Office of the Coordinator-General

Paradise Dam Improvement Project

Guideline for the Impact Assessment Report

March 2026

DELIVERING FOR QUEENSLAND

Queensland Government

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Acknowledgement of Country

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

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

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Contents

Part A About this guideline 5

Part B IAR content requirements 7

1. General 7
2. Executive summary 9
3. Introduction 9
4. Project description 10
5. Regulatory approvals and planning 14
6. Land 15
7. Cultural heritage 19
8. Flora and fauna 21
9. Biosecurity 27
10. Water resources 29
11. Water quality 33
12. Flooding and regulated structures 36
13. Social and economic 37
14. Hazards, health and safety 38
15. Air quality 41
16. Noise and vibration 42
17. Traffic and transport 43
18. Waste 46
19. Conclusion and commitments 47
20. Appendices to the IAR 47
21. *Environment Protection and Biodiversity Conservation Act 1999* - Matters of national environmental significance 48

Part C Appendices to guideline 68

Appendices

Appendix 1. Glossary and acronyms

Appendix 2. MNES listed threatened species and communities (section 18 and 18A)

Appendix 3. Approvals table template

Part A About this guideline

Introduction

This document outlines matters for the Paradise Dam Improvement Project (the project) proposed by Sunwater Limited (the proponent) and being assessed under the State Development and Public Works Organisation Act 1971 (SDPWO Act).

The project

The project proposes to construct a replacement dam wall to restore Paradise Dam to its original capacity and full supply level, reinstate water supplies to the existing market and provide water security to the Bundaberg and Burnett regions for decades to come. The project will also allow for future development opportunities for water security.

The scope of this project is limited to the construction of a new dam wall approximately 90 metres downstream of the current wall. The site is primarily a brownfield site. In so far as possible, activities are proposed to occur in areas that have previously been disturbed by construction of the existing dam wall. The area is well studied given its proximity to the current dam.

Paradise Dam, project need and justification

Paradise Dam is an existing, operational dam located on the Burnett River. The dam was constructed between 2003 and 2005 to provide water supply to the Wide Bay Burnett and Bundaberg regions and support growth in the agricultural sector. The dam has an approved storage volume of 300,000 megalitres (ML) at full supply level (FSL) of 67.6 metres above the Australian Height Datum (AHD).

As a result of flood related damage to the dam, the spillway was lowered in 2019 by 5.8 metres, reducing the storage volume to 170,000 ML.

As the owner of Paradise Dam, Sunwater, is required to meet requirements under the *Water Supply (Safety and Reliability) Act 2008*, including the dam safety regulatory framework. Sunwater also seeks to meet national dam safety guidelines defined by the Australian Government National Committee on Large Dams (ANCOLD). Completion of an essential works project in 2021 significantly reduced the risk of dam failure by lowering the exiting dam wall by 5.8 metres but further work is required. Delivery of the project will ensure the Paradise Dam meets ANCOLD's requirements.

The construction of a new dam wall, approximately 90 metres downstream of the current wall will improve safety, restore Paradise Dam to the original FSL, reinstate water supplies to the existing market and provide water security to support agricultural productivity and the community.

Purpose of the guideline

On 8 August 2025, the project was declared a 'coordinated project requiring an impact assessment report' by the Coordinator-General under Part 4, Section 26(1)(b) of the SDPWO Act.

The purpose of this guideline is to provide direction to the proponent to support the preparation of a fit-for-purpose impact assessment report (IAR). The requirements set out in this Guideline reflect the scale and nature of the project.

Further information and consultation

The community and interested parties will have an opportunity to comment on the draft IAR through a public notification process.

Further information about the project is available at **https://www.coordinatorgeneral.qld.gov.au/projects/find-a-project/current-coordinated-projects/paradise-dam-improvement-project**.

Accredited process for controlled actions under Commonwealth legislation

On 8 August 2025, the Australian Government Minister for the Environment and Water determined the project a 'controlled action' under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act), due to the likely impacts on matters of national environmental significance (MNES) (reference number EPBC 2025/10229).

The IAR process has been accredited under the Bilateral Agreement for the assessment of the project. This requires the IAR to state the controlling provisions for the project and describe the particular aspects of the environment that led to the controlled action decision.

The requirements for assessment of MNES are set out in the matters of national environmental significance section of the guideline.

Part B IAR content requirements

1. General

1.1 The IAR process is set out under sections 34E to 34L of the SDPWO Act and the draft IAR must include:

(a) details of the project

(b) information about the likely environmental impacts of the project

(c) a statement about whether or not any of the following approvals (each of which is a notifiable approval) is required for the project:

(i) a development approval if the development application for the approval would, under the *Planning Act 2016* (Planning Act) require impact assessment

(ii) an environmental authority (EA) if the application for the authority would, under the *Environmental Protection Act 1994* (EP Act), Chapter 5, part 4, require public notification

(iii) another approval under an Act if–

- the application for the approval requires, other than under the Planning Act or the EP Act, Chapter 5, an environmental impact statement (EIS) or a similar statement to address the environmental effects of the approval
- the application for, or the granting of, the approval requires public notification under the relevant Act.

1.2 At minimum the IAR should:

(a) identify and describe the existing environmental values in the project area and relevant surrounds

(b) identify and describe the relevant environmental values that are potentially impacted by the project

(c) describe, quantify and assess any potential adverse environmental impacts of the proposed project

(d) identify measures to avoid, minimise or mitigate any adverse environmental impacts for the project through management plans and/or other mechanisms

(e) describe in the management plans how the achievement of environmental objectives and associated performance outcomes would be monitored, audited and reported, and how corrective/preventative actions and continual improvement would be managed.

1.3 The IAR should address this Guideline and the requirements of Schedule 1 of the State Development and Public Works Organisation Regulation 2020.

Management plans

1.4 Management plans are an effective tool for managing and mitigating project impacts by providing a structured approach to identify, assess and respond to potential risks. Where management plans are relied upon in the IAR, as a mitigation measure, they should:

(a) demonstrate a clear understanding of the scope of project activities and infrastructure, potential impacts on relevant environmental values and other interests relating to the land and waters

(b) clearly demonstrate how those impacts will be adequately managed through effective implementation of identified management measures

(c) outline the environmental management framework to implement the management measures, address unpredicted impacts if they arise, and inform continuous improvement.

1.5 To this end, management plans should:

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

(b) clearly describe any impact avoidance, mitigation, and rehabilitation strategies and measures

(c) identify management measures that have been developed in consultation with relevant stakeholders, and provide for ongoing stakeholder engagement as the project proceeds including maintaining a record of consultation and the outcomes of engagement[1]

(d) identify future scopes of work and relevant hold points required before the management plan can be implemented

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

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

(g) include a program for regular reporting of monitoring results and auditing on management plan compliance and implementation, as well as management plan reviews and updates to ensure continual improvement and to ensure that objectives are being met

(h) establish a process for complaints management including maintaining a register of complaints and any actions undertaken to address these complaints.

1.6 The IAR must also address other matters not detailed in this Guideline if the following circumstances arise:

(a) studies reveal a matter that has not been foreseen when the Guideline was finalised

(b) an issue not previously identified but it is in the public interest to be addressed or will have potential environmental harm or nuisance

[1] It is recommended that as part of the Consultation Report and/or Stakeholder Engagement Plan that a register is incorporated to demonstrate stakeholders consulted on the project (including affected resource authority holders) with associated issues raised and mitigation measures.

(c) new or amended legislation or policies come into effect after the Guideline has been finalised, regardless of whether or not the legislation or policies have been listed in the Guideline, or whether transitional arrangements or exemptions may apply

(d) proponent makes amendments to the project that would result in a change in the nature, timing, or location of any potential impacts including cumulative impacts where required.

2. Executive summary

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

3. Introduction

3.1 Clearly explain the function of the IAR, why it has been prepared and what it sets out to achieve. The introduction should set the context for the assessment of the project and describe the structure of the document.

Project overview

3.2 Provide a brief description of the project including:

(a) project title

(b) project location, including street address, locality, lot on plan and local government area, and be accompanied by maps and GIS shapefiles of the project disturbance footprint for activities and infrastructure that are both temporary and permanent

(c) maximum life of the project and project stages

(d) key components/scope of the project, include an overview of the early works and how they fit in with the broader project scope

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

(f) how the project relates to any other projects that have been, or are being, approved in the area affected by the project

(g) the project's most current status

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

Project proponent

3.3 Provide the following proponent information:

(a) the proponent's full name, postal address, Australian Business Number or Australian Company Number

(b) the nature of the proponent's business activities

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

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

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

(f) the proponent's environmental record in Australia, including a list of any breach of, or proceedings against the proponent under a law of the Commonwealth or State, for the protection of the environment or the conservation and sustainable use of natural resources (an environmental law), during the previous 10 years.

IAR process

3.4 Briefly describe the IAR process under the SDPWO Act.

3.5 Describe the opportunities for public submission on the IAR, including details on the process for a properly made submission, and how and when public submissions are addressed and considered in the assessment and decision-making process under the SDPWO Act and any other relevant legislation.

3.6 Describe the assessment process under the EPBC Act, pursuant to the Bilateral Agreement between the Australian Government and the State of Queensland.

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

4. Project description

Proposed development

4.1 Describe and illustrate:

(a) project title, the project area, current structures, proposed project footprint and total disturbance area in hectares (including buffer zones and clearing of vegetation) within the context of the existing environment

(b) nature, location and scale of all project components and activities

(c) all infrastructure elements and development necessary to deliver the project (identify elements that will be addressed in scope the IAR, and those outside its scope)

(d) any project components or activities that are proposed to be assessed separately to the IAR process, including details of the assessment and approvals process e.g. quarrying approvals, amendments to a resource operations licence

(e) any existing infrastructure that will be impacted by the project and proposed modifications

(f) location of diversions of watercourses, waterways or other surface water features or interception of overland flow and other water-related infrastructure

(g) the current and restored FSL, inundation area, and flood margin, including identification of any waterways upstream of the existing inundation area that will be inundated by the restored FSL (including AHD levels)

(h) any infrastructure upgrades proposed as part of the project (to be assessed as part of the IAR)

(i) any infrastructure upgrades not proposed as part of the project, and how project-related impacts on this infrastructure would be managed

(j) utility requirements and associated infrastructure including electricity, gas, telecommunications, wastewater treatment, water storage and treatment

(k) construction methods and materials for all structures including the dam wall and stream crossings e.g. earthen/sand, concrete, rock and/or sheet pile, location, volume, storage and laydown areas, tonnage and quality of natural resources required

(l) transport and utility infrastructure and corridors, including necessary access roads and tracks during construction and their location in relation to the existing environment including the boundary of the Good Night Scrub National Park

(m) nominate the building and construction standards for the works

(n) annual average full-time equivalent workforce numbers to be employed by the project during peak construction and operation

(o) proposed accommodation and travel arrangements of the workforce to and from work, including use of fly-in, fly-out workforce or drive-in, drive-out workforce.

Design of infrastructure

Water storage and ancillary infrastructures

4.2 Provide information on the proposed water storage infrastructure and any ancillary infrastructure required for the construction of the project:

(a) FSL and details of any staging, showing site boundaries, development sequencing and timeframes and overlain on the original FSL

(b) maximum final dam crest, length, height and width including height and width of the spillways (height above stream bed)

(c) details of outlet works including multi-level offtake tower

(d) detail design considerations in relation to any hydro turbine (location (including in relation to outlet works, fishway entrance etc), water source access (e.g. from surface or at depth), operation, turbine design, screening, etc) proposed for the new dam

(e) details of dam operation including minimum operating level, likely fluctuations in dam water levels, environmental flow release regime to operate fauna passageways, and likely extraction regime e.g. when water will be sourced and expected demands versus yield, likely release timings, volumes, frequencies and durations

(f) storage capacity, maximum depth, average depth, dead storage level, area of inundation/re-inundation at FSL, the extent of any buffer and management areas required, including a description of the flood margin and means of its determination, lengths of beds or rivers (and tributaries) inundated

(g) modelled headwater and tailwater levels at the site at different flows and extraction rates

(h) spillways design including spillway face finish (e.g. stepped or smooth) and gradient, spillway crest design, and capacity, including gauge specification and operation

(i) clarify the location, design and function of the primary secondary and tertiary spillways in relation to overtopping flows and provide figure(s) to illustrate these

(j) apron/stilling basin designs and dimensions including depths at different flows (including no flows)

(k) design and operating elements of the dam, crest, spillways, aprons and stilling basins, any dissipators and aquatic fauna passage to adequately provide for safe downstream passage of all species (including over spillways), to ensure aquatic fauna are not trapped during receding flows and how the design, construction and operation of all infrastructure will minimise injury and mortality to fish or other aquatic fauna

(l) location and details, rationale and likely effectiveness of the provision for incorporating appropriate upstream and downstream fauna passageways (e.g. fishway and/or fauna passage or stream diversions) and fauna exclusion and protection systems in the design that provide temporary fauna passage during construction and permanent fauna passage while the dam remains in place

(m) details of the physical form of the stream beds within 1000 metres of the downstream foot of the current and proposed dam wall (e.g. presence of natural features likely to be impacted, deep pools, riffles, aquatic vegetation beds, lungfish habitat and other refugia for upstream moving fauna) and the project's impacts on stream bed morphology, and bank and channel stability

(n) details of associated instream structures including any upstream or downstream permanent or temporary waterway barrier works e.g. for access, water delivery or water storage purposes

(o) estimated water yields and their associated performance/reliability (with appropriate allowances for environmental requirements)

(p) clarify how the allocation of water will be managed; either via separate approval or address in the IAR; the proposed system of allocation of water from the project and any proposed high and medium priority allocations to specific urban, rural or industrial users and allocations for environmental requirements

(q) describe how water from the dam is proposed to be released and delivered to end users and explain the potential interruptions

(r) details of proposed remote operation for dam, aquatic fauna passage, hydro turbine, design and location of automated component control housings in relation to flood levels and relevant environmental conditions

(s) access to site and key areas within the site (e.g. key infrastructure and fauna passage) for operation and maintenance purposes. Include flood levels and degree of access to dam components and operating systems during and post-flooding

(t) describe whether the infrastructure is permanent or temporary and nominate if it constitutes waterway barrier works

(u) describe potential interaction between the existing and proposed water structures and any required/proposed mitigation measures to address negative impacts

(v) the decommissioning schedule for all project-related infrastructure, including partial demolition of the existing dam wall

(w) rehabilitation objectives, processes and completion criteria for impacted areas

(x) identify any project components likely to be subject to change or refinement through detailed design.

Existing site description

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

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

(b) all existing infrastructure and services relevant to the project, including transport corridors, private roads, local and state-controlled roads, pipelines, energy and gas infrastructure, sewerage, stormwater, communications, rail, air services[2], etc

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

(d) geology, topography, and landforms of the project area and any relevant areas within the project surrounds (including the boundaries of water catchment areas). Show geological structures (such as aquifers and faults), economic resources (such as agricultural areas and quarries), and any other relevant projects and known development proposals that could have an influence on, or be influenced by, the project and its construction and operational activities

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

Project rationale

4.4 Describe the objectives and rationale for the project, including the expected benefits and opportunities associated with the project and the relevant recipients of these benefits and opportunities in a regional, state and national context.

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

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

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

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

[2] Air services' is defined in the Queensland Government, *State Development Assessment Provisions*, 2024.

5. Regulatory approvals and planning

5.1 Identify all the statutory approvals (local, State and Commonwealth) that are likely to be required for the project including any existing approvals related to the dam and proposed project. The list of statutory approvals should be in the format provided in Appendix 3 and describe the approval, relevant statutory provision, trigger, administering authority, when the approval is required (relative to the completion of the IAR process) and any exemptions that apply.

5.2 Clearly define approvals for which conditions are being sought through the IAR process and approvals will be sought separate to the IAR.

5.3 The IAR should provide all necessary information to support the applications for sought approvals.

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

(a) lot on plan descriptions

(b) key infrastructure

(c) recreational sites and tourist destinations

(d) protected areas, other reserves, conservation areas and State forests

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

(f) any land that is listed on the environmental management register or the contaminated land register, or that has been subject to a notifiable activity under the EP Act; or any potential existing or proposed sources of contaminated land

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

(h) any resource authorities and restricted areas under the Mineral Resources Act 1989, Petroleum and Gas (Production and Safety) Act 2004, Petroleum Act 1923, Geothermal Energy Act 2010.

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

(a) relevant provisions of the *State Planning Policy*, including key resource areas and agriculture areas (including the findings of the Agricultural Land Audit)

(b) relevant provisions of the applicable regional plan under the Planning Act

(c) relevant provisions of the applicable local government planning scheme/s, including townships and urban areas

(d) relevant provisions of the RPI Act, residential, commercial, and industrial areas.

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

5.7 Provide an assessment against the relevant planning scheme/s, regional plans, state policies and government priorities for the project area. Consider the provisions relative to the project and address where required, providing evidence where provisions do not apply.

For example, if the project is exempt, identify the exemption and extent, along with any limitations on the exemption.

5.8 Assess the extent to which the project is consistent with the relevant statutory approvals, and that the intended outcomes are consistent with current legislation, policies, plans, guidelines and government priorities for the region. If there is a conflict, explain how the project can be approved. Where non-compliance is identified, provide why the non-compliance is appropriate and reasons for the non-compliance.

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

5.10 Provide information required under section 125 (1) of the EP Act in support of the project's application for an EA for any proposed environmentally relevant activities (ERAs). List each ERA separately and identify the appropriate ERA number and activity name and identify and justify the relevant threshold (see Schedule 2, Environmental Protection Regulation 2019 (EP Regulation) for a list of ERAs).

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

5.12 Detail proposed mitigation measures for potential impacts on land uses, including an assessment of the known, expected or predicted effectiveness of the mitigation measures for addressing relevant project impacts.

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

Assessment of environmental impacts

The following sections set out the scope of project specific matters that are to be assessed in the IAR. Assessment of each matter is to consider the potential direct and indirect impacts of the project at the local and/or regional scale.

Please note: Grey text boxes throughout the document provide indicative guidance material to support the proponent in the preparation of robust responses to each section.

While guidance may refer to EIS guidelines, the proponent's responses should be tailored to the nature and scale of the project. Information provided in response to the guidance material in the IAR will be evaluated by the Office of the Coordinator-General with technical advice from state agencies.

6. Land

Tenure including Native Title

Existing environment

6.1 For the project footprint and surrounding area:

(a) identify the existing and proposed land uses including numbers of private properties, land/s of the First Nations peoples (Aboriginal peoples and Torres Strait Islander peoples) and cultural practice areas, state land, and reserves potentially directly or indirectly impacted by the project

(b) identify the tenure of the land and waters

(c) identify the registered owner of the land and waters

(d) identify any registered interests in the land and waters

(e) identify and describe any proposed use of State land and Commonwealth land, including any pre-construction exploratory works including access over State land and Commonwealth land

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

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

(h) identify any underlying, overlying or adjacent extractive resources, existing or proposed resource tenements, resource authorities or applications.

6.2 Confirm whether any quarry materials or forest products in the project footprint are the property of the State and whether such quarry material or forest products will be interfered with, used, or potentially sterilised, and whether an authority under the *Forestry Act 1959* is required to interfere with or use such quarry material.

6.3 Identify, including mapping where appropriate, any Native Title rights and interests that apply to the project footprint, including:

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

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

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

(d) land or waters that are covered by a registered ILUA

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

Impact assessment

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

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

6.6 Show the proximity of project on-ground disturbance to adjacent tenures including the Good Night Scrub National Park. Clarify whether the Kalliwa Road realignment encroaches on the National Park in any way and assess the potential for indirect impacts.

6.7 Confirm the contaminated land status of Lot 2 SP135369 and definitively state whether the landfill is in or out of the project site.

6.8 For impacts on overlapping tenures, describe the outcomes of consultation with the land holders, resource authority holders and occupiers with respect to access to land, impact assessment and mitigation measures.

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

Mitigation measures

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

6.11 Describe pathways for resolving Native Title considerations that comply with the *Native Title (Queensland) Act 1993* and the Queensland Government's Native Title work procedures (such as the negotiation and registration of an ILUA).[3]

6.12 Detail proposed mitigation measures for potential impacts on the tenure of the land and resource authorities, including measures to maintain ongoing functionality of the land and resource activities.

Geology, geomorphology, topography and soils

The following guidance is identified for the assessment of land, including geology, geomorphology, topography and soils, where relevant to the nature and scale of the project:

- Queensland Government, *Land – EIS information guideline*, ESR/2020/5303
- Queensland Government, *Rehabilitation – EIS information guideline*, ESR/2020/5308
- Queensland Government, *Contaminated land – EIS information guideline*, ESR/2020/5300
- Queensland Government, *Queensland Acid Sulfate Soil Technical Manual - Soil Management Guidelines*
- State Planning Policy – state interest guidance material, Emissions and hazardous activities, 2018
- Queensland Government, *Quarry material – EIS information guideline*, ESR/2020/5306
- Queensland Government, *Application requirements for activities with impacts to land*, ESR/2015/1839
- Queensland Government, *Queensland Land Resource Assessment Guidelines – Volume 1: Soil and land resource assessment*, 2021
- Queensland Government, *Queensland Land Resource Assessment Guidelines – Volume 1: Field tests*, 2020
- Queensland Government, *Queensland Soil and Land Resource Survey Information Guideline*, VEG/2018/4460
- Soil Science Australia, *Guideline for soil survey along linear features*, 2015
- International Erosion Control Association, *Best Practice Erosion and Sediment Control*, 2008.

Existing environment

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

6.14 Describe and illustrate at scale the bed and bank profiles of waterways and the Burnett River impacted by project construction at the site and relevant crossing points downstream,

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

include cross sections and longitudinal profiles, location of the low flow channel, high banks, floodplains and any side channels.

6.15 Describe and map the geology of the project footprint and surrounding area, with reference to the physical and chemical properties of surface and sub-surface materials within the proposed areas of disturbance. Where relevant, include information about naturally occurring hazardous materials (e.g. radioactive material or asbestos).

6.16 Describe and map geological structures and properties in the project area, that could affect ground stability and influence the nature and location of project activities and infrastructure, including any areas that have experienced past mining activity.

6.17 Describe and map soil types, soil profiles and unique map areas within the project footprint at a detailed property level scale[4] relevant to project disturbance.

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

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

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

Impact assessment

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

6.22 Identify and assess the impacts of project activities, disturbance and infrastructure on soils during each project phase and identify soil types requiring particular management. Analyse and describe the significance of these impacts on environmental values, current and future land use and management requirements, including consideration of erosion, stability, salinity, acidity, rehabilitation and agricultural productivity.

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

6.24 Demonstrate the avoidance of soil and land degradation (e.g. soil structure decline, secondary salinisation, erosion), and protection of soil composition and condition and associated environmental values, supported by irrigation modelling where relevant.

Mitigation measures

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

6.26 Describe the proposed final topography and illustrate how a functional and stable hydrologic system will be re-established at disturbance sites that prevents erosion,

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

maximises connectivity and optimises water quality in the long term to maintain and enhance environmental values at the site.

6.27 Describe how natural processes and the protective function of landforms and vegetation will be maintained within impacted waterways and surrounding land.

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

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

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

6.31 Where excavated material is potentially acid-forming or otherwise potentially polluting, prepare an excavated material management plan in accordance with accepted industry guidelines to avoid or minimise adverse effects on environmental values.[5]

6.32 Describe how achievement of mitigation measures and management objectives for land, soils, topography and geomorphology impacts would be monitored, audited and reported, and how corrective actions would be managed.

7. Cultural heritage

First Nations cultural heritage

Existing environment

7.1 Identify the First Nations peoples (Aboriginal peoples and Torres Strait Islander peoples) who are the Traditional Custodians of the land and waters within the project footprint, surrounding area and potential impact area.

7.2 Identify the existing and potential First Nations peoples' cultural heritage values potentially affected by the project. This is to be undertaken in consultation with relevant First Nations peoples consistent with consultation and engagement requirements identified in Section 13 of this document.

7.3 Any desktop assessment must be verified and supported by a field survey of the project area. The survey must be sufficient to support the preparation of a cultural heritage management plan (CHMP) or appropriate agreement in accordance with Part 7 of the *Aboriginal Cultural Heritage Act 2003* (ACH Act).

Impact assessment

7.4 Detail potential impacts on First Nations peoples' cultural heritage in accordance with the *Aboriginal and Torres Strait Islander cultural heritage – EIS information guideline*.[6] Ensure to consider all relevant aspects of the environment that have a cultural dimension.

[5] Australian Government, *Managing Acid and Metalliferous Drainage Leading Practice Sustainable Development Program for the Mining Industry*, 2016; International Network on Acid Prevention, *Global Acid Rock Drainage Guide*, 2024.
[6] Queensland Government, *Aboriginal and Torres Strait Islander cultural heritages – EIS information guideline*, ESR/2020/5296.

Mitigation measures

7.5 The proponent is to undertake consultation and develop a relevant CHMP or appropriate agreement with each of the relevant registered native title body corporates (RNTBCs) that addresses cultural heritage for the project in accordance with the requirements of Part 7 of the ACH Act. The IAR should identify any associated agreements that have been reached.[7] The area covered by the CHMP and/or appropriate agreement must include, at a minimum, the project area that is the subject of the IAR.

Non-indigenous cultural heritage

Existing environment

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

7.7 Undertake a study of, and describe the known and potential historic heritage values that may be affected by the project in accordance with the *Non-Indigenous cultural heritage – EIS information guideline*.[8] After identifying local and State values, assess the values against the respective thresholds using recognised criteria.

Impact assessment

7.8 Detail potential impacts on non-indigenous cultural heritage values.

Mitigation measures

7.9 Propose mitigation measures to avoid and minimise harm to non-indigenous cultural heritage values in accordance with the *Non-Indigenous cultural heritage – EIS information guideline.* Management and mitigation strategies should include provisions for discoveries of potentially significant archaeological artefacts in accordance with section 89 of the Queensland Heritage Act and include reference to the *Guideline - Archaeological Investigations and Assessing cultural heritage significance: Using the cultural heritage criteria*.[9]

[7] Unless section 86 of the *Aboriginal Cultural Heritage Act 2003* or the *Torres Strait Islander Cultural Heritage Act 2003* applies.
[8] Queensland Government, *Non-Indigenous cultural heritage – EIS information guideline*, ESR/2020/5302.
[9] Queensland Government, *Guideline – Archaeological Investigations* (Department of Environment and Science, 2019); Queensland Government, *Assessing cultural heritage significance – using the cultural heritage criteria* (Department of Environment and Heritage Protection, 2017).

8. Flora and fauna

8.1 The IAR should describe the potential direct and indirect impacts on the biodiversity and natural environmental values of affected areas impacted by the project, including any proposed avoidance and/or mitigation measures.

The following guidance is identified for the flora and fauna assessment, where relevant to the nature and scale of the project:

- Queensland Government, *Aquatic ecology – EIS information guidelines*, ESR2020/5295
- Queensland Government, *Terrestrial ecology – EIS information guideline*, ESR/2020/5309
- Queensland Government, *Groundwater dependent ecosystems – EIS information guideline*, ESR/2020/5301
- Queensland Government, *Water – EIS information guideline*, ESR/2020/5312
- Queensland Government, *Matters of national environmental significance – EIS information guideline*, ESR/2020/5304
- Queensland Government, Business Queensland, Fish salvage (website), available at: **www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/development/waterways/salvage**
- Queensland Government, *Policy for Vegetation Management*, VEG/2014/1084
- Queensland Government, Waterway Barrier Works (website), available at: **www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/development/waterways/barriers**
- **https://www.publications.qld.gov.au/dataset/b1259f08-152a-439e-ab6a-0ed30bab6412/resource/36cc6985-f44d-426d-b499-4d20ed606f70/download/sdap-guideline-18-waterways.pdf**
- **https://www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/development**
- ground truth data submitted with the IAR, will need to be in accordance with Neldner, V.J.et al (2023) Methodology for survey and mapping of regional ecosystems and vegetation communities in Queensland. Version 7.0. Updated December 2023. Queensland Herbarium, Queensland Department of Environment, Science and Innovation, Brisbane. **https://www.publications.qld.gov.au/dataset/methodology-for-surveying-and-mapping-regional-ecosystems-and-vegetation-communities-in-queensland**.

Existing environment

8.2 Describe the legislative context for flora and fauna in the project footprint and surrounding area, including the protection and conservation status of each identified ecological value under the *Nature Conservation Act 1992* (NC Act), *Vegetation Management Act 1999* (VM Act), Fisheries Act, *Marine Parks Act 2004* (MP Act), EP Act, EPBC Act, local government planning scheme/s, and relevant State codes under the State Development Assessment Provisions (SDAP).

8.3 Identify and describe MNES, matters of state environmental significance (MSES), matters of local environmental significance (MLES), fauna and flora of cultural significance to First Nations peoples, state and regionally significant biodiversity, and the environmental values

of the terrestrial and aquatic ecosystems likely to be impacted by the project.[10] The description should include flora and fauna environmental values in the project area, and surrounding areas, identified in desktop analysis and field surveys, and shown on maps in relation to their habitat and connectivity in the landscape (including upstream and downstream of the project) with an overlay of the project disturbance area. This includes, but is not limited to the following:

(a) regulated vegetation under the VM Act

(b) regional ecosystems (REs) and biodiversity status

(c) groundwater dependent ecosystems

(d) connectivity areas

(e) wetlands and springs

(f) threatened ecological communities and wildlife habitat

(g) migratory species

(h) protected areas and conservation areas

(i) marine national parks, conservation parks, scientific research, preservation or buffer zones under the MP Act

(j) waterways providing for fish passage

(k) declared fish habitat areas

(l) marine plants

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

(n) biodiversity offset areas approved by the state or Australian Governments (if any).

8.4 Describe, with photographs and detailed mapping (at a suitable scale), the context of the project footprint in relation to surrounding MNES, MSES and MLES (desktop and field identified) including the location of project activities, disturbance footprint, infrastructure and buffers.

8.5 Show the location of significant species (e.g. listed threatened, near threatened or special least-concern species) found during field surveys on suitable maps and figures in relation to the project footprint and describe their habitat.

8.6 Identify MSES (and MLES, where relevant) that are also MNES and provide specific cross-referencing throughout the draft IAR to demonstrate where the matter has been assessed in the MNES chapter.

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

8.7 Provide details of the scope, methodology, timing, effort and results of the field surveys (including spatial data for the survey sites, extent and location of transects, and fauna and flora records on site) undertaken in the IAR.[11] Field surveys should consider recent survey efforts and draw upon historical data. Ecological survey reports (including field proformas and data sheets) should be provided as searchable and hyperlinked appendices.

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

8.9 Describe the connectivity of habitats and integrity of ecosystems.

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

Impact assessment

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

(a) terrestrial and aquatic ecosystems including instream habitats and groundwater-dependent ecosystems[12]

(b) biological diversity

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

(d) connectivity of habitats and ecosystems

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

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

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

(h) impacts of waterway barriers (temporary and permanent) and any remaining parts of the existing dam on fish and other aquatic fauna passage (consider waterways that are mapped on the Queensland Waterways for Waterway Barrier Works spatial data layer and waterways that are present on the ground that are not mapped), including

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

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

details of any significant diversion or interception of water flows and the effects of subsidence

(i) impacts from the hydro turbine on aquatic fauna moving through the turbine

(j) potential impacts on aquatic fauna from overtopping during construction of the new dam wall into the channel between the old and new wall, including injury, water quality issues and entrapment.

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

8.13 Specifically clarify whether the crossing widening on Allen Creek will impact the MNES TEC.

8.14 Describe any actions of the project that require an authority under the NC Act, and/or would be assessable development for the purposes of the VM Act, RPI Act, Fisheries Act, and Planning Act. Features to consider include REs, environmentally sensitive areas, wetlands, nature refuges, protected areas and strategic environmental areas.

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

8.16 For any proposed clearing of regulated vegetation, the following should be provided with the IAR:

(a) an impact assessment of clearing regulated vegetation, being conducted in accordance with the Significant Residual Impact Guideline for MSES and prescribed activities assessable under the Planning Act, and the *Queensland Environmental Offsets Policy, December 2014* for the following MSES:

(i) essential habitat as shown on the essential habitat map

(ii) regulated vegetation located within a defined distance from the defining banks of a watercourse and drainage features as shown on the vegetation management watercourse and drainage feature map.

8.17 Where relevant, undertake an assessment of impact to the composition, function, and structure of REs to quantify and identify whether the clearing of native vegetation that is also MSES/MLES would result in a significant residual impact (SRI). The SRI guideline can be located at **https://dsdmipprd.blob.core.windows.net/general/dsdip-significant-residual-impact-guideline.pdf**.

8.18 Provide an assessment against SDAP State code 16: Native vegetation clearing addressing the relevant assessment benchmarks,[13] if relevant.

8.19 Provide an assessment against SDAP State code 18: Constructing or raising waterway barrier works in fish habitats for any assessable waterway barrier works required for the project, including construction activities,[14] if relevant.

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[13] Including the following (or subsequent revisions) available at: https://www.qld.gov.au/environment/land/management/vegetation/clearing-approvals/development-approvals/sdap: *Guide to State Development Assessment Provisions State code 16: Native vegetation clearing, Coordinated project - agriculture, Coordinated project - all other purposes, Coordinated project - extractive industry*.

[14] Queensland Government, *Waterway barrier works* (website) at www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/development/waterways/barriers; Queensland Government, *Waterways in Queensland* (website) at www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/development/waterways/qld; Queensland Government, *Accepted development requirements for operational work that is constructing or raising waterway barrier works, 2018 (or subsequent revision); Queensland Government, Queensland waterways for waterway barrier works mapping version 3 update*, 2023; Queensland Government,

Mitigation measures

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

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

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

8.23 Present learnings from the aquatic fauna monitoring and enhancement studies (e.g. fish passage/fishways, fish communities, lungfish population studies and fish and turtle habitat usage downstream within and upstream of the Paradise impoundment) undertaken as a result of the current Paradise Dam project (or directly relevant to the project). Demonstrate how these learnings will be applied to the proposed project design, construction and operation to mitigate potential impacts and to improve outcomes for aquatic fauna in the Burnett River.

8.24 Assess how the nominated quantifiable indicators and standards may be achieved for nature conservation management. Address measures to protect or preserve any listed threatened, near threatened or special least concern species. Describe the practicality, effectiveness and risks for each avoidance and mitigation measure. Include the timeframes in which results would be achieved, frequency of monitoring, and how corrective actions will be managed for all phases of the project.

8.25 Propose effective and proven measures to avoid, minimise, mitigate and/or offset direct or indirect impacts on environmental values. In particular, address measures to protect or preserve any listed threatened, near-threatened or special least concern species. Describe the practicality, effectiveness and risks for each avoidance and mitigation measure. Include the timeframes in which the results would be delivered.

8.26 Propose measures that would avoid the need for waterway barriers or propose measures to mitigate the impacts of their construction and operation.

8.27 Describe, illustrate, and demonstrate how the project provides safe and adequate upstream and downstream fish and aquatic fauna passage. Include all monitoring, maintenance and mitigation measures at all temporary and permanent barriers.

8.28 Describe and illustrate any screening incorporated to prevent potential entrapment and injury of fish and fauna into water pumping infrastructure.

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

8.30 Propose rehabilitation criteria, in relation to natural values, that would be used to measure progressive rehabilitation of disturbed areas. Describe how the achievement of the objectives will be monitored and audited, and how corrective actions will be managed.

State Development Assessment Provisions Guideline State code 18: Constructing or raising waterway barrier works in fish habitats, 2022 (or subsequent revision); Queensland Government, *Fisheries development approvals and accepted development* (webpage) at www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/development/approvals.

Proposals for rehabilitation of disturbed areas must incorporate, in suitable habitat, the provision of low shrubs, ground level hollow logs, stick piles, nest hollows, ground litter, fish passage and terrestrial and aquatic habitat (as appropriate).

8.31 Demonstrate how the project will meet the relevant environmental objectives and performance outcomes of the EP Regulation.

8.32 Justify how applying all proposed avoidance and management measures would result in acceptable outcomes for terrestrial, aquatic and/or marine ecology.

8.33 Describe how all mitigation and management measures will be monitored, measured, audited and reported. Include provisions to regularly evaluate all the mitigation and management measures so that improvements may be made as new technologies and best practices evolve.

Environmental offsets

8.34 After demonstrating that all reasonable on-site avoidance and mitigation measures are to be applied, identify whether the project will result in a SRI on MSES, requiring an offset with reference to the current versions of the *Queensland Environmental Offsets Policy* (EPP/2015/1658) (DES 2023) and *Significant Residual Impact Guideline 2014* (DEHP 2014) and the Queensland environmental offsets framework.

8.35 Environmental offsets must be addressed to the satisfaction of the Coordinator-General, with the requirements determined on a project-by-project basis. The minimum requirements are detailed below. Contact the Office of the Coordinator-General (OCG) for specific project advice.

8.36 Propose offsets consistent with the relevant State and Commonwealth legislation or policies for any SRI:

(a) if an SRI will occur on a prescribed environmental matter as outlined in the Environmental Offsets Regulation 2014, offset(s) must be consistent with the requirements of the *Environmental Offsets Act 2014* and the latest version of the *Queensland Environmental Offsets Policy*[15]

(b) if the Australian Government's offset policy requires an offset for a significant impact on a MNES, offset(s) must be consistent with the requirements of the EPBC Act *Environmental Offsets Policy*.[16]

8.37 In addition, propose environmental offsets, that at a minimum:

(a) identify and illustrate the extent of any SRI overlap between impacts on MSES/MLES and MNES

(b) include a detailed analysis that demonstrates how/why the MSES/MLES is the same or substantially the same prescribed matter and the same or substantially the same impact as the MNES being assessed by the Australian Government

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

[15] Queensland Government, *Queensland Environmental Offsets Policy*, EPP/2015/1658.
[16] Australian Government, *EPBC Act environmental offsets policy*, 2012.

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

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

(f) for land-based offsets:

(i) provide results of a habitat quality assessment on both the impact area and the proposed offset area(s) to compensate for impacts[17]

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

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

(g) or financial offsets, provide a financial offset calculation.

8.38 Describe how the achievement of the offset will be monitored, measured, audited, and reported and which corrective actions will be implemented and managed.

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

9. Biosecurity

The following guidance is identified for the biosecurity assessment, where relevant to the nature and scale of the project:

- Queensland Government, *Biosecurity – EIS information guideline*, ESR/2020/5297.

Existing environment

9.1 Provide information and maps showing terrestrial and aquatic pest animals, and terrestrial and aquatic plant/weed distribution in relation to the project footprint and ecologically significant areas identified as containing, or likely to contain, listed flora, fauna, and ecological communities of MSES. This information is to include prohibited and restricted matter listed in the *Biosecurity Act 2014* and Biosecurity Regulation 2016, Weeds of National Significance, pests and weeds declared under local laws or identified by Biosecurity Queensland as Biosecurity Matter, and designated pests under the *Public Health Act 2005*.

Impact assessment

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

[17] Before undertaking habitat quality assessments, consult with the Office of the Coordinator-General regarding the relevant methodology.

Mitigation measures

9.3 Detail proposed mitigation measures using best practice to control and limit the spread of pests, weeds, diseases, pathogens, and contaminants within and surrounding the project footprint and adjacent areas for construction and operational impacts.

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

(a) alignment of biosecurity and invasive species practices with the North Burnett Regional Council Biosecurity Management Plan 2019-2024 and the Bundaberg Regional Council Biosecurity Plan 2018-2023

(b) management strategies for pest fish, such as carp and tilapia, which includes: checking and cleaning of equipment between sites; provision of awareness material; appropriate disposal, and signage relating to non-release of ornamental fish by users to be displayed in high use areas.

9.5 Detail a monitoring program that would audit the success of biosecurity measures, identify whether objectives have been met, and describe the implementation of corrective actions to be used if monitoring indicates objectives are not being met.

10. Water resources

Reader to note: The authority to interfere with the flow of water and to use a watercourse to distribute water is authorised under the existing Bundaberg Water Supply Scheme Resource Operations Licence (ROL).

OCG understands Sunwater will apply directly to the Department of Local Government, Water and Volunteers (DLGWV) to amend through a separate process.

Sunwater has advised water supply required for construction will be sourced from the dam through arrangements agreed between Sunwater (as the ROL holder) and DLGWV.

The requirements below are provided to ensure that there is a placeholder for commentary in the IAR relating to environmental, social and cultural outcomes relevant to the Water Plan (Burnett Basin) 2014 area for reader clarity.

The following guidance is identified for the assessment of water resources, where relevant to the nature and scale of the project:

- Queensland Government, *Water – EIS information guideline*, ESR/2020/5312
- Queensland Government, *Groundwater dependent ecosystems – EIS information guideline*, ESR/2020/5301
- Queensland Government, *Application requirements for activities with impacts to water*, ESR/2015/1837
- Queensland Government, *Stormwater and environmentally relevant activities*, ESR/2015/1653
- Queensland Government, Our policies (website), available at: **www.dlgwv.qld.gov.au/about-us/our-policies**.

Existing environments

10.1 Describe the legislative context for water resources in the project footprint and surrounding area, including provisions (e.g. outcomes, strategies and objectives) of the relevant water plan(s) and other relevant water plan implementation documents relevant to the project.

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

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

(b) hydrology and streamflow characteristics, including the frequency, duration and magnitude of flow events, and seasonal variations

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

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

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

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

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

(h) the significance of water features within the overall surface water environment

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

10.3 Noting that the project relates to construction of a new dam wall in close proximity to the existing wall, describe, map and illustrate the existing groundwater environment within the project footprint (particularly the foundation area), local, surrounding area and potential impact area, including for each relevant groundwater formation:

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

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

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

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

(e) its significance within the overall environment

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

10.4 Describe investigation and monitoring programs to support characterisation of the existing environment and demonstrate that it is supported by sufficiently robust site-specific data, and is in accordance with relevant guidelines and best practice.[18]

10.5 Include a description of the existing Water Plan, the resource operations licence and resource operations licence operations manual, water allocation security objectives and environmental flow objectives as they apply to the project.

Impact assessment

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

10.7 Describe and map project water management infrastructure including water storages, offtake works, outlet works, regulated structures, inundation areas, drains, diversions,

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

water treatment plant, water pipelines, irrigation areas, discharge points and monitoring points.

10.8 Describe the project's water supply requirements for each stage of the project. Identify and evaluate all water supply options for the project, including any options available under the relevant water plan. Describe processes to obtain water for construction needs. Detail the source(s)/location(s), type(s) (e.g. potable, raw), volumes required, storage locations, security, availability and quality of supply, expected rates of usage and water treatment requirements. Provide a summary statement on how the water security for Bundaberg and surrounding communities will be maintained during the construction period.

10.9 Describe the project's direct and indirect water take/interference, including groundwater dewatering, and detail alteration of drainage characteristics (e.g. diversion or interception of waterways or overland flow, duration and scale of impact) to facilitate project water management during and after construction. Describe watercourse diversion design, operation and monitoring based on current engineering practice and relevant guidelines.

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

10.11 Describe and map any waterway barrier works that may interfere with fish passage or other aquatic fauna. Include any upstream inundation areas caused by dams or weirs and impacts to downstream flow regimes that may impact on fisheries resources that are reliant on environmental flows. Measure and document the main channel and bankful widths of each impacted waterway at representative points through the impacted area. Include descriptions and locations of existing and proposed aquatic fauna movement infrastructure such as fishways and fauna passage.

10.12 Describe and map any activities or disturbance in, or within 40 metres of, the bed and banks of a watercourse, lake or spring as defined by the Water Act. Describe, map and justify the extraction of materials obtained from the bed and banks of the watercourse, lake or spring. Describe any exemptions or approvals that may be required for these activities and provide the relevant information.[19]

10.13 With reference to other authorisation processes, describe how the project meets the requirements for releasing strategic reserve unallocated water under the Water Plan (Burnett Basin) including the impact of the proposed taking of water may have on:

(a) existing authorisations in the plan area, as well as other known potential projects in the immediate and surrounding area

(b) natural ecosystems and the environmental outcomes of the water plan

(c) cultural and spiritual values under the cultural outcomes of the plan and any stakeholder consultation undertaken as part of other authorisation processes.

10.14 Based on the water balance for the project, identify and assess any impacts of project activities, disturbance and infrastructure on surface water resources, existing or potential water users and uses, and relevant environmental values. Analyse and describe the

[19] Queensland Government, *Riverine protection permit exemption requirements*, WSS/2013/726.

significance of direct, indirect and cumulative impacts on water features, hydrology and flow characteristics, drainage patterns, sediment processes, geomorphology, groundwater-surface water interactions, and the environmental values supported by these features and characteristics (e.g. dry season refugia, recreation facilities). Analyse and describe the significance of impacts in the context of local and regional water resources, and with reference to provisions of the relevant water plan(s) and other water planning instruments relevant to the project.

10.15 Identify and assess the impacts of the project on groundwater resources and environmental values both during construction and post-construction. This should include consideration of groundwater flows, groundwater-surface flow connectivity, and any existing groundwater uses and users. It should also include an analysis and description of the significance of any potential direct and/or indirect impacts on aquifers in the context of local and regional water resources, and with reference to provisions of the relevant water plan(s) and other relevant water planning instruments relevant to the project.

10.16 Describe any changes to groundwater flows, levels, quality and connectivity as a result of the proposed dam wall and overlying impoundment waters.

Mitigation measures

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

10.18 Demonstrate how the proposed project will meet the environmental objectives and performance outcomes in Schedule 8 of the EP Regulation in relation to water, wetlands and groundwater outcomes.

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

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

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

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

Water-related cultural values

Existing environment

10.23 Discuss First Nations peoples' cultural and spiritual values and water-related cultural use as relevant to the project and protected under the *Human Rights Act 2019*.

Impact assessment and mitigation measures

10.24 Describe the project's potential impacts on water-related cultural values, uses and aspirations of water resources for First Nations peoples, including consideration for cultural outcomes of the relevant water plans. Where relevant, identify any associated authorisations (i.e. Resource Operations Licence) which have considered and assessed relevant impact/s.

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

10.26 Where country may be affected by other existing or future water infrastructure projects in the region, assess the relevant cumulative impacts of these projects and the proposed project on the water-related cultural values, uses and aspirations linked to water for First Nations peoples.

11. Water quality

The following guidance is identified for the assessment of relevant aspects of water quality, where relevant to the nature and scale of the project:

- Queensland Government, *Water – EIS information guideline*, ESR/2020/5312
- Queensland Government, *Groundwater dependent ecosystems – EIS information guideline*, ESR/2020/5301
- Queensland Government, *Monitoring and Sampling Manual: Environmental Protection (Water) Policy*, 2018
- Queensland Government, *Application requirements for activities with impacts to water*, ESR/2015/1837
- Queensland Government, *Technical Guideline - Wastewater release to Queensland waters*, ESR/2015/1654
- Queensland Government, *Using monitoring data to assess groundwater quality and potential environmental impacts*, 2021
- Queensland Government, *Stormwater and environmentally relevant activities*, ESR/2015/1653.

Existing environment

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

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

11.3 Identify and describe the relevant water and sediment quality objectives and guidelines applicable to the environmental values. Where there are no scheduled environmental

protection policies for water or sediment quality objectives for the project site, these are required to be locally derived in accordance with relevant guidelines,[20] supported by complying water quality monitoring data submitted as part of the IAR. Assess current surface and groundwater quality above and below the dam wall in relation to the relevant quality objectives.

11.4 Analyse water quality variability to identify and describe trends, including those associated with seasonal or climatic factors, variability of freshwater flows and responses to natural and anthropogenic events/changes. This analysis should be supported by clearly presented statistical summaries, time-series graphs and comparisons against relevant water quality objectives and/or water quality guideline values. Use suitable reference locations and statistically robust site-specific data to adequately establish baseline condition and define natural variation, including seasonal variation.

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

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

(b) existing water quality issues (such as stratification, eutrophication and deoxygenation) and/or exceedance of existing water quality objectives and/or water quality guideline values

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

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

11.6 Surface water samples must as a minimum be analysed for electrical conductivity, temperature, pH, sulfate, fluoride, dissolved oxygen, turbidity, total suspended solids, nutrients, dissolved and total metals and metalloids, total recoverable hydrocarbons and major anions and cations, dissolved inorganic nitrogen (DIN), fine sediment plus any other potential contaminants relevant to the project. If groundwater samples are required, the samples must be analysed for the same parameters (except turbidity and total suspended solids) as a minimum. Both surface water and groundwater samples should allow for relevant water quality objectives to be assessed.

Impact assessment

11.7 Describe and map all potential and/or proposed controlled and uncontrolled discharges of water and contaminants[21] by the project, including the predicted quantity, quality, location, source (point or diffuse) timing and duration. Discharges may include controlled water releases to surface waters, uncontrolled discharges when the design capacity of storages is exceeded, management of spills of products during loading or transportation, stormwater discharge, and contaminated run-off or seepage from operational areas of the site. Address the following matters for each potential discharge:

(a) with consideration of the overland flows and groundwater movements in relation to the site setup and working areas, describe the circumstances in which controlled and uncontrolled discharges might occur

[20] Queensland Government, *Queensland Water Quality Guidelines*, 2013; Queensland Government, *Deciding aquatic ecosystem indicators and local water quality guideline values*, 2022.
[21] Defined under sections 440ZD and 440ZF of the EP Act and Schedule 10 of the EP Regulation.

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

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

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

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

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

Mitigation measures

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

11.10 Describe the management framework for controlled discharges, including:

(a) treatment options and requirements prior to discharge

(b) receiving environment flows

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

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

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

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

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

11.13 Describe how water quality (including within the impoundment, in releases and downstream of the dam) will be monitored, measured, audited, and reported, and how corrective/preventative actions and continual improvement would be managed throughout the construction and operation of the proposed project.

12. Flooding and regulated structures

The following guidance is identified for the assessment of flooding and regulated structures, where relevant to the nature and scale of the project:

- Queensland Government, *Water – EIS information guideline*, ESR/2020/5312
- Australian Government, *Australian Rainfall and Runoff: A Guide to Flood Estimation*, 2019
- Queensland Government, *Regulated structures – EIS information guideline*, ESR/2020/5307
- Queensland Government, *Structures which are dams or levees constructed as part of environmentally relevant activities*, ESR/2016/1934.

Existing environment

12.1 Describe any differences between the existing and new dam wall from a flooding and safety perspective. Where appropriate, provide a hydraulic and hydrological flood model demonstrating the design flood peak discharges for the project footprint and surrounding area which exist in the pre- and post-development scenarios for all flood and stormwater events. This could include the following flood and stormwater events: 50%, 20%, 10%, 5%, 2%, 1% and 0.1% annual exceedance probability (AEP), and Probable Maximum Flood.

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

Impact assessment

12.3 Describe and map where project infrastructure would lie in relation to the existing and predicted flood risk from all sources for the following flood and stormwater events: 50%, 20%, 10%, 5%, 2%, 1% and 0.1% AEP, and Probable Maximum Flood, where appropriate.

12.4 Where appropriate, use flood modelling (and any additional data) to assess how the project may potentially change flooding and run-off characteristics within the project footprint, and both upstream and downstream of the project footprint. The assessment must consider all project infrastructure and all design measures to avoid or minimise impacts.

12.5 Identify, map and describe (including their purpose) existing or proposed dams, levees and any proposed regulated structures in the project footprint as part of construction. Describe overland flow paths and the river floodplain in relation to the project's temporary and permanent infrastructure and storage areas to determine the necessary diversion or protection works.

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

12.7 If relevant, assess the potential impact on regulated structures in accordance with relevant guidelines.

Mitigation measures

12.8 Describe how design and management at all stages of the project will mitigate potential impacts on level of flood risk, both upstream and downstream of the dam including possible

storage management considerations. Demonstrate how flood storage capacity will be maintained for the dam (following completion of construction). Describe how risks associated with dam failure, seepage, and overtopping will be avoided or minimised to protect people, property and environmental values.

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

12.10 Prepare a Construction Flood Management Plan to outline strategies to minimise flood damage during construction. The plan should identify the flood risks and include information such as preventative measures, measures to minimise downstream impacts on riverine, floodplain and estuarine or coastal habitats from flooding of the construction works, emergency response processes, as well as procedures for worker safety and communication during a flood event, as well as warnings and notification processes to inform adjacent and downstream communities.

12.11 The Construction Flood Management Plan should also include a program to monitor, measure, audit and report on the outcomes of management measures, and the implementation of corrective actions and continual improvement.

13. Social and economic

Stakeholder consultation

13.1 Identify key stakeholders, including government agencies and members of the community, and describe the consultation that has taken place and how responses have been incorporated into the design and outcomes of the project. Include a report on these matters which includes dates of consultation and details of the information provided to stakeholders.

Existing environment

13.2 Identify and describe the current economic environment including local industries and employment, and any other aspects relevant to the project.

13.3 Include a social baseline analysis describing the people (demographics), essential services, social infrastructure, housing profile, land use, recreation, travel and access profile, and any other aspects relevant to the project[22].

Impact assessment

13.4 Determine economic impacts relevant to the project, both positive and negative. Consideration should be given to local employment and procurement opportunities, including First Nations peoples' employment and procurement opportunities, throughout construction, operation, decommissioning and rehabilitation phases.

13.5 Determine social impacts relevant to the project, both positive and negative. Consideration should be given to impacts to the community, essential services, social infrastructure, housing, amenity and disturbance during construction (land use), recreation, community safety and accessibility (travel and access) and any other aspects relevant to the project[23].

[22] Section 2.3.2 of Coordinator-General's *Social Impact Assessment Guideline* (July 2025) (the SIA Guideline) can be used for guidance, noting that the "scope, context, scale and level of detail…reflect the nature of the project and the scope of potential social impacts"
[23] Section 2.3.4 of Coordinator-General's *Social Impact Assessment Guideline* (July 2025) (the SIA Guideline) can be used for guidance.

13.6 The response should also consider cumulative impacts on the area/region which may occur when considering other major projects in close proximity.

Mitigation measures

13.7 The response should include an economic and social impact management plan that describes measures developed in consultation with potentially affected people, communities and key stakeholders to manage the project's potential adverse impacts and enhance the potential benefits.[24]

13.8 Management measures must be documented in a way that provides a practical basis for implementation, monitoring and review where relevant to the project.

14. Hazards, health and safety

The following guidance is identified for the assessment of hazards, health and safety, where relevant to the nature and scale of the project:

- Queensland Government, *Queensland Emergency Risk Management Framework Risk Assessment Process Handbook*, 2018
- Queensland Government, *Health considerations – Environmental Impact Statement – Guidelines for Proponents*, 2016
- Queensland Government, *Guideline: Dam Safety Management*, 2024
- Queensland Government, *Guidelines on Safety Assessments for Referable Dams*, 2023
- Queensland Government, *Regulated structures – EIS information guideline*, ESR/2020/5307
- Queensland Government, *Guideline for failure impact assessment of water dams*, 2018
- Queensland Government, *Bushfire Resilient Communities Technical Reference Guide*, 2019
- Standards Australia, Risk Management – Guidelines (Australian Standard ISO 31000:2018)
- Standards Australia, Managing environmental-related risk (Australian Standard HB203:2006).

Existing environment

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

Impact assessment

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

[24] Section 2.3.5 of the SIA Guideline can be used for guidance, noting that 'management measures should be outcomes focused, reasonable, relevant, transparent and monitorable'

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

(i) consideration of project activities, disturbance and infrastructure

(ii) consideration of natural events (e.g. storms, cyclones, flooding, bushfires, earthquakes25, heatwaves26, landslides) that may affect the site for a range of AEP events, including up to a Probable Maximum Flood event (failure and no failure scenarios)

(iii) potential impacts of extended periods of wet weather on the project construction schedule

(iv) consideration of all hazardous substances (including fuels, chemicals, hazardous waste and explosives) to be used, transported, stored, processed or produced27

(v) consideration of potential hazards associated with dam failure (i.e. replacement dam)

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

(vii) consideration of hazards away from the project footprint where hazard characteristics may be changed by the project (for example, changing flooding characteristics)

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

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

(b) hazard analysis and risk assessment in accordance with relevant guidelines, standards and other documents.[28]

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

Mitigation measures

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

14.5 Detail safeguards and mitigation measures (e.g. siting, layout, timing, operations) that will reduce the likelihood and severity of hazards, consequences and project-related risks to people, property, and environmental values. Identify the residual risk following the

[25] The State Earthquake Risk Assessment includes probabilities of major seismic events for all local government areas and is to be used to inform risk consideration and management – Queensland Government, *State Earthquake Risk Assessment*, 2019.
[26] In accordance with Queensland Government, *State Heatwave Risk Assessment*, 2019.
[27] In accordance with Standards Australia, *Explosives - Storage, transport and use – storage* (Australian Standard AS2187.1).
[28] Standards Australia, *Risk management – Guidelines* (Australian Standard ISO 31000:2018); Standards Australian, *Managing environment-related risk* (Australian Standard ISO HB 203:2012); Queensland Government, *Queensland Emergency Risk Management Framework Risk Assessment Process Handbook*, 2018. Relevant Local Disaster Management Group Plans and the Queensland State Risk Assessment available at: https://www.disaster.qld.gov.au/plans (State heatwave assessment, State Earthquake Risk assessment, Severe Wind Hazard Assessment); Queensland Government, *Climate action resources*, available at: https://www.qld.gov.au/environment/climate/climate-change/resources;Queensland; Queensland Government, *Queensland Future Climate Dashboard,* available at: https://longpaddock.qld.gov.au/qld-future-climate/dashboard/; Queensland Government, *Queensland Emergency Risk Management Framework,* available at: https://www.disaster.qld.gov.au/queensland-emergency-risk-management-framework.

application of mitigation measures. Present an assessment of the overall acceptability of residual project risks with consideration of uncertainties and risk profiles.

14.6 Identify the need for appropriate explosive licences and notice of proposed blasting prior to explosives use.

14.7 Provide an outline of the proposed integrated emergency management planning procedures (including evacuation plans, as required) for the range of situations identified in the risk assessment.

14.8 Where emergency response or hazard management plans are proposed to address scenarios and hazards identified in the risk assessment, provide a plan outline which key measures and procedures, and consultation with relevant groups. Outline any consultation undertaken with the relevant emergency management authorities, including the local disaster management group.

14.9 As part of the emergency response plan, include the following:

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

(i) a bushfire hazard analysis and associated bushfire hazard management plan[29]

(ii) mitigation strategies to achieve the relevant development outcomes in Part E of the State Planning Policy– Natural Hazards, Risk and Resilience[30]

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

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

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

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

[29] To be prepared in accordance with the Bushfire Resilient Communities Technical Reference Guide, 2019.
[30] Queensland Government, *State Planning Policy*, 2017.

15. Air quality

The following guidance is identified for the assessment of air quality, where relevant to the nature and scale of the project:

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

Existing environment

15.1 Identify and map the location of any sensitive receptors and environmental values of the project that are listed in Schedule 1 of the *Environmental Protection (Air) Policy 2019* (EPP (Air)) within the project area and surrounding areas that may be impacted by air emissions from the project.

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

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

Impact assessment

15.4 Identify, quantify and describe the air emissions from the project (point, diffuse and fugitive emission sources) in an emissions inventory which addresses all project stages.

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

15.6 Detail the potential impacts of air emissions from the project on environmental values and sensitive receptors, including identifying any exceedances of the air quality criteria in accordance with the EPP (Air), *Air – EIS information guideline*, and *Application requirements for activities with impacts to air*.[31] The potential impacts must include the quantification of human health risk and amenity impacts associated with emissions from the project for all contaminants whether or not they are covered by the National Environmental Protection (Ambient Air Quality) Measure or the EPP (Air).

15.7 Where there is potential for nuisance odours to impact on sensitive receptors, an odour impact assessment should be undertaken in accordance with *Guideline – Odour Impact Assessment from Developments*.[32]

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

[31] Queensland Government, *Air – EIS information guideline*, ESR/2020/5294; Queensland Government, *Application requirements for activities with impacts to air*, ESR/2015/1840.
[32] Queensland Government, *Guideline – Odour Impact Assessment from Developments*, ESR/2024/6828.

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

Mitigation measures

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

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

(b) protect the environmental values of the air environment

(c) achieve the air quality objectives of Schedule 1 of the EPP (Air).

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

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

16. Noise and vibration

The following guidance is identified for the assessment of noise and vibration, where relevant to the nature and scale of the project:

- Queensland Government, *Noise and vibration – EIS information guideline*, ESR/2020/5305
- Queensland Government, Guideline – *Application requirements for activities with noise impacts*, ESR/2015/1838.

Existing environment

16.1 Identify and map the location of any sensitive receptors and environmental values that are listed in Schedule 1 of the *Environmental Protection (Noise) Policy 2019* (EPP (Noise)) within the project area and surrounding areas that may be impacted by noise emissions or vibrations from the project.

16.2 Describe the existing background noise within the project area, including noise and vibration sources. The data must be collected in accordance with quality-assured, best practice methodologies and as per the *Noise Measurement Manual.*[33]

Impact assessment

16.3 Identify and quantify the noise and vibration sources and emissions from the project (point and general emission sources) which addresses all project stages. Describe whether the sources will be continuous, intermittent, fluctuating, vibrating or impulsive.

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

16.5 Detail the potential impacts of noise and vibration emissions from the project on environmental values and sensitive receptors, including identifying any exceedances of the acoustic quality objectives. Assessment must address low-frequency (<200 Hz) noise emissions and potential cumulative impact of the project with other emissions of noise from any existing developments and known possible future development in the area.

[33] Queensland Government, *Noise Measurement Manual*, ERS/2016/2195.

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

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

16.8 Describe how the construction and operation of the project would be managed to be consistent with best practice environmental management, including the control of background creep in noise as outlined in the EPP (Noise). Address the compatibility of the project's noise emissions with existing or potential land uses in surrounding areas.

Mitigation measures

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

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

(b) protect the environmental values of the acoustic environment

(c) achieve the acoustic quality objectives of Schedule 1 of the EPP (Noise)

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

16.10 Describe how the environmental management objectives for noise and vibrations would be achieved, monitored, audited and reported, and how corrective actions would be managed.

17. Traffic and transport

The following guidance is identified for the assessment of traffic and transport, where relevant to the nature and scale of the project:

- Queensland Government, *Transport – EIS information guideline*, ESR/2020/5310
- Queensland Government, *Guide to Traffic Impact Assessment*, 2018
- Queensland Government, Assessable development under the Planning Act, available at **www.tmr.qld.gov.au/Community-and-environment/Planning-and-development/Planning-and-development-assessment-under-the-Planning-Act/Assessable-development**
- Queensland Government, Technical publications (website), available at **www.tmr.qld.gov.au/business-industry/technical-standards-publications**.

Existing environment

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

(a) construction laydown areas and workers accommodation areas

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

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

(ii) railway corridors and rail infrastructure

(iii) airports and airstrips

(iv) other relevant approved or known projects.

Impact assessment

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

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

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

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

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

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

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

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

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

17.4 Prepare a transport impact assessment in accordance with *Transport – EIS information guideline.*[34] Present the transport assessment in separate sections for each project-affected mode (road, rail, air services and port) as appropriate for each phase of the project, including the proposed transportation and delivery of pre-assembled modules or components to site. The assessment must be completed by a Registered Professional Engineer of Queensland and include:

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

(b) details of the adopted assessment methodology for impacts on roads within the road impact assessment report in accordance with Guide to Traffic Impact Assessment (GTIA) for state-controlled roads and the local government impact assessment methodologies for local government roads[35]

[34] Queensland Government, *Transport – EIS information guideline*, ESR/2020/5310.
[35] Queensland Government, *Guide to Traffic Impact Assessment*, 2018, available at www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Guide-to-Traffic-Impact-Assessment.

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

(i) section 8.4.2 Heavy Vehicle Routes

(ii) section 9 Road Safety

(iii) section 13 Pavement.

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

17.6 Consider cumulative impacts on traffic and transportation created by the project and any other existing and proposed adjacent developments including early works excluded from the IAR.

Mitigation measures

17.7 Prepare a transport management plan that can address all identified impacts, including:

(a) demonstrate that any necessary transport impact mitigation works will not compromise existing and future transport infrastructure corridors planning and works, with reference to the latest version of the Department of Transport and Main Roads (DTMR's) Queensland Transport and Roads Investment Program and the Development Assessment Mapping System.[36]

(b) demonstrate that any necessary transport impact mitigation works do not negatively impact time-sensitive agricultural freight (i.e. exports, horticulture, livestock), and that the road network maintains efficiency

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

[36] Queensland Government, *Queensland Transport and Roads Investment Program*, published annually, available at: www.tmr.qld.gov.au/QTRIPonline; Queensland Government, *Development Assessment Mapping System*, available at: sppims-dams.dsdilgp.qld.gov.au/dams/?tab=layers&accordions=SARA+DA+MAPPING.

18. Waste

The following guidance is identified for the assessment of relevant aspects of waste, where relevant to the nature and scale of the project:

- Queensland Government, *Waste – EIS information guideline*, ESR/2020/5311
- Queensland Government, *Application requirements for activities with waste impacts*, ESR/2015/1836.

Existing environment

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

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

Impact assessment

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

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

18.5 Detail the estimated volumes and geochemistry (i.e. relevant type, toxicity and reactivity) of all waste rock, including spoil, and the management of storage, transport and disposal for the waste rock and spoil generated by the construction project. Assess potential risks associated with this waste rock and describe how the management and disposal strategy would minimise any potential impacts on environmental values.

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

18.7 Provide relevant information on proposed on-site disposal of general and/or regulated waste relevant to ERA 60, by referring to relevant policies and guidelines.[37]

18.8 Identify end of waste codes under the *Waste Reduction and Recycling Act 2011* which may be relevant to the project.[38]

[37] Queensland Government, *Model operating conditions ERA 60 – Waste disposal*, ESR/2015/1667.
[38] A list of current end of waste codes are available at: https://www.business.qld.gov.au/running-business/environment/waste-management/regulated-waste/eow-codes.

Mitigation measures

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

18.10 Demonstrate how the project will meet the environmental objectives and performance outcomes in Schedule 8 of the EP Regulation in relation to waste.

18.11 Describe how the measures for best practice waste management would be monitored, audited and reported, and how corrective actions would be managed.

19. Conclusion and commitments

19.1 The IAR should include an overall conclusion that sets out:

(a) a summary of the impacts of the project

(b) an overview of the approach that the proponent has taken to avoiding, then minimising and mitigating the impacts of the project

(c) and overview of the environmental management framework that is proposed to apply to the project.

19.2 A consolidated commitment register that lists all measures (including monitoring programs and management plans) demonstrated in the IAR assessment to avoid, minimise, or otherwise mitigate, remedy or offset project impacts to be implemented during construction to protect environmental values and achieve predicted outcomes.

20. Appendices to the IAR

20.1 Appendices are to provide the complete technical evidence used to develop assumptions, statements and findings in the main text of the IAR.

20.2 No significant issue or matter is to be mentioned for the first time in an appendix—it is to be addressed in the main text of the IAR.

20.3 Include a table listing the section and sub-section of the IAR where each requirement of the Guideline is addressed.

20.4 Include a list citing all reference material used or relied on in the IAR.

20.5 Include a glossary of terms and a list of acronyms and abbreviations.

21. *Environment Protection and Biodiversity Conservation Act 1999* - Matters of national environmental significance

On 8 August 2025, a delegate of the Australian Government Minister for the Environment and Water determined the proposed action (EPBC reference 2025/10229) is a 'controlled action' due to likely significant impacts to the MNES protected under Part 3 the EPBC Act.

The controlling provision for the project is:

- listed threatened species and communities (sections 18 and 18A).

The MNES chapter must address the matters outlined in Schedule 4 of the EPBC Regulations and the matters outlined below.

Ensure habitat definitions for listed threatened species and threatened ecological communities are in accordance with definitions available in the EPBC Act guidelines or other relevant, most recent, statutory documents (e.g. referral guidelines, approved listing advice(s), approved conservation advice(s), recovery plan(s), threat abatement plan(s) or comparable policy guidelines, and information contained in relevant Australian databases such as the Species Profile and Threats (SPRAT) database). Ensure that the habitat definitions also take into account all relevant Queensland regional ecosystem and other available information. The most up-to-date documentation and/or scientific expert advice must be used.

Note: Where 'action' is used below, it is to mean the project (all components) in the MNES chapter.

General content

21.1 The MNES chapter of the IAR should be a stand-alone document that primarily focuses on the project's controlling provisions. The MNES chapter is to contain sufficient information to be read alone with reference to technical data or supplementary reports (where appropriate). Any detailed technical information that supports the MNES chapter is to be summarised in the main text and included as appendices to the IAR.

21.2 The MNES chapter is to take into consideration the *EPBC Act Significant Impact Guidelines*,[39] other relevant statutory documentation (such as relevant recovery plans and conservation advice accessible via the SPRAT database) and Commonwealth policy guidelines.[40]

21.3 The MNES chapter should contain sufficient information to allow the Australian Government Minister for the Environment and Water (or delegate) to make an informed decision on whether or not to approve the taking of the action, and if approved, what conditions to attach under Part 9 of the EPBC Act for the controlling provision.

21.4 The MNES chapter should contain sufficient information to enable interested stakeholders to understand the environmental consequences of the proposed action on MNES and how these impacts will be avoided, mitigated and/or offset.

21.5 The level of analysis and detail in the MNES chapter should reflect the level of significance of the expected impacts on the environment. Any and all unknown variables or

[39] Australian Government, Department of the Environment, Water, Heritage and Arts, *Significant Impact Guidelines 1.1 - Matters of National Environmental Significance*, 2013.
[40] See: Australian Government, Department of Climate Change, Energy, the Environment and Water, *EPBC Act publications and resources* (webpage) available at www.dcceew.gov.au/environment/epbc/publications#policy.

assumptions made in the assessment must be clearly stated and discussed. The extent to which the limitations, if any, of available information may influence the conclusions of the environmental assessment should be discussed. Management measures must be clear, genuine and specific.

21.6 The proponent is to ensure that the MNES chapter assesses the action's compliance with the principles of ecologically sustainable development and the objects of the EPBC Act.[41]

Format and style

21.7 The MNES chapter should comprise 3 elements:

(a) the executive summary

(b) the main text of the document

(c) appendices containing detailed technical information and other information, including management plans, that can be made publicly available.

21.8 The MNES chapter should be written so that any conclusions reached can be independently assessed. To this end, all sources must be appropriately referenced using the Harvard standard. The reference list should include the address and date of access of any internet webpages used as data sources.

21.9 The main text of the MNES chapter should include a list of abbreviations, a glossary of terms and appendices containing:

(a) a list of persons and agencies consulted during the IAR

(b) contact details for the proponent

(c) the names of the persons involved in preparing the IAR and work done by each of these persons.

21.10 The MNES chapter should be produced in A4 size paper capable of being photocopied, with maps and diagrams in A4 or A3 size and in colour (where possible) in line with the *Guide to providing maps and boundary data for EPBC Act projects*.[42]

21.11 The MNES chapter must be in an appropriate format and style to allow publication on the internet.

Specific content

General information

21.12 Provide the background and context of the action including:

(a) the title of the action

(b) the full name and postal address of the designated proponent

(c) a clear outline of the objective of the action

(d) the location of the action, including the regional context

(e) the background to the development of the action

[41] See EPBC Act chapter 1, part 1.
[42] Australian Government, Department of Agriculture, Water and the Environment, *Guide to providing maps and boundary data for EPBC Act projects*, 2021 (or subsequent revision).

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

(g) the current status of the action

(h) the consequence of not proceeding with the action.

Description of the action

21.13 Describe in detail all components (phases) of the action, including pre-construction, construction, operation, maintenance, decommissioning and rehabilitation. This is to include the precise location (including coordinates) of all works to be undertaken, structures to be built or elements of the action that may have impacts on MNES.

21.14 Detail the anticipated start and completion dates of all actions such as the extent, staging and timing of clearing undertaken over the construction period.

21.15 Detail 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. The various elements of the action must be described in the text and illustrated with maps, diagrams, plans (at a suitable scale) and other information as required to provide sufficient context and basis for the identification and assessment of impacts. This section must also include but not be limited to:

(a) all infrastructure to be constructed and proposed construction methods

(b) ancillary or supporting infrastructure, associated works or safety works including new construction and upgrades

(c) location of infrastructure areas

(d) location of power sub-station, distribution network and on-site diesel generators

(e) all new and existing roads, as well as details on which roads are sealed and unsealed, traffic volume and ownership and responsibility for maintenance of any shared infrastructure

(f) treatment of contaminated land, including method of treatment, disposal of waste and contaminated material, standards and minimum thresholds required for removal/disposal

(g) realignment or replacement of services, structures, access, etc required as a result of the action

(h) maximum life of the action, including construction, operation, decommissioning, and rehabilitation

(i) number of jobs for the life of the action, including number of jobs for Indigenous employees and the local community

(j) other such actions, including but not limited to, earthworks, use of explosives, changes to hydrological flow and groundwater, accommodation facilities, material storage, construction facilities, fines and dust control management, waste management generally and management of spills/contaminants/pollutants

(k) the proposed source of construction and operation water and the respective approval process.

21.16 Provide the total size of the project footprint, the disturbance footprint, and any adjoining areas (beyond the impact area) that may be subject to indirect or facilitated impacts (in hectares). If the project footprint is the same as the proposed disturbance footprint, the MNES chapter is to include a statement to this effect. Detail any area subject to indirect or facilitated impacts (outside of the project footprint), including (but not limited to) edge effects, noise, light spill, dust, vehicle access, changes to surface and groundwater quality, changes to water quality from erosion and/or sedimentation, altered fire regimes, and hazardous substance spills. The MNES chapter must include maps, which clearly identify all components of the action and boundaries of the proposed project footprint including all infrastructure elements and development necessary for the project. All maps must follow the *Guide to providing maps and boundary data for EPBC Act projects*.[43]

21.17 Describe any changes to the project description or action footprint that may have occurred since the original referral.

Feasible alternatives

21.18 Any feasible alternatives to the action to the extent reasonably practicable, including:

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

(b) a comparative description of the impacts of each alternative on MNES

(c) sufficient detail with evidence to make clear why an alternative is preferred to another or why alternatives to the above projects are not possible

(d) short, medium and long-term advantages and disadvantages of the feasible alternatives.

Description of the environment

General description of the environment

21.19 Describe the environment of the project footprint and surrounding areas (i.e. adjacent, upstream and/or downstream) that may be affected by the action. At a minimum, this section is to include:

(a) current and historical land uses of the project area

(b) historical anthropogenic uses of the project area and existing condition of the overall area within and adjacent to, downstream and upstream of the project area

(c) hydrology (surface and ground), including flood extents, relevant hydrogeology, and local water quality (include a map that documents stream order across the site)

(d) description of any listed threatened species or ecological community that occurs in the project footprint and adjacent areas

(e) terrestrial and aquatic ecosystems, including key vegetation communities and relevant watercourses. Include the area (in hectares) of each vegetation community and the percentage (%) cover for each vegetation type

[43] Australian Government, Department of Agriculture, Water and the Environment, *Guide to providing maps and boundary data for EPBC Act projects*, 2021 (or subsequent revision).

(f) GDEs of potentially affected rivers, creeks and wetlands and relevant wetlands in the region

(g) soil and geological characteristics, and physical, chemical and biological characterisation of any soils that will be disturbed as a result of the action. Include site investigations conducted to date and a map with labelled contour intervals and soil types

(h) occurrence of potential acid sulfate soils

(i) assessment of vegetation (not limited to MNES), including raw data sheets and species lists

(j) total size (in hectares) of REs present on site, as well as a map(s) showing RE patches and native vegetation regrowth

(k) distribution and abundance of pest species and weeds

(l) topography and elevation across the project footprint (include a map with contour intervals)

(m) identification of conservation and special use areas and any outstanding natural features

(n) cultural heritage values, people and communities and other socially relevant considerations

(o) ancillary transport roads and the surrounding areas that may be affected by the action.

Matters of National Environmental Significance

The MNES chapter must provide the quantification of the extent of the MNES present both within and surrounding the proposed action site, details of the resources used to identify and assess the below MNES, and whether consultation was undertaken and/or advice sought from local community groups or experts.

It is the proponent's responsibility to be aware of any changes to the distribution of threatened species and ecological communities that are listed at the time of the controlled action decision, including information available in the SPRAT Database. The proponent must ensure that a recent Protected Matters Search Tool report has been generated and considered before finalising the draft IAR. This Protected Matters Search Tool report must be provided as an attachment to the IAR.

If the listing or up-listing of a species occurs after the controlled action decision, the species will continue to be assessed under the level of threatened status it was before this event. However, all relevant conservation advice and recovery plans remain at least partially relevant and are a mandatory consideration for the Minister in deciding whether or not to approve a proposed action (section 139 of the EPBC Act). The proponent should ensure that the most recent documents are consulted and referenced.

21.20 The MNES chapter must include a detailed assessment of the presence of individuals and suitable habitat for the listed threatened species and communities that are known to occur, may occur, or are likely to occur below, within and adjacent to the project footprint.

21.21 The MNES chapter must also include a detailed presence and habitat assessment for any other listed threatened species and communities, that will, or is likely to, be directly or indirectly impacted by the proposed action.

21.22 The MNES chapter must provide information about the habitat for and presence of any MNES identified as potentially being significantly impacted by the proposed action, including (but not limited to) the MNES identified in Appendix 2.

Matters of national environmental significance information required

Listed threatened species and communities (sections 18 and 18A)

For each of the listed threatened species and threatened ecological communities identified in Appendix 2, the following structure and detail must be provided in the MNES chapter:

- description
- desktop analysis
- survey effort and outcomes
- habitat assessment
- impact assessment
- avoidance, mitigation and management
- rehabilitation requirements
- significant impact assessment
- statutory requirements.

Note: The listed threatened species and threatened ecological communities identified in Appendix 2 may not be a complete list of listed threatened species and threatened ecological communities that will, or are likely to, be impacted by the action. It is the proponent's responsibility to ensure that any listed threatened species and threatened ecological communities listed at the time of the EPBC Act controlled action decision, that will or are likely to be impacted by the project, are assessed for the Minister's consideration.

Description

21.23 Describe each listed threatened species and threatened ecological communities that will or is likely to be impacted by the project. For each species and ecological community, include the following details: EPBC Act listing status, abundance, condition, distribution, ecology and habitat preferences of the species or communities.

Desktop assessment

21.24 Describe the desktop assessment methodology used to inform the field surveys in and within the vicinity of the project footprint.

21.25 Identify and describe known historical records of the listed threatened species and ecological communities within the proposed action area and adjacent area. Where relevant, also identify and describe known and historical records of listed threatened species in the broader region (e.g. highly mobile, transient, or cryptic species). All known records must be supported by an appropriate source (i.e. Australian Government and state databases,

published research, publicly available survey reports, etc.) and include the year of the record and a brief description of the habitat in which the record was identified.

Survey effort and outcomes

21.26 Provide details of the scope, methodology, timing and effort of field surveys (to be undertaken by qualified species experts with demonstrated experience in detecting the relevant listed threatened species and ecological communities) within, adjacent to, downstream and upstream of the project. Provide details of:

(a) how surveys were undertaken in accordance with relevant Australian Government and state guidelines or best practice survey guidelines at the time of the surveys

(b) an assessment of the adequacy of any surveys undertaken (including survey effort, timing and any limitations which may impact the results), the extent to which the surveys were appropriate for the species and in accordance with Australian Government's relevant survey and policy guidelines[44]

(c) if relevant, the justification for divergence from relevant state and Australian Government guidelines or best practice survey guidelines at the time of the surveys

(d) state the total number of records (individuals and evidence of presence) of each listed threatened species and ecological communities in and within the vicinity of the proposed action site and show in applicable area maps. Provide maps identifying verified sightings of MNES during studies or surveys.

21.27 Surveys are to be of a suitable standard, including the scope, timing and spatial and temporal replication, to be able to detect cryptic or difficult to detect terrestrial and aquatic species. Surveys are to also target areas upstream, downstream and adjacent to the project area, particularly for species that regularly disperse through the landscape or aquatic environments (particularly seasonally) and/or have large home ranges.

21.28 Wherever practicable, surveys should be undertaken over an ecologically relevant scale and period to adequately determine the likely presence or absence of the target species or environmental value. A precautionary approach should be taken where this is not possible or where the target species is cryptic by nature. Where a protected matter is considered absent, robust evidence must be provided.

21.29 Attach all relevant ecological surveys referenced in the referral and MNES chapter as supporting documents to the IAR.

Habitat assessment

21.30 Provide a robust habitat assessment for the listed threatened species and threatened ecological communities. The assessment should consider the presence of species outside, within and adjacent to the proposed action area where they have the potential to be impacted. The habitat assessment should assess specific habitat requirement(s) relevant to each listed threatened species and ecological community (e.g. breeding, foraging, dispersal, known important habitat, suitable habitats, roosting, etc.), identify the total area of habitat (in hectares) within the project area and provide detailed mapping of specific

[44] See Australian Government, Department of Climate Change, Energy, the Environment and Water, On-ground surveys and data for referred actions under the EPBC Act - Department of Climate Change, Energy, the Environment and Water (DCCEEW); For listed migratory species, consider also: Australian Government, *EPBC Act Policy Statement 3.21 – Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species*, 2015 (or subsequent reiteration).

habitat that may be impacted (including an overlay of the project disturbance footprint, habitat type and known records). The habitat assessment should be informed by:

(a) field surveys and vegetation assessments

(b) the SPRAT Database[45]

(c) relevant Australian Government documents (e.g. approved conservation advices, recovery plans, listing advices, referral guidelines, etc)

(d) published research and other relevant sources (if relevant).

21.31 Where potential habitat for listed threatened species and threatened ecological communities is identified in the project area, an assessment must be undertaken regardless of whether the species was recorded (i.e. the potential for occurrence of these species and communities must also be considered and assessed).

21.32 Describe the habitat mapping and the results of surveys, the natural and existing upstream and downstream movement and habitat requirements for relevant terrestrial and aquatic flora and fauna, both native and introduced species (e.g. including weeds and feral animals). Similar species can be grouped and discussed together where practicable.

21.33 Habitat assessments for listed threatened species and threatened ecological communities must provide habitat quality estimates for each protected matter. Habitat quality should be assessed using the same approach/scoring mechanism used for any offset site. The method applied must be suitable and targeted for each protected matter.

21.34 Identify potential climate change refugia within the proposed action area and adjacent area for listed threatened species which may be impacted by the proposed action. See *Characteristics of climate change refugia for Australian biodiversity* for information on climate change refugia as well as other more recent and species-specific research where relevant.[46]

Impact assessment

The MNES chapter must include a description of all the relevant impacts of the action. Relevant impacts are impacts that the action will have or is likely to have on a matter protected by a controlling provision.

For each listed threatened species and community, provide the habitat assessment and impact assessment together under a heading of the species' name so potential impacts can be easily understood.

21.35 Relevant impacts are the impacts that the action will have, or is likely to have, on MNES. 'Likely' is taken to mean a 'real, or not remote, chance or possibility'. Impacts during the pre-construction, construction, operation, decommissioning and rehabilitation phases of the project should be addressed, and the following information provided:

(a) a detailed assessment of the nature and extent of the likely short-term and long-term relevant impacts, taking into consideration any indirect impacts (e.g. light and dust

[45] Australian Government, Department of Climate Change, Energy, the Environment and Water, *Species Profiles and Threats Database*, available at www.environment.gov.au/cgi-bin/sprat/public/sprat.pl.
[46] Reside, AE, Welbergen, JA, Phillips, BL, Wardell-Johnson, GW, Keppel, G, Ferrier, S, Williams, SE, Vanderwal, J, Characteristics of climate change refugia for Australian biodiversity, *Austral Ecology*, 39: 887-897, DOI:10.1111/aec.12146, 2014.

pollution, noise from operations, construction and explosives, increased risk of predation)

(b) a statement, with supporting evidence, of whether any relevant impacts are likely to be unknown, unpredictable or irreversible

(c) an analysis of the significance of the relevant impacts

(d) any technical data and other information used or needed to make a detailed assessment of the relevant impacts

(e) consideration must be given to specific habitat features relevant to the species within and surrounding the development footprint.

21.36 Provide an assessment of the likelihood, intensity, duration, magnitude and extent of impacts resulting from the pre-construction, construction, operation, maintenance, decommissioning and rehabilitation components of the project on listed threatened species and threatened ecological communities and species' habitat.

21.37 With consideration of all project phases, identify and describe which component(s) and stage(s) of the action and/or consequential actions are of relevance to each listed threatened species and/or ecological community. All relevant impacts of the action must be assessed in accordance with the latest relevant Commonwealth policies and guidelines, and information provided in the SPRAT database, including but not limited to:

(a) habitat clearance

(b) habitat inundation

(c) habitat fragmentation and degradation

(d) injury or death (such as vehicle strike)

(e) disturbance from dust, light, vibration and noise

(f) introduction/spread of, and/or increase in, pests, weeds and disease

(g) changes to hydrological regimes (including flow changes and flooding)

(h) impacts to groundwater levels in root zones of relevant vegetation

(i) impacts to water quality, including from waste/chemical pollution and/or land contamination

(j) sedimentation and erosion

(k) barriers to fauna dispersal and edge effects.

21.38 For threatened ecological communities (if relevant), the total direct and indirect impact (in hectares) to each identified patch within and adjacent to the project site must be provided. Further, the impact assessment for ecological communities must include a discussion on the post-impact viability of each individual patch within and adjacent to the project site to be directly or indirectly impacted from fragmentation as a result of vegetation clearance. Assessment of the impact to threatened ecological communities must include any relevant buffers directly surrounding the patch. Justification must be provided as to the size and form of any buffer applied, or in cases where a buffer is not applied.

21.39 Assess how changes to hydrology associated with the proposed action may impact on listed threatened species and threatened ecological communities taking into consideration both surface and groundwater dependence.

21.40 Include the potential direct, indirect, facilitated, and cumulative (where possible) loss and/or disturbance on listed threatened species and their habitat and threatened ecological communities as a result of the proposed action. This must include:

(a) the quality of the habitat impacted

(b) quantification of the individuals, where relevant

(c) duration of impact

(d) the total amount of each type of habitat (in hectares) to be impacted for each listed threatened species and ecological communities.

21.41 The MNES chapter is to address the potential impact of the action on ecosystem resilience where relevant for MNES. This should include consideration of the likely/predicted changes to climate regimes.

21.42 Where relevant, the MNES chapter should consider the anticipated/predicted future climatic conditions at the site in the assessment of impacts on MNES, and how changes in climate and the frequency and severity of weather events may interact with, exacerbate or reduce the impacts of the proposed action on MNES over time. This should include, but not be limited to the:

(a) loss, fragmentation, and/or drying of potential climate refugia and/or refuges for threatened species or communities as a result of the proposed action – consider the potential impacts of removing or otherwise impacting these habitats

(b) increased risk of fire as a result of the proposed action under drier conditions and periods of extreme heat

(c) inclusion of different climate scenarios in water modelling.

21.43 A risk assessment for all identified risks to threatened species and ecological communities should be conducted and documented.

Avoidance, mitigation and management

Avoidance, minimisation, and mitigation measures are the primary methods of eliminating and reducing significant impacts on MNES. Where possible and practicable, it is best to avoid impacts. If impacts cannot be avoided, then they should be minimised or mitigated as much as possible. Residual impacts should then be managed. Avoidance, minimisation, and mitigation measures must be investigated thoroughly as a part of the assessment and be supported by evidence to demonstrate likely success.

The MNES chapter must provide information on proposed avoidance, minimisation, mitigation, and management measures to deal with the impacts of the action. committal language (i.e. 'will') rather than non-committal language (i.e. 'may', 'where possible', 'if required', etc.) must be used, and any commitments by the proponent must be clearly distinguished from recommendations or statements of best practice made by the document author or other technical expert. The proposed measures and outcomes to be achieved must be provided and substantiated with the best available evidence and practices.

The SPRAT Database, conservation advice, recovery plans, and associated statutory and policy documents, may provide a starting point for relevant mitigation measures for listed threatened species, ecological communities.

Any management plans required for the mitigation and management of impacts on MNES should be provided either as separate documents attached to the IAR or included as subsections in the MNES chapter. The Australian Government is likely to recommend to the Australian Government Minister (or delegate) that any conditions of approval require that final versions of any relevant plans be approved and in place prior to the commencement of the proposed action.

The Australian Government encourages the proponent to establish, test, and monitor novel methods for avoiding, minimising, and mitigating the impacts of the proposed project on MNES. The Australian Government also encourages the development of scientifically rigorous monitoring programs to measure impacts and assess the effectiveness of mitigation.

21.44 Provide a consolidated list of mitigation measures, including environmental design features, proposed to be undertaken to prevent, minimise, or compensate for all relevant impacts of the action, including:

(a) a description of the environmental outcomes the measures are expected to achieve, including details of any baseline data or proposed monitoring to demonstrate progress towards achieving these outcomes

(b) a description of proposed safeguards and mitigation measures to deal with relevant impacts of the action, including mitigation measures proposed to be taken by the proponent

(c) assessment of the expected or predicted effectiveness of the mitigation measures, with consideration of climate change predictions where relevant

(d) details of ongoing management, including scientifically robust monitoring programs to support an adaptive management approach and determine the effectiveness of the proposed measures or assess against proposed outcomes

(e) any statutory or policy basis for the mitigation measures, including reference to the SPRAT Database and relevant approved conservation advice, recovery plan or threat abatement plan

(f) the cost of the mitigation measures

(g) the name of the agency responsible for endorsing or approving each mitigation measure or monitoring program.

21.45 Proposed measures must be based on best available practices, appropriate standards, evidence of success for other similar actions and supported by published scientific evidence. All commitments must be drafted using committal language (e.g. 'will' and 'must') when describing the proposed measures. All proposed measures must also be drafted to meet the 'S.M.A.R.T' principle:

(a) S – Specific (what and how)

(b) M – Measurable (baseline information, number/value, auditable)

(c) A – Achievable (timeframe, money, personnel)

(d) R – Relevant (conservation advices, recovery plans, threat abatement plans)

(e) T – Time-bound (specific timeframe to complete).

21.46 Describe how habitat fragmentation and patch isolation will be avoided, with consideration of whether avoidance areas will enable species mobility across the project area and still be connected to habitat in the broader landscape.

21.47 Provide a detailed outline of an Environmental Management Plan (EMP) that sets out the framework for management, mitigation, and monitoring of relevant impacts of the action, including any provisions for independent environmental auditing.[47] The EMP must:

(a) address the project phases (construction, operation, decommission and rehabilitation) separately

(b) state the environmental objectives, performance criteria, monitoring, reporting, corrective action, responsibility and timing for each environmental issue

(c) describe contingencies for events such as heavy or prolonged rainfall, unexpected finds protocol for encountering unexpected contamination, the importation of inappropriate fill material, chemical spills, off-target impacts of chemical usage

(d) in the construction phase of the EMP, include management measures such as dust suppression and enforcement of reduced construction zone vehicle speeds

(e) incorporate weed and pest management actions, including monitoring

(f) consider the Environmental Management Plan Guidelines.[48]

Rehabilitation requirements

Where rehabilitation is proposed and relevant to listed threatened species and threatened ecological communities, the information below must be included in a rehabilitation management plan or a subsection of the MNES chapter.

21.48 Detail any rehabilitation activities proposed to be undertaken and how they meet best practice standards, including for the restoration of habitat for relevant listed threatened

[47] Australian Government, Department of Climate Change, Energy, the Environment and Water, *Environmental Management Plan Guidelines*, 2024 (or subsequent version).
[48] Australian Government, Department of Climate Change, Energy, the Environment and Water, *Environmental Management Plan Guidelines*, 2024 (or subsequent revision).

species and listed threatened ecological communities, and avoidance of sedimentation/erosion.

21.49 Provide a summary of the vegetation communities, including dominant species, that are being rehabilitated.

21.50 Provide the details of any rehabilitation activities proposed to be undertaken as required by Commonwealth, state or territory, and local government legislation.

21.51 Provide information on the timing, frequency and duration of proposed rehabilitation activities to be implemented, including anticipated time to completion (refer to 'S.M.A.R.T' principle above). All commitments must be drafted using committal language (e.g. 'will' and 'must') when describing the proposed activities.

21.52 Detail the rehabilitation acceptance criteria relevant to MNES and the procedures, including contingency measures that will be undertaken to achieve them.

21.53 Provide details of ongoing management and monitoring programs, including timing, to validate the effectiveness of proposed rehabilitation activities, including any contingency measures and when they would be triggered.

21.54 Provide details of tangible, on-ground corrective actions that will be implemented, including timing, in the event that monitoring programs indicate that the completion criteria have not been, or will not be, achieved.

21.55 Provide information on the management of the rehabilitation sites including, but not limited to, weed and pest management.

21.56 Provide maps showing the areas that will be rehabilitated within the project area and the size in hectares of these areas.

Significant impact assessment

21.57 After consideration of proposed avoidance, mitigation, and management measures, provide an assessment of the likelihood of residual significant impacts on relevant listed threatened species and ecological communities. The significant impact assessment must consider the Australian Government's *Significant impact guidelines 1.1*.[49]

21.58 Provide the total amount of residual significant impacts, if any, for each type of habitat (in hectares) in the disturbance footprint for each listed threatened species and ecological community.

Statutory requirements

21.59 Describe, with supporting evidence, how the proposed action will not be inconsistent with:

(a) Australia's obligations under the Biodiversity Convention, the Convention on Conservation of Nature in the South Pacific (Apia Convention), and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

(b) a recovery plan or threat abatement plan.

21.60 Describe, with supporting evidence, how the proposed action has taken into account any relevant approved conservation advice for the relevant listed threatened species and threatened ecological communities.

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[49] Australian Government, Department of the Environment, Water, Heritage and the Arts, *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance*, 2013 (or subsequent revision).

Cumulative impacts

21.61 The MNES chapter is to identify and assess the cumulative impacts on MNES (terrestrial and aquatic) created by the project and the activities of other existing and proposed adjacent, upstream and downstream relevant developments, water users and land users. This must include at a minimum, cumulative impacts of other projects impacting on the relevant MNES, being listed threatened species and threatened ecological communities.

Offsets

The MNES chapter must include an assessment of the likelihood of residual significant impacts occurring on listed threatened species and communities, after all mitigation and management measures relating to the proposed action have been applied. If it is considered that residual significant impacts are likely, then environmental offsets are required to be provided.

Environmental offsets are measures that compensate for the residual significant impacts of an action on the environment. Offsets provide environmental benefits to counterbalance the impacts that remain after consideration of avoidance and mitigation measures. Offsets do not reduce the impacts of an action and are not intended to make proposals with unacceptable impacts acceptable.

It is important to consider environmental offsets early in the assessment process. Any proposed offsets must meet the key principles of the *EPBC Act Environmental Offsets Policy*.

If it is considered that a residual significant impact is likely, the IAR must include a draft Offset Area Management Plan (OAMP) consistent with the Offsets Policy. Note that if there is a residual significant impact, the relevant Australian Government department is likely to recommend to the Australian Government Minister (or delegate) that any conditions of approval require the environmental offset and associated OAMP be approved and implemented prior to the commencement of the proposed action.

21.62 If a residual significant impact is likely, in the MNES chapter include a summary of the proposed environmental offset(s) and key commitments to achieve a conservation gain for each protected matter in accordance with the *EPBC Act Environmental Offsets Policy* (Offsets Policy).[50]

21.63 An EPBC Act protected matter must be present in the proposed offset site(s) if it is present in the project site to align with the Offsets Policy.

21.64 Where the proposed offset area(s) supports an environmental offset for multiple MNES, proposed management action(s) for one protected matter must not be detrimental (i.e. have an impact) to other protected matters.

21.65 Where an offset is proposed, with a completed Offsets Assessment Guide calculation, all inputs must be supported by robust scientific evidence and/or supporting evidence (e.g. historical grazing regimes, satellite imagery, statements from landholders).[51]

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[50] Australian Government, Department of Sustainability, Environment, Water, Population and Communities, *EPBC Act environmental offsets policy*, 2012 (or subsequent revision).

[51] Australian Government, Department of Sustainability, Environment, Water, Populations and Communities, *Offsets assessment guide*, 2012. Available at www.dcceew.gov.au/environment/epbc/publications/epbc-act-environmental-offsets-policy. See also: Australian Government, Department of Sustainability, Environment, Water, Populations and Communities, *How to use the Offsets assessment guide*, 2012; Australian Government, Department of Climate Change, Energy, the Environment and Water, *Offsets assessment guide* (webpage), available at www.dcceew.gov.au/environment/epbc/approvals/offsets/guidance/offsets-assessment-guide.

21.66 The draft OAMP must be prepared by a suitably qualified ecologist and in accordance with the Australian Government's *Environmental Management Plan Guidelines*.[52]

Minimum requirements for a draft Offsets Area Management Plan

The draft OAMP should be provided as an appendix to the IAR, which demonstrates how the environmental offset(s) compensate for the residual significant impacts of the action on listed threatened species and ecological communities, and their habitat in accordance with the principles of the Offsets Policy. The minimum information requirements include (but may not be limited to) the below.

21.67 Describe the offset area(s), including location, size, condition, environmental values present and surrounding land uses.

21.68 Provide baseline data and other supporting evidence that documents the presence of the relevant MNES, and the quality of their habitat within the offset area(s).

21.69 Detail how the offset area(s) will provide connectivity with other habitats and biodiversity corridors and/or will contribute to a larger strategic offset for the relevant MNES.

21.70 Provide specific, committal and measurable environmental outcomes that detail the nature of the conservation gain to be achieved for listed threatened species and threatened ecological communities, including the creation, restoration, and revegetation of habitat in the proposed offset area(s).

21.71 Provide an assessment of the site habitat quality for the offset area(s). Before undertaking habitat quality assessments, consult with the OCG and the relevant Australian Government department regarding the proposed methodology for deriving Habitat Quality scores for the *Offsets Assessment Guide (calculator)*.[53] An important factor is that both impact and offset sites are assessed using the same approach/scoring mechanism, that the method is suitable and targeted for each species/community, and that the resulting offset proposed is in line with the core principles of the Offsets Policy.

21.72 Demonstrate (with supporting evidence) how the environmental offset(s) compensate for residual significant impacts of the proposed action on relevant MNES, and/or their habitat, in accordance with the principles of the Offsets Policy and all requirements of the Offsets Assessment Guide including:

(a) time over which loss is averted (max. 20 years)

(b) time until ecological benefit

(c) risk of loss (%) without offset

(d) risk of loss (%) with offset

(e) confidence in result (%).

21.73 Provide specific offset completion criteria (derived from the site habitat quality) to demonstrate the improvement in the quality of habitat in the offset area(s) over a 20 year period.

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[52] Australian Government, Department of Climate Change, Energy the Environment and Water, *Environmental Management Plan Guidelines*, 2024 (or subsequent revision).
[53] Australian Government, Department of Climate Change, Energy, the Environment and Water, Offsets assessment guide (webpage), available at: **https://www.dcceew.gov.au/environment/epbc/approvals/offsets/guidance/offsets-assessment-guide**.

21.74 Detail the management actions, and timeframes for implementation, to be carried out to meet the offset completion criteria.

21.75 Include interim milestones that set targets at 5 year intervals for progress towards achieving the offset completion criteria.

21.76 Detail the nature, timing, and frequency of monitoring to inform progress against achieving the 5 yearly interim milestones (the frequency of monitoring must be sufficient to track progress towards each set of milestones, and sufficient to determine whether the offset area(s) are likely to achieve those milestones in adequate time to implement all necessary corrective actions).

21.77 Propose timing for the submission of monitoring reports that provide evidence demonstrating whether the interim milestones have been achieved.

21.78 Provide timing for the implementation of tangible, on-ground corrective actions to be implemented if monitoring activities indicate the interim milestones have not been achieved.

21.79 Provide a risk analysis and a risk management and mitigation strategy for all risks to the successful implementation of the OAMP and timely achievement of the offset completion criteria, including a rating of all initial and post-mitigation residual risks in accordance with a risk assessment matrix.

21.80 Provide evidence of how the management actions and corrective actions take into account relevant approved conservation advices and are consistent with relevant recovery plans and threat abatement plans.

21.81 Provide supporting evidence to justify how proposed management action(s) are additional to the existing requirements of the landholder in managing their land (e.g. weed and pest management requirements under the *Biosecurity Act 1994* (Qld), existing grazing regimes, etc.) as required by the Offsets Policy.

21.82 Include robust scientific evidence (e.g. published research, pilot studies, previously successful projects/programs) to demonstrate the success of proposed measures to create, revegetate, regenerate and/or improve habitat (e.g. tree planting, nest boxes, artificial hollows) in the proposed offset area(s) for the specific listed threatened species and ecological communities.

21.83 Provide maps and shapefiles to clearly define the location and boundaries of the offset area(s), accompanied by the offset attributes (e.g. physical address of the offset area(s), coordinates of the boundary points in decimal degrees, the relevant MNES that the environmental offset(s) compensates for, and the size of the environmental offset(s) in hectares).

21.84 Provide details and execution timing of a mechanism to legally secure the proposed offset area(s), such that legal security remains in force over the offset area(s) for at least 20 years to provide enduring protection for the offset area(s) against development incompatible with conservation.

21.85 All proposed management actions, monitoring approach and corrective actions must be written using committed language (e.g. ‘will’ and ‘must’).

Other approvals and conditions

21.86 Provide details of any local or state government planning scheme, or plan or policy under any local or State Government planning system that deals with the proposed action, including:

(a) what environmental assessment of the proposed action has been, or is being, carried out under the scheme, plan, or policy

(b) how the scheme provides for the prevention, minimisation, and management of any relevant impacts

(c) a description of any approval that will or has been obtained from a state, territory or Australian Government agency or authority (other than an approval under the EPBC Act), including any conditions that apply to the action

(d) a statement identifying any additional approval that is required

(e) a description of the monitoring, enforcement, and review procedures that apply, or are proposed to apply, to the action.

Economic and social matters

21.87 Provide an analysis of the economic and social impacts of the action, both positive and negative. The analysis must include:

(a) detail projected economic costs and benefits of the project, including the basis for their estimation through cost/benefit analysis or similar studies

(b) economic and employment opportunities expected to be generated by the project (including construction and operational phases)

(c) economic and social impacts at the local, regional and national level.

21.88 Details of the relevant costs and benefits of identified alternative options to the proposed action (including not proceeding with the action) should also be included with reference to impacts on and benefits to nearby communities and other social and economic considerations.

Consultation

21.89 Provide details of any consultation that has occurred concerning the action, including:

(a) any consultation that has already taken place

(b) proposed consultation about relevant impacts of the action and plans for future consultation throughout the life of the proposed action

(c) if there has been consultation about the proposed action, any documented response to, or result of, the consultation and management measures to address community concerns

(d) identification of affected parties, including a statement mentioning any communities that may be affected and describing their views

(e) signed documents or statements of consent from land holders or managers (including Registered Native Title Body Corporates).

Indigenous engagement

21.90 Identify existing or potential native title rights and interests, including any areas and objects that are of particular significance to Indigenous peoples and communities, possibly impacted by the proposed action and how the potential impacts will be managed.

21.91 Describe any Indigenous consultation that has been undertaken, or will be undertaken, in relation to the proposed action and their outcomes. This should include:

(a) details regarding the specific Indigenous groups and Traditional Owners consulted and an indication of the areas, both tangible and intangible, of cultural significance across the proposed action footprint

(b) a discussion about how impacts to areas and/or objects of Indigenous cultural significance (tangible and intangible) are avoided, mitigated or minimised.

21.92 Best practice consultation, in accordance with the Interim engaging with First Nations People and Communities on assessments and approvals under the EPBC Act includes:[54]

(a) identifying and acknowledging all relevant affected Indigenous peoples and communities

(b) committing to early engagement

(c) building trust through early and ongoing communication for the duration of the project, including approvals, implementation and future management

(d) setting appropriate timeframes for consultation

(e) demonstrating cultural awareness.

21.93 Describe any state requirements for approval or conditions that apply, or that the proponent reasonably believes are likely to apply, to the proposed action with regards to Indigenous peoples and communities.

21.94 Describe employment opportunities (including Indigenous employment targets) expected to be generated by the project (including construction, operation, decommissioning and rehabilitation phases).

Environmental record of person proposing to take the action

21.95 Include details of any past or present 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.

21.96 If the person proposing to take the action is a corporation—details of the corporation's environmental policy and planning framework, and the history of the corporation's executive officers (and those of the parent body if the corporation is a subsidiary of another company) in relation to environmental matters.

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[54] Australian Government, Department of Climate Change, Energy the Environment and Water, *The Interim Engaging with First Nations People and Communities on Assessments and Approvals under the Environment Protection and Biodiversity Conservation Act 1999* (interim guidance), 2023 (or subsequent revision).

Principles of ecologically sustainable development

21.97 Describe how the proposed action meets the principles of ecologically sustainable development, as defined in section 3A of the EPBC Act, which are as follows:

(a) decision making processes should effectively integrate both long term and short term economic, environmental, social and equitable considerations

(b) if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation

(c) the principle of inter-generational equity—that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations

(d) the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision making

(e) improved valuation, pricing and incentive mechanisms should be promoted.

Information sources

21.98 For information given in the IAR, the IAR must state:

(a) the source of the information

(b) how recent the information is

(c) how the reliability of the information was tested

(d) what uncertainties (if any) are in the information.

Ecological data

21.99 The MNES chapter must include an appendix of occurrence records (both sightings and evidence of presence) for all listed threatened and migratory species identified during field surveys for the proposed action. This data may be used by the Commonwealth to update the relevant species distribution models that underpin the publicly available Protected Matters Search Tool (PMST).

21.100 The species occurrence records must be provided in accordance with the *Guidelines for biological survey and mapped data*[55] and presented using the *Commonwealth's species observation data template*.[56] Sensitive ecological data must be identified and treated in accordance with the *Commonwealth's Sensitive Ecological Data – Access and Management Policy*.[57]

MNES conclusion

21.101 An overall conclusion as to the environmental acceptability of the proposal should be provided, including discussion on compliance with principles of ecologically sustainable

[55] Australian Government, Department of the Environment and Energy, *Guidelines for biological survey and mapped data*, 2018 (or subsequent revision).
[56] The species observation data template can be found at www.dcceew.gov.au/sites/default/files/documents/species-observation-data-template.xlsx.
[57] Australian Government, Department of the Environment, *Sensitive Ecological Data – Access and Management Policy V1.0*, 2016 (or subsequent revision).

development and the objects and requirements of the EPBC Act. Reasons justifying undertaking the proposal in the manner proposed should also be outlined.

21.102 Key mitigation proposed, as well as any offsets proposed for any unavoidable residual significant impacts on MNES, should be summarised here.

Part C Appendices to guideline

Appendix 1. Glossary and acronyms

The following acronyms and abbreviations have been in this document:

Table A1.1 Acronyms and abbreviations

Acronym/abbreviation	Definition
ACH Act	*Aboriginal Cultural Heritage Act 2003*
AEP	annual exceedance probability
AHD	Australian Height Datum
CHMP	Cultural Heritage Management Plan
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DIN	dissolved inorganic nitrogen
DLGWV	Department of Local Government, Water and Volunteers
DTMR	Department of Transport and Main Roads
EA	environmental authority
EIS	environmental impact statement
EMP	environmental management plan
EP Act	*Environmental Protection Act 1994*
EP Regulation	Environmental Protection Regulation 2019
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
EPP	environmental protection policies
EPP (Air)	Environmental Protection (Air) Policy 2019
EPP (Noise)	Environmental Protection (Noise) Policy 2019
ERA	environmentally relevant activity
Fisheries Act	*Fisheries Act 1994*
FSL	full supply level
GDE	groundwater dependent ecosystem
GTIA	Queensland Government, *Guide to Traffic Impact Assessment*, 2018
IAR	impact assessment report
ILUA	Indigenous Land Use Agreements
MLES	matters of local environmental significance
MNES	matters of national environmental significance
MP Act	*Marine Parks Act 2004*
MSES	matters of state environmental significance
NC Act	*Nature Conservation Act 1992*
OAMP	Offset Area Management Plan
OCG	Office of the Coordinator-General
PDIP	Paradise Dam Improvement Project
Planning Act	*Planning Act 2016*

Acronym/abbreviation	Definition
PMST	Protected Matters Search Tool
the project	the Paradise Dam Improvement Project
Queensland Heritage Act	*Queensland Heritage Act 1992*
RE	regional ecosystem
RNTBC	registered native title body corporate
RPI Act	*Regional Planning Interests Act 2014*
SDAP	State Development Assessment Provisions
SDPWO Act	*State Development and Public Works Organisation Act 1971*
SIA	social impact assessment
SIA Guideline	Queensland Government, *Social impact assessment guideline*, March 2018
SPRAT	Species Profile and Threats
SRI	significant residual impact
VM Act	*Vegetation Management Act 1999*
Water Act	*Water Act 2000*

Appendix 2. MNES listed threatened species and communities (section 18 and 18A)

Table A2.1 lists the listed threatened species and threatened ecological communities relevant to the controlled action under the EPBC Act, which at a minimum, is to be included in the impact assessment in the MNES chapter.

Note: The list at Table A2.1 may not be a complete list of listed threatened species and communities that will or are likely to be impacted by the action. It is the proponent's responsibility to ensure that any listed threatened species and communities at the time of the controlled action decision, which will or are likely to be impacted by the action are assessed for the Australian Government Minister for the Environment's consideration. Any listing events that occur after the controlled action decision of the 8 August 2025 are not required to be considered in the assessment.

Table A2.2 Listed threatened species and communities (section 18 and section 18A)

Ecological community/species name	Status under the EPBC Act
Terrestrial flora	
Hairy-joint Grass (Arthraxon hispidus)	Endangered
Cossinia (Cossinia australiana)	Endangered
Wedge-leaf Tuckeroo (Cupaniopsis shirleyana)	Vulnerable
Scrub Turpentine (Rhodamnia rubescens)	Critically endangered
Quassia (Samadera bidwillii)	Vulnerable
Terrestrial fauna	
Grey-headed Flying-fox (Pteropus poliocephalus)	Vulnerable
White-throated Needletail (Hirundapus caudacutus)	Vulnerable, Migratory
Black-breasted Button-quail (Turnix melanogaster)	Vulnerable
Diamond Firetail (Stagonopleura guttata)	Vulnerable
Latham's Snipe (Gallinago hardwickii)	Vulnerable
Greater Glider (Southern) (Petauroides volans)	Endangered
Koala (Phascolarctos cinereus)	Vulnerable
Yellow-bellied Glider (Petaurus australis australis)	Vulnerable
Collared Delma (Delma torquata)	Vulnerable
Glossy Black Cockatoo (Calyptrhynchus lathami)	Vulnerable
Aquatic fauna	
Australian Lungfish (Neoceratodus forsteri)	Vulnerable

Ecological community/species name	Status under the EPBC Act
White-throated Snapping Turtle (Elseya albagula)	Critically endangered
Threatened ecological communities	
Subtropical eucalypt floodplain forest and woodland of the New South Wales north coast and southeast Queensland	Endangered

Appendix 3. Approvals table template

The IAR must include a comprehensive list of approvals required for the project, including the detail of any environmentally relevant activities and development approvals. The IAR must nominate whether conditions of an approval are being sought through the IAR process, and if so, whether these would be imposed, stated or recommended conditions. Where an exemption from obtaining an approval applies, this must be clearly described. The table below is an example template to be used for detailing the relevant project approvals and must be provided as part of the IAR.

Table A3.3 Project approvals

Relevant legislation	Approval	Decision-maker / regulatory authority	Approval trigger and project relevance	Conditions being sought through the IAR process (imposed, recommended or stated)
Commonwealth				
e.g. Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	*EPBC Act referral and approval (if a controlled action)*	*Australian Government Minister for the Environment and Water (Australian Government Environment Minister) / Department of Climate Change, Energy, the Environment and Water (DCCEEW)*	*An action that has, will have or is likely to have a significant impact on a matter of national environmental significance, and that the Minister has determined is a controlled action.* *The proponent should provide confirmation that a referral for the project has or will be made, or that a referral is not required.* *If a controlled action decision has been made, the proponent must detail:* • *the controlling provisions* • *the assessment approach* • *who the designated proponent is for the EPBC Act.*	*e.g. Yes, recommended conditions for the controlled action.* *No, approval to be sought separate to the IAR.* *Approval to be obtained from DCCEEW following release of the Coordinator-General Evaluation Report.*

Relevant legislation	Approval	Decision-maker / regulatory authority	Approval trigger and project relevance	Conditions being sought through the IAR process (imposed, recommended or stated)
Further Commonwealth project approvals may be required				
e.g. Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (ATSIHP Act)	*Compliance with the ATSIHP Act and Cultural Heritage Management Plan (CHMP)*	*Department of [insert]*	*The proponent must identify if the project may impact on protected areas or objects of significance under the ATSIHP Act. The proponent must briefly describe the CHMP under the Queensland Aboriginal Cultural Heritage Act 2003 and the Torres Strait Islander Cultural Heritage Act 2003 which will meet the requirements of the ATSIHP Act.*	
State				
e.g. Environmental Protection Act 1994	*Environmental authority for an environmentally relevant activity (ERA) for:* *[Include detail of each environmentally relevant activity that is triggered by the project]*	*Department of [insert]*	*The proponent must identify ERA thresholds triggered under the Environmental Protection Regulation 2019, including concurrence and prescribed ERAs.*	*e.g. Yes, stated conditions for the environmental authority*
e.g. Land Act 1994			*May require tenure depending on the scope of works involved for the project or owner's consent for a development application for some state lands.*	
e.g. Forestry Act 1959				

Relevant legislation	Approval	Decision-maker / regulatory authority	Approval trigger and project relevance	Conditions being sought through the IAR process (imposed, recommended or stated)
e.g. Vegetation Management Act 1999	*22A – Relevant Purpose Determination*		*Clearing native vegetation that requires a development approval under the Vegetation Management Framework can only occur where the clearing is for a relevant purpose.* *Section 22A of the Vegetation Management Act 1999 provides for when development the subject of a vegetation clearing application is for a 'relevant purpose'.* *The pathway is to first obtain a Relevant Purpose Determination for a project declared to be a coordinated project under the State Development and Public Works Organisation Act 1971, section 26.*	
e.g. Vegetation Management Act 1999	*OPW or MCU*	*State Assessment and Referral Agency (SARA). Department of Natural Resources and Mines, Manufacturing and Regional and Rural Development will provide technical agency advice for State Code 16.*	*Developments that involve clearing, or could result in future clearing, of regulated native vegetation where the clearing cannot be carried out in accordance with an exemption listed in schedule 21 of the Planning Regulation 2017. regulated regional ecosystems or areas shown*	

Relevant legislation	Approval	Decision-maker / regulatory authority	Approval trigger and project relevance	Conditions being sought through the IAR process (imposed, recommended or stated)
			on the Regulated Vegetation Management Map and associated supporting maps current as at the time of lodging the development application.	
e.g. Mineral Resources Act 1989	*Resource Authorities*		*Proponent to specify*	
Further State project approvals may be required				
e.g. Building Act 1975	*Permit for accepted development*	*Local government or private certifier*	*Proponent to specify*	
Local				
e.g. Insert relevant local approvals				

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DELIVERING FOR QUEENSLAND

Queensland Government