E3

IMPACT SUMMARY & MANAGEMENT FRAMEWORK

ENVIRONMENTAL MANAGEMENT PLAN

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3.1 PROJECT ENVIRONMENTAL MANAGEMENT FRAMEWORK

The Draft Environmental Impact Statement (EIS) presents an integrated framework for environmental management. This framework is shown in **Figure E3.1a**.

This EMP covers aspects of the project including activities both on the airport site and surrounds during the construction and operational phases. This includes vegetation clearance, early civil preparatory works including construction of the master drainage system, preparing the site to accept sandfill material, sand delivery and shaping of the runway platform and rehabilitation of land as appropriate. These activities would be addressed by a civil contractor and/or the Sunshine Coast Airport (SCA) as operator of the Airport.

Activities involving or associated with dredging operations, including management of the dredge pump out point and pipeline, management of dredge tailwater during land reclamation and similar activities that would be managed by the dredge contractor are dealt with in Chapter E4 – Dredge Management Plan (DMP).

Activities involving or associated with the airspace are addressed in the Airspace Management Plan (AMP) as detailed in Chapter E5.

A whole of project risk assessment and details of the Airport's hazard and emergency management processes are dealt with in Chapters E6.

3.1.1 Purpose, scope and objectives

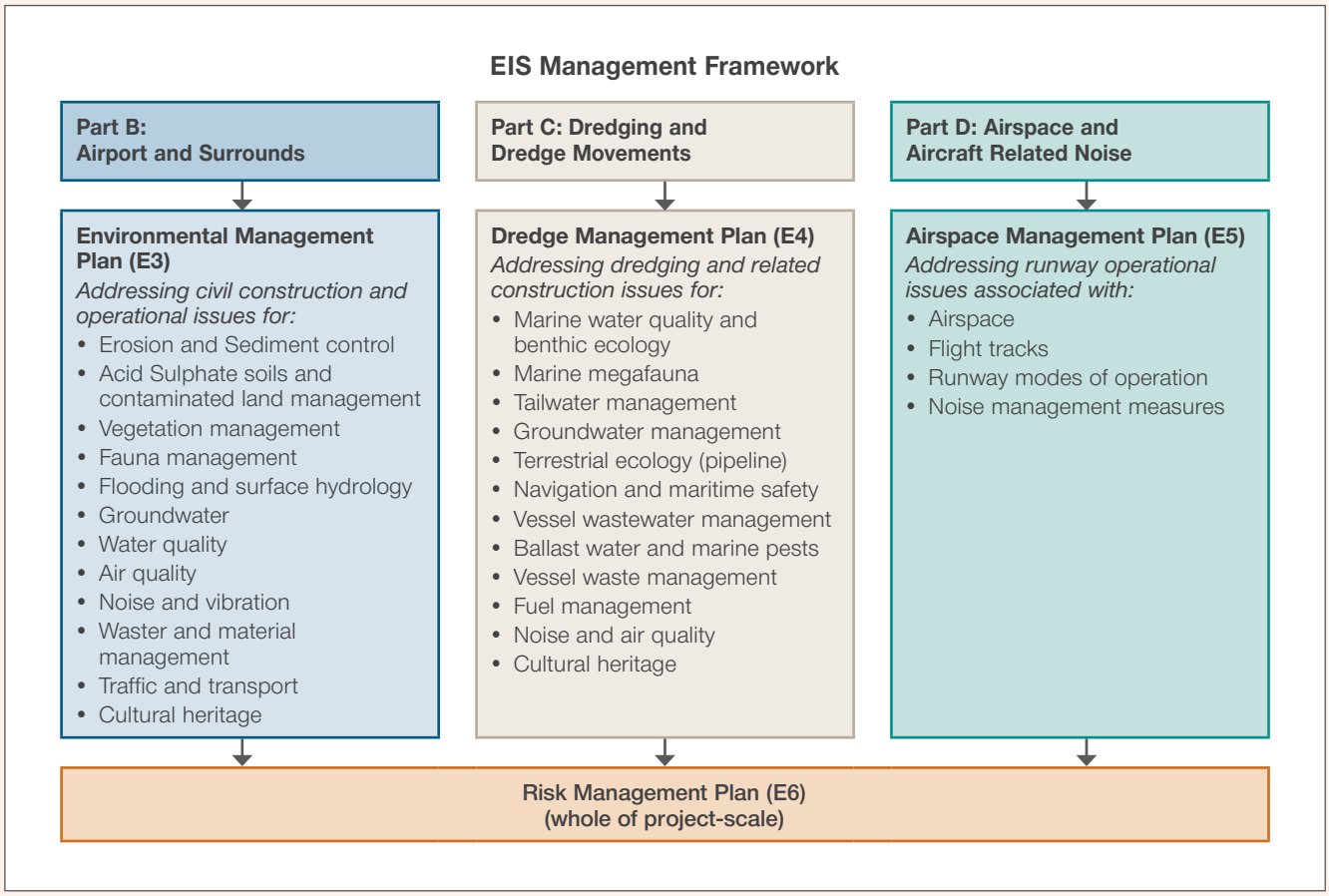
The purpose of this EMP is to identify the preferred means of addressing environmental issues associated with construction operations on the site as described above.

In general, the EMP reflects and/or provides a greater level of detail to mitigation and monitoring commitments discussed in the preceding chapters of the EIS. This is achieved by setting out the framework for management, mitigation and monitoring of relevant impacts of the action within issue-specific management plans.

The high level objectives of this EMP are:

- To avoid or otherwise minimise adverse impacts on receiving waters (i.e. in Marcoola Drain, Maroochy River and the regional groundwater and perched aquifer) and terrestrial flora and fauna during construction operations
- To identify and adopt best practice management practices for the following:
  - minimising nuisance noise on surrounding sensitive residential and ecological receivers

Figure 3.1a: Environmental Management Framework used in the EIS



  - minimising air emissions produced during construction operations and thereby minimise potential effects on sensitive receivers.
- To minimise the risk of an environmental incident occurring associated with the operations such as spills, pipeline failure or similar
- To ensure any cultural heritage requirements are observed by the contractor.

3.1.2 Relationship with future approvals

The EMP is a framework document to guide future activities and decision-making. The EMP contains procedures, guidance, commitments to monitoring and other environmental management measures that will be required to be carried through into more detailed approvals that are to be obtained by the proponent (SCA) and by the future civil contractor.

Accordingly, if approved, the commitments to management, mitigation and monitoring within this EMP will be included as part of SCA's contract requirements with the future civil contractor to ensure the commitments are addressed as part of that contractor's operational environmental management plans and systems.

However, it is recognised that compliance with the requirements of the EMP does not remove general obligations and responsibilities under relevant legislative approvals or permits obtained for the project including any relevant conditions of approval under Federal and/or State legislation.

3.1.3 Relevant legislation

The planning, approval, construction and operation of the Sunshine Coast Airport Expansion Project (the Project) are regulated in a framework of Commonwealth and Queensland State Government legislation and policy (presented in Chapter A6). This chapter also describes the necessary and subsequent permits and approvals required by the project (subject to EIS approval).

The EMP has been specifically developed in accordance with, and taking into account legislative requirements set out in Acts and Regulations at Commonwealth and State level that are listed below. Further, while consents and approvals have not yet been issued for the project, the EMP has been developed to address issues likely to be conditioned as part of the permit approvals process.

Commonwealth legislation considered in development of this EMP (including Acts implementing relevant international conventions) includes:

- *Environment Protection and Biodiversity Conservation Act 1999.*

State legislation considered in the development of this EMP includes:

- *Environmental Protection (Air) Policy 2008*
- *Environmental Protection (Noise) Policy 2008*
- *Environmental Protection (Water) Policy 2009*
- *Environmental Protection (Waste Management) Policy 2000*
- *Environmental Protection (Waste Management) Regulation 2000*
- *Environmental Protection Regulation 2008*
- *Environmental Offsets Act 2014*
- *Land Protection (Pest and Stock Route Management) Act 2002*
- *Aboriginal Cultural Heritage Act 2003*
- *Queensland Heritage Act 1992*
- *Native Title Act 1993*
- *Native Title (Queensland) Act 1993*
- *Queensland Heritage Act 1992*
- *Sustainable Planning Act 2009*
- *Nature Conservation Act 1992*
- *Vegetation Management Act 1999*
- *Coastal Protection and Management Act 1995*
- *Fisheries Act 1994*
- *Water Act 2000*
- *Waste Reduction and Recycling Act 2011.*

3.1.4 Roles and responsibilities under this EMP

The *Environmental Protection Act 1994* stipulates that:

> *'A person must not carry out any activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to prevent or minimise the harm ('the general environmental duty').*
>
> *'It is also noted that a person has a duty to notify if a person in carrying out an activity becomes aware that serious or material environmental harm is caused or threatened by the person's or someone else's act or omission in carrying out the primary activity or another activity being carried out in association with the primary activity'.*

Under the Act, SCC or any appointed contractor has ultimate responsibility for ensuring management of the works satisfies legislative requirements. Additionally as quoted above, sub-contractors and all other site staff and visitors are subject to the requirements of the Act.

3.1.4.1 Sunshine Coast Airport

SCA is the proponent and overall project administrator of the development. Following the EIS process, SCA will be responsible for obtaining more detailed approvals under State legislation to carry out the works and will prepare the contract documentation for appointment of a contractor.

The contract documentation will include copies of all approval commitments, conditions and requirements.

To oversee construction (and dredging phases – see Chapter E4 – DMP), it is expected that SCA will appoint an internal or external Superintendent to oversee the works and to manage the contractor(s). Monitoring and auditing of the contractor(s) during construction may be done by SCA, by a consultant appointed by SCA or by an independent third party depending on the resultant conditions of approvals.

A dedicated representative from SCA will be assigned to oversee the management of the works associated with the Project, and the Construction Contractor's Project Manager will report directly to this representative.

SCA's approach to managing environmental aspects for which it is responsible is embodied in the development and implementation of its Environmental Management System (EMS). SCA's EMS has been developed to be consistent with the internationally recognised EMS standard ISO 14001. It is a systematic approach to managing environmental issues across all activities, products and services SCA undertake in operating and managing the airport site. It also assesses the level of environmental risk that each activity may pose.

ISO 14001 outlines the requirement to then manage any of those risks identified to be significant. Following this, an audit protocol and review process is implemented to allow for future amendments to the system and to provide opportunities for continuous improvement.

SCA will be responsible for ensuring that any general environmental requirements outlined in this EMP are fulfilled by the contractor as part of project planning, ensuring activities are being carried out consistently with the commitment outlined in this EMP, including relevant conditions of approval, and any required aviation safety procedures or protocols related to operation of existing airport operations during construction.

3.1.4.2 Construction contractor

Project Manager

As discussed above, the Project Manager will report to the SCA Representative. The Project Manager will be responsible for the following:

- Ensuring all necessary environmental management procedures specified in the EMP and any additional conditions on the project (if approved) are in place
- Ensuring environmental risks are identified and appropriate measures are put in place
- Liaising with the SCC, SCA and other regulatory authorities as necessary
- Responding to any complaints received
- Monitoring the EMP and updating if required
- Notifying any legislative breaches or environmental incidents to the relevant authorities.

Construction Environmental Manager

It is expected that a Construction Environmental Manager (CEM) will be assigned for the construction works, reporting directly to the Project Managers. The CEM will be responsible for communication and implementation of the EMP, including reporting, audits and ensuring all site personnel, including sub-contractors, are aware of their environmental responsibilities.

The following levels of monitoring and auditing should be undertaken to determine compliance with the EMP.

- The CEM shall undertake weekly visual inspections of works to monitor and report on compliance, and implement necessary corrective measures within the EMP
- The CEM shall undertake targeted visual inspections on a daily basis throughout the construction stage
- The CEM shall be responsible for maintaining records of all audits/inspections and reporting non-compliances and corrective actions to the Project Manager.

3.1.4.3 Staff training

Environmental training for staff will be carried out prior to commencement of the works. The training would address the following issues:

- The importance of conformance with procedures outlined in the EMP (Construction)
- The significant environmental impacts (actual and potential) of their work activities
- The environmental benefits of improved performance
- Cultural Heritage significance of the area, including awareness training, no go / exclusion zones and information about procedures should an item of potential value be found on site
- Their role and responsibility in the EMP (Construction)
- The potential consequences of departure from specified operating procedures.

All personnel directly involved in environmental management must be appropriately experienced to undertake their relevant tasks.

3.2 PROJECT DESCRIPTION

3.2.1 Outline of the Project

Key elements of the Project include:

- Closure of the existing secondary runway (RWY 12/30)
- Dredging of up to 1.1 million m^3 of sand fill from Spitfire Channel (see Chapter E4 – DMP)

- Transport and mooring of the dredge adjacent to SCA for sand pumping to the site (see Chapter E4 – DMP)
- Temporary construction operations including the dredge pipeline
- Construction of the new 2,450m runway (RWY 13/31), including end taxiway loops, apron extension and other associated infrastructure
- Relocating navigational aids
- Collocated Air Traffic Control (ATC) Tower and Aircraft Rescue and Fire Fighting Services (ARFFS) Station (Airservices responsibility to construct)
- Extension of Airport drive/Friendship Avenue to provide access for the ATC tower and ARFFS station
- Implementation of revised aircraft management and procedures for the new runway and aerodrome configuration.

The new runway will be served by the existing terminal precinct which will be expanded. To accommodate larger aircraft, the apron at the existing terminal will be extended to accommodate Code E aircraft.

The existing RWY 12/30 will be closed to enable the construction of the proposed RWY 13/31. During construction the existing RWY 18/36 will remain in use for all aircraft types and once 13/31 is constructed will be retained as a secondary runway for use by a small percentage of general aviation.

Changes to airspace and aircraft flight paths will be required to accommodate the new runway configuration. The new runway will open up the airport to a range of wide-bodied aircraft servicing more distant national and international destinations.

3.2.2 Construction works and project staging

The Project construction works are anticipated to take four years and to be operational by 2020. The construction works have been divided into four packages based on program and activities as identified below:

- Package 1: Civil works
- Package 2: Dredging and reclamation
- Package 3: Runway, taxiway and apron construction
- Package 4: Terminal upgrade

Construction activities are summarised below in **Figure 3.2a**.

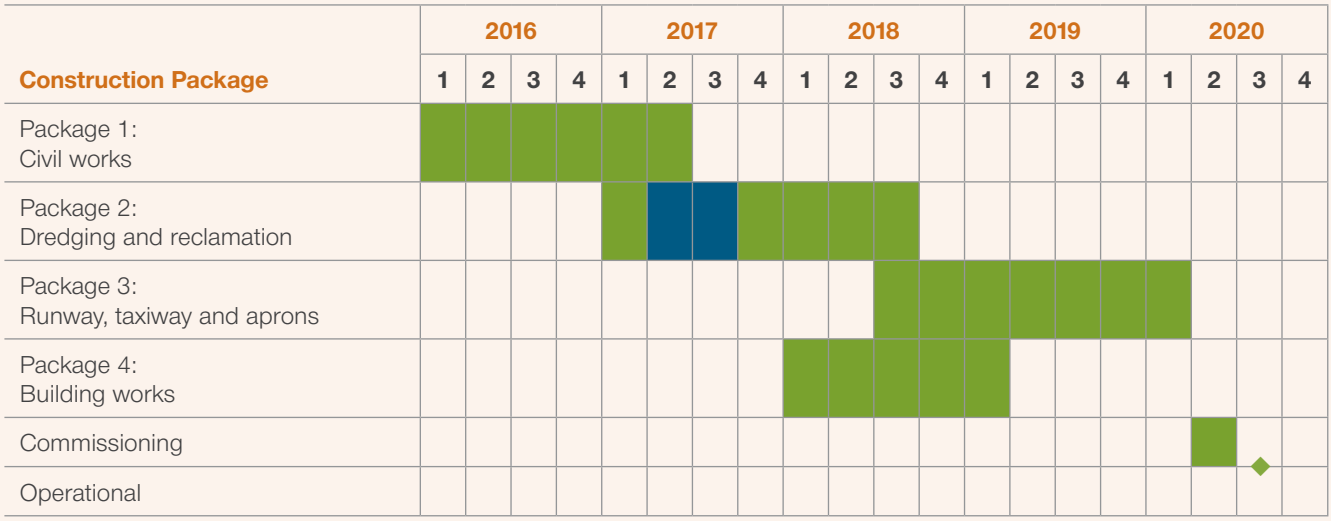
Early civil works:

- Upgrade of Finland Road and establishment of a site construction compound
- Site clearing and topsoil stock piling as required
- Excavation of major drains, including the northern and western perimeter drains
- Treatment of acid sulphate soils (ASS) as required;
- Relocation of some navigation aids and helicopter training pads
- Removal of RWY 12/30 and stockpiling of recyclable asphalt and pavement materials

Dredging and sand placement:

- Construction of the perimeter bund and polishing pond
- Preparation of the reclamation area and installation of the site liner
- Installation of the sand delivery pipeline and booster pump, if required
- Extracting and shipping sand from the Spitfire Realignment Channel to a pump-out site between 500 m and 1,000 m off Marcoola Beach

Figure 3.2a: Construction package timeline



- Pumping a sand and seawater mixture to the Project site
- Treating the seawater before discharging it to the Marcoola drain
- A 12 month settlement period for the north-west end of the runway
- Compaction and trimming of the sand platform.

Pavement construction:

- Final trimming and compaction of the sand platform
- Placement and compaction of the fine crushed rock base course
- Laying and grooving the sealing layer of asphalt
- Installation of power cables, airfield lighting and navigation aids
- Testing and commissioning of the new runway.

3.3 STAKEHOLDER ENGAGEMENT

3.3.1 Introduction

Should the Project receive the necessary government approvals to proceed, Sunshine Coast Airport (SCA) will continue its commitment to keeping the community informed about progress, during construction of the Project and once it is operational.

The stakeholder management plan will ensure stakeholders are:

- Aware of the opportunities to connect with the Project
- The channels available to them for learning about or seeking answers to questions about the Project
- Aware of the opportunities by which any concerns they have with respect to the Project can be raised and the process by which they may be addressed.

3.3.2 Stakeholder Management Plan

Stakeholder engagement during Project construction through to operation

Stakeholder category	Stakeholder	Potential Project area of interest	Engagement tools
Government	Federal, state and local government elected representatives	Construction progress and changes to the airport's operation	• Regular briefings from SCA and Sunshine Coast Council (SCC) Councillors and staff • Contact cards (including the 1800 Freecall information line and Project email address) • Project updates / newsletters • Copies of the EIS and EIS Summary • Flight Path Information booklet and online tool • Access to the Project team as required • Advertising (around major milestones) • Media releases • Fact sheets
	Federal, state and local government officers	As above	• As above
	SCA / SCC staff	Airport construction and project timing	• 1800 Freecall information line and Project email address • SCA website • Flight Path Information booklet • Fact sheets • Advertising • Media releases • Staff updates • Email alerts • Airport display • SCC channels – website, newsletters, Councillors

Stakeholder engagement during Project construction through to operation

Stakeholder category	Stakeholder	Potential Project area of interest	Engagement tools
Government continued	Airservices / Civil Aviation Safety Authority (CASA)	Project timing and flight paths	• Airport Project team • EIS / EIS Summary book • Flight Path Information booklet
Community	Communities within a 5 km radius	Construction and changes to the airport's operation, including: • New flight paths* • Beach access during temporary pipeline and pumping program • Construction traffic • Construction activity (noise, dust etc.) • Employment and business opportunities	• 1800 Freecall information line and Project email address • Flight Path Information booklet and online tool • Email alerts to stakeholders on Project database • SCA website with links to the EIS, including environmental management plans • Fact sheets • Advertising (around major milestones) • Media releases • Letterbox drop to nearby residents • Signs and clear directions at public places (such as Marcoola Beach) • Representation on the Community and Aviation Forum • Briefings on request • Promotion of the Airservices Australia Noise Complaints and Information Service and the Aircraft Noise Ombudsman • General construction alerts as required SCC channels – website, newsletters, Councillors, events • Focused construction alerts where an activity is likely to affect a specific group or location – letterbox drop
	Communities within a 10 km radius	New flight paths* Employment and business opportunities	• 1800 Freecall information line and Project email address • Flight Path Information booklet and online tool • Email alerts to stakeholders on Project database • SCA website with links to the EIS, including environmental management plans • Fact sheets • Advertising (around major milestones) • Media releases • Representation on the Community and Aviation Forum • Briefings on request • Promotion of the Airservices Australia Noise Complaints and Information Service and the Aircraft Noise Ombudsman • SCC channels – website, newsletters, councillors, events

Stakeholder engagement during Project construction through to operation

Stakeholder category	Stakeholder	Potential Project area of interest	Engagement tools
Community continued	Communities beyond the 10 km radius	General interest in the Project	• 1800 Freecall information line and Project email address • Email alerts to stakeholders on Project database • SCA website with links to the EIS, including environmental management plans • Fact sheets • Advertising (around major milestones) • Media releases • SCC channels – website, newsletters, councilors, events
	Special interest community groups	Environment/ fishing/ Moreton Bay / resident amenity	• 1800 Freecall information line and Project email address • Email alerts to stakeholders on Project database • SCA website with links to the EIS, including environmental management plans • Fact sheets • Advertising (around major milestones) • Media releases • Briefings on request
	Community and Aviation Forum	Construction and changes to the airport's operation including • New flight paths* • Beach access changes • Construction traffic • Construction activity • New employment and business opportunities • Potential for new airlines for and destinations serviced from SCA	• Regular meetings • Extraordinary meetings if milestones occur outside regular meeting framework • 1800 Freecall information line and Project email address • EIS and Summary book • Flight Path Information booklet and online tool • Promotion of the Airservices Australia Noise Complaints and Information Service and the Aircraft Noise Ombudsman • Construction alerts as required
	Indigenous communities	Land use and project impacts	• Refer to the Cultural Heritage Management Plan
	Airport users	Airport construction and project timing Potential new services	• 1800 Freecall information line and Project email address • SCA website • Fact sheets • Airport display • Local signage • In-airport signage • Advertising (around major milestones) • Media releases

Stakeholder engagement during Project construction through to operation

Stakeholder category	Stakeholder	Potential Project area of interest	Engagement tools
Aviation	Airlines and General Aviation operators using SCA and those that may operate into and out of SCA in the future	Project timing and flight paths	• Project updates as required • Meetings • SCA website • Fact sheets • EIS and EIS Summary book • Flight Path Information booklet and online tool • Airport Project team • Construction alerts as required
	Representatives of other airports in South East Queensland	Project timing and flight paths	• Project updates as required • Meetings • SCA website • Fact sheets • EIS and EIS Summary book • Flight Path Information booklet and online tool • Airport Project team
	Ground Transport Operators	Airport construction and project timing	• Project updates as required • Meetings • SCA website • Fact sheets • Construction alerts as required • Media releases
Businesses / Industry / Education	Airport businesses and local area businesses	Airport construction and project timing	• 1800 Freecall information line and Project email address • Flight Path Information booklet and online tool • Email alerts to stakeholders on Project database • SCA website with links to the EIS, including environmental management plans • Fact sheets • Advertising (around major milestones) • Media releases • Letterbox drop to nearby residents and businesses (as specific construction activity warrants) • Signs at public places (such as Marcoola Beach) • Briefings on request • Promotion of the Airservices Australia Noise Complaints and Information Service and the Aircraft Noise Ombudsman • Construction alerts as required SCC channels – website, newsletters, councillors, events

* *It should be noted that a formal public information and engagement process will be held ahead of new flight paths being approved.*

3.3.3 Procedures to resolve potential issues of concern

The complaints procedure relating to construction and operational aspects of the Project will involve the following:

- Issues of concern will be directed to the Sunshine Coast Airport Project information team via the 1800 free call information line or Project email address within 12 hours of receipt
- The information team will seek an appropriate resolution/response from the Project management, including responding to the person/s who raised an issue, within 48 hours of receipt of the complaint
- Stakeholder contact will be logged within the Project database and details included within the regular Project stakeholder engagement report forwarded to Project management
- Issues data will be reviewed regularly by the Project team to determine if there are any trends in complaints that require review and resolution
- Issues about aircraft noise will be directed to the Airservices Australia Noise Complaints and Information Service.

The following channels will be available for issues of concern to be raised during construction and operation of the Project:

- SCA 1800 free call phone number
- SCA website
- Project e-mail address.

3.4 ENVIRONMENTAL STRATEGIES AND MANAGEMENT PLANS

3.4.1 General

This section of the EMP identifies specific environmental strategies and management plans related to the Project construction works. Unless specifically stated, commitments to activities such as environmental monitoring may be undertaken by the contractor, by SCA or by a third party contracted by SCA, depending on the procurement approach taken for the works. As such, the focus of the EMP is an outline of the management and monitoring commitments and performance requirements with the responsibility for implementing the commitments to be developed as part of the procurement strategy for the Project.

SCA's role with respect to this section would be to ensure these requirements are addressed by its appointed contractor as part of project planning and to ensure activities are being carried out consistently with any existing procedures or protocols or under relevant corporate environmental policies or strategies.

3.4.2 Purpose

The purpose of the environmental management plans are to:

- Describe the appropriate measures to prevent, monitor and manage identified environmental effects
- Indicate the corrective action(s) to be undertaken if an undesirable impact or unforeseen level of impact occurs.

3.4.3 Topic areas and structure

The following management plans form the key elements of this EMP:

- Erosion and Sediment control
- Acid Sulphate Soils and Contaminated Land
- Terrestrial Flora;
- Terrestrial Fauna
- Aquatic, Estuarine and Marine Ecology
- Groundwater Management
- Air Quality and Dust
- Noise and Vibration
- Waste and Materials Management
- Traffic and Transport
- Cultural Heritage.

The structure used for each of these EMP elements is shown in **Table 3.4a**.

3.4.4 Implementation

This section of the EMP outlines the general environmental requirements that any future contractor(s) would be expected to fulfil. As suggested in Section 2.3.1, SCA will be responsible for ensuring that these requirements are fulfilled by the contractor as part of project planning, ensuring activities are being carried out consistently with the commitment outlined in this EMP; this includes relevant conditions of approval, and any existing aviation safety procedures or protocols related to operation of the Airport and Surrounds during construction.

Subsequent sections of this EMP identify elements and respective action plans identifying construction specific requirements, impact prevention or mitigation on environmental actions.

Table 3.4a: Generic structure of each management plan

Objective: A description of the environmental values associated with the element to be protected, enhanced and/or managed.	
Management action	**Responsibility Timing**
Outlines the strategies, tasks or action program (to nominated operational design standards) that would be implemented to achieve the performance criteria	Nominates responsible parties for implementing the environmental management actions/measures and timing information where relevant.
Performance requirements: • Outlines measurable performance criteria (outcomes) for each element/scope of works. The criteria include the proponent's commitments to acceptable levels of environmental performance, including environmental objectives, performance standards and associated measurable indicators, performance monitoring and reporting.	
Monitoring: • Describes the monitoring requirements to measure actual performance. These include monitoring parameters, points, frequency, response trigger values and response activities. Where relevant, indicators have been identified for monitoring before, during and after construction and/or operation of the project, to demonstrate the extent of achievement of the objective.	
Reporting: • Defines the format, timing and responsibility for reporting of monitoring results • Identifies an auditing protocol, for each element where relevant • Outlines requirements to demonstrate implementation of construction and operation environmental management strategies and compliance with agreed performance criteria.	
Corrective action: • Lists the corrective actions (options) to be implemented in case a performance requirement is not reached and the person(s) responsible for each action (including staff authority and responsibility management structure).	

Note that the management of water quality during construction in relation to the tailwater discharge from sand filling is covered in Chapter D3 – Dredge Management Plan.

Table 3.4b: General site environmental management commitments

Objective: Manage environmental impacts to prevent or minimise environmental harm		
Management action	**Responsibility**	**Timing**
Project activities are conducted in accordance with the requirements of this EMP, and subsequent CEMPs.	SCA and Contractors	Prior to commencement of works
Carry out environmental inspections and co-ordinate site activities as required by this EMP and subsequent CEMPs in a timely fashion.	SCA and Contractors	Prior to and during works
Promptly advise all relevant parties of any environmental management action to be taken to maintain compliance with this EMP and subsequent CEMPs and relevant statutory requirements.	SCA and Contractors	Prior to commencement of works
Advise relevant statutory body immediately if any environmental harm or potential harm occurs within or near the construction site (as required by law).	SCA and Contractors	During works
Undertake environmental management actions as directed by Regulatory Agencies and/or Council.	SCA and Contractors	During works
All personnel are aware of the potential environmental impacts and required minimum environmental control measures before they commence any sites works.	SCA and Contractors	Prior to commencement of works
Performance requirements: • Project Administrator/Superintendent to oversee and review all project environmental documentation.		
Monitoring: • N/A		
Reporting: • Prepare CEMPs for each subsequent development stage that demonstrate how performance requirements and measures within this EMP are being addressed • Meet legislative and regulatory reporting requirements in accordance with conditions imposed on approval and permits.		
Corrective action: • Review procedures and reporting where commitments are not being considered or addressed in future stages.		

3.4.5 Erosion and Sediment Control Management Plan

Construction Stage

The ground surface is generally low lying, with slopes on the site minimal, and site soils being comprised of predominantly sands with few non-dispersive soil fines. The potential hydrological impacts to waterways and ecosystems as a consequence of increased runoff during clearing and construction can be minimised with adherence to conventional Erosion and Sediment Control (ESC) measures.

Potential impacts which may result in erosion include vegetation removal and uncontrolled drainage leading to sediment runoff and concentrated flows. During construction stormwater management and erosion control needs to be addressed to minimise potential discharge into sensitive receiving environments.

Management of these impacts is to be undertaken by implementing erosion and sediment control measures as outlined in the following table. All structures are to be designed and installed in accordance with the International Erosion Control Association of Australia (IECA)'s guidelines. These structures are to be inspected and maintained to ensure they are effective and remain stable, and that sediment build-up is removed when approaching 75 percent capacity to ensure maximum functionality.

Objective: To manage the erosion and avoid sediment transfer to minimise impacts to any adjacent receiving water bodies, sensitive environment and to comply with regulatory requirements.

Management action	Responsibility	Timing
An erosion and sediment control plan will be developed in accordance with the International Erosion Control Association of Australia's guidelines for each of the separate stages of the project.	Contractors	Prior to works
Perimeter bunds will be constructed as early works to contain stormwater runoff within the site during the site clearing and preparation.	Contractors	Prior to and during works
Local erosion and sediment control devices will be used as required.	Contractors	Prior to and during works
Appointed contractors to be aware of forecast rain events and appropriate planning for storm events will be considered.	Contractors	During works
Erosion and sediment control measures (including sediment traps, sediment fences and sandbags) shall only be removed when exposed earth is stabilised with suitable vegetation cover.	Contractors	During and following works
Stockpiles shall not be located in stormwater paths. If this is not possible, install catch drains or earth bunds upstream to divert stormwater around them.	Contractors	During works
Cover all materials and debris stockpiles prior to site removal for disposal.	Contractors	During works
A formalised stable entry/exit point will be established on the site and suitable controls established to ensure the transport of sediment and materials off the site is minimised.	Contractors	Prior to and during works
Prompt stabilisation coverage (within 14 days)	Contractors	During and following works
Regular Inspection and watering of re-vegetation	Contractors	During and following works
A layer of topsoil will be applied to the final earthworks profile to ensure good coverage of grass around the runway.	Contractors	Following works

Performance requirements:

- Compliance with the erosion and sedimentation control provisions in the EMP (Construction)
- Erosion to be controlled and sediment control devices used to treat all site discharges with the potential for particle export
- All areas disturbed within the site to be protected with temporary and permanent erosion control measures.

Objective: To manage the erosion and avoid sediment transfer to minimise impacts to any adjacent receiving water bodies, sensitive environment and to comply with regulatory requirements.

Management action	Responsibility	Timing
Monitoring: • Daily inspections to be undertaken for visual inspection of erosion and sediment control devices during construction. Also visually inspect water discharged from the site to ensure it is free of sediment • Formal weekly audits of work to monitor compliance, implement necessary corrective measures and report on compliance • Discharge from sediment ponds will be monitored by the reclamation Contractor to ensure compliance with regulatory requirements. (Refer Chapter B6 – Surface Water & Hydrology).		
Reporting: • The Contractor is to periodically submit an inspection inventory of ESC devices established, including the inspection date, condition report, corrective actions required and date of restoration.		
Corrective action: If site inspection identifies the need for repair, cleaning or restoration of control devices, corrective actions that may be undertaken includes: • Replacement/repair of existing controls • Implementation of new/additional controls • Undertaking remedial action to minimise damage caused by material and/or debris should it leave the site.		

Operational Stage

Objective: Manage the erosion hazard potential of increased runoff and promoted erosion due to an increase in hard surfaces within the SCA expansion area during operations.

Management action	Responsibility	Timing
Use of spoon/catch drains at down gradient edges.	Contractors	Design Phase
Perimeter surface drains	Contractors	Design Phase
Runoff retention of reuse irrigation	Contractors	Construction Phase
Performance requirements: • Local Authority; Manual for Erosion and Sediment Control (Version 1.2), SCRC 2008, Minimum % coverage of exposed soils, discharge water requirements, sign off on completion of construction phase • Overarching requirements; EP (Water) P 2009, VM Act 1999 and EP Act, 1994.		
Monitoring: • Weekly monitoring inspections during re-vegetation and earthworks operations • Monthly third party audit reports.		
Reporting: • Weekly audit reports as in accordance with the EMP requirements • Immediate reporting of non-compliances in accordance with the EMP requirements or overarching legislative requirements.		
Corrective action: • Review operational procedures during earthworks and construction phases following non-compliances • Investigate the development of further management strategies or engineering solutions following consecutive non-compliances.		

3.4.6 Acid Sulphate Soils Management Plan

Construction Stage

The following management plan for Acid Sulphate Soils provides the mitigation measures proposed to manage potential impacts on regional groundwater and the surrounding receiving environment.

Objective:

Management action	Responsibility	Timing
Implementation and adherence to an ASS Management Plan, outlining monitoring and treatment requirements, including using more than 25t of aglime for neutralisation	Contractors and SCA	Prior to and during construction
Implement Site Management Plan (SMP) to remove contamination or to mitigate worker exposure for earthworks at former farm shed locations	Contractors	Pre-Earthworks and Construction Phases
A cut-off wall is proposed on the northern side of the northern perimeter drain to mitigate risks associated with drawdown and oxidation of potential ASS and mobilisation of acidity.	Contractors	Prior to and during construction
Pads will be used for specific treatment of excavated acid sulphate soils.	Contractors	During construction
A guard layer of agricultural lime to be placed within sections of the proposed drains to intercept and neutralise any acidity mobilised from normally unsaturated actual ASS that settles beneath the water table.	Contractors	Prior to and during construction
Liming rates are to be as per that specified in section C3.7.7.1 and **Table C3.7e** of the EIS.	Contractors	During construction
Any lime treatment should be carried out in accordance with Queensland Acid Sulphate Soil Technical Manual, Soil Management Guidelines (ver 3.8) (Dear et al., 2002).	Contractors	During construction
Any use of agricultural lime within the site is to consider naturally acidic ecological habitats in the vicinity and the advice of an appropriately qualified ecologist is to be sought in relation to liming rates and locations.	Contractors	Prior to and during construction
Regular monitoring of groundwater and receiving waters (i.e. Marcoola Drain and Maroochy River) during and after filling activities.	Contractors	Post Construction
Monitoring of receiving water bodies (i.e. Marcoola Drain and Maroochy River) before and after fill placement and regular visual inspections of the banks for signs of impact.	Contractors	Post Construction

Performance requirements:

- In accordance with the requirements of the specific Management Plans and the overarching legislation.

Monitoring:

- Regular Monitoring Inspections as in accordance with the Management Plans.

Reporting:

- Weekly audit reports as in accordance with the Management Plan requirements
- Immediate reporting of any discharge water results which fail to meet the release limit criteria or non-compliances in accordance with the Management Plan requirements or overarching legislative requirements.

Corrective action:

- Re-treatment of any previously treated waters which failed to meet the release limit criteria prior to discharge
- Review operational procedures during earthworks and construction phases following non-compliances
- Investigate the development of engineering solutions following consecutive non-compliances.

3.4.7 Terrestrial Flora Management Plan

Considerations specific to the management of terrestrial flora during construction will include protection of retained remnant vegetation, protection of the retained Mount Emu She-oak population and management of declared pest plants, as outlined in the Table below. Chapter B7 – Terrestrial Flora identifies and assesses potential impacts to terrestrial flora in due to the proposed project in greater detail.

During construction, machinery brought to the site has the potential to carry weed reproductive material. The weed management procedure below will minimise the potential of new weeds being introduced to the site or weed reproductive material leaving the site during construction. A negligible impact can be expected if standard and appropriate mitigation measures are undertaken as outlined in the table below.

Construction Stage

Objective: Minimise disturbance of, damage and loss of vegetation during construction, as well as retention and protection of all flora species of conservation significance.

Management action	Responsibility	Timing
Pre-clearing surveys within the clearing footprint for any threatened or near threatened flora species. If additional threatened or near threatened species are identified, appropriate mitigation measures will applied to conserve the species (e.g. translocation).	SCA	Prior to works
Clearing contractors to be briefed on the potential occurrence of threatened or near threatened flora species.	SCA Contractor	Prior to works
Collection of seed from impacted Mount Emu She-oak as a risk management measure.	SCA Contractor	Prior to works
Construction compounds, stockpile areas, storage areas, vehicle parking/access areas and site offices are located outside of areas of remnant or regrowth vegetation.	Contractor	Prior to works, during works.
Clear demarcation of vegetation to be retained, including erection of fencing and signage where necessary to clearly identify the location of significant areas. Tree protection procedures should be in accordance with AS4970 the Australian Standard for Protection of Trees on Development Sites and Adjoining Properties.	Contractor	Prior to works
The boundaries of Mt Coolum National Park are to be clearly signed and marked and all construction personnel are to be made aware of the National Park boundaries. The access tracks within the National Park are not be used for any construction purposes.	SCA Contractor	Prior to works, during works
Cleared native vegetation is to be salvaged and disposed of at a green waste transfer station to be mulched and/or composted. Alternatively, cleared native vegetation can be stockpiled on site and mulched for use in revegetation or landscape works.	Contractor	During works
Pre-clearing survey to identify and clearly mark all declared pest plants. Declared pest plants (such as Asparagus Fern, Groundsel Bush and Lantana known in the Project area) are to be treated and removed separately from native vegetation waste.	SCA Contractor	Prior to and during works
Preparation and implementation of a Weed Management Plan specifically addressing declared pest plants	Contractor	Prior to works
If cleared vegetation is to be stockpiled on site and re-used as mulch in landscaping works, it is to be composted to allow for the eradication of any weed seeds or propagules.	Contractor	During works
Vehicles are to be brushed down prior to entering the site.	Contractor	During works

Objective: Minimise disturbance of, damage and loss of vegetation during construction, as well as retention and protection of all flora species of conservation significance.

Management action	Responsibility	Timing
Personnel to be introduced to pest species in project area (Asparagus Fern, Groundsel Bush and Lantana)	Contractor	Prior to and during works

Performance requirements:

- Clearing of remnant vegetation and native vegetation is limited to areas required for the construction
- Protection of all Mt Emu She-oak plants outside of clearing limits
- No new occurrences of declared pest plants due to construction.

Monitoring:

- The above management actions are to be implemented and monitored as part of EMP implementation
- All vegetation protection fences and signs are to be maintained.

Reporting:

- Maintain records of clearing dates, areas and volumes of material, and types of cleared vegetation.

Corrective action:

- Replacement of any vegetation protection fencing
- Rehabilitation of areas accidentally cleared
- If monitoring identifies practices inconsistent with minimising risks associated with soil pathogens and weeds, the CEM shall take the necessary corrective steps and note them
- Corrective actions may include additional inspections, hand/spray removal of weeds, additional cleaning of tyres and vehicles.

Operational Stages

Following construction there are several ongoing management requirements to ensure the protection and long-term viability of the significant terrestrial flora features of the project area. The retained Mount Emu She-oak population occurs over Sunshine Coast Council (SCC) freehold land and the southern section of Mt Coolum National Park.

Ongoing management will be required to ensure the long term viability of this population, including monitoring of any translocated plants and implementation of an appropriate fire regime. Other features that will require ongoing management on SCC land includes treatment of declared pest plants and maintenance of the required low, dwarf heathland to the north of the runway and in the VOR area.

Objective: Ensure long term viability of Mt Emu She-oak.

Management action	Responsibility	Timing
Protection and management of the Mount Emu She-oak population through implementation of appropriate fire regimes, management of weeds and population monitoring Development of a Mount Emu She-oak Population Management Plan (for the northern portion of AEP1) and Translocation Plan.	SCA	Ongoing
Consultation with the Department of National Parks, Recreation, Sport and Racing to ensure coordinated management of the Mount Emu She-oak population within SCC land and in the southern section of Mt Coolum National Park	SCA	Ongoing
Management of the dwarf closed heath to be established to the north of the runway and within the VOR area. Revision and development of the existing Wallum Heath Management Plan for the areas to be trimmed	SCA	Ongoing
Revegetation of the dredge pipeline construction compound and access area in line with a Vegetation Management Plan	SCA	Ongoing
On-going treatment and removal of declared pest plants within areas of retained remnant vegetation on SCC land	SCA	Ongoing

Performance requirements:

- Long term viability of the Mount Emu She-oak population
- Complete revegetation of the dredge pipeline construction compound and access area in line with a Vegetation Management Plan
- Absence of declared pest plants from areas of retained remnant vegetation within SCC land.

Monitoring:

- Regular monitoring of Mount Emu She-oak population, including performance monitoring of the northern portion of AEP1 and any translocated plants
- During revegetation, monitoring is required for the dredge pipeline construction compound and access area in line with a Vegetation Management Plan
- Weed and declared pest plant surveys.

Reporting:

- Revision of the Wallum Heath Management Plan to include the area of trimmed vegetation to the north of the runway and around the VOR area
- Preparation of a Weed Management Plan and Strategy for areas of retained vegetation within.

Corrective action:

- Amend fire regimes to ensure protection of the Mount Emu She-oak population
- On-going removal and treatment of declared pest plants.

3.4.8 Terrestrial Fauna Management Plan

Key elements of the Project in relation to terrestrial fauna are as follows:

- The Project would result in the loss of 1.67 ha of Wallum sedgefrog habitat (EP BC Act listed species) and 60.6 ha of state-listed acid frog habitat. The provision of offset habitat within the Project area for Wallum sedgefrog is proposed to compensate for the loss of this habitat. State-listed acid frog habitat would be offset by the rehabilitation of a SCC-owned property at Palmview.
- As part of the EIS, Ground Parrot surveys were undertaken on a monthly basis for a period of 12 months, providing previously unknown information about this secretive bird. The Ground Parrot population at the airport site comprises approximately 14 to 16 birds. It appears that the airport provides suitable habitat for Ground Parrots due to SCA's management regime of trimming wallum heath, preventing the emergence of a tree canopy. In addition, it is considered that the maintenance of the perimeter fence around their on-airport habitat restricts predator access, assisting in survival rates. While the Project would result in a loss of 7.78 ha of wallum heath, the area lost is not the area most regularly used by the birds. Nevertheless, to mitigate the loss of Ground Parrot habitat, it is proposed to manage 5.84 ha adjacent to the northern boundary of the site in a manner expected to encourage Ground Parrot use.
- No historic or active flying fox camps occur on the Project site, however, the Project will affect food sources for the Grey-headed Flying-fox, including eucalypts and melaleucas, that occur on the site. It is proposed to compensate for the loss of foraging habitat through the rehabilitation of a SCC-owned property at Palmview.
- No koala habitat exists on the Project site and no koalas have been observed.

Construction Stage

Considerations specific to fauna management during construction are outlined in table below.

Objective		
Management Action	**Responsibility**	**Timing**
Clear demarcation of clearing zones, including the use of exclusion fencing, to prevent unnecessary vegetation damage	SCA Contractor	Pre-clearing
Sediment controls installed to ensure water quality within acid frog breeding habitats is not affected	SCA Contractor	Pre-clearing
Weed spread and introduction prevention documented, including vehicle washdown protocols and facilities	SCA Contractor	Pre-clearing
Weed monitoring and control program documented (ie, within a Wallum Heath Management Plan) and implemented. Should include monitoring protocols, and weed control strategies for all environmental weed species (including non-declared weeds such as exotic grasses)	SCA Contractor/ Ecologist	Pre-clearing
Appointment of a Ground Parrot Recovery Team (GPRT) to oversee, prioritise and document Ground Parrot research and management, both within the SCA and National Park	SCA	At least 12 months prior to construction
Monitoring of Ground Parrot calling periods (with respect to ambient light intensity) to inform noise control during call bouts	GPRT/Ecologist	Commencing at least 6 months prior to clearing
Continued research to determine important Ground Parrot habitat criteria to inform habitat management/creation	GPRT/Ecologist	At least 12 months prior to clearing
Development and implementation of an appropriate slashing regime for Ground Parrots, documented in a Wallum Heath Management Plan	GPRT	Pre-clearing
Clearing protocols to avoid significant Ground Parrot impacts (ie, seasonal timing, work stoppage criteria to avoid noise impacts etc).	SCA/Ecologist	Pre-clearing
Identification of final Batch Plant location	SCA	Pre-Batch Plant construction
Prompt rehabilitation of ground parrot offset area	SCA	Pre-construction

Objective		
Management Action	**Responsibility**	**Timing**
Monitoring/quality assurance of dredge pipeline to reduce risk of pipe failure	SCA Contractor	Throughout Package 2
Development and implementation of revegetation/habitat creation for corridor and EVNT offsets; to be documented in a Wallum Heath Management Plan.	SCA/Ecologist	Pre-construction
Document revegetation protocols, plant species and weed control for areas rehabilitated following works	SCA/Ecologist	Prior to completion of works
Predator monitoring and control documented and implemented, with particular consideration to perimeter fencing requirements	SCA/Ecologist	Pre-construction/ construction
Monitoring of retained Wallum Sedgefrog populations (abundance) within the SCA during construction to evaluate population trends. Monitoring should include at least two surveys each year following rainfall during summer months. Monitoring should include collection of relevant water quality parameters to ensure construction does not indirectly affect habitats.	SCA/Ecologist	Pre and during construction
Evaluation of existing wallum frog values at the proposed Palmview offset site. This work should include at least two surveys during or shortly following summer rainfall to determine both abundance and reproductive success (i.e., the presence of advanced tadpoles/ metamorphs).	SCA/Ecologist	Pre-rehabilitation and ongoing
Vegetation/habitat criteria for rehabilitation/habitat restoration at Palmview and the northern precinct of the WHMA.	SCA/Ecologist	Pre-rehabilitation
The creation of a 'test' pond in the northern precinct of the WHMA, to demonstrate success of the habitat creation concept.	SCA/Ecologist	Pre-rehabilitation
Annual monitoring of wallum frog values (abundance and breeding success) and habitat criteria for a period of at least 5 years post remedial at both Palmview and northern precincts of the WHMA.	Ecologist	5 years post rehabilitation
Yearly reporting of monitoring results.	SCA/Ecologist	Annually for period of monitoring (i.e. 5 years)

Monitoring:

- The above management and monitoring actions are to be implemented and monitored as part of EMP implementation
- Vegetation fences monitored throughout construction
- Sediment controls monitored throughout construction and cleared/repaired following rainfall events
- Construction noise monitored throughout development.

Reporting:

- Preparation of a Wallum Heath Management Plan, including weed control/monitoring, slashing protocols, and rehabilitation and habitat creation criteria for EVNT offsets and corridor offsets
- Preparation of a Ground Parrot Recovery Plan
- Documented Ground Parrot call bout criteria, and henceforth, work restriction criteria
- Ground Parrot Recovery Plan.

Corrective Actions:

- Repair/replacement of sediment controls and vegetation fences
- Removal of existing exotic grass infestations within the WHMA
- Modification of construction practices for short periods of time at dawn and dusk, procedures, and as required to manage acceptable noise levels during Ground Parrot call periods.

Operational Stage

Following construction there are ongoing management requirements to ensure terrestrial fauna values and populations are not adversely affected by the project. These actions are outlined below.

Objective		
Management Action	**Responsibility**	**Timing**
Continued monitoring and refinement of slashing regimes	GPRT/Ecologist	On-going
Weed control	SCA	On-going
Ground Parrot population monitoring, research and management within the SCA and broader region through GPRT	GPRT/SCA	*
Predator control via maintenance of security fencing	SCA	On-going
Monitoring of acid frog habitat criteria and breeding success	GPRT	Operation + 3 years
Monitoring of noise conditions during call bouts	SCA Contractor	During construction
Performance Criteria: • Maintenance of Ground Parrot abundance within the SCA • Continued acid frog breeding in existing ponds, and breeding within new ponds under 'average summer conditions • No exotic predators • No weed infestations • Rehabilitation success.		
Monitoring: • Ground Parrot abundance • Ground Parrot habitat use versus slashing • Successful acid frog breeding under 'average' summer conditions • Weed infestation monitoring • Predator monitoring • Revegetation/rehabilitation success of temporarily cleared areas and corridor offsets.		
Reporting: • Acid frog habitat creation and breeding success • Ground Parrot habitat creation and population maintenance success • Rehabilitation/corridor habitat offset condition.		
Corrective Actions: • Amend slashing regimes for Ground Parrots as required • Ongoing removal of weed species.		

** 12 months prior to construction commencement through to five years of operations on new runway.*

3.4.9 Aquatic Ecology Management Plan

There are no high value aquatic habitats, communities and/or species within the Sunshine Coast Airport site. Aquatic ecosystems at the site have been highly disturbed and modified by historical land use and development of the existing airport infrastructure. These systems currently provide limited connectivity to higher quality habitat elsewhere on or off site.

The existing aquatic communities that remain at the site are dominated by hardy, disturbance and pollution tolerant taxa of relatively low conservation significance.

They can be expected to re-establish quickly following any kind of disturbance event.

In this context, special provisions for the management of aquatic systems, habitat or species are considered unnecessary, with standard best practice procedures for the protection of surface water quality, riparian vegetation and soil conservation adequate to protect the aquatic systems on site.

Construction Stage

Objective: To reduce the risk of disturbance or injury to aquatic, estuarine and marine ecology during construction.		
Management action	**Responsibility**	**Timing**
Implementation of standard best practice procedures for protection of surface water quality. This should include: • The use of erosion and sediment control measures such as silt curtains, minimising soil exposure, managing stormwater etc • The maintenance of riparian buffer zones to trap and contain sediments and nutrients. Due to operation requirements of the airport, these buffers may be comprised only of grasses and low shrubs in some places • Containment and removal of gross pollutants.	SCA Contractor	During works
Standard protocols for the management of fuels and chemicals on construction sites, including siting, bunding and runoff management from refuelling and storage facilities.	SCA Contractor	During works
Implementation of standard best practice procedures for sediment and erosion control. This should include: • Procedures as above • Procedures for the detection and management of Acid Sulphate Soils and Potential Acid Sulphate Soils.	SCA Contractor	During works
Minimisation of physical/mechanical disturbance to banks and beds of waterways not under the immediate footprint of the proposed airport infrastructure by: • Avoiding or minimising the operation of machinery within or immediately adjacent to watercourses where possible • Minimising the number of vehicular waterway crossings and providing suitable infrastructure (e.g. culverts) where waterway crossings are unavoidable.	SCA Contractor	During works
Implementation of normal best practice procedures or the management of waste. Specifically, the following should be prevented from entering waterways: • Gross pollutants • Sewage, including greywater • Fuels, oils and chemicals used on site.	SCA Contractor	During works Plan to be sent to Proponent (SCA) for approval

Objective: To reduce the risk of disturbance or injury to aquatic, estuarine and marine ecology during construction.		
Management action	**Responsibility**	**Timing**
Performance requirements: • Due to the inherently low value of existing aquatic habitats and communities on site, performance targets specifically addressing aquatic communities are considered unnecessary. The ability of the project to meet performance requirements for the management of surface water quality, erosion and sediment control, waste and riparian zone monitoring will address the protection of existing aquatic communities by proxy.		
Monitoring: • Monitoring of aquatic habitat and communities during construction is considered unnecessary given the highly disturbed and low value existing aquatic systems at the site.		
Reporting: • No reporting specific to aquatic habitats or communities is considered necessary		
Corrective action: • In the event of an environmental incident, appropriate emergency response measures shall be implemented to ensure environmental harm from the event is minimised • Assist in capture of injured animals per advice from regulatory agencies or the project Environmental Manager. • Other strategies will implemented, as advised by regulatory agencies or SCA, to reduce likelihood of incident recurring • Supplementary monitoring to be undertaken to conform compliance after taken remediation action		

Operational Stage

No new management measures required during the operational phase.

3.4.10 Groundwater Management Plan

The ground surface across the Project site is generally downward sloping towards the north and west, but has a very small gradient (0.0004 per cent or less). The main natural drainage channel near the site is Maroochy River, which runs near the western site boundary and flows south, ultimately discharging into the ocean. A manmade drainage channel known as the Marcoola Drain exists just north of the site and discharges into the Maroochy River. A handful of manmade surface water drains exist across the site, and they contain stagnant water. The ocean is located within approximately 170 m of the eastern boundary of the site; there is no flow from the site east to the ocean.

Groundwater levels across the site (ranging from 0.2 m to 3.4 m BGL) are similar and generally reflect one regional groundwater system.

Indurated sand ('coffee rock') is typically present at depths between approximately 0.5 m to 5 m BGL across the Project Area. It is anticipated to be of relatively low permeability compared with the overlying and underlying alluvial sands and clays. The indurated sand encountered indicates variability in depth to ground level, thickness and degree of cementation. The indurated sand typically contains voids and weaknesses across relatively small distances. As coffee rock has low permeability, it plays an important role in the existing hydrogeological processes, which, within coastal plain aquifers, can be a significant factor in the relationship between fresh and saline groundwater.

The low permeability of the indurated sand layer suggests it could act as a barrier to groundwater flow. However, it is likely to be hydraulically connected at the catchment scale to the shallow aquifer, and it would therefore act as a semi-confining layer.

Groundwater above the coffee rock is likely to be semi-perched. Groundwater may flow from the shallow perched water table above the coffee rock to the regional aquifer below. This flow is expected to occur preferentially through weaknesses and voids in the coffee rock. Groundwater may also migrate upwards through the coffee rock where hydrogeologic conditions permit.

Monitoring indicates that groundwater is generally fresher than brackish in both the perched and sub-surface aquifer with more saline groundwater conditions found in monitoring wells closer to the Maroochy River. Rainfall infiltration into the regional aquifer occurs through drainage lines and slight downward leakage through the coffee rock.

The current surface water drains in the Project Area generally follow the flat topography with extremely low gradients (i.e. <0.1 percent) resulting in relatively stagnant channel flows and therefore insignificant discharge rates of groundwater.

Groundwater quality in the sub-surface aquifer is moderately acidic with an average pH of 4.63. Water in surface drains is slightly more acidic as a result of the influence of the acidic soils. Average groundwater salinity in the sub-surface aquifer is approximately 450 mg/l. Surface water salinity varies across all monitoring locations.

Construction Stage

Objective: Manage the impact of groundwater		
Management action	**Responsibility**	**Timing**
Develop trigger values and action plans to manage groundwater impacts to areas of interest during construction of the northern perimeter drain	Contractors	Earthworks, Construction and Post Construction Phases
Develop trigger values and action plans to manage bulk fill earthworks – pouring large volumes of seawater over reclamation area, water level and quality impacts to existing groundwater bores.	Contractors	Earthworks, Construction and Post Construction Phases
A high quality HDPE liner to be included within the base of the reclamation (prior to sand fill placement) to minimise infiltration of seawater into the underlying regional groundwater.	Contractors	Earthworks, Construction and Post Construction Phases
A high level of quality control is to be maintained during liner installation to prevent punctures of the liner.	Contractors	Construction and Post Construction Phases
A low permeability cut off wall is to be installed just north of the northern perimeter drain. It is to be a depth that either intercepts the coffee rock or deeper (where there is no coffee rock).	Contractors	During construction
Review the location of existing groundwater monitoring bores and install additional if required, based on analysis of existing groundwater investigations.	SCA	During Detailed Design
Monitoring and reporting for a period of 12 months prior to and then during construction of regional and perched groundwater for specified chemical parameters including total chloride, acidity, alkalinity, total sulphate, dissolved iron and aluminium.	SCA	Pre-construction and During Construction
Maintain spill recovery and mitigation equipment on site.	Contractors	Post Construction Phases
Performance requirements: • In accordance with the trigger values identified		
Monitoring: • A monitoring program for receiving waters and groundwater is proposed for the site including establishing a baseline which is currently being monitored.		
Reporting: • Monitoring reports as in accordance with the general EMP requirements • Immediate reporting of any non-compliances in accordance with the EMP requirements or overarching legislative requirements.		
Corrective action: • Review operational procedures during earthworks and construction phases following any non-compliances • Investigate the development of additional management strategies or engineering solutions following consecutive non-compliances.		

Operational Stage

No new management measures required during the operational phase.

3.4.11 Air Quality and Dust Management Plan

The construction phase of the Project has the potential to impact on local air quality predominantly through the generation of dust by on-site activities and wind erosion of exposed areas and stockpiles. The civil works involved in construction Package 1 have the highest potential for generating dust. Modelling indicated that the residential areas to the east of the runway are the sensitive receptors most likely to be affected by dust emissions.

The following outlines the proposed management measures during construction. During operation key measures include the continued engagement with the ACI Airport Carbon Accreditation Scheme and resultant management measures including the choice of energy efficient options for lighting and air-conditioning on airport.

Construction Stage

Objective:Implement controls identified as relevant to the package.		
Management action	**Responsibility**	**Timing**
Regular watering of haul roads and stockpiles to minimise dust	Contractor	During works
Minimise the exposed surface of stockpiles including partial enclosure where practical	Contractor	Prior to and during works
Additional watering during adverse weather conditions such as during very high winds	Contractor	During works as required
Avoid dust generating activities near residences during periods of high winds, particularly early morning or evening	Contractor	During works as required
Where biodiesel is readily available it will be substituted for regular diesel	Contractor	During works
Fuel storage will be located to minimise travel distance.	Contractor	During works
Performance requirements: • No dust complaints		
Monitoring: • The Construction Manager shall perform a visual inspection of dust on a regular basis • A general site inspection shall be carried out by the Construction Manager weekly to identify areas that may require additional watering • A register of complaints shall be maintained		
Reporting: • The register of complaints will detail the complaint, activities ongoing at the time of complaint and corrective actions taken • A regular (i.e. monthly) review of the complaints register will be made by SCA		
Corrective action: • If a complaint is received, investigate the cause and apply corrective action where necessary • Immediate actions such as application of water will be taken to reduce visible dust • If additional controls are not sufficient to stop visible dust from reaching the site boundary, construction activities will cease until weather conditions, such as wind direction and wind speed, allow that activity to resume satisfactorily • If complaints are widespread or persistent, high-volume air sampling should be undertaken to determine the concentration of particulate matter (as PM10, particle diameter less than 10 μm). The concentration will be assessed against the ambient guideline of 50 μg/m^3 and non-compliance will trigger a review of dust management practices.		

3.4.12 Terrestrial Noise and Vibration Management Plan

Construction noise is predicted to comply with daytime noise goals at the majority of sensitive receivers for the majority of the time. Some exceedances are predicted; however, in the context of construction and noting the magnitude of predicted noise levels in the context of the ambient levels, these noise levels do not warrant further assessment.

Works during the evening and night time periods are predicted to again generally be compliant with the noise goals given the noise attenuation measures inherent in design and discussed in Chapter B15. Notwithstanding this reasonable and practicable mitigation and management measures should be considered to reduce the noise emissions as much as practicable during these sensitive periods.

During construction the following table discusses the mitigation measures that can be implemented to manage construction noise.

Construction Stage

Objective: To seek to comply with the noise goals set for the project during daytime evening and night time periods.		
Management action	**Responsibility**	**Timing**
The contractor is required to demonstrate that noise goals set for sensitive receivers for the daytime, evening and night time construction periods are able to be met. Sensitive receivers include residential properties and Ground Parrot habitat in the WHMA.	Contractor	During Works
The booster pump is to be mitigated to a sound power level of 106 dBA or lower. This could be achieved through a combination of mechanisms including: • enclosing the engine with an acoustically robust engine enclosure and internal acoustic absorption • fitting residential class mufflers • selection of the quietest available plant or perhaps over specified equipment (allowing lower operating speeds for the same throughput); • enclosing the pump.	Contractor	During Package 2 of Works
Works outside standard construction hours would be limited to essential mobile plant only.	Contractor	During Works
One near new, well maintained dozer fitted with modern sound attenuation would be used at night for sand placement during dredge pump out.	Contractor	During Package 2 of Works
Vehicles and machinery are to be regularly maintained and muffling devices checked to minimise noise levels.	Contractor	During works
The construction contractor is to give consideration when selecting construction techniques and equipment/machinery to minimise noise disturbance.	Contractor	During works
Operational noise mitigation is to be installed as early works where practicable	Contractor	During works
Record any incidents involving generation of excessive noise (e.g. in response to a noise complaint)	Contractors	During works
Sensitive receptors are to be informed of construction activities and hours of work where possible; and consulted with (prior to works occurring) should any excessive noise or vibration from works be considered possible	Contractors	During works
Establish a Construction Noise Management Plan with the objective of eliminating the noise goal exceedances.	Contractors	Prior to works

Objective: To seek to comply with the noise goals set for the project during daytime evening and night time periods.		
Management action	**Responsibility**	**Timing**
Residents of Finland Road are to be notified of periods during construction when significant heavy vehicle traffic is anticipated and regularly updated on the duration of works.	Contractors	Prior to works

Performance requirements:

- To comply with daytime, evening and night time noise goals at the majority of receivers for the majority of the time
- To minimise exceedances of noise goals through the implementation of all reasonable and feasible measures.

Monitoring:

- The CEM should monitor overall noise emissions from the project area to ensure the mitigation strategy is being implemented
- The CEM should undertake formal weekly audits of works to monitor compliance, implement necessary corrective measure and report on compliance with the EMP.

Reporting:

- Non-conformance with the objectives and implementation strategies for noise management within this EMP or any complaints received are to be noted in the site reports prepared by the CEM.

Corrective action:

- If concerns are raised about construction noise, the concerns will be investigated immediately and, if warranted, remedied as soon as practicable
- In the event that the non-conformance has occurred as a result of poor work practices, personnel on site shall be made aware of the problem and informed of acceptable work practices
- Corrective actions may include ceasing works immediately, installing temporary noise barriers, additional muffling of machinery, reducing work hours or additional consultation with persons affected.

Operational Stage

Operational noise is predicted to comply with noise criteria without the need for specific noise mitigation measures. Nevertheless the measures below are advisable to aid in minimising noise and vibration emissions and impacts.

Objective: To minimise noise levels generated by the operation of the project.		
Management action	**Responsibility**	**Timing**
Implement all reasonable and feasible mitigation measures to ensure compliance with noise and vibration criteria.	SCA	Ongoing
Design future mechanical plant and systems to comply with noise and vibration criteria	SCA	During detailed design

Performance requirements:

- To comply with noise and vibration criteria

Monitoring:

- Compliance monitoring should be undertaken after the commissioning of mechanical plant

Reporting:

- Non-conformance with the objectives and implementation strategies for noise management within this EMP or any complaints are to be recorded

Corrective action:

- If complaints about noise are received, these shall be investigated immediately. If the complaint is deemed to have been generated by excessive noise or vibration then the offending activity shall be remedied as soon as practicable
- Complaints about aircraft noise will be referred to the Airservices Australia Noise Complaints and Information Service

3.4.13 Waste and Materials Management Plan

The following management plans describe key activities proposed during construction and operation of the Project. More detail about the waste management process adopted on the project can be found in Chapter A5 – Project Construction.

Construction Stage

Objective: To ensure appropriate disposal of waste to minimise impacts during construction and to recycle or re-use materials where possible to reduce waste generation during construction.

Management action	Responsibility	Timing
All construction wastes, site refuse and any solid or liquid contaminants must be disposed of in accordance with statutory and local authority requirements.	Contractors	During works
All construction waste to be temporarily stored in a suitably stabilised area, e.g. the construction compound or designated stockpile areas	Contractors	During works
Suitable containment to be provided for the temporary storage of all wastes and should be collected frequently	Contractors	During works
All putrescible waste, or other wastes that may attract vermin, are to be temporarily stored in secure containers and disposed of regularly.	Contractors	During works
Non-recyclable materials/wastes (including regulated and hazardous wastes) are to be disposed of at licensed landfill sites or in accordance with relevant legislation.	Contractors	During works
Construction material quantities are to be accurately estimated to reduce over-ordering and on-site stockpiling of materials	Contractors	Prior to and during works
Pavement material and other aggregate materials are to be stockpiled and reused where possible.	Contractors	During works
Any unexploded ordnance waste to be detected and disposed offsite by specialist personnel	Contractors	Prior to and during works
Cleared vegetation generated through clearing and grubbing to be chipped for reuse on site (woody vegetation) or unsuitable material disposed offsite at a licenced facility	Contractors	Prior to and during works
Concrete waste to be crushed and stockpiled on site for reuse	Contractors	Prior to and during works
Surplus pipes and fittings from pipeline assembly, unsuitable material and surplus bedding material from pipeline installation to be disposed offsite or recycled as appropriate by specialist contractors.	Contractors	During works
Liner offcuts generated through liner installation beneath the reclamation area is to be disposed offsite to a licensed facility	Contractors	Prior to and during works

Performance requirements:

- No contamination of environment through unsafe storage, spill or disposal of wastes
- Prevention of detrimental impact on existing fauna or increased attraction of pest species to the site

Monitoring:

- The CEM should undertake regular visual inspection of the site throughout the duration of construction works to ensure that each mitigation strategy for sanitary and waste management is being implemented

Reporting:

- Non-conformance with the objectives and implementation strategies for sanitary and waste management within this EMP is to be noted in the site reports prepared by the CEM

Corrective action:

- If fuel, oil, paint or any other chemical spills do occur, they should be cleaned up immediately to prevent any contaminated material from spreading and/or infiltrating the soil
- If monitoring identifies practices inconsistent with minimising risks associated with storage, handling or disposal of wastes or hazardous substances, the CEM should take the necessary corrective steps
- In the event that the non-conformance has occurred as a result of poor work practices, personnel on site should be made aware of the problem and informed of acceptable work practices
- The CEM is responsible for ensuring environmental management measures outlined in the EMP are applied, regularly monitoring compliance, reporting any non-compliance to the PM and performing any corrective actions required

Requirements during Operational Stages

The Project is expected to generate an incremental increase in operational waste as the passenger numbers at the airport increase. Typical wastes produced at the airport include quarantine waste from international flights, food and packaging waste from the terminal and domestic flights, office waste from administrative functions and waste from aircraft maintenance activities. The existing waste management facilities and arrangements will be upgraded and expanded in response to demand.

3.4.14 Traffic and Transport Management Plan

An Initial Road User Management Plan (RUMP) has been prepared which is provided below.

A more detailed RUMP will be developed in conjunction with the Contractor and submitted to DTMR/SCRC prior to construction commencing on site. A RUMP will be required by DTMR/SCRC prior to granting a Works Permit to haul materials and equipment.

The RUMP considers the construction and operational phases of the Project. The RUMP will serve as the umbrella document for the construction contractors in developing the Traffic Management Plan (TMP) to ensure that the impact of construction traffic on the external road network is mitigated or minimised where possible.

Development of the RUMP will include consultation with DTMR to identify mitigation measures to address the relative increase in traffic levels on affected road sections of the SCR network.

Objective:

Management action	Responsibility	Timing
Identify and agree mitigation measures to address the relative increase in traffic levels on affected road sections of the SCR network	SCA (in consultation with DTMR)	On approval of EIS
Install appropriate heavy vehicle and construction warning signs on the access road to the site, warning existing road users of entering and exiting traffic	SCA (in consultation with DTMR)	Pre-construction
Review of speed restrictions along David Low Way in the vicinity of the David Low Way/Finland Road intersection	SCA (in consultation with DTMR)	Pre-construction
Distribution of day warning notices to advise local road users of scheduled construction activities	SCA/Contractor (in consultation with DTMR)	As required during construction
Advanced notice of road/lane closures and advice on alternative routes	SCA/Contractor (in consultation with DTMR)	As required during construction
Installation of appropriate traffic control and warning signs for areas identified where potential safety risk issues exist	SCA (in consultation with DTMR)	Pre-construction where issues have been identified
Manage the transportation of construction materials to maximise vehicle loads and therefore minimise vehicle movements	SCA (in consultation with Contractor)	As required during construction
Ensure vehicle loads for delivery scheduling adhere to specific load limits on the haul/access routes to be used and avoid travel during peak periods	SCA/Contractor (in consultation with DTMR)	Throughout construction
Whenever practical, vehicles associated with the construction works should use internal and haulage access roads instead of public roads	SCA/Contractor (in consultation with DTMR)	Throughout construction
Induct truck and vehicle operators on the requirements of the RUMP	SCA/Contractor (in consultation with DTMR)	Throughout construction
Provision for mobility impaired access to and from the site	SCA/Contractor	Pre and during construction

Monitoring:

- Monitoring of the identified actions is the responsibility of each of the parties listed in the 'Responsibility' column above

Reporting:

- SCA to report traffic concerns and issues arising from construction activities to SCRC and DTMR for discussion on potential mitigation

3.4.15 Cultural Heritage Management

The following outlines the key management measures proposed for the Project activities occurring on the site and in its surrounds. It comprises actions for both Indigenous Cultural Heritage (ICH) and Non-Indigenous Cultural Heritage. No known sites of Non-Indigenous Cultural Heritage were found within the Project study area. The Management Plan therefore applies to any as yet unknown sites that may be uncovered during construction of the Project.

With respect to ICH, following an initial assessment in the project area, it was apparent that ICH issues could arise during the course of the Project. In addition, Part 7 of the *Aboriginal Cultural Heritage Act* requires the development and approval of a Cultural Heritage Management Plan (CHMP) with the relevant Aboriginal Party(ies) if a project is conducting an EIS process. A Cultural Heritage Management Plan (CHMP) or Plans (CHMPs) will be commenced during the EIS phase with the Aboriginal Party(ies).

It should be noted that this section of the EMP does not represent the formal CHMP that would be prepared with the relevant Aboriginal Party(ies). The development of management measures within any CHMP will be informed by the field surveys conducted by the Aboriginal Party. These surveys will identify any areas of ICH significance and the likelihood of potential harm to the ICH during project activities.

Construction Stage

Objective: To prevent damage or loss to cultural heritage items that may occur on the site

Management action	Responsibility	Timing
Preparation and implementation of a Indigenous Cultural Heritage Management Plan including the following information: • A process for including Indigenous people associated with the development areas in protection and management of Indigenous cultural heritage • Approaches that will manage avoidance of harm to Aboriginal cultural heritage, or if harm cannot reasonably be avoided, to minimise harm • The reasonable requirements and methodologies for carrying out cultural heritage surveys and preparing cultural heritage survey reports • Processes to achieve acceptable protection, management or mitigation of potential harm to Aboriginal cultural heritage during both the construction and operational phases of the development will be included • Arrangements to ensure workplace health and safety requirements are observed during cultural heritage surveys and management or mitigation work programmes • Arrangements for notification about Project activities and work programmes, including Project area access • A conflict resolution process • A new finds process, incorporating a clear recording process, will cover procedures for managing accidental discoveries of ICH • A cultural heritage induction for Project staff • A process for developing a cultural heritage awareness program, to be incorporated into the contractor/ employee manual and induction manual. This will be in the form of a plain language, short document that is easy for contractors and staff 'on the ground' to understand.	SCA Contractors	Prior to and during works

Objective: To prevent damage or loss to cultural heritage items that may occur on the site		
Management action	**Responsibility**	**Timing**
Development of a NICH Induction Booklet by a suitably qualified heritage specialists, including the following information: • Specific instructions for crews regarding their obligations to look for and avoid impacting on NICH material until it has been properly assessed • Presentation of familiarisation material for work crews so that they are aware of what constitutes a NICH find • Provision of educational material to personnel informing them what archaeological material may look like, and provide clear instructions on what to do should any such material be found • A process for the collection, transport and storage of any NICH items.	SCA	Prior to works
If a previously unidentified potential Aboriginal or non-Aboriginal cultural heritage is found during construction, it must be managed using the following measures: • Aboriginal cultural heritage must not be removed or disturbed • All work at the find location must cease • The Site Manager and Project Manager must be notified • The site must be made secure – a buffer zone of 20 metres is recommended • Barriers or temporary fences should be erected as a buffer around the find if required • Work can continue at a distance of 20 metres from a find area • The item should not be removed until advice is received about removal procedures to ensure the item is removed without damage or deterioration.	Contractors	During works
A historical archaeologist will be appointed 'on call' during construction phase.	SCA	During works
Performance requirements: • No damage or disturbance to archaeological material of cultural heritage significance • Cultural heritage values of the place are appropriately recognised and managed • Adhere to the *Aboriginal Cultural Heritage Act 2003* Duty of Care Guidelines and the *QLD Heritage Act 1992*		
Monitoring: • The CEM should undertake visual inspections of the site throughout the duration of construction • The CEM should undertake formal weekly audits of works to monitor compliance, implement necessary corrective measure and report on compliance with the EMP.		
Reporting: • If items with potential cultural heritage values are found on site, the find, stop, notify, manage protocol will be followed. Flagging tape may be used to exclude the area (erecting at least a 30 meter buffer zone) • The site will be recorded in the site records and reported to DEHP (and other authorities as necessary e.g. police) • Non-conformance with the objectives and implementation strategies for cultural heritage within this CEMP is to be noted in the site reports prepared by the CEM.		

Objective: To prevent damage or loss to cultural heritage items that may occur on the site		
Management action	**Responsibility**	**Timing**
Corrective action: • In the event that unknown artefacts are impacted during construction, personnel on site will notify the CEM and construction works will cease until DEHP has been notified. An appropriate management strategy will then be put in place • The CHMP provides a method for dealing with items of cultural heritage which are found subsequent to cultural heritage surveys being undertaken (i.e. items which may have been missed during the survey).		