



CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN GUIDELINES

Projects at Cairns Airport

JULY 2018 VERSION 1

NOTE – GUIDANCE FOR USE

Construction Environmental Management Plans (CEMP) are required for construction and maintenance activities that have the potential to cause adverse environmental impacts. CEMP's are in many cases required by NQA as part of contract documentation. The underlying intent is to provide a means for identifying environmental risks, facilitate the discussion of initiatives necessary to control such risks, provide clear environmental objectives, identify measurable performance criteria, and to determine who is responsible for ensuring environmental compliance.

Detail presented within the CEMP should reflect the scale and nature of the construction activity. This CEMP guidance document provides site-specific information relevant to projects at Cairns Airport. This document also provides a framework to which the CEMP should be prepared, noting that depending on the aspects of the construction activity, elements identified in this document may not be applicable.

Preparation of CEMPs are to be carried out by suitably qualified professionals and should be specific for the project being undertaken. It remains the responsibility of the Contractor to identify and comply with all environmental requirements. This document is for guidance only and may not include all requirements relevant to the project. Where local, state or federal permits or approvals are required for the works, the CEMP must address each of the permit conditions outlining the steps, measures and or initiatives proposed in order to ensure compliance is achieved.

All CEMPs are required to be reviewed by NQA Environment Services against the requirements of this guideline before a Permit to Commence Works (PERCOW) can be issued.

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INTRODUCTION

This Construction Environmental Management Plan Guidelines document comprises of two parts. Part one provides site-specific information relevant to environmental management at Cairns Airport while part two provides a framework for the Construction Environmental Management Plan (CEMP) with information on what is required for each heading.

PART 1 – ENVIRONMENTAL MANAGEMENT AT CAIRNS AIRPORT

Cairns Airport is surrounded by a unique and sensitive environment, situated between World Heritage listed ecosystems and bordered by protected mangrove wetlands that are important to the region’s ecology, economy and community. Cairns Airport acknowledges that its actions and the actions of its tenants, operators and contractors have the potential to impact on the environment. Cairns Airport is committed to operating in an environmentally responsible manner while supporting the community and maintaining a successful transport gateway to the region. Continual improvement is at the core of this commitment and drives progress forward as Cairns Airport strives to meet industry best practice and lead as an influential example, in agreement with the company’s Core Growth Strategy.

Setting

Cairns Airport’s total land area is approximately 770 hectares and consists of multiple land parcels. The Barron River borders Cairns Airport’s operational area to the north and subsequently drains into the Coral Sea. Mangroves and coastal ecosystems surround Cairns Airport to the east and are an important habitat for a wide range of native flora and fauna species, some of which are listed as threatened species. Residential suburbs surround Cairns Airport to the south and south-west. The suburb of Machans Beach is located directly north of the Barron River, within the river delta. Mount Whitfield Conservation Park and the suburb of Aeroglen neighbours Cairns Airport’s western boundary (adjacent to General Aviation).

Image 1 below shows Cairns Airport and its local surroundings, including residential suburbs, waterways and natural areas.

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Image 1: Cairns Airport is bordered by the Barron River to the north, mangrove and coastal ecosystems to the east, residential suburbs to the south and Mount Whitfield Conservation Park to the west.

Site History

Cairns Airport has been used for aircraft-based activities including the storage, maintenance, refuelling and operation of commercial and private aircraft since the early 1900s, including military activities during WWII.

Fuel including Jet A1, Avgas, Diesel, and petrol is stored and used at various locations across Cairns Airport. Firefighting foams containing PFAS have been stored and used by tenants on Cairns Airport landholdings in operational and emergency situations.

Environmental Characteristics

Cairns Airport is located on relatively flat coastal land that was once mangrove wetlands, saltpan and sand ridges. Surface levels across the site are less than 5m AHD and slope gradients are generally less than 3%. Reclamation fills are generally comprised of sands and gravelly clays overlaying Holocene-aged alluvial deposits of silt, mud and sand. It is expected that more consolidated Pleistocene-aged alluvial deposits underlay the relatively soft Holocene-aged deposits at depth across the site.

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Groundwater is present in a local semi-confined/ confined aquifer system at relatively shallow depths typically between about 1.5m and 3.5m below the ground surface. Groundwater depth is expected to fluctuate with rainfall and tidal influence. Perched groundwater is intermittently present in fill material, restricted by a layer of low-permeability silty clay. The direction of groundwater flow is generally expected to be towards major drainage features such as the Barron River and Trinity Inlet. However, reclamation of the site, preferential flow pathways around underground services and tidal influences complicates the hydrogeological regime. The groundwater at Cairns Airport is not used for drinking or irrigation but is considered to be of importance for the maintenance of ecosystems.

Seven surface water sub-catchment areas have been identified, based on the catchment topography, stormwater drainage networks and land use. Surface water drainage systems transverse Cairns Airport and feed into the surrounding creeks and rivers, ultimately discharging into the Trinity Inlet and the Coral Sea.

Environmental Significance

The land on which Cairns Airport has been developed, the waterways, and the surrounding ecosystems are of significance to the region’s biodiversity, economy and community including Traditional Owner groups.

As defined by the Australian Government, Matters of State Environmental Significance (MSES) and Matters of National Environmental Significance (MNES) apply to Cairns Airport landholdings. Relevant MSES include the High Ecological Significance Wetlands located in undeveloped areas east of the terminals, Wildlife Habitat, Regulated Vegetation intersecting watercourses such as the Barron River, Little Barron River and Saltwater Creek, and Declared Fish Habitat Areas east of Airport Avenue and within the eastern and northern portions of Lot 1 on RP736304. The ocean surrounding Cairns Airport is also considered to be of high ecological value and is connected to the Great Barrier Reef Marine Park.

Relevant MNES include the World Heritage Properties (Great Barrier Reef World Heritage Area) and National Heritage Places associated with the main waterways on and surrounding Cairns Airport (including the Barron River, Little Barron River, Saltwater Creek, and Trinity Inlet/ Coral Sea).

Legal and Other Requirements

All works completed at Cairns Airport must comply with applicable legislation, Queensland Environmental Management Register conditions and in accordance with an approved PERCOW as a minimum.

Commonwealth and State legislation, guidelines, codes and standards generally apply to the operations and landholdings of Cairns Airport. In addition, specific compliance obligations and permits may apply to certain stakeholders and/or projects (e.g. permits for trade waste, marine plant disturbance or operations in the Great Barrier Reef Marine Park). Cairns Airport tenant lease agreements and project approvals will also apply.

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The following is a list of some Commonwealth and State legislation that may apply to activities carried out at Cairns Airport. Most Acts have subordinate legislation (Regulations) associated with them, but only the Acts are mentioned here in most cases.

Note: *Unlike Australian Airports situated on Commonwealth land, Cairns Airport (Queensland State land) is not bound by the Airports Act 1996 or the Airports (Environmental Protection) Regulations 1997, however, these documents may be used for guidance and may be adopted voluntarily in part to guide Environmental Management at Cairns Airport.*

Environment Protection and Biodiversity Conservation Act 1999

The Environmental Protection and Biodiversity Conservation Act 1999 is administered by the Australian Government Department of Environment and Energy and provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places. Due to its location and the nature of operations, activities carried out at Cairns Airport have the potential to impact matters of national environmental significance such as the World Heritage listed Wet Tropics rainforest and Great Barrier Reef Marine Park, as well as nationally listed threatened species. The Act requires the principles of ecologically sustainable development to be taken into account for a new development proposal if that proposal is likely to result in a significant impact on the environment.

Environmental Protection Act 1994 (QLD)

The Environmental Protection Act is administered by the Queensland Government Department of Environment and Heritage Protection and is the key statutory tool used to respond to environmental harm in Queensland. Environmental harm is defined as any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value, and includes environmental nuisance. Under the Act, people and businesses in Queensland have an obligation to comply with the ‘General Environmental Duty’ meaning that all people are responsible for the actions they take, should they affect the environment. Specifically, people must not carry out any activity that causes or is likely to cause environmental harm unless all reasonable and practical measures are taken to prevent or minimise the harm. The Act also stipulates that the ‘Duty to Notify’ of environmental harm must be fulfilled. Proactive tools such as audits, inspections and licensing are carried out by the Department and environmental protection orders, license cancellations, clean-up notices and prosecutions may be issued to individuals and/or businesses for non-compliances under the Act.

Fisheries Act 1994 (QLD)

The Fisheries Act 1994 is administered by the Queensland Government Department of Agriculture and Fisheries and defines specific regulatory rights and allocation requirements for people and /or entities wishing to disturb and/or remove Queensland’s fisheries resources. These resources include the mangrove ecosystems surrounding Cairns Airport as important fish breeding habitats.

Land Protection (Pest and Stock Route Management) Act 2002

The Land Protection (Pest and Stock Route Management) Act 2002 is administered by the Queensland Government Department of Agriculture and Fisheries. Relevant provisions may also be enforced by the Cairns Regional Council under the Act. Under Part 8 of the Act, there is an

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obligation for landowners to undertake certain activities in relation to pest plant and animal management. The Act stipulates that a landowner must take reasonable steps to keep land free of class 1 and 2 pests, unless a permit is held for these species.

Nature Conservation Act 1992 (QLD)

The Nature Conservation Act 1992 is administered by the Queensland Government Department of Environment and Heritage Protection and governs the management of native flora and fauna. All native wildlife is protected by law and cannot be culled or relocated unless authorised under the Act. As a result of Cairns Airport’s location and features, the presence of wildlife is common and may compromise the safety of aircraft operations.

Cairns Airport holds a Damage Mitigation Permit under the Act to manage this risk in accordance with the Cairns Airport Bird and Wildlife Hazard Management Plan.

Planning Act 2016

The Planning Act 2016 is administered by the Queensland Government Department of Infrastructure, Local Government and Planning and is the overarching framework for Queensland’s planning and development systems. Development projects at Cairns Airport may require approval under the Act. The State Planning Policy 2017 is also relevant to Cairns Airport and defines matters of State Environmental Significance (MSES).

Environmental Incidents

Types of environmental incidents at Cairns Airport include chemicals, fuel, oil and sewage spills, unauthorised wildlife or vegetation disturbance, acid Sulfate soil disturbance and soil or waterway contamination. Cairns Airport employees, tenants, operators and contractors are required to report all environmental incidents and near misses to Cairns Airport within 48 hours of knowledge of an incident occurring. Environmental incidents must be reported regardless of whether environmental harm has occurred or not. Where possible, incidents should be reported directly and immediately.

The Environmental Incident Report Form is available to tenants, operators and contractors on the Cairns Airport website. Members of the public may also access this form if they witness or become involved in an environmental incident at Cairns Airport. All incident reports are processed and follow-up investigations are completed as required.

Note: *In addition to incident reporting to Cairns Airport, it is a requirement that every person in Queensland fulfils their ‘Duty to Notify’ upon becoming aware of environmental harm or of the potential for environmental harm to occur (Environmental Protection Act 1994). Timely notification must be made to the local Council and/ or Queensland Government Department of Environment and Science, depending on the type and severity of the incident. The Duty to Notify applies to incidents that occur anywhere in Queensland, including within leased and privately owned property.*

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Emergencies

In the event of an emergency, the Cairns Airport Coordinators must be informed as soon as possible on phone: 07 40806744. Environmental emergencies may include pollution of waterways or drains, contained spills above 50L and injury of protected wildlife.

Pollution

By law, a person must not cause, or allow a contaminant to be placed in a position where it could reasonably be expected to cause serious or material environmental harm or environmental nuisance (section 443 of the Environmental Protection Act 1994). Activities that have the potential to cause environmental harm include the storage of fuel and chemicals, spills, emergency response activities, pesticide and herbicide use, painting, waste management, vehicle and aircraft maintenance, acid Sulfate soil disturbance, and the cleaning of aircraft, equipment and buildings.

Environmental harm may also occur through inadequate silt fencing, the mismanagement of stockpiles and through the uncontrolled dispersal of localised environmental contamination in soil, groundwater and surface water. Precautions must be taken to reduce the risk of pollution occurring as a result of these activities. This may be achieved by the development and implementation of site-specific Standard Work Procedures (SWPs) and emergency response plans.

Emergency Response Plans

The contractor must develop a project-specific emergency response plan. This plan should identify all potential pollution sources, pathways and sensitive receptors. For example, a fuel storage tank may be a pollution source, a stormwater system may be a pathway and the Barron River may be a sensitive receptor.

Emergency response equipment should also be noted on the plan. This may include spill response kits, PPE and equipment.

Fuel and Chemical Storage and Handling

The storage and handling of products such as fuel, waste fuel, oil, paint, solvents and disinfectants may cause environmental contamination if it is not managed responsibly. Legislation, standards and guidance documents should be followed as a minimum. Additional precautions and situation-specific management practices may also apply to the storage and handling of fuels and chemicals under certain circumstances, particularly for highly persistent and/ or toxic substances or where sensitive receptors such as waterways and mangrove wetlands are in close proximity.

It is a requirement that Cairns Airport is notified of all fuel and chemical storage containers above 5L (excluding fuel tank components of vehicles and aircraft) and of all chemical storage cupboards located within leased areas. The location and characteristics of these storage facilities will be recorded in Cairns Airport's Hazardous Substance Register.

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A current Safety Data Sheet (SDS) must accompany any fuel and chemical stores at Cairns Airport, including those within leased areas. An electronic copy of the SDS should also be kept in the company's internal Hazardous Substance Register. Staff should be trained on how to access and interpret the SDS and should be familiar with the properties of the products they are working with.

Fuel and chemical storage facilities must be adequately bunded. Bunds should be designed to contain spillages and leaks of fuel and liquid chemicals used, stored or processed above ground and to facilitate clean-up operations. Bunds must be adequately maintained. The net capacity of a bunded compound in a storage facility should be at least 120% of the net capacity of the largest tank. For flammable liquids, bund capacity should be at least 133% of the net capacity of the largest tank. Where applicable, the construction of bunds must comply with the requirements of the Dangerous Substances Act 1979, and consideration should be given to standards published by Australian Standards for a number of classes of dangerous goods.

Measures must be taken to minimise the risk of stormwater pollution in areas where contaminants or wastes are stored or handled. This may be achieved by reducing the volume of stormwater runoff that interacts with these areas by locating them undercover and/ or by diverting uncontaminated stormwater runoff. Storage areas must not drain directly into stormwater systems or waterways. Rainwater captured in bunded areas may be contaminated and should not be disposed of to the stormwater system. Accumulated rainwater should be left to evaporate, passed through a treatment system, disposed of into the trade waste system (with council approval) or disposed of off-site by an authorised waste contractor. If these options are not available rainwater must be thoroughly inspected for any signs of contamination, such as hydrocarbon sheen, before being discharged into designated soil/ grassed areas. Bund valves must not be let open when unsupervised and if any sign of contamination is present, the accumulated rainwater must not be released to the environment.

Refuelling activities must only be carried out on designated sealed surfaces, preferably within a bunded area undercover and away from any stormwater drains and waterways. Precautions must be taken to ensure that any drips are captured and contained. This may be achieved by the use of a drip tray.

Wildlife Hazard Management

Wildlife strikes can cause serious damage to aircraft. Measures must be taken to ensure that works completed within the vicinity of the flight path does not increase wildlife abundance and therefore strike risk. Plants to be used in landscaping projects must not be a wildlife food source and species lists must be approved by Cairns Airport. Care should be taken to reduce man-made wildlife habitats including ponded water and overgrown vegetation.

Hazardous Airborne Particles

Hazardous airborne particles such as asbestos fibres, silicone dust, paint, fumes and contaminated dust may be encountered during construction projects at Cairns Airport. A risk assessment should be done by the Contractor and controls should be implemented as required.

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Painting Outdoors

The painting of building exteriors and activities such as line marking has the potential to result in environmental pollution if appropriate management practices are not followed. Paints contain a range of chemicals, many of which are likely to disrupt the natural balance in aquatic ecosystems and result in environmental harm if contamination occurs. Paints containing lead should be avoided where possible. Low toxicity and fast drying paint products are preferred and painting activities must not occur when rainfall is impending. Waste generated from painting activities, such as rags and water used to clean paint brushes must be contained and disposed of responsibly. Paint flakes and waste water containing paint residues are not permitted to be deposited down stormwater drains or onto soil/ grassed areas. Care must be taken to ensure that paint containers and associated equipment is not left in a position where it is exposed to rain.

Acid Sulfate Soil Management

Acid Sulfate Soils are soils or sediments that contain high levels of reduced organic sulphur. These soils exist naturally in Australia and are common in the coastal regions of Cairns. Acid Sulfate Soils have been identified at various locations across Cairns Airport, including the roadside of Airport Avenue. If these soils remain under water and are not disturbed, the risk of oxidation and the subsequent impact is considered to be low. However, processes such as land clearing, excavation and changes in hydrological regimes in areas containing Acid Sulfate Soils may expose the sulphur compounds to oxygen, resulting in the release of sulphuric acid. This process has the potential to seriously impact human health, infrastructure and the environment.

Excavation and earthmoving personnel and/ or project supervisors are required to have formal training in Acid Sulfate Soil identification and management for intrusive works on Cairns Airport. All Acid Sulfate Soil encounters must be reported to Cairns Airport to be monitored and will be listed on internal registers.

An ASS Risk Assessment Report must be prepared for all projects at Cairns Airport involving soil disturbance to a depth below 30cm. This Report must be provided to Cairns Airport prior to the commencement of works. Projects considered to be high risk must be guided by a site-specific Acid Sulfate Soil Management Plan.

General Cleaning

Waste water and waste products such as paint flakes generated from cleaning activities are classified as prescribed contaminants and are prohibited from entering stormwater drains, grassed areas, and garden beds. These waste products must be disposed of appropriately and will be influenced by factors such as the type and amount of waste to be discarded. In some cases, disposal of waste water to trade waste drains or sinks connected to sewer may be appropriate with council approval. A common example of this may be waste water generated from routine cleaning in the terminals or washing the outside surfaces of buildings. In other cases, waste water may contain more harmful chemicals and may need to be treated before it can be discharged into trade waste or sewer, or it may need to be removed by a licenced waste removal company for off-site management. This may include the cleaning of undercover car parks and mechanical infrastructure where hydrocarbon and/ or grime build-up has occurred.

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Erosion and Sediment Control

The erosion of soils and sediment from stockpiles, disturbed areas or earthwork project sites can have an adverse impact on water quality and ecosystem health if control measures are inadequate. Although soil and sediments are naturally occurring in the environment, aquatic ecosystems maintain a natural balance and are sensitive to unnatural changes. An increased sediment influx into an aquatic ecosystem can choke waterways, increase nutrient load, block light penetration and smother aquatic flora and fauna. Fine particles such as clays are able to remain suspended for significant periods of time, creating the potential for off-shore impacts. Considering the location of Cairns Airport relative to the Great Barrier Reef and ecologically significant estuarine and mangrove ecosystems, effective erosion and sediment control practices must be followed for all projects involving earthworks.

Sediment control equipment such as silt fencing and sand bags must be used around soil stockpiles and/or project sites and should also be placed around stormwater drains as a precautionary back-up measure. Disturbed areas should be compacted and re-vegetated promptly and projects involving soil and sediment disturbance should be avoided in periods of high rainfall where possible.

Cairns Airport requires the Contractor to prepare and submit an Erosion and Sediment Control Drawing showing all draining systems within the vicinity of the project site and clearly marking work areas.

Environmental Management Register

Some sites at Cairns Airport are listed on the State Government Environmental Management Register for fuel storage and/ or hazardous contaminants. It is the responsibility of the Contractor to check if the project site is listed on the Register and comply with any relevant conditions. This may include specific soil management practices.

Waste Management

Waste generated at Cairns Airport should be managed in accordance with the Queensland Avoidance and Resource Productivity Strategy (2014-2014). The Strategy focuses on reducing waste generation and improving recycling rates in accordance with the Waste and Resource Management Hierarchy.

The Waste and Resource Management Hierarchy adopted by Cairns Airport is:

- 1. Avoidance** including action to reduce the amount of waste generated
- 2. Resource recovery** including re-use, recycling, reprocessing and energy recovery, consistent with the most efficient use of the recovered resources
- 3. Disposal** including management of all disposal options in the most environmentally responsible manner

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Littering and Illegal Dumping

Littering and illegal dumping of items such as batteries, tyres and household waste has occurred on Cairns Airport land, including the surrounding bushland, mangroves, and Redden Island. This is an unlawful activity and is taken seriously. Cairns Airport has implemented and maintains signage in these areas to inform members of the public that littering and dumping on airport land is not permitted. Cairns Airport has processes in place to identify, inspect, record and manage dump sites and fulfils its responsibility to notify the relevant regulatory authorities if environmental pollution has occurred.

Regulated Waste

Regulated waste such as paint scrapings, oily rags, solvents, used spill-response material and aircraft hangar floor sweepings may be problematic if disposed of in general waste landfills. Any company generating or managing waste is responsible for understanding which waste products are classified as regulated waste. Regulated waste products must be separated from general waste, suitably contained and collected by a licenced waste removal company for appropriate disposal. It is a legislative requirement that regulated waste disposal is formally tracked and records must be kept. Projects and operators generating hazardous waste must develop a management plan to guide the responsible disposal of the waste products.

Trade Waste

Trade waste liquid including discharge from food outlets, car wash facilities, and aircraft hangars is managed in accordance with the relevant permits and regulation at multiple points across Cairns Airport. Discharge of trade waste to Council's infrastructure without a permit is an offence under the Water Supply (Safety and Reliability) Act 2008. Common-user trade waste pits are inspected internally by Cairns Airport on a monthly basis and are also subject to council compliance checks periodically. Stakeholders that hold a trade waste permit individually must provide a copy of the permit to Cairns Airport along with any inspection notices or non-conformance notices incurred.

Compliance

Environmental Compliance Checklist

A site-specific compliance checklist should be developed and used as a tool to ensure that the environmental objectives and performance criteria of this CEMP are being met for each environmental aspect of the works. Completion of the checklist is the responsibility of the Contractor. The required frequency for the completion of the checklist should be indicated (typically weekly) and should be submitted to the NQA Environment Manager. If any non-compliances are noted, they should be reported to the NQA Environment manager immediately and the cause of these should be identified and an explanation of the rectifying actions employed should be made.

Cairns Airport Compliance Checks

Site inspections and audits may be completed by Cairns Airport to assess project compliance with environmental requirements. Site inspections may be conducted by Cairns Airport at any time and may occur without prior notice. For audits, Cairns Airport will provide a minimum of 48hrs

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notice and an audit plan will be provided to outline the scope of the audit. It is a requirement that all relevant personnel are available to assist with audits.

Failure to Comply

Failure to comply with environmental laws or conditions of the contract, including this CEMP, can result in clean-up notices, formal warnings and compensation for reputational damage, repairs and lost time. If environmental harm occurs, Cairns Airport may need to report the Contractor to the local and/or State Government.

Reporting

Permanent records to be kept by the Principal may include items such as:

- Quantities of spoil removed by excavators
- Validation of fill brought onsite (i.e. contaminant and acid Sulfate soil free)
- Results of all surface and/ or ground water monitoring
- Any changes to construction or management procedures
- Any dust/noise complaints
- Any incident reports

The level of reporting will be dependent on the scale and nature of the project. At the minimum, an Environmental Compliance Report must be submitted to the NQA Environment Manager on a monthly basis. This report will include the above listed information and will evaluate whether the environmental objectives and performance criteria are being met and review whether management practices as outlined in this CEMP need to be updated to improve their effectiveness.

As well as including the above information, the Environmental Compliance Report will provide a general overview of works undertaken. The weekly Environmental Compliance Checklists will also be included in the report, as will the results of any water quality monitoring along with their interpretation against the relevant schedules and guidelines.

Any environmental incident, complaint, audit, monitoring and/ or inspection records produced before and during construction and as a result of carrying out the requirements of the CEMP must be provided to the NQA Environment Manager in a timely manner.

Documentation

The final CEMP is to be issued in a controlled manner with copies usually only distributed to NQA, the relevant entity which prepared the CEMP and the Principal Contractor for the works.

It should be specified that before any changes to the CEMP can be implemented, all changes must be documented and approved by NQA. Any changes are to be registered and a copy of the changes is to be forwarded to all CEMP holders.

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PART 2 – CONSTRUCTION EMP FRAMEWORK

Purpose of Document

The purpose of this document and the relevant stakeholders involved in the project should be detailed in this section. Relevant personnel to be inducted into this CEMP prior to the commencement of works should be specified. It should be noted that a copy of the CEMP must be kept onsite at all times.

Environmental Credentials

This section should specify the existing environmental credentials held by the contractor. Headings in this section should include:

- Environmental Management System
- Environmental Policy
- Understanding of regulatory framework at Cairns Airport
- Qualifications of key staff
- Site induction and staff training
- Reporting structure (e.g. kick-off and regular site meetings) and audit schedule
- Licences and approvals register
- Incident register and rectification process
- Site plans and drawings to support understanding of the environmental impact/management strategies being addressed (e.g. stormwater management plan, sediment control plan, ASS investigation test location plan etc)

Roles and Responsibilities

This section should outline the various positions within the organisation and the associated levels of responsibility each has in satisfying the environmental legal requirements and ensuring works onsite are being undertaken in accordance with the CEMP.

Generally, contractors will appoint a Construction Environmental Manager (CEM) who will have responsibility of implementing and maintaining the CEMP.

Table 1 below provides an example for your reference.

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Table 1. Example Roles and Responsibilities Overview

Role	Responsibility	Reporting
Project Manager	Obtaining all necessary environmental approvals prior to commencement of work Ensuring all necessary environmental management procedures are in place Ensure environmental risks are identified and appropriate measures are put in place Liaison with the Department of Environment and Science (DES), NQA Environment Manager and other authorities Respond to any complaints received or directions from NQA	Regulatory Authorities (State & Federal) NQA
Construction Environmental Manager	Plan works in a way that avoids or minimises the impact on the environment Ensure all site personnel, including subcontractors are aware of their environmental responsibilities Ensure contents of the CEMP are communicated, monitored and implemented Ensure documented CEMP management procedures are followed Complete all required checklists and reporting e.g. daily visual inspections, weekly compliance reports. Report all incidents or non-compliances	Project Manager
Site Personnel/Sub Contractors	Attend environmental inductions Conduct work in accordance with environmental procedures as directed Notify CEM of all potential or actual incidents, non-compliances or complaints.	Construction Environmental Manager

Description of Works

This section should clearly define the scope of the project to which the CEMP applies, its location, the approvals held and the works involved. Headings in this section should include:

- Proposed methods of works
- Equipment and machinery required including weight and height
- Proposed timing/ duration of works
- Quantities of cut and fill
- Contributions to Ecologically Sustainable Development:
 - Energy
 - Greenhouse Gas Emissions
 - Water
 - Waste

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Environmental Aspects and Impacts

This section should clearly specify all potential and real environmental aspects relevant to the works and their associated impacts, controls and risk ratings in a register. Details of management strategies for dealing with all identified impacts must also be included in this section. The following potential environmental impacts and mitigation actions may apply.

Legacy Contamination

Past activities carried out at Cairns Airport may have resulted in legacy soil, groundwater and surface water contamination. As a result, precautions must be taken to ensure that any contaminated soil or water does not cause further environmental harm when disturbed. The conditions of the State Government Environmental Management Register and environmental monitoring results should be used to assess risk. All displaced soil and groundwater should be tracked.

Noise

Potential Impacts and Associated Issues

Potential noise impacts from the works and associated activities must be assessed by a suitably qualified professional. The closest noise sensitive receptors (i.e. private residences, businesses etc.) should be identified and any potential impacts noted. The key environmental noise risks associated with the works should also be identified. These may include, for example, the use of vehicles, power tools, earthworks, and general site works.

Specific issues such as any requirements to work outside of regular hours should also be noted. Any outside-of-regular-hours works must first be approved by Cairns Airport.

Environmental Objectives

The environmental objectives should specify which guidelines or regulations apply to the works, which should include as a minimum adherence to the Environmental Protection Regulations (Noise) 2008.

Performance Criteria

This section should identify the noise levels that should not be exceeded at sensitive receptors during works.

Any time periods where noise levels must be limited (including the maximum noise level) should be noted.

Monitoring and Mitigating Actions

Specification should be made as to whether noise monitoring will be required.

The following table should contain details of relevant aspects, for example, acceptable hours of construction, noise pollution, out of hours work and noise complaints. The mitigating actions should identify measures to minimise environmental impacts in respect to each aspect during the pre construction, construction and post construction phases and assign responsible parties against each.

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Aspect	Mitigating Action	Responsibility	Pre Construction	Construction	Post Construction
Example: Hours of construction	Construction hours should it be limited from 0700 to 1800 Monday to Saturday.	Principal Contractor		✓	
Excessive noise	Activities which result in excessive noise levels (e.g. jack hammering, generators) with the potential to impact on the public are undertaken during low passenger presence periods or with muffling/insulating equipment.	Principal Contractor		✓	

Construction Dust and Air Quality

Potential Impacts and Associated Issues

Potential dust and air quality aspects associated with the works should be identified. Some background information as to the specifics of the works and potential causes of dust and any deterioration of air quality should also be noted. Key environmental dust and air quality risks may include, for example, mobile plant emissions, site clearing, excavation, earthworks, road works and stockpiling of topsoil and sand etc.

Environmental Objectives

This section should specify the regulations or guidelines which works must comply with, including at a minimum the Environmental Protection Act 1994 and Subordinate Regulations. Acceptable limits for total suspended particulates and dust fallout levels should be specified. Any restrictions in respect to dust concentrations and aircraft visibility or aircraft operations should also be noted.

Performance Criteria

Targets to be met in respect to risks such as suspended particulates, dust fallout and dust plumes as specified in the regulations as well as any schedules or guidelines adopted.

Monitoring and Mitigating Actions

Specifications should be made as to whether air quality monitoring by a suitably qualified professional will be required.

The following table should be completed to include the relevant dust and air quality aspects relevant to the project (e.g. dust avoidance and windy conditions). Mitigating actions should clearly identify measures to minimise environmental impacts in respect to each aspect during the pre construction, construction and post construction phases and assign responsible parties against each.

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Aspect	Mitigating Action	Responsibility	Pre Construction	Construction	Post Construction
Example: Dust suppression	Appropriate dust suppression measures employed, such as utilisation of water trucks to ensure that the environmental objectives and performance criteria are met.	Principal Contractor		✓	
	Stockpiles are limited to 1m in height	Principal Contractor		✓	

Surface Water Quality

Potential Impacts and Associated Issues

Potential impacts on surface water quality may include, for example, sediment mobilisation and discharge to adjacent water bodies such as the Barron and Little Barron Rivers, leaks/ spills of hydrocarbon and chemicals entering surface water bodies, and the mobilisation of stored acid sulfate soils.

Environmental Objectives

Environmental objectives to be defined to ensure minimal impacts to surface water quality.

Performance Criteria

When necessary, surface water quality performance criteria should be referenced against the Queensland Water Quality Guidelines (QWQG) (2006). Where the QWQG provide water quality guideline values (see table 2.5.3.1 of the guidelines) for Queensland waters that are more localised than the Australian and New Zealand Environment Conservation Council (ANZECC 2000) guidelines, the QWQG take precedence over the (broader) ANZECC 2000 guidelines. However, for a number of indicators, notably toxicants, there is little or no local information. For these indicators the ANZECC 2000 Guidelines will remain the principal source of information.

Monitoring and Mitigating Actions

Specifications should be made as to whether surface water quality monitoring will be required. For any required monitoring, as a minimum, field parameters must include dissolved oxygen (DO), electrical conductivity, pH, turbidity, and temperature. A suitably qualified professional would need to identify if monitoring of any other parameters specific to the associated works is required.

Any dewatering activities resulting in the discharge of groundwater onsite requires validation that all parameters comply with the performance criteria prior to release. In addition, the stockpiling of Potential and Actual Acid Sulfate Soil (PASS/ASS) is an activity with obvious environmental risks. Therefore all PASS is to be treated as ASS and water from treatment areas is to be appropriately tested prior to discharge and preferably as part of an overarching Acid Sulfate Soil Management Plan.

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The following table should contain details of relevant aspects, for example sediment management, drainage, discharge of construction water, flood control and monitoring. The mitigating actions should identify measures to minimise environmental impacts in respect to each aspect during the pre construction, construction and post construction phases and assign responsible parties against each.

Aspect	Mitigating Action	Responsibility	Pre Construction	Construction	Post Construction
Example: Sediment Management	Sediment and erosion control measures are to be implemented to prevent sediment from entering receiving aquatic environments and to ensure the environmental objectives and performance criteria are being fulfilled.	Principal Contractor		✓	
	All stormwater inlets are protected with sandbags and geofabric	Principal Contractor		✓	
	Natural grassed areas and vegetation are retained as to reduce runoff from the development to adjacent waterways and stormwater inlets.	Principal Contractor		✓	
Acid Sulfate Soils	Development and implementation of an Acid Sulfate Soil Management Plan	Principal Contractor	✓	✓	

Groundwater Quality

Potential Impacts and Associated Issues

Potential impacts to groundwater quality from the works and associated activities must be assessed by a suitably qualified professional. Water quality risks which must be effectively managed and regularly monitored should be identified. Potential impacts on groundwater quality may include an increase in acidity following disturbance to acid Sulfate soils, alteration of the hydrogeological regime and contamination of groundwater as a result of leaks or spills of fuels/oils and chemicals.

Any requirement for dewatering should be specified. A separate management plan for any dewatering activities may be required dependant upon the scope of works.

Environmental Objectives

Environmental objectives to be defined to ensure minimal impacts to groundwater quality.

Performance Criteria

Groundwater quality should be referenced against the Australian and New Zealand Environment Conservation Council (ANZECC) Water Quality Guidelines for Fresh and Marine Waters.

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Monitoring and Mitigating Actions

Specifications should be made as to whether groundwater monitoring by a suitably qualified professional will be required.

The following table should contain details of relevant groundwater aspects, for example, contamination and dewatering. The mitigating actions should identify measures to minimise environmental impacts in respect to each aspect during the pre construction, construction and post construction phases and assign responsible parties against each.

Aspect	Mitigating Action	Responsibility	Pre Construction	Construction	Post Construction
Example: Contamination	Any contaminated materials uncovered during excavations or occurring as a result of construction activities will be managed to minimise contamination of ground and surface waters and disposed of at a certified disposal facility. This will be achieved via the attached spill response and reporting procedure.	Principal Contractor	✓	✓	
Acid Sulfate Soils	Development of an Acid Sulfate Soil Management Plan including a dewatering program	Principal Contractor	✓	✓	

Fuels, Oils and Chemicals

Potential Impacts and Associated Issues

Identify potential impacts associated with fuels, oils and chemicals as a result of the works.

Environmental Objectives

The environmental objectives should aim to ensure measures are taken to prevent fuel, oil, and chemical spills and to minimise environmental harm if there is a spill.

Performance Criteria

The performance criteria could specify, for example, how the fuels, oils and chemicals are to be used and stored to prevent environmental harm in accordance with appropriate standards.

Monitoring and Mitigating Actions

The following table should contain details of relevant aspects, for example, spill response, storage, mobile and stationary plant inspections, mobile and stationary plant servicing, mobile and stationary plant refuelling, and monitoring. The mitigating actions should identify measures to minimise environmental impacts in respect to each aspect during the pre construction, construction and post construction phases and assign responsible parties against each.

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Aspect	Mitigating Action	Responsibility	Pre Construction	Construction	Post Construction
Example: Spillages	All spillages are to be immediately contained in accordance with the Environmental Spill Management Procedures specified in section XX of the CEMP.	Principal Contractor		✓	
Storage	All potentially contaminating substances are stored in bunded, roofed, well ventilated locations	Principal Contractor		✓	

Soil

This section should provide details of the construction works, including any required excavation works, and surplus excavated material that may result from the works or any additional soil required and suitable locations for stockpiling soil during and post construction.

Sediment and Erosion Control

Potential Impacts and Associated Issues

Potential impacts should be identified, some of which may require management and monitoring. These impacts and associated issues may include factors such as dust nuisance and mobilising silt and sediment which can have adverse impacts on the natural terrestrial and aquatic environments.

Environmental Objectives

The environmental objectives should aim to mitigate any potential impacts to soil and water during construction work, including sediment and erosion issues and acid Sulfate soils contamination.

Performance Criteria

Measures should be implemented to mitigate against such issues as sediment mobilisation, erosion and scouring as a result of the works.

If imported fill is required, it should be validated as acid Sulfate and contaminant free; fill validation reports should be provided to support this.

Monitoring and Mitigating Actions

The following table should contain details of relevant aspects, for example, sediment and erosion control, revegetation, soil stockpiles, fill sourced within Airport, imported fill/topsoil and monitoring. The mitigating actions should identify measures to minimise environmental impacts in respect to each aspect during the pre construction, construction and post construction phases and assign parties against each.

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Aspect	Mitigating Action	Responsibility	Pre Construction	Construction	Post Construction
Example: Sediment and Erosion Control	Appropriate measures employed to ensure that the environmental objectives and performance criteria are met. These will include the confinement of sediment with appropriate sediment control measures such as sediment fences, hay bales, silt traps, detention basins, rock basins and revegetation of open areas as soon as practically possible.	Principal Contractor	✓	✓	✓
Transfer of sediment on to roads	Suitable Wheel wash/rumble grid to be installed for all vehicles exiting the site.	Principal Contractor	✓	✓	

Acid Sulfate Soils

Any potential impacts of acid Sulfate soil (ASS) or potential acid Sulfate soil (PASS) disturbance as a result of the works should be identified. This section should also detail what excavation activities are involved in the works which may impact on acid Sulfate soils.

Results of soil sample analysis or requirements for soil sample analysis should be included. A separate management plan specifically addressing ASS may be required, depending upon the scope of works.

Monitoring and Mitigating Actions

The following table should contain details of relevant aspects, for example, of excavation works that potentially could impact on acid Sulfate soils, treatment and disposal of unsuitable material, discovery of unexpected subsurface conditions and monitoring. The mitigating actions should identify measures to minimise environmental impacts in respect to each aspect during the pre construction, construction and post construction phases and assign responsible parties against each.

Aspect	Mitigating Action	Responsibility	Pre Construction	Construction	Post Construction
Example: Management of ASS, PASS and contaminated soils	Should any suspected ASS, PASS or contaminated soils be encountered, work in the immediate vicinity is to stop and the principal contacted. Only once the appropriate management/control measures have been implemented and the Principal has given approval are construction works to recommence.	Principal Contractor	✓	✓	
	Acid Sulfate Soils are to be managed as per the attached Acid Sulfate Soil Management Plan	Principal Contractor	✓	✓	

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Flora

Potential Impacts and Associated Issues

Information on previous flora surveys and existing vegetation communities and species within the work site and surrounding area may be required for greenfield sites. Any legislatively significant species or communities and their location should be identified. Potential impacts on native flora may include clearing/ disturbance of native vegetation, the spread of disease and weeds, introduction of exotic and environmental weeds, alteration of existing landscaped areas and the alteration of topography and soil substrate, including topsoil.

Environmental Objectives

Environmental objectives should be defined to minimise any adverse impacts on native flora species and vegetation communities. This section should specify that no State or commonwealth listed species or communities will be damaged or destroyed during any phase of the works.

Performance Criteria

The performance criteria should specify targets for the protection and preservation of native flora species and vegetation communities, including targets for legislatively significant species and/or communities.

Monitoring and Mitigating Actions

The following table should contain details of relevant aspects, for example, clearing native vegetation, tree protection and weed spread. The mitigating actions should identify measures to minimise environmental impacts in respect to each aspect during the pre construction, construction and post construction phases and assign responsible parties against each.

Aspect	Mitigating Action	Responsibility	Pre Construction	Construction	Post Construction
Example: Vegetation clearing	No unauthorised clearing of vegetation is to occur.	Principal Contractor	✓	✓	
Weed Management	Weed introduction is prevented by ensuring vehicles and equipment are clean before arrival. Weeds will be actively managed onsite via the internal weekly audit checklist ensuring new weed propagation is minimised via the application of environmentally-friendly herbicides.	Principal Contractor		✓	

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Fauna

Potential Impacts and Associated Issues

Information on previous fauna surveys and existing fauna populations and species recorded within the work site and surrounding area may be required. Any legislatively significant species and the location where they were recorded should be identified. Potential impacts on native fauna may include; degradation and removal of habitat, hydrological changes, changes to habitat pH, increased risk of mortality by road traffic and construction vehicles and erection of barriers inhibiting fauna movement.

Environmental Objectives

Environmental objectives should be defined to minimise any adverse impacts on native fauna. This section should specify that no State or Commonwealth listed species will be harmed during any phase of the works.

Performance Criteria

The performance criteria should specify targets for the protection and preservation of native fauna species and populations, including targets for legislatively significant species.

Monitoring and Mitigating Actions

The following table should contain details of relevant aspects, for example, minimising the impact on native fauna, vegetation clearing, and introduction of exotic fauna and risk of mortality by construction vehicles. The mitigating actions should identify measures to minimise environmental impacts in respect to each aspect during the pre construction, construction and post construction phases and assign responsible parties against each.

Aspect	Mitigating Action	Responsibility	Pre Construction	Construction	Post Construction
Example: Vegetation clearance and loss of habitat trees	A certified spotter catcher must assess the areas to be cleared prior to the commencement and be present during vegetation clearing works.	Principal Contractor	✓	✓	

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Bird Strike Management

Potential Impacts and Associated Issues

Potential impacts associated with an increase in bird numbers on airport land should be identified. Causes for bird numbers to increase should be highlighted, such as newly accessible food sources, and new drains and ponds (temporary and permanent).

Environmental Objectives

The environmental objectives should be defined to minimise the bird attractants on site. This section should state that no operations or consequential waste onsite will act as bird attractants.

Performance Criteria

The performance criteria should provide targets for bird abundance around the work site.

Monitoring and Mitigating Actions

The following table should contain details of relevant aspects, for example, bird strike. The mitigating actions should identify measures to minimise environmental impacts in respect to each aspect during pre construction, construction and post construction phases and assign responsible parties against each.

Aspect	Mitigating Action	Responsibility	Pre Construction	Construction	Post Construction
Example: Bird attraction to site	Ensure all skips and rubbish bins are securely covered and emptied before they overflow	Principal Contractor	✓	✓	✓

Waste and Natural Resource Use

Potential Impacts and Associated Issues

The waste expected to be generated during the works should be identified. This waste may include food containers and beverage packaging, off-cuts and left over quantities of construction materials, excess fill and material generated during earthworks and packaging from construction materials.

Potential issues resulting from waste and affecting aircraft safety should be highlighted if applicable.

The expected use of natural resources should also be identified. This may include fuels and oils for plant operation and electricity to power site huts etc.

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Environmental Objectives

The objectives should include the preferred adoption of waste management practices.

The objectives should also indicate how natural resource use and greenhouse gas emissions will be minimised.

Performance Criteria

The performance criteria should target the implementation of waste hierarchy and minimising waste which may be a hazard to aircraft safety and minimising natural resource consumption. The performance criteria should also identify mechanisms to limit waster and energy consumption.

Monitoring and Mitigating Actions

The following table should contain details of relevant aspects, for example, waste avoidance, waste reuse, waste recycling, waste storage, waste disposal, construction water and monitoring. The mitigating actions should identify measures to minimise environmental impacts in respect to each aspect during the pre construction, construction and post construction phases and assign responsible parties against each.

Aspect	Mitigating Action	Responsibility	Pre Construction	Construction	Post Construction
Example: Waste Recycling & Management	Appropriate bin infrastructure will be implemented for the appropriate disposal of regulated waste (oils, chemicals, paints etc), recyclable wastes (plastics, aluminium, glass) and general waste.	Principal Contractor	✓	✓	

Environmental Sign-off and Site Handover

This section should specify what will happen when the project is complete and handed back to Cairns Airport/ tenant. This may include details on the project summary report and final inspection, rehabilitation and decommissioning, and details of any pollution control devices installed at the site.

This section should also specify any ongoing operational requirements for environmental management. The contractor must liaise with Cairns Airport to itemise future and ongoing maintenance of environmental aspects of the development.

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