LOWER FITZROY RIVER
INFRASTRUCTURE PROJECT

Appendix F

Revised draft environmental management plan

SunWater
MAKING WATER WORK

Gladstone Area Water Board

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Glossary and abbreviations

Acronym/abbreviation	Term
AHD	Australian Height Datum
CEMP	Construction environmental management plan
CHMP	Cultural Heritage Management Plan
CHRC	Central Highlands Regional Council
CID	Community Infrastructure Designation
DAF	Department of Agriculture and Fisheries (Qld)
DEHP	Department of Environment and Heritage Protection (Qld)
DEWS	Department of Energy and Water Supply (Qld)
DNRM	Department of Natural Resources and Mines (Qld)
DTMR	Department of Transport and Main Roads (Qld)
EIS	Environmental Impact Statement
EMP	Environmental management plan
EP Act	*Environmental Protection Act 1994* (Qld)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
Fitzroy ROP	Fitzroy Basin Resource Operations Plan (2011 and 2014)
Fitzroy WRP	Water Resource (Fitzroy Basin) Plan 2011
FSL	Full supply level
GAWB	Gladstone Area Water Board
HSE	Health, safety and environment
IECA	International Erosion Control Association
LSC	Livingstone Shire Council
ICN	Industry Capability Network
LP Act	*Land Protection (Pest and Stock Route Management) Act 2002* (Qld)
NC Act	Nature Conservation Act 1992 (Qld)
OEMP	Operational environmental management plan

Acronym/abbreviation	Term
PPE	Personal protective equipment
Project	The Lower Fitzroy River Infrastructure Project
QFES	Queensland Fire and Ambulance Service
QPS	Queensland Police Service
REs	Regional Ecosystems
RRC	Rockhampton Regional Council
SDPWO Act	*State Development and Public Works Organisation Act 1971* (Qld)
SMP	Species management program
SunWater	SunWater Limited
SP Act	*Sustainable Planning Act 2009* (Qld)
SP Regulation	Sustainable Planning Regulation 2009
TI Act	*Transport Infrastructure Act 1994* (Qld) (
ToR	Terms of reference
Water Act	*Water Act 2000* (Qld)

1. Introduction

1.1 Overview

This section provides a framework for a draft environmental management plan (EMP) that presents the management measures to be implemented to avoid, minimise and/or mitigate potential impacts in regards to the Lower Fitzroy River Infrastructure Project (Project) during construction and operation. The EMP was developed in accordance with the requirements Part B, Section 10 of the terms of reference (ToR) for the draft environmental impact statement (EIS). A table cross-referencing these requirements is provided in Appendix B.

This EMP is a draft and will be refined during Project planning and as design progresses. A final EMP will incorporate conditions applied to the Project through the EIS approval process and will inform the development of separate construction EMPs (CEMPs) and operations EMPs (OEMPs), prepared by the construction contractor and operator, respectively.

1.2 Project overview

An overview of the Project design, construction and operational parameters is provided herein. A detailed Project description is provided in Chapter 2.

The Project is the construction and operation of a raised Eden Bann Weir and the construction and operation of Rookwood Weir on the Fitzroy River, Central Queensland. The Fitzroy River forms at the confluence of the Mackenzie (flowing from the north) and Dawson (flowing from the south) rivers flowing out into the Coral Sea (including the Great Barrier Reef World Heritage Area, Great Barrier Reef Marine Park and Great Barrier Reef Coast Marine Park), some 300 km downstream. The Fitzroy River passes through the city of Rockhampton which lies approximately 59 km from the river mouth.

Key Project components include the following:

- Eden Bann Weir
  - Eden Bann Weir Stage 2 – a raise of the existing Eden Bann Weir to a full supply level (FSL) 18.2 m Australian Height Datum (AHD) and associated impoundment of the Fitzroy River
  - Eden Bann Weir Stage 3 – the addition of 2 m high flap gates to achieve FSL 20.2 m AHD and associated impoundment of the Fitzroy River.
- Rookwood Weir
  - Rookwood Weir Stage 1 – a new build to FSL 45.5 m AHD, saddle dam and associated impoundment of the Fitzroy, Mackenzie and Dawson rivers
  - Rookwood Weir Stage 2 – the addition of 3.5 m high flap gates to achieve FSL 49.0 m AHD and associated impoundment of the Fitzroy, Mackenzie and Dawson rivers.
- Any combination of the above stages
- Fish passage infrastructure and turtle passage infrastructure, namely fish locks and a turtle bypass, respectively, at each weir.

Other infrastructure components associated with the Project include:

- Augmentation to and construction of access roads (public and private) to and from the weir sites for construction and operations and upgrades to intersections

- Construction of low level bridges in areas upstream of weir infrastructure impacted by the impoundments, specifically at Glenroy, Riverslea and Foleyvale crossings
- Installation of culverts at Hanrahan Crossing downstream of Rookwood Weir to facilitate access during operation releases
- Relocation of existing and/or installation of new gauging stations
- Removal and decommissioning of existing low level causeways and culverts at river crossings described above
- Water supply for construction will be sourced directly from nearby rivers and creeks and will not require the construction of additional water supply infrastructure. Operational water will be provided through rainwater harvesting systems.

Operationally the Project comprises the maintenance and management of the weir infrastructure, private access roads and impoundments, inclusive of a flood buffer. Water releases will be made through 'run of river' methods and no water distribution infrastructure is required. Water releases will be made to satisfy environmental and water security objectives in accordance with the Water Resource (Fitzroy Basin) Plan 2011 (Fitzroy WRP). Operating regimes will be developed and implemented through the Fitzroy Basin Resource Operations Plan (Fitzroy ROP) (as augmented).

The development of weir infrastructure (and associated works), the resultant storage of water (inundation of the river bed and banks) and the transfer of water between storages through 'run of river' methods on the Fitzroy River comprise the scope of the Project. Abstraction, transmission and distribution to end users are not considered as part of the proposed Project and are subject to their own environmental investigations.

In addition the following infrastructure requirements have been considered for the Project and will be assessed under separate approvals processes and separate EMPs developed as applicable:

- Power supply - A separate application will be made to Ergon Energy in this regard and assessment is not included within the draft EIS
- Telecommunications - Separate applications will be made to service providers as applicable and assessment is not included within the draft EIS
- Resource extraction areas – Potential resource extraction areas have been identified in close proximity to the weirs. Subject to further sampling and investigations, separate assessment and approval of these areas will be sought and they are not included for assessment within the draft EIS.

For the purposes of assessment the Project is further divided into the following areas as shown on figures in following sections of this chapter:

- Project footprint
  - Weir infrastructure comprising the permanent weir wall and abutments, spillway, fish and turtle passage infrastructure, control room and amenities, immediate downstream protection areas and saddle dams, as applicable to Eden Bann Weir and Rookwood Weir
  - Weir construction area incorporating the weir infrastructure area in addition to other in stream works such as coffer dams and excavations and areas adjacent to the river for the establishment of site facilities, as applicable to Eden Bann Weir and Rookwood Weir
  - Weir impoundment comprising the area within the riverbed and banks inundated at FSL and adjacent riparian areas that will be the subject of a water storage easement

  - Weir access roads (public and private, including intersection treatments)
  - River crossings comprising Glenroy, Riverslea, Foleyvale and Hanrahan crossings inclusive of road approaches.
- Downstream riverine areas comprising river sections downstream of Rookwood and Eden Bann weirs to the Fitzroy Barrage, excluding existing impoundments
- Downstream estuarine/marine areas comprising areas downstream of the Fitzroy Barrage to the Great Barrier Reef Marine Park.

Environmental design features of the Project include:

- Modification of an existing fishlock and provision of new fishways to facilitate fish passage over a range of impoundment levels (high and low) at Eden Bann Weir and Rookwood Weir as applicable
- Outlets that facilitate a range of release volumes, for example low or base flow discharge for water releases to meet downstream water allocations and base level environmental flow requirements and high flow releases to meet the post-winter environmental flow requirements
- Outlets with selective offtakes to manage the quality of water released
- Screens, surface treatments, stilling basins and operation of the outlets to allow controlled incremental release of water volumes to avoid and minimise injury and mortality of aquatic fauna
- Turtle passage infrastructure to facilitate movement of turtles around the weirs
- Construction programme and staging avoids or minimises impacts on fish passage
- Provision of low level bridges to provide improved access to the road network and improved immunity of river crossings during floods.

The Project is expected to be staged, with sequencing and timing dependant on a number of demand triggers including existing and new consumers, drought conditions and security of supply requirements. The Project will be implemented by way of a flexible strategy to allow the rapid delivery of water to meet anticipated future demands, when triggered.

This draft EMP reflects measures for all Project stages. Development of a final EMP and subsequent CEMPs and OEMPs will be developed as applicable to individual stage developments.

1.3 Environmental management plan and structure

This draft EMP addresses the environmental management commitments for the construction and operational phase of the Project.

The draft EMP:

- Builds on the commitments to environmental performance made in the Project draft EIS
- Provides a framework to protect the environmental values potentially affected by the Project
- Sets out environmental management obligations that would form part of environmental authorities and permits, to assist in the drafting of project approvals.

The EMP is intended to be an overview document which will be developed in more detail as the Project progresses into detailed design, construction and operation and approval conditions become available. It may also be updated to reflect changes in legislation. A CEMP and OEMP will be developed by the construction contractor and weir operator, respectively, based on this EMP.

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2. Environmental management framework

The purpose of the environmental management framework is to facilitate the implementation of environmental commitments included in the draft EIS.

Gladstone Area Water Board (GAWB) and SunWater Limited (SunWater) are jointly undertaking technical, environmental, social, cultural and economic investigations for the Project. Entities engaged for construction of the Project and operators appointed to implement the Project will continue to be informed by the EMP and will be committed to undertaking activities in accordance with the EMP.

As separate entities, GAWB and SunWater, have different environment and sustainability policies and associated management systems (Section 2.1.1 and Section 2.1.2). Both entities comply with relevant [ISO 14001] management system standards and have good environmental records. Neither party has been found to be in contravention of environmental conditions imposed on their projects. GAWB and SunWater are committed to managing and operating their infrastructure in a safe and sustainable manner as is evident in their environmental policies included in Appendix E.

2.1 Environment and sustainability policy

2.1.1 Gladstone Area Water Board

GAWB's corporate objective is to ensure that the long- and short-term water needs of current and future customers are met in ways that are environmentally, socially and commercially sustainable. Specifically, GAWB will:

- Contribute to long-term environmental sustainability
- Apply best practice in the management of natural resources and the development of infrastructure
- Maintain environmental (ISO14001:2004), quality (ISO9001:2008), compliance and risk management systems.

GAWB achieves its objective through planning for future water needs, and developing, operating and maintaining the infrastructure required in a sustainable manner, while minimising the impact its operations have on the environment.

2.1.2 SunWater

SunWater shares the values and responsibilities of the wider communities within which it operates, namely to secure water for the future. SunWater provides support to regional communities through its sponsorship and education initiatives. SunWater's Environmental Management System ensures that best practice environmental management and compliance is achieved across the business in accordance with ISO 14001:2004. SunWater's key environmental objectives are:

- To optimise project management and operational procedures that minimise SunWater's ecological footprint and to ensure full compliance with environmental legislation
- To minimise SunWater's impacts on native fish populations and prevent the spread of pest fish
- To proactively manage weeds on SunWater owned and managed property and investigate alternate, more sustainable methods of weed control.

2.2 Responsibilities, authority and commitment

A suitable contractor will be engaged for the construction phase (the Construction Contractor) of the Project. The Proponent may delegate key responsibilities relating to environmental management to the Construction Contractor via a contractual agreement.

The Proponent will retain overall responsibility for implementation of environmental commitments and delivery of environmental outcomes during the construction and operation of the Project.

2.2.1 Responsibilities – construction

Chief Executive Officer

- Final responsibility for the environmental performance of all Project construction activities
- Final responsibility for reporting and addressing corrective actions from incidents and internal and external audits
- Responsible for providing regular reports to Executive Team and/or Board.

Construction Manager - Proponent

- Responsible for the environmental performance of the construction phase, including a responsibility for the effective implementation of health, safety and environment (HSE) management measures
- Identify, clearly define, document, keep up-to-date the responsibility and authority of all personnel, as they relate to environmental issues
- Ensure that all personnel understand their responsibilities and authorities relating to environmental issues.

Construction Manager - Contractor

- Provide guidance, support and advice regarding environmental legislation and management
- Ensure all staff and sub-contractors are aware of their environmental obligations
- Ensure all environmental requirements and procedures outlined in the CEMP are implemented and that adequate human resources are allocated and appropriately trained to allow for effective implementation
- Ensure that all appropriate licences and approvals have been obtained prior to the commencement of work and that conditions of these approvals are adhered to
- Advise staff and sub-contractors of special requirements and provide guidance and advice to staff and sub-contractors with regard to environmental management requirements
- Ensure environmental controls and procedures are in place and maintained during all phases of construction
- Report environmental incidents to the Department of Environment and Heritage Protection (DEHP) where necessary or other responsible agencies as applicable
- Ensure compliance with statutory requirements via monitoring and auditing
- Manage corrective actions to address incidents of environmental non-compliance
- Ensure management procedures are reviewed where necessary.

Environmental Manager/Officer

- Provide guidance, support and advice regarding environmental legislation and management
- Assist in obtaining any licences and permits required to undertake construction activities
- Ensure all staff / contractors are aware of and understand their responsibilities under the CEMP
- Identify any training requirements and provide a site induction and toolbox talks
- Conduct environmental audits / reviews during all stages to ensure implementation of requirements
- Monitor implementation of environmental controls and procedures and ensure they are maintained during all phases of the construction
- Report any malfunctions, incidents, emergencies or other environmental incidents to the Construction Manager
- Ensure that environmental incidents are reported to the DEHP or applicable authorities when necessary
- Monitor statutory requirements and compliance via routine environmental monitoring which is recorded and reported
- Monitor implementation and effectiveness of corrective actions to address incidents of environmental non-compliance
- Identify if management procedures need review where necessary.

Staff and sub-contractors

- Construct and implement environmental controls and procedures
- Report any malfunctions, incidents, emergencies or other environmental incidents to both the Environmental Manager and the Construction Manager
- Rectify temporary situations that may result in or are resulting in, environmental harm
- Undertake environmental monitoring where required.

2.2.2 Responsibility – operation

Chief Executive Officer

- Final responsibility for the environmental performance of all Project operations
- Final responsibility for reporting and addressing corrective actions from incidents and internal and external audits, including the provision of adequate funds to report and undertake corrective actions as identified
- Responsible for providing regular reports to Executive Team and/or Board.

Operations Manager

- Responsible for the environmental performance of the operation, including a responsibility for the effective implementation of HSE management measures
- Identify, clearly define, document, keep up-to-date the responsibility and authority of all personnel, as they relate to environmental issues
- Ensure that all personnel understand their responsibilities and authorities relating to environmental issues

- Required to develop and implement a project specific OEMP
- Ensure that sufficient human, material and financial resources, including technical resources and support, are provided in their area of responsibility, for the effective management of environment related aspects of the operations for which they are responsible
- Measurable HSE performance goals will form a part of personal objectives and performance appraisals of all managers
- Demonstrate visible and pro-active commitment to the environment at all levels.

Site/Asset Managers

- Responsible for the environmental performance of the operations reporting to them, and for ensuring the operations meet the requirements of the project specific OEMP and HSE management measures
- Measurable HSE performance goals will form a part of personal objectives and performance appraisals of all managers
- Demonstrate visible and pro-active commitment to the environment at all levels.

Environmental / compliance officers

- Responsible for successful implementation of monitoring and reporting obligations
- Provide site managers with advice on meeting their environmental responsibilities, and provide expertise and assistance as required.

All staff and contractors

- Responsible for the environmental impacts of their own actions and have a duty to carry out their work in a manner which does not present a risk to themselves, to others or to the environment
- Have a duty of care to report all environmental issues they become aware of in a timely manner.

2.3 Legal obligations and compliance

This EMP has been prepared in context with the applicable legislation relevant to the proposed activities and sites at the time of writing. The legislation, standards, policies and guidelines that are relevant to specific elements of the Project are detailed in Chapter 3 Legislation and project approvals. A summary of potential Project approvals covered by this EMP is provided in Table 2-1.

The Proponent will ensure that they hold all licenses, permits and approvals relevant to the Project and that these are kept up to date. To ensure this occurs the Proponent will maintain a register of all licenses, permits and approvals for the Project. The Proponent must also ensure compliance of the Project with the conditions placed on these licences, permits and approvals.

All staff and contractors will be required to comply with the conditions of the approvals, licences and permits.

Table 2-1 Summary of Project EMP development approvals

Permit/ approval/ licence	Why it applies	Relevant legislation	Approving agency
Commonwealth approvals			
Approval of a controlled action	The Project is a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act). The controlling provisions are: • World Heritage properties (Sections 12 and 15A) • National Heritage places (Sections 15 B and 15C) • Listed threatened species and communities (Sections 18 and 18A) • Listed migratory species (Sections 20 and 20A).	EPBC Act	Department of the Environment
State approvals			
Approval of a coordinated project	The Project is a coordinated project under the *State Development Public Works Organisation Act 1971* (Qld) (SDPWO Act) and is required to be assessed through an EIS and seek approval from the Coordinator-General.	SDPWO Act	Department of State Development, Infrastructure and Planning
Resource entitlement	There are number of State Resources applicable to the Project, including but not limited to: • Leasehold land • Land that is unallocated State Land • Land that is State Controlled Road • Land that is road (other than State controlled) or is stock route • Water taken or interfered with under the *Water Act 2000* (Qld) (Water Act)	*Sustainable Planning Act 2009* (Qld) (SP Act), *Land Act 1994* (Qld), Water Act, *Transport Infrastructure Act 1994* (Qld) (TI Act)	Applicable government department Department of Natural Resources and Mines (DNRM) Department of Transport and Main Roads (DTMR) Regional Council
Fitzroy ROP	An amendment of the Fitzroy ROP will be required to include the operation of the Rookwood Weir and raised Eden Bann Weir.	Water Act	DNRM
Resource operations licence	An amendment to the resource operations licence under the Fitzroy ROP will be required to authorise the interference with water necessary to operate the infrastructure. An interim resource operations licence may be required prior to the resource operations plan amendments approval.	Water Act	DNRM

Permit/ approval/ licence	Why it applies	Relevant legislation	Approving agency
Failure impact assessment	A Failure Impact Assessment must be undertaken prior to submission of the operational works application for a referrable dam.	*Water Supply (Safety and Reliability) Act 2008* (Qld)	Department of Energy and Water Supply (DEWS)
Operational works for assessable development for a referrable dam	The Eden Bann Weir is classed as a referrable dam and therefore requires an operational works permit for assessable development.	Water Act, Sustainable Planning Regulation 2009 (SP Regulation)	DEWS
Operational works approval for taking or interfering with water from a watercourse, lake or spring	A development permit is required for operational work which is taking or interfering with water in a watercourse, lake or spring.	Water Act, SP Regulation	DNRM
Water Licence	A water permit is required to authorise taking water. This will be required for construction purposes. A water allocation will then need to be granted for taking water for operational purposes. The ROP outlines the process for water licence applications.	Water Act, Fitzroy ROP	DNRM
Riverine protection permit	A permit is required to excavate, place fill or destroy vegetation in a watercourse, unless such works are otherwise authorised.	Water Act	DNRM
Registration certificates	Undertaking an ERA requires a registered operator.	*Environmental Protection Act 1994* (Qld) (EP Act)	DEHP
Disposal permit to remove and treat or dispose of contaminated soil	A disposal permit will be required if contaminated soil is to be removed from land on the Environmental Management Register or Contaminated Land Register.	EP Act	DEHP
Operational works approval for constructing or raising waterway barrier works	A development permit for waterway barrier works is required for the Rookwood and Eden Bann Weir Construction, Hanrahan Road upgrade and Thirsty Creek Road upgrade.	*Fisheries Act 1994* (Qld), SP Regulation, SP Act	Department of Agriculture and Fisheries (DAF)
Cultural Heritage Management Plan (CHMPs)	The Project has the potential to disturb items of Aboriginal cultural heritage significance. CHMPs for the Project have been approved.	*Aboriginal Cultural Heritage Act 2003* (Qld)	Department of Aboriginal and Torres Strait Islander and Multi-cultural Affairs
Operational works development approval for clearing of native vegetation	A development permit is required for the clearing of vegetation to which the *Vegetation Management Act 1999* applies.	*Vegetation Management Act 1999* (Qld), SP Act	DNRM
Clearing permit (protected	A licence, permit or authority (issued under the NC Act), or an exemption is required to	*Nature Conservation Act*	DEHP

Permit/ approval/ licence	Why it applies	Relevant legislation	Approving agency
plants)	'take' protected plants. This relates to almost all native plants within Queensland.	*1992* (Qld) (NC Act)	
Damage mitigation permit	Any activity that will 'tamper' (i.e. remove, damage, impair, degrade, etc.) with the confirmed breeding place of a native animal (that is endangered, vulnerable, near threatened or least concern wildlife) requires authorisation under a Damage Mitigation Permit.	Nature Conservation (Wildlife Management) Regulation 2006	DEHP
Species Management Program (SMP)	For large impacts, particularly where potential breeding places of endangered, vulnerable, near threatened or least concern species, or essential habitat for these species, is involved, a SMP will be required.	Nature Conservation (Wildlife Management) Regulation 2006	DEHP
Reconfiguration of a lot	A development permit is required for obtaining new tenure over or reconfiguring parcels of land.	*Land Title Act 1994* (Qld); SP Regulation, SP Act	Regional Council
Road Corridor permit	A road corridor permit to construct, maintain, operate or conduct ancillary works and encroachments on a state controlled road is required for the Project.	TI Act	DTMR
Oversized load permit	For heavy machinery and oversized loads to be transported on the road network.	TI Act	Qld Police
Approval for works within local government road or reserve	Road upgrade works to local government controlled roads for road upgrades and improvements.	*Local Government Act 1993* (Qld)	Regional Council
Flammable and combustible liquids licence	Storage of flammable and combustible liquids on site.	*Work Health and Safety Act 2011* (Qld)	Department of Justice and Attorney-General
Community Infrastructure Designation (CID)*	Land may be designated for community infrastructure under a planning scheme, in which case the works will be exempt development under the relevant planning schemes. This designation is usually obtained prior to any other State approvals.	SP Regulation, SP Act	Minister for State Development Infrastructure and Planning
Material Change of Use (MCU)*	IF a CID is not granted for the Project, a MCU DA can be applied for. The proposed Eden Bann Weir triggers an MCU.	Livingstone Shire Planning Scheme 2005	Rockhampton Regional Council (RRC)
Building works	Development application for building works requiring assessment against the *Building Act 1975* (Qld) and assessable against a planning scheme.	*Building Act 1975* (Qld), SP Regulation, SP Act	Regional Council

* The Project may choose to apply for CID or alternatively seek approval as a MCU under the relevant planning schemes (Chapter 3 Legislation and project approvals).

2.4 Training, competence and induction

2.4.1 Overview

Well trained and environmentally aware personnel are a key factor in ensuring that all aspects of the Project are executed with minimal impacts to the environment and that the highest possible standards of environmental management are met. The Construction Contractor and the Proponent will ensure that all employees and subcontractors involved with the Project receive environmental training appropriate to their role. The provision of training will be in accordance with the training and competence HSE management measures developed for the Project.

A comprehensive environmental awareness induction will be provided when personnel commence on the Project. Environmental topics will also be included in toolbox talks during construction and other ongoing environmental training is to be provided as appropriate. All training will be guided and maintained by an assessment of training needs.

2.4.2 Awareness inductions

A comprehensive environmental awareness induction will be provided when personnel commence on the Project. This induction should cover aspects such as:

- Guidance on the significance and sensitivity of environmental features at all Project sites
- The environmental objectives and policies of the Proponent (during construction and operation) and the Construction Contractor (during construction)
- Individual's and organisation's environmental obligations under relevant environmental legislation
- Components of the CHMP including procedures to undertake should a heritage find occur on site during construction
- The potential environmental impacts of construction and operation (where relevant)
- Controls and procedures to prevent impacts
- Responsibilities for environmental monitoring and reporting
- Procedures for responding to environmental incidents and emergencies.

The environmental induction training will be developed prior to construction and operation works commencing.

2.4.3 Tool box talks

All staff and sub-contractors will either be briefed on environmental requirements for specific construction activities or on a site specific basis, concentrating on reinforcing practical measures. It is typical for these briefings to become a part of the Tool Box agenda. Typical topics for tool box talks include:

- Permit conditions
- Vegetation clearing demarcations
- Refuelling plant and machinery
- Precautions to prevent sediment-laden run-off entering watercourses
- Disposal of water from excavations

- Waste management (including re-use, recycling, segregation, storage and disposal)
- Noise management measures
- Dust control
- Precautions for protected flora and fauna
- Wildlife care.

2.4.4 Training needs assessment

As part of the HSE Management System, a training needs assessment and training plan will be developed for the Project. This plan will identify training requirements for each role within the Project and will include environmental and cultural heritage awareness training areas such as:

- Spill avoidance and response
- Incident response
- Incident investigation, reporting and follow-up
- Compliance and General Environmental Duty
- Cultural heritage awareness training
- Environmental auditing
- Emergency response
- Task specific training.

A register of all environmental training delivered during the course of the construction and operation of the Project, (including inductions and toolbox talks), will be maintained for the duration specified by any environmental approvals. The register will be maintained to record training attendance and currency of training for each staff, contractor and visitor.

2.5 Communication

This EMP will be adequately communicated to all construction and operational personnel. The Construction Contractor and the Proponent will ensure that the general intent, scope and relevance of these documents are understood.

Environmental issues for the Project will be communicated by the following methods.

- Environmental induction programs and training
- Daily toolbox meetings
- Risk workshops
- Management meetings
- Noticeboards
- Environmental reports.

The effectiveness of the communication will be assessed in third party environmental audits as measured through awareness of staff and subcontractors and compliance with day to day site environmental management requirements.

A Communication Strategy will be developed for the construction and operational of the Project. The Communication Strategy will outline the responsibilities and protocols for internal and external communication, including communication with relevant authorities, the media and the public. The Communication Strategy will link to other procedures such as the Incident Management Procedure or Complaint Management Procedures.

2.6 Documentation, document control and records

The Construction Contractor and the Proponent will ensure that an adequate document control system is in place to ensure that only current documentation is in use.

Records collected as part of environmental management activities will be retained by the Construction Contractor and the Proponent for the legally required period of time. Environmental records include but may not be limited to:

- Site inspection checklists
- Environmental audit reports
- Training records
- Monitoring data
- Complaints and associated records of communication
- Meeting minutes.

During construction, the Construction Contractor will make these records available to the Proponent or any relevant authorities and their representatives on request. During the operational phase, the Proponent will make these records available to any relevant authorities and their representatives on request and where justified and in accordance with legislation.

2.7 Project management integration

When determining a suitable Construction Contractor, the Proponent will take into account the track record of a prospective tenderer in relation to compliance with environmental legislation and their proposed environmental management systems. Contracts will include environmental performance requirements.

The Construction Contractor and its sub-contractors will be required to develop and implement a construction project specific EMP (CEMP) and procedures relevant to the construction phase to achieve compliance with this EMP.

During operation, the Proponent will develop and implement a project specific EMP (OEMP) and procedures relevant to the operational phase to achieve compliance with this EMP.

The mitigation and management measures listed in this EMP will be integrated in other project documentation such as work method statements and work instructions to ensure that environmental management is integrated in overall project management (construction) and operation of the Project.

2.8 Emergency preparedness and response

The Construction Contractor and the Proponent will ensure that all staff and sub-contractors have adequate competence and training to respond to environmental emergencies. The Construction Contractor and the Proponent will establish emergency response teams for the construction and operational phase respectively that has received special training in emergency response including use of

emergency response equipment and consultation with emergency services such as Emergency Management Queensland, Queensland Fire and Emergency Services (QFES), Queensland Police Service (QPS) and Queensland Ambulance Service.

An Emergency Response Plan will be developed and implemented to address incidents such as:

- Environmental spills and leakages e.g. fuel, coal or other hazardous substances
- Vehicle collisions
- Weir failure
- Coffer dam failure
- Fire
- Flood
- Cyclones
- Seismic event.

The Emergency Response Plan will include emergency procedures and emergency contact details relevant to the Project prior to commencement of construction works and operation. The emergency response plan will be developed as part of the project documentation for construction and operation and will reference this EMP where applicable. The Emergency Response Plan will also link to the Incident Management Procedure (below). The Emergency Response Plan will ensure that the Project complies with and will facilitate the implementation of safety and health management systems to mitigate hazard and risk, including, but not limited to:

- Hazard analysis and risk assessment undertaken in accordance with AS/NZS ISO 31000:2009 Risk Management – Principles and guidelines and with HB203:2006 Environmental Risk Management Principles and Processes
- Implementation or emergency response plans detailing mitigation strategies to achieve specific outcomes as outlined in the State Planning Policy July 2014 specifically the natural hazards, risk and resilience section and maintain adequate separation of vegetation from exposures to prevent wildfire events threatening infrastructure in isolated areas;
- All dangerous goods, explosives and hazardous substances transported, stored and managed in accordance with relevant legislation
- Development of safety management plans and emergency response procedures in consultation with the state and regional emergency service providers and provide an adequate level of training to staff who will be tasked with emergency management activities;
- • Compliance where necessary with the *Queensland Fire and Emergency Services Act 1990*.

2.9 Incident management

2.9.1 Construction phase

'Environmental harm', as defined in Section 14 of the EP Act is "any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value, and includes environmental nuisance". If environmental harm does occur during the construction phase of the Project, the Construction Contractor will immediately take appropriate action to minimise any adverse environmental impact and promptly report details of the incident to the Proponent

and relevant agencies (e.g. DEHP) and emergency services. The Construction Contractor will carry out any instruction received from the authorised representatives of those relevant agencies.

Environmental near-misses and incidents will be recorded and subsequently investigated whereby appropriate corrective actions will be developed and put in place. An incident investigation procedure and reporting form will be developed by the Construction Contractor in the unlikely case of such events occurring, and incidents will be reported to Government agencies where it is legislated to do so. Typical information to be recorded in this form includes:

- Time and date of the incident
- Name and contact details of the witness/reporting person
- Location of the incident
- Incident type (near miss, minor/major incident)
- Description of incident (sequence of events, what occurred)
- Description of investigation
- Cause of the incident
- Corrective actions identified and implemented (including date)
- Close out authorities.

The Construction Contractor will establish an Incidents Register and all legitimate and verifiable incidents received will be entered into the Register.

The incident and reporting procedure, reporting forms and contact numbers for relevant Project personnel and regulatory Government agencies, will be made available to all relevant staff during site environmental inductions and displayed at all site offices / crib rooms. Contact names and numbers will be updated as required.

2.9.2 Operation phase

The Proponent will prepare incident response plans that will incorporate both workplace health and safety requirements and community and environmental hazard management. The plans will document the response systems that will be implemented in the event of an incident at the site. The following emergency response priorities have been identified by the Proponent:

- Safety and wellbeing of all personnel
- Minimise environmental harm to the greatest extent possible
- Minimise impacts on business assets as well as assets in the neighbourhood.

The process of implementing incident management systems will include:

- Developing a suitable organisation chart which will include overall responsibility for control of incidents, subsidiary responsibilities, trained fire fighters and fire wardens, first aid providers and so on
- Identification of likely incidents, causes and potential consequences
- Identification of responsibilities and authorities for incident response
- Identification of training needs and providing training
- Prevention of incidents

- Post incident recovery
- Auditing and inspection
- Incident reports and investigations
- Management reporting and responses.

All potential hazards will be addressed in the incident response plans. Key response plans for oil spill, traffic related incidents and fire and explosion will be addressed at minimum. In case of a bushfire, the Proponent will have limited onsite firefighting capabilities but will coordinate with State and local government agencies and emergency services and any adjacent land uses to develop appropriate response strategies.

2.10 Community consultation and complaints procedure

A Communication Strategy will be developed by the Proponent and Construction Manager. Engagement undertaken and relationships developed during the EIS stage of the project will continue, and conditions identified within the EIS approval will be incorporated into a Stakeholder Engagement Plan.

The proponent will work with affected landowners and other stakeholders to develop suitable communication approaches. It is intended that contact with landholders in particular, as well as other stakeholders, will be coordinated and a single point of contact provided.

Potentially affected stakeholders (in particular neighbouring landholders) will be consulted to ensure that disruptions to their daily activities as a result of construction works are kept to a minimum. Every endeavour will be made to notify stakeholders in advance of any planned disruption in accordance with the Communication Strategy.

A procedure for complaints and a complaints investigation reporting form will be developed by the Proponent. The Construction Contractor will establish a Complaints Register and all legitimate and verifiable complaints received will be logged into the Register. The Construction Contractor will advise the Proponent of any complaints received.

If a complaint is received, the person receiving the complaint is to record details on a complaints reporting form as follows:

- Name and contact details of the complainant
- Date and time of the complaint
- Reason(s) for the complaint (including date and time).

Complaints will be investigated immediately and corrective actions implemented as soon as they are identified. Details of the investigation and corrective actions are to be reported in a form with details similar to those listed in Section 2.9 for incidents. Complaints will be resolved as quickly as possible, in a consultative manner with the complainant. The Proponent and Construction Contractor will respond to the complainant in writing and/or by telephone within 24 hours of receipt of the complaint to inform them of the status of the investigation and the timeframe for resolution.

The Proponent will also develop a complaints procedure for the operational phase of the Project. This will align with the existing HSE Management System.

2.11 Environmental reporting

2.11.1 Internal

The Construction Contractor will be required to report any environmental incidents or breaches of the approval conditions immediately to the Proponent key representative. Where there is an obligation to report to relevant authorities, this must also occur within the applicable timeframes and the Proponent representatives notified. Reporting will be undertaken in accordance with the Communications Strategy.

During construction, the Construction Contractor will be required to prepare and submit a monthly report to the Proponent which will include the site inspection records, monitoring results, training undertaken, initiatives, incident records and details of any corrective and preventive actions taken where non-conformances had been identified and all non-conformances that have not been closed-out.

During operation, the Environmental Manager/Officer will prepare reports as necessary and in accordance with reporting obligations of approval conditions for the Proponent senior management which will include the site inspection records, monitoring results, training undertaken, initiatives, incident records and details of any corrective and preventive actions taken where non-conformances had been identified and all non-conformances that have not been closed-out.

All staff and contractors will be required to report any environmental incidents (including complaints) or breaches of the approval conditions immediately to their supervisors who will then involve the Environmental Manager/Officer and implement further actions.

2.11.2 External

Reporting will be undertaken in accordance with the legal obligations and compliance requirements set out for the Project. The Proponent aims to provide timely, relevant and appropriately presented information to government authorities, the local community and the general public on the environmental performance of the Project. Reporting commitments under the environmental approval conditions and other legislation will be complied with and may include:

- Monitoring results as required by authorities
- Progress reports as required in approval conditions
- Annual Returns as required under the EP Act (operation only).

Any significant environmental incidents or serious breaches of the approval conditions will be reported to the relevant authorities in a timely manner and in accordance with legislative requirements.

2.12 Environmental auditing

Audits to verify compliance with all applicable environmental requirements will be conducted at appropriate intervals. Audits will cover all aspects of the HSE Management System. This will include verifying compliance with at least the following requirements:

- The EMP relevant to construction or operation
- Proponent HSE Management Standards
- Proponent HSE Compliance Guidelines
- Applicable legislative and approval requirements
- Other applicable environmental requirement (e.g. specific site or operation procedures).

Audits will be conducted by competent auditors independent of the construction activities or operations being audited. The audit results, conclusions and corrective actions required will be communicated to those responsible for implementing the corrective actions.

An audit report will be prepared to summarise the findings of the audits and any corrective and preventive actions. The environmental audit reports will be made available to relevant environmental authorities as required by conditions of approvals.

2.13 Review and continuous improvement

The Proponent will regularly review and (if necessary) update the final EMP and all elements of the HSE Management System. The review will take into account the following:

- Changes in legislative requirements (including conditions of approvals)
- Environmental performance , findings of environmental audits and inspections
- Outcomes of agency consultation
- Outcomes of consultation with communities and resolution of complaints
- Changes in external and internal policies, standards and guidelines.

The review will ensure the continuing suitability, adequacy and effectiveness of the EMP and the HSE Management System. The review will include assessing opportunities for improvement.

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3. Environmental aspects and their impacts

Construction activities within the Project that may have an environmental impact have been identified and assessed in Table 3-1.

Table 3-2 identifies and assesses operations activities associated with the Project that may have an environmental impact.

Table 3-1 Project construction activities and impacts

Activity	Impact
Earthworks including excavation of material from bed and banks of the river course	• Erosion with resultant waterway sedimentation • Changes in stream geomorphology / stream profile • Dust • Noise • Visual amenity
Extraction of aggregate (blasting)	• Ground vibration • Air overpressure • Noise • Dust • Fly rock • Visual amenity
Construction of weir wall - primary aspect to be conducted will be concrete batching	• Management of alkaline wastewater from concrete production • Increased dust emissions • Noise • Visual amenity
Vegetation clearing	• Loss of small areas (relative to overall area) of Regional Ecosystems (RE) • Bank instability / erosion (from loss of riparian vegetation), with resultant sedimentation and water quality impacts • Loss / degradation of fish, turtles and crocodile habitats / nesting sites • Erosion with resultant waterway sedimentation • Fragmentation of riparian corridors and associated of remnant vegetation • Visual amenity
Construction of access roads	• Sheet erosion of topsoil with resultant waterway sedimentation, and water quality impacts and loss of topsoil • Disturbance to the local community • Disturbance of stock grazing areas • Visual amenity
Temporary power generation e.g. generators	• Noise • Ambient air quality (exhaust fumes) • Visual amenity
Installation and removal of coffer dam	• Inundation of small areas of RE • Inundation of fish, turtle (Fitzroy River turtle and white-throated snapping turtle) and crocodile habitats / nesting sites • As inundated material decomposes, water with low dissolved oxygen will be discharged which may impact downstream aquatic ecosystems

Activity	Impact
Storage and use of chemicals and fuels	• Spillage of chemicals and fuels causing contamination to watercourses or land • Ambient air quality (fumes)
Generation, storage and disposal of general and industrial waste	• Improper handling may limit reuse and recycling opportunities or cause litter that pollutes the environment
Installation and operation of portable site facilities e.g. offices and toilets	• Clearing of vegetation • Generation of litter which if inappropriately disposed of may pollute the environment • Generation of effluent requiring storage and transport if improperly handled may cause contamination of storm and ground water • Visual amenity.
Transportation to and from site, and the running of machines and equipment	• Spillage of chemicals and fuels causing contamination to watercourses or land • Vehicle collisions and incidents • Exhaust fumes from construction vehicles and equipment • Dust (from travel on dirt roads and from transporting soil) • Modification of ground cover / conditions • Introduction / spread of weed species

Table 3-2 Project operation activities and potential impacts

Activity	Impact
Release of waters from weirs during flood	• Inundation downstream • Changes in water flows downstream
Release of waters from weirs	• Changes in flow downstream
Environmental flow releases do not meet Fitzroy WRP requirements	• Changed environmental flow levels
Malfunction of turtle passage	• Prevents turtle passage
Malfunction of fish passage (e.g. wearing of seals on gates or actuators)	• Prevents fish from migrating upstream • Locks fish in
Malfunction of gates releasing water	• Decrease in storage level of water
Malfunction of gates or valves preventing release of water (e.g. corrosion of valve, deterioration of bearings on crest flap gates)	• Increase in storage level of water
Malfunction of power pack(s) to control room (control room malfunction)	• Changes rate of flow of waters from weirs (malfunction of gates above)
Leak/spill from standby power generator	• Spillage of chemicals and fuels causing contamination to watercourses or land

4. Construction management plans

Environmental elements for the draft EMP are:

- Soil
- Contaminated land
- Nature conservation (terrestrial and aquatic flora and fauna)
- Surface water quality and flows
- Air quality
- Greenhouse gas emissions
- Noise and vibration
- Waste management
- Transport and road network
- Indigenous cultural heritage
- Social environment
- Hazardous substances and risk.

Emergency response planning is also covered. Activities proposed during the preparatory works phase ahead of construction are included.

4.1 Soil Management Programme

Element	Soil
Operational policy	• To minimise soil erosion and prevent loss of topsoil resources • Minimise impacts to surrounding waterways from sedimentation.
Performance criteria	• Maintain topsoil resource • No erosion and contamination of waterways by sediment • Manage and mitigate the risk of soil erosion where vegetation is removed or the soil disturbed during construction works • Comply with approval conditions.
Implementation strategy	• Prior to commencing construction a site-specific soil survey will be undertaken to inform development of Drainage, Erosion and Sediment Control Plans in accordance with International Erosion Control Association (IECA) guidelines and will address all aspects of construction and include performance criteria for all controls to be implemented across the Project • Erosion and sediment control measures employed during construction will be consistent with the practices described in the IECA (2008) Best Practice Erosion and Sediment Control Guideline and/or Queensland Division of the Australian Institute of Engineers' (1996) Erosion and Sediment Control: Engineering Guidelines for Queensland Construction Sites • Drainage, Erosion and Sediment Control Plans will include the following measures: – Schedule significant ground disturbing activities during drier periods – Implement drainage controls to divert flows around disturbed areas and allow site affected water to settle in sediment basins for treatment – Install (prior to disturbance of the river banks) and maintain floating booms downstream of the works supporting silt curtains weighted to the river – All topsoil will be scraped back and stockpiled separately for use in rehabilitation – Minimise the area and duration of exposed soil during construction work – Minimise the amount of time excavated material requiring disposal remains on site – Minimise sediment and dust loss from stockpiles. Measures may include a combination of stormwater flow diversions around stockpiles, stabilisation or covering of the stockpile surface, and downstream sediment containment devices where run-off is expected. Sediment fencing will be installed around all stockpiles – Place stockpiles at least 20 m from drainage lines, stormwater drains and waterways. Ensure stockpiles are covered and bunded – Clean out accumulated sediment from erosion and sediment controls when it reaches a depth of 300 mm or one-half the height of the control, whichever is the lesser – Place the sediment in a disposal area or, if appropriate, mix it with dry soil on site – Dispose of sediment in a manner that will not create an erosion hazard – Do not erect a new sediment fence on top of accumulated sediment behind the fence

Element	Soil
	– Stabilise existing bank slopes where appropriate using rip rap and other means as necessary – Reinstate disturbed areas as soon as possible after work in that area is complete – Ensure there is adequate cover on all disturbed areas prior to the removal of stormwater runoff controls – At the end of construction, ensure all areas of exposed soil are mulched and/or grassed to minimise any ongoing erosion issues from the site. Remove temporary stormwater and sediment control devices only once groundcover is established – Drain and clear sediment basins when no longer required.
Monitoring	• A monitoring programme will be developed to monitor areas upstream and downstream of the weirs for potential erosion and bank slump • Inspection of drainage, erosion and sediment control devices following storms and rain events will be undertaken to ensure ongoing effective operation • Inspection of all stockpiles, external works including roadworks (and site vehicle entry and exit points) and diversion drains on a weekly basis until fully reinstated • Environmental reporting and auditing will be undertaken in accordance with procedures outlined in Section 2.11 and Section 2.12.
Corrective action	• If erosion is occurring or sediment is entering waterways, review and amend the Drainage, Erosion and Sediment Control Plan • If erosion is observed in any work areas, including external road and drainage works: – Stabilise damaged area immediately – Repair or upgrade diversion drainage and erosion controls – Conduct permanent stabilisation works as soon as practicable. • If sediment or dust is being lost from stockpiles/site: – Install or augment diversion drains – Protect stockpile surface from erosion and wind impact – Install sediment controls (e.g. fencing and containment device downstream of stockpile) • If in the event sediment containment devices are full of sediment: – Remove sediment and dispose of within the site or stockpile securely for removal – Repair damaged devices – Review and augment erosion control system as appropriate. • All Project employees and sub-contractors will be retrained in soil management if the Soil Management Programme is not being implemented and will modify work practices as required and instructed by the Environmental Manager/Officer, with managerial support.

4.2 Contaminated Land Management Programme

Element	Contaminated land
Operational policy	• To minimise the risk of contamination and, where required, manage the occurrence of contaminated land.
Performance criteria	• No contaminated land caused by Project activity • Any spills are cleaned up in an appropriate and timely manner.
Implementation strategy	• Investigations and remediation activities would be undertaken for potentially contaminated sites identified • Further stages and the need for the development of a Site Management Plan, Remediation Action Plan, and a Contaminated Sites Construction Management Plan will be undertaken if future additional works indicate potential or actual contamination • A spill response plan would be developed • Procedures for all fuel transport and unloaded operations would be developed and personnel would be trained appropriately • Personal protective equipment (PPE) and spill response equipment would be available on site and personnel would be trained in appropriate use.
Monitoring	• Conduct audits to assess implementation strategy requirements.
Corrective action	• Identify the source of contamination and remediate, modify the controls, or modify procedures that may be inadequate • Any contaminated material would be collected, placed in secure containers and disposed of appropriately • All employees will be retrained in procedures where the procedures are modified or new ones adapted • Employees that knowingly undertake an action that does not conform to the Project's procedures or CEMP will be retrained • Practices, procedures and management plans will be annually reviewed and updated where necessary.

4.3 Nature Conservation Management Programme

Element	Nature conservation
Operational policy	• Where unavoidable, restrict vegetation clearing to the smallest practical work area • Minimise death, injury or disturbance to native fauna • Prevent introduction of pest/weed species.
Performance criteria	• No new pest/weed species introduced and no increase to existing pest/weed species abundance and distribution • Site rehabilitated after construction • No unapproved clearing to occur beyond the required limits for construction • Identified sensitive areas are demarcated and managed appropriately with minimal impacts • No incidents of death or injury to native fauna.

Element	Nature conservation
Implementation strategy	**Terrestrial flora** • Clearing for site works will be restricted to the smallest practical area. The amount of time the area is cleared prior to construction will also be minimised • Clearly demarcate no-go areas of highly sensitive vegetation, including all vegetation not to be cleared. All vegetation to be retained should be surveyed and clearly demarcated • Where practicable, revegetation activities would be commenced in and adjacent to construction areas as soon as possible after the completion of local construction works • Areas that are temporarily disturbed during construction will be revegetated using locally indigenous species appropriate to the position in the landscape. Interim use to be made of short-lived, non-native species to facilitate rapid growth and groundcover for soil stabilisation • DAF will be contacted with regard to the harvesting of forestry timber products as appropriate and necessary in accordance with the requirements of the *Forestry Act 1959* (Qld) where such activities would not cause adverse environmental impacts • Implement CHMPs inclusive of survey prior to construction and impoundment • A Weed Management Plan would be prepared for the construction phase that outlines measures to prevent the introduction of new weed species into the area and minimise the spread of declared weeds within the site. Measures would include: – Vehicles, plant and equipment will be cleaned prior to entering site to prevent the introduction of weeds – Machinery used for clearing and grading will have their wheels cleaned with an air compressor before entering and leaving the site – Key personnel on site will be capable of identifying declared weed species within the site / surrounding area and prevent their spread and translocation. During an initial site inspection, declared weeds will be identified and flagged and recorded in a site register. Declared weeds will be treated to prevent spread using methods consistent with advice from DAF, regional councils – Where weeds and infestations are detected or identified within the work site (particularly on stockpiles and post rehabilitation), they will be removed or destroyed using methods consistent with advice from DAF and regional councils. • Weed management would be undertaken with reference to relevant Queensland and local government legislation, guidelines and plans including: *Land Protection (Pest and Stock Route Management) Act 2002* (Qld) (LP Act); *Plant Protection Act 1989* (Qld); Biosecurity Queensland policies and guidelines; DAF pest factsheets; RRC Pest Management Plan 2012-2016; and Central Highlands Regional Council (CHRC) Draft Area Pest Management Plan 2014-2016 • Temporarily disturbed areas will be rehabilitated to replicate as closely as possible the habitat resources available prior to construction • Utilise chipped and mulched waste from clearing during rehabilitation and revegetation works.

Element	Nature conservation
	Terrestrial fauna • Undertake a pre-clearing survey to inform the SMP • Cleary demarcating no-go areas of sensitive vegetation and habitat, including all vegetation and habitat not to be cleared • Sequential clearing of vegetation to allow resident fauna the opportunity to disperse away from the immediate construction area • Habitat features such as hollows and log piles will be salvaged and placed in nearby habitat areas • Fauna spotter catchers present prior to and during clearing activities associated with construction to implement the SMP, including assisting wildlife to disperse into adjacent habitat • If injuries occur the fauna spotter catcher will capture and transport the injured animal to a qualified veterinarian for treatment or euthanasia (unless suitably-qualified). Prior to clearing for construction formalise arrangements with local veterinary services to treat and care for injured animals • Where practicable, revegetation activities will be commenced in and adjacent to construction areas as soon as possible after the completion of construction • Utilise “habitat” green waste from clearing operations to provide fauna habitat in rehabilitated areas • Enforce on-site speed limits to restrict the incidence of vehicle strike • Minimise the need to travel near dawn or dusk by adhering to standard daytime work hours, limit haulage and delivery of materials to the day time and/or minimise the number of vehicles travelling during this period through the use of busses to transport construction personnel • Educate employees regarding the presence of the EPBC Act and NC Act listed squatter pigeon and other fauna and livestock on access roads • Erect temporary fencing to exclude mobile animals such as macropods, echidnas and livestock from the construction areas • Checking of trenches, excavations and machinery daily for the presence of reptiles • Providing notification to landholders regarding construction activities and negotiate requirements to move livestock • Establish stock fencing, gates and cattle grids on the new permanent access road as applicable and agreed with the landholder for construction and operations phases • Prior to blasting landholders will be notified and provided the opportunity to move cattle away from the area • Night works will be restricted as far as is possible during the construction phase. In particular consideration will be given to avoiding night works in areas directly adjacent to or within sensitive habitats • Directional lighting and shields will be installed to minimise light spill outside of the immediate work areas having consideration for health and safety requirements • Manage pest species in coordination with adjacent landholders and catchment management groups • Pest management would be undertaken with reference to relevant Commonwealth, Queensland and local government legislation, guidelines and plans including: threat abatement plans, (feral pigs and feral cats) LP Act;

Element	Nature conservation
	Public Health Act 2005 (Qld)*;* Biosecurity Queensland policies and guidelines; DAF pest factsheets; RRC Pest Management Plan 2012-2016; and CHRC Draft Area Pest Management Plan 2014-2016 • All rubbish and other refuse that may potentially attract introduced animals (food scraps) should be appropriately disposed of in sturdy waste disposal receptacles that are frequently emptied • No domestic animals will be allowed on the construction site. **Aquatic fauna** • Implement the SMP developed for the Fitzroy River turtle (*Rheodytes leukops*) and white-throated snapping turtle (*Elseya albagula*) • All construction personnel will be informed of environmental responsibility with respect to the protection of aquatic fauna and their habitat. Site inductions will include information on the location of important habitat and potential turtle nesting habitat to prevent disturbance and/or destruction of these areas. Management actions relevant to the protection of aquatic habitat will be discussed and responsible persons identified • The construction footprints will be kept to the minimum amount necessary and will be clearly marked with construction tape • Prior to any initial or new disturbance to aquatic habitat within the construction areas, all impact areas will be inspected by a fauna/spotter for the presence of aquatic fauna. Pre-clearance surveys will be undertaken immediately prior to disturbance works. Aquatic fauna captured will be relocated and relevant measures implemented to exclude fauna access to active constructions areas (e.g. erection of exclusion fencing/netting, bund walls) • A fauna spotter/catcher will be located on site during all works that have the potential to cause injury or mortality to aquatic fauna located in the area. The fauna spotter/catcher will identify, capture and relocate aquatic fauna and/or nests as required to avoid impact • If injury occurs, injured fauna will be immediately removed and taken to a qualified veterinary or wildlife carer for treatment. Suitable veterinarians and wildlife carers in nearby areas and Rockhampton will be identified and commercial arrangements established to guarantee the financial costs of treatment and rehabilitation • A work method statement will be developed for dewatering activities including requirements for the safe handling of fish and other aquatic species with reference to DAF's Fish Salvage Guidelines (DPIF 2004) • All construction personnel will be informed of environmental responsibility with respect to minimising the risk of fauna injury or mortality. Site inductions will include information on the identification of the Fitzroy River turtle, white-throated snapping turtle and estuarine crocodile, location of any confirmed nesting habitat areas within or adjacent to the construction areas and relevant management actions • A Weed Management Plan will be developed and implemented for the Project. The management plan will detail the control and treatment of introduced weeds that may negatively impact habitat quality • A Feral Animal Control Program will be developed and implemented for the Project or in collaboration with local council, community groups and landholders. Specific measures may include culling, baiting and trapping of pigs, foxes, wild dogs and feral cats

Element	Nature conservation
	• The re-establishment of aquatic habitat within the impoundment will be encouraged through the following actions: – Rehabilitating and restoring areas impacted by scouring, erosion and slumping – Promoting the natural regeneration of trees and shrubs – Controlling introduced weeds and feral animals in accordance with the Project Weed Management Plan and Feral Animal Control Program. • Water flows downstream of the construction areas will be maintained to prevent the drying of aquatic habitat and to maintain water quality. A flow diversion strategy will be implemented at Rookwood while the existing fish lock at Eden Bann Weir will remain in operation during construction of the right bank. Flows will be maintained within the natural river channel at river crossing construction areas • A Drainage, Erosion and Sediment Control Plan will be developed and implemented (Section 4.1) • A Water Quality Management Plan will be developed and implemented (Section 4.4) • A Waste and Hazardous Materials Management Plan will be developed and implemented. (Section 4.12) • Aquatic habitats immediately upstream and downstream of the construction footprints and river crossing construction areas will be monitored for signs of degradation during the construction phase and aquatic fauna relocated if conditions deteriorate to threshold levels (to be confirmed) in isolated pools • Night lighting will be minimised where practicable. **Wildlife hazards** • Construction areas would be inspected by a suitably qualified professional prior to the commencement of construction activities to identify wildlife hazards including estuarine crocodiles, snakes and spiders within the construction area • All construction staff would receive appropriate education and training to address the risks associated with wildlife • Construction staff are to avoid entering areas known to be used by crocodiles and where possible, avoid walking along the banks of the river or creeks • Signage will be strategically placed to warn of the presence of estuarine crocodiles, the dangers they pose and actions to avoid contact • Queensland Health alerts for mosquito borne diseases such as dengue fever and Ross River fever will be monitored and all construction staff will be educated on the risk of mosquito borne diseases including personal protective measures through onsite inductions • Any areas on site with the potential to hold water will be monitored and drained to prevent stagnant water accumulation.
Monitoring	• Site will be visually monitored for weed infestations in accordance with an established schedule. • During vegetation clearing, the area being cleared will be monitored daily to ensure only approved vegetation is removed. Additionally, a fauna spotter/catcher may be required to monitor the felling. • Excavations will be checked daily prior to construction.

Element	Nature conservation
	• Environmental reporting and auditing will be undertaken in accordance with procedures outlined in Section 2.11 and Section 2.12.
Corrective action	• Immediately reinstate areas incorrectly disturbed • Amend procedures if vegetation clearing occurs outside approved areas • Contact DEHP for local wildlife carer • Use a water truck to clean vegetation along access tracks and adjacent construction sites if significant dust deposits on vegetation are identified • Retrain all Project employees and sub-contractors in nature conservation if the Nature Conservation Management Programme is not being implemented • All Project employees and sub-contractors will modify work practices as required and instructed by the Environmental Manager/Officer, with managerial support.

4.4 Water Management Programme

Element	Water quality and flows
Operational policy	• Maintain water quality in runoff discharging from the construction sites • Maintain environmental flows downstream of the construction sites.
Performance criteria	• No degradation of water quality downstream of the Project during construction • Water discharging from the construction sites must comply with the water quality objectives set out in the water quality monitoring program developed for the Project • Maintain WASOs and EFOs as applicable to the existing Eden Bann Weir under the Fitzroy ROP • Maintain downstream flows.
Implementation strategy	• Schedule significant ground disturbing activities to be undertaken during drier periods • Install diversions and erosion controls such as sediment basins to direct clean water away from construction areas and allow site affected water to settle prior to re-entering the river following testing for temperature, conductivity, dissolved oxygen, pH, turbidity, as a minimum • Diversion and erosion controls, including sediment basins, will be designed with reference to Soil Erosion and Sediment Control – Engineering Guidelines for Queensland Construction Sites (Institution of Engineers Australia 1996) (or similar) and Urban Stormwater Quality Planning Guidelines 2010 (Department of Environment and Resource Management 2010), including requirements for emergency planning as applicable • Wastewater from all sources will be stored, treated and tested prior to release to the environment having regard for WQOs defined in the Environmental Protection (Water) Policy 2009 (for the Fitzroy River Sub-basin in particular) • Clearing of vegetation for site facilities and access will be restricted to minimum areas required to undertake the works reducing the extent of exposure of soil to erosion influences • Storage and use of potentially contaminating and polluting materials such as hydrocarbons, service and refuelling areas will be restricted to defined and protected (bunded) areas

Element	Water quality and flows
	• Storage and handling of contaminants will comply with relevant guidelines and Australian standards (Section 4.12) • Concrete batching areas will be managed in accordance with the DEHP guideline *Code of Practice for the concrete batching industry EM1305*, which facilitates meeting the environmental duty of care under the EP Act. They will be placed greater than 20 m from a watercourse, lined and protected from stormwater and wind • Stabilise existing bank slopes where appropriate using rip rap and other means as necessary • Minimise disruption of water flow • Reduce nutrient loads entering the waterways through retention and maintenance of riparian vegetation and soil conservation as far as is practicable and within the influence of the Project • Prevent, where possible, the disturbance of existing flood defences (e.g. bunds or mounds). Design and place stockpiles adequately so as to allow flow between them • Fertilisers and pesticides used for revegetation activities will be applied during favourable weather conditions to prevent spray drift (i.e. no high winds or runoff) and at the minimum required amount • Ensure application rate of dust suppression water does not produce runoff to watercourses and drains.
Monitoring	• A water quality monitoring program including pre, during and post construction will be implemented in accordance with the DEHP Monitoring and Sampling Manual 2009. Parameters to be tested will include but not be limited to: – Temperature, conductivity, dissolved oxygen, pH, turbidity – Nuisance algae and chlorophyll-a – Total phosphorus, total nitrogen. • Daily checks of the bunds for stormwater accumulation and leakage will be undertaken • Visual checks (and sampling for applicable anolytes if required) of captured stormwater will be conducted prior to release • All employees who observe non-conformances of the above mitigation measures or a water quality incident will report to the Environmental Manager/Officer, who will report them to the Construction Manager if required • Environmental reporting and auditing will be undertaken in accordance with procedures outlined in Section 2.11 and Section 2.12.
Corrective action	• Identify the source of contamination / impact and repair any damage, modify the controls, or modify procedures that may be inadequate • All employees will be retrained in procedures where the procedures are modified or new ones adapted • Employees that knowingly undertake an action that does not conform to the Project's procedures or CEMP will be retrained • Practices, procedures and management plans will be annually reviewed and updated where necessary • Spillages will be cleaned up in accordance with the Hazardous Material Management Programme.

4.5 Air Management Programme

Element	Air
Operational policy	• Avoid or minimise impacts on sensitive receptors and amenity arising from air pollution and dust emissions.
Performance criteria	• Negligible air and dust impacts to sensitive receptors • Comply with approval conditions and air quality objectives: – PM10 - 50 µg/m^3 (24 hour average; 5 days per year exceedance) – TSP - 90 µg/m^3 (annual average) – Dust deposition - 120 mg/m^2/day (monthly average) • Complaints responded to in a timely and considerate manner with initial response within 24 hours.
Implementation strategy	• Consider certain climatic conditions (e.g. avoid high dust generating activities during windy conditions) • Minimise areas of cleared and exposed soil • Stabilise and/or rehabilitate exposed soils as soon as possible • As far as practicable, cover or dampen stockpiles when windy weather is forecast • Minimise use of unsealed roads, for example the use of buses to transport workers to and from the site • Employ the use of a water truck or similar onsite (where practical) and along access roads (where appropriate) • Enforce low speed limits during construction and reduce vehicle access to essential construction vehicles only • Regularly maintain all construction equipment and machinery to ensure efficient operation • Where appropriate, turn off or throttle down all construction equipment and machinery when not in use • Use blasting mats to prevent excessive dispersal of blast material and to reduce dust releases • Store paints, thinners, solvents and other volatile organic substances in sealed containers.
Monitoring	• A complaint based hotline will be established along with a complaints handling procedure • If complaints are received they will be investigated and air quality monitoring undertaken as appropriate to assist quick resolution • Qualitative monitoring should be undertaken by all staff, at all times, to ensure dust and other airborne particulates do not cause unreasonable impact on air quality • Environmental reporting and auditing will be undertaken in accordance with procedures outlined in Section 2.11 and Section 2.12.
Corrective action	• If visible dust plumes occur: – Suppress dust with water spray – Review vehicle movements and internal/external road surfaces to minimise dust. • Implement complaints procedure (Section 2.10)

Element	Air
	• Where air quality complaints or reports are received the Construction Manager will ensure the complaint/report is investigated and if necessary, review the procedures and the practices associated with the causative aspect. Work on the causative aspect may need to cease until corrective actions are implemented • Where DEHP receives air quality complaints, and they consider the complaint reasonable, DEHP may ask the Proponents or Construction Manager to qualitatively or quantitatively monitor the air quality to ensure the Project is not emitting contaminants to the air in exceedance of the *Environmental Protection (Air) Policy 2008*. If exceedances are recorded or poor air quality is observed, the Construction Contractor is to investigate the construction aspect accountable and review the relevant procedures and practices within 24 hours of determining that the air quality is poor as a result of the Project's construction aspect/s • All Project employees and sub-contractors will be retrained in air quality management if the Air Management Programme is not being implemented and will modify work practices as required and instructed by the Environmental Manager/Officer, with managerial support.

4.6 Greenhouse Gas Emissions Management Programme

Element	Greenhouse gas emissions
Operational policy	• Management of greenhouse gas emissions will be conducted in accordance with these reduction themes: avoid, reduce, switch.
Performance criteria	• Minimise greenhouse gas emissions associated with the Project.
Implementation strategy	• Further consider the use of renewable, recycled and recyclable construction materials and resources during detailed design • Develop a green procurement strategy, acknowledging that remoteness of the site and availability of supplies/suppliers, together with financial feasibility, will dictate procurement strategies, for example: – Identify suppliers that have greenhouse gas reduction and sustainability strategies in place for their operations – The use of by-products in concrete – fly ash will be used to make concrete. Fly ash has low embodied emissions and is essentially emission 'free' for its status as a waste. Use of fly ash further contributes to reducing waste – Source materials and equipment from the closest possible location. Sourcing materials such as rock, sand and gravel *in-situ* and/or close proximity to the site and undertaking concrete batching on site reduces the need for transportation of materials over long distances – Re-use of materials such as formwork during the Project – Include energy efficiency clauses in all equipment, machinery and vehicle tender specifications. • Limit the clearing of vegetation during construction to that needed, make use of existing cleared areas and rehabilitate cleared areas following construction. Mulch and stockpile green waste for reuse in rehabilitation to promote new vegetation growth

Element	Greenhouse gas emissions
	• Train staff in the efficient use of vehicle and equipment operation to reduce fuel usage • Consider the use of fuels with lower carbon intensities such as ethanol and biodiesel, as far as is practicable • Regularly maintain and service vehicles and equipment for fuel efficiency and performance. Switch off all vehicles and equipment when not in use • Maintain access roads in good condition to achieve optimal haul truck speeds. Make use of access roads that provide the most direct route from the source of supply to site • Optimise construction activities and logistics, such as coordinating staff travel arrangements and maximising passenger loads per trip to and from site to minimise fuel use and reduce traffic numbers.
Monitoring	• Establish greenhouse gas and energy efficiency targets. Undertake internal audits to assess construction activities and identify energy efficiency opportunities • Environmental reporting and auditing will be undertaken in accordance with procedures outlined in Section 2.11 and Section 2.12.
Corrective action	• Update procurement strategy where required • Modify any non-compliance based on advice from Environmental Manager/Officer.

4.7 Noise and Vibration Management Programme

Element	Noise
Operational policy	• Avoid or minimise impacts on sensitive receptors and amenity arising from noise and vibration.
Performance criteria	• Negligible noise and vibration impacts to sensitive receptors • Construction activities are not to result in vibration causing property damage • Complaints responded to in a timely and considerate manner with initial response within 24 hours.
Implementation strategy	• Works will be undertaken in accordance with the construction times described in Chapter 2 Project description and the Environmental Protection Policy (Noise) Policy 2008. Where practicable, all typically noisy construction activities will be undertaken within the daytime working hours • Night works will be restricted as far as practicable. In particular, night-works will be avoided adjacent to or within sensitive areas such as remnant vegetation and within the river bed, during turtle nesting periods. Night time works could include concrete pour operations at the weir sites or to avoid peak traffic periods for upgrading the Capricorn Highway intersection • Night time works will be restricted to onsite activities within designated construction areas; haulage and delivery of materials will be restricted to daytime work hours

Element	Noise
	• The Construction Site Manager (or representative) will establish contact with local residents and communicate the construction program and progress on a regular basis, particularly when noisy or vibration-generating (such as blasting) activities are planned. Potentially affected receptors will be notified of the intended work, its duration and times of occurrence • At Eden Bann Weir, as necessary negotiated agreement will be reached with sensitive receptors regarding acceptable management and/or compensation measures • For any work that would take place outside of normal construction hours or for high noise activities, residents potentially affected by such activities will be notified at least seven days before hand through individual briefings or specific notifications delivered via letterbox drop or hand distribution • All site workers (including subcontractors and temporary personnel) will be informed of the potential for noise impacts upon local residents and encouraged to take all practical and reasonable measures to minimise noise during the course of their activities • Work methods will be reviewed with a preference for quieter methods wherever possible or the need for respite periods. This is particularly important for any out-of-hours and night-time activities • In-stream earthworks and blasting will be undertaken in the drier periods when fish movement is naturally inhibited thereby minimising the potential to disrupt up- and down-stream movement • Prior to construction commencing work areas will be surveyed and fauna relocated if necessary • Work areas will be inspected daily for the presence of fauna and if found fauna will be relocated away from work areas • Speed limits on site and along access roads will be reduced • Material dumps will be located as far as practicable from sensitive receptors, and whenever possible, loading and unloading areas will be located as far as practicable from sensitive receptors • As far as practicable, materials dropped from heights into or out of trucks will be minimised • All construction plant, vehicles, machinery and pneumatic tools will be fitted with manufacturer supplied noise suppression devices (as applicable) and maintained in accordance with manufacturers' guidelines • Fixed equipment (pumps, generators, compressors, concrete batching plants) will be located as far as practicable from sensitive receptors • Upon receipt of a noise and/or vibration complaint in relation to ongoing construction activities, the complainant will be contacted within 24 hours and monitoring will be undertaken within five days. Corrective actions will be implemented as necessary, included in the response to the complainant and recorded. Any noise and vibration monitoring will be undertaken by a qualified professional and with consideration to the relevant standards and guidelines • Blasting activities at Rookwood will be undertaken by a qualified blasting contractor and subject to a blast control plan, including an assessment of overpressure and ground-vibration impacts at the nearest receiver and notification to landholders to facilitate movement of livestock away from the area. Blast design will include measures to control impacts and achieve appropriate criteria

Element	Noise
	• Fauna spotter catchers will be present prior to and during clearing activities associated with construction, including assisting wildlife to disperse into adjacent habitat • Noise reduction alternatives include: – Keep throttling of construction plant as low as possible – Minimise the need for reversing thereby reducing beeping – Switch off vehicle, plant and equipment engines when not in use – Material dumps as well as loading and unloading areas, wherever possible will be located as far as possible from the nearest residences – Fixed equipment (pumps, generators, compressors, concrete batching plants) should be located as far as possible from the nearest residences – Materials dropped from heights and into or out of trucks will be minimised Where practical, design enclosures or screening (portable noise barriers) will be erected where noise or blasting aspect/s are likely to cause impact or disturbance to nearby residences or fauna habitats.
Monitoring	• Noise and/or vibration monitoring may be required on receipt of complaint or in accordance with any conditions of environmental approval. • Qualitative monitoring will be undertaken by all staff, at all times • Upon receipt of a noise and/or vibration complaint in relation to ongoing construction activities, the complainant will be contacted within 24 hours and monitoring will be undertaken within five days. Corrective actions will be implemented as necessary, included in the response to the complainant and recorded • Noise, vibration and blasting monitoring will be conducted with consideration to the relevant guidelines and standards, including: – Noise Measurement Manual (DEHP 2013) – AS 1055 – 1997 Acoustics – Description and Measurement of Environmental Noise – British Standard BS 5228.2 – 2009 Code of Practice Part 2 Vibration for noise and vibration on construction and open sites – Part 2: Vibration – German Standard DIN 4150, 1999. Part 3, Structural Vibration – Effects of Vibration on Structures – AS 2187.2 –2006 Explosives – Storage and Use Part 2: Use of Explosives. • Monitoring in the case of a complaint being received will be undertaken by an experienced and qualified noise and vibration specialist. The equipment used for the measurements will have current calibration certificates and will be appropriate for the measurements with regards to the relevant standards • Data to be captured by the monitoring will be as follows: – Noise monitoring will capture the LAeq,15min airborne construction noise levels received external to any sensitive receiver – Blasting measurements will capture peak particle velocity data for vibration and linear peak noise levels for overpressure. • Monitoring will be undertaken and reported within three to five days. Each monitoring report would include the following: – Date and time of monitoring

Element	Noise
	– Activities being monitored and reason for monitoring – Location of monitoring – Equipment used and method of monitoring – Results obtained – Recommendations for corrective actions to further minimise impacts where appropriate. • Environmental reporting and auditing will be undertaken in accordance with procedures outlined in Section 2.11 and Section 2.12.
Corrective action	• Cease or reduce noisy aspect/s where possible • Cease or reduce vibration aspect/s where possible • Replace excessively noisy equipment or fitting additional acoustic controls • For works outside of normal hours, the construction aspect/s will cease immediately or as soon as reasonably practicable and only recommence when measures to reduce noise and / or vibration have been implemented • Implement complaints procedure (Section 2.10) • All Project employees and sub-contractors will be retrained in noise quality management if the Noise and Vibration Management Programme is not being implemented; and will modify work practices as required and instructed by the Environmental Manager/Officer, with managerial support.

4.8 Waste Management Programme

Element	Waste
Operational policy	• Management of site waste will be conducted in accordance with the waste reduction hierarchy: avoid, reduce, re-use, recycle, recover, treat, and dispose.
Performance criteria	• No contaminated discharges from waste storage areas • No waste (rubbish) onsite, except within storage receptacles • Comply with the *Waste Reduction and Recycling Act 2011* (Qld) and associated regulations.
Implementation strategy	• Develop a Waste Management Plan to address: – The identification of waste streams – The appropriate transport, storage and disposal of waste streams – The training of site personal on procedures developed concerning the transport, storage and disposal of waste streams – The monitoring and auditing of waste streams against the Waste Management Plan to ensure the objectives of the plan are being met. • Waste will not be stored on land outside of the construction area • Non-regulated waste will be separated into recycling (various), industrial and general receptacles • All waste receptacles will be covered to prevent water infiltration and wind from causing litter

Element	Waste
	• All rubbish and other refuse that may potentially attract vermin, insects and pests (food scraps) should be appropriately disposed of in sturdy waste disposal receptacles that are frequently emptied • Supply, storage and transport of hazardous substances will be regulated with appropriate forms and comply with relevant guidelines and Australian Standards (Section 4.12) • Regulated waste will be stored in containers and bunded areas as appropriate and in accordance with relevant Australian Standards • Regulated waste will be collected and removed by a specialised licensed waste contractor and tracking of this waste will take place using a Waste Tracking Register • Spill clean-up material (used for fuel and/or chemical spills) and contaminated soil is to be stored and disposed of appropriately through a licensed contractor • Waste streams with the potential for recycling will be reused on site or removed off site by a licensed contractor to a licensed recycling plant • Waste streams that cannot be recycled will be removed off site to a licensed waste disposal facility, by a licensed contractor • Removal of all construction waste streams will be undertaken once works have been completed • Minimise clearing requirements where practicable • “Habitat” green waste will be saved and placed on site to provide fauna habitat on completion of construction works • Remaining green waste not suitable for habitat will be chipped, mulched and stockpiled to be reused during progressive rehabilitation, erosion control and revegetation works • Green waste containing weeds will be stockpiled separately and appropriately disposed of by a licensed contractor • Individual, labelled waste receptacles for sorting of waste into recycling (various) to be removed from site by a licenced contractor • An adequate number of mobile ablution facilities will be provided onsite and emptied regularly by a licensed contractor • Promote the efficient use of resources through procurement planning and ordering materials as close as possible to required quantity to avoid oversupply • Materials will be stockpiled onsite for reuse where suitable, for example concrete used as fill or road material or for offsite reprocessing, reuse or recycling by a licenced contractor • Areas such as concrete batch plants and wash down areas will be bunded to divert clean water. This will avoid the generation of contaminated stormwater runoff • Where runoff waste water is captured it will be treated prior to release. Reuse water for dust suppression or at wash down facility • Wash down water and entrained contaminants will be captured and treated at the wash down facility. Treatment will consist of hydrocarbon separation. Treated wash down water will be reused in subsequent wash down activities at the wash down facility • The waste emulsion from wastewater treatment at the wash down facility will be appropriately stored within a bunded area and will be disposed of by a licensed contractor

Element	Waste
	• Explosive materials and packaging will be managed in accordance with AS2187.2-2006 Explosives Storage, Transport and Use • Excavated material will be reused onsite as backfill or to widen embankments. Spoil surplus materials will be utilised by filling gully areas to create useful works areas and as road base material. Spoil surplus will be reused to contour and reshape landforms during rehabilitation and restoration at weir sites • Surplus soil that cannot be reused (expected to be minor) will be transported offsite to an approved landfill site where it can be used beneficially (e.g. landfill cap material or to backfill borrow pits). The material would be tested in accordance with relevant legislation prior to disposal.
Monitoring	• Site inspections (by the Construction Contractor or delegated person) for the presence of waste outside of receptacles and/or storage areas, will be undertaken daily • Monitoring of waste containers and storage areas will be undertaken daily or weekly (as appropriate) to ensure they do not reach full capacity, there are no leaks and covers are being used correctly • Quarterly reviews of waste minimisation opportunities will be undertaken • Regular checking of the Waste Register will be undertaken by the Construction Contractor (or delegated person) to ensure it is being completed for all registered waste • Waste contractors to provide certification (license) records verifying their registrations and points of discharge of waste • Environmental reporting and auditing will be undertaken in accordance with procedures outlined in Section 2.11 and Section 2.12.
Corrective action	• Increase storage capacity and/or segregation, or increase frequency of offsite disposal if necessary • Repair or replace receptacles if they do not meet the requirements of the Waste Management Programme • Retrain staff in waste management if the Waste Management Programme is not being implemented • Incorporate additional waste minimisation measures as identified during quarterly reviews.

4.9 Road use and Traffic Management Programme

Element	Transport
Operational policy	• Minimise road safety risks, impacts on road network condition, intersection performance and community amenity.
Performance criteria	• Minimal nuisance and safety effects on local communities • Complaints responded to in a timely and considerate manner with initial response within 24 hours.
Implementation strategy	• Pavement impact assessments will be undertaken as applicable (for example Third Street and Atkinson Road, amongst others) along with road safety audits and dilapidation surveys to inform discussion and negotiation with DTMR and RRC with regard to upgrades and maintenance of state controlled and local roads in the local and regional Project areas

Element	Transport
	• Site specific traffic management plans will be developed for the Project in consultation with DTMR, RRC and Livingstone Shire Council (LSC) • A detailed road use management plan will be developed in accordance with DTMR, RRC and LSC guidelines and policies and will include consideration of: – Reduced and enforced speed limits and improved signage – Fatigue management measures – Time restrictions for traffic operations, with limited night time activities (as far as is practicable) – Measures to reduce Project-related road traffic, such as bussing workers to and from site daily – Emergency and incident response measures – Transport routes in relation to abnormal (wide dimension or heavy) loads – Use of unsealed roads and use of roads during wet weather – Road maintenance, reinstatement and rehabilitation – Notification and updates to stakeholders in the local study area regarding traffic movements, particularly during commissioning and decommissioning.
Monitoring	• Environmental reporting and auditing will be undertaken with reference to the commitments table presented in the road use management plan and in accordance with procedures outlined in Section 2.11 and Section 2.12.
Corrective action	• Identify the source of traffic/transport impact and repair any damage, modify the controls, or modify procedures that may be inadequate • All employees will be retrained in procedures where the procedures are modified or new ones adapted • Employees that knowingly undertake an action that does not conform to the Project's procedures or CEMP will be retrained • Practices, procedures and management plans will be annually reviewed and updated where necessary.

4.10 Cultural Heritage Management Programme

Element	Cultural heritage
Operational policy	• Recognise, protect and preserve Indigenous and non-Indigenous cultural heritage places and objects.
Performance criteria	• No disturbance of or damage to cultural heritage items or places • Comply with provisions of approved CHMPs.
Implementation strategy	• Undertake a cultural heritage survey and implement management measures in accordance with the CHMPs • Implement the relevant CHMPs developed or any documentation that supersedes them: – Eden Bann Weir ▪ Darumbal Endorsed Parties – Rookwood Weir ▪ Darumbal Endorsed Parties

Element	Cultural heritage
	▪ Gangulu Endorsed Parties ▪ Kangoulu and Ghungalu Endorsed Parties ▪ Jetimarala Endorsed Parties. • Avoid impact to sites of heritage significance, particularly with regard to temporary installations • Implement a stop work procedure and notification to appropriately qualified cultural heritage advisor for cultural heritage 'finds' • Do not destroy, damage, move, excavate or disturb items of cultural heritage significance unless documented regulatory approval has first been granted • Cultural heritage will be outlined in inductions to create awareness and train employees in the identification of archaeological material and actions to take in the case of a cultural heritage find • Avoid work on private roads and burrow areas located on non-freehold land where Native Title has not been previously extinguished.
Monitoring	• Inspections, audits and/or monitoring of Project activities to facilitate that Project activities comply with agreed management arrangements.
Corrective action	• Retrain all Project employees and sub-contractors in cultural heritage management if the Cultural Heritage Management Programme is not being implemented and modify work practices as required and instructed by the Environmental Manager/Officer, with managerial support. • Notification to the relevant Aboriginal party or appropriately qualified cultural heritage advisor for assessment of the find.

4.11 Community Management Programme

Element	Community
Operational policy	• Establish and maintain good community relations • Minimal disturbance to the community and local lifestyles • Maximise benefits to the local community • Manage complaints from local residents effectively and courteously.
Performance criteria	• Complaints responded to in a timely and considerate manner with initial response within 24 hours • Maintain stock water access and access to property • Residents and stakeholders of informed of construction activities (as applicable).
Implementation strategy	• Develop and implement a Land Access Strategy including consideration of: – Providing notice to landholders prior to accessing their property – Opening/closing of property gates – Developing and implementing a Weed and Pest Management Plan, a Noise Management Plan, an Air Quality Management Plan, a Traffic Management Plan (as necessary and applicable) – Respecting any individual requests from the landholders about timing and considering other land-based activities

Element	Community
	– Limiting project traffic to agreed tracks – Respecting appointment timing – Informing landholder as soon as possible of any changes to appointments • Develop and implement a Project Land Acquisition Strategy to manage loss of land, compensation and potential impacts on existing and future water allocations. The emphasis of the strategy will be to secure land by agreement. The Land Access and Acquisition Strategy will include considerations for but not be limited to: – Individual and specific landholder property impacts – The statutory context for land acquisition – Implications for securing land and rights to land – Preference for acquisition by agreement – Provision of financial assistance (to predetermined limits) to landholders for the purposes of land valuations and legal representation – The process for acquiring land, the use of private land for project construction and quarrying on private land – Timing of land acquisition and payment of compensation – Grievance and dispute mechanisms including mediation • Develop and implement Compensation Strategy that will include considerations for but not be limited to: – Productivity impacts including temporary or permanent loss of land due to impoundment and easements, loss of viability of the business, time spent on project activities, loss of cattle due to project activities, weed spread due to project activities, loss of agricultural infrastructure such as pumps, costs of new fences and alterations to water allocation – Loss of opportunistic river crossings – Improved road access and flood immunity of identified river crossings – Opportunities in relation to improved water security – Grievance and dispute mechanisms including mediation • Develop and implement a recruitment plan (including workforce participation strategies for Indigenous and minority groups) including the provision of appropriate contractual arrangements with construction contractors and the use of local recruiters, that will facilitate opportunities for local employment • Develop a Project procurement plan that considers the engagement of local businesses to provide services to the Project. In line with the Australian Industry Participation Policy, the Project procurement plan will consider advertising work packages on the Industry Capability Network (ICN) Gateway • Prior to inundation high and low bank areas will be surveyed and defined to inform land acquisition • Maintain road conditions and access in accordance with DTMR, RRC and LSC agreements (Section 4.9)

Element	Community
	• Site specific traffic and road use management plans will be developed and implemented (Section 4.9) • Management of nuisance-type impacts as per the Air Management Programme (Section 4.5) and the Noise and Vibration Management Programme (Section 4.7) • Notify to residents and stakeholders (as applicable) of noise generating activities and updates on traffic movements • Continue to adhere to land access protocols and weed and pest management plan (Section 4.3) • Continue to implement the Project Stakeholder Engagement Strategy • Development and implement Near Neighbour Policy and a Grievance Management Process (or similar) to monitor and record complaints and address stakeholder or community concerns in a timely manner. • Consult with emergency services in the development of the site emergency management plan (Section 2.8).
Monitoring	• Ongoing consultation and reporting on the consultation database • Monitoring of grievance reporting and incident reporting • Monitoring of nuisance impacts through the Air Management Programme (Section 4.5) and the Noise and Vibration Management Programme (Section 4.7) • Monitoring of ICN Gateway and contractors human resource data and reports to determine workforce and local business impacts • Consultation with emergency service providers • Environmental reporting and auditing will be undertaken in accordance with procedures outlined in Section 2.11 and Section 2.12.
Corrective action	• To be identified in the Project Stakeholder Engagement Strategy.

4.12 Hazardous Material Management Programme

Element	Hazardous material
Operational policy	• To manage hazardous materials appropriately to reduce the risk of spillage or mishandling.
Performance criteria	• No contamination to soil or waterways / watercourses • No fires or explosions resulting from dangerous or hazardous material use or storage.
Implementation strategy	• Establish health and safety management systems in consultation with emergency services as necessary and applicable (Sections 2.8 and 2.9) • Trucks used to transport hazardous substances from Rockhampton will comply with all aspects of the Australian Dangerous Goods Code • Aboveground storage tanks will be designed as per *AS 1940:2004 – The storage and handling of flammable and combustible liquids*

Element	Hazardous material
	• Acetylene bottles will be kept upright, in the secure area within the stores compound on a firm floor to prevent falling. Bottles will not be stored near sources of ignition, oxidising agents, poisons, flammable liquids or combustible materials • The contractor responsible for transport of ammonium nitrate will comply with the requirements of *AS1678.5.1.002-1998 Emergency procedure guide – Transport Ammonium nitrate* • Explosives storage will be approved under the *Explosive Act 1999.* Explosives storage and use on site will meet the requirements of *AS 2187:1998 Explosives – Storage, transport and use* and *AS 4326-2008 The storage and handling of oxidising agents* • The explosives storage area design will: – Avoid areas susceptible to significant stormwater runoff and concentrated water flow – Be located away from possible sources of heat, fire or explosion, such as oil storage, flammable liquids and combustible materials – Be established such that it can be secured and will be designed in compliance with the size and volume of explosives on site. Bund containment and earth mounding will be constructed on-site and the explosives area installed with security monitoring. • All tank transfer operations will be on impervious surfaces. Dedicated fuel tanker delivery and turn around area is provided to minimise risk of vehicle accident. Dedicated filling points for on-site fuel trucks will also be provided with impervious surfaces and containment using rollover bunds • Activities using oils will generally be conducted on a hard stand area, and drip trays will be provided at appropriate locations including during the transfer operations • Regular inspection of the storages and piping will be done by the construction staff • Daily checks of the bunds for stormwater accumulation will be undertaken and procedures developed for management of water in the bunded areas. No contaminated stormwater will be discharged to the river • Regular inspections and maintenance will be planned for all electrical equipment and fittings • Adequate security provisions and access control will be provided for the storage areas • A pest control system will be provided to limit the damage from animals • Smoking will be prohibited in all storage areas and restricted to designated areas (if at all). Warning signs and 'no smoking' notices will be prominently displayed • Spill kits will be available for placement on spillages to assist with clean up. The material will be collected and placed in a labelled container for disposal off-site through a licensed contractor • All spillages will be prevented from entering drains or water courses. Absorbent material will be placed on the spillages which will be collected for disposal and any contaminated soil removed to a bioremediation pad

Element	Hazardous material
	• Suitable firefighting systems will be provided. In the event of fire, emergency response will include the use of carbon dioxide, dry chemical or foam and personnel who engage in emergency response activities will wear breathing apparatus • On-site emergency response teams will be trained to undertake the necessary actions to address fire and other incidents that may arise with areas used for storage of hydrocarbon products and other hazardous materials • PPE for exposure control will consist of impervious material gloves for hand protection, safety glasses or face shield for eye protection and suitable personal clothing for body protection. All PPE will conform to the relevant Australian Standards • Other precautions which will be taken include prompt cleaning of spillages, keeping walls, floors and equipment clean, and locating electrical equipment where it cannot come into contact with the stored materials • Public access to the construction site will be prohibited.
Monitoring	• Conduct audits to assess the adequacy of hazardous material management in accordance with legislative and CEMP requirements • Environmental reporting and auditing will be undertaken in accordance with procedures outlined in Section 2.11 and Section 2.12.
Corrective action	• Identify the source of contamination / impact and repair any damage, modify the controls, or modify procedures that may be inadequate • All employees will be retrained in procedures where the procedures are modified or new ones adapted • Employees that knowingly undertake an action that does not conform to the Project's procedures or this CEMP will be retrained • Practices, procedures and management plans will be annually reviewed and updated where necessary • Spillage of wastes, contaminants and other liquids will be cleaned up as quickly as possible in accordance with the Project's *Spill Cleanup Procedures* (to be developed). Spillages will be cleaned up with absorbent material and not hosed or swept to prevent the contaminated material being released beyond the immediate spill area.

4.13 Emergency Management Programme

Element	Emergency management
Operational policy	• Manage risks associated with emergency events • Minimise impacts to surrounding areas from emergency events, within the scope of the Project.
Performance criteria	• Comply with emergency response plan • Maintain adequate monitoring of weather warning systems for floods, bushfires and other extreme weather events.
Implementation strategy	• Establish health and safety management systems in consultation with emergency services as necessary and applicable (Sections 2.8 and 2.9)

Element	Emergency management
	• Undertake a bushfire site assessment to determine level of risk and to inform the development of emergency response plans • Incorporate flood, storm and cyclone, extreme heat, bushfire and landslide response procedures in emergency response plan • Educate staff in relation to flood, storm and cyclone, extreme heat, bushfire and landslide management • Educate staff in relation to bushfire prevention, including management of cigarettes and maintain firefighting capability at site • Develop and train staff in procedures for welding, and other activities with high risk of starting fires • Maintain fire breaks around areas identified as being potential sources of ignition • Construction staff to monitor Bureau of Meteorology warnings and take required precautions and site evacuation as necessary • In the event of an emergency – Implement hazard response procedures and provide appropriate warnings – Establish and maintain contact with local police, fire and ambulance services – Communicate with police in in relation to need for road closure.
Monitoring	• Monitor Bureau of Meteorology warnings for flood, bushfire and other severe weather events • Liaise with emergency services (in particular QFES) and be on look-out for any fires in the vicinity of the weirs.
Corrective action	• Take required precautions and site evacuation if necessary • All Project employees and sub-contractors will be retrained in emergency management if the Emergency Management Programme is not being implemented; and will modify work practices as required and instructed by the Environmental Manager/Officer, with managerial support.

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5. Operation management plans

Environmental elements for the draft EMP are:

- Nature conservation (terrestrial and aquatic flora and fauna)
- Surface water quality and flows
- Transport and road network
- Social environment
- Hazardous substances and risk

Emergency response planning is also covered.

The Project is not expected to impact on air quality, greenhouse gas emissions, noise and vibration, waste management and transport and road network elements during operations. As such specific management plans have not been developed for each of these elements. General environmental duty of care provisions in accordance with the EP Act and EP Regulation apply.

It is not expected that the Project will impact on Indigenous cultural heritage during operations. CHMPs developed and approved for the Project apply and will address potential impacts that may arise.

5.1 Nature Conservation Management Programme

Element	Nature conservation
Operational policy	• Minimise death, injury or disturbance to native fauna • Prevent introduction of pest/weed species • Minimise long-term loss of ecosystems.
Performance criteria	• No new pest/weed species introduced and no increase to existing pest/weed species abundance and distribution • No unapproved clearing to occur beyond the required limits for construction • Identified sensitive areas are demarcated and managed appropriately with minimal impacts • No incidents of death or injury to native fauna.
Implementation strategy	• Implement the SMP developed for the Fitzroy River turtle and white-throated snapping turtle • Clearing of riparian vegetation within the impoundments will be prevented prior to inundation and large woody debris will be retained • The re-establishment of aquatic habitat within the impoundment will be encouraged through avoiding rapid drawdowns of the storage area and controlling water levels to allow for the stabilisation of aquatic habitat around the margins of the impoundment • Clearly demarcate no-go areas of highly sensitive vegetation • Develop a Weed Management Plan for the operation phase that outlines measures to prevent the introduction of new weed species into the area and minimise the spread of declared weeds within the site: – Key personnel on site will be capable of identifying declared weed species within the site / surrounding area and prevent their spread and translocation.

Element	Nature conservation
	– Where weeds and infestations are detected or identified within proximity to the weir site, they will be removed or destroyed using methods consistent with advice from DAF and regional councils – Weed management would be undertaken with reference to relevant Queensland and local government legislation, guidelines and plans including: LP Act; *Plant Protection Act 1989*; Biosecurity Queensland policies and guidelines; DAF pest factsheets; RRC Pest Management Plan 2012-2016; and CHRC Draft Area Pest Management Plan 2014-2016. • A Feral Animal Control Program will be developed and implemented for the Project or in collaboration with local council, community groups and landholders. Specific measures may include culling, baiting and trapping of pigs, foxes, wild dogs and feral cats. The control program will be managed in line with the Commonwealth threat abatement plans, (feral pigs and feral cats) • Minimise the need to travel near dawn or dusk by adhering to standard daytime work hours for operation and maintenance activities • Enforce on-site speed limits to restrict the incidence of vehicle strike • Educate employees regarding the presence of the EPBC Act and NC Act listed squatter pigeon and other fauna and livestock on access roads • All operation personnel will be informed of environmental responsibility with respect to minimising the risk of fauna injury or mortality. Site inductions will include information on the identification of the Fitzroy River turtle, white-throated snapping turtle and estuarine crocodile, location of any confirmed nesting habitat areas within or adjacent to the weir and relevant management actions • If injury occurs, injured fauna will be immediately removed and taken to a qualified veterinary or wildlife carer for treatment. Suitable veterinarians and wildlife carers in nearby areas and Rockhampton will be identified and commercial arrangements established to guarantee the financial costs of treatment and rehabilitation • An operation Water Quality Management Plan will be developed and implemented (Section 4.4). Specific management actions will include: – Including multi-level off-takes in weir design – Using selective withdrawal outlets to select water of most appropriate quality for downstream release – Manipulating flows to prevent the build-up of blue-green algae or to disperse blooms. • The weir operating strategy will avoid/minimise risk of aquatic fauna injury and mortality. Specific operational actions will include: – Controlling the flow of water through release values to provide gradual increments in water release volume (DEHP recommend 10% changes in total outlet valve aperture per half hour period) – During planned releases, increase water release during dawn and dusk periods when turtles are more likely to be away from weir infrastructure – Operate the flood gate next to the fishway independently and initiate the gate opening sequence with this gate to build tailwater in the stilling basin. • The operation strategy of the weirs will be dictated by the Environmental Flow Objectives in the Fitzroy WRP and Fitzroy ROP. These objectives will aim to minimise environmental impacts as a results of the water infrastructure and will mimic natural flow conditions as much as possible

Element	Nature conservation
	• Subject to compliance with the Fitzroy WRP and Fitzroy ROP, water release volumes and timing will be controlled to minimise the inundation of turtle nests downstream of the weir during nesting season • Rapid drawdowns of the weir storage should be avoided and water levels should be controlled to allow changes to existing habitat about the margins of the storage to proceed more slowly • Protect and enhance natural pool-riffle-run habitat remaining between impoundments. Fitzroy ROP rules should be developed to ensure water released from impoundments is high in quality and flows year-round • Operability of the turtle passage facility (turtle ramp) will be maintained through the life of the Project • Recreational activities within the impoundment will not be encouraged or facilitated • All rubbish and other refuse that may potentially attract introduced animals (food scraps) should be appropriately disposed of in sturdy waste disposal receptacles that are frequently emptied • All operation staff will receive appropriate education and training to address the risks associated with wildlife • Operation staff are to avoid entering areas known to be used by crocodiles and where possible, avoid walking along the banks of the river or creeks • Signage will be strategically placed to warn of the presence of estuarine crocodiles, the dangers they pose and actions to avoid contact • Queensland Health alerts for mosquito borne diseases such as dengue fever and Ross River fever will be monitored and all operation staff will be educated on the risk of mosquito borne diseases including personal protective measures.
Monitoring	• A Fish Monitoring Program will be designed and implemented to monitor the effectiveness of fish passage infrastructure during both the construction and operation phases. • The Fish Monitoring Program will be developed by a person (or persons) or entity suitably qualified and experienced in fish passage biology and fishway design and in consultation with DAF (Fisheries Queensland) • This Fish Monitoring Program. will focus on: – Diversity of the fish population above and below the construction footprint; – Relative abundance of the fish population above and below the construction footprint; and – Health of the fish population above and below the construction footprint. – Diversity of the fish population above and below the weir post construction; – Relative abundance of the fish population above and below the weir post construction; and – Health of the fish population above and below the weir (injury/mortality rates) post construction. – Attraction to fishway entrance (assessment of fish diversity and abundance within the tailwater pool); – Effectiveness of fishway transfer (assessment of fish within the entrance channel, holding chamber and exit channel);

Element	Nature conservation
	– Relative health and behaviour of fish surveyed; and – Hydrological monitoring – monitoring of storage water level, tailwater level, fishway discharge, outlet works discharge and spill discharge will facilitate interpretation of monitoring data. • A fishway operations plan will be developed in consultation with DAF including – Procedures for fishway operations under normal operating conditions, planned maintenance operations and shut downs and operations under natural disaster events (such as flooding) – Contingency and emergency response plans for operations under emergency maintenance/ breakdown shut downs and operations (including in the event of flooding) – Auditing and reporting requirements. • The monitoring program will be undertaken biannually for a period of five years during spring and autumn and will include areas upstream of the inundation area, within the impoundment and downstream of the weirs • As part of the operational phase Turtle Monitoring Program, important nesting habitats downstream of the Project footprint (Alligator Creek) will be monitored for signs of degradation as a result of changes in the downstream flow regime • A monitoring program will be developed and implemented to evaluate the performance of the turtle ramps at each weir. The monitoring program will be developed in consultation with DEHP and will include a procedure for corrective action • Site will be visually monitored in accordance with an established schedule for weed infestations • Environmental reporting and auditing will be undertaken in accordance with procedures outlined in Section 2.11 and Section 2.12.
Corrective action	• Immediately reinstate areas incorrectly disturbed • Amend procedures if vegetation clearing occurs outside approved areas • Contact DEHP for local wildlife carer • Use a water truck to clean vegetation along access tracks and adjacent construction sites if dust deposits on vegetation are identified • Retrain all Project employees and sub-contractors in nature conservation if the Nature Conservation Management Programme is not being implemented • All Project employees and sub-contractors will modify work practices as required and instructed by the Environmental Manager/Officer, with managerial support.

5.2 Water Management Programme

Element	Surface water quality and flows
Operational policy	• Maintain water quality and environmental flows downstream of the Project.
Performance criteria	• No change in water quality from background levels • Water released from the weirs must comply with the water quality objectives set out in the water quality monitoring program developed for the Project • Maintain environmental flows downstream of the Project in accordance with the Fitzroy ROP.
Implementation strategy	• Implement operating procedures as per resource operations licence. A ROP amendment will be required due to changes to existing operational rules. Amended operational rules will be required to meet Fitzroy WRP objectives • Differential (multi-level) offtakes will facilitate that water released through outlet works is mixed, improving the dissolved oxygen (together with mediating temperature) to achieve the water quality objectives • Undertake a detailed geomorphic site assessment once a Project trigger is realised and a development scenario is determined. This may include: – A geomorphic condition assessment at selected sites upstream of the future inundation area, within the future ponded area and downstream of the weir – Stability assessments to describe pre-development characteristics of the river bed and banks, channel stability, the potential for failure and erosion, amongst others, to provide baseline conditions. • Further to geomorphic assessment, identify key indicators for long-term monitoring of geomorphic and fluvial characteristics within the project development area and develop an appropriate operational soil management plan • Controlled releases will be made through the outlet works into the defined (main) river channel • Spillway design will consider the need to dissipate flows downstream to protect against erosion • In the event that scouring, erosion and slumping do occur, undertake rehabilitation and restoration of impacted areas in accordance with protocols and guidelines as defined in the soil management plan • With regard to blue green algae: – Manipulate flows (as far as is practicable) to prevent the build-up of blue-green algae or to disperse blooms – In extreme circumstances consider the use of mechanical methods to mix water and reduce the effects of stratification. • Have backup diesel generators available for electricity supply should power grid supply fail to prevent uncontrolled water supply through open gates. All outlet valves and similar control equipment to have manual as well as automatic actuators • The weir structures will be designed to safely pass a flood. The gates installed over the weir will open in the event of flood waters reaching a predetermined level which will allow the waters to be discharged

Element	Surface water quality and flows
	• Prevent lowering and / or destabilisation of natural controls creating waterholes in watercourse beds.
Monitoring	• A water quality monitoring program will be developed and implemented during operations in accordance with the Fitzroy ROP and using methods as per DEHP's Monitoring and Sampling Manual 2009. Parameters to be tested should include but not be limited to: – Temperature, conductivity, dissolved oxygen, pH, turbidity – Nuisance algae and chlorophyll-a – Total phosphorus, total nitrogen. • Flood monitoring will be undertaken by operational staff at the weir sites to monitor for floods likely to impact on the weirs and on the surrounding land use. • Monitoring of blue green algae would be conducted as part of existing monitoring measures at other weirs as undertaken by GAWB and SunWater. A monitoring program and emergency plans will be developed and implemented (similar to other storages in central Queensland) as appropriate, inclusive of a warning system indicating high, moderate and low levels of blue green algae present • Monitor the area within the impoundment and immediate surrounds to detect erosion or salinity and conduct necessary remedial work if detected • Regular monitoring of erosion protection measures • Environmental reporting and auditing will be undertaken in accordance with procedures outlined in Section 2.11 and Section 2.12 (including against the requirements of AS/NZ ISO14001:2004 and the Fitzroy ROP).
Corrective action	• Identify the source of contamination / impact and repair any damage, modify the controls, or modify procedures that may be inadequate. • All employees will be retrained in procedures where the procedures are modified or new ones adapted • Employees that knowingly undertake an action that does not conform to the Project's procedures or this OEMP will be retrained • Practices, procedures and management plans will be annually reviewed and updated where necessary.

5.3 Community Management Programme

Element	Social
Operational policy	• Maintain good community relations • Manage complaints from local residents effectively and courteously.
Performance criteria	• Initial response to any complaint occurs within 24 hours • All valid complaints are resolved to satisfaction of complainant and Proponent.
Implementation strategy	• Continue to implement the Project Stakeholder Engagement Strategy • Continue to adhere to land access protocols and weed and pest management plans (Section 5.1) • Consult with emergency services in the development of the site emergency management plan (Section 5.4)

Element	Social
	• A Near Neighbour Policy and a Grievance Management Process will be put in place for landholders to monitor and record complaints • Direct all complaints received by staff/employees, as well as the complainant to the Proponent (or designated community consultation representative) • It is proposed that water releases from the proposed weirs will be communicated through alert systems as specified in the Project Stakeholder Engagement Strategy to allow landholders to move cattle away from areas at risk.
Monitoring	• A social impact monitoring programme will be developed in order to identify and respond to expected and unexpected impacts of the Project. The social impact monitoring programme might include monitoring the contact number and email in relation to community contact/complaints and grievance reporting • Ongoing consultation and reporting on the consultation database • Consultation with emergency service providers • Environmental reporting and auditing will be undertaken in accordance with procedures outlined in Section 2.11 and Section 2.12.
Corrective action	• To be identified in the Project Stakeholder Engagement Strategy.

5.4 Emergency Management Programme

Element	Emergency management
Operational policy	• Manage risks associated with emergency events • Minimise impacts to surrounding areas from emergency events, within the scope of the Project.
Performance criteria	• Maintain adequate monitoring of weather warning systems for floods, bushfires and other extreme weather events.
Implementation strategy	• Establish health and safety management systems in consultation with emergency services as necessary and applicable (Sections 2.8 and 2.9) • Undertake a bushfire site assessment to determine level of risk and to inform the development of emergency response plans • Incorporate flood, storm and cyclone, and bushfire response procedures in emergency response plan • Educate staff in relation to flood, storm and cyclone, and bushfire management • Construction staff to monitor Bureau of Meteorology warnings and take required precautions as necessary • In the event of an emergency – Implement hazard response procedures and provide appropriate warnings – Establish and maintain contact with emergency services (Section 2.8) • Communicate with QPS in in relation to need for road closure.
Monitoring	• Monitor Bureau of Meteorology warnings for flood, bushfire and other severe weather events • A SCADA (supervisory control and data acquisition) system is proposed to be used. The system will facilitate the monitoring, controlling and alarming of the weirs from a central location

Element	Emergency management
	• Liaise with emergency services personnel and be on look-out for any fires in the vicinity of the weirs.
Corrective action	• Take required precautions and site evacuation if necessary • All Project employees and sub-contractors will be retrained in emergency management if the Emergency Management Programme is not being implemented; and will modify work practices as required and instructed by the Environmental Manager/Officer, with managerial support.