

APPENDIX B

Draft Environmental Management Plan

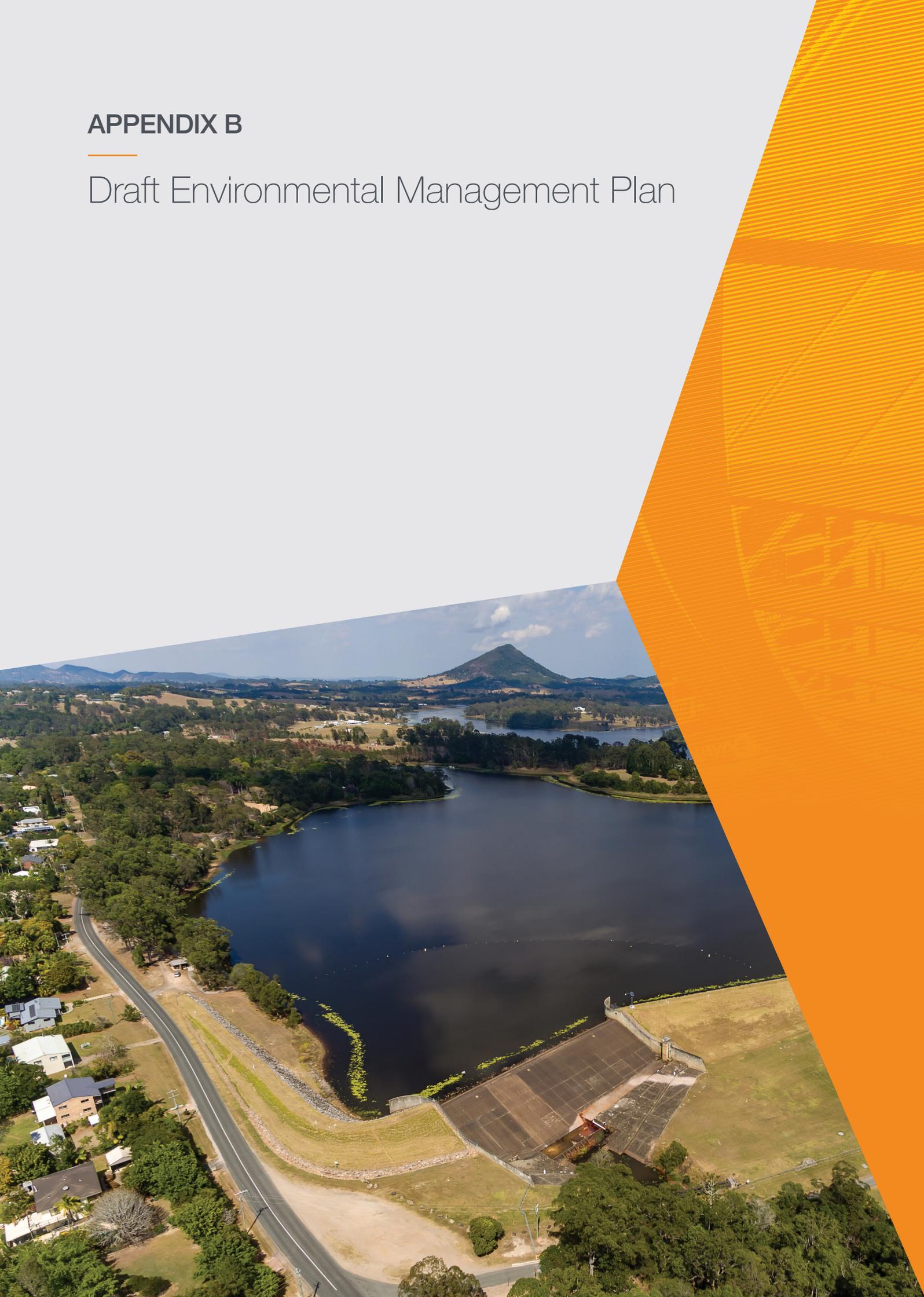


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B.1. Introduction

B.1.1 Background

A number of recommendations have been made in this Impact Assessment Report (IAR) in relation to the management of environmental impacts during construction of the Six Mile Creek Dam Safety Upgrade (the Project). These recommendations require actions to be undertaken during the design and construction of the upgraded dam wall.

This draft Environmental Management Plan (EMP) has been developed for the Project in order to ensure that recommended actions for the management of environmental impacts are identified and implemented.

An outline of the draft EMP is provided in this IAR to demonstrate Seqwater's commitment to ensuring that the recommendations of this IAR are implemented. Environmental Management practices and strategies for individual Project elements are described in Section B.4.

B.1.2 Purpose and Objectives

This Draft EMP is a management tool that assists in minimising impacts to the environment. It is a dynamic document that will be updated by an appointed contractor, once engaged, to incorporate changes in environmental management procedures, construction methodology, monitoring results, new techniques, legislative changes, and updates to Seqwater's environmental policies. Updates to the EMP will be undertaken by the contractor in consultation with the relevant authorities, as required.

Implementation of the EMP will ensure that concepts and commitments given in the IAR are applied so that potential impacts to the environment from the Project are minimised. The purpose of this draft EMP is to identify and minimise potential environmental impacts during the construction of the Project. Operation of the dam will be largely unchanged from the current operation and environmental management will revert to existing Seqwater systems and procedures.

The objectives of this draft EMP are consistent with those embodied in the Intergovernmental Agreement on the Environment (IGAE) and the Principles of Ecologically Sustainable Development (ESD).

The core objectives of the IGAE are to:

- Enhance individual and community well-being and welfare by following a path of economic development that safeguards the welfare of future generations
- Provide for equity within and between generations
- Protect biological diversity and maintain essential ecological processes and life support systems.

The guiding principles of ESD are:

- Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation
- The global dimensions of environmental impacts should be recognised and considered
- Decisions and actions should provide for community involvement regarding issues that affect them.

No objective or principle should dominate others. A balanced approach that takes into account all of these objectives and principles is required to achieve the goal of ESD.

The specific objectives of this draft EMP are to:

- Minimise and manage environmental impacts associated with the Project
- Ensure compliance with environmental legal requirements and obligations
- Provide ongoing environmental performance review and compliance monitoring.

B.2. Environmental Legal Requirements and Obligations

To ensure identified environmental impacts associated with the Project's construction and operation are minimised or avoided, this draft EMP may refer to relevant environmental legislation, controls, standards, and guidelines. The draft EMP also requires that works for the Project meet the community's environmental expectations, wherever possible.

A list of applicable environmental legislation is provided in this section. The Project's environmental management representative will hold or have access to current electronic copies of relevant legislation, guidelines and standards on site during construction.

B.2.1 Commonwealth

Relevant Commonwealth legislation for the Project and EMP is:

- *Environment Protection and Biodiversity Conservation Act 1999.*

B.2.2 Queensland

The IAR was been prepared under the provisions of the *State Development and Public Works Organisation Act 1971* (SDPWO Act). Relevant information in the IAR will be used to support applications for permits, licenses and approvals as listed in Chapter 3 of the IAR.

The *Environmental Protection Act 1994* (EP Act) is the umbrella legislation for the regulatory management of the environment in Queensland. The EP Act is based on self-regulation and duty of care that places the responsibility for protection of the environment on all persons during the conduct of all activities.

The Act provides for the licensing of Environmentally Relevant Activities (ERAs) and the granting of development approvals and registration certificates for the operation of regulated activities. The Act also provides the power to administering authorities to order actions be taken to improve environmental management performance, conduct audits and environmental evaluations of activities, approve environmental management programs, and impose penalties or prosecute persons for non-compliance within the requirements of the Act.

The EP Act is the primary legislative environmental tool in Queensland. This Act also allows for the preparation of Environmental Protection Policies (EPPs). The following EPPs have been proclaimed:

- *Environmental Protection (Water) Policy 2009*
- *Environmental Protection (Noise) Policy 2008*
- *Environmental Protection (Air) Policy 2008.*

Other state legislation relevant to this draft EMP and the Project's permits, licenses and approvals are listed below. This legislation and its relevance to the Project is described in further detail in Chapter 3 – Regulatory Approvals and Planning of the IAR.

- *Aboriginal Cultural Heritage Act 2003*
- *Biosecurity Act 2014*
- *Fisheries Act 1994*
- *Planning Act 2016*
- *Land Act 1994*
- *Nature Conservation Act 1992*
- *Nature Conservation (Wildlife) Regulation 2006*
- *Nature Conservation (Wildlife Management) Regulation 2006*
- *Queensland Heritage Act 1992*
- *Transport Infrastructure Act 1994*
- *Vegetation Management Act 1999*
- *Water Act 2000.*

B.2.3 Permits and Approvals

The IAR identified that the following permits and approvals are required for the Project:

- Evaluation of a Controlled Action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- Environmental Authority for ERA16 2(a)
- Species management program for tampering with animal breeding places
- Development permit – operational works for constructing or raising waterway barrier works
- Development permit – material change of use for concrete batching plant
- Clearing permit – protected plants or exempt clearing notification (to be determined following completion of a comprehensive flora survey)
- Temporary road closure and permit to occupy under the *Land Act 1994*.

The provision of these permits and approvals may be contingent on the implementation of avoidance and mitigation measures to manage environmental impacts associated with the Project.

B.3. Environmental Management Plan

B.3.1 Project Roles and Responsibilities

B.3.1.1 Management Structure

To achieve the objectives of this EMP and deliver the Project with the least possible impact on the environment and local community, a clear implementation and management structure is required. The proposed structure will include the key roles shown in Figure B3-1. The key components of Proponent and Principal Contractor roles are summarised below.

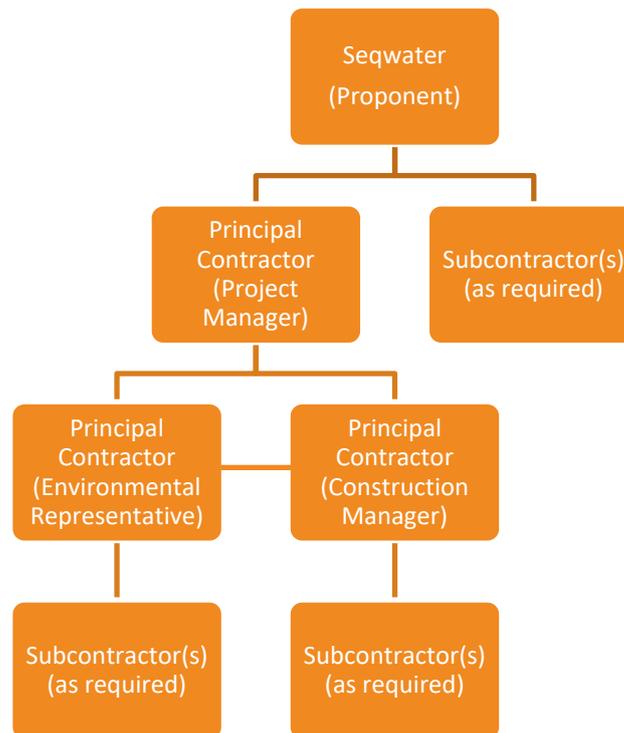


Figure B3-1 EMP Management Structure

As the Proponent, Seqwater will:

- Regulate the performance of the works
- Act to facilitate the expression of community views
- Administrate the head agreement/contract to ensure contract conditions are met
- Liaise with and coordinate relevant agencies, including the Queensland government and Noosa Shire Council, to provide timely advice to the Principal Contractor for the smooth and efficient delivery of the Project
- Ensure that the Principal Contractor(s) has obtained all necessary approvals before the commencement of any work
- Ensure that the Principal Contractor is operating in accordance with the Construction Environmental Management Plans and in compliance with all applicable approvals and licensing.

The Principal Contractor will:

- Prepare a detailed Construction Environmental Management Plan (CEMP)
- Obtain all necessary approvals, including development approvals, environmental licenses, workplace health and safety and all other construction-related approvals
- Ensure all construction works are conducted in accordance with approvals, the contract, relevant legislation and local laws

- Maintain for the duration of the construction phase, open and effective communication with the communities in the vicinity of the Project about the construction program, scale, duration and nature of the proposed work, and details of proposed impact mitigation measures.

Any sub-contractors will be the responsibility of the Principal Contractor and must adopt the principal contractor’s Construction Environmental Management Plan, or a suitable alternative and will be required to operate under the head contract for the Project.

B.3.1.2 Responsibilities

In accordance with the general environmental duty set out in Section 319 of the EP Act, all Project personnel are responsible for their own environmental performance and the impact their actions have on the Project’s environmental performance. The expected roles and responsibilities of key Project personnel are defined in Table B3-1. Roles are to be updated when a Principal Contractor has been appointed for the Project.

Table B3-1 Project responsibilities during construction

PROJECT RESPONSIBILITIES – CONSTRUCTION	
Seqwater (the proponent)	<ul style="list-style-type: none"> • Manage the construction process as the Project proponent. • Provide readily available expertise for the construction Project as required. • Receive progress reports on performance by the Principal Contractor for the purpose of acknowledging compliance with contract conditions. • Review the CEMP submitted by the Principal Contractor. • Ensure that the requirements of the Conditions of Contract (Environmental Management) and approved CEMP included in the contract documentation are implemented. • Review any revisions to the CEMP as required. • Maintain a current copy of the contract and the CEMP, a record of the completion of planned actions, and monitoring records and reports, supplied by the Principal Contractor. • Initiate audits of environmental performance.
Principal Contractor (Project Manager)	<ul style="list-style-type: none"> • Develop CEMP in accordance with the approved Draft EMP submitted with the IAR. • Maintain a master copy of the CEMP, a record of the completion of planned actions, and monitoring records and reports, which are made available during audits. • Obtain all necessary statutory approvals and licences, and ensure that conditions of licences/approvals/permits are met. • Provide copies of the CEMP to the relevant Project staff, with responsibilities clearly defined in the CEMP. • Maintain a record of all training undertaken by all Project staff, detailing the type and purpose of the training. • Ensure that environmental protection measures are implemented in accordance with CEMP. • Coordinate regular monitoring in relation to environmental management issues and ensure that monitoring results are made available to the Proponent. • Ensure corrective actions arising from self-assessments and external audits are completed, and in accordance with the CEMP. • Notify the Proponent and any relevant agency of all environmental incidents and maintain a record of events relating to the environmental incidents, including any remedial action taken.

PROJECT RESPONSIBILITIES – CONSTRUCTION	
	<ul style="list-style-type: none"> • Ensure there is adequate and accurate identification and reporting of all non-conformances, complaints and any other environmental issues that may arise during construction. • Provide relevant and timely information about construction activities that may impact on the relevant stakeholders and, as required, consult with individuals that may be directly impacted by construction activities to ensure direct Project impacts are being managed. • Undertake regular management reviews of the CEMP, at scheduled intervals and on the identification of a system failure.
Principal Contractor (Construction Manager)	<ul style="list-style-type: none"> • Ensure all staff are trained/inducted to site (including environmental management responsibilities) and that all training/inductions are recorded in a Training and Induction Register. • Ensure appropriate waste facilities are provided on site and that maintenance and waste disposal is conducted by a licenced contractor, where required. • All vehicles accessing the site use the designated access routes, entries/exits, and parking locations. • All equipment is maintained and ‘fit for purpose’ before arriving at the site. • All environmental incidents and complaints are reported to the Project Manager.
Principal Contractor (Environmental Representative)	<ul style="list-style-type: none"> • This role is to be carried out by personnel with suitable environmental qualifications and experience. • Ensure implementation and compliance with the CEMP, statutory approvals, legislation, codes of practice, and/or industry standards. • Ensure any required exclusion zones are installed, complied with and maintained. • Ensure all procedures and processes identified in the CEMP are implemented. • Participate in toolbox talks as required to ensure staff are aware of key concerns and environmental management procedures. • Conduct daily/weekly inspections of work activities, including completion of a Weekly Inspection Checklist and ensure adherence to the environmental management measures required by the CEMP. • Complete monthly internal compliance audits. • Liaise with stakeholders, including regulatory agencies. • Maintain all documentation required by the CEMP. • Investigate any environmental incident or complaint, complete incident reports and implement appropriate corrective actions with the Project Manager.
All personnel (including sub-contractors)	<p>General Environmental Duty</p> <p>Under Section 319 of the EP Act, everyone has a general environmental duty to not undertake an activity that causes or is likely to cause environmental harm unless all reasonable and practicable measures are taken to avoid that harm.</p> <p>All staff and sub-contractors will attend a site specific environmental induction and awareness training to ensure that all personnel are aware of their responsibilities in this regard.</p> <p>Duty to Notify</p> <p>The EP Act also imposes a ‘duty to notify’ (Section 320A - 320G) upon any person who becomes aware that their activities, or the activities of somebody working with them, has caused or threatens to cause material or serious environmental harm that is unlawful under the EP Act.</p>

PROJECT RESPONSIBILITIES – CONSTRUCTION

Environmental incidents are to be reported to the Environmental Representative and an environmental incident report completed within the timeframe specified in the CEMP.

B.3.2 Competence, Training and Awareness

The principal contractor's CEMP will only be successful where all those responsible for its implementation and review are thoroughly aware of its content, interpretation, and measurement against performance criteria. Seqwater is committed to providing training for its site workforce and ensuring that contractual arrangements with the Principal Contractor require adequate training to be provided to all contracted members of the dam workforce, including sub-contractors.

B.3.2.1 Competence and Training

All staff and sub-contractors working on site will be provided with environmental training to achieve a level of awareness and competence appropriate to their assigned activities. Targeted environmental awareness training will be provided to individuals or groups of workers with a specific authority or responsibility for environmental management or those undertaking an activity with a high risk of environmental impact.

Staff involved in environmental monitoring will be trained and competent in the activities to be undertaken (including sample collection, handling, storage and transport) and in the operation, calibration and maintenance of any equipment to be used.

Staff involved in development of CEMP sub-plans, such as Erosion and Sediment Control Plans, will be appropriately qualified and experienced in design and/or development of those sub-plans.

Records of staff training will be maintained by the site environmental representative, and will be auditable and available for inspection on request.

B.3.2.2 Awareness

Before Project activities begin, all site personnel (including sub-contractors) will attend a site induction. The site induction will include the:

- Requirements of the CEMP
- Responsibilities and accountabilities of all site personnel
- Key environmental aspects and values in the vicinity of the Project site
- Identify activities with a high risk of environmental impact
- Site's environmental rules.

Routine 'toolbox' discussions will be held to ensure that feedback can be provided on issues of interest or concern and that information arising from Project specific issues is communicated to all relevant staff. It is anticipated that 'toolbox' discussions will generally be prepared and delivered by Principal Contractor representatives.

Induction and 'toolbox' records will be maintained to verify attendance.

B.3.3 Documentation, Communication and Complaints

B.3.3.1 Documentation and Records

Adequate documentation and records must be maintained to demonstrate compliance with the CEMP. These records should be available at all times and readily accessible for independent inspection and audit. This includes, but is not limited to:

- Contract documents
- Statutory permits and licences
- Hazard, near miss, incident, and technical reports
- Monitoring data results

- Environmental audits and reviews
- Environmental training records
- Non-conformance reports and details
- Complaints register
- Inspection, calibration and maintenance records
- Environmental incident investigations and reports
- Corrective action reports.

The following documents must be readily accessible to personnel undertaking activities associated with the Project:

- A copy of the CEMP
- Copies of environmental checklists and forms required by the CEMP
- Copies of relevant work instructions and procedures
- Safety Data Sheets (SDS) for any chemicals stored or used on the site
- Copies of permits, approvals and attached conditions.

Modifications to the record keeping system will be made as required to ensure the system is effective and efficient for all employees involved in the works, regardless of their role, to ensure compliance with the requirements of the CEMP.

B.3.3.2 Internal Communication

Environmental protection should be achieved through clear and concise internal communication. Communications regarding environmental management will be audited periodically to ensure that:

- The communication structure is effective
- All actions are performed and recorded.

These audits will also include follow-up of specific or corrective actions raised during previous audits to ensure that actions are complete.

The CEMP will be stored in a prominent location. A list of the names, affiliations, and contact numbers (including after-hours numbers where necessary) of people within the designated environmental management reporting structure will be included at the start of the CEMP.

As part of their monthly report to Seqwater, the Principal Contractor will submit a summary of the following:

- Monitoring results
- Compliance/non-compliance with approvals, licences and the CEMP
- Complaints received
- Corrective actions and contingency
- Success of implemented corrective and contingency measures.

Significant communications, including all reports, incident forms, and complaints will be documented and kept up to date.

B.3.3.3 External Communication

To ensure external communication is timely and transparent, only nominated personnel should be involved in consultation with external bodies on environmental issues. Seqwater and the Principal Contractor are responsible for nominating all staff members responsible for external communication. Seqwater may also invite personnel to attend meetings with agencies.

Any environmental incidents and instances of environmental harm that occur during construction will be reported to the Department of Environment and Science (DES), or other relevant regulatory agency, as soon as possible (as per Section 320 of the EP Act).

B.3.3.4 Complaints and Responses

The CEMP managed by the Principal Contractor will include a process for receiving and acting upon complaints. Responses to complaints should be carefully managed, prompt and effective, and should form a key part of the

environmental reporting mechanism. Responsibility for managing the complaints process will rest with the Principal Contractor, supported by Seqwater. Seqwater and the Principal Contractor must also develop and document a process for complaints where there is potentially an overlap between the Principal Contractor site and Seqwater's operational site.

Where practicable, the complaints process shall also adhere to Seqwater's Customer and Relationship Management Policy POL-00049, where any departures from the policy will be discussed and agreed with Seqwater.

While the CEMP will establish the process for managing complaints, at a minimum the process will include:

- A procedure for receiving and responding to complaints that is acceptable to Seqwater, the Coordinator-General and the relevant state agencies
- Establishing and maintaining a project hotline and email to receive complaints
- A procedure for registering and handling all complaints received, outlining as a minimum:
 - Information to be collected, including the time and date of the complaint and name of the complainant
 - The specific action or activity causing the complaint
 - Environmental compliance requirements, where relevant
 - The action taken to address the complaint, if necessary
 - Tracking complaints and actions in a database
 - Immediate communication of the complaint to Seqwater and the Principal Contractor
 - Details of how the action taken will be communicated to the complainant, the Proponent, and the Principal Contractor
 - Feedback to the complainant, the Proponent, and the Coordinator-General and relevant agencies as required, within a specified time period
 - Any necessary subsequent remedial action to avoid cause for future complaints, if relevant
 - Regular reporting to the Proponent and Coordinator-General regarding complaints and corrective actions
 - Monitoring and auditing of the complaint handling system.

Other informative resources will be accessible to external stakeholders via the Seqwater website.

B.3.4 Monitoring, Auditing and Reporting

B.3.4.1 Monitoring

Monitoring will be a requirement for each environmental aspect addressed in the CEMP. Monitoring is the establishment and operation of procedures to measure, record, and evaluate the level of impact on the environment during the execution of the Project.

The monitoring of environmental impacts will be carried out in accordance with the requirements for each environmental aspect described in the CEMP, relevant legislation, and the conditions of any permit, where relevant.

Monitoring procedures will be developed in accordance with standard protocols and the requirements of the DES, Department of Agriculture and Fisheries (DAF), Department of Natural Resources, Mining and Energy (DNRME), and other relevant agencies as appropriate. All equipment used for environmental monitoring will be calibrated and maintained to the standards recommended by the supplier/manufacture. Calibration and maintenance records will be documented for each piece of monitoring equipment and available for inspection as required.

Environmental monitoring samples, if taken, will be sent for analysis to a National Association of Testing Authorities (NATA) registered laboratory, where applicable. All records of laboratory analysis results and quality assurance will be auditable and available for inspection, on request, by regulatory agency officials or their representatives.

Environmental monitoring requirements for each environmental aspect are detailed in Section B.4.

B.3.4.2 Auditing

Aspects of the Project with a potential for environmental impact will be subject to periodic environmental audits. The objective of audits will be to verify compliance with applicable Commonwealth, state and local government environmental permits, approvals, and regulations issued for the Project.

Audits will also seek to verify the suitability of each sub-plan outlined in this CEMP (Section B.4). Each audit will be reviewed by Seqwater and all recommendations and actions raised will be addressed. Copies of audit reports and details of corrective actions will be made available for regulatory inspection, on request.

B.3.4.3 Reporting

Monthly environmental summary reports will be produced for the duration of construction. Copies of the reports will be submitted to Seqwater on a monthly basis and be otherwise available for regulatory agency inspection on request. The report will include, but is not limited to the following:

- A record of all inspections carried out
- Summary of all monitoring carried out, highlighting any non-conformances and commentary of why these have occurred and corrective actions
- A list of any performance criteria that have not been met, the corrective action taken and a description of the magnitude of any possible environmental impact
- A register of complaints detailing the:
 - Origin of the complaint
 - Complaint investigation (personnel, date and summary of action/s taken)
 - Response to actions and suggested changes to practices or procedures
- A register of any environmental incidents (including near misses) and commentary of why these have occurred and corrective actions
- Results of any surveys carried out.

B.3.4.4 Non-compliance and Corrective Actions

Monitoring and reporting will incorporate continual improvement in CEMP requirements through a non-compliance and corrective action procedure. This will be incorporated in the Project's quality procedures and EMPs, and specify methods for recording and reporting non-compliances and implementing corrective actions to rectify the problem.

B.4. Draft Environmental Sub-plans

B.4.1 Purpose

A number of activities associated with the construction of the Six Mile Creek Dam Safety Upgrade have the potential to impact environmental values in the Project area. These activities are:

- Vegetation clearing for stockpile, borrow pit and laydown areas for construction
- Lowering of the water levels in the lake (this is covered under separate lake lowering plan – Appendix C)
- Demolishing the existing spillway and embankments
- Constructing a working platform in preparation for the new spillway foundation works
- Constructing a sheet pile coffer dam
- Constructing earthen embankments and spillway
- Operating a site Project/administration office, including concrete batch plant
- Operating vehicles on and off-site
- Operating equipment on-site
- Operating a borrow pit and material conditioning areas
- Establishing and operating a temporary concrete batching plant
- Constructing and using of on-site roads.

The environmental aspects addressed in this Draft EMP as sub-plans are:

- Hazardous Substances
- Aquatic flora
- Aquatic fauna
- Terrestrial flora
- Terrestrial fauna
- Water quality
- Air quality
- Noise and vibration
- Water resources
- Cultural heritage
- Social
- Land contamination
- Biosecurity management
- Waste management.

In addition to the above sub-plans, the CEMP will incorporate management plans required under approval conditions that comply with the relevant industry standards for environmental management and must at least include:

- Erosion and sediment control plan
- Stormwater management plan
- Dust management plan
- Noise and vibration management plan
- Lighting (light spill) management plan
- Vegetation management plan
- Traffic management plan
- Incident management response plan.

It should also include any other management plans necessary to achieve the environmental objectives and performance criteria.

B.4.2 Outline

B.4.2.1 Overview

This draft EMP is presented within the IAR on the understanding that a detailed CEMP, including necessary sub-plans and relevant environmental procedures for construction, will be prepared by the Principal Contractor and reviewed by Seqwater and the relevant regulatory authority exercising its powers under legislation. Operation of the dam post-upgrade will be largely unchanged from the current operation and environmental management will revert to existing Seqwater systems and procedures.

The detailed CEMP and sub-plans will need to include, but not be limited to, mitigation measures that address the Environmental Objectives and Performance Criteria in this draft CEMP and any conditions imposed either by the Coordinator-General evaluation report or other agencies under other approvals.

The purpose of the draft EMPs is to set out the Project commitments to avoid or minimise potential environmental impacts of the Project as identified in the IAR, including identification of environmental aspects to be managed and how environmental values may be protected and enhanced.

The CEMP and all sub-plans are dynamic documents as they incorporate continual improvement. Each plan will be updated to incorporate further information, approval conditions, and changes in environmental management procedures to reflect ongoing monitoring results, new techniques, and relevant legislative requirements.

B.4.2.2 Planning

The Project will aim to achieve the EMP objectives by:

- Adopting and integrating good management practices for design and construction for all aspects of the Project including:
 - waste minimisation, management and recycling
 - wise use and re-use of natural resources (e.g. building materials, rock and other spoil)
 - avoidance, or minimisation and mitigation, of impacts on ecological processes and habitat values adjacent to construction works
 - seeking to achieve community benefits (e.g. re-establishment of recreational areas).
- Complying with all applicable laws, regulations, standards, and guidelines for protection of the environment.
- Adopting best management methods available to prevent or minimise adverse environmental impact.
- Describing incident response protocols and procedures.
- Providing Project employees and contractors with adequate and current training in safety, hazard and risk management, and environmental procedures.

B.4.2.3 Implementation

This draft EMP demonstrates how potential impacts may be addressed during construction of the Project. The specified actions, strategies, and recommendations implemented through each draft sub-plan include:

- Recommendations made in the IAR to minimise identified environmental impacts
- Good practice environmental management
- General requirements of ISO 14001
- Management and responsibility for performance.

An outline of how each EMP sub-plan component is considered and presented in this Draft EMP is shown in Table B4-1.

Table B4-1 Description of Environmental sub-plan components

EMP COMPONENT	DESCRIPTION	EXAMPLE
Environmental aspect (Header row)	The aspect of the environment requiring targeted environmental management.	<i>Terrestrial Flora</i>
Environmental objective (Header row)	A short description of the high level aim of the Project with respect to this environmental aspect.	<i>Implementation of vegetation clearance, stockpiling, recycling or disposal practices that maximise the re-use of native vegetation and minimise environmental harm.</i>
Performance criteria	Results that contribute to the overall objectives. Performance criteria provide a benchmark against which management performance can be evaluated. Where possible these criteria should be specific, measurable, achievable, realistic, time-based and monitored to assess level of achievement.	<i>Retained vegetation is not compromised by site clearing works, gross mechanical disturbance or impacts associated with sedimentation and/or pollutant export from the dam construction area.</i>
Mitigation measures	The management actions to be undertaken to achieve the objectives of the plan. Mitigation measures may include a wide range of measures including, but not limited to, changes in work procedures and practices, physical interventions to separate or buffer from predicted construction impacts, physical containment measures, and plans/procedures to minimise impacts. Such measures must be directed to achieving the environmental objectives, performance criteria and statutory requirements, and must be consistent with the conditions of an approval from the Coordinator-General.	<ul style="list-style-type: none"> • <i>Identify clearing exclusion zones.</i> • <i>Minimise damage to retained vegetation.</i> • <i>Implement sediment and erosion control measures.</i>
Monitoring	Establishes the parameter to be monitored, and the type and frequency of monitoring.	<i>Principal Contractor to monitor vegetation clearance and earthworks, and undertake periodic monitoring of vegetation and sediment and erosion control devices.</i>
Reporting	Purpose and frequency of reporting to demonstrate achievement of the environmental objectives and satisfaction of the performance criteria. Identifies the distribution of reports when generated.	<i>Monthly Construction Report</i>
Responsibility	The entity/personnel responsible for undertaking the activities and actions to be implemented.	<i>Principal Contractor</i>
Corrective actions	This section establishes the corrective action(s) that must be implemented if performance indicators are not achieved. It also provides guidance for contingency actions.	<i>Rehabilitate areas if cleared within the exclusion zones.</i>

B.4.3 Hazardous Substances

ENVIRONMENTAL OBJECTIVE: HAZARDOUS SUBSTANCES

Safely manage the purchase, storage, handling and disposal of chemicals, fuels, and hazardous substances and prevent environmental harm caused by uncontrolled releases to the environment.

Performance criteria	<ul style="list-style-type: none"> • Compliance with relevant standards, guidelines and legislation. • Containment and effective clean-up of all spills involving materials that may cause environmental harm, and measures taken to prevent the incident from recurring. • Number of Incidents. • Bunds are correctly sized and structurally sound.
Mitigation measures	<ul style="list-style-type: none"> • Undertake storage and transport of hazardous materials and dangerous goods according to relevant Australian standards, guidelines and legislation, including: <ul style="list-style-type: none"> – AS4452:1997 The Storage and Handling of Toxic Substances – AS1940:2017 The Storage and Handling of Flammable and Combustible Liquids – AS3780:2008 The Storage and handling of Corrosive Substance – Local council requirements. • Undertake refuelling and maintenance activities in designated, bunded areas to minimise the potential for soil and water contamination from these activities. Prepare and implement spill response measures. • Provide spill kits for contaminated material at each transfer and storage location for use in the event of any spillages or leaks. Ensure spill kits are replenished after use and inspected regularly for condition and expiry dates. • Chemical storage areas are to be suitably bunded and constructed to minimise the potential for leaks to cause environmental harm. • Bund all hazardous materials stored in above ground tanks, and chemicals and fuels stored in drums, in accordance with relevant Australian standards. • Provide a readily available and current copy of SDS' for each chemical/product used on site. SDS will be available on site and available to all site personnel. • Provide appropriate signage using HAZCHEM coders that is visible at all times. Signage should also provide contact details for the Environmental Representative and Safety Officer in case of an emergency. • Check firefighting equipment regularly and ensure it is well-maintained. • Maintain records of the existing inventory, storage location, personnel training, and waste disposal for all chemicals, fuel and dangerous goods used on site. • Train all relevant staff in appropriate handling, storage and containment practices for chemicals, fuel and dangerous goods.
Monitoring	<ul style="list-style-type: none"> • Daily inspections of storage areas for any defects with bunding, floor, cover, structure, hoses, valves and pumps or associated infrastructure.

ENVIRONMENTAL OBJECTIVE: HAZARDOUS SUBSTANCES

Safely manage the purchase, storage, handling and disposal of chemicals, fuels, and hazardous substances and prevent environmental harm caused by uncontrolled releases to the environment.

	<ul style="list-style-type: none"> Regular equipment checks by operators for evidence of leaks and fitness of hydraulic hoses and seals. Maintenance or repairs completed as necessary to prevent drips, leaks or likely equipment failures. Inspections of spill kits to be included as part of the weekly environmental inspections. Quarterly (internal) and annual (external) audits of the CEMP.
Reporting	<ul style="list-style-type: none"> Record any environmental incidents involving spills, including the time of incident, persons involved, incident details, mitigation measures, and actions taken to minimise the probability of recurrence. Immediately report any large spills or potential risk of spills to the Environmental Representative. Report incidents, complaints, and any significant environmental harm to regulatory authorities where required.
Responsibility	Principal Contractor
Corrective action	<ul style="list-style-type: none"> If there is a spill of hazardous substances, relevant work procedures and operation controls will be reviewed and revised where necessary to ensure they are fit for purpose. Relevant personnel will undertake adequate environmental awareness training covering the CEMP's requirements regarding the management of hazardous substances. The Construction Manager can request works cease at any time if a breach of the CEMP performance criteria occurs or is at risk of occurring.

B.4.4 Aquatic Ecology**ENVIRONMENTAL OBJECTIVE: AQUATIC ECOLOGY**

Minimise and mitigate, as far as is practicable, the adverse impacts on aquatic flora and fauna during the Project.

Where unavoidable impacts will occur, develop and implement strategies to mitigate these impacts to an acceptable level.

Performance criteria	<ul style="list-style-type: none"> No discharge of materials through stormwater runoff from construction areas, with particular regard to suspended sediments, fuels, chemicals, and oils. No waste materials (general and construction rubbish etc.) entering waterways from construction areas. No uncontrolled or untreated release of water or sediment from a work site. Compliance with plan for the lake lowering plan
Mitigation measures	<ul style="list-style-type: none"> Comply with measures contained within the Water Resources sub-plan. Provide an off-site mitigation to improve fish passage at Gympie Weir by installation of a suitable fishway.

ENVIRONMENTAL OBJECTIVE: AQUATIC ECOLOGY

Minimise and mitigate, as far as is practicable, the adverse impacts on aquatic flora and fauna during the Project.

Where unavoidable impacts will occur, develop and implement strategies to mitigate these impacts to an acceptable level.

	<p>Sediment and erosion control</p> <ul style="list-style-type: none"> • Implement and maintain the Water Quality sub-plan, with particular reference to the management of stormwater and exposed soils. • Avoid or manage areas of potential erosion, for example by implementing an erosion and sediment control plan in accordance with applicable industry standards, and monitoring the efficacy of management measures. <p>Chemicals, fuels, and oils</p> <ul style="list-style-type: none"> • Implement and maintain the Water Quality and Hazardous Substances sub-plan with particular reference to the appropriate storage measures of hazardous materials. <p>Waste materials</p> <ul style="list-style-type: none"> • Implement and maintain the Waste Management sub-plan. <p>MNES / MSES management</p> <ul style="list-style-type: none"> • Comply with the Species Management Program prepared for MNES and MSES species and Lake Macdonald Lowering – Adaptive Management Plan.
Monitoring	<ul style="list-style-type: none"> • Monitoring key water quality parameters and observations per management plan for the lake drawdown <p>Auditing</p> <ul style="list-style-type: none"> • Monthly (internal) and quarterly (external) audits of the CEMP.
Reporting	<ul style="list-style-type: none"> • Monthly report to Seqwater that includes the details of audits, non-compliances, training, and any incidents. • Immediately report any incident that contravenes the objectives of the CEMP to the supervisor and Environmental Representative. • Report incidents, complaints, and any significant environmental harm to aquatic environment to regulatory authorities where required.
Responsibility	Principal Contractor / Seqwater
Corrective action	<ul style="list-style-type: none"> • Implement measures to protect the aquatic environment where unacceptable impacts or risk of environmental harm becomes apparent. • Immediately report any non-compliance with the objectives of the CEMP to the Site Supervisor and Environmental Representative. • The Construction Manager can request works cease at any time if a breach of the performance criteria occurs or is at risk of occurring.

B.4.5 Terrestrial Flora

ENVIRONMENTAL OBJECTIVE: TERRESTRIAL FLORA

Implement vegetation clearance, stockpiling, recycling or disposal practices that minimise environmental harm and maximise the re-use of native vegetation.

Performance criteria	<ul style="list-style-type: none"> Retained vegetation is not compromised by site clearing works, gross mechanical disturbance, or impacts associated with sedimentation and/or pollutants from the works area. Weed invasion is prevented both within the construction site and in surrounding areas.
Mitigation measures	<p>Training</p> <ul style="list-style-type: none"> All relevant personnel will undertake adequate environmental awareness training that addresses the requirements of the CEMP regarding vegetation clearing and weed management. This is expected to be part of the site induction and toolbox talks. <p>Supply of Relevant Site Plans</p> <ul style="list-style-type: none"> Plans identifying staging of works, areas to be retained, and other relevant issues will be provided to the Construction Manager and Environmental Representative before any site preparation activities are undertaken in the proposed construction area. <p>Cultural Heritage</p> <ul style="list-style-type: none"> Any relevant matters identified in the Cultural Heritage sub-plan will be incorporated into planning for vegetation clearing. <p>Identification of Exclusion Zones</p> <ul style="list-style-type: none"> All vegetated areas to be removed will be clearly identified on the ground by the Environmental Representative before any site preparation activities commence. Significant areas and no-go zones will be demarcated using high visibility flagging tape. Areas to be retained will therefore be clearly identified and no unauthorised access permitted. Trees considered suitable for retention must be identified. Within the drip zone of these trees, the following activities will not be permitted: <ul style="list-style-type: none"> storage and mixing of materials vehicle parking liquid disposal machinery repairs and/or refuelling construction site office or shed combustion of any material stockpiling of soil, rubble or debris any filling or excavation including unless otherwise approved by the Construction Manager and Environmental Representative unauthorised pesticide, herbicide or chemical applications. <p>Minimising damage to retained vegetation</p> <ul style="list-style-type: none"> Minimise tree clearing to the greatest extent possible. Maximise use of existing disturbed areas on Seqwater land.

ENVIRONMENTAL OBJECTIVE: TERRESTRIAL FLORA

Implement vegetation clearance, stockpiling, recycling or disposal practices that minimise environmental harm and maximise the re-use of native vegetation.

	<ul style="list-style-type: none"> All activities in areas adjacent to vegetation to be retained are to be conducted in a manner that minimises damage to the vegetation. Use suitably sized equipment to conduct activities. If works are to occur in the vicinity of a tree to be retained, it is to be inspected by a suitably qualified Arborist before works commence. All works are to be conducted in accordance with AS4970-2009 Protection of trees on development sites. <p>Sediment and erosion control</p> <ul style="list-style-type: none"> As construction activities may impact on retained vegetation it is important to ensure sediment fencing is in place before site preparation and other earthworks begin. Before any site preparation operations begin, the Environmental Representative (or other suitably qualified personnel) will undertake an inspection of all sediment fencing. <p>Weed management</p> <ul style="list-style-type: none"> All mulch produced on site from cleared vegetation will specifically exclude material from weed species. Vegetation mulching will be suitably controlled to avoid contamination. Mulch containing weed species material will be treated separately and disposed of a licenced landfill. <p>Re-use of felled vegetation</p> <ul style="list-style-type: none"> Retain felled logs and branches in designated stockpile locations for reuse in site rehabilitation, where possible. Retain root balls of large felled trees for use in fish habitat structures, to be coordinated with Seqwater.
Monitoring	<ul style="list-style-type: none"> Continual monitoring of vegetation clearance and works to confirm that specific controls have been implemented and appropriate work practices are being used to achieve the performance criteria. Monthly inspections of disturbed areas for weed growth, with appropriate weed control measures implemented when warranted. Continual inspection of cleared areas and the Principal Contractor’s methods during clearing to ensure compliance with CEMP. This will be assessed as part of the weekly environmental inspection. Establish a series of photo monitoring points within areas of direct and indirect impact to monitor impacts associated with construction. This includes identifying sites, taking pre-construction photos and recording GPS location, photo direction (north, east, etc.) at each point. Once prior to construction, monthly throughout lowering and construction, and quarterly until the lake has refilled and vegetation communities are re-established. Quarterly (internal) and annual (external) audits of the CEMP.
Reporting	<ul style="list-style-type: none"> Monthly report to Seqwater that includes details of monitoring results, audits, non-compliances, training, and incidents. Immediately report any incident that contravenes the objectives of the CEMP to the supervisor and Environmental Representative. Report incidents, complaints, and any significant environmental harm to regulatory authorities where required.
Responsibility	Principal Contractor

ENVIRONMENTAL OBJECTIVE: TERRESTRIAL FLORA

Implement vegetation clearance, stockpiling, recycling or disposal practices that minimise environmental harm and maximise the re-use of native vegetation.

Corrective action	<ul style="list-style-type: none"> • Appropriate control measures to be implemented where unacceptable sedimentation or erosion is occurring or may occur. • Re-mark areas of vegetation to be retained and exclusion zones if required. • If there is a non-compliance or incident, relevant work procedures and operation controls will be reviewed, and revised where necessary. • The Construction Manager can request works cease at any time if a breach of the CEMP performance criteria occurs or is at risk of occurring.
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B.4.6 Terrestrial Fauna**ENVIRONMENTAL OBJECTIVE – TERRESTRIAL FAUNA:**

Ensure that tree clearing operations and vehicle movements are completed in a manner that provides maximum protection of the health and livelihood of native fauna.

Performance criteria	<ul style="list-style-type: none"> • Compliance with the Species Management Programs. • A suitably qualified fauna spotter-catcher is on-site immediately before and during vegetation clearing activities. • Terrestrial fauna are not injured during vegetation clearing activities. • Retained habitat is not compromised by site clearing works, gross mechanical disturbance or impacts associated with sedimentation and/or pollutant export from the construction area. • Fauna species continue to use the retained habitat area after construction.
Mitigation measures	<p>Management of fauna</p> <ul style="list-style-type: none"> • All handling of fauna will be conducted by suitably qualified fauna spotter-catchers, engaged prior to and for the duration of vegetation removal. • All injured animals will be taken to an appropriately qualified veterinary surgeon or wildlife carer. <p>Identification and removal of habitat trees</p> <ul style="list-style-type: none"> • Habitat trees must be identified by a fauna spotter-catcher with flagging tape or similar before clearing operations begin. Habitat trees are defined as those trees that provide suitable foraging, refuge and nesting resources for arboreal and avian fauna and microbats. These include hollow-bearing trees, trees with fissures, trees with food resources (e.g. pollen, nectar, foliage, arthropods). Dead (stag) trees are also regarded as important habitat trees as they provide roosting and nesting resources. • Sequential clearing must be undertaken such that smaller non-habitat trees are removed in the first stage with larger habitat trees removed three to five days after the initial clearing, allowing fauna time to relocate as required under the <i>Nature Conservation (Koala) Conservation Plan 2017</i>. • Where possible, removal of habitat trees should be conducted in a manner that maximises the chance of fauna survival, including pushing rather than cutting, and cushioning the tree fall with other felled timber and foliage. <p>Retention and re-use of hollow logs</p>

ENVIRONMENTAL OBJECTIVE – TERRESTRIAL FAUNA:

Ensure that tree clearing operations and vehicle movements are completed in a manner that provides maximum protection of the health and livelihood of native fauna.

- Hollow logs must not be mulched until inspected by a qualified ecologist.
- Hollow logs within the clearing footprint should be moved into adjacent, retained vegetation as fauna habitat features.

Training

- Ensure that all relevant personnel undertake adequate environmental awareness and training covering the CEMP’s requirements regarding fauna management.

Vehicle movements

- Implement slow speed limits of 10 km per hour onsite to allow for animals to move out of the way and for drivers to have the ability to safely stop if an animal is identified within the vehicle path.
- Restrict construction hours to daylight hours, where practicable. Recommended construction hours are in accordance with Section 440R of the *Environmental Protection Act 1994*.

Light spill

- All bright lights should be positioned as close to the ground as practical.
- Where possible, light should be shielded so that it is directed toward the ground, minimising light spill towards any surrounding habitat.
- Utilise lighting that does not attract insects.
- Use only the minimum amount of lighting needed for safety.
- Avoid the use of naked bulbs and use narrow spectrum bulbs where possible.
- Use motion sensor lights where possible to only illuminate areas in use.

Monitoring

- Continual monitoring of vegetation clearance and works to confirm that specific controls have been implemented and appropriate work practices are being used to achieve the performance criteria.
- Conduct bird surveys within the lake to monitor changes in species assemblages quarterly during construction.
- Larval sampling and active searches for egg masses of giant barred frog in accordance with the Survey Guidelines for Australia’s Threatened Frogs to assess impacts on breeding activity. This is to be undertaken along Six Mile Creek downstream once per year between September and May, and before, during and immediately after drawdown.
- Quarterly (internal) and annual (external) audits of the CEMP.

Reporting

- Monthly report to Seqwater that includes details of monitoring results, audits, non-compliances, training, and incidents.
- Report on results of surveys for bird and giant barred frog within a timely manner
- Immediately report any incident that contravenes the objectives of the CEMP to the Site Supervisor and Environmental Representative.
- Report incidents, complaints, and any significant environmental harm to regulatory authorities where required.

Responsibility

Principal Contractor

ENVIRONMENTAL OBJECTIVE – TERRESTRIAL FAUNA:

Ensure that tree clearing operations and vehicle movements are completed in a manner that provides maximum protection of the health and livelihood of native fauna.

Corrective action	<ul style="list-style-type: none"> • If there is a non-compliance or incident, relevant work procedures and operation controls will be reviewed, and revised where necessary. • If a native animal is found or injured during vegetation clearing activities, clearing activities will pause while the animal is managed and the area inspected by a fauna spotter-catcher. • The Construction Manager can request works cease at any time if a breach of the performance criteria occurs or is at risk of occurring.
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B.4.7 Water Quality**ENVIRONMENTAL OBJECTIVE – WATER QUALITY:**

To preserve water quality within the Six Mile Creek Catchment area and maintain the Environmental Values (EVs), including compliance with relevant local water quality objectives (WQOs).

Performance criteria	<ul style="list-style-type: none"> • Contingency measures will prevent or minimise adverse effects on the environment due to unplanned releases or discharges of contaminants to water. • No stormwater contaminated by the activity that may cause an adverse effect on an environmental value leaves the site without prior treatment. • The risks of soil erosion impacts from all work areas where vegetation is removed or the soil disturbed during construction works are managed and mitigated. • No discharges to water, watercourse or wetland that cause an adverse effect due to the altering of existing flow regimes. • No discharge of construction contaminated water to the Noosa Water Treatment Plant Supernatant Lagoon and licensed discharge point • Existing ecosystem attributes and water quality within Six Mile Creek is maintained throughout construction period. • Compliance with the Dam Lowering Plan will be required.
Mitigation measures	<ul style="list-style-type: none"> • Site specific discharge criteria for site 'dirty' water is to be established prior to the commencement of construction. (Dirty waters are all waters that come in to contact with construction disturbed areas) <p>Suspended solids, turbidity and erosion management</p> <ul style="list-style-type: none"> • Use diversion bunds and/or drains to limit off-site stormwater flowing across construction areas. Clean stormwater diverted around the construction areas. • Stabilise exposed soils by using materials such as mulch, biodegradable matting, geotextile fabrics, and/or soil stabilisation products. • Discharge of water during the lake drawdown process should be controlled, including maintaining discharge rates and velocities in Six Mile Creek as far as practicable, so they are consistent with those typically experienced during high flow events. Further detail is provided in the Dam Lowering Plan. • Areas impacted by construction activities are progressively revegetated as they are no longer required for construction purposes.

ENVIRONMENTAL OBJECTIVE – WATER QUALITY:

To preserve water quality within the Six Mile Creek Catchment area and maintain the Environmental Values (EVs), including compliance with relevant local water quality objectives (WQOs).

- The period of time between Project completion and restoration of the Project area should be minimised where possible, to prevent loss of soils and weed incursion.
- Rate of stormwater flow within the construction area reduced by using energy dissipation techniques (i.e. whoa boys, rock rip-raps, surface profiling etc.)
- A number of procedures shall be implemented to treat sediment laden water including:
 - Filtering runoff from the site, using geotextile fabrics, vegetation and silt curtains (once the sediments are introduced into the waterway)
 - Use of sedimentation basins (i.e. settlement ponds) prior to discharge of site waters. Flocculants can also be used to hasten settlement, especially when fine sediments are present. The use of flocculants (i.e. aluminium sulphate) will be managed in accordance with operating procedures including SDS.
 - Establish release criteria for management of ‘construction contaminated water’. Base flow entering the construction zone is to be monitored and either held on site for treatment or discharged downstream under certain release criteria to prevent impacts to Six Mile Creek.
- Sedimentation basins must be designed for a 24-hour storm event of a return period of 1 year for sediment retention and a one-hour storm event of a return period of 100 years for flow. They are to be inspected and cleaned out on a regular basis and managed to ensure the required retention capacity is maintained.
- Sediment basins are to be regularly maintained to ensure the effective capacity remains.
- Undertake an erosion risk assessment to identify flow paths, suitable stockpile locations, soil cover type, and soil stability.
- Implement erosion and sediment control measures in accordance with the International Erosion Control Association (IECA) best practise guidelines, including:
 - rapid revegetation of disturbed areas
 - minimising time that areas are left exposed
 - diverting uncontaminated run on away from cleared/contaminated areas
 - controlling runoff through sedimentation dams or appropriate equivalent
 - bunding stockpiled material
 - confining traffic to defined roads and access tracks
 - compacting high traffic areas
 - excavations backfilled and covered with topsoil.
- Work should be scheduled to ensure that any temporary erosion control works are in place by the end of work each day, especially before weekends, if rain is imminent, or when permanent erosion control works are not in place.
- Minimise sediment tracked offsite by construction vehicles and potentially washed into waterways through the use of wash down bays or similar.

ENVIRONMENTAL OBJECTIVE – WATER QUALITY:

To preserve water quality within the Six Mile Creek Catchment area and maintain the Environmental Values (EVs), including compliance with relevant local water quality objectives (WQOs).

	<p>Chemicals</p> <ul style="list-style-type: none"> • Manage storage and use of hazardous chemicals and fuels in accordance with the Land Contamination sub-plan. <p>Training</p> <ul style="list-style-type: none"> • All relevant personnel will undertake adequate environmental awareness and training that includes the CEMP requirements regarding water quality management, sediment and erosion control.
Monitoring	<ul style="list-style-type: none"> • If an unplanned spill or incident occurs in the construction area or as part of associated activities of the Project, targeted water quality monitoring will be carried out up and down stream to determine potential impacts from the event. • Water quality monitoring conducted by a suitably qualified person e.g. Environmental Representative. The Principal Contractor will be required to develop a water quality monitoring program in conjunction with the lake lowering plan requirements, specifying frequency of monitoring during dewatering, and construction activities, parameters to be tested and exceedance criteria. • Quarterly (internal) and annual (external) audits of the CEMP. • Visual inspections of the construction site during and after rainfall to ensure that mitigation measures are in place, erosion and sediment control measures are in working order and no major erosion is occurring. Additional monitoring may be required to determine the extent of stormwater runoff after pulse events. • Construction dirty water are to be monitored by the site environmental advisor to ensure that the discharge criteria are met, prior to discharge off site. If the discharge criteria cannot be met, dirty water will be contained on site and treated, or removed from site for disposal.
Reporting	<ul style="list-style-type: none"> • Report any incidents, spills or release of materials to the environment to the Supervisor and Environmental Representative immediately. • Report incidents, complaints, and any significant environmental harm to regulatory authorities where required. • Monthly report to Seqwater that includes details of monitoring, audits, non-compliances, complaints, and incidents.
Responsibility	Principal Contractor
Corrective action	<ul style="list-style-type: none"> • If contaminated waters (e.g. with higher turbidity, suspended solids etc.) are observed flowing from the construction site into Six Mile Creek, appropriate action will be taken by the Environmental Advisor. • Adverse impacts to downstream water quality will be reported to DES • Adverse impacts to the Noosa Water Treatment Plant Supernatant Lagoon will be reported to Seqwater. • Areas where unacceptable sedimentation has occurred will be rehabilitated. • Appropriate control measures implemented where unacceptable sediment or erosion is occurring or at risk of occurring. • Where uncontrolled releases or water quality incidents occur, these will be cleaned up immediately. Management measures currently in place will be reviewed and updated as necessary.

ENVIRONMENTAL OBJECTIVE – WATER QUALITY:

To preserve water quality within the Six Mile Creek Catchment area and maintain the Environmental Values (EVs), including compliance with relevant local water quality objectives (WQOs).

- The erosion and sediment control plans should be amended to account for changes in site conditions or treatment methods in the case of the failure of a device.
- The Construction Manager can request works cease at any time if a breach of the performance criteria occurs or is at risk of occurring.

B.4.8 Air Quality**ENVIRONMENTAL OBJECTIVE – AIR QUALITY:**

To minimise the potential to generate air quality impacts at residences and remnant vegetation communities near the construction areas.

Performance criteria	<p>Not to be exceeded at a sensitive receptor:</p> <ul style="list-style-type: none"> • PM₁₀ (24 hr average) - 50 µg/m³ • Dust Deposition (monthly average) - 120 mg/m²/day
Mitigation measures	<p>Site preparation and layout</p> <ul style="list-style-type: none"> • Erect solid screens or barriers around potentially dusty stockpiles that are at least as high as any stockpiles on site. • Keep the size of cleared areas to a minimum to limit exposed areas available for dust emissions by wind erosion. • Retain existing vegetation, where practical, between construction activities and sensitive receptors to reduce particulate concentrations and dust deposition rates at receptors. • Install barriers alongside internal construction roads to deter driving off nominated access roads. <p>General work practices</p> <ul style="list-style-type: none"> • Avoid site runoff of water or mud. Remove silt and other materials from around any erosion control structures following any significant rain event (>10 mm) to ensure deposits do not become a dust source. • Remove materials that have potential to produce dust from site as soon as possible, unless being re-used on site. • Newly established stockpiles (including re-used materials) in the construction site are stabilised as soon as practical. Water sprays used on stockpiles, in particular during dry and windy conditions. • Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems. • Ensure there is an adequate water supply on the site for effective dust/particulate matter suppression/mitigation at all times, using non-potable water where possible and appropriate.

ENVIRONMENTAL OBJECTIVE – AIR QUALITY:

To minimise the potential to generate air quality impacts at residences and remnant vegetation communities near the construction areas.

- Hydro-mulch, mulch, hydro-seed or stabilisation spray should be applied to batters adjacent to haul roads to stabilise these areas and minimise wind-blown dust.
- Burning of vegetation will not be permitted for the Project.

Construction Dust

- Avoid undertaking earthworks activities during dry/high wind weather conditions.
- Use water sprays to control dust from unsealed traffic areas on site, particularly during periods of unfavourable wind conditions (easterly wind, greater than 5 m/s)
- Haul roads to be watered regularly using water carts to reduce emission of wheel generated dust with particular focus on haul roads located near residents. Recycled water, or similar, is used preferentially for dust suppression purposes.
- Implement regular watering along unsealed section of Collwood Road (eastern site access) when in use for heavy vehicle movements.
- Ensure bagged supplies of fine powder materials are sealed after use and stored appropriately to prevent dust.
- The size of cleared areas should be kept to a minimum to limit exposed areas.
- Surface excavation works are to incorporate consideration of prevailing meteorological conditions wind speed and direction, with works potentially ceasing if high winds are blowing in the direction towards sensitive receptors.
- Haul truck loads are to be covered when travelling on public roads, the load must be lower than the sides of the truck and the truck is to be free of loose mud and dirt before entering public roads.
- Public roads adjacent to construction area are to be kept free from tracked materials and cleaned up daily.
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site) as required.
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, as far as the site size and layout permits.

Excavation and Stockpiling

- Minimise drop heights from loading shovels and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Stockpiles or material stores should be kept damp by water sprays and/or covered and should be located as far from residences as possible.
- Fence stockpiles (e.g. 3-sided enclosures where practicable) to prevent wind erosion, contingent on frequency of use.

Vehicle emissions

- Develop and implement a Traffic Management Plan to manage the movement of construction vehicles entering and leaving the construction sites and no queuing along local roads adjacent to residential dwellings.
- Regularly maintain diesel exhaust equipment and ensure compliance with appropriate design emission standards for in service vehicles.
- Maintain diesel powered stationary plant to ensure appropriate levels of air emissions and consider fitting emission controls where required.

ENVIRONMENTAL OBJECTIVE – AIR QUALITY:

To minimise the potential to generate air quality impacts at residences and remnant vegetation communities near the construction areas.

	<ul style="list-style-type: none"> • Ensure all vehicles switch off engines where idling time on-site is likely to exceed two minutes. • Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable. • For the diesel powered generator required for the dewatering pumps, locate the unit as far from sensitive receptors as possible and ensure the exhaust emissions are discharged away from areas where workers or members of the public would be exposed to the plume. <p>Odour (during dewatering)</p> <ul style="list-style-type: none"> • Ensure a high level of communication with local residents regarding the potential for odours to be generated as a result of lowering the water level within Lake Macdonald. • Recovery of fish from the reservoir will minimise potential for odours relating to decomposition of dead fish. • Monitor, and if required, promote vegetation growth on the exposed banks to encourage drying out of the sediments /mud and promote aerobic conditions that may minimise offensive odour generation. <p>Demolition</p> <ul style="list-style-type: none"> • Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. <p>Industrial area</p> <ul style="list-style-type: none"> • Implement dust suppression measures using water during raw material extraction/management activities (i.e. clay borrow area, storage and conditioning) • Bag filter installed and maintained on the hopper vents for the concrete batching plant. <p>Training</p> <ul style="list-style-type: none"> • Relevant personnel will undertake adequate environmental awareness and training covering the CEMP's requirements regarding air quality management and monitoring.
Monitoring	<ul style="list-style-type: none"> • Daily site inspections to monitor compliance with the CEMP. • Weekly off-site visual inspections to monitor dust. This should include regular dust soiling checks of surfaces (such as street furniture, cars and window sills within 100 m of site boundary). • Continuous PM₁₀ concentrations at minimum one location, representative of nearest sensitive receptors. • Continuous Meteorological Data recorded from an on-site station. • Installation of dust deposition gauges. • Regular monitoring of dust deposition levels at nearest sensitive places to provide a basis for compliance with appropriate criteria. • Quarterly (internal) and annual (external) audits of the CEMP.

ENVIRONMENTAL OBJECTIVE – AIR QUALITY:

To minimise the potential to generate air quality impacts at residences and remnant vegetation communities near the construction areas.

Reporting	<ul style="list-style-type: none"> Record all dust, odour and other air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken. This log will be available to regulatory authorities upon request. Record inspection results and make an inspection log available to the regulatory authorities upon request. Monthly report to Seqwater that includes details of air quality monitoring results, audits, non-compliances, complaints, and incidents. Report significant dust events that require mitigation measures to be implemented to the Environmental Representative and Construction Manager immediately. Report incidents, complaints, and any significant environmental harm to regulatory authorities where required.
Responsibility	Principal Contractor
Corrective action	<ul style="list-style-type: none"> Air quality mitigation measures must be implemented immediately or as soon as practicable where air quality objectives are not being met. The Construction Manager can request works cease at any time if a breach of the performance criteria occurs or is at risk of occurring.

B.4.9 Noise and Vibration**ENVIRONMENTAL OBJECTIVE – NOISE AND VIBRATION:**

To minimise noise and vibration impacts from construction activities at residential locations near the Dam construction areas.

Performance criteria	<ul style="list-style-type: none"> Noise from construction activities will aim to achieve the following at sensitive receptor locations: <ul style="list-style-type: none"> 7am to 10pm: 50 dBA $L_{Aeq, 1hr}$ 10pm to 7am: 35 dBA $L_{Aeq, 1hr}$ Sleep disturbance 10pm to 7am: 52 dBA L_{Amax} Vibration does not exceed 7.5 mm/s.
Mitigation measures	<p>Controls at sensitive receptors</p> <ul style="list-style-type: none"> Where acceptable noise levels at sensitive receptors locations cannot be achieved through noise mitigations implemented at the construction site, noise mitigation at receptors will then be considered to assist with minimising the impact to acoustic amenity. Planning to identify likely activities that trigger this scenario will be undertaken, as well as consultation with sensitive receptors to tailor mitigations. A dilapidation survey is to be conducted where vibrations are expected to exceed 1 mm/s at nearby structures. This is to include visual inspection of buildings, photographs of defects observed and record of all locations of defects. Compliance with this recommendation is at the discretion of the Principal Contractor. <p>Operating times</p>

ENVIRONMENTAL OBJECTIVE – NOISE AND VIBRATION:

To minimise noise and vibration impacts from construction activities at residential locations near the Dam construction areas.

- Unless otherwise approved by Seqwater, general construction activities are to be carried out within daytime hours, 6:30am to 6:30pm Monday to Friday and 6:30am to 4:00pm Saturday. No noise generating construction works will take place on Sundays or public holidays.
- Deliveries should be carried out generally within daytime hours with loading and unloading carried out as far as possible away from sensitive receptors.

General work practices and scheduling of activities

- Plant and equipment should be selected to minimise noise emission, in-so-far-as possible whilst maintaining efficiency of function.
- Residential grade mufflers to be fitted and all noise control equipment should be maintained in good order.
- Trucks are not to use engine brakes on site.
- Trucks must not queue on public roads in residential areas. All trucks regularly used for the Project (e.g. tip trucks) are to have mufflers and any other noise control equipment in good working order.
- Where possible, plant should be located / orientated to direct noise away from sensitive receptors.
- Site sheds and materials are to be used to increase acoustic shielding, where feasible.
- Site access roads to be located as far as practicable away from noise sensitive areas.
- Mobile plant and trucks operating on site for a significant portion of the Project shall have broadband squawker alarms where practicable (as opposed to tonal type), recognising the need to maintain occupational safety.
- In general, construction works and consideration of quiet work practices will be carried out in accordance with Australian Standard 2436-2010, Guide to noise control on construction, maintenance and demolition sites.
- Rock breaking, rock hammering and any other activities which result in impulsive or tonal noise generation will only to be conducted during normal operational hours.
- Appropriate selection of construction processes/methods and equipment that minimises the generation of noise would be further considered during the development of the Project schedule.
- Maintain a site activity log, recording the type of activities taking place during various times of the day to assist with the retrospective investigation of community complaints relating to noise (or dust) complaints.

Worker education and awareness

- Regularly educate site staff (such as during tool box/pre-start meetings) to maximise awareness of Project noise goals and nuisance noise generating activities, and encourage minimisation of these activities, including:
 - unnecessary or overuse of horns and engine idling
 - use of compression air brakes adjacent to sensitive areas
 - shouting and swearing at shift start/end
 - efficient material handling procedures to reduce unnecessary loud banging sounds.

ENVIRONMENTAL OBJECTIVE – NOISE AND VIBRATION:

To minimise noise and vibration impacts from construction activities at residential locations near the Dam construction areas.

Maximise shielding and distance to receptors

- Maximise the offset distance between noisy plant and nearby noise sensitive receptors or, where appropriate, ensure plant are screened utilising:
 - Purpose built barriers
 - Materials stockpile
 - Site sheds, buildings or other structures
 - Natural topographical barriers.
- Where possible, carry out loading and unloading of materials and equipment in areas as far away from noise sensitive areas as possible.

Plant and equipment

- Equipment having directional noise characteristics (i.e. emits noise strongly in a particular direction) will be oriented such that noise is directed away from sensitive areas, where possible.
- Acoustic enclosures or localised noise screens could be incorporated and maintained around fixed plant or over individual pieces of equipment as appropriate based on acoustic assessment for the concrete batch plant.
- All mechanical plant should be silenced by best practical means using current control technology and in accordance with manufacturers specifications.
- Plant with the lowest noise rating that meets the requirement of the task should be used.
- For works in close proximity to sensitive receptors, where possible, use electric motors in preference to diesel motors.
- Where enclosures are fitted to equipment, ensure doors and seals are in good working order and that doors can be closed properly against the seals.
- Ensure that internal combustion engines (all mobile and stationary equipment) are fitted with a suitable muffler in good repair.
- Where reversing alarms are required for mobile equipment such as dozers, scrapers, cranes, graders, excavators, trucks, loaders etc., their acoustic range should be limited to the immediate danger area. Alternatives to traditional reverse beepers could include the use of:
 - “Smart Alarms” which adjust their volume depending on the ambient level of noise
 - Low frequency “quacker” alarms
 - Spotters, CCTV camera and audio notification
 - In all cases, the requirements of Occupational Health and Safety Regulations must be addressed.
- Where practical, metal surfaces subject to impacts from heavy objects (such as rock dropping into empty truck trays, or metal grates on road ramps etc.) should be lined with rubber impact protection to minimise impact noise.
- When using pneumatic equipment, select silenced compressors or use quieter hydraulic equipment.
- Conduct regular inspections and effective maintenance of both stationary and mobile plant and equipment (including mufflers, enclosures etc.).
- Equipment not being utilised as part of the work should not be left standing with engines running for extended periods.

ENVIRONMENTAL OBJECTIVE – NOISE AND VIBRATION:

To minimise noise and vibration impacts from construction activities at residential locations near the Dam construction areas.

	<p>Traffic noise management</p> <ul style="list-style-type: none"> • Reduce the potential for impacts from construction traffic by: <ul style="list-style-type: none"> – Undertaking regular site road maintenance (and inspections) to minimise impact noises from trucks travelling over irregularities in the road surface (such as pot-holes, washouts or ruts). – Limiting vehicle speeds in critical areas both on and off site. – Allowing for one-way traffic flow through the site to minimise the use of reversing alarms as much as possible and minimise traffic delays. – Limiting excessive acceleration from site exits. • Entry and departure of heavy vehicles to and from the site are restricted to the standard daytime construction times.
Monitoring	<p>Environmental noise monitoring</p> <ul style="list-style-type: none"> • Ongoing monitoring and review of the site noise management practices will be undertaken: <ul style="list-style-type: none"> – In response to a valid community complaint regarding construction noise – When review of upcoming construction schedule indicates a high likelihood for impact at nearest sensitive receptor locations. • The purpose of monitoring is as an active management tool to assist with: <ul style="list-style-type: none"> – Investigating the likely sources of construction noise impact – Quantifying the extent of likely impact (through comparison with the Project noise level goals) – Identifying the need for further controls or modified site noise management practices – Establishing the effectiveness of noise mitigation implemented. • The Principal Contractor will: <ul style="list-style-type: none"> – Measure meteorological conditions on a continuous basis (including wind speed and wind direction) to assist with the investigation of complaints. • Where noise monitoring is required in response to valid community complaints, it will be performed at a location representative of the nearest affected sensitive receiver to the site or a location representative of the complainant(s) dwelling. • Quarterly (internal) and annual (external) audits of the CEMP.
Reporting	<ul style="list-style-type: none"> • General monitoring information is for the use of the Environmental Representative; however, the results of noise level measurements and investigations undertaken in response to community complaints would be summarised with other environmental reporting documentation (as required) and provided to the regulator on request. Reporting will note: <ul style="list-style-type: none"> – The time of monitoring – The type and location of activities occurring on site at the time of monitoring – The location of monitoring positions with respect to site noise sources (also marked on a plan)

ENVIRONMENTAL OBJECTIVE – NOISE AND VIBRATION:

To minimise noise and vibration impacts from construction activities at residential locations near the Dam construction areas.

	<ul style="list-style-type: none"> – Noise generating activities audible at the monitoring location – Other extraneous noise sources which could influence the noise level measurements – Weather conditions prior to and during the monitoring (or complaint). <ul style="list-style-type: none"> • Monthly report to Seqwater that includes details of noise monitoring results, audits, non-compliances, complaints, and incidents.
Responsibility	Principal Contractor – Environmental Representative would be responsible for compliance monitoring and complaint investigation.
Corrective action	<ul style="list-style-type: none"> • If complaints are received in relation to a short-term unavoidable event/s or emergency situations, the community engagement and awareness of the possibility of such future activities would be improved. • Where construction noise level investigations in response to community complaints show unacceptable Project noise levels, revision to the noise mitigation measures and management commitments would be undertaken to further control noise impacts. • The Project noise level goals would be used to assist with determining the need for further corrective actions. • Where further source noise controls or mitigation in the sound transmission path are not possible or ineffective in further controlling noise levels, controls at the receiver will be investigated. • Management measures outlined above would be revised and the updated commitments implemented to reduce potential for future impacts as a result of similar activities.

B.4.10 Water Resources**ENVIRONMENTAL OBJECTIVE – WATER RESOURCES:**

To minimise changes to environmental flows within Six Mile Creek throughout construction.

Performance criteria	<ul style="list-style-type: none"> • All legislative criteria as stated within the Water Resource (Mary Basin) Plan 2006 are met through out construction. • No existing water users are affected throughout construction. • All practical measures have been taken to prevent contaminated groundwater quality as a result of construction activities.
Mitigation measures	<p>Surface water</p> <ul style="list-style-type: none"> • Comply with the Lake Lowering Plan. • During construction, environmental flows are to be maintained to the greatest extent possible, in accordance with the Six Mile Creek Dam Water Licence. • All relevant personnel are to undertake adequate environmental awareness and training covering the CEMP requirements regarding environmental flows.

ENVIRONMENTAL OBJECTIVE – WATER RESOURCES:

To minimise changes to environmental flows within Six Mile Creek throughout construction.

	<ul style="list-style-type: none"> Maintain a low flow channel at all times during construction to ensure downstream flows over the coffer dam low flow crest can pass through the spillway construction site with suitable water quality. <p>Groundwater</p> <ul style="list-style-type: none"> A dewatering management plan must be developed and implemented including the following: <ul style="list-style-type: none"> If groundwater has a high turbidity, sedimentation basins will be required to capture suspended solids prior to release off site. If groundwater has concentrations of dissolved metals, or other contaminants, that require treatment prior to release off site.
Monitoring	<ul style="list-style-type: none"> Daily monitoring of lake inflows and environmental releases in conjunction with Seqwater. Quarterly (internal) and annual (external) audits of the CEMP.
Reporting	<ul style="list-style-type: none"> In the event that flows are impeded by construction works, Seqwater are to be notified immediately. Quarterly (internal) and annual (external) audits of the CEMP.
Responsibility	Principal Contractor
Corrective action	<ul style="list-style-type: none"> Adverse impacts to environmental flows from Six Mile Creek, with respect to Water Licence conditions, will be reported to Seqwater. Rehabilitation will be conducted on areas where unacceptable flow conditions have occurred. The Construction Manager can request works cease at any time if a breach of the performance criteria occurs or is at risk of occurring. Significant changes to groundwater levels outside of the zone of influence will be investigated and appropriate action taken by the Construction Manager.

B.4.11 Cultural Heritage

ENVIRONMENTAL OBJECTIVE – CULTURAL HERITAGE:

To manage the known and unknown components of indigenous and non-indigenous archaeological records and areas.

Performance criteria	<ul style="list-style-type: none"> All known indigenous archaeological records, as identified within Chapter 13 – Cultural Heritage of the IAR, are preserved and not impacted upon by the Project. All unknown indigenous archaeological artefacts found during the course of the Project are reported to the Department of Aboriginal and Torres Strait Islander Partnerships (DATSIP) and Seqwater. No historical heritage is impacted outside those items noted in Chapter 13 – Cultural Heritage of the IAR.
Mitigation measures	<ul style="list-style-type: none"> All site operations are to be carried out in accordance with the Cultural Heritage Management Plan (CHMP) as agreed between Seqwater and the Kabi Kabi First Nation People.

ENVIRONMENTAL OBJECTIVE – CULTURAL HERITAGE:

To manage the known and unknown components of indigenous and non-indigenous archaeological records and areas.

	<ul style="list-style-type: none"> • If not included in CHMP, prepare map of known heritage locations for awareness of site personnel. • Avoid the areas of remnant vegetation north of Collwood Road, south of the left embankment, and along Six Mile Creek (north of the spillway), where possible. <p>Induction</p> <ul style="list-style-type: none"> • Conduct cultural heritage awareness training for all on-site personnel identifying areas and items of cultural heritage significance. The induction will include the procedure for unexpected cultural heritage finds. <p>Discovery of artefacts</p> <ul style="list-style-type: none"> • If, during construction, items of cultural heritage significance are discovered ('the find'), construction shall cease immediately in the vicinity of the find. Any items found shall be left in an as-found condition and a temporary barrier shall be erected to prevent access to the find. The contractor shall immediately notify the nominated Seqwater Cultural Heritage Officer and Seqwater site representative. <p>Local heritage significance</p> <ul style="list-style-type: none"> • Dam wall and spillway – Undertake suitable photographic recording of these features prior to demolition for the purposes of recording heritage values. • Lake Macdonald brick structure with dedication plaque (south of left embankment) - Undertake photographic recording of the this feature prior to demolition. Salvage the dedication plaque and reposition on a suitable structural feature or other location nearby, as agreed with Seqwater.
Monitoring	<ul style="list-style-type: none"> • No known disturbance to any indigenous archaeological records. • Quarterly (internal) and annual (external) audits of the CEMP.
Reporting	<ul style="list-style-type: none"> • Report any findings of any indigenous archaeological items to the Site Supervisor and Environmental Representative immediately. • Report any findings of any indigenous archaeological items to Cultural Heritage Unit, DATSIP and Seqwater.
Responsibility	All site personnel
Corrective action	<ul style="list-style-type: none"> • Non-compliances to be followed to completion. • The Construction Manager can request works cease at any time if a breach of the performance criteria occurs or is at risk of occurring.

B.4.12 Social

ENVIRONMENTAL OBJECTIVE – SOCIAL:

To ensure the ongoing management and monitoring of social impacts.

Performance criteria	<ul style="list-style-type: none"> Residents in adjacent properties are aware in advance of construction activities and the expected impacts, including night work schedules and safety procedures. Residents believe the construction team is proactive in identifying issues and impacts and responding promptly to identified issues and impacts.
Mitigation measures	<ul style="list-style-type: none"> Communication plan developed and implemented targeting local residents and the wider community. The plan will include: <ul style="list-style-type: none"> a construction activity schedule and associated work notifications to be regularly updated a summary of the approved communication tools, tactics and messaging a stakeholder list and issues register (matrix) two-way communication channels. Engage individual landowners and occupiers to determine suitable solutions to dust, noise and vibration impacts. Ensure dust suppression measures are employed as required. Ensure communication channels are available for downstream residents during the lake lowering and dam construction. All relevant personnel to undertake adequate environmental awareness training covering the requirements of the CEMP regarding community liaison, incidents and complaints. Complaint management procedure to be followed, which will include a project hotline during construction hours, and timeframes for responding to or resolving issues. Reinstate community infrastructure following completion of construction. Support the restocking of the lake with fish following completion of construction. Multi-use trail heads within the Project area will be relocated to allow continued use. <p>Road safety:</p> <ul style="list-style-type: none"> Develop and implement a Traffic Management Plan in consultation with relevant authorities. Ensure the modes of recorded accidents at the Sivyers Road – Cooroy Noosa Road intersection are considered in transport routes and engage road authorities if intersection changes are required. Engage road authorities if traffic and transport assessment identifies improvements to intersections. Work with council to ensure road deterioration is monitored and appropriately managed. <p>Economic</p> <ul style="list-style-type: none"> Application of Local Buy policies to ensure local businesses have every opportunity to supply goods and services to the Project. Active targeting of workforce from local communities. Encourage workforce to access local goods and services.

ENVIRONMENTAL OBJECTIVE – SOCIAL: To ensure the ongoing management and monitoring of social impacts.	
	<ul style="list-style-type: none"> • Seqwater to assist hatchery operators to remobilise operations once the Project is complete. • Seqwater to reinstate the camp grounds once the Project is complete.
Monitoring	<ul style="list-style-type: none"> • Engage residents in residential areas within 2 km of the construction and industrial site on a regular basis to ascertain satisfaction with environmental management and communication, including complaint management procedures. • Quarterly (internal) and annual (external) audits of the CEMP.
Reporting	<ul style="list-style-type: none"> • Monthly report to Seqwater that includes details of monitoring, audits, non-compliances, complaints, incidents, and emerging issues with potential social risks. • Enquiries, complaints and feedback are collated and recorded in a suitable system that is accessible to Seqwater. • All project communications to external stakeholders to be recorded in a suitable system and will be accessible to Seqwater. • Community feedback report to be provided to Seqwater on a regular (e.g. quarterly) basis summarising, for example, sentiment, number and nature of complaints, emerging issues and opportunities. The report will also summarise results of resident surveys on satisfaction or other engagement. • Significant complaints and community issues will be reported to regulatory authorities where required.
Responsibility	Seqwater / Principal Contractor
Corrective action	<ul style="list-style-type: none"> • Appropriate actions implemented where community or residents report complaints or comments during construction as per communications procedures. Ensure all complaints are followed up and logged. • The Construction Manager can request works cease at any time if a breach of the performance criteria occurs or is at risk of occurring.

B.4.13 Land Contamination

ENVIRONMENTAL OBJECTIVE – LAND CONTAMINATION (FILL): Ensure all fill imported to the Six Mile Creek dam site is clean and free from any contaminants.	
Performance criteria	<ul style="list-style-type: none"> • No new contaminants are introduced to the Project site through imported fill material. • All fill used on site is 'inert' and free from contaminants.
Mitigation measures	<p>Training</p> <ul style="list-style-type: none"> • All relevant personnel will undertake adequate environmental awareness and training covering the requirements of the CEMP regarding the sourcing, tracking and transportation of fill material. <p>Importation of fill</p>

ENVIRONMENTAL OBJECTIVE – LAND CONTAMINATION (FILL):

Ensure all fill imported to the Six Mile Creek dam site is clean and free from any contaminants.

	<ul style="list-style-type: none"> • Ensure that all fill material brought on to the site meets the requirements of: <ul style="list-style-type: none"> – <i>Biosecurity Act 2014</i> – <i>Environmental Protection Act 1994</i> • Ensure that the source of the imported fill is not listed on the Environmental Management Register (EMR) or Contaminated Land Register (CLR). • Conduct visual inspections of the imported fill material to ensure that it contains no waste material. • Obtain documentation from the fill provider, which must include: <ul style="list-style-type: none"> – Date of arrival on site – Volume / quantity of fill material – Provider – Source of fill material – Certification that the material is weed free – Documentation that confirms the site of the fill material is not listed on the EMR/CLR. <p>All relevant personnel will undertake adequate environmental awareness and training covering the CEMP requirements regarding the sourcing, tracking and transportation of fill material.</p>
Monitoring	<ul style="list-style-type: none"> • Quarterly (internal) and annual (external) audits of the CEMP.
Reporting	<ul style="list-style-type: none"> • Report all non-compliances with the CEMP and performance criteria to the Site Supervisor and Environmental Representative. • Report incidents, complaints, and any significant environmental harm to regulatory authorities where required.
Responsibility	Principal Contractor
Corrective action	<ul style="list-style-type: none"> • The Construction Manager can request works cease at any time if a breach of the performance criteria occurs or is at risk of occurring. • If fill material delivered is found to be contaminated, it should be refused. If the contaminated fill has already been spread across the site, investigate opportunities to remediate the material.

B.4.14 Biosecurity Management

ENVIRONMENTAL OBJECTIVE – BIOSECURITY MANAGEMENT:

Restricted invasive plants and introduced flora not present in study area are not introduced.

Restricted invasive plants already present in the study area are not spread as a result of Project activities.

Pest infestations do not increase as a consequence of the Project and existing populations of introduced fauna are controlled.

Minimise the opportunity for spread of aquatic weeds.

Performance criteria	<ul style="list-style-type: none"> • Obligations under the Queensland <i>Biosecurity Act 2014</i> are met. • All mobile plant working off road have weed hygiene certificates. • Documentation is available showing quarry sites inspected for weeds prior to extraction. • Infestation of weed species is reduced. • No additional weed or pest infestations or increase in distribution as a consequence of the construction activities. • All employees working on site attend induction training sessions to identify weeds.
Mitigation measures	<p>Weed removal</p> <ul style="list-style-type: none"> • Priorities will be given to species of greatest environmental threat as per the Noosa Shire Council Biosecurity / Pest Management Plan and <i>Biosecurity Act 2014</i>. • Implement protocols for managing vehicle and machinery movement to reduce the likelihood that weeds are spread as a consequence of this Project. <p>Wash-down and “clean” plant</p> <ul style="list-style-type: none"> • Provision of wash-down facilities within the Project area. • Vehicles and plant to be used for clearing must be sourced from “clean” areas, or carry weed hygiene certification. • Movement protocol must be developed and implemented for vehicles and plant to ensure restricted invasive plants are not spread. This protocol will trigger the need for a “wash-down”. <p>Site Management</p> <ul style="list-style-type: none"> • Ensure construction personnel do not create environments favourable to pest fauna, including: <ul style="list-style-type: none"> – ensure waste is managed appropriately. Bins must be provided across the work site and emptied on a regular basis – where practicable, ensure water is not left to lie on sites for longer than seven days (i.e. avoid ponds of standing water) – ensure stormwater treatment and sediment control devices are designed and managed as to not create breeding habitat for mosquitoes and cane toads (<i>Rhinella marina</i>) where possible. • All food scraps and other waste materials must be covered and removed off site regularly to reduce attraction to feral animals. • Rehabilitate disturbed areas following completion of construction to prevent pest species from becoming established.

	<ul style="list-style-type: none"> Implement a pest management plan for the Project that is consistent with Seqwater’s Water Supply Scheme Pest Management Plan and Catchment Services Biosecurity Operational Plan. <p>Training</p> <ul style="list-style-type: none"> All relevant personnel to undertake adequate environmental awareness training covering the CEMP requirements regarding vegetation clearing and weed and pest management. Minimise potential spread of aquatic weeds, for example by implementing identification training for all relevant personnel, only relocating aquatic fauna to waterbodies that are already infested with Cabomba, and/or requiring that vehicles, machinery, equipment and temporary infrastructure are subject to weed hygiene protocols. All personnel should be responsible for managing biosecurity risks and: <ul style="list-style-type: none"> take all reasonable and practical steps to prevent or minimise each biosecurity risk minimise the likelihood of causing a biosecurity event and limit the consequences if such an event is caused prevent or minimise the harmful effects a risk could have, and not do anything that might make any harmful effects worse.
Monitoring	<ul style="list-style-type: none"> Monitor the distribution of known restricted invasive plants and, where feasible, eradicate or contain these infestations in accordance with the <i>Biosecurity Act 2014</i>. Employees/contractors working on site must report presence of restricted invasive plants to the supervisor by the end of the working day. Presence of pests are to be monitored as part of weekly site inspections. This includes inspecting the edges of Lake Macdonald for evidence of pests. All monitoring of waste will be carried out in accordance with the waste management sub-plan. Employees / contractors working on site are to report the presence of feral animals to the Environmental Representative. Monthly audits of weed hygiene records (as part of the Monthly Environment Report). Quarterly (internal) and annual (external) audits of the CEMP.
Reporting	<ul style="list-style-type: none"> Personnel must notify the Environmental Representative of weed outbreaks or potential contamination. Monthly report to Seqwater that includes details of monitoring, audits, non-compliances, complaints, and incidents. Any incidents which contravene the objectives of the CEMP must be reported the Construction Manager and Environmental Representative immediately. Incidents, complaints and any significant environmental harm reported to regulatory authorities where required.
Responsibility	Seqwater / Principal Contractor
Corrective action	<ul style="list-style-type: none"> The Construction Manager can request works cease at any time if a breach of the performance criteria occurs or is at risk of occurring. Appropriate control measures must be reviewed and implemented where infestations occurring. The Principal Contractor will ensure that appropriate personnel undertake environmental awareness training covering the CEMP requirements regarding weed and pest management.

B.4.15 Waste Management

ENVIRONMENTAL OBJECTIVE – WASTE:

To prevent or minimise the generation of wastes, where practical, and to appropriately contain, control and dispose of all waste generated.

Performance criteria	<ul style="list-style-type: none"> • Implementation of waste management hierarchy (reduce, re-use, recycle, disposal) and effective and sustainable disposal strategies on site. • All waste is disposed of lawfully, with documentation for trackable waste. • Construction and storage areas are clean and tidy.
Mitigation measures	<ul style="list-style-type: none"> • Prepare and implement waste management procedures to deal with all construction waste streams. • Reasonable and practical steps will be carried out to minimise the impacts of handling and disposal of construction waste, such as: <ul style="list-style-type: none"> – Minimisation of the production of waste and amount of waste requiring disposal – Minimisation of the impact to the environment from waste – Maximisation of the opportunities to reuse waste on-site – Correct disposal of all wastes produced – Reduction of waste generated on site through re-use and recycling. • Waste management strategy will be prepared that includes plans for any potential incident where waste material with the potential to cause environmental harm is released to the environment. • In the event of an environmental incident, take such corrective or remedial action as is required to render the area safe and avoid or minimise environmental harm. • Identify and implement measures for avoiding waste generation and, if avoidance is not reasonable or practical, reducing waste generation on site. • Identify and implement strategies for the re-use of waste products during construction. <p>Recycle</p> <ul style="list-style-type: none"> • Identify and implement recycling strategies for construction waste material. • Implement training for employees on the waste management plan, recycling opportunities and the CEMPs requirements regarding waste management. <p>Disposal</p> <ul style="list-style-type: none"> • Dispose of all waste material that is unable to be reused or recycled on site at an approved landfill facility. • No waste will be burnt on site. • Ensure the transport of regulated/trackable wastes, contaminated soils or other materials is conducted by licensed contractors for disposal at licensed facilities, in accordance with requirements of Part 9 of the <i>Environmental Protection Regulation 2008</i>. • Waste contractors to provide certification (licence) records verifying their registrations and points of discharge of waste.

ENVIRONMENTAL OBJECTIVE – WASTE:

To prevent or minimise the generation of wastes, where practical, and to appropriately contain, control and dispose of all waste generated.

	<p>Waste transport</p> <ul style="list-style-type: none"> • Restrict site works and surface truck movements for transport of waste material to designated hours (i.e. 06:30 to 18:30 Mon-Fri). • Ensure the movement of hazardous materials and regulated wastes occurs at non-peak times to minimise the possibility of traffic conflicts and associated risks.
Monitoring	<ul style="list-style-type: none"> • Regular inspection of on-site facilities to ensure waste is being generated, stored, handled, disposed and transported in accordance with this CEMP. • Registers and manifests maintained to track waste material. This documentation will be subject to internal or external audit, especially for any regulated waste material. • Any discharges from site that could impact the environment are monitored in accordance with regulatory requirements. • Keep and audit records of any regulated/trackable waste removed from the site, including name and licence number of waste transporters, volume and description of waste transported, destination of waste, and licence number of the waste treatment operator. • Quarterly (internal) and annual (external) audits of the CEMP.
Reporting	<ul style="list-style-type: none"> • Monthly report to Seqwater that includes details of waste disposal, monitoring results, audits, non-compliances, training, and incidents. For any recorded environmental incidents involving spills, include time of incident, persons involved, details of incident, mitigation measures and actions taken to minimise the probability of recurrence. • Report any significant hydrocarbon spills or potential risk of spills to the Environmental Representative immediately. • Report any significant environmental harm to regulatory authorities where required.
Responsibility	Principal Contractor
Corrective action	<ul style="list-style-type: none"> • The Construction Manager can request works cease at any time if a breach of the performance criteria occurs or is at risk of occurring.