1).

Mitigation measures

- 11.115. Measures to mitigate impacts on railway level crossings should be in accordance with the *Queensland Level Crossing Safety Strategy 2012-2021*.
- 11.116. Discuss and recommend how identified impacts will be mitigated. Mitigation strategies are to be prepared in close consultation with relevant transport authorities (including relevant local governments).

Noise and vibration

Objective

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

Existing environment

- 11.117. Describe the existing noise and vibration environment that may be affected by the project in the context of the environmental values.
- 11.118. Describe and illustrate on maps at a suitable scale, the location of all sensitive noise and vibration receptors adjacent to all project components and estimate typical background noise and vibration levels based on surveys at representative sites.
- 11.119. 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

- 11.120. 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.

- 11.121. Predict and map the impacts of the noise and vibration emissions from the construction and operation of the project on the environmental values of the receiving environment, including sensitive receptors. The assessment of impacts on noise and vibration should be in accordance with the following:
- (a) EPP (Noise) 2008, using recognised quality assured methods
 - (b) *Environmentally Relevant Activities - DES Application Requirements for ERAs with noise impacts* (Guideline ESR/2015/1838)
 - (c) Construction - The Department of Transport and Main Roads *Transport Noise Management Code of Practice: Volume 2 - Construction Noise and Vibration* dated March 2016 and gazetted on 29 July 2016
 - (d) Operational Noise – The Department of Transport and Main Roads *Policy for Development on Land Affected by Environmental Emissions from Transport and Transport Infrastructure Version 4 (October 2017)* (Rail noise external criteria contained in Table 3 of the document) (refer to Appendix 1)
 - (e) Operational Vibration – British Standard BS 6472-1:2008 *Guide to evaluation of human exposure to vibration in buildings – Vibration sources other than blasting*. British Standards Institution, London
 - (f) any additional railway noise and vibration guidance documents released by the State of Queensland.
- 11.122. Discuss separately the key project components likely to present an impact on noise and vibration for the construction and operation phases of the project.
- 11.123. 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 of documentation referenced in 11.122
 - (b) cumulative impact of the noise and vibration with other known emissions of noise associated with existing major projects and/or developments and those which are progressing through planning and approval processes that are publicly available
 - (c) potential impacts of any low-frequency (<200 Hz) noise emissions.

Mitigation measures

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

Air

Objective

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

Existing environment

- 11.127. Describe the existing air quality that may be affected by the project in the context of environmental values.
- 11.128. Discuss the existing local and regional air shed environment.
- 11.129. 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.
- 11.130. The assessment of environmental values must 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

- 11.131. Describe the characteristics of any contaminants or materials that may be released as a result of the construction or operations of the project, including point source and fugitive emissions. Emissions during construction, commissioning and operations are to be listed.
- 11.132. The relevant air quality goals or objectives that will be adopted for the assessment should be clearly outlined as a basis of the assessment of impacts on air.
- 11.133. The assessment of impacts on air will be in accordance with the EP Act, EP Regulation and EPP (Air) 2008 and reference to appropriate to Australian Standards.
- 11.134. 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 environment⁷ at sensitive receptors. This should include all relevant values potentially impacted by the activity, under the EP Act, EP Regulation and EPP (Air)
 - (b) address the cumulative impact of the release with other known releases of contaminants, materials or wastes associated with existing major projects

⁷ In accordance with the EPP (Air) Policy 2008

- and/or developments and those which are progressing through planning and approval processes and where public information is available
- (c) include modelling of dust deposition rates and air pollutant concentrations on surfaces that lead to potable water tanks in the vicinity of the project. This modelling is to be in accordance with the *Australian Drinking Water Guidelines* (Australian Government 2011, updated October 2017)
 - (d) predict the human health risk, including impacts from possible air pollutant concentrations on surfaces that may lead to potable water tanks, 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

- 11.135. Describe the proposed mitigation measures to manage impacts to air quality, including potential impacts from coal trains, and the predicted level of effectiveness.
- 11.136. 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.
- 11.137. Describe any expected exceedances of air quality goals or criteria following the provision and/or application of mitigation measures, and how any residual impacts would be addressed.
- 11.138. Describe how the achievement of the objectives would be monitored, audited and reported, and how corrective actions would be managed.

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 opportunities for local and regional communities.

Information requirements

- 11.139. Prepare a social impact assessment (SIA) for the project consistent with the relevant requirements in the Coordinator-General's *Social impact assessment guideline* March 2018 (refer to Appendix 1).
- 11.140. The SIA is to be developed in consultation with the Coordinated Project Delivery Division in the Office of the Coordinator-General, Department of State Development, Manufacturing, Infrastructure and Planning. The SIA is to describe the potential social impacts (both positive and negative) of the project, and must identify relevant and effective impact mitigation and benefit enhancement measures.

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

Information requirements

11.141. 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).

Hazards, health and safety

Objectives

- (a) The risk of, and the adverse impacts from, natural hazards are identified, 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

11.142. 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) specific consideration of:
 - i. respirable silica and other airborne contaminants (e.g. naturally occurring asbestos)
 - ii. sudden subsidence or movement of soil or rock
 - iii. flash flooding
 - iv. fatigue and heat management
 - v. concurrent or simultaneous operations with existing railway infrastructure
- (b) other potential hazards (including abandoned mines), accidents (including derailments), spillages, fire and abnormal events that may occur during all stages of the project, including estimated probabilities of occurrence

- (c) identifying all dangerous and hazardous substances (including likely volumes) to be used, stored, processed or produced and the rate of usage
 - (d) potential wildlife hazards, natural events (e.g. cyclone, flooding, bushfire and landslide)
 - (e) how the project may potentially affect hazards away from the proposed alignment (e.g. changing flooding characteristics).
- 11.143. Given the proposed project's co-location and interaction with the Millmerran Branch and South Western Line, confirm what measures will be taken to ensure the safety of people and property for both the construction and operations phase.
- 11.144. Describe those measures required to ensure that the proposed project avoids the release of hazardous materials to the environment, as a result of a natural hazard event.
- 11.145. 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 including any actual or potential impacts to existing fire trails and excavation routes. Present an assessment of the overall acceptability of the impacts of the project in light of the residual uncertainties and risk profile.
- 11.146. 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.
- 11.147. Outline any consultation undertaken with the relevant emergency management authorities, including the Queensland Local Disaster Management Group(s).
- 11.148. Identify the need for appropriate explosive licences and requirements to notify of proposed blasting prior to explosives use under the *Explosives Act 1999* and relevant codes and standards including the *Australian Standard AS2187 – Explosives – Storage, transport and use*. Any risk associated with explosives use, manufacture or storage is within an acceptable level in accordance with the *Explosives Act 1999* and codes and standards including AS2187.
- 11.149. Detail the risk of the use of explosives in connection to the rail alignment, associated infrastructure and any proposed mitigation measures to limit this risk.

Land contamination

- 11.150. 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. Provide results of searches of the Environmental Management Register (EMR) and/or the Contaminated Land Register (CLR) for the proposed alignment and disturbance areas.
- 11.151. Provide a description of the nature and extent of contamination at identified sites.
- 11.152. Describe the proposed management of any contaminated land either previously identified or encountered during construction activities and the potential for contamination from construction, commissioning, operation and decommissioning.

- 11.153. Describe strategies and methods to be used to prevent, manage or remediate any land contamination resulting from the project, including but not limited to the management of any acid generation or management of chemicals and fuels to prevent spills or leaks.
- 11.154. Describe how the presence of any known potential unexploded ordnance will be identified on maps of an appropriate size and scale and assessed within or adjoining the project area. Describe how any known or potential unexploded ordnance will be managed.

Climate

- 11.155. Describe relevant climate patterns that may influence the water, air and noise environment in the vicinity of the project.
- 11.156. Climate information should be presented in a statistical form, including long-term averages and extreme values, as necessary.
- 11.157. 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 (e.g. cyclones and prolonged rain events) and natural or induced hazards (including bushfire).

Waste management

Objective

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

Impact assessment

- 11.158. For wastes, besides wastewater (which is addressed in the Water section of this TOR), describe and quantify all expected significant waste streams (including spoil) from the proposed project activities during the construction and operational phases of the project. Reference should be made to the DES Application requirements for activities with waste impacts (refer to Appendix 1).
- 11.159. Describe potential spoil disposal sites and their ability to service the project.
- 11.160. 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 EP Regulation 2008.
- 11.161. Describe the quantity, and physical and chemical characteristics of waste rock, any attributes that may affect its dispersal in the environment, and its associated risk of causing environmental harm.

Mitigation measures

- 11.162. Assess the proposed management measures against the preferred waste management hierarchy, namely: avoid waste generation; cleaner production; reduce; recycle; reuse; reprocess and reclaim; waste to energy; treatment; disposal. This includes the generation and storage of waste.

- 11.163. 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.
- 11.164. 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.
- 11.165. 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.

Cultural heritage

Objective

The design, 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

- 11.166. 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 have been developed or reached or steps taken up to that point to develop or reach such a plan or agreement.
- 11.167. 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
ABN	Australian Business Number
ACH Act	<i>Aboriginal Cultural Heritage Act 2003</i>
AHD	Australian Height Datum
Biosecurity Act	<i>Biosecurity Act 2014</i>
CHMP	Cultural Heritage Management Plan
CLR	Contaminated land register
Cwlth	Commonwealth
EIS	environmental impact statement
EMR	Environmental Management Register
EO Act	<i>Environmental Offsets Act 2014</i>
EP Act	<i>Environmental Protection Act 1994</i>
EP Regulation	Environmental Protection Regulation 2008
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)</i>
EPBC Regulations	Environment Protection and Biodiversity Conservation Regulations 2000 (Cwlth)
EPP	Environmental Protection Policy (under the EP Act)
ERA	Environmentally relevant activity
Fisheries Act	<i>Fisheries Act 1994</i>
DES	Department of Environment and Science
GDA94	Geocentric Datum of Australia 1994
MNES	matters of national environmental significance (under the EPBC Act)
MSES	matters of state environmental significance
NC Act	<i>Nature Conservation Act 1992</i>
Planning Act	<i>Planning Act 2016</i>
SDAP	State Development Assessment Provisions prescribed in the Planning Regulation 2017
SDPWO Act	State Development and Public Works Organisation Act 1971
SIA	social impact assessment
SPP	State Planning Policy
TOR	Terms of Reference
VM Act	<i>Vegetation Management Act 1999</i>
Water Act	<i>Water Act 2000</i>

Appendix 1. Policies and guidelines

General

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