

# Terms of reference for an environmental impact statement

## Aquis Resort at the Great Barrier Reef project

May 2014

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## Part A. About these terms of reference

### 1. Statutory basis

The Coordinator-General has declared the Aquis Resort at the Great Barrier Reef project to be a 'coordinated project for which an environmental impact statement (EIS) is required' under section 26(1)(a) of the *State Development and Public Works Organisation Act 1971* (SDPWO Act). This declaration initiates the statutory environmental impact assessment procedure of Part 4 of the SDPWO Act, which requires a proponent to prepare an EIS for the project.

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

The proponent referred the project to the Commonwealth Minister for the Environment in accordance with the provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 2 April 2014. A delegate of the Commonwealth Minister decided, on 5 May 2014, that the project constituted a controlled action under Section 75 of the EPBC Act and that the assessment would be undertaken through an accredited assessment under the SDPWO Act. Subsequently, these TOR were amended to incorporate matters of national environmental significance (MNES) and replace the previous TOR for the project.

The casino licence will be determined by the state government under the advice of the Department of Justice and Attorney-General and is not part of the Coordinator-General's assessment process.

### 2. EIS guidelines

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

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

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

### 3. More information

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

## Part B. Content of the EIS

### 1. General approach

- 1.1 For the purposes of the EIS process, 'environment' is defined in Schedule 2 of the SDPWO Act and includes social and economic matters.
- 1.2 The EIS should give priority to the critical matters associated with the project (specified in section 7 of this TOR).
- 1.3 The detail at which the EIS deals with matters relevant to the project should be proportional to the scale of the impacts on environmental values. When determining the scale of an impact, consider its intensity, duration, cumulative effect, irreversibility, the risk of environmental harm, management strategies and offsets provisions.

### 2. Mandatory requirements of an EIS

- 2.1 For all the relevant matters, the EIS must identify and describe the environmental values<sup>1</sup> that must be protected. Environmental values are specified in the *Environmental Protection Act 1994* (EP Act), the Environmental Protection Regulation 2008 (EP Regulation), environmental protection policies (EPPs) and relevant guidelines.<sup>2</sup>
- 2.2 The assessment should cover both the short and long terms and state whether any relevant impacts are likely to be irreversible. Also discuss scenarios of unknown, unpredictable impacts.
- 2.3 Provide all available baseline information relevant to the environmental risks of the project, including the effect of seasonal variation. Provide details about the *quality* of the information provided, in particular: the source of the information; how recent the information is; how the reliability of the information was tested; and any uncertainties in the information.
- 2.4 Provide detailed strategies in regard to all critical matters for the protection, or enhancement as desirable, of all relevant environmental values in terms of outcomes and possible conditions that can be measured and audited. In general, the preferred hierarchy for managing likely impacts is: (a) to avoid; (b) to minimise/mitigate; and (c) if necessary, and possible, to offset.
- 2.5 Impact minimisation measures should include ongoing monitoring and proposals for an adaptive management approach, as relevant, based on monitoring. The proposed measures should give confidence that, based on current technologies, the impacts can be effectively minimised over the long term.
- 2.6 Present feasible alternatives of the project's configuration (including individual elements) that may improve environmental outcomes. Discuss the consequences of not proceeding with the project.
- 2.7 Assess the extent to which the construction and operation of the project meets all statutory and regulatory requirements of the state and that the intended outcomes

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<sup>1</sup> Defined in section 125(l)(i)(A) of the EP Act.

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

are consistent with current state policies and guidelines. If there is conflict, provide comment on the planning merit that supports the project.

- 2.8 Include assessment of any directly linked projects that would be required to be delivered by other entities that are necessary to support the project proceeding (for example, power, water, sewerage, roads).

### 3. Further requirements of an EIS

- 3.1 The assessment and supporting information should be sufficient for the administering authority to decide whether an approval should be granted. Where applicable, sufficient information should be included to enable approval conditions to be decided.
- 3.2 To the extent of the information available, the assessment should endeavour to predict the *cumulative* impact<sup>3</sup> of the project on environmental values over time and in combination with impacts created by the activities of other adjacent and upstream and downstream developments and landholders—as detected by baseline monitoring. This will inform the decision on the EIS and the setting of conditions. The EIS should also outline ways in which the cumulative impact assessment and management could subsequently be progressed further on a collective basis.
- 3.3 Include a consolidated description of all the proponent’s commitments to implement management measures (including monitoring programs). Should the project proceed, these should be able to be carried over into the approval conditions as relevant.
- 3.4 Provide all geographical coordinates throughout the EIS in latitude and longitude against the Geocentric Datum of Australia 1994 (GDA94).
- 3.5 An EIS should also describe the expected benefits and opportunities associated with the project.
- 3.6 An appropriate public consultation program is essential to the impact assessment process. The proponent should consult with Local, State and Commonwealth government agencies, and potentially affected local communities.
- 3.7 The EIS should describe the consultation that has taken place and how the responses from the community and agencies have been incorporated into the design and outcomes of the project.
- 3.8 Include, as an appendix, a public consultation report detailing how the public consultation plan was implemented, and the results.

### 4. Executive summary

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

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

## 5. Introduction

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

### Project proponent

- 5.2 Describe the proponent's experience, including:
- (a) the designated proponent's full name, postal address and ABN, if relevant (including details of any joint venture partners)
  - (b) the nature and extent of business activities
  - (c) experience
  - (d) environmental record, including a list of any breach of relevant environmental laws during the previous ten years
  - (e) the proponent's environmental, health, safety and community policies.

### The environmental impact assessment process

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

### Project approvals process

- 5.5 Provide an outline of the approvals required to enable the project to be constructed and operated. Provide a timeframe for when approvals would be sought.
- 5.6 Explain how the environmental impact assessment process (and the EIS itself) informs the issue of the leases/licences/permits/consents required by the proponent before construction can commence. Provide a flow chart indicating the key approvals and opportunities for public comment. Guidance on typical associated approvals can be accessed from the Coordinator-General's website.<sup>4</sup>

## 6. Project description

### Proposed development

- 6.1 The EIS must describe and illustrate at least the following specific information about the proposed project:
- (a) the project's title
  - (b) the project (including its separate components), its objectives, and expected capital expenditure
  - (c) rationale for the project

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<sup>4</sup> [www.dsdip.qld.gov.au/cg](http://www.dsdip.qld.gov.au/cg)

- (d) the regional and local context of the project's footprint (with maps at suitable scales)
- (e) relationship to other major projects and/or developments (of which the proponent should reasonably be aware)
- (f) the workforce numbers to be employed by the project during its various phases
- (g) where personnel would be accommodated
- (h) the proposed construction staging and likely schedule of works.

## Site description

- 6.2 Provide real property descriptions of the project land for each component and adjacent properties; any easements; any tenures; and identification number of any lease for the project land that is subject to the application. Key transport, state-controlled roads, rail, air, port/sea and other infrastructure or services in the region and to the site should be described and mapped.
- 6.3 Describe and illustrate the topography of the project site and surrounding area, and highlight any significant features shown on the maps. Include and name rivers and creeks.
- 6.4 Maps should include a scale, and have contours at suitable increments relevant to the scale, location, potential impacts and type of project, shown with respect to Australian Height Datum (AHD) and drafted to GDA94.
- 6.5 Describe and illustrate specific information about the proposed project including the precise location of the proposed development in relation to designated and protected areas including erosion prone areas, the coastal management district, marine park boundaries, fish habitat areas and World Heritage Areas.
- 6.6 Where relevant, describe and map in plan and cross-sections the geology and landforms, including catchments, of the project area. Show geological structures, such as aquifers, faults and economic resources (such as agricultural products) that could have an influence on, or be influenced by, the project's activities.
- 6.7 Where relevant, describe, map and illustrate soil types and profiles of the project area at a scale relevant to the proposed project. Identify soils that would require particular management due to wetness, erosivity, depth, acidity, salinity or other features.
- 6.8 Plans and drawings provided must be detailed enough to enable the Coordinator-General and advisory agencies to adequately assess the application.

## Climate

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



## Proposed construction and operations

- 6.10 Describe the following information about the proposal:
- (a) all pre-construction activities (e.g. vegetation clearing, site access, interference with watercourses and floodplain areas, including wetlands)
  - (b) existing infrastructure and easements on the potentially affected land
  - (c) the proposed construction methods, associated equipment and techniques
  - (d) any beneficial use or disposal options for surplus excavated material
  - (e) the sequencing and staging of activities
  - (f) hours of operation for proposed construction works, including night-time works
  - (g) the capacity of high-impact plant and equipment, their chemical and physical processes, and chemicals or hazardous materials to be used
  - (h) the known locations of new or altered works and structures and infrastructure necessary to enable the construction and operation of the development
  - (i) any activity that is a prescribed ERA
  - (j) location of quarry operations the project may source materials from
  - (k) the range of land uses and site layout
  - (l) the extent of any public open space that is provided in the project's footprint
  - (m) built form and design specifics
  - (n) operation detail (e.g. hours of operation for project components)
  - (o) the commissioning process including landscaping and the rehabilitation of affected areas after construction
  - (p) management structure of final development (e.g. body corporate), and asset ownership structure
  - (q) any activity that creates an artificial waterway as defined in the *Coastal Protection and Management Act 1995* and any activity that is assessable development within the coastal zone
  - (r) location and scale of parking requirements.
- 6.11 Discuss the proponent's responsibility for site rehabilitation, particularly of water bodies. Include consideration of financial assurances to ensure government would not be responsible for bearing costs involved.

## Infrastructure requirements

- 6.12 This section should detail, with concept and layout plans, requirements for new infrastructure, or the upgrading and/or relocating of existing infrastructure to service the project. Infrastructure to be considered should include water supply, energy supply, telecommunications, stormwater, waste disposal and sewerage. Consider likely peak utilisation of water and wastewater facilities, demand management strategies and when/if additional capacity is required.
- 6.13 This section should discuss key approvals external providers will require for the proposed development to be constructed and operated.

## Energy

- 6.14 Describe all energy requirements, including electricity, natural gas, and/or solid and liquid fuel requirements for the construction and operation of the project. The location, design and capacity of power generation and transmission infrastructure for construction and ongoing use should be detailed. Indicate the locations of any easements on the infrastructure plan.

## Water supply and storage

- 6.15 Provide information on the proposed water usage by the project, including details about:
- (a) the supply required to meet the demand for full occupancy of the development, including timing of demands
  - (b) the capacity of existing water resources to cater for project requirements and the project's effects on water supply planning
  - (c) the quality and quantity of all water supplied to the site during the construction and operational phases based on minimum yield scenarios for water re-use, rainwater re-use and any bore water volumes
  - (d) a water balance analysis
  - (e) a site plan outlining actions to be taken in the event of failure of the main water supply.
- 6.16 Describe proposed sources of water supply given the implication of any approvals required under the *Water Act 2000*. Estimated rates of supply from each source (average and maximum rates) must be given and proposed water conservation and management measures must be described.
- 6.17 Determination of potable and non-potable water demand must be made for the project, including the temporary demands during the construction period. Include details of any existing town water supply to meet such requirements. Detail should also be provided to describe any proposed on-site water storage and treatment for use by the site workforce during construction and operational phases.
- 6.18 Provide detailed designs for all infrastructure utilised in the treatment of on-site water including how any on-site water supplies are to be treated, contaminated water is to be disposed of and any decommissioning requirements and timing of temporary water supply/treatment infrastructure is to occur.

## Water infrastructure master plan

- 6.19 Provide master plans for wastewater and water reticulation systems including external existing and proposed new infrastructure, including any upgrades. Include hydraulic network analysis, design drawings, alignments, location and sizing of pump stations, location and sizing of water storages and staging. Demonstrate that the design will comply with the Far North Queensland Regional Organisation of Councils (FNQROC) development manual.
- 6.20 Describe the typical service corridors or clearances for water supply and reticulation mains in relation to other services.

## Stormwater drainage

- 6.21 Describe the proposed stormwater drainage system, and the proposed disposal arrangements, including any off-site services.
- 6.22 Detail the sources of stormwater and the quantity, quality and location of discharge to watercourses and marine areas.

## Wastewater

- 6.23 Describe the sewerage infrastructure required by the project, including:
  - (a) options assessed for wastewater treatment
  - (b) the capacity of the existing wastewater treatment facilities to cater for project requirements
  - (c) measures required to mitigate any risks to the environment from discharges and overflows
  - (d) the proposed disposal and/or re-use of the treated effluent and the management of such use. An irrigation plan should be provided detailing where the use of treated effluent is likely. Details of the likely impacts of treated effluent on groundwater quality should also be provided
  - (e) how the development will manage operation of the wastewater treatment and disposal system in circumstances of disaster or disruption to power supplies, including determination of the potential emergency effluent storage that would be required in an extended rain event (one-in-50 and one-in-100-year) wet weather storage, accounting for climate change).
- 6.24 Describe the typical service corridors or clearances for sewerage and recycled water mains in relation to other services.
- 6.25 The impacts of the project's infrastructure requirements on external systems is to be discussed in the 'routine matters' section of the EIS.

## 7. Assessment of critical matters

- 7.1 This section sets out the scope of critical matters that should be given detailed treatment in the EIS. A critical matter is an aspect of the proposal that is reasonably expected to have one or more of the following characteristics:
  - (a) a high or medium probability of causing serious or material environmental harm or a high probability of causing an environmental nuisance<sup>5</sup>
  - (b) considered contentious in the public domain, for example, has been the subject of extensive media coverage and/or there is a public perception that an activity has the potential to cause serious or material environmental harm or an environmental nuisance (regardless of the likelihood of occurrence).
- 7.2 The final scope of critical matters was determined by the Coordinator-General when finalising the TOR. In the course of preparing the EIS, information may become available that warrants a change of scope.

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<sup>5</sup> 'Material environmental harm', 'serious environmental harm' and 'environmental nuisance' are defined in Part 3, sections 15, 16 and 17 of the *Environmental Protection Act 1994*.

## Land use

### Objectives

Development should be designed and operated to:

- (a) improve environmental outcomes
- (b) contribute to community wellbeing
- (c) contribute to social, economic and environmental sustainability.

### Information requirements

- 7.3 Provide a copy of the proposed plan of development (or local area plan) and potential planning scheme provisions to show how the plan may vary the CairnsPlan planning scheme.
- 7.4 Discuss the compatibility of the project with the surrounding area and the Cairns region, taking into consideration the proposed measures that would be used to avoid or minimise impacts. The discussion should include:
  - (a) existing and proposed land uses, in and around the project area, referring to regional plans and the local government planning scheme
  - (b) any tenures overlying and adjacent to the project site, and any to be applied for as part of this project
  - (c) state interests identified in the draft State Planning Policy
  - (d) how the project conforms with the requirements for sustainable development in line with the National Strategy for Ecologically Sustainable Development (1992)
  - (e) locational factors influencing the choice of site, including the risks associated with natural hazards and sensitive environmental areas. Consider key findings of the Queensland Floods Commission of Inquiry (2012) to the extent it is relevant to this site and its locational characteristics.
- 7.5 Discuss the proposal in the context of the Far North Queensland statutory regional plan and the CairnsPlan planning scheme for Cairns Regional Council.
- 7.6 Describe and illustrate the visual impact of the construction and operation of the project, including building heights. Include major views, view sheds, outlooks, and features contributing to the amenity of the area, including assessment from private residences and public places such as roads, lookouts, beaches and from the ocean. Describe the proximity of project components to these areas and also to nearby residences and businesses. Explain the impact and management of light pollution on the environment and the community within the proposed project design.
- 7.7 Present feasible alternatives of the project's configuration (including individual elements) that may improve environmental outcomes.
- 7.8 Outline how the project will maintain or enhance general public access to or along the foreshore, unless this is contrary to the protection of coastal resources or public safety.

- 7.9 If the project impacts on Strategic Cropping Land, provide the approach to addressing the requirements of the *Strategic Cropping Land Act 2011* (SCL Act). Document the necessary studies and discussions that have been completed preceding any SCL protection decision.<sup>6</sup>
- 7.10 Detail any known or potential sources of contaminated land. Describe how any proposed land use may result in land becoming contaminated.
- 7.11 Identify existing and potential native title rights and interests possibly impacted by the project and the potential for managing those impacts by an Indigenous Land Use Agreement or other measure.

## Flora and fauna

### Objective

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

### Information requirements

- 7.12 Show on maps the context of the project site in relation to surrounding vegetation, and ecological communities. Recorded fauna and flora of the site and immediate surrounds should be shown on maps with references to where they were located.
- 7.13 Describe the likely impacts on the biodiversity and natural environmental values of affected areas arising from the construction and operation of the project. Take into account any proposed avoidance and/or mitigation measures.
- 7.14 The assessment should include, but not be limited to, the following key elements:
- (a) matters of state environmental significance and national environmental significance
  - (b) terrestrial and aquatic ecosystems (including marine and groundwater-dependent ecosystems) and their interaction, including with ground and surface water hydrology and quality and controlled discharges
  - (c) biological diversity including listed flora and fauna species and regional ecosystems
  - (d) the existing integrity of ecological functions and processes, including habitats of threatened, near-threatened or special least-concern species
  - (e) the integrity of landscapes and places, including wilderness and similar natural places
  - (f) actions of the project that require an authority under the *Nature Conservation Act 1992* and *Water Act 2000* (for example, riverine protection permits) and/or would be assessable development for the purposes of the *Vegetation Management Act 1999* (VMA), the *Fisheries Act 1994* or the *Coastal Protection and Management Act 1995*

<sup>6</sup> Refer to: [www.nrm.qld.gov.au/land/planning/strategic-cropping/](http://www.nrm.qld.gov.au/land/planning/strategic-cropping/)

- (g) chronic, low-level exposure to contaminants or the bio-accumulation of contaminants
  - (h) impacts on native fauna and flora due to proximity to the site and site impacts (e.g. lighting, noise, waste)
  - (i) Impacts on fisheries resources in adjacent waterways.
- 7.15 Discuss management of fish populations in constructed waterbodies, including any proposal for fish stocking and/or recreational fishing.
- 7.16 Propose practical measures for protecting or enhancing natural values, and assess how the nominated quantitative indicators and standards may be achieved for nature conservation management. In particular, address measures to protect or preserve any threatened or near-threatened species.
- 7.17 Describe strategies for protecting Ramsar wetlands; and discuss any obligations imposed by state or Commonwealth legislation or policy, or international treaty obligations (that is, Japan–Australia Migratory Birds Agreement (JAMBA), China–Australia Migratory Birds Agreement (CAMBA) and Republic Of Korea–Australia Migratory Birds Agreement (ROKAMBA)).
- 7.18 Assess the need for buffer zones and the retention, rehabilitation or planting of movement corridors, and propose measures that would avoid the need for waterway barriers, or propose measures to mitigate the impacts of their construction and operation.
- 7.19 Describe how the achievement of the objectives would be monitored and audited, and how corrective actions would be managed.

### **Offsets**

- 7.20 Where Queensland legislation or policy requires an offset for a significant residual impact on a particular natural environmental value, the offset proposal(s) shall be presented in a form consistent with relevant legislation and policy.

## **Water quality**

### **Objective**

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

### **Information requirements**

- 7.21 Describe the groundwater and surface water hydrology within the study area and the adjoining tidal waterways in terms of water levels, discharges and freshwater flows. Detail the interaction of groundwater and surface water, and saline and freshwater flows with different tidal states.
- 7.22 Detail the chemical and physical characteristics of surface waters and groundwater within the area that may be affected by the project. Discuss the variability of flow rates and direction and water quality associated with climatic, tidal and seasonal factors, variability of freshwater flows and extreme events.

- 7.23 Identify the quantity, quality and location of all potential discharges of water and wastewater by the project, whether as point sources (such as groundwater intrusion and controlled discharges) or diffuse sources (such as irrigation to land of treated sewage effluent and the circumstances under which discharges are likely to occur).
- 7.24 Discuss the proposed disposal and/or re-use of treated effluent. An irrigation plan should be provided.
- 7.25 Describe the proposed management of existing and/or constructed waterbodies on the project site to maintain water quality, The management regime should describe the quantity and quality of water inflows (including groundwater) and any proposed exchange of tidal water.
- 7.26 Assess the potential impacts of any discharges on the quality and quantity of receiving waters, including marine waters, and identified environmental values, taking into consideration the assimilative capacity of the receiving environment and the practices and procedures that would be used to avoid or minimise impacts.
- 7.27 Explain practices and procedures that will avoid or minimise impacts of changed flow velocities from any watercourse works or water intake or discharge.
- 7.28 Describe how water quality objectives will be achieved, monitored and audited, and how corrective actions would be managed. Reference identified water quality objectives in the Environmental Protection Policy (Water) (2009) and associated guidelines.
- 7.29 Describe mitigation strategies and contingency plans to address:
- (a) any risks from discharges and overflows
  - (b) storage and treatment of contaminated waters, and potential accidental discharges of contaminants and sediments during construction and operation
  - (c) stormwater run-off from the project facilities and associated infrastructure
  - (d) flooding of relevant river systems, the effects of tropical cyclones and other extreme events
  - (e) management of acid sulfate soils. Identify potential and actual areas of acid sulfate soils. Where potential areas are identified, further investigations including field surveys should be undertaken in accordance with state planning policies and accepted industry guidelines.
- 7.30 Discuss spoil re-use and disposal options, locations, design of storage and disposal areas, impacts on surface and groundwater qualities including groundwater transmission, and rehabilitation of any excavated spoil disposal areas.
- 7.31 Discuss how the project may result in water quality impacts on nearby aquaculture operations, and how any effects would be managed.

## Water resources

### Objectives

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

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

### Information requirements

- 7.32 Provide details of any proposed impoundment, extraction, discharge, injection, use or loss of surface water or groundwater. Identify any approval or allocation that would be needed under the *Water Act 2000*.
- 7.33 Detail any significant diversion or interception of overland flow. Include maps of suitable scale showing the location of diversions and other water-related infrastructure.
- 7.34 Explain management measures that will avoid saline intrusion within groundwater adjacent to any constructed water bodies. Assess adverse impacts such intrusion may cause.
- 7.35 Develop hydrological models as necessary to describe the inputs, movements, changes to quality, exchanges and outputs of all significant quantities and resources of surface water and groundwater that may be affected by the project. The models should address the range of climatic conditions that may be experienced at the site, and adequately assess the potential impacts of the project on water resources. The models should include a site water balance. This should enable a description of the project's impacts at the local scale and in a regional context including proposed:
  - (a) changes in flow regimes from structures and water take
  - (b) alterations to riparian vegetation and bank and channel morphology
  - (c) direct and indirect impacts arising from the development.

## Hazards

### Objective

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



## Information requirements

### General

- 7.36 Describe and illustrate the hydrological character of the site including flood frequency and extent and potential storm surge inundation. Show Highest Astronomical Tide (HAT). The results of flood and storm surge modelling should be presented in appropriately scaled maps.
- 7.37 Describe the potential risks to people and property that may be associated with the project in the form of a preliminary risk assessment for all components of the project and in accordance with relevant standards. The assessment should include:
- (a) potential hazards, accidents, spillages, fire and abnormal events that may occur during all stages of the project, including estimated probabilities of occurrence
  - (b) identifying all hazardous substances to be used, stored, processed or produced and the rate of usage
  - (c) potential wildlife hazards, natural events (e.g. cyclone, storm tide inundation, flooding, bushfire, landslide, shoreline erosion) and implications related to climate change
  - (d) how the project may potentially affect hazards away from the project site (e.g. changing flooding characteristics)
  - (e) how the project may potentially affect the area's natural disaster management and recovery.
- 7.38 Outline measures required to ensure that the proposed project avoids the release of hazardous materials as a result of a natural hazard event.
- 7.39 Provide details on the safeguards that would reduce the likelihood and severity of hazards, consequences and risks to persons, within and adjacent to the project area(s). Identify the residual risk following application of mitigation measures. Present an assessment of the overall acceptability of the impacts of the project in light of the residual uncertainties and risk profile.
- 7.40 Provide an outline of the proposed integrated emergency management planning procedures (including evacuation plans, if required) for the range of situations identified in the risk assessment developed in this section.
- 7.41 Outline any consultation undertaken with the relevant emergency management authorities, including the Local Disaster Management Group.

### Erosion prone areas

- 7.42 If the project proposes permanent buildings or structures in a coastal management district, detail how coastal erosion risks are avoided or mitigated including events associated with connections with tidal water and identify any development-free buffers. This assessment must include the potential migration of waterways including Richters Creek in response to coastal and/or fluvial processes including implications of potential sea level rise.

### ***Storm tide inundation***

- 7.43 Describe storm tide inundation risk for a range of annual exceedance probabilities for the site, and assess (through hydrodynamic modelling) how the project may affect storm-tide hazard vulnerability of nearby premises. Take into consideration potential sea-level rise scenarios.
- 7.44 The assessment should consider all infrastructure associated with the project including levees, roads and linear infrastructure and all proposed measures to avoid or minimise risks to life, property, community (including damage to other properties) and the environment during storm tide events.

### ***Flooding***

- 7.45 Describe flood risk for a range of annual exceedance probabilities (including Probable Maximum Flood) for the site, and assess how the project may change flooding characteristics and the impacts of the changes. Take into consideration potential sea-level rise scenarios and extreme events considered in paragraph 6.9 (Climate). Include a discussion of historical events.
- 7.46 The assessment should consider all infrastructure associated with the project including levees, roads and linear infrastructure and all proposed measures to avoid or minimise risks to life, property, community (including damage to other properties) and the environment during flood events.
- 7.47 Describe the potential frequency and volumes of sediment that may be deposited within the site and in the constructed waterbodies, post-cyclone/storm surge and other events. Maintenance and disposal options to manage such events should be discussed.
- 7.48 Describe off-site works required to minimise flood risk, including works in the marine park and/or declared Fish Habitat Areas.

### ***Cairns Airport operations***

- 7.49 Report on the project's potential impacts on airport operations, including possible intrusion of buildings into the airspace; lighting effects; increase in bird strike risk; and any implications for the airport's emergency management planning and policies.

## **Social and economic**

### **Objectives**

The construction and operation of the project should aim to:

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

### **Information requirements**

- 7.50 Describe the likely social impacts (positive and negative) on affected communities taking into account proposed mitigation measures.

- 7.51 Describe the likely impacts (positive and negative) of the project on the economies materially impacted by the project. The analysis should describe both the potential and direct economic impacts including estimated costs, if material, on industry and the community.
- 7.52 Noting the project site's current agricultural use, discuss the impacts on the viability of the local sugar cane industry due to the proposed loss of agricultural land.

## 8. Assessment of routine matters

- 8.1 The following subsections list the routine matters for coordinated projects, with (where applicable) a reference to the relevant objectives. In some cases, not all the matters may be relevant, while in others the list may not be exhaustive.
- 8.2 For each routine matter identified below, the level of detail should be proportional to the risk or magnitude of impacts. As a minimum, the proponent should supply sufficient information that confirms the risks/impacts are not significant.

### Air

#### Objective

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

#### Information requirements

- 8.3 Fully describe the characteristics of any contaminants or materials released that may be released as a result of the construction or operations of the proposal, including point source and fugitive emissions. Emissions (point source and fugitive) during construction, commissioning, operations and upset conditions should be described.
- 8.4 Predict the impacts of the releases from the activity on environmental values of the receiving environment using recognised quality assured methods. The description of impacts should take into consideration the assimilative capacity of the receiving environment and the practices and procedures that would be used to avoid or minimise impacts. The impact prediction must:
- address residual impacts on the environmental values (including appropriate indicators and air quality objectives) of the air receiving environment, with reference to sensitive receptors. This should include all relevant values potentially impacted by the activity, under the EP Act, EP Regulation and Environmental Protection (Air) Policy 2008 (EPP (Air))
  - address the cumulative impact of the release with other known releases of contaminants, materials or wastes associated with existing development and possible future development (as described by approved plans and existing project approvals)
  - quantify the human health risk and amenity impacts associated with emissions from the project for all contaminants whether or not they are covered by the

National Environmental Protection (Ambient Air Quality) Measure or the EPP (Air).

- 8.5 Describe the proposed mitigation measures and how the proposed activity will be consistent with best practice environmental management. Where a government plan is relevant to the activity or site where the activity is proposed, describe the activity's consistency with that plan.
- 8.6 Describe how the achievement of the objectives would be monitored, audited and reported, and how corrective actions would be managed.

## Noise and vibration

### Objective

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

### Information requirements

- 8.7 Fully describe the characteristics of the noise and vibration sources that would be emitted when carrying out the activity (point source and general emissions). Noise and vibration emissions (including fugitive sources) that may occur during construction, commissioning, upset conditions, and operation should be described.
- 8.8 Predict the impacts of the noise emissions from the construction and operation of the project on the environmental values of the receiving environment, with reference to sensitive receptors, using recognised quality assured methods. Include an assessment of increased air traffic. Discuss separately the key project components likely to present an impact on noise and vibration for the construction and operation phases of the project.
- 8.9 Taking into account the practices and procedures that would be used to avoid or minimise impacts, the impact prediction must address the:
- (a) activity's consistency with the objectives
  - (b) cumulative impact of the noise with other known emissions of noise associated with existing development and possible future development (as described by approved plans)
  - (c) potential impacts of any low-frequency (<200 Hz) noise emissions.
- 8.10 Describe how the proposed activity, and in particular, the key project components described above, would be managed to be consistent with best practice environmental management for the activity. Where a government plan is relevant to the activity, or the site where the activity is proposed, describe the activity's consistency with that plan.
- 8.11 Describe how the achievement of the objectives would be monitored and audited, and how corrective actions would be managed.

## Biosecurity

### Objectives

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

- a) new weed and pest species, including aquatic and marine species are not introduced
- b) existing weeds and pests are controlled.

### Information requirements

- 8.12 Propose measures to control and limit the spread of pests, weeds, and disease on the project site and adjacent areas, particularly declared plants under the *Plant Protection Act 1989* and the Land Protection (Pest and Stock Route Management) Regulation 2003, pest algal blooms, pest fish, designated pests as defined in the *Public Health Act 2005*, and weeds of national significance.

## Waste management

### Objective

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

### Information requirements

- 8.13 For wastes besides wastewater (which is addressed in paragraphs 6.23–6.25 and 7.23), describe all the expected significant waste streams from the proposed project activities during the construction and operational phases of the project.
- 8.14 Define and describe the objectives and practical measures for protecting or enhancing environmental values from impacts by wastes. Take into account best practice waste management strategies and the Environmental Protection (Waste) Policy 2000 and the Environmental Protection (Waste) Regulation 2000.
- 8.15 Assess the proposed management measures against the preferred waste management hierarchy, namely: avoid waste generation; cleaner production; recycle; re-use; reprocess and reclaim; waste to energy; treatment; disposal. This includes the generation and storage of waste.
- 8.16 Describe how nominated quantitative standards and indicators may be achieved for waste management, and how the achievement of the objectives would be monitored, audited and managed.
- 8.17 Provide details on natural resource use efficiency (such as energy and water), integrated processing design, and any co-generation of power and by-product re-use as shown in a material/energy flow analysis.

## Health and safety

### Objective

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

### Information requirements

- 8.18 Discuss crocodile management strategies, detailing methods proposed to relocate and prevent their entrance to the site.
- 8.19 Discuss the mosquito management strategy for the site. Reference should be made to Queensland Health's Guidelines to minimising mosquito and biting midge problems in new development areas.

## Cultural heritage

### Objective

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

### Information requirements

- 8.20 Undertake research/studies as required under the *Aboriginal Cultural Heritage Act 2003* (ACH Act) and, if required, develop a Cultural Heritage Management Plan in accordance with the requirements of Part 7 of the ACH Act.
- 8.21 For non-Indigenous historical heritage, undertake a study of, and describe, the known and potential historical cultural and landscape heritage values of the area potentially affected by the project. Any such study should be conducted by an appropriately qualified cultural heritage practitioner. Provide strategies to mitigate and manage any negative impacts on non-Indigenous cultural heritage values and enhance any positive impacts.

## Transport

### Objectives

The construction and operation of the project should aim to:

- (a) maintain the safety and efficiency of all affected transport modes for the project workforce and other transport system users
- (b) enhance opportunities for travel by public transport, and active transport such as cycling and walking
- (c) avoid or mitigate impacts on the condition of transport infrastructure
- (d) ensure any required works are compatible with existing infrastructure and future transport corridors.

### Information requirements

- 8.22 The EIS should include a clear summary of the total transport task for the project, including workforce, inputs and outputs, during the construction and operational phases.
- 8.23 Present the transport assessment in separate sections for each project-affected mode (road, rail, air and sea; and public transport and active transport) as appropriate for each phase of the project.
- 8.24 Provide sufficient information to allow an independent assessment of how existing and planned transport infrastructure will be affected by project transport at the local and regional level (e.g. local roads and state-controlled roads). Discuss likely effects on the Yorkeys Knob area.
- 8.25 Include in the road impact assessment report details of the adopted assessment methodology for impacts on roads within in accordance with the *Guidelines for Assessment of Road Impacts of Development*.
- 8.26 Discuss and recommend how identified impacts will be mitigated. Mitigation strategies and are to be prepared in close consultation with relevant transport authorities (including Local Government) and the Queensland Police Service.

### Infrastructure requirements

#### Objectives

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

- (a) maintains or enhances services to existing users
- (b) ensures any required works are compatible with existing infrastructure.

- 8.27 Assess and identify any water and wastewater trunk infrastructure, existing or proposed, that would be impacted by the development and describe any upgrades that may be required to cater for the development. Identify all proposed connection points to council's networks.

- 8.28 Describe how the development will impact or alter the Far North Queensland Regional Water Supply Strategy (FNQRWSS), the Overall Water Supply Strategy for Cairns (2009) and Council's Trunk Infrastructure Policy.
- 8.29 For wastewater, describe the treatment measures/precautions of any wastewater generated on the site, whether temporary or permanent, that will be discharged to council sewerage infrastructure so that the sewage will not adversely impact on treatment processes at council's wastewater treatment plants.
- 8.30 A discussion of infrastructure alternatives, justified in terms of ecologically sustainable development, should be provided. Energy and water conservation and the reduction, re-use, recycling and recovery of waste must be briefly described in the context of relevant Commonwealth, state and local government policies.

## 9. Matters of national environmental significance

- 9.1 The EIS should provide a stand-alone report that exclusively and fully addresses the issues relevant to the MNES that were identified in the 'controlling provisions' when the project was declared a controlled action under Part 3, Division 1 of the EPBC Act.
- 9.2 A report generated from the protected matters search tool should inform the MNES addressed in the EIS. This report must be current at the time of submission of the relevant draft or final EIS.
- 9.3 The controlling provisions under the EPBC Act are:
- World Heritage properties (sections 12 and 15A)
  - National Heritage places (sections 15B and 15C)
  - Great Barrier Reef Marine Park (section 24B and 24C)
  - listed threatened species and communities (sections 18 and 18A)
  - listed migratory species (sections 20 and 20A).
- 9.4 Consideration should be given to any relevant policy statements available from [www.environment.gov.au](http://www.environment.gov.au), including:
- *Matters of National Environmental Significance: Significant impact guidelines 1.1*
  - *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy.*
- 9.5 The EIS must:
- assess all the relevant impacts that the action has, will or is likely to have, including direct, indirect, facilitated and cumulative impacts
  - provide enough information about the action and its relevant impacts to allow the Commonwealth Minister for the Environment to make an informed decision whether or not to approve the action
  - address the matters set out in Division 5.2 of the Environment Protection and Biodiversity Conservation Regulations 2000 (Cwlth).
- 9.6 The EIS must address the matters mentioned in Schedule 1 of the State Development and Public Works Organisation Regulation 2010 (Qld).



## **World Heritage properties**

### ***Great Barrier Reef World Heritage Area***

- 9.7 Identify and describe the characteristics and values of the Great Barrier Reef World Heritage Area that are likely to be impacted by the project.
- 9.8 Values include, but are not restricted to: water quality, exceptional natural beauty and aesthetic importance of the area, species of conservation significance and the significant regional habitat for listed threatened and migratory species.
- 9.9 Provide an assessment of the relevant impacts of the proposed development on the characteristics and values, and how this in turn impacts on the overall values of the Great Barrier Reef World Heritage Area. Include and refer to the statement of outstanding universal value for the Great Barrier Reef World Heritage Area (<http://whc.unesco.org/en/list/154/>).
- 9.10 Describe the relevant impacts of the proposal on the integrity and outstanding universal value of the Great Barrier Reef World Heritage Area, including, but not limited to, impacts as a result of changes to coastal processes and water quality, and visual amenity impacts.
- 9.11 Assess the impacts of the proposed development against relevant reports and documents published as part of the Great Barrier Reef and Great Barrier Reef Coast strategic assessments.
- 9.12 Describe the residual impacts of the proposed development after all proposed avoidance and mitigation measures are taken into account. Where residual impacts to the outstanding universal value of the Great Barrier Reef World Heritage Area are likely to be significant, include proposed offsets consistent with the EPBC Act Environmental Offsets Policy.

### ***Wet Tropics of Queensland World Heritage Property***

- 9.13 Identify and describe the characteristics and values of the Wet Tropics of Queensland World Heritage Property that are likely to be impacted by the project.
- 9.14 Values include, but are not restricted to: spectacular scenery, species of conservation significance and the significant regional habitat for listed threatened and migratory species.
- 9.15 Provide an assessment of the relevant impacts of the proposed development on the characteristics and values, and how this in turn impacts on the overall values of the Wet Tropics of Queensland World Heritage Property. Include and refer to the statement of outstanding universal value for the Wet Tropics of Queensland World Heritage Property (<http://whc.unesco.org/en/list/486/>).
- 9.16 Describe the relevant impacts of the proposal on the integrity and outstanding universal value of the Wet Tropics of Queensland World Heritage Property, including, but not limited to, impacts to scenic features.
- 9.17 Demonstrate that the project will not be inconsistent with:
  - (a) Australia's obligations under the World Heritage Convention; or
  - (b) the Australian World Heritage management principles; or

- (c) a plan that has been prepared for the management of a declared World Heritage property under section 316 or as described in section 321 of the *Environmental Protection Biodiversity Conservation Act 1999* (EPBC Act).

### **Great Barrier Reef Marine Park**

- 9.18 Identify and describe the environment in the Great Barrier Reef Marine Park that is likely to be impacted by the project.
- 9.19 Provide an assessment of the relevant impacts of the proposed development on the environment in the Great Barrier Reef Marine Park with regard to: the object of the EPBC Act; the object of the *Great Barrier Reef Marine Parks Act 1975*; and the Great Barrier Reef Marine Park Regulations 1983.
- 9.20 Describe the residual impacts of the proposed development after all proposed avoidance and mitigation measures are taken into account. Where residual impacts to the environment in the Great Barrier Reef Marine Park are likely to be significant, include proposed offsets consistent with the EPBC Act Environmental Offsets Policy.

### **National Heritage places**

#### ***Great Barrier Reef National Heritage Place***

- 9.21 Identify and describe the characteristics and values of the Great Barrier Reef National Heritage Place likely to be impacted by the project.
- 9.22 Provide an assessment of the relevant impacts of the proposed development on the expression of the values and how this in turn impacts on the overall values of the Great Barrier Reef National Heritage place.
- 9.23 Describe the residual impacts of the proposed development after all proposed avoidance and mitigation measures are taken into account. Where residual impacts to the national heritage values of the Great Barrier Reef National Heritage Place are likely to be significant, include proposed offsets consistent with the EPBC Act Environmental Offsets Policy.

#### ***Wet Tropics of Queensland National Heritage Place***

- 9.24 Identify and describe the characteristics and values of the Wet Tropics of Queensland National Heritage Place likely to be impacted by the project.
- 9.25 Provide an assessment of the relevant impacts of the proposed development on the expression of the values and how this in turn impacts on the overall values of the Wet Tropics of Queensland National Heritage place.
- 9.26 Demonstrate that the project will not be inconsistent with:
  - (a) the National Heritage management principles, or
  - (b) an agreement to which the Commonwealth is party in relation to a National Heritage place, or
  - (c) a plan that has been prepared for the management of a National Heritage place under section 324S or as described in section 324X of the EPBC Act.

## Listed threatened species and communities

- 9.27 Describe the listed threatened species and ecological communities likely to be impacted by the project (including EPBC Act status, distribution, life history and habitat).
- 9.28 Provide details of the scope, timing/effort (survey season/s) and methodology for studies or surveys used to provide information on the listed species/community/habitat at the site (and in areas which may be impacted by the proposed development). Include details of:
- (a) the application of best practice survey guidelines
  - (b) how studies or surveys are consistent with (or a justification for divergence from) published Australian Government guidelines and policy statements.
- 9.29 Provide an assessment of the relevant impacts to the listed threatened species and ecological communities that are found to be or may potentially be present in areas that may be impacted by the project, or for which suitable habitat is likely to be impacted. Identify which component of the project is of relevance to each listed threatened species or ecological community or if the threat of impact relates to consequential actions.
- 9.30 Describe the residual impacts of the proposed development after all proposed avoidance and mitigation measures are taken into account. Where residual impacts to listed threatened species and ecological communities are likely to be significant, include proposed offsets consistent with the EPBC Act Environmental Offsets Policy, including detailed justification of any proposed offsets using the Offsets Assessment Guide accompanying the Environmental Offsets Policy.<sup>7</sup>
- 9.31 Where relevant, demonstrate that the project will not be inconsistent with:
- (a) Australia's obligations under:
    - (i) the Biodiversity Convention, or
    - (ii) the Apia Convention, or
    - (iii) CITES, or
  - (c) a recovery plan or threat abatement plan.
- 9.32 Discuss how the project would be consistent with approved conservation advice for the species or community.

## Impact on a listed migratory species

- 9.33 Describe the listed migratory species identified likely to be impacted by the project (including EPBC Act status, distribution, life history, and habitat).
- 9.34 Provide details of the scope, timing/effort (survey season/s) and methodology for studies or surveys used to provide information on the listed species/community/habitat at the site (and in areas which may be impacted by the proposed development). Include details of:
- (a) the application of best practice survey guidelines

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<sup>7</sup> Available at: [www.environment.gov.au/resource/epbc-act-environmental-offsets-policy](http://www.environment.gov.au/resource/epbc-act-environmental-offsets-policy)

- (b) how studies or surveys are consistent with (or a justification for divergence from) published Australian Government guidelines and policy statements.
- 9.35 Provide an assessment of the relevant impacts to the listed migratory species identified (and any species that would potentially be present), or to suitable habitat for listed migratory species in areas that may be impacted by the project. Identify which component of the project is of relevance to each species or if the threat of impact relates to consequential actions.
- 9.36 Describe the residual impacts of the proposed development after all proposed avoidance and mitigation measures are taken into account. Where residual impacts to listed migratory species are likely to be significant, include proposed offsets consistent with the EPBC Act Environmental Offsets Policy.
- 9.37 Demonstrate that the project will not be inconsistent with:
- (a) the Bonn Convention
  - (b) CAMBA
  - (c) JAMBA
  - (d) an international agreement approved under subsection 209(4) of the EPBC Act.

## Conclusion

- 9.38 Include an overall conclusion as to the environmental acceptability of the proposal on each MNES, including:
- (a) a discussion on the consideration with the requirements of the EPBC Act, including the objects of the EPBC Act, the principles of ecologically sustainable development and the precautionary principle
  - (b) reasons justifying undertaking the proposal in the manner proposed, including the acceptability of the avoidance and mitigation measures
  - (c) if relevant, a discussion of residual impacts and any offsets and compensatory measures proposed or required for significant residual impacts on MNES, and the relative degree of compensation and acceptability.

## 10. Appendices to the EIS

- 10.1 Appendices should provide the complete technical evidence used to develop assertions and findings in the main text of the EIS.
- 10.2 No significant issue or matter should be mentioned for the first time in an appendix—it must be addressed in the main text of the EIS.
- 10.3 Provide a list of all commitments to implement management measures (including any monitoring programs) relevant to the project and its potential impacts. Management practices proposed should be commensurate with the risk and severity of predicted impacts. Proposed management practices may be collated to produce a consolidated management plan.
- 10.4 Include a table listing the section of the EIS where each requirement of the TOR is addressed.
- 10.5 Include a glossary of terms and a list of acronyms and abbreviations.

## Acronyms and abbreviations

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

<b>Acronym/abbreviation</b>	<b>Definition</b>
ACH Act	<i>Aboriginal Cultural Heritage Act 2003</i>
AHD	Australian Height Datum
EIS	environmental impact statement
EP Act	<i>Environmental Protection Act 1994</i>
EP Regulation	Environmental Protection Regulation 2008
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cwlth)
EPP	Environmental Protection Policy (under the EP Act)
FNQROC	Far North Queensland Regional Organisation of Councils
GDA94	Geocentric Datum of Australia 1994
SDPWO Act	<i>State Development and Public Works Organisation Act 1971</i>
TOR	terms of reference
VMA	<i>Vegetation Management Act 1999</i>

## Appendix 1. Policies and guidelines

Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand 2000, *The Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, Australian Water Association (Artarmon) and NZ Water and Wastes Association (Auckland), viewed 12 May 2014, [www.environment.gov.au/water/publications/quality/nwqms-guidelines-4-vol1.html](http://www.environment.gov.au/water/publications/quality/nwqms-guidelines-4-vol1.html)

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