11.5 Appendix E - Construction Environmental Management Plan

Gladstone Area Water Board

East End Pipeline Construction Environmental Management Plan

Controlled Document

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Gladstone Area Water Board

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1. VERSION HISTORY

Revision	Issue	Revision Description	Revision Date
A	1	Preliminary draft	
B			
C			
0			
0			
1			
1			

2. ABBREVIATIONS OR DEFINITIONS

Abbreviation	Definition
AC	Asbestos Cement
AHD	Australian Height Datum
ASRIS	Australian Soil Resource Information System
ASS	Acid Sulfate Soils
BCPS	Boat Creek Pump Station
BGGGTB	Bailai, Gurang, Gooreng Gooreng, Taribelang Bunda People
CEMP	Construction Environmental Management Plan
CEP	Construction Execution Procedure
CG	Coordinator-General
CHMP	Cultural Heritage Management Plan
CMD	Coastal Management District
CPESC	Certified Professional in Erosion and Sediment Control
D&C	Design and Construction
DCCEEW	Department of Climate Change Energy the Environment and Water
DETSI	Department of Environment, Tourism, Science & Innovation (formally DESI)
DICL	Ductile Iron Cement Lined
DLGWV	Department of Local Government, Water and Volunteers (formally DRDMW)
DNRM	Department of Natural Resources and Mines, Manufacturing, and Regional and Rural Development (formally DoR)
DRDMW	Department of Regional Development, Manufacturing and Water
DSDIP	Department of State Development, Infrastructure and Planning (formally DSDILGP)
DSI	Detailed Site Investigation
DWATSIPM	Department of Women, Aboriginal and Torres Strait Islander Partnerships and Multiculturalism (formally DATSIP)
EA	Environmental Authority
EC	Euroa Circuit
ECI	Early Contractor Involvement
EDQ	Economic Development Queensland
EEPL	East End Pipeline (the Project)

Abbreviation	Definition
EEPL	Fitzroy to Gladstone Pipeline
EIS	Environmental Impact Statement
EMR / CLR	Environmental Management Register / Contaminated Land Register
EMS	Environmental Management System
EP Act	*Environmental Protection Act 1994*
EP Regulation	*Environmental Protection Regulation 2019*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPI	Environmental Protection Instruction
ERA	Environmental Relevant Authority
ESCP	Erosion and Sediment Control Plan
FGP	Fitzroy to Gladstone Pipeline
GAWB	Gladstone Area Water Board
GED	General Environmental Duty
GHD	GHD Pty Ltd
GRC	Gladstone Regional Council
GSDA	Gladstone State Development Area
Ha	Hectares
HSEQ	Health, Safety, Environment and Quality
ISC	Infrastructure Sustainability Council
JSEA	Job Safety and Environmental Analysis
Km	Kilometres
LGA	Local Government Areas
LRPS	Landing Road Pump Station
m	Metres
MCU	Material Change of Use
ML	Megalitres
MMR	Mt Miller Reservoir
MMS	McConnell Dowell Management System
MNES	Matters of National Environmental Significance
MP	Member of Parliament
MSES	Matters of State Environmental Significance

Abbreviation	Definition
OPW	Operational Works
PCCC	Port Curtis Coral Coast Aboriginal Peoples Charitable Trust
Personnel	All personnel including sub-contractors working on the EEPL
Planning Act	*Planning Act 2016*
PMST	Protected Matters Search Tool
PPE	Personal Protective Equipment
QCA	Queensland Competition Authority
Qld	Queensland
RE	Regional Ecosystem
ROW	Right of Way
RV	Regulated Vegetation
RW	Raw Water
SAP	Special Area Plan
SARA	State Assessment and Referral Agency
SDA	State Development Area
SDPWO Act	*State Development and Public Works Organisation Act 1971*
SDS	Safety Data Sheet
SEP	Site Environmental Plan
SMP	Species Management Program
SWMS	Safe Work Method Statement
TEC	Threatened ecological community
The contractor	Engaged by GAWB as the principal contractor for the project
TMP	Traffic Management Plan
TMR	Department of Transport and Main Roads
TW	Treated Water

3. INTRODUCTION

This Construction Environmental Management Plan (CEMP) will be implemented to manage potential environmental and social impacts associated with the construction of the East End Pipeline (EEPL) and will be supported by:

- Species Management Program (SMP)
- Environmental aspect-specific sub-plans, as required e.g. Erosion and Sediment Control Management Sub-Plan (refer to Appendix A) and Acid Sulfate Soils Environmental Management Plan (refer to Appendix B), Bushfire Management and Mitigation Plan.

3.1 Purpose of this CEMP

The purpose of this CEMP is to provide an environmental management framework and associated management procedures to avoid or minimise the actual and potential environmental impacts associated with the construction phase of the EEPL. Further, it aims to:

- Develop and achieve the EEPL's stated environmental objectives and targets
- Outline procedures for the management and monitoring activities of environmental protection issues relevant to construction activities
- Ensure environmental compliance with the legislative framework and conditions of approval
- Fulfil the General Environmental Duty (GED)
- Identify broader issues of organisational risk

This CEMP has been developed based on:

- The Environmental and Cultural Heritage Desktop Assessment (AECOM, 2024).
- Key primary Project approvals that have been obtained, namely:
    - Material Change of Use for the Landing Road Pump Station and raw water pipeline.
- Design and land details
- Construction methodologies
- Environmental and planning environmental approvals and permits and associated conditions
- Site environmental characteristics

3.2 Authorisation, Revision and Distribution

This CEMP is intended to be a live document for environmental management for the construction of the EEPL. The CEMP will be updated when new information becomes available, such as receipt of development approvals/permits/licences, updated ecological or other field survey data, and design changes.

This CEMP will also have appropriate controls including being authored, reviewed and approved by suitably qualified persons under delegation of authority protocols.

This CEMP is a controlled document, and updates to this document will be provided an updated Revision number including the date and lodged on the document control database to ensure the most up to date document is used.

There is no restriction on the distribution of the CEMP within GAWB and contractor. The controlled copy of the current version of this CEMP will be maintained on the document control database and onsite.

3.3 Contact Details

Key contacts for the Project are include in Table 3-1.

Table 3-1 GABW Key Contacts

Contacts	Name	Phone
Chief Operating Officer - EEPL	Hugh Barbour (GAWB)	0409 643 040
Project Director	Grant Flekser (GAWB)	0437 930 141
Project Lead	David Garrod (GAWB	0435 307 717
Environment & Sustainability Manager	Trent Williams (GAWB)	0467 769 429
Construction Manager	Jim McGinty (GAWB)	0427 961 165
Cultural Heritage related matters (including finds)	Jillian Leslie (GAWB)	0400 626 214
Discovery of contaminated land	Department of Environment, Tourism, Science & Innovation (DETSI) – Contaminated Land Unit	(07) 3330 6586 (Brisbane)
Discovery of human remains	Queensland Police	000
Fire including bushfire	Queensland Fire and Rescue Services	000
Pollution incident causing serious or material environmental harm or fish kill	DETSI	1300 130 372
Reporting of sightings of prohibited and restricted pest species	Department of Agriculture and Fisheries (DAF) – Biosecurity Queensland Control Centre	13 25 23
Unexpected heritage artefact/ item finds	DES – Cultural Heritage Unit	(07) 3227 6499
Wildlife rescue	DES (select wildlife from the menu provided) RSPCA Queensland	1300 130 372 or 1300 264 625 (RSPCA)

4. PROJECT SCOPE

4.1 Project Description

The Gladstone Area Water Board (GAWB) is a bulk water service provider based in Gladstone, Central Queensland. GAWB provides raw water (RW) and treated water (TW) to power stations and heavy industry in and around Gladstone, and TW to the Gladstone Regional Council for municipal water supply.

The TW supply is fed from the existing GAWB Boat Creek Pump Station (BCPS) to East End Reservoir (EER). This pipeline is referred to as the 'East End Treated Water pipeline (EE TW pipeline)'.

Installed in 1981, the EE TW pipeline comprises 22.4 km of Ductile Iron Cement Lined (DICL) and Asbestos Cement (AC) pipeline. The AC pipeline is present from the BCPS to Cement Australia and from East End Mine to the EER. The BCPS is gravity supplied by Mt Miller Reservoir, via 3.5 km of DICL pipeline. As the only pipeline delivering water along this alignment, most customers use the TW for RW purposes.

The existing TW pipeline is at end of life. The asset has aged, ground conditions have contributed to the deterioration. The TW pipeline has incurred 39 failures in the past 13 years, as many as 13 failures have occurred within the past 24 months. The EE TW pipeline services Gladstone Regional Council's Mount Larcom Reservoir, Rio Tinto Alcan Yarwun's Residue Management Area, Fortescue Future Industries' Green Electrolyser Facility, Cement Australia's East End Mine and is the only TW supply to the Mt Larcom township.

With the onset of new customers associated with hydrogen production, an increased demand for RW exceeding the capacity of the EE TW pipeline is forecast. GAWB has elected to install a new RW pipeline from BCPS to the EDQ Connection at Aldoga and replace the EE TW pipeline with a new pipeline for its entire length. The RW pipeline is referred to as the 'Landing Road (LR) to EDQ RW pipeline'. The introduction of the LR to EDQ RW pipeline to the Gladstone State Development Area (GSDA) will permit the transfer of industrial customers utilising high value TW to RW.

GAWB is in the process of securing approvals for the EEPL, which includes approvals under the GSDA Development Scheme and other State or local statutory requirements.

This project will deliver the GAWB strategic objectives by designing, procuring and delivering of the following assets:

- EEPL TW pipeline project - replacement of the existing ~24 km outer diameter (OD) 200mm TW pipeline and associated boat creek pump station upgrades
- EEPL RW pipeline project – construction of a new ~8 km DN630 raw water pipeline
- Landing Road Pump Station (LRPS) project - detailed design and construction of new pump station (Stage 1) and detailed design of pump station expansion (Stage 2).
- Euroa Circuit (EC) Pipeline project – detailed design and construction of a new approximately 1.4 km long DN355 raw water pipeline, supplied from the EEPL RW pipeline project.

The EEPL is presented in Figure 4-1.

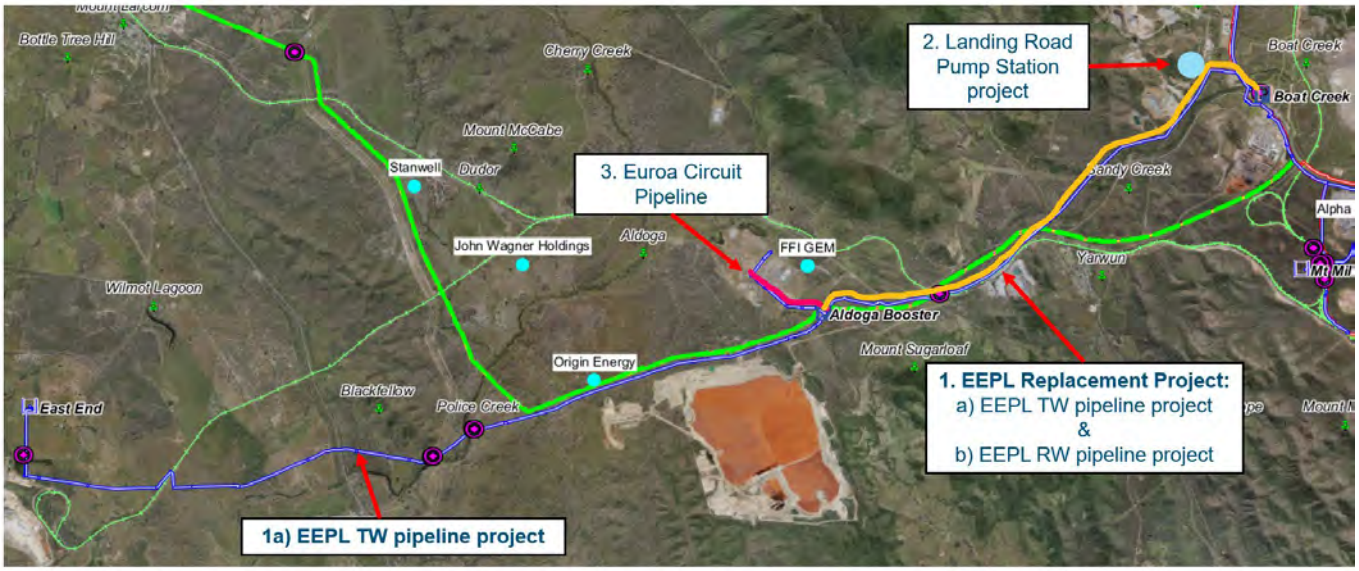

Figure 4-1 Map showing EEPL Project

4.2 Project Delivery

The EEPL is being advanced in three stages:

1. New TW installation. This encompasses:
    - Approximately 24 km of pipeline installation
2. Removal of DICL and replacement with RW installation. This encompasses:
    - Dig up and removal of the first approximately 8.7 km of DICL / AC pipeline
    - Abandoning of remaining 13.7 km of DICL/ AC pipeline in situ
    - Approximately 8.7 km of pipeline installation
    - Connection to the Gladstone raw water network
3. LRPS construction

4.3 Scope of Works

The typical works proposed in each stage are summarised as follows:

4.3.1 *Pre-construction*

The pre-construction activities include:

- Detailed design
- Securing of approvals, permits, licences and land tenure agreements
- Development of required management plans.

4.3.2 *Early Works*

Early works for the EEPL are proposed to be undertaken and include:

- Cadastral surveys
- Geotechnical investigations
- Fencing
- Signage
- Works on existing roads and access tracks, and associated drainage
- Works to construct graded unsealed formed site access tracks, and associated drainage

- Temporary site facilities, including laydown areas, site offices and amenities.

4.3.3 *Construction*

Construction activities for the EEPL are expected to commence in April 2025 and finish between late 2025 and early 2026, weather and construction conditions permitting.

The following are some of the activities that may occur in preparation for and during construction (refer to Figure 4-2):

- Survey – In preparation for construction, the ROW will be fully surveyed, and the TW and RW centre lines will be pegged.
- Potholing – potholing will be carried out to identify the location of existing underground services. This will involve digging small test holes using hydro vacuum excavation and/or hand tools. Any underground services will be identified and marked with survey pegs/conduits. Overhead powerlines will be marked with colour-coded flags.
- Clearing – where necessary, the ROW or section required for pipeline installation, will be cleared of all topsoil, vegetation, rocks and other obstructions.
- Grading – Bulldozers and graders will level the ground in certain areas within the ROW to prepare a safe construction platform for the pipeline.
- Pipeline stringing – Pipes will be delivered to the site by truck from a centralised pipe stockpile location and 'strung' along the ROW end-to-end next to where the trench will be dug.
- Trenching – A trench will be excavated using specialist heavy earthmoving machinery. The trench will generally be between 900mm and 2m deep and deeper as necessary to meet the design requirements. The excavated trench spoil and any necessary imported material will be stockpiled next to the trench within the ROW.
- Trenchless (drilling or tunnelling) – Trenchless drilling or tunnelling is preferred where the conditions do not suit the use of an open trench, such as where the pipeline crosses waterways, rail and main roads. Launch and receival pits are excavated on either side of the crossing location and the pipe is guided through the hole with minimal disturbance to the surface. Trenchless crossing methods involve thrust boring, pipe-jacking, micro-tunnelling and horizontal directional drilling (further details below).
- Pipe laying and backfilling in trenches – After the pipe is laid, the trench will be backfilled and compacted using a combination of imported material (sand or crusher dust) to be placed under and around the pipe and selected trench subsoil for the remainder of the trench. The surface will be reinstated using the stockpiled topsoil and selected seed. Seed mixtures to be formulated with consideration of the vegetation composition of the areas adjacent to the construction footprint and in consultation with the relevant landholder
- Air Valves, Isolation Valves, Scour Valves – Valves are required along the length EEPL mainly at high and low points. These valves will be aboveground infrastructure.
- Pipeline cleaning and testing (commissioning) – This process occurs at the end of construction to remove debris from the inside of the pipe, test for leaks and complete performance testing for the operation of the EEPL.
- Clean up and rehabilitation – All areas affected by construction will be cleaned up and rehabilitated to pre-construction conditions as far as practicable (noting any reasonable landholder requirements).
- Inspection and maintenance of the pipeline – Once operational, routine inspections will be conducted of the EEPL to ensure it is operating safely and within specifications (refer to Section 4.3.7).

Figure 4-2 Pipeline Activities

Construction activities will take place during Monday to Sunday from 6:30am to 6:30pm in consultation and agreement with landholders. If agreement is not reached, construction activities will be undertaken from 6:30 am and 6:30 pm Monday to Saturday.

Work may be required outside these hours for critical works such as waterway or infrastructure crossings, concrete pours and/or hydrostatic testing. If work outside routine hours is required, and assessment will be undertaken and affected landholders will be consulted and the activity conducted in accordance with any relevant regulatory notification requirements.

It is noted that access to, and along, the ROW is not considered to be construction activities.

4.3.4 *Key Infrastructure Elements*

Treated Water & Raw Water Pipelines

The pipelines will be buried at a nominal depth of 900 mm with varying cover depending on pipe material, ground conditions and loading (minimum cover 900 mm). It will be laid with a minimum grade of 1 in 500.

The main pipeline material is proposed to be high-density polyethylene. Bulldozers and graders will level the ground in certain areas within the ROW to prepare a safe construction platform. Pipes will be delivered to site by truck then laid next to the trench on skids or sandbags to protect the pipe from damage and to allow for welding sections together.

Right of Way (ROW)

The ROW has been restricted to the existing EPPL easement, with a reduction in width in sensitive environments, i.e. waterways and vegetation community.

Crossing Methods

Several construction methods have been considered for the pipeline crossing creeks, roads, rails and other infrastructure; it should be noted that trenchless methods have been used for major crossings. Construction methods include:

- Open trenching (non-trenchless):
    - It involves excavation of the trench directly though the stream or roadway. Excavators or backhoes are generally used with the trench spoil to be stockpiled away from the stream bed or road. The prefabricated pipe is strung out, lowered in and the trench backfilled immediately.
    - This method is proposed for minor roads and minor/dry creeks.
- Thrust boring or pipe-jacking:
    - Trenchless method involving launch and receival pits which are excavated on both sides of the crossing location.
    - An enveloper pipe with an open face is pressed into the ground with hydraulic jacks from the launch pit to the reception pit and an auger or drill removes the materials inside the pipe. The carrier pipe is then laid inside the enveloper pipe. The annular space between the enveloper and carrier pipes are then grouted.
    - The launch pit would be approximately 8 m by 4 m and the receival pit approximately 4 m by 3 m.
    - This method is proposed for major road and rail crossings.
- Micro-tunnelling or horizontal directional drilling:
    - Trenchless method involving launch and reception pits on either side of the crossing.
    - A tunnelling machine is used to excavate an underground path for the pipeline.
    - Powerful hydraulic jacks are used to push specially designed enveloper pipes through the ground behind a shield at the same time as excavation is taking place within the shield. The enveloper pipe is pushed from the launch pit to the reception pit. After the installation of the enveloper pipe, the carrier pipe is laid inside the enveloper pipe. The annular space between the enveloper and carrier pipes are then grouted. This method is suitable for sections up to 350 meters in length. Provided the working pits are set well back there is minimal impact to fringing riparian vegetation and river banks.

The use of blasting for pipeline installation is unlikely. A Blast Management Plan will be developed to manage any blasting impacts, as required.

Removal of existing pipe

To enable the construction of the RW pipeline, 8.7 km of the existing pipeline being replaced will be removed.

4.3.5 *Rehabilitation*

All areas affected by construction including ROW, work areas, access tracks and temporary site office areas will be cleaned up and rehabilitated to pre-construction conditions as far as practicable.

Clean up will include removal of waste material and equipment, compaction relief (particularly on heavily trafficked areas) and re-profiling to original or stable contours and re-establishing surface drainage lines. Signs, fences and barriers shall be installed where required to prevent unauthorised access to sensitive areas on the pipeline route, and to prevent damage.

Rehabilitation measures will be conducted according to recommendations in the *Australian Pipeline Industry Association Code of Environmental Practice – Onshore Pipelines 2017* and relevant development permit/approval conditions. It will consider application of vegetation regeneration and/or revegetation techniques to encourage natural regeneration of disturbed vegetation.

Site clean-up and rehabilitation will be conducted in consultation with landowners. It will have a warranty period of not less than 12 months from construction completion, which includes land rehabilitation measures.

Refer to Section 7.21 - Rehabilitation and Revegetation Control Plan for further information.

4.3.6 *Commissioning*

The commissioning of GAWB's assets will be completed by contractor. A detailed Commissioning Plan is currently being prepared to manage all aspects of commissioning including the water intake and discharge for hydrotesting.

The EEPL will be commissioned in sections between isolation valves and facilities along the alignment. The commissioning will include flushing and filling each section with water to test the pressure of the pipe and for any leaks.

Following the successful commissioning of a particular pipeline section, the water will be stored in the pipeline until the next section is ready for commissioning.

It is expected that approximately x ML of water will be required for this testing and most of the hydrotest water be discharged at the end of the pipe into an open swale drain that feeds into Boat Creek. However, there may be some minor discharges along the ROW. The water will only be discharged if it meets the appropriate water quality release criteria and in a manner that does not cause environmental harm. The water is expected to contain residual sediments from pipeline and construction activities.

For any hydrotesting discharges measures will be taken to:

- Reuse water for each section.
- Minimise the waste volumes of water generated.
- Minimise the water to be discharged to the environment.
- Ensure that the water to be discharged meets the requirements of any relevant guidelines, water quality objectives and the requirements of stakeholders.
- Ensure erosion protection measures are in place.

4.3.7 *Operation*

Operational stages of the EEPL will be managed in accordance with an Operational Environmental Management Plan and/or other procedures to be prepared.

5. LEGAL AND OTHER REQUIREMENTS

This CEMP has been prepared in general accordance with the relevant requirements of the Queensland *Environmental Protection Act 1994* (EP Act) and associated *Environmental Protection Regulation 2019* (EP Regulation). It has been designed to protect the relevant Environmental Values associated with the construction phase of the Project.

Section 9 of the EP Act describes Environmental Value as:

> *(1) A quality of physical characteristic of the environment that is conducive to the ecological health of public amenity or safety; or*
>
> *(2) Another quality of the environment identified and declared to be an environmental value under an environmental protection policy or regulation.*

In addition, Section 319 of the EP Act provides information about the duty to prevent and minimise environmental harm. The general environmental duty states:

> *A person must not carry out any activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to prevent or minimise the harm.*

The general structure of this CEMP has been developed in response to EP Act requirements, as well as the ISO 14001 Plan Do Check Act framework, and incorporates the following key items:

- Environmental Value or Element
- Performance Objectives
- Legislative Requirements
- Performance Criteria
- Implementation
- Monitoring
- Reporting
- Corrective Action.

5.1 Project Legislation

Table 5-1 provides an overarching legislation register, detailing the current applicable relevant acts, regulations and policies that are applicable to the Project in general.

Table 5-1 Legislation, Regulations and Policies

Legislation and subordinate documentation	Regulatory Authority	Purpose	Relevance
Commonwealth			
EPBC Act	Department of Climate Change Energy the Environment and Water (DCCEEW)	Provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places — defined in the EPBC Act as matters of national environmental significance.	GAWB engaged AECOM to complete an assessment of the proposed activities in accordance with the MNES Significant impact guidelines. The assessment outcome was that there was not a significant impact on MNES and that a Referral was not required.
Native Title Act 1993	Native Title Tribunal	– Provide for the recognition and protection of native title – Establish ways in which future dealings affecting native title may proceed and to set standards for the dealings – Establish a mechanism for determining claims to native title – Provide for, or permit, the validation of past acts, and intermediate period acts, invalidated because of the existence of native title.	Native title is applicable to some parts of the Project. GAWB will manage native title.
State			
Aboriginal Cultural Heritage Act 2003 *Aboriginal Cultural Heritage Act 2003* – Duty of Care Guidelines	Department of Seniors, Disability Services and Aboriginal Torres Strait Islander Partnerships	Provides for effective recognition, protection and conservation of Aboriginal cultural heritage. Require those conducting disturbance activities in areas of significance to take all reasonable and practical measures to avoid harming cultural heritage.	A Cultural Heritage Management Plan (CHMP) between GAWB and the Port Curtis Coral Coast Aboriginal Peoples Charitable Trust (PCCC) will be in place prior to activities commencing.
Biosecurity Act 2014 *Biosecurity Regulation 2016*	Department of Agriculture and Fisheries (DAF)	Provides biosecurity measures to safeguard our economy, agricultural and tourism industries, environment and way of life, from: pests (e.g. wild dogs and weeds), diseases (e.g. foot-and-mouth	Management of pests and invasive species across the Project will be required by all parties. All personnel have a General Biosecurity Obligation.

Legislation and subordinate documentation	Regulatory Authority	Purpose	Relevance
		disease) and contaminants (e.g. lead on grazing land).	
Building Act 1975	Department of Communities, Housing and Digital Economy Private certifier	Regulates building development approvals, building work, building classification, building certifiers, and to provide for matters about sustainable buildings, and for other purposes.	N/A to the EEPL project
Coastal Protection and Management Act 1995 *Coastal Protection and Management Regulation 2017*	Department of Environment, Tourism, Science & Innovation (DETSI)	Provides for the protection, conservation, rehabilitation and management of the coastal zone, including its resources and biological diversity.	The EEPL does not include work in coastal areas.
EP Act	DETSI	The object of this Act is to protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends (ecologically sustainable development).	For all activities the GED is required.
EP Regulation	DETSI	Prescribes the detail for processes contained in the EP Act. For example, this regulation contains the list of 'prescribed Environmentally Relevant Activities (ERAs)' which are regulated under the EP Act and prescribes the fees to be paid, such as application fees and annual fees for ERAs.	For specific activities that trigger an ERA an environmental authority is required from DETSI. The EEPL is not expected to trigger the need for an ERA.
Environmental Protection (Air) Policy 2019	DETSI	Purpose of this policy is to achieve the object of the EP Act in relation to the air environment by: – Identifying environmental values to be enhanced or protected – Stating indicators and air quality objectives for enhancing or protecting the environmental values – Providing a framework for making consistent, equitable and informed decisions about the air environment.	Implements requirements for air emissions including dust and odour. The Policy is to be met by implementation of this CEMP and other management plans.

Legislation and subordinate documentation	Regulatory Authority	Purpose	Relevance
Environmental Protection (Noise) Policy 2019	DETSI	Purpose of this policy is to achieve the object of the EP Act in relation to the acoustic environment by: – Identifying environmental values to be enhanced or protected – Stating acoustic quality objectives for enhancing or protecting the environmental values – Providing a framework for making consistent, equitable and informed decisions about the acoustic environment.	Implements requirements for noise emissions including vibration. The Policy is to be met by implementation of this CEMP and other management plans.
Environmental Protection (Water and Wetland Biodiversity) Policy 2019	DETSI	Purpose of this policy is to achieve the object of the EP Act in relation to waters and wetlands by: – Identifying environmental values for waters and wetlands – Identifying management goals for waters – Stating water quality guidelines and water quality objectives to enhance or protect the environmental values – Providing a framework for making consistent, equitable and informed decisions about waters – Monitoring and reporting on the condition of waters.	Provides relevant objectives for waterways and wetlands for the EEPL to achieve. The Policy is to be met by implementation of this CEMP and other management plants.
Fisheries Act 1994	DLGWV	Sets out Fisheries Queensland's responsibilities for the economically viable, socially acceptable and ecologically sustainable development of Queensland's fisheries resources.	The *Fisheries Act 1994* primarily applies to waterways which are classified as waterways for the purpose of waterway barrier works located throughout the Project.
Land Act 1994	Department of Resources (DoR)	Land to which this Act applies must be managed for the benefit of the people of Queensland.	Applies to the EEPL and is being managed by GAWB. Appropriate land tenure or agreements may need to be sought for ancillary works.

<table>
<tr><th>Legislation and subordinate documentation</th><th>Regulatory Authority</th><th>Purpose</th><th>Relevance</th></tr>
<tr><td>Native Title (Queensland) Act 1993</td><td>Native Title Tribunal</td><td>In accordance with the Native Title Act 1993 (Cwth), to validate past acts, and intermediate period acts, invalidated because of the existence of native title and to confirm certain rights.

To ensure that Queensland law is consistent with standards set by the Native Title Act 1993 (Cwth) for future dealings affecting native title.</td><td>Native title is applicable to some parts of the Project. GAWB will manage native title.</td></tr>
<tr><td>Nature Conservation Act 1992

Nature Conservation (Animals) Regulation 2020

Nature Conservation (Plants) Regulation 2020</td><td>DETSI</td><td>The object of this Act is the conservation of nature while allowing for the involvement of indigenous people in the management of protected areas in which they have an interest under Aboriginal tradition or Island custom.</td><td>Relevant for the activities impacting vegetation, animals and their habitat. The Project is to comply with the EEPL SMP through implementation of this CEMP and other management plans as relevant.</td></tr>
<tr><td>Planning Act 2016</td><td>DSDIP DNRM</td><td>Clearing of Native Vegetation</td><td>The Project Site is predominantly mapped as containing Category X (non-remnant) vegetation, with some areas mapped as Category B and Category R vegetation.

Pursuant to Schedule 21, Part 2 (f), clearing of native vegetation within freehold land within this section of the Project is accepted development if works can comply with the Accepted development vegetation clearing code (Clearing for infrastructure) Effective 7 February 2020.

Section 4.2 of the accepted development vegetation clearing code provides the clearing requirements on land other than a dedicated road. Clearing in Category B and Category R areas must not result in:
Clearing that exceeds the width limits in Appendix 2, Table A (refer extract below).
The widening of an existing cleared area to more than the width limits in Appendix 2, Table A (refer extract below).
<table><tr><th colspan="2">For all other linear infrastructure</th></tr><tr><th>Regional ecosystem structure category</th><th>Clearing width limits</th></tr><tr><td>Dense and mid-dense</td><td>10 metres</td></tr><tr><td>Sparse and very sparse</td><td>20 metres</td></tr><tr><td>Grassland</td><td>25 metres</td></tr></table>The vegetation is sparse to very sparse within the existing easement.</td></tr>
</table>

Legislation and subordinate documentation	Regulatory Authority	Purpose	Relevance
			The alignment within the easement has been optimised to avoid clearing vegetation where feasible.
Planning Act 2016 Planning Regulation 2017	Department of State Development, Infrastructure, and Planning (DSDIP)	Establishes Queensland's planning framework and is supported by other Acts and regulations. It also establishes the framework of planning instruments that support the operation of the three main systems: plan-making, development assessment and dispute resolution.	Relevant for all activities. Certain accepted or assessable requirements are to be met, as described further in this CEMP.
Queensland Heritage Act 1992	DETSI	The object of this Act is to provide for the conservation of Queensland's cultural heritage for the benefit of the community and future generations.	Applies to incidental finds.
State Development and Public Works Organisation Act 1971	CG DSDIP	State Development Area (SDA) Approval – Operational Works Vegetation - Clearing	The majority of Project Site falls within the GSDA (Materials Transportation and Services Corridor Precinct). The section of the Project Site within the GSDA is mapped as containing Category B, Category C, Category R and Category X (non remnant) vegetation. Pursuant to Section 1.3.2 Item 1(c) of the GSDA Development Scheme, operational works is considered excluded development where development is carried out by or on behalf of the State or public Sector entity. The GAWB is a Queensland Government owned company, therefore a Development Permit is not required.
State Development and Public Works Organisation Act 1971	DSDIP	SDA Approval – Operational Works for changes to ground level	Pursuant to Section 1.3.2 Item 1(c) of the GSDA Development Scheme, operational works is excluded development where development is carried out by or on behalf of the State or public Sector entity. Therefore, a Development Permit is not required.
State Development and Public Works Organisation Act 1971	DSDIP	SDA Approval – Material Change of Use	The proposed pipelines are not considered to constitute a Material Change of Use as the utility installation for an underground pipeline is not considered to be a material increase in the scale and intensity of the premises. The installation is within existing easement(s) The Landing Road Pump Station and raw water pipeline require a MCU.

Legislation and subordinate documentation	Regulatory Authority	Purpose	Relevance
Transport Infrastructure Act 1994	Department of Transport and Main Roads (TMR)	The overall objective of this Act is, consistent with the objectives of the *Transport Planning and Coordination Act 1994*, to provide a regime that allows for and encourages effective integrated planning and efficient management of a system of transport infrastructure.	Relevant for use of and impacts to State-controlled transport infrastructure (roads and rail).
Vegetation Management Act 1999 *Vegetation Management Regulation 2012*	DoR DSDIP	The purpose of this Act is to regulate the clearing of vegetation in a way that— a) conserves remnant vegetation b) conserves vegetation in declared areas c) ensures the clearing does not cause land degradation d) prevents the loss of biodiversity e) maintains ecological processes f) manages the environmental effects of the clearing to achieve the matters mentioned in paragraphs (a) to (e) g) reduces greenhouse gas emissions h) allows for sustainable land use.	Applies to clearing of vegetation associated with the EEPL. The Project is to comply with this CEMP and other management plans as relevant.
Waste Reduction and Recycling Act 2011 *Waste Reduction and Recycling Regulation 2011*	DETSI	The legislation establishes a framework to modernise waste management and resource recovery practices in Queensland. It will promote waste avoidance and reduction and encourage resource recovery and efficiency.	Provides requirements for the Project's waste generation, storage, transport and disposal.
Water Act 2000 *Water Regulation 2016*	Department of Regional Development, Manufacturing and Water (DLGWV)	– The sustainable management of Queensland's water resources and quarry material by establishing a system – The sustainable and secure water supply and demand management for the south-east Queensland region and other designated regions – The management of impacts on underground water caused by the exercise of underground water rights by the resource sector – The effective operation of water authorities.	The Project Site intersects three watercourses (Boat Creek, Sandy Creek and Spring Creek), drainage features and unmapped watercourses under the *Water Act 2000*. Under Section 23 and 24 of the Water Regulation 2016, a constructing authority may take water to construct or maintain infrastructure in line with the *Exemption requirements for the taking of water without a water entitlement*, under the Water Regulation 2016. Schedule 7, Part 3, Section 5 of the Planning Regulation 2017 identifies water taken in accordance with these exemption requirements as accepted development. Therefore, if the proposed works can meet the exemption requirements a Development Permit will not be required.

Legislation and subordinate documentation	Regulatory Authority	Purpose	Relevance
Water Supply (Safety and Reliability) Act 2008	DRWMW	The purpose of this Act is to provide for the safety and reliability of water supply.	GAWB's responsibility and reason for the EEPL development.
Local			
Gladstone Regional Council Planning Scheme	Gladstone Regional Council (GRC)	The planning scheme sets out GRC's intention for the future development in the planning scheme area, over the next seventeen years to 2031. It provides a means for regulatory and identifying both assessable and accepted development.	Relevant for the EEPL within the GRC LGA.
Gladstone Local Laws	GRC	Under the *Local Government Act 2009*, Council may make and enforce any local law that is necessary or convenient for the good rule and local government of its area. The term "local law" includes "subordinate local law". The Local Laws likely applicable to this Project include: – Local Law No. 4 (Local Government Controlled Areas, Facilities and Roads) 2011 – Subordinate Local Law No 4 (Local Government Controlled Areas Facilities and Roads) 2011.	Relevant for interactions with GRC owned roads and infrastructure.

5.2 Approvals, Permits and Licences

GAWB are currently in the process of obtaining a range of other planning and environmental approvals as summarised in Table 5-2.

5.3 Guidelines and Other Requirements

In order to meet the legislation outlined in Table 5-1, the following requirements, guidelines and policies apply:

- Exemptions / accepted development requirements which outline a range of conditions that can be utilised, if met then development permits are not required:
    - Accepted development requirements for operational work that is constructing or maintaining waterway barrier works (DAF, 2018)
    - Accepted Development Vegetation Clearing Code (ADVCC): Clearing for Infrastructure (Department of Resources, 2023)
    - Exempt clearing work under the Vegetation Management Act as detailed in List of exempt clearing work (former Department of Natural Resources, Mines and Energy, 2024)
    - Riverine protection permit exemption requirements WSS/2013/726 Version 2.03 (DRDMW, 2023)
    - OSW/2020/5467 Exemption requirements for constructing authorities for the take of water without a water entitlement (Version 4.0 DRDMW, 2021).
- Guidelines made under legislative powers that assist in meeting objectives of the legislation:
    - Flora Survey Guidelines – Protected Plants (DES, 2020).
- Other guidelines include, but are not limited to:
    - Best Practice Erosion and Sediment Control (IECA, 2008)
    - Noise Measurement Manual (DES, 2020)
    - Monitoring and Sampling Manual (DES, 2018) (relates to water quality monitoring)
    - Queensland auditor handbook for contaminated land Module 6: Content requirements for contaminated land investigation documents, certifications and audit reports (DES, 2018)
    - National Environmental Protection (Assessment of site Contamination) Measure 1999 (Amended in 2003)
    - National Acid Sulfate Soils Guidance (Commonwealth of Australia, 2018)
        - National Acid sulfate soil sampling and identification methods manual (Commonwealth of Australia, 2018)
        - Queensland Acid Sulfate Soil Technical Manual, Soil Management Guidelines (State of Queensland, 2014).

Table 5-2 Approvals and Permits Summary

Approval	Activity	Regulatory Authority	Responsible Party	Status / Indicative Timing (Application, Granted)
MCU – Development Permit assessable against the GSDA Development Scheme	LRPS / RW pipeline	OCG	GAWB	April 2025
Accepted Development Vegetation Clearing Code	EE TW pipeline	DoR	GAWB	Upon notification lodgement
Waterway barrier works accepted development notifications	Whole of project	DPI	Contractor	As required
SMP for tampering with animal breeding places	Whole of project	DETSI	GAWB	March 2025
Road Corridor Permit	Whole of project	TMR, GRC	Contractor	March 2025
Road Works Approval	Whole of project	TMR, GRC	Contractor	March 2025

6. IMPLEMENTATION AND OPERATION

6.1 EEPL Objectives

The objectives established for the EEPL are outlined in Table 6-1.

Table 6-1 Project Objectives

Project Objective	Description
Water Security	Deliver infrastructure that connects communities, deliver a sustainable and resilient network and a network that provides for immediate drought response.
Reliability	Deliver a network that runs efficiently, effectively and is fit for its intended purpose, that considers operation and whole-of-life design for replacement and availability of components, and that establishes trust in the local community that GAWB delivers as an authority on time and to its commitments.
Cost	Deliver the works within the agreed construction value and demonstrate a value for money outcome to the State Government. Ensure that cash moves quickly through the supply chain, and all subcontractors, suppliers, professional service providers are paid in a timely manner.
Time	Delivery of the asset as per the delivery program to meet water security and planning objectives.
Safety	Deliver and construct the Project with a zero rate of incidents and be injury free. Create a culture where the safety of the Project workforce, operators of the network and the general community is paramount.
Quality	Ensure that constructed works are fit for purpose and meet all Project design requirements, standards and warranties and achieve a zero defects status.
Environment	Actively manage the Project to eliminate environmental harm and demonstrate genuine sensitivity and care for the environment.
Community and Stakeholders	Engage commercially competitive local suppliers, where possible. Recruit local skilled workers. Develop and maintain productive relationships with community and stakeholders. Effectively plan and deliver communication and engagement strategies to support Project works, minimise impacts to community and stakeholders, contribute to a positive Project reputation and produce economic benefits to the local area.
Values and Behaviours	Alignment with GAWB's corporate philosophy and 'the way we work' including: – Engage –We work together. Always. – Accountable –We all contribute. Openly. – Safety & Wellbeing –We look after ourselves. And each other. – One Team –We Deliver. You and I.
QPP Compliance	Demonstrate and comply with each category of the Queensland Procurement Policy including the Best Practice Principles, Local Benefits Test and all statutory requirements. Demonstrate and comply with the Australian Industry Participation Plan and all other Project-related regulatory requirements.
Skill and System Development	Provide training and skills development opportunities for all people working in the Project team and enable GAWB to increase its overall capability as an organisation. Contribute to local and Indigenous supply chain capability and capacity development and skill development of local and Indigenous labour.

6.2 Environmental Leadership and Commitment

GAWB and contractors undertake a reflective, resourceful, inclusive, and flexible approach to environmental management and leads by example in ensuring that statutory and contractual requirements are met, and positive environmental performance is maximised.

In line with the requirements of ISO 14001, top management, are committed to review and endorse this document as part of a broader review of the MMS every 12 months. This process ensures top management:

- Take accountability for the effectiveness of the environmental management system.
- Make certain that environmental objectives are established and are compatible with the strategic direction and the context of the organisation.

- Ensure the integration of the environmental management system requirements into the organisation's business processes.

Table 6-2 Description of environmental management framework documents

Document Type	Description
Environmental and Sustainability Polices	Refer to sections 6.3 for the GAWB Environmental Policy.
Construction Environmental Management Plan	This document. This CEMP provides a system and set of procedures to ensure that sound and effective controls are established and maintained to manage potential environmental impacts throughout the Project and, wherever practicable, to deliver positive environmental outcomes. As part of our commitment to continuous improvement we will take a proactive approach to environmental management for the EEPL. This document is therefore based upon a risk management process where the environmental risks associated with each element of the EEPL are identified and assessed, and appropriate mitigation strategies implemented to eliminate or minimise the subsequent risk. This CEMP is supported by other environmental management plans.
Issue-Specific Sub-Plans	Documents that focus one specific environmental issue in detail (e.g. noise and vibration), outlining risks, opportunities, mitigation and management measures in relation to that environmental issue.
Environmental Green Rules	A suite of ten environmental management rules set to enforce positive messages about what is expected as a minimum standard onsite to minimise our impact on the natural environment and local community.
Site Environmental Plans (SEPs)	SEPs are spatial representations, in the form of an aerial photographs developed for a specific footprint of the EEPL to illustrate the key site features relating to environmental management. The SEPs provide a picture of the existing environmental values and demonstrate the location of the site environmental controls and other key environmentally relevant features of the EEPL.
Environmental Protection Instructions (EPIs)	EPIs will be adopted from a standard suite of EPIs. They will be amended, if necessary, to meet specific Project requirements. These documents provide a summary of the method of implementation for a number of the environmental controls articulated in the CEMP and issue-specific sub-plans. As the Project progresses there may be a need for new EPIs to cover areas not identified during the pre-mobilisation risk assessment process. Any new EPIs will be developed by the Environmental Management Representative / Environmental Manager / Advisor and will be communicated to the Construction Team through inductions and toolbox talks. If necessary, training on any new EPI will be provided by the Environmental Management Representative / Environmental Manager / Advisor
Construction Execution Procedures (CEPs)	CEPs are developed and implemented for each major part of the scope of work, defining the methodology, management strategies, responsibilities, resource requirements, testing and recording requirements, contractual and legal requirements and the identification of separate work packages or stages. Safety and environmental risks are also anticipated, and associated controls recommended within these procedures. Documentation, such as Safe Work Method Statements (SWMSs), CEMP and associated environmental management plans and EPIs are referenced where applicable. CEPs are developed in consultation with the Project Environmental Team to ensure that any required environmental or sustainability controls and opportunities are embedded into the processes adopted. Personnel involved in the specific activity covered by the CEP are inducted into the requirements by the Project Engineer to ensure they understand their responsibility to comply with requirements and to implement any required controls. All CEPs require review and approval by the Environmental Team prior to work commencing on the Project.
Job Safety and Environmental Analysis (JSEA) / Safe Work Method Statement (SWMS)	JSEAs are a tool used to determine safety and environmental risk associated with tasks prior to commencing a component of work. Each task is reduced to individual steps and the potential hazard associated with each step identified. Risk mitigation steps are attributed to each hazard, thus providing a detailed plan for installation of control measures.

Document Type	Description
	The main strength of JSEAs prepared on the job is their ability to focus on unique risks at a particular point in time e.g. current conditions, resources, experience of workers and impact with other jobs or people. JSEAs prepared on the job are best carried out close in time and location to the execution of the associated works. It is acceptable to use a pre-existing generic JSEA as a basis to commence the process, but it is essential that current circumstances such as site conditions, level of experience of the crew, prevailing weather conditions, etc are incorporated into the job specific JSEA. A Summary of all hazard identification processes is to be maintained on JSEA /SWMS Register.

6.3 Environmental Policy

6.3.1 *Environmental objectives*

GAWB recognises the importance of conducting our business in a manner which avoids, remedies or mitigates environmental impacts. We strive to achieve leading practice in environmental management.

GAWB is committed to instilling a culture focussed on continuous improvement and sustainability. GAWB will fulfil its obligations and ensure continual improvement in its environmental performance by pursuing the following objectives:

- Plan, implement and monitor GAWB's activities in a manner which ensures compliance with applicable environmental legislation and other obligations;
- Effective application of an Environmental Management System (EMS) which meets or exceeds the requirements of ISO14001:2015;
- Effectively assess and manage the environmental risks, (including cumulative impacts), associated with the activities under the control of GAWB;
- Minimise the environmental impacts on any sensitive receptors arising from GAWB's activities by adopting leading practice environmental management;
- Implement strategies for the sustainable and efficient use of energy and natural resources; and the responsible management of waste;
- Respond to climate change by reducing emissions of CO2 by 3,900 tonnes by 2030 (a 30% reduction of 2019-20 emission levels);
- Promote ownership of, and accountability for, environmental performance within GAWB;
- Providing appropriate information, training, instruction, or supervision to ensure the protection of the environment;
- Effectively engaging in meaningful consultation with stakeholders affected by GAWB operations;
- To establish measurable objectives and targets for monitoring environmental performance; and
- To ensure continual improvement in GAWB's environmental performance.

6.3.2 *Policy implementation*

These objectives will be achieved generally through the development, implementation, and maintenance of an EMS, and specifically by:

- Ensuring that the EMS is adaptable and dynamic, supporting new initiatives and growth;
- The identification and active management of environmental risks associated with activities undertaken by, or on behalf of, GAWB;
- Adopting a comprehensive and consultative strategic planning process, which involves relevant stakeholders in developing specific objectives and targets based on significant environmental risks;
- Ensuring processes, procedures and equipment are in place to monitor and manage significant environmental risks;
- Communication of environmental risks and adopted management responses throughout the organisation and to contractors, users and tenants;
- Maintenance of a comprehensive inventory of compliance obligations that regulate the way GAWB must conduct its business; and conducting regular evaluations of compliance to these obligations;
- Maintaining a high level of environmental awareness throughout GAWB by implementing appropriate training and communications to staff and contractors;
- Developing, implementing, and maintaining documented operational procedures and infrastructure to control activities, including foreseeable emergency events, that could cause environmental impacts;
- Identifying and applying appropriate corrective and preventive actions to address environmental non-conformances;

- Actively engaging with land users and contractors to ensure that they comply with GAWB environmental requirements;
- Implementing a schedule of regular internal and external audits of the EMS;
- Establishing clearly defined environmental responsibilities and providing the appropriate resources required to implement, maintain, and improve the management of environmental risks; and
- The Executive team's leadership and commitment to environmental management and continual improvement including regular management reviews of GAWB's environmental performance.

6.4 Roles and Responsibilities

Protection of the environment is the responsibility of all individuals and organisations involved with the EEPL.

All personnel will be made aware of environmental issues associated with the EEPL and their responsibilities through training and awareness methods detailed in Section 6.5.

Table 6-3 provides an overview of the minimum environmental roles and responsibilities relating to delivery of the construction phase of the EEPL.

Table 6-3 Roles and Responsibilities

Role	Responsibilities
GAWB Project Team	Manage compliance with the CEMP. Oversee compliance with conditions associated with approvals, permits or licences during the construction. Review of the relevance of the CEMP (and other management plan) and its effectiveness in helping meet the EEPL environmental responsibilities. Minimise the potential environmental impacts associated with the EEPL. Manage tender documents and contracts for construction and operation/maintenance and incorporating the requirements for complying with this CEMP and other management plans. Ensure that the CEMP and associated sub-plans are developed and implemented by the contractor, in accordance with this CEMP and any approvals, permits or licences. Ensure all relevant management plans and surveys are prepared, implemented and undertaken by the contractor. Oversee the implementation of all management plans. Work with the contractor to obtain necessary approvals under relevant legislation, not including any approvals for construction activities which are the contractor's responsibility. Ensure the contractor has obtained all necessary approvals under relevant legislation. Ensure the design meets relevant environmental legislation and approval conditions. Communicate with regulatory authorities as required. Allocate resources and personnel to oversee and monitor compliance with the CEMP and/or other management plans.
Project Director	Promote at all times the company's policies, procedures and standards relating to environmental management and ensure that they are complied with. Ensure sufficient resources are available to achieve the policy, objectives, and targets and that those resources have sufficient skills to conduct the roles competently. Report performance on a regular basis to internal and external stakeholders. Report significant incidents internally and externally as required by law and Contract Conditions.
Project Manager / Lead	Overall environmental performance of the EEPL. Ensure the EEPL achieves legislative compliance. Provide leadership in the development of the CEMP and authorise its use.

Role	Responsibilities
	Nominate key personnel, assigning environmental responsibilities and allocating sufficient resources to achieve implementation of this plan. Ensure all personnel are familiar with and implement all relevant environmental controls as required. Monitor environmental performance to ensure compliance and continued improvement. Participate in the review of the EMS and this CEMP. Encourage all personnel to maintain acceptable environmental management work practices and foster awareness of environmental matters. Encourage the reporting of incidents, events and other concerns and ensure appropriate feedback on proposed corrective actions.
Construction Manager	Overall environmental performance of project area/s assigned to them. Ensure the project area/s achieve legislative compliance. Nominate key personnel, assigning environmental responsibilities and allocating sufficient resources to achieve implementation of this plan in their area/s of responsibility. Ensure all personnel are familiar with and implement all relevant environmental controls as required. Monitor environmental performance to ensure compliance and continued improvement.
Environmental Representative/ Environmental Manager	Functional and technical leader for the EEPL's environmental obligations. Principal contact for internal and external communication in relation to environmental matters. Oversee all environmental management aspects of the EEPL. Authority to stop a particular task or activity in circumstances where environmental controls or mitigation measures have not been implemented, have been implemented incorrectly/inadequately, are ineffective or where activities may otherwise be considered to lead to environmental harm. In such circumstances, prescribe corrective action that will be implemented before work recommences. Develop, review, and ensure this CEMP and sub plans are correctly implemented. Ensure measures are put in place to manage and mitigate environmental risks and issues as identified. Ensure that environmental plans, procedures, and work instructions as applicable are prepared, reviewed, and approved prior to commencement of work. Ensure all significant environmental issues are reflected in the significant environmental aspects identified for the Project. Investigates and reports significant environmental incidents or complaints internally and externally as required by law and the Project Conditions. Ensure that all key environmental aspects and associated impacts are incorporated into the CEMP, and that suitable control measures are proposed to minimise the Project's environmental impact. Ensure that all relevant environmental permits are obtained for the EEPL. Ensure all personnel and contractors engaged to work on the EEPL are appropriately inducted and trained in environmental issues and controls relevant to the EEPL. Ensure monitoring programs, which assess the performance of the CEMP and specific plans, are implemented. Report internally and externally in accordance with Project and other requirements. Investigate and report incidents and non-conformance and ensure corrective and preventive action is taken and is effective. Provide leadership sufficient to inspire and influence others to achieve the EEPL objectives and targets. Manage, track compliance with all environmental approvals, licences, permits and other obligations. Lead the tracking of environmental and sustainability targets for the EEPL.

Role	Responsibilities
	Ensure appropriate environmental training is identified in a Training Needs Analysis and that training is provided to all personnel where required. Review and update this plan, as required. Prepare environmental data for monthly reports.
Environmental Advisor	Support the Environmental Representative/Environmental Manager to ensure that all key environmental aspects and associated impacts are incorporated into the CEMP, and that suitable control measures are proposed to minimise the EEPL's environmental impact. Support the Environmental Representative/Environmental Manager that all relevant environmental permits are obtained for the EEPL. Ensure all personnel and contractors engaged to work on the EEPL are appropriately inducted and trained in environmental issues and controls relevant to the EEPL. Ensure monitoring programs which assess the performance of the CEMP and sub plans, and any associated documents are implemented. Report any environmental incidents to the Environmental Representative/Environmental Manager/HSE Manager. Investigate and report incidents and non-conformance and ensure corrective and preventive action is taken and is effective.
Sustainability Manager/Advisor	Drive compliance with the GAWB's sustainability requirements. Ensure monitoring programs which assess the performance of the Sustainability Management Plan, and any associated documents are implemented.
Engineering/Design Manager	Provide effective environmental leadership. Ensure designs are undertaken in accordance with the requirements of the scope of works, technical requirements, relevant standards, and this CEMP. Ensure design has minimal environmental impact. Ensure processes and resources are in place to adhere to environmental and sustainability obligations where they affect design or are affected by design. Participate in incident and non-conformance report investigations and ensure that corrective and preventative action proposed is implemented effectively.
Supervisor/Superintendent/Foreperson	Ensure that requirements of this CEMP are communicated to all personnel under his/her control. Be aware of all environmental risks, issues and concerns relating to his/her area of work. Be aware of all approval and contractual conditions relating to his/her area of work. Perform surveillance and monitoring of environmental controls to ensure they are adequately established, effective and maintained.

Role	Responsibilities
All personnel	Familiarise themselves with their responsibilities within this CEMP and EMS. Attend all site inductions and Pre-Start Talk and Site Attendance Record. Participate in site inspections, audits, environmental meetings, Toolbox Talks, environmental forums etc. where requested/required. Comply with all site environmental rules. Use or implement all controls established for eliminating or controlling environmental risks including those found in environmental documentation e.g., WMS, plans, work instructions, procedures etc. Stop work if the environment is placed at risk and discuss strategies to rectify environmental concern(s) immediately with the site foreman. If it is not resolved satisfactorily, the project manager is to be contacted. Report all hazards, incidents, near misses immediately to the site foreman as soon as it is safe to do so and prior to leaving the site. All personnel are responsible for complying with their GED and Duty to Notify in accordance with the EP Act. Actively participate in reviews of the JSEAs SWMSs etc., and in risk assessments for task(s) where the environment is to be directly affected. Site personnel, through the induction process, are empowered to refuse to complete a task that puts the environment at risk. When the circumstances of a work activity change, all relevant personnel will be informed. Should the change result in necessary changes to the EMS, CEMP, JSEA, SWMS or any other environmental documentation, then these documents must be revised and approved by the construction manager and environmental representative and communicated at the following Toolbox Talk to the necessary employee. All personnel are empowered to identify, implement, and advise of any concerns relating to any activity onsite and EMS, CEMP, JSEA, SWMS or any other environmental documentation. Comply with all environmental responsibilities assigned in relevant legislation, approvals, permits procedures, EMS, plans, job descriptions or any other environmental documentation. Raise any environmental issues or concerns immediately or during meetings with environmental representative or project manager. Uphold an active interest in workplace environmental management.

6.5 Training

6.5.1 *Environmental Awareness Training*

All Project staff, contractors and visitors who come onsite should be made aware of and commit to, via induction, the requirements of the CEMP to allow them to complete their task in an environmentally safe manner. This should include all elements, sensitive areas and any relevant licencing or permit requirements for specific activities.

All personnel will receive training of a type and level of detail that is appropriate for the environmental aspects of their routine and emergency work assignments. As a minimum, all personnel are required to satisfactorily complete the Project Induction Training. Other mechanisms of raising environmental awareness are through toolbox talks, pre-start meetings, Health, Safety, Environment and Quality (HSEQ) alerts and more specialised training. Attendance records and assessments of all training and briefing sessions will be maintained.

Other training needs are assessed on a job-by-job, and position-by-position basis, as outlined in the HSEQ Training Matrix.

Table 6-4 Environmental Awareness Training Methods

Training Method	Description
Project Induction	The induction includes a presentation of the requirements of this plan and associated documents. All personnel are to attend the Project induction prior to starting work onsite. The purpose of the induction is to ensure that, at a minimum, the employee or sub-contractor understands: • Key issues relevant to the Project and existing environment • Environmental Policy and the environmental management framework • Concepts of environmental protection, due diligence, and duty of care • Environmental management and controls (working at and near waterways, vegetation clearing, stockpiling, etc. • Cultural heritage protocols • Environmental permits, approvals, licences, and relevant conditions • Roles and responsibilities relating to environmental management for the Project and consequences of non-compliance • Emergency response for dealing with an environmental emergency.
Pre-Start Meetings	Pre-Start meetings will be undertaken at the beginning of each day/shift before work commences with all personnel present (including sub-contractors as required). Specific environmental issues relevant to the shift's work will be raised and discussed at these meetings.
Toolbox Talks	Toolbox Talks will be undertaken once a week to discuss large site wide issues, upcoming works and give updates on any recent incidents and their outcomes. Issue-specific environmental awareness training will be provided to the workforce (including sub-contractors) via Toolbox Talks, to provide site personnel with ongoing environmental training and information throughout the works. Examples of training includes land/marine based spill response training or correct erection of a silt fence/silt curtains.
Specialised Training	Training for specific staff based on position and responsibilities. For example, noise and vibration monitoring, spill prevention and control, erosion, and sediment control.
HSEQ Alerts	HSEQ alerts are descriptions of serious HSEQ incidents and lessons learnt from other MCD Group and BMD Constructions projects and facilities and relevant industry incident. They are sent out to all contractors HSEQ staff and are presented and discussed at Pre-Start Meetings and Toolbox Talks and posted on notice boards.

6.5.2 *Competency and Training*

The environmental competency and experience requirements for all staff positions are contained in the relevant Position Descriptions. Recruitment and procurement processes are conducted with the aim of engaging personnel with the required appropriate competency and experience.

Evidence of appropriate competency and training will be recorded.

6.6 Communication

6.6.1 *Internal Communication*

Environmental communication will primarily be through the Project Induction, Pre-Start Meetings and Toolbox Talks. However, communications can also occur during site inspections or through members of the environmental or management teams.

When the circumstances of a work activity change, all relevant personnel will be informed. Should the change result in necessary changes to the EMS, CEMP, CEPs, JSEAs, SWMSs or any other environmental documentation, then these documents will be revised and approved by the construction manager and environmental representative and communicated at the following Toolbox Talk to all personnel.

Within the construction team, procedures will be implemented to ensure management techniques are being adhered to, that personnel have the opportunity to raise concerns and address outcomes of incident reviews and changes to protocols are communicated.

6.6.2 *External Communication and Consultation*

The Project Manager is responsible for coordinating communications with all external parties. GAWB and the contractor will endeavour to effectively manage consultation and liaison with the community as an important element of the EEPL. The contractor acknowledge that the nature of the EEPL and direct interface with the public will require the implementation of protocols and procedures to ensure minimal impacts on the community and the GAWB's public reputation, while ensuring the public are kept well informed of the project and its progress.

Refer to Section 9.2 procedures for complaint management.

6.6.3 *Community*

The Communication Plan will be implemented for the EEPL's interaction with the community and other stakeholders. The plan has a procedure and register for complaints received from the impact of construction activities. For elements within this plan there are certain reporting requirements that should be outlined for which type of complaint they apply.

The Communications Plan will also be implemented for informing landholders and other stakeholders of EEPL construction information planning, contact details and processes for queries or complaints.

6.6.4 *Regulators*

Communication with regulators as part of the environmental management of the EEPL will be a very high priority. Correspondence with the regulators will be transparent, upfront and carried out by the appropriate people responsible for the subject. All formal correspondence with regulators will be directed through or approved by the GAWB.

6.7 Record Management

All records and documentation will be kept for a minimum of five years and made available for regulatory agencies as requested.

7. ENVIRONMENTAL ELEMENTS

Environmental control plans, SAPs and an SMP have been developed and will be implemented, as described throughout this CEMP with provisions for:

- Stating location-specific mitigation strategies
- Detailing the ROW and where restrictions in width and timing occur
- That no unnecessary clearing will be undertaken
- Minimising clearing along the ROW especially in sensitive habitat areas, wetlands and waterways
- Minimising impacts to waterways and riparian vegetation
- Detailing rehabilitation and revegetation in sensitive areas that will experience clearing
- Detailing ecologically sensitive weed management that will be undertaken.

The identified environmental elements for the CEMP described within this section are as follows:

- Project Environmental Management
- Climate Impacts
- Land Use and Infrastructure
- Erosion and Sediment Control
- Contaminated Land
- Acid Sulfate Soils
- Flora Management
- Fauna Management
- Bushfire Management
- Biosecurity (Fauna and Biosecurity Zones)
- Biosecurity (Flora)
- Water Resources and Water Quality
- Air Environment
- Waste Management
- Hydrotesting and Commissioning
- Noise and Vibration
- Transport and Access
- Cultural Heritage
- Social and Economic
- Handling and Storage of Dangerous and Hazardous Goods
- Rehabilitation and Revegetation
- Landscape and Visual Amenity.

7.1 Project Environmental Management

Table 7-1 shows the performance objectives, legislative requirements, performance criteria, mitigations measures, inspections, monitoring, reporting and corrective action requirements for Project environmental management.

Table 7-1 Project Environmental Management Control Plan

Element	Project Environmental Management
Performance Objectives	– To minimise the impacts of the EEPL on the environment and ensure that all relevant requirements identified in the EIS and approvals as they are obtained are accounted for in the environmental management documentation.
Legislative Requirements	– Compliance with: • Legislation (as per Section 1.1) • Development requirements or guidelines: • ISO 14001:2015 - Environmental management systems • Permits, approvals and licence conditions
Performance Criteria	– All the requirements outlined in this CEMP and supporting documents are implemented. – Consultative relationship is established with landowners and other stakeholders to allow timely notifications of planned construction activities. – All personnel are inducted onto the EEPL, including Cultural inductions. – All complaints are responded to in a timely manner and in accordance with GAWB's procedure.
Implementation	**Design** – Environmental issues will be addressed during the detailed design. – Collaboration between the contractor and environment and land team during detailed design will occur to incorporate recommendations approvals and stakeholders. – Detailed design will consider conditions of approvals. – Issued for Construction drawings will be provided to the relevant authority as required by conditions of approvals. **Construction** – All notifications will be in accordance with conditions of approvals. – All personnel will receive an induction on the requirements of the CEMP and be committed to its implementation. – The Environmental Representative / Manager and Environmental Advisor will be responsible to implement the requirements of the CEMP including checks and audits. – All personnel will always be mindful of the provisions of the CEMP to identify and notify non-conformances. – The Environmental Representative / Manager and Environmental Advisor will undertake environmental site checks for all work areas during construction of the EEPL. – Checklists will be developed for all environmental elements identified in this CEMP. – Communications plan will be implemented for informing landholders and other stakeholders of Project planning, contact details and processes for queries or complaints. – SAPs will be implemented, as described and where required throughout this CEMP with the following provisions: • Stating location-specific mitigation strategies • Outlining site-specific ROW constraints • That no unnecessary clearing will be undertaken • That, as far as reasonably practicable, construction activities will be limited to existing clearings • That established sensitive flora species will not be cleared, wherever reasonably practicable • That wherever reasonably practicable, trees with hollows will not be cleared • That wherever reasonably practicable, damage to the edges of remnant communities will be minimised and erosion controls implemented

	• Detailing a rehabilitation plan for each sensitive area impacted during construction • Detailing a revegetation plan for each sensitive area that will experience clearing • Detailing ecologically sensitive weed management that will be undertaken.
Monitoring	– Monitoring of environmental outcomes and performance criteria will be undertaken during construction of the EEPL as part the EMS and general environmental management. – Environmental site inspections undertaken by the Environmental Representative/Manager, Environmental Advisor during construction and check that environmental management is in place as outlined in the CEMP. – Environmental audits will be undertaken by GAWB during construction monthly (or as determined). – Formal audits will be undertaken by an independent and appropriately qualified person on a six-monthly basis.
Reporting	– Environmental records will be kept onsite/TeamBinder and made available to external upon request, including: • Completed environmental checklists/reports during the construction phase • Reports of any environmental incidents or non-conformances with the CEMP • Internal and external environmental audit results.
Corrective Action	– Should any audits/checks undertaken during construction of the EEPL identify non-conformances with the CEMP, the contractor will notify GAWB. Corrective actions will be implemented to address the non-conformance. A non-conformance report will be completed by the contractor and filed by both GAWB and the contractor.

7.2 Climate Impacts and Sustainability

The potential impacts of local climate and seasonal changes during the construction of the EEPL include:

- Dry conditions are likely to increase the amount of dust generated from construction activities
- Increased wind speeds during a storm are likely to increase the impact of dust-generating activities
- Erosion is likely to increase following a severe storm or flood event
- Wet weather can hamper construction activities and vehicle access to Project areas
- Droughts can impact construction activities due to the lack of construction water
- High temperatures and humidity can potentially affect construction workers, resulting in sunburn and/or sunstroke
- A cyclonic event or severe storm has the potential to cause flooding of construction areas and halt works for periods of time.

Table 7-2 shows the performance objectives, legislative requirements, performance criteria, mitigations measures, inspections, monitoring, reporting and corrective action requirements for climate impacts.

Table 7-2 Climate Impacts Control Plan

Element	Climate Impacts
Performance Objectives	– To minimise the risks to the environment, property and personnel arising from local climatic conditions and extreme climatic events.
Legislative Requirements	– Compliance with: • Legislation (as per Section 1.1) • Permits, approvals and licence conditions
Performance Criteria	– Planning and monitoring is undertaken during the construction phase to prepare for weather changes and climatic events. – No injuries to personnel or impacts to assets as a result of extreme climatic events.
Implementation	**Pre-construction** – Taking into account seasonal conditions when scheduling work. – Preparing and implementing an Emergency Management Plan for the EEPL during construction. **Construction** – Construction at sensitive sites such as wetlands and waterways will be conducted during the dry season (May to September) where reasonably practicable refer to the relevant SAP. – Short- and long-term weather forecasts will be checked on a regular basis to enable planning measures as outlined below: • Increased dampening of surfaces to reduce dust during windy conditions where practicable • Where wind speeds are excessive (approximately 10 m/s) and work is undertaken within 100 m of sensitive receptors, dust mitigation measures will be put in place to prevent dust nuisance • Sediment control measures will be checked before and after rainfall events • Works will cease during electrical storms or extreme climatic events where continuation of work impacts negatively on surrounding environment or community • Personnel will be advised of health and safety procedures in the event of a heatwave during staff induction and work hours modified where reasonably practicable to avoid the hottest time of day • Construction in flood prone areas will cease as soon as reasonably practicable prior to a predicted flood event and any machinery or stored fuels are removed from the area where reasonably practicable. – Develop and implement an Infrastructure Sustainability Management Plan by a suitably qualified person.
Monitoring	– Weekly environmental inspections will be undertaken by the Environmental Representative/Manager, Environmental Advisor during construction to ensure environmental management is implemented in accordance with this control plan and will include regular checks of weather forecasts. – Environmental checklists will include description of weather conditions at the time of inspection.

	– Environmental audits will be undertaken by GAWB during construction quarterly (or as determined).
Reporting	– Environmental records will be kept onsite/TeamBinder and made available to GAWB and external auditors upon request, including: • Completed environmental checklists/reports during the construction phase • Reports of any environmental incidents or non-conformances with the CEMP. – Internal and external environmental audit results.
Corrective Action	– The contractor will notify GAWB of any non-conformances with the above measures. Corrective action will be implemented to address the non-conformance. A non-conformance report will be completed by the contractor and filed by both GAWB and the contractor. – Where GAWB is responsible for the non-conformance, it will report on non-conformances and corrective action to address the non-conformance. A non-conformance report will also be filed by GAWB. – 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 EEPL's procedures or CEMP will be retrained. – Practices, procedures and management plans will be reviewed and updated where necessary.

7.3 Land Use and Infrastructure

Land tenure will be appropriately sought and actioned by GAWB unless otherwise identified.

The EEPL impacts numerous different land uses and existing infrastructure.

Table 7-3 shows the performance objectives, legislative requirements, performance criteria, mitigations measures, inspections, monitoring, reporting and corrective action requirements for land use and infrastructure.

Table 7-3 Land Use and Infrastructure Control Plan

Element	Land Use and Infrastructure
Performance Objectives	– To minimise potential impacts on land use activities and local/regional infrastructure as a result of the EEPL.
Legislative Requirements	– Compliance with: • Legislation (as per Section 1.1) • *Land Act 1994* • Permits, approvals and licence conditions
Performance Criteria	– Minimal disruption to land uses – Minimal disruption to local/regional infrastructure – Consultative relationship established with landowners and other stakeholders. – Cooperative working relationship with other uses in the multi-use corridors (i.e. GSDA). – Comply with the requirements of the land use, access and crossing agreements.
Implementation	**Design** – Infrastructure owners/authorities for road, rail, transmission lines, pipelines and other third-party infrastructure will be consulted by GAWB and the contractor prior to construction to determine requirements for crossing methods for infrastructure, safety protocols and obtain all relevant licenses and permits. – For any features (e.g. cattle yards) identified within the ROW, consultation will take place with the landholders to minimise or avoid impacts. – GAWB and the contractor will identify an appropriate method of construction to minimise disruption to land use and infrastructure (e.g. trenchless crossing of major road, rail and waterways). **Pre-Construction** – GAWB and the contractor will prepare, implement and maintain a suitable Communication Plan. – The contractor will identify via Before You Dig Australia (BYDA) and positive identification via potholing where required, the location of third-party infrastructure (e.g. on drawings, during pegging and site set-out, etc) and specify buffer/separation distances where applicable. – The contractor will develop plans to ensure timely notification of planned activities during construction. **Construction** – The location of existing fences and gates impacted by construction will be determined by the GAWB and the contractor and included on construction drawings and/or during pegging and site set-out. – Temporary gates will be installed by the the contractor as approved by GAWB where required and in consultation with landowners, marrying locks where appropriate. – GAWB and the contractor will maintain a stakeholder list (as per the Communication Plan) to include: • Property specific information such as access protocols for each property on the alignment • Contact details of landowners and other stakeholders and community groups in the Project area. – The contractor will regularly consult and communicate with landowners and relevant stakeholders, as approved by GAWB. – GAWB and the contractor will have regular consultation scheduled to inform landholders of EEPL progress and also allow the identification any issues the landholders may have in relation to the EEPL. – GAWB and the contractor will log queries and complaints and respond to them in a timely manner with due respect and consideration to all parties. – All existing property gates will be left as found or otherwise instructed by the landholder.

	– The contractor will ensure the minimum cover over the pipeline will be in accordance with negotiated easement agreements and licences and is intended to permit existing land uses to be resumed following construction as far as is reasonably practicable. – Construction activities will be undertaken to mitigate or avoid impacts to land where reasonably practicable. – Consultation will occur with relevant community groups in the Project area, as per the Communication Plan. **Rehabilitation** – Rehabilitation of the construction footprint will occur in accordance with the Rehabilitation and Revegetation Plan (refer to Section 7.21) as soon as reasonably practicable after construction to enable existing use of the land to resume as much as possible. – Backfilled soils will be compacted to a level that return the levels to its original contours and surrounding soils with the aim of preventing trench subsidence. During final re-profiling of the soil, mounding may be required to compensate for potential subsidence.
Monitoring	– Weekly environmental inspections will be undertaken by the Environmental Representative/Manager, Environmental Advisor during construction to ensure environmental management is implemented in accordance with this control plan and compliance with land tenure agreements. – Environmental audits will be undertaken by GAWB during construction quarterly (or as determined).
Reporting	– Environmental records to be kept onsite/TeamBinder and made available to GAWB or external auditors upon request, including: • Completed environmental checklists/reports during the construction phase • Reports of any environmental incidents or non-conformances with the CEMP • Internal and external environmental audit results.
Corrective Action	– The contractor will notify GAWB of any non-conformances with the above measures. Corrective action (with approval from GAWB) will be implemented to address the non-conformance. A non-conformance report will be completed by the contractor and filed by both GAWB and the contractor. – Where GAWB is responsible for the non-conformance, it will report on non-conformances and corrective action will be taken to address the non-conformance. A non-conformance report will also be filed by GAWB.

7.4 Erosion and Sediment Control

Potential impacts arising from erosion and dispersive soil disturbance are expected from construction activities including:

- Clearing (where earth is exposed as a result of clearing)
- Excavation and other earthworks.

As the soils are generally considered highly dispersive, rain events or other contact with water is likely to result in the break-down of soils into clays, sand silt and clay, creating sediment and nutrient laden runoff into local waterways.

Erosion and sediment control management strategy will focus on prevention of runoff contamination rather than treatment and will include:

- Staged clearing of site areas to ensure the minimum amount of site is exposed at any one time.
- Early installation of erosion and sediment controls in each zone as works progress to ensure controls are in place before significant disturbance to areas occur.
- Early installation of site cross drainage to allow the controlled flow of clean water from upstream catchments through the site at the earliest possible stage.
- Diversion of clean water from upslope of the site through the installation of the final turf lined catch drains located at the top of batters.
- Progressive rehabilitation of the pipeline ROW and cut and fill batters as works progress in each zone.
- Use of temporary ground cover covers such as binding sprays and site mulch for coverage of temporary stockpiles and high risk areas.

An Erosion and Sediment Control Management Sub-plan including Erosion and Sediment Control Plans (ESCPs) has been developed by the contractor and contractor Topo and is attached at Appendix A.

Table 7-4 shows the performance objectives, legislative requirements, performance criteria, mitigations measures, inspections, monitoring, reporting and corrective action requirements for managing erosion and sediment.

Table 7-4 Controls and Mitigations for Erosion and Sediment Control

Element	Erosion and Sediment Control
Performance Objectives	– To implement and maintain erosion and sediment control measures where necessary throughout construction. – To minimise erosion or sedimentation as a result of the construction works is minimised – To minimise areas of exposed soils during construction and to revegetate as soon as possible.
Legislative Requirements	– Compliance with: • Legislation (as per Section 1.1), specifically: • Environmental Protection (Water and Wetland Biodiversity) Policy 2019 • *Fisheries Act 1994* • EP Act • Development requirements or guidelines: • Riverine protection permit exemption requirements WSS/2013/726 Version 2.02 (DRDMW, 2023) • Accepted development requirements for operational work that is constructing or maintaining waterway barrier works (DAF, 2018) • Best Practice Erosion and Sediment Control (IECA, 2008). • Permits, approvals and licence conditions
Criteria	– Erosion and Sediment Control Plans (ESCPs), and its implementation in line with the International Erosion and Sediment Association, Best Practice Erosion and Sediment Control, 2008. – RPEQ and certified ESCPs, where required

	– No erosion or sediment build up off-site of the Project areas. – No erosion or sedimentation of waterways.
Mitigation Measures	**Pre-construction** – ESCPs have been developed and will continue to be updated during construction by the contractor, ESCPs have been prepared in accordance with the *International Erosion and Sediment Association, Best Practice Erosion and Sediment Control, 2008* (IESA, 2008) and certified by Topo (and approved by GAWB) (refer to Appendix A). **Construction** – Management measures outlined in the Erosion and Sediment Control Management Sub-plan including ESCPs will be implemented (refer to Appendix A). – Surface disturbances will be kept to the minimum necessary to undertake the works. – The area and duration of exposed soil will be kept to the minimum during construction work. – The construction area and access routes will be clearly delineated to prevent disturbance to areas outside the construction footprint. – All personnel will be made aware that the majority of the ROW has dispersive soils prone to erosion. – Earthworks will be completed, and protection placed over exposed soils as soon as, and where reasonably practicable. – Temporary drains or bunds will be constructed where necessary to direct run-off and any overland flow from upslope of excavations, away from the construction footprint. – ESCPs will be implemented and maintained including sediment barriers, sediment basins, sediment fences etc. – Sediment control devices will be checked regularly and emptied as soon as reasonably practicable after rainfall events. – All necessary sediment and erosion control devices will in place prior to the commencement of works at a site. – During grading and trenching in the ROW, topsoil and subsoil will be stockpiled separately and topsoil later reused for restoration of the ROW. – Accumulated sediment from erosion and sediment controls will be cleaned out as soon as possible and at a minimum: • Sediment basins – when the settled sediment exceeds the volume of the sediment storage zone • Other devises – when the capacity of the devise falls below 75%. – Any dewatering discharges will be released to areas that have suitable sediment and erosion controls to ensure there are no impacts from erosion and sedimentation into waterways. – Sediment will be placed in a disposal area or, if appropriate, mixed with dry soil onsite. – Sediment will be deposed of in a manner that will not create an erosion hazard. – New sediment fences will not be established on top of accumulated sediment. – Soil stockpile heights will be appropriate to prevent excessive wind blow dust and will not be in close proximity to watercourses. – Erosion and sediment control measures, such as silt fences, will be installed between stockpiles and waterways. – Sediment and dust loss from stockpiles will be minimised by 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. – Topsoil and subsoil piles excavated from or adjacent to wetlands and waterways will be placed at least 10m from the top of bank on either side of each waterway with appropriate sediment controls installed during wetland and waterway works until reinstatement. – Perimeter diversion drains or bunds will be placed around any long-term stockpiles (i.e. reserved topsoil for revegetation). – Long-term stockpiles will be suitably stabilised with appropriate erosion preventative measures (e.g. covers). – Soils rated as having ‘moderate’ or worse erosion potential will require specific management during construction of the pipeline and will not be left exposed for any significant period of time without stabilisation. – Where necessary, a light application of agricultural lime will be applied to the surface of topsoils re-used following embedment of the pipeline to limit dispersion potential until grass cover can be reinstated. However, should potentially dispersive soils be retained for re-use onsite, treatment with the addition of

	lime or gypsum at a rate of 2.5 kg/m³ is common. Topsoil of local origin used near waterways will be treated promptly if to be left exposed. – Disturbed area will be promptly revegetation or covering/sealing of the backfilled trench, avoiding leaving excavations opened over weekend/ extended breaks where practicable. – Temporary drains or bunds will be constructed where necessary to direct run-off and any overland flow from upslope of excavations, away from the construction footprint. – During the wet season the pipeline trench will be constructed in manageable lengths so that temporary stockpiling of spoil is minimised. – Backfill will be compacted where possible to reduce the risk of surface erosion and trench subsidence and revegetated areas should be watered to promote reinstatement of grass cover during 'dry spells' – Erosion and sediment control devices will be maintained at any sites where there is exposed soil (i.e. after construction is completed and before rehabilitation measures are established and deemed to be effective). **Rehabilitation** (refer to Section 7.21) – Any land disturbed due to the laying of the pipeline will be rehabilitated to its previous condition where practicable). – Backfill will be machine compacted to reduce the risk of surface erosion and trench subsidence post construction and rehabilitation. – Adequate cover will be placed on all disturbed areas prior to the removal of stormwater runoff controls. – Temporary stormwater and sediment control devices will be removed only once groundcover is established.
Inspection and Monitoring	– Inspections and monitoring will be undertaken in accordance with the Erosion and Sediment Control Management Sub-plan (refer to Appendix A). – Weekly environmental inspections will be undertaken by the Environmental Representative/Manager, Environmental Advisor during construction to ensure environmental management is implemented in accordance with this control plan and will include: • Daily visual inspections • Daily monitoring of weather conditions and forecasts • Checking for areas of potential erosion • Inspection of erosion and sediment controls at implementation and performance, weekly, and before and after rain to verify their correct function as per the ESCPs • Monitoring Project area boundaries, waterways and sensitive areas for erosion and the deposition of sediment • Review and update of the ESCPs to ensure that the current version is suitable for the construction activities • Daily checks of weather forecasts – Pre- and post-rainfall inspections. – Environmental audits will be undertaken by GAWB during construction quarterly (or as determined).
Reporting	– Environmental records will be kept onsite/TeamBinder and made available to GAWB or external auditors upon request, including: • Completed environmental checklists/reports during the construction phase • Reports of any environmental incidents or non-conformances with the CEMP • Internal and external environmental audit results. – Failures of the ESCPs should be reported as required. This is relevant for the design of the plan, implementation, or maintenance of controls. – Events outside of the designed capacity of the ESCP should also be reported if erosion and sedimentation has had an offsite impact.
Corrective Actions	– Review and update of the ESCP if the current controls are not performing including: • Existing controls and identifying new or addition controls • Procedures to maintain the controls. – The contractor will notify GAWB of any non-conformances with the above measures and corrective action (with approval from GAWB) will be taken to address the non-conformance. A non-conformance report will be completed by MBJV and filed by both GAWB and MBJV.

	– Where GAWB is responsible for the non-conformance, it will report on non-conformances and corrective action will be taken to address the non-conformance. A non-conformance report will also be filed by GAWB.

7.5 Contaminated Land

Disturbance to contaminated land has the potential to result in further land contamination or contamination of waterways with subsequent ecological or safety impacts. Three Lots within the Project Site are listed on the Environmental Management Register (EMR) 1/SP200852 (within the Project Site), 91/SP122250 and 1/SP144430.

There is the potential for unknown contaminated sites to exist on land associated with the EEPL as a result of past land uses. There is also the potential for construction activities to contaminated land due to spills and uncontrolled releases.

Table 7-5 shows the performance objectives, legislative requirements, performance criteria, mitigations measures, inspections, monitoring, reporting and corrective action requirements for managing contaminated land.

Table 7-5 Contaminated Land Control Plan

Element	Contaminated Land
Performance Objectives	– To minimise the impacts caused from existing contaminated land and prevent land contamination occurring as a result of the EEPL. – To protect life, health and well-being of human and fauna, aesthetic enjoyment, and local amenity.

Legislative Requirements	– Compliance with:
	• Legislation (as per Section 1.1), specifically:
	  • *Environmental Protection Act 1994*
	  • *Environmental Protection Regulation 2019*
	• Development Requirements or guidelines
	  • Queensland auditor handbook for contaminated land Module 6: Content requirements for contaminated land investigation documents, certifications, and audit reports (DES, 2018)
	  • National Environmental Protection (Assessment of site Contamination) Measure 1999 (Amended in 2003)
	  • Heads of EPA Australia and New Zealand (HEPA) (2020) PFAS National Environmental Management Plan (NEMP), Version 2.0
	  • Department of Health 2017 – Health Based Guidance Values for PFAS for use in Site Investigations in Australia, Food Standards Australia New Zealand.
	• Permits, approvals and licence conditions:
	  • OPW development permits
	  • Soil Disposal Permits (if removing contaminated land from a property listed on the DES Environmental Management Register (EMR) or Contaminated Land Register (CLR), noting no properties were on the CLR).

Performance Criteria	– Contaminated land or sites in the Project area identified and managed or removed prior to construction in those areas. – No contaminated land created as a result of the EEPL.

Implementation	**Pre and during-construction**
	– If an area within the ROW is suspected of being potentially contaminated, works in that area will not begin until a site investigation can be completed, and the contamination identified and managed.
	Construction
	– All personnel will be made aware of the signs of contaminated land:
	  • Suspected buried waste material
	  • Discoloured/odorous soil
	  • Evidence of previous cattle or sheep dips.
	– Disturbance on the above-mentioned lots will be minimised where possible and managed in accordance with the contaminated land site investigation.
	– If contaminated material is disturbed, a risk assessment will be undertaken to confirm the best method of management. Due to the limited ROW corridor, material may not be able to be treated onsite.

	– Soil Disposal Permits from DES will be obtained where contaminated material is to be removed from EMR properties along the ROW (or where contaminated is identified on other properties, or as the result of a spill during the construction phase, the material will be managed in accordance with the trackable waste provisions of the EP Regulation). This will include agreement from the spoil recipient for spoil acceptance. – Materials will be removed and transported by licensed contractors. – The contractor will develop procedures in accordance with the contaminated land assessment for management of spoil from EMR sites or other potentially contaminated land so that: • Potentially contaminated soil is not transported to a different property without the appropriate Soil Disposal Permit / Waste Transport Certificate • Risk associated with leachate is identified and managed (e.g. contaminated stockpiles may be required to be bunded) • Management measures are to be adopted specific to the contaminant of concern following the site investigations. – If an area within the ROW is suspected of being potentially contaminated, works in that area will cease until a further site investigation can be completed, and the contamination identified and appropriately managed. – All hazardous materials to be handled and stored in accordance with Section 7.20 (Handling and Storage of Dangerous and Hazardous Goods control plan). – Any refuelling undertaken at site will be undertaken in a designated refuelling area, away from waterways, with nozzles with stop valves to reduce the risk of contamination to the environment, and personnel will be trained appropriately. – Spills will be managed in accordance with the Handling and Storage of Dangerous and Hazardous Goods control plan, refer to Section 7.20. – Appropriately stocked spill kits will be located in each construction area and along the ROW and personnel will be trained appropriately in the use.
Monitoring	– All personnel will maintain visual checks for signs of contamination. – Weekly environmental inspections will be undertaken by the Environmental Representative/Manager, Environmental Advisor during construction to ensure environmental management is implemented in accordance with this control plan and will include: • Monitoring of EMR or other potentially contaminated properties will occur in accordance with the findings of the contaminated land assessment. • Checking for evidence of any spills or releases. • Inspections of hazardous materials storage areas to ensure storage is in accordance Section 7.20 (Handling and Storage of Dangerous and Hazardous Goods control plan). • Confirming that spill kits are readily available and well maintained, stocked and functional. – Environmental audits will be undertaken by GAWB during construction quarterly (or as determined).
Reporting	– Environmental records will be kept onsite/TeamBinder and made available to GAWB or external auditors upon request, including: • Completed environmental checklists/reports during the construction phase • Reports of any environmental incidents or non-conformances with the CEMP • Internal and external environmental audit results • Waste Transport Certificates / Soil Disposal Permits, where relevant. – Records of contaminated site locations and remediation to be maintained during construction by the GAWB and the contractor. – Records will be maintained of spill incidents and actions taken during construction by GAWB and the contractor.
Corrective Action	– The contractor will notify GAWB of any non-conformances with the above measures and corrective action (with approval from GAWB) will be taken to address the non-conformance. A non-conformance report will be completed by the constructor or operator and filed by both the GAWB and the contractor. – Where GAWB is responsible for the non-conformance, it will report on non-conformances and corrective action will be taken to address the non-conformance. A non-conformance report will also be filed by GAWB. – The source of contamination will be identified, and corrective actions will be implemented such as remediating the area, modifying the controls, or modifying procedures that may be inadequate. – Any contaminated material will be collected, placed in secure containers and disposed of appropriately.

	– All personnel will be retrained in procedures where the procedures are modified, or new ones adapted. – Practices, procedures and management plans will be annually reviewed and updated where necessary.

7.6 Acid Sulfate Soils

The GRC Planning Scheme identified the potential presence of acid sulfate soils (ASS) between 5 – 20 m, in the first 4.7 km of the eastern section of the Project Site. State level mapping from Queensland Globe indicates approximately 2 km of the eastern section is potentially affected by ASS.

If ASS are excavated and exposed to air, i.e. oxidised, the potential environmental impacts may include:

- Reduction in water quality resulting in damage to estuarine environments and reduction of wetland biodiversity
- Acidification
- Heavy metal precipitation (e.g. aluminium, iron and manganese), which causes poor plant productivity and smothers plant vegetation and microhabitat
- Corrosion of infrastructure.

Table 7-6 shows the performance objectives, legislative requirements, performance criteria, mitigations measures, inspections, monitoring, reporting and corrective action requirements for managing ASS.

Table 7-6 Acid Sulfate Soils Control Plan

Element	Acid Sulfate Soils
Performance Objectives	– To minimise the potential for environmental impacts arising from the inappropriate handling or management of ASS. – To take all reasonable and practicable measures to prevent or minimise the effects of the Project on nearby contaminated land and associated groundwater.
Legislative Requirements	– Compliance with: • Legislation (as per Section 1.1), specifically: • *Environmental Protection Act 1994* • *Environmental Protection Regulation 2019* • Development Requirements or guidelines • National Acid Sulfate Soils Guidance (Commonwealth of Australia, 2018) • National Acid sulfate soil sampling and identification methods manual (Commonwealth of Australia, 2018) • Queensland Acid Sulfate Soil Technical Manual, Soil Management Guidelines (State of Queensland, 2014) • State Planning Policy 2/02 Planning and Managing Development involving Acid Sulfate Soils (State of Queensland, 2002), • Permits, approvals and licence conditions
Performance Criteria	– Management of ASS in accordance with State and National ASS guidance and the ASS Management Plan. – No environmental harm to occur due to exposure of ASS, acidic water or leachate. – No release of acidic waters or leachate from the construction works.
Implementation	**Pre and during-construction** – ASS investigations will be undertaken, including: • Investigations within the ROW where land has been identified as high risk for ASS, where land elevation is below 5 m AHD, or where land is below 20 m AHD and excavation is required to depths that are less than 5 m AHD. • Investigation will include soils and groundwater assessments. • Investigations will be undertaken progressively in accordance with the approved Acid Sulfate Soil Sampling and Analysis Plan for the EEPL • The findings of the ASS investigations will form an ASS Management and outline mitigation measures to be adopted and any required verification testing. • The risk of actual ASS to impact upon Project infrastructure will be identified during the ASS investigations, mitigation identified, and the Interim ASS Management Plan will be updated accordingly and communicated to all personnel.

	Construction – All personnel will be made aware of the signs and management of ASS. – Identified areas of ASS will be clearly shown on construction plans. – The ASS Management Plan (refer to Appendix B) will meet the requirements outlined in Queensland Acid Sulfate Soil Technical Manual, Soil Management Guidelines (State of Queensland, 2014). – Interim liming rates contained in Appendix A of the ASS Environmental Management Plan will be implemented and updated as required. – Sufficient good quality liming products (agricultural and hydrated) will be maintained for treatment purposes. – ASS will be treated in-situ immediately and placed as backfill within 24 hours. Lime will be adequately mixed into the ASS and backfilled into the trench. – Lime guard layers be developed for trenches prior to backfilling. – Verification sampling and analysis will be undertaken to confirm that adequate lime has been used. – Liming rates will incorporate a factor of safety of 3 to minimise verification required. – For ASS not able to be treated in-situ, a designated bunded area will be developed and used for neutralisation. – Stockpiling and treating of ASS will not occur in areas within 50 m to waterways. – Surface run-off will be controlled and captured through appropriate stormwater management. – ASS leachate from the trench will be treated hydrated with lime as required. – Appropriate disposal or use of neutralised ASS will be identified as required.
Monitoring	– Monitoring will be undertaken in accordance with the ASS Management Plan. – Lime verification monitoring will be undertaken on all treated soil within 72 hours of lime treatment. – pH of water from excavations will be monitored daily (i.e. pH range of 6.5-8.5). – Routine daily visual observance will be undertaken during construction for signs of untreated ASS. – Weekly environmental inspections will be undertaken by the Environmental Representative/Manager, Environmental Advisor during construction to ensure environmental management is implemented in accordance with this control plan and will include: • Confirming ASS material has been moved to the treatment area or treated in-situ • Checking of bunding around ASS treatment areas • Monitoring pH in any retention ponds (i.e. pH range of 6.5-8.5). – Environmental audits will be undertaken by GAWB during construction quarterly (or as determined).
Reporting	– Environmental records will be kept onsite/TeamBinder and made available to GAWB or external auditors upon request, including: • Completed environmental checklists/reports during the construction phase • Reports of any environmental incidents or non-conformances with the CEMP • Internal and external environmental audit results. – ASS testing results and treatment measures during construction.
Corrective Action	– Corrective actions will be undertaken in accordance with the Interim ASS Environmental Management Plan i.e. liming rates to be revised. – The contractor will notify GAWB of any non-conformances with the above measures and corrective action (with approval from GAWB) will be taken to address the non-conformance. A non-conformance report will be completed by the contractor and filed by both GAWB and the contractor. – Where GAWB is responsible for the non-conformance, it will report on non-conformances and corrective action will be taken to address the non-conformance. A non-conformance report will also be filed by GAWB.

7.7 Flora Management

The main potential impacting processes to terrestrial flora associated with the clearing of the existing easement, nominally 15 to 20 m wide ROW and construction of the EEPL are:

- Reduction of flora habitats
- Removal of individual species of significance
- Disturbance to aquatic and terrestrial vegetation
- An increase in remnant vegetation edge effects.

Table 7-7 shows the performance objectives, legislative requirements, performance criteria and mitigations measures requirements for clearing vegetation throughout the various construction phases.

Table 7-7 Controls and Mitigations for Protected Flora and Vegetation Clearing

Element	Vegetation Clearing
Performance Objectives	– To minimise the impact of clearing on the natural environment. – To rehabilitate impacted areas relevant to their use, to the state that was present prior to the EEPL construction or as close as practically possible.
Legislative Requirements	– Compliance with: • Legislation (as per Section 1.1), specifically: • *Fisheries Act 1994* (regarding marine plants) • *Nature Conservation Act 1992* • *Nature Conservation (Plants) Regulation 2020* • *Nature Conservation (Animals) Regulation 2020* • *Vegetation Management Act 1999* • *Water Act 2000* • *Environmental Offsets Act 2014* • Development requirements or guidelines: • Flora Survey Guidelines – Protected Plants (DES, 2020) • Accepted Development Vegetation Clearing Code (ADVCC): Clearing for Infrastructure (DoR, 2020) • Restoration of Fish Habitats – Fisheries guidelines for marine areas (FHG 002) • AS4970 – Tree Protection on Development Sites • Riverine protection permit exemption requirements WSS/2013/726 Version 2.02 (DRDMW, 2023) • Accepted development requirements for operational work that is constructing or maintaining waterway barrier works (DAF, 2018) • Permits, approvals and licence conditions
Performance Criteria	– Minimise disturbance to flora within the Project area. – Disturbed areas rehabilitated to a condition consistent with the surrounding undisturbed environment where practicable. – No clearing outside of the construction footprint area unless authorised. – Construction activities timing restrictions adhered to in accordance with relevant SAPs.
Mitigation Measures	**Pre-construction** – Project areas requiring vegetation clearing will be clearly delineated to ensure disturbance to areas being retained is minimised. Limits of clearing will be delineated on-ground using barrier tape and signage prior to works commencing. – Vegetation to be protected will be shown as ‘exclusion zones’ and clearly marked with barrier tape (or similar) and signage to prevent personnel from entering these areas. No adverse damage to any vegetation outside the approved clearing limits will be permitted unless approved by the GAWB and relevant regulatory agencies.

	– All exclusion areas will be clearly shown and labelled on all operational and management drawings and plans. – Restricted width clearing areas will be cleared marked on the alignment sheets and with barrier tape and signage at required locations on the ROW and at Project facilities. – The pre-clearance survey will form part of a pre-clearance report. **Construction** – All relevant site personnel including contractors will be made aware via inductions, toolbox talks and site information sheets, of the sensitive environs they will be working in and around and be advised of specific limitations to construction works being undertaken. – All vegetation clearing will comply with all approval conditions and only occur in areas clearly marked during the pre-clearance surveys. – The clearing footprint and areas of exclusion will remain adequately marked for the duration of the clearing activities. – The Project area and access routes will be clearly delineated to prevent disturbance to areas outside the approved construction footprint. – Vegetation clearing will be undertaken progressively, and vegetation will be felled in the direction of the Project area to avoid impacts to adjoining retained vegetation and habitat. – Non-hollow bearing trees will be cleared before hollow bearing trees in order to allow fauna the opportunity to relocate of their own accord. – Hollow bearing trees will be clearly flagged, and surrounding vegetation removed with the hollow bearing tree left standing for at least one night to encourage fauna to relocate of its own accord. Hollow bearing trees will be inspected to determine if hollows are occupied. If hollows are found not to be occupied, hollows can be salvaged, and the tree felled. – No clearing of riparian vegetation is permitted at Boat Creek, Spring Creek or Larcom Creek and only permitted if GAWB and the relevant regulatory agency is notified, and all required approvals obtained and/or in accordance with exemption requirements. – Where trees and vegetation cannot be preserved aboveground, stabilising root material will be undisturbed wherever possible. – Cleared or trimmed vegetation will be stockpiled separately from topsoil. It will then be mulched and respread on the ROW as part of Rehabilitation Plans or disposed of offsite at an approved location. – Soil (including topsoil) and vegetation stripped from the ROW will be stored adjacent to the site where it originated. No soil or vegetation material will be translocated for storage along the ROW. This excludes the requirement for soil not to be stored near or in a waterway. – Construction activities will be scheduled to minimise the time between clearing and rehabilitation of a particular area. The schedule should be such that the works are completed in a progressive manner. **Rehabilitation** – All rehabilitation activities will be undertaken in accordance with the rehabilitation requirements outlined in Section 7.21 (Rehabilitation and Revegetation) and Section 5.22 (Landscape and Visual Amenity) as well as the SMP and SAPs.
Inspections and Monitoring	– Inspections and monitoring will commence prior to clearing activities being undertaken so that pre-disturbance baseline vegetation condition can be established (i.e. pre-clearance survey). – Weekly environmental inspections will be undertaken by the Environmental Representative/Manager, Environmental Advisor during construction to ensure environmental management is implemented in accordance with this control plan and will include: • Identification of non-conformances from the procedures outlined in this CEMP or approval/permit conditions. • Monitoring of disturbed areas and identification of any areas that have been disturbed without approval. • Integrity of vegetation clearing boundaries. • Monitoring of establishment of vegetation in rehabilitated areas. – Environmental audits will be undertaken by GAWB during construction on a quarterly basis (or as otherwise determined by approval conditions).
Reporting	– Reporting will be undertaken in accordance with approval conditions, the SMP and relevant SAPs. – Environmental records will be kept onsite/TeamBinder and made available to GAWB or external auditors upon request, including: • Environmental checklists during construction • A regular ROW surveillance program report

	• Reports of any environmental incidents or non-conformances with the CEMP.
Corrective Action	– The contractor will notify GAWB of any non-conformances with the above measures and corrective action (with approval from GAWB) will be taken to address the non-conformance. A non-conformance report will be completed the contractor and filed by both GAWB and the contractor. – Where GAWB is responsible for the non-conformance, it will report on non-conformances and corrective action will be taken to address the non-conformance. – A non-conformance report including an investigation and any amendments to procedures will be instigated if vegetation clearing occurs outside approved areas. – All personnel and sub-contractors will modify work practices as required and instructed by the Environmental Manager/Officer, with managerial support. – Corrective actions will be undertaken in accordance with the SMP, SAPs and approval condition requirements.

7.8 Fauna Management

The potential impacts to fauna include direct fauna impacts and indirect impacts to fauna habitat. These impacts may include:

- Vegetation clearing and habitat disturbance
- Habitat fragmentation and disturbance to wildlife movement corridors
- Trench fall (entrapment of fauna within open trenches during construction)
- Disturbance to active or non-active animal breeding places
- Potential fauna mortality due to vehicle strikes.

Table 7-8 shows the performance objectives, legislative requirements, performance criteria, mitigations measures, inspections, monitoring, reporting and corrective action requirements for fauna management and protection.

Table 7-8 Fauna Management Control Plan

Element	Fauna Management
Performance Objectives	– To minimise the impact of the Project on fauna and fauna habitat. – To avoid clearing and disturbing vegetation and fauna habitat outside of the ROW and approved disturbance areas – To rehabilitate impacted areas to pre-disturbance condition or as close as practically possible where areas are not required to be kept clear for operation.
Legislative Requirements	– Compliance with: • Legislation (as per Section 1.1), specifically: • *Fisheries Act 1994* (regarding waterway barrier works / fish passage) • *Nature Conservation Act 1992* • *Nature Conservation (Animals) Regulation 2020* • *Vegetation Management Act 1999* • *Vegetation Management Regulation 2012* • Development Requirements or guidelines: • Accepted development requirements for operational work that is constructing or maintaining waterway barrier works (DAF, 2018) • Permits, approvals and licence conditions
Performance Criteria	– Vegetation and fauna habitat features cleared or disturbed only within approved areas and boundaries. No non-approved areas are to be cleared. – No injuries or fatalities to fauna species are to occur as a result of construction and operational activities. – Disturbed areas rehabilitated to pre-disturbance condition or condition that is consistent with the surrounding environment, as far as reasonably practicable.
Implementation	**Design** – Construction activities will be sited in accordance with approval conditions. – Design will include measures to reduce the impact to flora and fauna by selecting trenchless construction methods for major creek/waterway crossings and minimising clearing and disturbance widths in sensitive habitats, where possible. **Pre-construction** – Prior to construction works commencing, all relevant site personnel including contractors will be made aware via inductions, toolbox talks and site information sheets of the sensitive environs they will be working in and around and be advised of specific limitations to construction works being undertaken in or adjacent to threatened fauna habitat. Personnel will also be made aware of the protected fauna they may encounter. – Project areas requiring vegetation clearing and habitat disturbance will be clearly delineated to ensure disturbance to areas being retained is minimised. Limits of clearing are to be delineated on-ground using barrier tape and signage prior to works commencing.

- A suitably qualified person (such as a qualified ecologist and/or licensed fauna spotter/catcher) will undertake a detailed pre-clearance survey identifying animal breeding places within the ROW and at Project facilities, and where possible, salvage and relocate identified breeding places.
- The pre-clearance survey will form part of a pre-clearance report.
- Signage, including road signage, will be erected in the vicinity of exclusion areas and environmental buffer areas to warn of the potential presence of fauna in the area.
- Site inductions will include information on the identification of protected fauna species.

Construction

- The SMP will be implemented.
- The clearing footprint and areas of exclusion will remain adequately marked for the duration of the clearing activities.
- Project areas and access routes will be clearly delineated to prevent disturbance to areas outside the approved construction footprint.
- A suitably qualified person (e.g. ecologist and/or fauna spotter/catcher) will be present for all clearing activities and will conduct a walk-through survey prior to commencement of clearing and prior to clearing works. The spotter/catcher will reinspect the area of cleared vegetation immediately after clearing to locate any potentially injured fauna that will then be taken to a wildlife carer or veterinarian. The suitably qualified person will implement SMPs during clearing, it is preferable that fauna move of their own accord into the adjacent areas of habitat to be retained. Any fauna that is captured will be relocated into the adjacent habitat. Any relocation will be undertaken by a suitably qualified ecologist and/or fauna spotter/catcher with all relevant and required permits.
- Mature hollow-bearing trees will be retained and protected wherever reasonably practicable. Where this cannot be achieved, hollow limbs and/or trunks should be left on the ground adjacent to the ROW (or relocated to within areas of remnant vegetation) to provide habitat for ground-dwelling fauna.
- Hollow bearing trees will be clearly flagged, and surrounding vegetation removed with the hollow bearing tree left standing for at least one night to encourage fauna to relocate of its own accord. Hollow bearing trees will be inspected to determine if hollows are occupied. If hollows are found not to be occupied, hollows can be salvaged, and the tree felled.
- Where occupied breeding places are identified and delaying the clearing of the breeding place is not feasible, (i.e. the clearing is critical to the activity schedule) the breeding place will not be disturbed for a minimum of 24 hours while clearing is undertaken around the breeding place as recommended by a fauna spotter/catcher.
- Where unoccupied breeding places are identified and where feasible, consideration will be given to relocating the breeding structure by the fauna spotter/catcher to suitable habitat away from the clearing area.
- Relocated occupied or unoccupied breeding places will be retained intact to the greatest extent possible. As far as practical, the site of the relocation is to replicate the height and orientation of the original breeding or nesting structure.
- Pre- and post-works surveys of creeks (including soil profiles) will be undertaken to ensure the creek profile is restored.
- Fauna will not be fed and direct contact with fauna will be avoided (unless by a suitably qualified person).
- Logs and fallen vegetation will be used as a habitat feature post-construction to provide protection and potential habitat for native fauna (in agreement with landholders as required).
- Trees adjacent to working areas will be lopped, with complete-to-ground clearing being avoided where reasonably practicable so that some fauna habitat can remain.
- Cleared vegetation will be stockpiled so as not to impede wildlife, surface drainage and avoid damage to adjacent live vegetation.
- Habitat green waste from clearing operations will be used to provide fauna habitat in rehabilitated areas.
- Project area access is only to occur along designated site access tracks.
- Where practicable, travel during dusk, dawn and at night when fauna is most active, will be avoided.
- Vehicle operators will abide by vehicle speed limits and access to any restricted areas or exclusion zones must be limited to critical site-specific activities.
- Directional lighting and shields will be installed to minimise light spill outside of the immediate work areas having consideration for health and safety requirements.
- A procedure will be implemented that outlines appropriate trench management such as:
    - Construction activities will be planned and occur progressively to minimise the period of time the trench is open and the length of open trench, as far as reasonably practicable.

	• Where a trench remains open overnight or for extended lengths, the ends of the trench left open will be ramped to a gentle incline (<50%) to allow fauna to escape; escape ramps and trench plugs (temporary barriers in the open trench) will be established for every 500 m of open trench; additional methods may be adopted to create 'ladders' at regular intervals to assist small fauna to exit the trench (e.g. branches, ramped gangplanks, etc.); and/or sawdust filled hessian bags (shelter sites) will be placed intermediate to the escape ramps. • At the start of work hours and on a daily basis, all personnel will inspect the entire open length of the trench for entrapped or injured wildlife. If required, wildlife handlers (e.g. fauna spotter/catchers) will be called to site to attend to fauna issues. • Suitably qualified persons (e.g. licensed fauna spotter/catchers) will remove wildlife from the trenches, identify, record data and release the captures into nearby vegetated areas. Personnel will be legally permitted (DES, Damage Mitigation Permit), trained in appropriate handling protocols, and will possess the necessary Personal Protection Equipment (PPE) for the handling of animals. – Any displaced fauna will be relocated to more suitable similar habitat within the surrounding area, as far as reasonably practicable. – Fauna exclusion fences will be established where required to prevent relocated fauna inadvertently re-entering construction areas, as far as reasonably practicable. However, any temporary fencing necessary along the outer ROW boundary to contain construction works should allow passage of fauna from either side of such fencing. – The use of barbed wire will be avoided and used only where essential to exclude stock from adjoining pastoral activities. **Aquatic Fauna and Temporary Waterway Barrier Works** – Where reasonably practicable, trenched creek and wetland crossings will be undertaken during low or no flow periods. If the works result in the temporary isolation of pools and they become susceptible to drying or poor water quality, then any resident native fish that are trapped will be relocated to areas away from impacts. – Temporary waterway barrier works, including access tracks and erosion and sediment control measures, are to meet the Accepted Development Requirements for operational work that is constructing or maintaining waterway barrier works (DAF, 2018). **Rehabilitation** – All rehabilitation activities will be undertaken in accordance with the rehabilitation requirements outlined in Section 7.21 as well as the SMP and SAPs.
Monitoring	– Inspections and monitoring will commence prior to clearing activities being undertaken so that pre-disturbance baseline vegetation condition can be established (i.e. pre-clearance survey). – Environmental site inspections undertaken by the Environmental Representative/Manager, Environmental Advisor during construction will include the following: • Identification of non-conformances from the procedures outlined in this CEMP or approval/permit conditions. • Monitoring of fauna presence in the Project area and noting of the number of fauna fatalities or required relocations. • Monitoring of establishment of vegetation in rehabilitated areas. – Environmental audits will be undertaken by GAWB during construction on a quarterly basis (or as otherwise determined by approval conditions).
Reporting	– Reporting will be undertaken in accordance with approval conditions, the SMP and relevant SAPs. – Environmental records will be kept onsite/TeamBinder and made available to GAWB or external auditors upon request, including: • Completed environmental checklists/reports during the construction phase • Reports of any environmental incidents or non-conformances with the CEMP • Internal and external environmental audit results.
Corrective Action	– In the event that fish that have been trapped by the works, fish salvage activities in accordance with the Fisheries Queensland Guidelines for Fish Salvage (available at www.daf.qld.gov.au) will be implemented immediately. – The contractor will notify GAWB of any non-conformances with the above measures and corrective action (with approval from GAWB) will be taken to address the non-conformance. A non-conformance report will be completed by the contractor and filed by both GAWB and the contractor. – Where GAWB is responsible for the non-conformance, it will report on non-conformances and corrective action will be taken to address the non-conformance. A non-conformance report will also be filed by GAWB.

	– Corrective actions will be undertaken in accordance with the SMP, SAPs and approval condition requirements.

7.9 Bushfire Management

The potential impacts from bushfire impacts are associated with all phases of construction. These impacts may include:

- Loss of above ground infrastructure
- Loss of life
- Loss of biodiversity.

Table 7-10 shows the performance objectives, legislative requirements, performance criteria, mitigations measures, inspections, monitoring, reporting and corrective action requirements for managing bushfires.

Table 7-9 Bushfire Control Plan

Element	Bushfire
Performance Objectives	– To avoid impacts to flora and fauna due to uncontrolled bushfires caused by the contractor. – To avoid impacts to property, plant or equipment and people due to uncontrolled bushfires caused by the contractor.
Legislative Requirements	– Legislation (as per Section 1.1), specifically: • Legislation, specifically: • *Fire and Emergency Services Act 1990* • Development Requirements or guidelines • Gladstone Regional Council - Local Disaster Management Plan • The contractor Emergency Response Plan • Permits, approvals and licence conditions.
Performance Criteria	– No uncontrolled bushfires caused by the contractor or its sub-contractors.
Implementation	**Pre-construction** – A risk assessment will be undertaken with key stakeholders including Queensland Fire and Emergency Services and GRC. – Bushfire response methods and evacuation plans will be included in the Emergency Response Plan. – Chemical and hydrocarbon storage areas will be located in areas with low bushfire potential. **Construction** – Fire risks will be assessed for each Project area prior to works commencing. – Project areas will have adequate road access for emergency vehicles and evacuation. – An adequate and accessible water supply will be provided in tanks at the Project area for firefighting purposes. – Fire breaks will be developed to provide setbacks between buildings/structures and high risk vegetation and provide access for emergency vehicles. – Hot works will be undertaken as per requirements of Hot Works Permits. – Smoking will not be permitted outside of designated smoking areas. – No intentional fires or wood fired barbeques will be permitted.
Monitoring	– Routine daily observance will be undertaken by all personnel during construction to assess high fire danger conditions (e.g. high temperatures, high wind, and dry undergrowth). – Weekly environmental inspections will be undertaken by the Environmental Representative/Manager, Environmental Advisor during construction to ensure environmental management is implemented in accordance with this control plan and will include: • Identification of fuel loads • Monitoring of fire breaks • Monitoring of fire-fighting water supplies. – Environmental audits will be undertaken by GAWB during construction quarterly (or as determined).

Reporting	– Environmental records will be kept onsite/TeamBinder and made available to GAWB or external auditors upon request including: • Environmental checklists during construction • External environmental audit reports during construction • A regular ROW surveillance program report • Non-conformance reports during construction and operation.
Corrective Action	– The contractor will notify GAWB of any non-conformances with the above measures and corrective action (with approval from GAWB) will be taken to address the non-conformance. A non-conformance report will be completed by the contractor and filed by both GAWB and the contractor. – Where GAWB is responsible for the non-conformance, it will report on non-conformances and corrective action will be taken to address the non-conformance. A non-conformance report will also be filed by GAWB.

7.10 Biosecurity (Fauna and Biosecurity Zones)

The potential impacts from the biosecurity issues of pest fauna and biosecurity zones are associated with all phases of construction. These impacts may include:

- Attraction of pest fauna species
- Introduction or increase in extent of pest fauna
- Spread of pathogens or disease which impact native or agricultural species.

Table 7-10 shows the performance objectives, legislative requirements, performance criteria, mitigations measures, inspections, monitoring, reporting and corrective action requirements for managing introduced pests/fauna.

Table 7-10 Introduced/Pest Fauna Control Plan

Element	Introduced/Pest Fauna
Performance Objectives	– To minimise the impact of introduced/pest fauna species (hereafter referred to as pest fauna) – To minimise the spread of pest fauna species as a result of the EEPL – To adhere to the requirement of the relevant Biosecurity Zones.
Legislative Requirements	– Compliance with: • Legislation (as per Section 1.1), specifically: • *Biosecurity Act 2014* • *Biosecurity Regulation 2016* • Development Requirements or guidelines • General biosecurity obligation • Specific OCG, DAF and GRC requirements. • Permits, approvals and licence conditions
Performance Criteria	No introduction or increase of pest fauna as a result of EEPL construction activities.
Implementation	**Pre-construction** – Biosecurity Zones relevant to the EEPL are: • Grape phylloxera Risk and Exclusion Zones • Sugar Cane Pest Zone 4 • Cattle Tick Infested Zone. – GAWB and the contractor will not be moving any grapes or sugar cane (or soils associated with the plants) or cattle, the latter may be conducted by the landholder subject to their property management requirements. – Consultation will occur with landholders and formal agreements put in place outlining specific biosecurity requirements related to construction activities and accessing their property. **Construction** – All food wastes or waste that would attract animals, will be kept in containers/bins/skips which have lids and do not allow the access of animals. Lunch and meals will be designated to crib rooms or sheds which animals cannot enter. – All putrescible waste will be stored in secure temporary holding containers and transported off site to a licensed waste management facility. – All personnel will not bring domestic animals to the Project area.
Monitoring	– Routine daily visual observance will be undertaken by all personnel during construction for conformance with the CEMP. – Weekly environmental inspections will be undertaken by the Environmental Representative/Manager, Environmental Advisor during construction to ensure environmental management is implemented in accordance with this control plan and will include: • Identification of non-conformances from the procedures outlined above • Monitoring of pest animal species occurrence in the construction areas.

	– If a suspected matters of biosecurity concern are discovered onsite (including Red Imported Fire Ant previously reported in the GRC LGA but identified as since eradicated), DAF will be contacted immediately. – A ROW surveillance program will include Biosecurity Monitoring Schedule for introduced pests. – Environmental audits will be undertaken by GAWB during construction quarterly (or as determined).
Reporting	– Environmental records will be kept onsite/TeamBinder and made available to GAWB or external auditors upon request, including: • Environmental checklists during construction • External environmental audit reports during construction • A regular ROW surveillance program report • Non-conformance reports during construction and operation.
Corrective Action	– The contractor will notify GAWB of any non-conformances with the above measures and corrective action (with approval from GAWB) will be taken to address the non-conformance. A non-conformance report will be completed by the contractor and filed by both GAWB and the contractor. – Where GAWB is responsible for the non-conformance, it will report on non-conformances and corrective action will be taken to address the non-conformance. A non-conformance report will also be filed by GAWB. – Any newly identified weed and pest species will be managed in accordance with OCG, DAF and GRC requirements to prevent their growth and proliferation. – If increased densities of pest animals are observed, or new pest animals are identified, humane pest controls will be implemented to manage numbers to the scope agreed with GAWB.

7.11 Biosecurity (Flora)

The potential impacts from biosecurity issues are likely to be limited to direct impacts associated with construction of the proposed pipeline. These impacts may include:

- Increase in the spread of weeds (restricted, invasive or other environmental weeds)
- Introduction of weed species
- Spread of floral pathogens which impact native and agricultural species
- Reduction in native vegetation or agricultural health.

Table 7-11 shows the performance objectives, legislative requirements, performance criteria, mitigations measures, inspections, monitoring, reporting and corrective action requirements for weed management.

Table 7-11 Weed Management Control Plan

Element	Weed Management
Performance Objectives	– To minimise the impact of weeds in the Project area and surrounding lands – To minimise the spread of weeds during construction of the EEPL.

Legislative Requirements	– Compliance with:
	• Legislation (as per Section 1.1), specifically:
	  • *Biosecurity Act 2014*
	  • *Biosecurity Regulation 2016*
	• Development Requirements or guidelines:
	  • General biosecurity obligation
	  • Specific OCG, DAF and GRC requirements.
	  • Vehicle and Machinery Cleandown Procedures (DAF, 2019)
	  • Vehicle and Machinery Inspection Procedure, Biosecurity Queensland Checklists (DAF, 2013).
	• Permits, approvals and licence conditions:
	  • Landowners' requirements
	  • MCU development permits
	  • OPW development permits.

Performance Criteria	– No introduction of new weed species to the Project area. – Presence of Restricted Invasive Plants are no greater that observed during baseline surveys and/or in surrounding land undisturbed by construction.
Implementation	**Pre-construction** – Prior to construction, weed specific surveys will be completed by the contractor in areas before construction teams enter and a detailed Weed Management Plan developed that will address the following: • Requirements of legislation • Consultation with environmental officers from Gladstone and Rockhampton Regional Council areas • Mapping of existing weed infestations • Management prioritisation of weed species • Strategies for preventing weed spread • Weed removal strategies • Weed monitoring protocols • Follow-up weed management methods and protocols. – Consultation will occur with landholders and formal agreements put in place outlining specific biosecurity requirements related to construction activities and accessing their property. **Construction**

	– All personnel will be trained with respect to weeds (e.g. colour photos, precautions, procedures, fact sheets) will be included as part of the environmental induction to be completed prior to commencement of work on the site. – Equipment and material introduced to the region, especially those from interstate, will be screened for weed species or items likely to contain weed seeds such as soil, as far as reasonably practicable. – Access roads will be identified and adhered to during construction to prevent transport of weeds from or to other areas. – Infested areas not essential for access will be avoided. If infested areas need to be cleared, then appropriate weed management or containment measures will be implemented in accordance with the Weed Management Plan. – Temporary Weed wash down bays will be installed at strategic locations within the Project footprint and meet good practice design requirement. Wash-down facilities should be situated so as not to allow mud to adhere to vehicles and machinery on exit from key weed-affected sites. – Vehicles and machinery will be subject to wash-down in accordance with the requirements of the Weed Management Plan. – All vehicles and machinery that have come from weed infested areas that require access to Project areas will be visually checked for soil/organic matter prior arrival onsite. – Vehicles and machinery will be subject to wash-down before entering sites where a request for wash-down by the landholder is identified in the Weed Management Plan and associated documentation. Proof of washdown (e.g. washdown certificates) will kept in the vehicle once it has been washed down. – Clothing and footwear will be free of mud and seeds before stepping in vehicles, as far as reasonably practicable. – Soil stripped and stockpiled from areas containing known weed infestations, particularly of declared weeds, will be stored separately and are not to be moved to areas free of weeds. – Disturbed topsoil and vegetation will be returned as close as possible to the original sites (where practicable) in order to limit the potential spread of weeds and pathogens. – All soil and plants imported to the site will be certified as weed free by the supplier using the Queensland Government Weed Hygiene Declaration Form or equivalent. – Chemical control of weeds will only be done by trained and/or qualified operators. – Only chemicals registered with the Australian Pesticides and Veterinary Medicines Authority for the target weed will be used, appropriate personal protective equipment (PPE) will be used, and Safety Data Sheets will be available from the Operator. – Weed eradication programs will be implemented if required, to mitigate Project impacts in consultation with landowners taking into account site-specific requirements such as organic farming practices and withholding periods. – Entry and exit points to construction areas at which weed hygiene protocols become effective will be identified and brought to the attention of relevant personnel. – Temporary weed wash-down bays will be established and maintained to reduce weed spread, in accordance with the Weed Management Plan.
Monitoring	– A weed survey of the construction area will be undertaken prior to construction commencement. – Routine daily visual observance by will be undertaken all personnel during construction will be undertaken to identify weed infestations. – Weekly environmental inspections will be undertaken by the Environmental Representative/Manager, Environmental Advisor during construction to ensure environmental management is implemented in accordance with this control plan and will include: • Identification of non-conformances from the procedures outlined above • Monitoring of weeds present in the Project area and any instances of new infestations • Mapping (i.e. GIS locations) of weed infestation • A photographic record of weeds and weed management • Inspections of wash-down areas and procedures. – Weed inspections of the Project area will be undertaken by a suitably qualified person as required during construction (and into the operation phase) to monitor the effectiveness of the CEMP and to maintain a record of weed status in the Project area. – If a suspected matters of biosecurity concern are discovered onsite, DAF will be contacted immediately. – Environmental audits will be undertaken by GAWB during construction quarterly (or as determined).
Reporting	– Environmental records will be kept onsite/TeamBinder and made available to GAWB or external auditors upon request, including:

	• Completed environmental checklists/reports during the construction phase • Reports of any environmental incidents or non-conformances with the CEMP • Internal and external environmental audit results. – Weed maintenance schedule and vehicle/machinery wash-down records during construction. – Weed management activities and weed status post construction.
Corrective Action	– The contractor will notify GAWB of any non-conformances with the above measures and corrective action (with approval from GAWB) will be taken to address the non-conformance. A non-conformance report will be completed by the contractor and filed by both GAWB and the contractor. – Where GAWB is responsible for the non-conformance, it will report on non-conformances and corrective action will be taken to address the non-conformance. A non-conformance report will also be filed by GAWB. – Identified weed and pest species will be managed in accordance with OCG, DAF and GRC requirements to prevent their growth and proliferation.

7.12 Water Resources and Water Quality

The potential impacts on water resources resulting from the construction of the Project have been assessed and include:

- Potential water quality degradation through:
    - Accidental releases / spills of polluting substances (e.g. hydrocarbons, chemicals, litter and ASS)
    - Disturbance of contaminated / acidic soils
    - Sediment laden stormwater discharge from Project areas during construction impact on the water quality and bank stability of receiving watercourses
    - Discharge of groundwater and surface water from the pipeline trench.
- The extraction of water from existing surface water and groundwater sources for construction purposes.

Table 7-12 shows the performance objectives, legislative requirements, performance criteria, mitigations measures, inspections, monitoring, reporting and corrective action requirements for managing water resources and maintaining water quality.

Table 7-12 Water Resources and Water Quality Control Plan

Element	**Water Resources and Water Quality**
Performance Objectives	– To minimise and manage adverse impacts to surface and groundwater during construction of the EEPL.

Legislative Requirements	– Compliance with:
	• Legislation (as per Section 1.1), specifically:
	  • *Environmental Protection (Water and Wetland Biodiversity) Policy 2019*
	  • *Water Act 2000*
	  • *Water Regulation 2016*
	• Development Requirements or guidelines:
	  • Water Plan (Calliope River Basin) 2006
	  • OSW/2020/5467 Exemption requirements for constructing authorities for the take of water without a water entitlement (DRDMW, 2021)
	  • Monitoring and Sampling Manual (DES, 2018)
	  • Best Practice Erosion and Sediment Control (IECA, 2008)
	• Permits, approvals and licence conditions

Performance Criteria	– No long-term impacts to surface or groundwater quality as a result of the EEPL. – No visible signs of water quality deterioration as a result of EEPL construction activities. – No water quality changes (upstream / downstream; baseline / during construction) in the following parameters: • Turbidity – 20 NTU or 10% increase (whichever is greatest) • pH – 1.0 pH unit change • Dissolved oxygen – 10% decrease – Waterway beds and banks rehabilitated as soon as reasonably practicable after construction.
Implementation	**Design** – Detailed design will include measures to reduce the impact to waterways in accordance with the waterway SAPs with trenchless methods identified for the following: • Boat Creek • Spring Creek • Larcom Creek – Detailed design crossing plans will identify significant environmental features.

	– Protection structures will be designed to prevent bed and bank disturbance at the intake location as far as reasonably practicable. – Water sensitive urban design principles will be implemented for the EEPL. **Construction** – Where reasonably practicable, trenched creek and wetland crossings will be undertaken during low or no flow periods. If this cannot be achieved, a risk assessment will be undertaken to understand the risk and potential impacts and confirm whether additional mitigation measures will be required – Trenched waterway crossings will be planned to enable minimal vegetation removal as far as reasonably practicable. – The SAP – Waterways will be implemented for key waterway crossings. – Contaminated land control plan will be implemented, refer to Section 7.5. – ASS control plan will be implemented, refer to Section 7.6. – Where avoiding disturbance of ASS is not practicable, soils will be treated appropriately, and the generation of acid run-off will be minimised (or avoided), refer to Section 7.6. – Trenchless entry/exit point will be located away from sensitive locations with drill operations will stop as soon as reasonably practicable, upon detection of any lubricant release. – Erosion and sediment control measures will be implemented at waterway crossings and across the ROW. Diversion and erosion controls, including sediment basins, will be designed and implemented with reference to Best Practice Erosion and Sediment Control (IECA, 2008), including requirements for emergency planning as applicable, refer to Section 7.4. – Erosion and sediment control measures, such as silt fences, will be installed between stockpiles and waterways, refer to Section 7.4. – Temporary drains or bunds will be constructed where necessary to direct run-off and any overland flow from upslope of excavations, away from the construction footprint. – Any dewatering discharges will be released to ensure there are no and impacts from erosion and sedimentation into waterways. – Topsoil and subsoil piles excavated from or adjacent to wetlands and waterways will be placed at least 10m from the top of bank on either side of each waterway with appropriate sediment controls installed refer to Section 7.4. – Stockpiles will be protected from overland flow. – Earthworks will be minimised near waterways. – Stream bed material will be replaced over the pipe trench following trenching and additional scour protection provided where necessary. – Fuel and chemical handling, storage, distribution and spill response during construction will be managed in accordance with Section 7.20. – Natural drainage patterns will be restored following construction, as far as reasonably practicable. – Ponded / trench water at the construction sites will be disposed of appropriately. If required, treat water prior to release. – A high level of housekeeping will be implemented to prevent litter entering waterways including the provision of waste bins, regular site inspections and staff training in waste disposal procedures. – Hydrotest water discharges will be followed in accordance with approval requirements and Section 7.15. – Any water bodies or bores used for extraction of construction water will be monitored for water levels and water quality extraction will cease if unacceptable impacts are identified. The OSW/2020/5467 Exemption requirements for constructing authorities for the take of water without a water entitlement (DRDMW, 2021) will be met. – Compound wastewater will be disposed of offsite at a licensed facility. **Rehabilitation** – Rehabilitation of waterways will occur as soon as reasonably practicable after completion of the crossing, refer to Section 7.21. – 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.
Monitoring	– Routine daily visual observance will be undertaken by all personnel during construction for conformance with this control plan. – Weekly environmental inspections will be undertaken by the Environmental Representative/Manager, Environmental Advisor during construction to ensure environmental management is implemented in accordance with this control plan and will include: • Weather conditions (i.e. if significant rainfall is forecast)

	• Waterway condition • Water levels • Water quality observations. – Water quality monitoring and assessment will be implemented onsite to identify, measure, record and report on water quality prior to any discharges. – Monitoring will be undertaken for turbidity, pH, dissolved oxygen, and electrical conductivity. – Monitoring will be undertaken to detect changes between upstream and downstream conditions and/or between baseline and during construction: • Turbidity – 20 NTU or 10% increase (whichever is greatest) • pH – 1.0pH unit change • Dissolved oxygen – 10% decrease – Environmental audits will be undertaken by GAWB during construction quarterly (or as determined).
Reporting	– Environmental records will be kept onsite/TeamBinder and made available to GAWB or external auditors upon request including: • Completed environmental checklists/reports during the construction phase • Reports of any environmental incidents or non-conformances with the CEMP • Internal and external environmental audit results.
Corrective Action	– The contractor will notify GAWB of any non-conformances with the above measures and corrective action (with approval from GAWB) will be taken to address the non-conformance. A non-conformance report will be completed by the contractor and filed by both GAWB and the contractor. – Where GAWB is responsible for the non-conformance, it will report on non-conformances and corrective action will be taken to address the non-conformance. A non-conformance report will also be filed by GAWB. – All personnel will be retrained in procedures where the procedures are modified, or new ones adapted. – Visual checks (and sampling for applicable analytes if required) of captured stormwater will be conducted prior to release. If the water does not meet discharge criteria it will be either treated onsite or disposed of at a licensed wastewater facility.

7.13 Air Environment

Atmospheric emissions from construction activities will depend on a combination of the potential for emission (the type of activities), meteorological conditions and the effectiveness of control measures. In general terms, there are two sources of emissions that will need to be controlled to minimise the potential for adverse environmental effects:

- Exhaust emissions from site plant, equipment and vehicles
- Fugitive dust emissions from site activities.

Table 7-13 shows the performance objectives, legislative requirements, performance criteria, mitigations measures, inspections, monitoring, reporting and corrective action requirements for managing air quality.

Table 7-13 Air Environment Control Plan

Element	**Air Environment**
Performance Objectives	– To minimise the air quality impacts arising from the Project during construction. – To be efficient in the use of resources and minimise emissions where practical.
Legislative Requirements	– Compliance with: • Legislation (as per Section 1.1), specifically: • *Environmental Protection (Air) Policy 2019* • *National Greenhouse and Energy Reporting Act 2007* • Permits, approvals and licence conditions
Performance Criteria	– Minimise dust generation during construction. – Minimise air emissions (such as exhaust) and energy use for all activities. – Respond to and close out all complaints relating to air quality in a timely manner and in accordance with GAWB's policy and Section 9.2.
Implementation	**Construction** <u>Dust</u> – Directly affected landowners will be informed of potential temporary dust generation prior to the commencement of activities likely to generate dust. – Dust and particulate matter will not exceed any of the following levels when measured at any nuisance sensitive or commercial place: • Dust deposition of 120 mg per square metre per day over a 30 day averaging period, when monitored in accordance with Australian Standard AS/NZS 3580.10.1:2003: Methods for sampling and analysis of ambient air - Determination of particulate matter - Deposited matter - Gravimetric method (or more recent editions). – Respirable crystalline silica dust risk assessments and monitoring (as required) will be conducted. – Construction vehicles will be confined to designated access tracks in the Project area, as far as reasonably practicable. – Access tracks will be dampened where required and particularly in windy conditions to reduce the generation of dust from construction traffic. – Water sourced for dampening of roads will not be unduly saline, acidic or otherwise contaminated, to minimise impacts to soils and waterways. – Construction vehicles will travel at safe speeds suitable to the conditions with due care and attention, particularly on unsealed access tracks. – Dusty materials will be stored, handled and transported appropriately. – A water truck or similar will be used onsite (where practical) and along access roads (where appropriate) to minimise dust. – Where wind speeds are considered excessive (approximately 10 m/s) and work is undertaken within 100 m of sensitive receptors, dust mitigation measures will be put in place to prevent dust nuisance as far as reasonably practicable. – Where required and practicable, rumble strips or similar method will be used at the entrance/exit of construction areas to reduce the amount of mud or soil that is transported onto hard-surfaced roads. – Hoarding and gates will be used to prevent dust breakout where appropriate.

	– Hard-surfaced roads used for access to Project areas will be cleaned to the extent reasonably practicable to remove dust, mud or other debris that could generate a dust nuisance. – Trench spoil and topsoil will not be stockpiled to heights greater than 3 m and long-term stockpiles will be stabilised or vegetated to reduce dust generation. – Exposed ground surfaces will be revegetated as soon as reasonably practicable following construction activity. – If all reasonably practicable dust suppression methods fail to adequately prevent or suppress nuisance dust resulting in unacceptable impacts, suspension of construction activities until conditions generating dust have subsided will be considered. <u>Air emissions</u> – Energy use, resource use and greenhouse gas emissions will be recorded. – All vehicles and equipment used onsite will undergo regular maintenance in accordance with manufacturers requirements to minimise air emissions. – Plant, equipment and vehicles will be turned off when not in use to prevent unnecessary idling. – The number of vehicles used will be minimised to that essential for efficient construction activities. – Carpooling / busing to work sites where possible to reduce the number of vehicle movements associated with the Project. – The number of plant and equipment movements will be minimised by ensuring, wherever possible, that all staged works are completed prior to departure from the work area.
Monitoring	– The contractor will monitor resource use of greenhouse gas emissions as identified by GAWB. – Routine daily visual observance will be undertaken by all personnel to monitor dust generation and implement additional controls as required. – Weekly environmental inspections will be undertaken by the Environmental Representative/Manager, Environmental Advisor during construction to ensure environmental management is implemented in accordance with this control plan and will include: • Identification of non-conformances from the implementation of the CEMP • Monitoring of dust control measures implementation and effectiveness. – Continuous monitoring dust deposition will be undertaken at sensitive receptors with dust deposition gauges to be installed at representative sites. – Respirable crystalline silica dust monitoring (as required). – Environmental audits will be undertaken by GAWB during construction quarterly (or as determined).
Reporting	– Environmental records to be kept onsite/TeamBinder and made available to GAWB or external auditors upon request, including: • Completed environmental checklists/reports during the construction phase • Reports of any environmental incidents or non-conformances with the CEMP • Internal and external environmental audit results. – The contractor will meet any required reporting for resource use of greenhouse gas emissions. – Any non-compliances / complaints relating to air quality impacts will be recorded and addressed in accordance with the complaints procedure, refer to Section 9.2.
Corrective action	– The contractor will notify GAWB of any non-conformances with the above measures and corrective action (with approval from GAWB) will be taken to address the non-conformance. A non-conformance report will be completed by the contractor and filed by both GAWB and the contractor. – Where GAWB is responsible for the non-conformance, it will report on non-conformances and corrective action will be taken to address the non-conformance. A non-conformance report will also be filed by GAWB. – Where air quality complaints or reports are received, the contractor will ensure the complaint/report is investigated, refer to Section 9.2. Work on the causative aspect may need to cease until corrective actions are implemented. – Where DES receives air quality complaints, and they consider the complaint reasonable, DES may ask to qualitatively or quantitatively monitor the air quality to ensure the EEPL is not emitting contaminants to the air in exceedance of the *Environmental Protection (Air) Policy 2019*. If exceedances are recorded or poor air quality is observed, the contractor will 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 personnel and sub-contractors will be retrained in air quality management if non-conformances are identified and will modify work practices as required.

7.14 Waste Management

Potential waste sources include (but are not limited to):

- Debris from vegetation clearings
- Building waste
- Wash-down wastewater
- General waste from staff
- Sewage (blackwater)
- Trench water due to ground water infiltration and rain events
- Hazardous and regulated wastes
- Hydrocarbon wastes from end-use
- Regulated waste.

These waste streams being managed incorrectly has the potential to impact to the surrounding land and water environment.

Table 7-14 shows the performance objectives, legislative requirements, performance criteria, mitigations measures, inspections, monitoring, reporting and corrective action requirements for waste management.

Table 7-14 Waste Management Control Plan

Element	Waste Management
Performance Objectives	– To reduce the amount of waste produced during the construction of the EEPL and to maximise recycling and reuse opportunities. – To manage waste generated during construction of the EEPL in a manner that minimises the risk of it negatively impacting on the surrounding environment.
Legislative Requirements	– Compliance with: • Legislation (as per Section 1.1), specifically: • *Environmental Protection Regulation 2019* • *Waste Reduction and Recycling Act 2011* • *Waste Reduction and Recycling Regulation 2011* • Development Requirements or guidelines • AS1940: The storage and handling of flammable and combustible liquids • Permits, approvals and licence conditions.
Performance Criteria	– No adverse impacts on the surrounding environment or human health from the management of waste during the construction phase. – Waste management hierarchy implemented to managing waste through avoiding the generation of waste; maximising re-use and recycling of all materials where possible and treating and disposing all those materials that are unable to be re-used or recycled in accordance with relevant legislation and guidelines.
Implementation	**Design** – The design will endeavour to find balance between cut and fill to minimise the requirement to stockpile excess soil, remove excess soil from the site or import fill material. – The design will consider waste minimisation when designing and selecting equipment. **Construction** – Waste management will be undertaken to incorporate the waste management hierarchy, waste management procedures, training of relevant personnel and monitoring and reporting requirements. – All personnel will be made aware of the requirements of the CEMP as part of their inductions, prior to commencing work. – A program for strict litter control will be implemented throughout Project areas. This will include site-wide signage; an adequate number of litter bins (which by design exclude birds and vermin); bin clearance on a regular basis; daily maintenance of crib rooms to achieve cleanliness; and educational signage within

	crib rooms on the linkage between poor waste management practices, increases in pest animal populations, and subsequent impacts to native fauna. – Cleared vegetation will be stockpiled so as not to impede wildlife, surface drainage and avoid damage to adjacent live vegetation. It will then be mulched and respread on the ROW or disposed of offsite at an approved location in line with rehabilitation and revegetation management (refer to Section 7.21) and approved by GAWB. – Suppliers will be encouraged to reduce and/or collect packaging. – Sorting and storage recyclable wastes (such as oils, steel and plastic) will occur, and arrangement for the transfer of the recyclables to a licenced recycling facility. – All waste receptacles will be covered to prevent water infiltration and wind from causing litter. – Any temporary waste storage areas will not be located within 50 m of a waterway and will be appropriately contained to prevent litter, soil contamination or attraction of vermin. – To avoid impacts arising from the release of wash-down wastewater, equipment will be washed down in a suitable wash- down facility that is bunded and filtered, and at least 50 m from any waterways. – Sewage disposal will be managed through the use of mobile chemical treatment systems, approved septic systems or via connection with the municipal waste sewage infrastructure, depending on location of the site. – All 'trackable wastes' under the *Environmental Protection Regulation 2019 (Qld)* leaving the site will be traced. – Hazardous and regulated wastes will be controlled as per any local government or legislative requirements, stored in bunded containers / areas in accordance with AS1940 and transported and disposed of by an appropriately licensed contractor, refer to Section 7.20. – All containers will be secured to prevent movement during a flood event. – Safety Data Sheets (SDS) will be kept onsite during construction. – Depending on the quality of the material excavated, it may be practical to utilise excess material from some work sites as fill for other work sites. Excess spoil will be disposed of at the nearest approved locations along ROW, generally by agreement with landowners or local council and in accordance with Section 7.4. – Excess spoil that cannot be disposed of in the vicinity it came from will be hauled to approved disposal sites (including relevant landholders who may wish to use the excess spoil) and nominally disused borrow pits. Spoil disposal sites will be located and managed to reduce erosion, runoff into local waterways and to prevent the distribution of weeds. – Upon completion of construction in each area along the ROW, all wastes will be removed and disposed of at a licensed waste management facility. – Appropriately stocked spill kits will be located in each construction area and along the ROW and personnel will be trained appropriately in the use. – Efficient use of resources will be implemented through procurement planning and ordering materials as close as possible to required quantity to avoid oversupply.
Monitoring	– Routine daily visual observance will be undertaken by all personnel during construction to monitor the site for litter or other waste issues. – Weekly environmental inspections will be undertaken by the Environmental Representative/Manager, Environmental Advisor during construction to ensure environmental management is implemented in accordance with this control plan and will include: • Monitoring of waste management practices to identify non-conformances from the implementation procedures outlined above and possible improvements in waste management practices • Recording of the amount of waste being re-used, recycled and disposed of • Checking of waste storage areas • Checking for windblown litter. – Environmental audits will be undertaken by GAWB during construction quarterly (or as determined).
Reporting	– Environmental records will be kept onsite/TeamBinder and made available to GAWB or external auditors upon request. This file will contain the following: • Completed environmental checklists/reports during the construction phase • Reports of any environmental incidents or non-conformances with the CEMP • Internal and external environmental audit results. • Quantities of wastes generated and disposed of • External environmental audit reports that review waste management practices.

	• Waste Transport Certificates / Soil Disposal Permits (where relevant)
Corrective Action	– The contractor will notify GAWB of any non-conformances with the above measures and corrective action (with approval from GAWB) will be taken to address the non-conformance. A non-conformance report will be completed by the contractor and filed by both GAWB and the contractor. – Where GAWB is responsible for the non-conformance, it will report on non-conformances and corrective action will be taken to address the non-conformance. A non-conformance report will also be filed by GAWB. – Increase recycling and reuse where possible. – Increase storage capacity or increase frequency of offsite disposal if necessary. – Repair or replace receptacles if they do not meet the requirements of the CEMP. – Retrain staff in waste management if the CEMP is not being implemented. – Incorporate additional waste minimisation measures as identified during reviews.

7.15 Hydrotesting and Commissioning

The potential impacts on surface water resulting from the hydro testing and commissioning of the EEPL have been assessed and include:

- Potential water contamination through the release of hydrotesting water (e.g. wastewater from treatment process)
- Erosion and sedimentation where hydrotesting water is discharged.

Table 7-15 shows the performance objectives, legislative requirements, performance criteria, mitigations measures, inspections, monitoring, reporting and corrective action requirements for hydrotesting and commissioning.

Table 7-15 Hydrotesting and Commissioning Control Plan

Element	Hydrotesting and Commissioning
Performance Objectives	To minimise the potential impacts from hydrotesting and commissioning of the pipeline on the local environment, particularly waterways.
Legislative requirements	– Compliance with: • Legislation (as per Section 1.1), specifically: • *Environmental Protection (Water and Wetland Biodiversity) Policy 2019* • *Water Act 2000* • *Water Regulation 2016* • Development Requirements or guidelines: • Environmental Protection (Water) Policy 2009: Curtis Island, Calliope River and Boyne River Basins Environmental Values and Water Quality Objectives (DES, 2014) • Water Plan (Calliope River Basin) 2006 • OSW/2020/5467 Exemption requirements for constructing authorities for the take of water without a water entitlement (DRDMW, 2021) • Monitoring and Sampling Manual (DES, 2018) • Permits, approvals and licence conditions
Performance Criteria	– No depletion or degradation of any waterway as a result of hydrotesting, or commissioning. – Minimise hydrotest water consumption through re-use of water. – No adverse impacts to the local environment due to the discharge of water.
Implementation	**Construction / Commissioning** – The EEPL will be commissioned in sections between isolation valves and facilities along the alignment, this will minimise the quantity of water required and discharged. – Hydrotest water used during testing and commissioning of the pipeline will be reused within the system and passed down the pipe if of sufficient quality, to minimise disposal. – Hydrotest water disposed during commissioning to land or waterways will be in compliance with regulatory requirements and have relevant controls in place to reduce impacts. – Hydrotest water will be discharged in a way that ensures there are no and impacts from erosion and sedimentation into waterways. – Hydrotest water disposal will not occur on areas of exposed soil in dry ephemeral creeks without appropriate erosion prevention measures such as a rock lined channel or into a grassed area. – Where water has been in the pipe for long periods (e.g. six months) and requires discharged, an assessment will be made of the need for aeration prior to discharge. – Chlorination will not be used for hydrotesting.
Monitoring	– Weekly environmental inspections will be undertaken by the Environmental Representative/Manager, Environmental Advisor during construction to ensure environmental management is implemented in accordance with this control plan and will include: • Inspection of the waterway where the test water is to be discharged to identify appropriate disposal site • Inspection of the waterway following discharge to monitoring for erosion and sedimentation

	• Monitoring of water quality and if necessary, treatment will be undertaken prior to discharge of water.
Reporting	– Environmental records will be kept onsite/TeamBinder and made available to GAWB or external auditors upon request. This file will contain the following: • Completed environmental checklists/reports during the construction phase • Reports of any environmental incidents or non-conformances with the CEMP • Internal and external environmental audit results. – Records will be maintained of the water quality of test water prior to discharge and of the locations and quantities of discharge.
Corrective Action	– The contractor will notify GAWB of any non-conformances with the above measures and corrective action (with approval from GAWB) will be taken to address the non-conformance. A non-conformance report will be completed by the contractor and filed by both GAWB and the contractor. – Where GAWB is responsible for the non-conformance, it will report on non-conformances and corrective action will be taken to address the non-conformance. A non-conformance report will also be filed by GAWB. – All personnel will be retrained in procedures where the procedures are modified, or new ones adapted. – Visual checks (and sampling for applicable analytes if required) of captured hydrotest water will be conducted prior to release. If the water does not meet discharge criteria it will be either treated onsite or disposed of at a licensed wastewater facility.

7.16 Noise and Vibration

The potential sources of noise and vibration associated with construction of the EEPL include:

- Set up of ancillary facilities
- Construction of access tracks
- Delivery of equipment and materials
- Various types of machinery use during construction
- Blasting (associated with the Aldoga Reservoirs).

Although sensitive receptors (residents) are sparse along the ROW, noise and vibration emissions have the potential to negatively impact adjacent sensitive receptors and fauna habitat). Vibration may also result is structural impact to other infrastructure or buildings.

Table 7-16 shows the performance objectives, legislative requirements, performance criteria, mitigations measures, inspections, monitoring, reporting and corrective action requirements for managing noise and vibration.

Table 7-16 Noise and Vibration Control Plan

Element	**Noise and Vibration Management**
Performance Objectives	– To manage the construction of the EEPL in a way that minimises the impact of noise and vibration on the local community. – To control noise generation from the EEPL to within the relevant noise standards.
Legislative Requirements	– Compliance with: • Legislation (as per Section 1.1), specifically: • *Environmental Protection (Noise) Policy 2019* • Development Requirements or guidelines • Noise Measurement Manual (DES, 2020) • AS1055: Acoustics – Description and Measurement of Environmental Noise • Permits, approvals and licence conditions
Performance Criteria	– Noise generated from the construction of the EEPL is maintained within relevant standards. – Respond to and close out all complaints in a timely manner and in accordance with GAWB's policy and Section 9.2.
Implementation	**Design** – Impacted landholder agreements for access routes and construction activities, including work on Sundays, will be prepared and signed in consultation with landholders. – During design, measures to reduce noise will be incorporated for the construction phase of the EEPL including housing the pump and equipment in a building that includes specific noise mitigation measures. – Acoustic advice will be sought to check that the EEPL noise management is providing the appropriate noise attenuation to the outside environment so that noise levels at the nearest sensitive receptors are within noise standards. – Dilapidation surveys will be undertaken for structures that may be affected by the construction work in accordance with the Dilapidation and Assessment Survey Management Plan. **Construction** – Noise mitigation strategies will be implemented where practicable to reduce the potential for adverse noise impacts and complaints. – The quietest plant and equipment will be selected as far as reasonably practicable. – All equipment and plant will be regularly maintained to manufacturers' specifications. – Equipment use will be timed to minimise noise impacts (i.e. construction activities managed to avoid audible noise to the nearest noise sensitive receiver). – Heavy materials will be placed not dropped into dump trucks where practicable.

	– For all vehicles, horns and reversing alarms will be at the minimum volume level as far as practicable and used only as required without compromising safety requirements. – Non-tonal / broadband type reversing alarms will be used where practicable. – Stockpiled materials will be used as “noise barriers” to shield sensitive receivers where practicable. – Diesel powered equipment (including, but not limited to excavators, front end loaders, dump trucks) with appropriate mufflers will be used where practicable. – Exhaust brakes will be minimised onsite. – Loading/unloading will be performed with consideration to any nearby sensitive receptors such as residential properties. – Construction activities will be undertaken 6:30 am and 6:30 pm every day, in consultation and agreement with landholders. If agreement is not reached, working will be undertaken 6:30 am and 6:30 pm Monday to Saturday. – Work may be required outside these hours for critical works such as waterway or infrastructure crossings, concrete pours and/or hydrostatic testing. If work outside routine hours is required, and assessment will be undertaken and affected landholders will be consulted and the activity conducted in accordance with any relevant regulatory notification requirements. – In response to a complaint, the source of excessive noise or vibration will be immediately shut down until adequate monitoring and reporting has been undertaken and the complaint resolved. **Community Liaison** – The landholder communication plan will be implemented. – Impacted landholders will be informed about when they may be affected by works, and the duration of the works at least two weeks prior to any works occurring. – A 24 hour contact number for the EEPL will be implemented for the construction phase so that residents always have an immediate point of contact when they have questions or concerns. – All complaints received will be handled in accordance with the complaints/incidents procedure, refer to Section 9.2. **Blasting** – If blasting is required a Blasting Management Plan will be prepared and implemented to detail safety measures and other management measures. – The Blasting Management Plan will be developed and implemented and comply with the *Environment Protection (Noise) Policy 2019*. – Pre- and post-construction building and infrastructure surveys on properties / infrastructure potentially susceptible to vibration damage from construction works will be undertaken. – Noise, vibration and blasting monitoring will be conducted with consideration to the relevant guidelines and standards, including but not limited to: • Noise Measurement Manual (DES, 2020) • AS 1055 – 1997 Acoustics – Description and Measurement of Environmental Noise. – Blasting activities, where required, will not take place on a Sunday or public holiday.
Monitoring	– Routine daily visual observance will be undertaken by all construction personnel during construction to monitor construction noise levels and prevent excessive noise. – Weekly environmental inspections will be undertaken by the Environmental Representative/Manager, Environmental Advisor during construction to ensure environmental management is implemented in accordance with this control plan and will include: • Inspections of equipment maintenance records • Monitoring construction activities for non-conformances with the above procedures • Review of incidents/complaints register for noise related incidents. – Peak particle velocity (mm/s) via vibration will be monitoring at selective sites. – Construction noise levels will be monitored, including: • Background noise monitoring will be undertaken at the various identified sensitive receptor locations to assess the ambient noise levels in the immediate surrounding area • Attended spot check monitoring will be undertaken at the potentially most exposed receivers in proximity to construction activities • In response to a compliant.

	– 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. – An additional monitoring program will be developed and undertaken during construction activities that are expected to generate significant noise and/or vibration (e.g. blasting and work outside regulated work hours). – Monitoring will be undertaken in accordance with the Blast Management Plan – Dilapidation surveys are to be undertaken at nominated sensitive receptors/infrastructure to define and document the existing structural integrity, and condition of the building and structures. – Environmental audits will be undertaken by GAWB during construction quarterly (or as determined).
Reporting	– Environmental records will be kept onsite/TeamBinder and made available to GAWB or external auditors upon request. This file will contain the following: • Completed environmental checklists/reports during the construction phase • Reports of any environmental incidents or non-conformances with the CEMP • Internal and external environmental audit results • Dilapidation reports, as required – Any non-compliances / complaints relating to noise impacts will be recorded and addressed in accordance with the complaints procedure, refer to Section 9.2.
Corrective Action	– The contractor will notify GAWB of any non-conformances with the above measures and corrective action (with approval from GAWB) will be taken to address the non-conformance. A non-conformance report will be completed by the contractor and filed by both GAWB and the contractor. – Where GAWB is responsible for the non-conformance, it will report on non-conformances and corrective action will be taken to address the non-conformance. A non-conformance report will also be filed by GAWB. – Modification or substitution of work methods will be undertaken wherever possible to minimise noise and vibration impacts, including: • Works programming assessments • Selective use of enhanced equipment/plant • Noise barriers or earthen bunds • Equipment/plant substitution.

7.17 Transport and Access

Impacts from traffic generated by construction of the EEPL will consist of the following:

- Transportation of construction equipment to/from site
- Delivery of pipe
- Delivery of construction materials
- Construction workers transport
- Direct impacts, such as from pipeline crossings of roads.

These activities will impact traffic across various locations and its access points.

Table 7-17 shows the performance objectives, legislative requirements, performance criteria, mitigations measures, inspections, monitoring, reporting and corrective action requirements for managing transport and access.

Table 7-17 Transport and Access Control Plan

Element	Transport and Access
Performance Objectives	– To minimise the impacts on transport and access arising from the Project.

Legislative Requirements	– Compliance with:
	• Legislation (as per Section 1.1), specifically:
	  • Transport Infrastructure Act 1994
	• Development Requirements or guidelines
	  • Australian Pipeline Industry Association Vehicle Safety Guidelines
	• Permits, approvals and licence conditions:
	  • Road Works Approval / Road Corridor Permits / Traffic Control Permits (TMR)
	  • Works on Road Corridor Permit (GRC)
	  • Road Closure Permit (Queensland Police)
	  • Works within a railway corridor - Permission to interfere with railways
	  • Wayleave agreements with Aurizon and Queensland Rail
	  • Landowners' requirements

Performance Criteria	– No transport or access related incidents arising as a result of the EEPL.

Implementation	**Design and Pre-construction**
	– Access routes will be determined in consultation with landholders during the detailed design.
	– Landholder agreements for access routes will be prepared and signed in consultation with landholders.
	– Traffic Management Plans (TMPs) will be developed prior to construction to address site specific details for EEPL. TMPs will be developed in negotiation with GRC and TMR before the commencement of construction. The plans will also take into consideration relevant approval conditions and will detail:
	  • Site accesses, including the provision of signage and traffic control during construction at site accesses and pipeline crossings
	  • Temporary speed reductions as required at site accesses or on unsealed roads in the vicinity of sensitive receptors
	  • Temporary traffic control measures
	  • Vehicle parking and access
	  • Options for carpooling or use of buses by construction personnel to reduce traffic generation resulting from the EEPL.
	– All permits and approvals required under the *Transport Infrastructure Act 1994* will be obtained including:
	  • Approval for works within a state-controlled road corridor / road corridor permits
	  • Approval for works within a railway corridor.

	Pre-construction – The crossing of TMR roads and rail networks will be undertaken by trenchless methods to minimise impacts to traffic and transport. – Roads, particularly unsealed roads used during construction will be maintained by the contractor: • Possible road/intersection improvements required to enable safe access during construction of the Project will be discussed with the TMR and undertaken where necessary. – Where possible, construction ancillary facilities will be accessed via existing public roads. Where this is not possible, existing private access tracks on private property will be used but only with the permission of the landowner. Consultation will occur with each landowner whose property is required for access and agree on the terms and conditions relating to access arrangements. – Local road and access closures will be minimised where possible. Alternate access arrangement will be provided if access closures are required. – Access to the ROW will be by routes agreed with landholders through signed agreements with vegetation clearing minimised wherever possible. – Access for emergency vehicles will be maintained along emergency access routes, with suitable alternative access arrangements provided where required. – All drivers will comply with the road rules on local and state-controlled roads and the site rules on the ROW. Further, all drivers will be required to drive to the road conditions. – Prior to being used onsite, plant, equipment and vehicles will undergo a mechanical inspection to ensure that the plant or vehicle is in good working order, and the appropriate emission controls are in place and not modified. – All trucks will be loaded so as not to exceed the legal weight limitations in force at the time, noting weight restrictions of any bridges along designated routes.
Monitoring	– Routine daily visual observance will be undertaken by all personnel during construction to monitor transport and access issues and identify non-conformances. – Weekly environmental inspections will be undertaken by the Environmental Representative/Manager, Environmental Advisor during construction to ensure environmental management is implemented in accordance with this control plan and any relevant TMPs. – Environmental audits will be undertaken by GAWB during construction quarterly (or as determined).
Reporting	– Environmental records will be kept onsite/TeamBinder and made available to GAWB or external auditors upon request. This file will contain the following: • Completed environmental checklists/reports during the construction phase • Reports of any environmental incidents or non-conformances with the CEMP • Internal and external environmental audit results. – Any non-compliances / complaints relating to transport and access will be recorded and addressed in accordance with the complaints procedure, refer to Section 9.2. – Road Dilapidation Report(s) will be prepared for affected roads (public and private) likely to be used by construction traffic prior to commencement of construction to assess the current condition of the road and describe mechanisms to restore damage that may result due to construction traffic related to the EEPL.
Corrective Action	– The contractor will notify GAWB of any non-conformances with the above measures and corrective action (with approval from GAWB) will be taken to address the non-conformance. A non-conformance report will be completed by the contractor and filed by both GAWB and the contractor. – Where GAWB is responsible for the non-conformance, it will report on non-conformances and corrective action will be taken to address the non-conformance. A non-conformance report will also be filed by GAWB. – Identify the source of traffic/transport impact and repair any damage, modify the controls, or modify procedures that may be inadequate. – All personnel will be retrained in procedures where the procedures are modified, or new ones adapted.

7.18 Cultural Heritage

The EEPL has the potential to impact upon known and unknown cultural heritage values (both Indigenous and non-Indigenous).

Cultural heritage items that have been identified that may be impacted by the ROW and require management, include:

- PCCC / Bailai, Gurang, Gooreng Gooreng, Taribelang Bunda People (BGGGTB) People:
    - Debitage
    - Artefact scatters

Table 7-18 shows the performance objectives, legislative requirements, performance criteria, mitigations measures, inspections, monitoring, reporting and corrective action requirements for managing cultural heritage values.

Table 7-18 Cultural Heritage Control Plan

Element	**Cultural Heritage**
Performance Objectives	To minimise the impact of the Project on Aboriginal and historic cultural heritage.
Legislative Requirements	– Compliance with: • Legislation (as per Section 1.1), specifically: • *Native Title Act 1993* • *Aboriginal Cultural Heritage Act 2003* • *Aboriginal Cultural Heritage Act 2003 – Duty of Care Guidelines* • *Queensland Heritage Act 1992* • Permits, approvals and licence conditions: • Cultural Heritage Management Plans • Native Title Assessment / Indigenous Land Use Agreements (to be developed)
Performance Criteria	– Comply with the CHMP and the *Aboriginal Cultural Heritage Act 2003.* – Manage all incidental cultural heritage finds during construction in accordance with the CHMP. – No impact to known historical heritage items.
Implementation	**Pre-construction** – An Aboriginal Cultural Heritage survey of the EEPL will be undertaken to determine the nature and extent of subsurface archaeological material within the ROW prior to construction and before any ground disturbing activities. In accordance with CHMP, the survey of the ROW will be undertaken by representatives of the BGGGTB People. – The environmental induction will include training for all personnel with regard to their obligations under the CHMP and the measures to be taken in the event of an historic or Aboriginal cultural heritage find. Additional inductions from the BGGGTB People will also be implemented. **Construction** – The approved CHMP with the PCCC (now BGGGTB) for the FGP will be implemented for the EEPL. The CHMP and the Cultural Heritage Protocols provide details of the measures to be taken in the event of an Aboriginal cultural heritage find during construction. – A basic level of photographic recording, which captures the nature of the item and its context within the cultural environment and within the Project area, will be undertaken prior to works commencing in the area. – In the event of incidental historic cultural heritage finds during construction, works will cease in the area until the nature of the site can be assessed, recorded and or retrieved by a BGGGTB People representative and/or cultural heritage specialist and in consultation with DESI. – In the event of any finds of skeletal debris, the local Police will be notified immediately.
Monitoring	– Cultural heritage survey will be undertaken in accordance with the CHMP prior to any ground disturbing activities.

	– Routine daily visual observance will be undertaken by all personnel during construction (including earthworks during operations) for items of cultural heritage significance. – Weekly environmental inspections will be undertaken by the Environmental Representative/Manager, Environmental Advisor during construction to ensure environmental management is implemented in accordance with this control plan. – Monitoring will be undertaken during earthworks by representatives of the BGGGTB People, as required. – Environmental audits will be undertaken by GAWB during construction quarterly (or as determined).
Reporting	– Environmental records will be kept onsite/TeamBinder and made available to GAWB or external auditors upon request. This file will contain the following: • Completed environmental checklists/reports during the construction phase • Reports of any environmental incidents or non-conformances with the CEMP – Internal and external environmental audit results. – Reporting to DES in the event of a cultural heritage find during construction (refer to Table 3-1 for contact details).
Corrective Action	– The contractor will notify GAWB of any non-conformances with the above measures and corrective action (with approval from GAWB) will be taken to address the non-conformance. A non-conformance report will be completed by the contractor and filed by both the GAWB and the contractor. – Where GAWB is responsible for the non-conformance, it will report on non-conformances and corrective action will be taken to address the non-conformance. A non-conformance report will also be filed by GAWB. – Retrain all personnel and sub-contractors in cultural heritage management if the CHMP is not being implemented and modify work practices as required. – Notification to the relevant BGGGTB People or appropriately qualified cultural heritage advisor for assessment of the find.

7.19 Social and Economic

Temporary impacts to landholders may occur during construction of the pipeline and may include:

- Traffic impacts on local roads as a result of construction vehicles and machinery
- Temporary access delays during pipeline construction across local roads
- Amenity impacts associated with noise and dust generated during construction
- Disruption to grazing land, fencing and gates, irrigation, farm dams and other agricultural land.

Table 7-19 shows the performance objectives, legislative requirements, performance criteria, mitigations measures, inspections, monitoring, reporting and corrective action requirements for managing the social and economic environment.

Table 7-19 Social and Economic Environment Control Plan

Element	Social and Economic
Performance Objectives	– To minimise impacts to the community during construction of the EEPL. – To maximise economic opportunities during the construction of the EEPL.

Legislative Requirements	– Compliance with:
	• Legislation (as per Section 1.1), specifically:
	• Development Requirements or guidelines:
	  • Queensland Government Building and Construction Contracts Structured Training Policy (the 10 percent policy)
	  • Local Industry Policy
	  • CHMPs and relevant Indigenous participation requirements
	• Permits, approvals and licence conditions:
	  • Landowners' requirements
	  • Road Works Approval / Road Corridor Permits / Traffic Control Permits (TMR)
	  • Road Reserve Works Permit (RRC)
	  • Works on Road Corridor Permit (GRC)
	  • Road Closure Permit (Queensland Police).

Performance Criteria	– Comply with the *Queensland Government Building and Construction Contracts Structured Training Policy (the 10 percent policy)*. – Comply with the *Local Industry Policy* through the development of a Local Industry Participation Plan in consultation with the Department of Tourism, Regional Development and Industry. – Adhere to the GAWB and the contractor's EMS.
Implementation	**Planning** – Impacted landholder agreements for access routes and construction activities will be prepared and signed in consultation with landholders. **Construction** – Mitigation measures will be implemented to address the accommodation impacts for the EEPL include: • Local labour and sub-contractors will be employed where practicable • Works will be planned to avoid concurrent operations where practicable • Utilisation of the Fitzroy to Gladstone Pipeline camp if practicable **Community Liaison** – Impacted landholder agreements for access routes and construction activities, including work on Sundays and water sources, will be prepared and signed in consultation with landholders. – Impacted landholders will be informed about when they may be affected by works, and the duration of the works two weeks prior to any works occurring. – A 24 hour contact number for the EEPL will be implemented for the construction phase so that residents always have an immediate point of contact when they have questions or concerns.

	– All complaints received will be handled in accordance with the complaints/incidents procedure, refer to Section 9.2.
Monitoring	– Weekly environmental inspections will be undertaken by the Environmental Representative/Manager, Environmental Advisor during construction to ensure environmental management is implemented in accordance with this control plan and will include: • Monitoring will be undertaken as required of Human Resourcing, housing and Industrial Relations. • Monitoring will be undertaken in accordance with the Air Environment, Noise and Vibration, Transport and Access and Cultural Heritage Control Plans (Sections 7.13, 7.16, 7.17, and 7.18, respectively) – Environmental audits will be undertaken by GAWB during construction quarterly (or as determined).
Reporting	– Environmental records will be kept onsite/TeamBinder and made available to GAWB or external auditors upon request. This file will contain the following: • Local and First Nations employment numbers • Local and First Nations business employed • Reports of any environmental incidents or non-conformances with the CEMP. – Internal and external environmental audit results.
Corrective Action	– The contractor will notify GAWB of any non-conformances with the above measures and corrective action (with approval from GAWB) will be taken to address the non-conformance. A non-conformance report will be completed by the contractor and filed by both GAWB and the contractor. – Where GAWB is responsible for the non-conformance, it will report on non-conformances and corrective action will be taken to address the non-conformance. A non-conformance report will also be filed by GAWB.

7.20 Handling and Storage of Dangerous and Hazardous Goods

The potential impacts from the transport, storage and handling of dangerous and hazardous goods during construction of the EEPL have been assessed and include:

- Pollution of land
- Pollution of water
- Impacts to flora and fauna
- Impacts to human health.

Table 7-20 shows the performance objectives, legislative requirements, performance criteria, mitigations measures, inspections, monitoring, reporting and corrective action requirements for handling and storage of dangerous goods.

Table 7-20 Handling and Storage of Dangerous Goods

Element	Handling and Storage of Dangerous Goods
Performance Objectives	– To manage the purchase, handling, storage and disposal of dangerous goods onsite in a manner that does not cause harm to the environment, Project personnel or the public.

Legislative Requirements	– Compliance with:
	• Legislation (as per Section 1.1), specifically:
	  • *Dangerous Goods Safety Management Act 2001*
	• Development Requirements or guidelines
	  • AS1940: The storage and handling of flammable and combustible liquids
	  • AS2187: The storage, transport and use of explosives
	  • The Australian Code for the Transport of Dangerous Goods by Road and Rail
	• Permits, approvals and licence conditions

Performance Criteria	– No contamination of the environment and no injuries to personnel or the public from the storage or handling on dangerous goods.

Implementation	**Construction**
	– All personnel will receive an induction prior to commencing work on the site in the handling and storage of dangerous goods and in spill containment procedures.
	– A hazard identification and risk assessment process will be undertaken for the storage of dangerous goods in Project areas.
	– The SDS for all dangerous goods and hazardous materials will be kept onsite/TeamBinder.
	– Licenses or permits will be obtained from the relevant local governments if required for flammable and combustible liquids.
	– Risks posed by dangerous goods and hazardous materials stored or handled during construction will be minimised where reasonably practicable through:
	  • Minimisation of the quantities kept onsite.
	  • Compliance with SDS instructions.
	  • Segregation of incompatible dangerous goods and hazardous materials.
	  • Appropriate separation of dangerous goods and hazardous materials storage areas from people and property.
	  • Storage of flammable or combustible dangerous goods away from ignition sources.
	– Flammable and combustible liquids will be stored in bunded containers / areas in accordance with AS1940 and transported and disposed of by an appropriately licensed contractor.
	– Liquid dangerous goods will be stored in bunded containers with sufficient capacity to contain the potential spillage and any rainfall (i.e. 110% of the largest tank).
	– Personal protective equipment will be provided to personnel required to work with dangerous goods.
	– If a spill occurs:
	  • cease the activity
	  • contain the spill

	• clean up the spill • commence incident management and response process, refer to Section **9.1**. – Appropriately stocked spill kits will be located in each construction area and along the ROW and personnel will be trained appropriately in the use. – Any refuelling undertaken at site will be undertaken in a designated refuelling area, away from waterways, with nozzles with stop valves to reduce the risk of contamination to the environment. – Portable fire extinguishers will be available if required at Project areas and in vehicles. – Plant and equipment will be maintained in accordance with manufacturers' specification to minimise the leakage of oil, fuel, hydraulic and other fluids. – Regulated wastes will be transported by a licensed contractor to a licensed waste management facility able to accept the waste. – Explosives (dangerous goods class 1) will be used if the drill and blasting option is pursued in accordance with a Blasting Management Plan. Explosives will be stored in accordance with AS2187: The storage, transport and use of explosives and will be handled by a licensed explosives expert. Noting these would only be brought onto the Site on the day of discharge (i.e. not stored on the ROW).
Monitoring	– Routine daily visual observance will be undertaken by all personnel during construction for possible incidents related to dangerous goods and hazardous materials. – Weekly environmental inspections will be undertaken by the Environmental Representative/Manager, Environmental Advisor during construction to ensure environmental management is implemented in accordance with this control plan and will include: • Inspecting the dangerous goods storage area(s) • Checking for evidence of spills or releases • Recording of any spills occurring at Project areas and implementing corrective actions • Inspecting spill kits to ensure they are readily available and well maintained, stocked and functional. – Environmental audits will be undertaken by GAWB during construction quarterly (or as determined).
Reporting	– Environmental records will be kept onsite/TeamBinder and made available to GAWB or external auditors upon request. This file will contain the following: • Completed environmental checklists/reports during the construction phase • Reports of any environmental incidents or non-conformances with the CEMP • Internal and external environmental audit results. – Inventory of dangerous goods and hazardous materials at the site during construction and operation including their storage requirements, locations and SDS.
Corrective Action	– The contractor will notify GAWB of any non-conformances with the above measures and corrective action (with approval from GAWB) will be taken to address the non-conformance. A non-conformance report will be completed by the contractor and filed by both GAWB and the contractor. – Where GAWB is responsible for the non-conformance, it will report on non-conformances and corrective action will be taken to address the non-conformance. A non-conformance report will also be filed by GAWB. – The following corrective actions will be undertaken: • Immediately clean up the spill and dispose of any contaminated material • Repair the containment facilities to reduce the risk of further spills occurring • In addressing a major spill involving dangerous goods DES and local authority will be contacted as required. – Non-compliance with the implementation measures above will be corrected immediately and a non-conformance report completed.

7.21 Rehabilitation and Revegetation

The construction of the EEPL will result in temporary and permanent impacts. These impacts primarily relate to ground disturbance, vegetation clearing, and fauna habitat clearing of Project areas and include temporary impacts that are restricted to the construction.

Table 7-22 shows the performance objectives, legislative requirements, performance criteria, mitigations measures, inspections, monitoring, reporting and corrective action requirements for landscape and visual amenity management.

Table 7-21 Rehabilitation and Revegetation Control Plan

Element	Rehabilitation and Revegetation
Performance Objectives	– To create stable landforms with similar land use capability and or suitability that existed prior to the disturbance unless an alternative end land use is pre-determined and or agreed. – To reinstated and rehabilitate marine plants to pre-disturbance conditions.
Legislative Requirements	– Compliance with: • Legislation (as per Section 1.1) • Permits, approvals and licence conditions
Performance Criteria	– No environmental harm to occur due to rehabilitation and revegetation activities. Landform is stable, shows negligible movement and represents the pre-disturbance conditions. – All rehabilitation and revegetation areas remain in good health. – Vegetation composition represents pre-disturbance conditions. – All disturbed land reinstated to pre-disturbance profiles so that the spatial extent of terrestrial and marine plants represents pre-disturbance levels. – Species richness, density and cover representative of pre-disturbance conditions.
Implementation	**Pre-construction** – The ROW and facility locations will be inspected and surveyed prior to construction in order to establish baseline conditions and to: • Identify trees and vegetation that are required to be protected / retained • Identify any weeds and pests to be managed • Identify any contamination sources • Identify the condition of the land. – Vegetation clearance, including at sensitive sites, will be minimised where practicable. **Construction** – Reinstatement and revegetation, where required, will commence as soon as practicable after construction activities and no later than one month after completion of works. impacting terrestrial marine plants. – Revegetation and replanting will commence as soon as practicable after construction activities and no later than one month after completion of works impacting marine plants. – Any land disturbed due to the laying of the pipeline will be rehabilitated to its pre-clearance or disturbance condition where practicable. – Topsoil will be stripped and reused for rehabilitation and landscaping purposes. – Soils will be replaced so that the topsoil depth is consistent with pre-clearance depths and profiles. – Ground cover will be established at disturbed sites following respreading of topsoil. Ground cover can include organic material, leaf litter, mulch, hydromulch, living or dead plant material, rocks, logs, other woody materials or erosion control materials. – Disturbed areas may also be sown with a cover crop immediately following topsoil respreading in areas with high erosion potential. – Backfill will be machine compacted to reduce the risk of surface erosion and trench subsidence post construction and rehabilitation. – Adequate cover will be placed on all disturbed areas prior to the removal of stormwater runoff controls. – At the end of construction, all areas of exposed soil will be mulched and/or grassed to minimise any ongoing erosion issues from Project areas.

	– Temporary stormwater and sediment control devices will be removed only once groundcover is established. – Temporary hoardings, barriers, traffic management and signage will be removed when no longer required. – Waterway crossings and wetlands will be revegetated with trees, shrub and grasses endemic to the area, sufficient to re-establish a riparian environment and protect bed and banks from erosion as per the Riverine protection permit exemption requirements WSS/2013/726 Version 2.02 (DRDMW, 2023). – Rehabilitation will include the following measures, to be undertaken progressively as works are staged: • Recontouring and compaction • Topsoil replacement • Weed control • Erosion protection • Revegetation, consistent with pre-clearance and surrounding conditions.
Monitoring	– Pre-clearance surveys will be undertaken for Project areas to assess pre-disturbed conditions. – Photo monitoring sites will be established. – Weekly environmental inspections will be undertaken by the Environmental Representative/Manager, Environmental Advisor during construction to ensure environmental management is implemented in accordance with this control plan and include monitoring for: • Landform stability, soil cover and erosion. • Rehabilitation health • Species diversity • Foliage cover at reference sites • Induction or presence of weeds. – Monitoring for marine plant rehabilitation will be undertaken in accordance with the SAP – Waterways. – Post-rehabilitation and revegetation monitoring will be undertaken for a period of five years or until the revegetation has stabilised and in good health (this will be addressed in the Operation Environmental Management Plan).
Reporting	– Environmental records to be kept onsite/TeamBinder and made available to GAWB or external auditors upon request. This file will contain the following: • Completed environmental checklists/reports during the construction phase • Completed monitoring reports • Reports of any environmental incidents or non-conformances with the CEMP • Internal and external environmental audit results.
Corrective Action	– The contractor will notify GAWB of any non-conformances with the above measures and corrective action (with approval from GAWB) will be taken to address the non-conformance. A non-conformance report will be completed by the contractor and filed by both GAWB and the contractor. – Where GAWB is responsible for the non-conformance, it will report on non-conformances and corrective action will be taken to address the non-conformance. A non-conformance report will also be filed by GAWB. – Where either natural regeneration or reinstatement of the relocated marine plants fails to meet the performance criteria, assisted revegetation and direct planting will be undertaken with a species mix and density that is consistent with the pre-clearance conditions, as outlined in the SAP – Waterways.

7.22 Landscape and Visual Amenity

The construction of the EEPL would create short-term impacts. These impacts would primarily relate to the visual appearance of the construction works that would be temporary, restricted to the construction period.

Table 7-22 shows the performance objectives, legislative requirements, performance criteria, mitigations measures, inspections, monitoring, reporting and corrective action requirements for landscape and visual amenity management.

Table 7-22 Landscape and Visual Amenity Management Control Plan

Element	Landscape and Visual Amenity
Performance Objectives	– To minimise visual modification impacts upon landscape and visual amenity that arise during construction and operation. – To return visual amenity back to pre-disturbance condition where possible.
Legislative Requirements	– Compliance with: • Legislation (as per Legislation (as per Section 1.1) • Permits, approvals and licence conditions
Performance Criteria	– Protect and/or reasonably restore landscape and visual amenity. – Stable landforms with similar land use capability and or suitability that existed prior to the disturbance unless an alternative end land use is pre-determined and or agreed.
Implementation	**Construction** – Project areas will be inspected prior to construction to • Identify trees and vegetation that are required to be protected / retained • Identify any weeds and pests to be managed • Identify any contamination sources • Identify the condition of the land. – Vegetation clearance, including at sensitive sites, will be minimised where practicable. – Topsoil and cleared vegetation will be stripped and reused for rehabilitation and landscaping purposes. – Temporary hoardings, barriers, traffic management and signage will be removed when no longer required. – Lighting of compounds and works sites will be restricted low impact lighting for security purposes, where and when required. – Lighting spill will be minimised by directing lights away from sensitive receptors. – Temporary storage facilities will be located out of sight of residential areas where practicable. – A high level of housekeeping will be maintained with materials and machinery being stored tidily during construction, and where possible behind solid hoardings. – Roads providing access to site compounds and work areas will be maintained free of dust and mud as far as reasonably practicable. – Upon completion of construction, all construction materials will be removed to a suitable location. – Screen planting and/or natural vegetation revegetation will be undertaken as required at locations outside the ROW (e.g. facility sites). – Appearance of other features such as signs and fencing will be considered minimise visual amenity impacts. – Rehabilitation (refer to Section 7.21) will include the following measures, to be undertaken progressively as works are staged: • Recontouring and compaction • Topsoil replacement • Weed control • Erosion protection • Revegetation, consistent with surrounding conditions.

Monitoring	– Weekly environmental inspections will be undertaken by the Environmental Representative/Manager, Environmental Advisor during construction to ensure environmental management is implemented in accordance with this control plan and will include: • Identification of visual amenity issues • Identification of landscaping vegetation health. – Post-rehabilitation and landscaping monitoring will be undertaken on a monthly basis. – Environmental audits will be undertaken by GAWB during construction quarterly (or as determined).
Reporting	– Environmental records will be kept onsite/TeamBinder and made available to GAWB or external auditors upon request. This file will contain the following: • Completed environmental checklists/reports during the construction phase • Reports of any environmental incidents or non-conformances with the CEMP • Internal and external environmental audit results.
Corrective Action	– Undertake a site inspection following a complaint of a visual amenity issue. Inspect the area for where the complaint was made and if complaint is valid undertake appropriate management measures to rectify. – The contractor will notify GAWB of any non-conformances with the above measures and corrective action (with approval from GAWB) will be taken to address the non-conformance. A non-conformance report will be completed by the contractor and filed by both GAWB and the contractor. – Where GAWB is responsible for the non-conformance, it will report on non-conformances and corrective action will be taken to address the non-conformance. A non-conformance report will also be filed by GAWB.

8. PERFORMANCE AND EVALUATION

The Contractor Environmental Representative/Manager and Environmental Advisor will implement the requirements of the CEMP with support from GAWB. The environmental performance of the EEPL will be determined by implementing environmental monitoring programs and site inspection programs consistent with this CEMP. Compliance with environmental requirements will be assessed during site inspections, monitoring and environmental audits. All environmental management matters and monitoring, inspection and audits will be documented and recorded.

Based on the type of inspection, monitoring or audit, they should be carried out by suitably qualified persons. For example, a daily inspection should be complete by a person who understands the operations and controls in the area.

The contractor will implement any changes necessary to its EMS, management plans, procedures and processes in response to Project changes with the intention to drive continuous improvement for the EEPL.

8.1 Monitoring and Inspections

The EEPL's environmental performance will be tracked through regular monitoring and inspections. The aim of the monitoring and inspections will be to show the effectiveness or suitability of controls should there be an incident or complaint.

Monitoring activities will be conducted by suitably qualified persons. Monitoring will be carried out in accordance with guidelines and standards and conditions of approvals and the requirements of the SMP and SAP – Waterways.

The inspections will also be conducted by suitably qualified persons and review all environmental controls that are relevant to the construction activities underway at the time of the inspections. Implementation of all mitigation measures should be verified and recorded as suitable and effective. The date and time of the inspections will be recorded as well as comments on non-conformance and corrective action taken. Copies of the site inspection checklist will be signed and maintained onsite and in TeamBinder.

The results of the monitoring programs and inspections will be interpreted and reviewed regularly. Results will be reported to relevant authorities within agreed timeframes as determined in approval conditions. The incident management procedures will describe the procedures for instances, where monitoring results trigger the need for a management and/or reporting response.

Where a non-conformance is identified and does not present a significant risk of environmental harm, and can be corrected promptly, the corrective action will be closed out on the checklist. Where the risk of environmental harm is more significant and/or the corrective action cannot be undertaken promptly, the action will be recorded in the corrective action register.

Where a non-compliance, incident or near miss is observed during inspections, the incident investigation and reporting procedure will be followed.

An overview of the monitoring and inspection is provided in Table 8-1 and monitoring program is outlined in Table 8-2, refer to each control plan for detailed monitoring requirements.

Corrective actions are outlined in each control plan and will be assigned to Environmental Representative / Manager to ensure implementation.

Table 8-1 Monitoring and Inspection Requirements

Monitoring/Inspection Requirement	Description
Inspection	Regular (weekly) environmental compliance inspections are carried out by the Environmental Representative / Manager and Environmental Advisor for the EEPL and relevant work areas. The findings of the Inspection are recorded on Weekly Site Environmental Inspection Report, in which required remedial actions are also recorded, including a responsibility

Monitoring/Inspection Requirement	Description
	and timeline for completion. These shall be monitored to ensure that they are closed out in the required time frame.
Monitoring	Monitoring and inspection will be conducted on a routine basis; however, additional monitoring may be required in the event of an incident, complaint or change in circumstances. The Environmental Representative/ Manager is responsible for the implementation of onsite environmental measurements, including delegation to appropriate personnel on the Project.
Calibration of Monitoring Equipment	Monitoring equipment will be calibrated prior to use and in line with user manuals for the equipment. Any equipment identified as having doubtful accuracy or precision will be removed from use and recalibrated. Where any monitoring equipment is found to be out of calibration, the validity of the previous monitoring results will be assessed and documented. Calibration of monitoring equipment will be recorded on Equipment Calibration Record.

8.2 Analysis and Evaluation

Monitoring and inspection results will be used to assess the environmental performance of the Project against the relevant criteria depending upon the aspect and the monitoring requirements. The Environmental Representative / Manager is responsible for checking monitoring and inspection results against the environmental obligations and identifying any non-conformances. The Environmental Representative/Manager or Environmental Advisor also is also responsible for raising a non-conformance, incident and/ or corrective action as necessary.

8.3 Environmental Auditing

GAWB will undertake compliance audits on a quarterly basis or otherwise determined. These audits will be conducted to measures the Project's environmental performance against this CEMP, other relevant management plans and against conditions of approvals.

In addition, third party audits to verify compliance with all applicable environmental requirements will be conducted on a six-monthly basis and/or as specified by relevant approval conditions. This will include verifying compliance with at least the following requirements:

- CEMP relevant to construction (this plan)
- EMS
- Applicable legislative and approval requirements
- Other applicable environmental requirements.

Audits will be conducted by an appropriately qualified person, 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 including non-compliances, corrective actions, revised practices and evidence to support the findings of the audit.

The audit period will begin on commencement of construction and end once all audit report corrective actions have been completed.

Table 8-2 Monitoring Program

Environmental Issue	Document Reference	Location onsite	Monitoring Parameter	Frequency	Record	Responsibility
Flora and Fauna	Fauna Management Control Plan Flora Management Control Plan Rehabilitation and Revegetation Control Plan Landscape and Visual Amenity Control Plan Species Management Program	Entire Project Area	Adherence to minimum areas of site clearance and disturbance/damage around Project areas.	At all times	Acceptance/sign off	Environmental Representative / Manager
		As required	All fauna identified during construction activities (refer to relevant SAPs)	At all times	Inspection	Environmental Representative / Manager
		As required	All vegetation removed or disturbed must be tracked in a vegetation tracking register. Rehabilitation performance. Refer to relevant SAPs.	At all times	Register	Environmental Representative / Manager
Weed, pest and disease	Biosecurity Control Plan	Entire Project Area	Monitoring and control to prevent outbreak of weeds, pests, and diseases	Pre-construction and at all times	Inspection	Environmental Representative / Manager
Materials, fuel, and waste management	Dangerous and Hazardous Goods Control Plan Waste Management Control Plan Sustainability Management Plan (SMP)	Entire Project Area	Waste to be avoided, reused, or recycled in preference to disposal	At all times, at least weekly	Inspection; monthly National Green House Emission Reporting data	Environmental Representative / Manager
		Construction waste storage locations	Correct waste classification for all waste	At all times, at least weekly	Inspection; monthly National Green House Emission Reporting data	Environmental Representative / Manager
		Entire Project Area	Waste management volumes	At all times, at least weekly	Inspection; monthly	
Hazardous materials	Dangerous and Hazardous Goods Control Plan	Entire Project Area	Observation of vehicle/plant maintenance and refuelling activities	At all times	Inspection	Environmental Representative / Manager

Environmental Issue	Document Reference	Location onsite	Monitoring Parameter	Frequency	Record	Responsibility
Water quality	Water Resources and Water Quality Control Plan	Receiving environment	Turbidity, pH, dissolved oxygen, electrical conductivity	Prior to active discharge to storm water drainage systems (via overflow or pumping), during rainfall events when runoff from site	Laboratory results Water quality readings	Environmental Representative / Manager
ASS	ASS Control Plan	Identified ASS areas	Lime validation Water quality	Within 72 hrs Daily	Laboratory results Water / soil quality readings	Environmental Representative / Manager
Erosion and Sediment	Erosion and Sediment Control Plan	Entire Project Area	ESC devices condition and operability Weather conditions Turbidity, pH, dissolved oxygen, electrical conductivity	Weekly Daily during weather events Prior to discharges	ESC device condition Water quality readings	Environmental Representative / Manager
Air quality	Air Environment Control Plan	Entire Project Area at sensitive receptors installed at representative sites.	g/m2/month Respirable crystalline silica dust as required	Continuous dust deposition monitoring In response to a complaint	Records	Environmental Representative / Manager
Noise and Vibration	Noise and Vibration Control Plan	At selected sites with the potential for high vibration e.g. blasting / rock breaking	Peak particle velocity (mm/s) via vibration	During high vibrational activities In response to a complaint	Records	Environmental Representative / Manager Acoustic consultant
		At selected sites	Leq,15min dB(A), airborne noise	In response to a complaint	Records	Environmental Representative / Manager Acoustic consultant

Environmental Issue	Document Reference	Location onsite	Monitoring Parameter	Frequency	Record	Responsibility
Material Movement	Dangerous and Hazardous Goods Control Plan Waste Management Control Plan	Entire Project Area	Material movement	At all times, at least weekly	Waste Transport Certificate	Environmental Representative / Manager

8.4 Environmental Recording

TeamBinder, a construction project management document management system developed by InEight will be implemented for the EEPL.

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

- Site inspection checklists
- Environmental audit reports
- Monthly reports
- Training records
- Monitoring data
- Complaints and associated records of communication
- Non-conformance and incident records including investigation and close out details
- Meeting minutes.

Records of all activities for monitoring, inspections and audits will be recorded for the purpose of any condition compliance required. Environmental files will be kept onsite and made available to GAWB or external auditors upon request. This file will contain the following:

- Completed environmental checklists/reports during the construction phase
- Reports of any environmental incidents or non-conformances with the CEMP
- Internal and external environmental audit reports including audit action plans
- Annual audits regarding compliance with EPBC Act approval conditions.

8.5 Reporting

TeamBinder will be implemented for the EEPL that will be able to generate dashboards and reporting.

Reporting requirements will evolve as the EEPL progresses. In the early phases, emphasis is on the establishment of systems, controls, and competence of all personnel, while later the emphasis will shift to monitoring performance. When nearing completion (as applicable) the focus will be on final reports to address approval requirements.

The Environmental Management Representative/Environmental Manager is responsible for managing environmental performance reporting. The Project Manager is responsible for submitting the reports required externally.

Routine reporting requirements are summarised in Table 8-3, noting other Project / legislative reporting requirements will be relevant from time to time.

Table 8-3 Reporting Requirements

Reporting Requirement	Reporting Frequency	Responsibility
Weekly inspection checklist and reports	Weekly	Environmental Representative / Manager
Monthly Reports (including training records, monitoring data, regulator interactions)	Monthly	Project Manager
Annual Status Reports	Yearly	Environmental Representative / Manager
Project completion report	Project completion	Project Manager

Reporting Requirement	Reporting Frequency	Responsibility
Approval condition closeout report	Project completion/when required (e.g., permit closeout/surrender)	Environmental Representative / Manager
Incidents/Complaints Register	As required	Environmental Representative / Manager
Non-conformances	As required	Environmental Representative / Manager
Corrective Action Register	Monthly	Environmental Representative / Manager
Pre-clearance Reports	Monthly	Environmental Representative / Manager
Weed wash-down Register during construction	Monthly	Environmental Representative / Manager
Internal and external environmental audit reports	As completed	Environmental Representative / Manager
Sustainability data (including energy use, water use, waste generation and meeting minutes)	Monthly	Environmental Representative / Manager
Greenhouse gas emissions data	Monthly	Environmental Representative / Manager
Quantities of wastes generated and disposed	Monthly	Environmental Representative / Manager
Records of Hydrotest water quality prior to discharge and of the locations and quantities of discharge	Prior to and Monthly during commissioning	Environmental Representative / Manager
Review of the CEMP	Six-monthly, or as required.	Environmental Representative / Manager

9. INCIDENTS, NON-CONFORMANCES, COMPLAINTS AND EMERGENCIES

9.1 Incidents and Non-Conformances

All personnel must always be mindful of the provisions of the CEMP to identify and notify near misses, incidents and non-conformances to GAWB and relevant regulatory agency as required. Incidents will be managed and investigated, and reports raised, tracked, and closed out.

The cause of all incidents will be subject to an investigation, convened by the Environmental Representative / Manager to determine the root causes of the incident and to ensure that remedial/corrective action is able to be implemented to ensure a repeat of the incident is avoided.

Environmental impact is defined as the following:

- Environmental Impact may be direct or indirect
- Harm to the environment involving removal or destruction of native flora and fauna or the removal and destruction of the habitat of native flora and fauna
- Alteration of the environment to its potential or actual detriment or degradation
- Alternation of the environment to the potential or actual detriment or degradation of an environmental principle
- Alteration of the environment of a prescribed kind.

Environmental incidents and near-misses are defined as follows:

- Serious Environmental Impact can be defined as:
    - Environmental harm that – Is permanent, of high impact or on a wide scale
    - Is significant or in an area of high conservation value or special significance
    - Results in actual or potential loss, property damage or damage costs of $100,000 or more (to financial year ending 30 June 2023, after which this is increased by the consumer price index), or could result in costs of more than $100,000 for action to prevent or minimise harm and to rehabilitate and restore the environment
    - An incident or set of circumstances during or as a consequence of which, there is or is likely to be a leak, spill or other escape or deposit of a substance (liquid, solid, gas), as a result of which pollution (material environmental harm) has or is likely to occur.
- Material Environmental Impact can be defined as:
    - Environmental harm that - Is not trivial or negligible in nature, extent, or context
    - Could cause loss or damage to property of more than $10,000 but less than $100,000 (to financial year ending 30 June 2023, after which this is increased by the consumer price index)
    - Could result in costs of more than $10,000 but less than $100,000 (2022/2023) for action to prevent or minimise harm and to rehabilitate and restore the environment to its condition before the harm.
- Minor environmental incident can be defined as:
    - An environmental incident that does not result in serious or material environmental harm but does result in degradation to the receiving environment that is contained without further impact or rectified in a timely manner, at a cost less than $10,000.

- A Near-miss environmental incident is an event where environmental damage/loss/impact could have occurred but did not (i.e., Spill to impervious surface, hardstand, spoil, or bare earth (where topsoil has been stripped), less than 5L and cleaned up with no residual impact to the environment i.e., hydraulic hose burst resulting in 2L spray to asphalt.). Near-misses must be raised and discussed to drive continual improvement in environmental best practice.
- A Hazard is a source or situation that may pose a risk of harm to a person or the environment (i.e., an in-secure hydraulic hose presenting the potential for drip of a hydrocarbon onto soil, resulting in land contamination. The hazard must be raised, and a corrective action assigned. This method will capture the required data for reporting purposes.

A summary and review of incidents for the duration of the Project and for the relevant month will be included in the Monthly Report.

9.1.1 *Notification Procedure*

GAWB and the contractor, and applicable regulatory agency (where relevant) will be notified of incidents and non-conformances that trigger notification as defined in the Incident Reporting and Investigation procedure. These triggers include offsite discharges, unauthorised disturbance or destruction of fauna, flora or heritage sites and breaches and non-conformances of licences and permits issued for the EEPL.

The Project Manager is responsible for notifying GAWB and parent companies of reportable incidents. Depending on the nature of the incident and/or non-compliance (and project approval), the Environmental Representative / Manager is responsible for notifying the relevant regulatory agency.

9.2 Complaints

To minimise impacts to the community during construction of the EEPL, a complaints procedure will be implemented by the contractor in consultation with GAWB and with consideration of relevant approval conditions. The procedure includes:

- All complaints are responded to in a timely manner and in accordance with GAWB's policy.
- Corrective action to address any complaint is taken as soon as possible or an explanation given to the complainant.
- Adherence to GAWB and the contractor's EMS.

The complaint procedure includes:

- A 24 hour contact number for the Project will be implemented for the construction phase to provide the community and stakeholders with a channel of communication to the Project team particularly if there is a complaint.
- Information updates will be distributed to relevant stakeholders (e.g. adjacent properties) at regular intervals during construction and when disturbance is expected from a particular construction activity.
- An incidents/complaints report form (categorised as a complaint for tracking purposes) will be in place prior to the commencement of construction and will be used to record the following information:
    - Date, time, and nature of the incident/complaint
    - Contact details of the complainant – where available
    - Whether it is a repeat complaint
    - Nature of the enquiry or issue of concern
    - Record of communication with the complainant
    - The person responsible for investigating/addressing the complaint.

- The outcome of the complaint investigation and any remedial/corrective actions taken by the construction team to cease the impact.

9.3 Emergencies

The contractor has developed an Emergency Response Procedure in accordance with the CEMP, and GAWB and the contractor's EMS.

10. REVIEW AND IMPROVEMENT

10.1 CEMP Review

This CEMP will be live document, and as such, GAWB and the contractor are responsible for the updating and review of this plan. The CEMP will remain up to date with the most current information, revised and reviewed as required to maintain currency. Where non-conformances or incidents resolve findings that can be implemented as a positive change, that change should also be made in this document if relevant. The review will consider the following:

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

This CEMP will be reviewed, at a minimum, on a six-monthly basis by Project leadership. The Environmental Representative / Manager will be responsible for ensuring this is carried out. The review will ensure the continuing suitability, adequacy and effectiveness of the CEMP, and the EMS. The review will include assessing opportunities for improvement. Further the review will include:

- Progress of the implementation of this CEMP
- Effectiveness of this CEMP
- Adequacy of resources
- Effectiveness of training and training requirements
- Results of inspections and audits
- Critical non-conformances or repeated non-conformances
- Overall performance against environmental compliance obligations
- Organisational changes, changes to legislation and other obligations.

Records of the review will be recorded and any actions arising will be recorded in the corrective actions register.

10.2 Document Control

This CEMP is a controlled document, and updates to this document will be provided an updated Revision number including the date and lodged in TeamBinder to ensure the most up to date document is used.

This CEMP will also have appropriate controls included authored, reviewed and approved by suitably qualified persons under a delegation of authority protocols.

10.3 Management of Change

Management of change will be undertaken in line with the contractor's Change Management Procedure.

- Environment changes could introduce circumstances that lead to:
- Uncertainty amongst workers and sub-contractors
- Lack of confidence amongst workers
- Increased potential for unidentified hazards leading to increased risk
- Unplanned events and short cuts in work practices
- Fatigue/workplace stresses
- Potential breaches of licence and permit of contract conditions.

The key aspects to the change management procedures are:

- Identifying changes and their potential impact
- Assessing the change using a risk-based approach
- Stopping work where applicable
- Utilising existing risk management procedures
- Involving workers and managers according to the level of risk
- Establishing control measures
- Documenting necessary change controls
- Documenting further actions
- Monitoring new change controls
- Reviewing new change controls.

Appendix A Erosion and Sediment Control Management Plan

Appendix B Acid Sulfate Soils Environmental Management Plan

Appendix C Bushfire Management and Mitigation Plan

Gladstone Area Water Board

EROSION AND SEDIMENT CONTROL MANAGEMENT PLAN

Gladstone Area Water Board
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Gladstone Area Water Board

CONTENTS

1. INTRODUCTION

The Erosion and Sediment Control Management Plan (ESMP) is one component of the Gladstone Area Water Board (GAWB) Construction Environmental Management Plan (CEMP) for the East End Pipeline Project (hereafter referred to as “the Project”). Section 4.1 of the CEMP provides further background and detailed description of the Project.

The ESMP describes how Erosion and Sediment Control Management will be managed and any potential impact minimised during construction. This ESMP has been prepared with consideration of Project requirements, and to address the legal and other requirements outlined in Section 4.

2. PLAN PURPOSE

The purpose of this ESMP is to:

- Describe how GAWB and its contractors will manage and control risks associated erosion and sediment control during the construction of the Project.
- Provide strategies to control potential impacts of erosion and sediment control during construction.
- Address the requirements of applicable legislation.
- Address approval, permit/licence and contractual requirements.

3. MANAGEMENT OBJECTIVES AND PERFORMANCE CRITERIA

Objectives and performance criteria for the Project in relation to erosion and sediment control include the following:

Objectives	Performance Criteria
• To provide a strategic and systematic framework to enable construction of the project with minimal environmental or social impact due to erosion or sediment-laden runoff. • To identify relevant site characteristics and construction activities which have the potential to contribute to erosion or sedimentation impacts. • To ensure all construction activities are • undertaken with the objective of preventing such impacts. • To ensure no potential risks to health or amenity occur due to construction related erosion or sediment-laden runoff.	• No release of site water will occur until compliance with water quality values is verified through testing. • No accidental or uncontrolled release of sediment-laden water to surrounding waterways or storm water system. • No irreversible erosion or loss of soil from exposed surfaces, drainage channels or batters. • No changes to measurable parameters of • receiving aquatic systems above normal background fluctuations attributable to construction works. • Conformance with provisions of all regulatory and other requirements to be achieved throughout construction phase. • No complaints related to water quality from the community.

3.1 Plan scope

This plan applies to all works associated with the project.

3.2 Interface with other documents

This ESMP forms part of the overall CEMP for the Project.

4. LEGAL AND OTHER COMPLIANCE REQUIREMENTS

4.1 Legislation

- *Environmental Protection Act 1994*
- Environmental Protection Regulation 2019
- Environmental Protection (Water and Wetland Biodiversity) Policy 2019
- *Fisheries Act 1994*

4.2 Australian Standards and Industry Guides

- IECA Best Practice Erosion and Sediment Control Guidelines
- Riverine protection permit exemption requirements WSS/2013/726 Version 2.03 (Department of Regional Development, Manufacturing and Water, 2023)

5. CONTEXT

5.1 Existing environment

The purpose / objective of erosion and sediment control, as defined by IECA (2008), is 'To take all reasonable and practicable measures to minimise short and long-term soil erosion and the adverse effects of sediment transport'. This objective is consistent with the general environmental duty under the *Environmental Protection Act 1994*.

In addition to the above-mentioned objectives, this plan relates specifically to several objectives including:

- to minimise the area to be disturbed
- to minimise soil loss and degradation
- to minimise sediment and nutrient release off site and adverse impacts on water quality
- to maintain water quality, water flow rates and regimes
- to minimise disturbance to the immediate watercourse and bank stability
- to minimise impacts on aquatic flora and fauna.

Implementation of this plan, in conjunction with the CEMP will assist to achieve these objectives and fulfil the general environmental duty of care.

5.2 Key risks

Land that has been disturbed or cleared of vegetation is potentially subject to erosion as a result of stormwater runoff. Soil particles that are eroded in such a way are transported down-slope, usually settling in watercourses.

Erosion and sedimentation may result in many adverse environmental impacts including:

- reduction in water quality
- increased turbidity in receiving waters
- nutrient enrichment of water bodies
- damage to vegetation communities
- disturbance to aquatic flora and fauna
- increased potential for flooding
- reduction in recreational values
- reduction in aesthetic values
- increased maintenance costs
- promotion of weed growth.

Below provides a summary of potential environmental impacts from various Project activities.

Proposed Activity	Potential Impacts / Risks
Construction or modification to waterways and drainage systems	• Potential for accidental discharge of sediment-laden runoff into waterways or drainage systems
Discharge of water detained onsite following rainfall	• Potential for polluted water to be accidentally discharged offsite
Earthworks	• Increased erosion due to exposure of erodible subsoils. Potential offsite sedimentation impacts. • Disturbance of areas outside the project footprint. Potential for dust to be blown offsite • Erosion of small cut batters (mostly <1.0 m in height) if gradients are steep and if subjected to flows from upslope areas
Haulage of spoil	• Crossing waterways and drains. Potential for sedimentation impacts in receiving waters • Potential for dust to be blown from trucks or scrapers, impacting neighbours
Loading and transport of materials	• Potential for dust impacts during loading and transport.
Stockpiling of materials	• Potential for sediment-laden runoff to wash offsite into local waterways and drains and the receiving environment • Potential for dust to be blown offsite, impacting neighbours
Vegetation clearing and grubbing	• Increased erosion as a result of loss of ground cover • Potential offsite sedimentation impacts • Accidental removal of vegetation outside of clearing limits • Raindrop impacts on bare soil and movement of detached sediment by inter-rill erosion • Potential creation of topsoil stockpiles, with erosion of bare stockpiled soil likely to affect batter slopes • Exposure of dispersive soil

6. ROLES, RESPONSIBILTIES AND AUTHORITIES

All site personnel are responsible to ensure that they minimise environmental nuisance or harm by adherence to all Project Management Plans and other documentation. Site personnel are also responsible for ensuring they do not act in contravention of any Environmental Approval or the Contract.

Field Supervisors are responsible for implementation and maintenance of mitigation measures outlined in the ESMP for all activities or work areas under their control.

The Environmental Manager is responsible for routine surveillance and monitoring, communication of requirements of this Sub-plan, coordination of visual monitoring, and all other responsibilities related to erosion and sediment control identified within this plan and overall CEMP. Importantly the Environmental Manager is responsible for the immediate notification of State and/or Commonwealth government authorities of impacts that have mandatory reporting requirements.

The Project Manager is responsible for overseeing implementation of this plan and overall CEMP. Refer to section 6.4 of the CEMP for broader environmental management roles and responsibilities associated with the Project.

7. IMPLEMENTATION STRATEGY

7.1 Mitigation and management actions

The Table below outlines the mitigation and management measures to be carried out to ensure the Project meets all necessary requirements.

Reference	Mitigation and Management Actions	Timeframe/s	Responsibility
01	Intent of this sub-plan will be communicated through the Site Induction process, to ensure all site personnel are aware and take ownership of sub-plan requirements relating to this element.	Prior to construction	Project Manager
02	Requirements relating to this plan to be revisited frequently through Toolbox and Prestart meetings	During construction	Environment Team
03	All reasonably practicable erosion and sediment controls must be installed and appropriately maintained to minimise any water pollution.	During construction	Environment Team Superintendent Supervisors
04	An ESCP will be supplied to the Superintendent, prior to works commencing in the relevant area. Works on site will not commence until the ESCP has been approved by the Superintendent	During construction	Environment Team
05	The ESCP is to be reviewed at various stages of works including the following milestones • At the finish of all initial clearing and grubbing works • At the commencement and finish of earthworks	During construction	Environment Team Superintendent Supervisors
06	ESCP to be distributed to management and field supervision prior to new works commencing	During construction	Environment Team Superintendent Supervisors
07	Bureau of Meteorology forecasts to be monitored frequently by the Environmental Representative and site foremen to ensure prior warning and preparedness for any rainfall event	During construction	Environment Team Superintendent Supervisors
08	Rain gauges will be monitored at multiple locations on the Project	During construction	Environment Team Superintendent Supervisors
09	ESC Strategy to focus on prevention of runoff contamination rather than treatment: • Undertake staged clearing of site areas to ensure the minimum amount of site is exposed at any one time • Early installation of ESCs in each zone as works progress to ensure controls are in place before significant disturbance to areas occur	During construction	Environment Team Superintendent Supervisors

	• Early installation of site cross drainage to allow the controlled flow of clean water from upstream catchments through the site at the earliest possible stage • Diversion of clean water from upslope of the site through the installation of the final turf lined catch drains located at the top of batters • Progressive rehabilitation of cut and fill batters as works progress in each zone • Use of temporary ground cover covers such as binding sprays and site mulch for coverage of temporary stockpiles and high risk areas.		
10	Inspections will be carried out by the Environmental Representative, and Supervisor at the following intervals: • At least daily during on-going wet weather • Once per week regardless of weather patterns • Within 24 hours of imminent rainfall (as per BOM forecast) • Pre-Wet Weather Event Checklist • Within 18 hours of runoff-producing rainfall • Post Wet Weather Event Checklist	During construction	Environment Team Superintendent Supervisors
11	Repairs or maintenance to ESC controls will be completed within 24 hours of directive, or immediately where rainfall is imminent (as per BOM forecast for area)	During construction	Superintendent Supervisors
12	Erosion, sediment and drainage controls to be regularly maintained to ensure at least 70% capacity at all times.	During construction	Superintendent Supervisors
13	Stripped topsoil will be stored at available locations within the site. Topsoil will be stockpiled to a height of no more than 2m, in an area with less than 5º gradient; protected by enclosed sediment fencing around the down- slope perimeter	During construction	Superintendent Supervisors
14	On-going visual checks will be carried out to ensure no releases to receiving waterways or storm water systems occur or have the potential to occur	During construction	All persons
15	Drainage feature crossings (permanent and temporary watercourse crossings and stream diversions) and cess drains and depressions must be designed and constructed in accordance with relevant DAF Waterway Barrier Guidelines	During construction	Environment Team Superintendent Supervisors
16	Topsoil must be stockpiled separately to other soils/earthen material and clearly signed/marked on site drawings and maps, to allow for its reuse in any reinstatement and rehabilitation processes	During construction	Superintendent Supervisors
17	All stockpiles are to be located as close as practical to the source of the material and should be clearly demarcated on the type of material they contain	During construction	Superintendent Supervisors
18	Minimise duration and area of disturbance within watercourses where possible	During construction	Environment Team Superintendent Supervisors

19	Reinstatement and rehabilitation is to occur progressively and as part of the completion of each construction stage, as per contract requirements. This should be in accordance with any relevant or applicable aspects of contract requirements, conditions of approval or licences	During construction	Environment Team Superintendent Supervisors
20	Wherever possible stormwater collected during construction works should be utilised during onsite dust suppression activities	During construction	Superintendent Supervisors
21	Any sediment basins used during construction should be designed and installed in accordance with the IESCA guidelines	During construction	Environment Team Superintendent Supervisors

7.2 Erosion and sediment controls plans (ESCPs)

For the Project, the Appropriately Qualified Persons (AQPs) involved in the preparation and implementation of the Certified Professional in Erosion and Sediment Control (CPESCs).

Detailed Erosion and Sediment Control Plans (ESCP) will address the following aspects:

- The different stages of construction (e.g. site establishment - clearing, stripping and stockpiling of topsoil; earthworks; drainage); and
- Various work areas (e.g. construction compounds; facilities; sediment basins).

The ESCP will be prepared in consultation with construction personnel, will identify risk and be prepared prior to construction activities commencing. Plans will typically be prepared over A3 drawings and indicate (where relevant):

- Catchment areas
- Construction boundaries
- Exclusion zones and sensitive areas
- Maintenance of buffer zones where possible
- Assumed catchment boundaries
- Access points and tracks
- Compounds and storage areas
- Stockpile sites
- Temporary work areas
- Material processing areas
- Permanent and temporary controls (including order of implementation)
- Notes specific to high-risk activities if applicable.

In some instances, more than one ESCP may be required for an activity due to:

- Staging rendering the process complicated
- Change in the construction process, scope of work or work method
- Controls are found to be ineffective following rainfall.

7.3 Construction staging

Works will be planned and staged to facilitate effective erosion and sediment control. Strategies include:

- Ensuring perimeter surface water controls are in place prior to disturbance
- Ensuring primary sediment control structures are in place prior to work in each catchment
- Planning to minimise site disturbance, construction footprint and duration between commencement and stabilisation works
- Installation of permanent drainage as soon as practical
- Identification of high-risk areas and work planning in these areas to achieve stabilisation as soon as possible
- Staging of clearing operations Access for emergency vehicles will be maintained along key emergency access routes throughout the construction period, with suitable alternative access arrangement provided where required.

8. PERFORMANCE EVALUATION

8.1 Monitoring

General inspections and auditing will be undertaken in accordance with Section 7 of the CEMP. The Environmental Team will undertake environmental inspections to develop and evaluate the effectiveness of environmental controls. This will include:

- Daily visual inspections
- Weekly inspections using the Weekly Environmental Checklist
- Pre and Post Rainfall Inspection Checklists
- Monthly reporting will be recorded through Project Monthly Reports
- Annual independent audit

Regular inspections will be undertaken in relation to erosion and sediment controls, and include the following:

- Effectiveness of the mitigation measures
- Any environmental incidents, hazards or near-misses documented in relation to erosion and sediment control management
- Community complaints in relation to erosion and sediment control management, and the construction contractor's response
- Erosion and sediment control management objectives, and tracking against these

9. REVIEW AND IMPROVEMENT

9.1 Reporting

The Environmental Weekly Checklist, pre and post rainfall checklist, monthly reporting and annual independent audits undertaken throughout the construction phase of the project will be documented and kept on record by the Environmental Manager or their delegate for the duration of the Project.

In the event of a complaint, non-compliance or incident, an investigation will be undertaken to determine the cause of the problem and will be led by the Project Manager. Any identified impacts on erosion and sediment control management, the identified source and corrective actions are to be documented and managed in accordance with this ESMP.

9.2 Document updates

The Site Environmental Management Representative will amend, update and continue to develop and improve this ESMP on an ongoing as the construction program progresses and continual improvement opportunities are identified.

10. APPENDIX 1 – EROSION AND SEDIMENT CONTROL PLANS

To be prepared – Principal contractor to prepare prior to activities commencing

Gladstone Area Water Board

East End Pipeline Acid Sulfate Soil Management Plan

Gladstone Area Water Board
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Gladstone Area Water Board

CONTENTS

1 INTRODUCTION

The Acid Sulfate Soil Management Plan (ASS MP) is one component of the GAWB Construction Environmental Management Plan (CEMP) for the East End Pipeline Project (hereafter referred to as "the Project"). Section 4.1 of the CEMP provides further background and detailed description of the Project.

The ASS MP describes how acid sulfate soil (ASS) will be managed and any potential impact minimised during construction. This ASS MP has been prepared with consideration of Project requirements, and to address the legal and other requirements.

1.1 Plan purpose

The purpose of this ASS MP is to:

- Describe how GAWB and its contractor(s) will manage and control risks associated with ASS during the construction of the Project
- Provide strategies to control potential impacts of ASS during construction
- Address the requirements of applicable legislation
- Address approval, permit/licence and contractual requirements.

1.2 Management objective and performance criteria

Objectives and performance criteria for the Project in relation to ASS include the following:

Objectives	**Performance Criteria**
• To provide a strategic and systematic framework to enable construction of the project with minimal environmental or social impact due to ASS • To ensure all construction activities are undertaken with the objective of preventing such impacts	• Consider disturbance and management of ASS/PASS • No adverse impacts to land or groundwater chemistry

1.3 Plan Scope

This plan applies to all works associated with the Project.

1.4 Interface with other documents

This ASS MP forms part of the overall CEMP for the Project.

2 ASS MANAGEMENT PROCEDURES

Elements / Issues:	**Acid Sulfate Soils** – Earthworks operations involving disturbance of ASS, specifically: 1. Excavation of shallow Actual and Potential Acid Sulfate Soils (AASS/PASS) located at below 5 m AHD during earthwork activities associated with the project. 2. On-site treatment of AASS/PASS spoil from excavations either insitu or at a lime treatment area, or removal off-site for disposal at licensed facility (if required due to the contamination status of the soil). 3. Potential adverse changes to groundwater dynamics and chemistry, particularly near creek crossings. 4. Discharge of acidic groundwater, seepage or intercepted rainwater off-site.
Operational/policy	To minimise adverse impacts resulting from: • disturbance of AASS/PASS on site during construction • impact to groundwater chemistry (through disturbance of ASS) and migration of impacted groundwater off-site towards drains, creeks or waterways temporary placement of spoil containing ASS on site • on-site treatment of AASS/PASS spoil from excavations, and discharge of any acidic seepage and intercepted rainwater off-site.
Statutory Requirements:	Development is covered under the: • *Environmental Protection Act, 1994*; and • Environmental Protection (Water) Policy, 2019. Additional reference is made to: • The ANZG 'Australian and New Zealand Guidelines for Fresh and Marine Water Quality - 2018' • State Planning Policy Part E Interim development assessment requirements, State interest—water quality 2016. • State Planning Policy, July 2017 • State Planning Policy - State Interest Guideline Water Quality February 2021 • State Planning Policy 2/02, 'Planning and Managing Development involving Acid Sulfate Soils' Queensland Acid Sulfate Soil Technical Manual – Soil Management Guidelines 2 (Version 3.8) • Queensland Acid Sulfate Soil Technical Manual, Soil Management Guidelines Version 5.1, 2024 • Sullivan, L, Ward, N, Toppler, N and Lancaster, G 2018, National Acid Sulfate Soils guidance: National acid sulfate soils sampling and identification methods manual, Department of Agriculture and Water Resources, Canberra ACT. CC BY 4.0. (National ASS Sampling Guidelines) • Sullivan, L, Ward, N, Toppler, N and Lancaster, G 2018, National Acid Sulfate Soils Guidance: National acid sulfate soils identification and laboratory methods manual, Department of Agriculture and Water Resources, Canberra, ACT. CC BY 4.0. ('*National Acid Sulfate Soil Laboratory Guidelines*') • Shand, P, Appleyard, S, Simpson, SL, Degens, B, Mosley, LM 2018, National Acid Sulfate Soils Guidance: Guidance for the dewatering of acid sulfate soils in shallow groundwater environments, Department of

	Agriculture and Water Resources, Canberra, ACT. CC BY 4.0. *'National Acid Sulfate Soil Dewatering Guidelines'*)
Performance Limits	1. ASS spoil from trench excavations that is placed as backfill can be limed 2. in-situ utilising a factor of safety of 3.0 and re-placed as backfill within 24 hrs. Lime verification analysis is not required given that a higher factor of safety is adopted. 3. Any lime treated ASS spoil that cannot be backfilled into the trenches shall be subject to verification testing using the Suspension Peroxide Oxidation Combined Acidity and Sulfate (SPOCAS) or the Chromium Reducible Sulfur (CRS) suite. The lime-treated material is to have: • a 'verification net acidity' of less than zero, • a pH_{KCl} after neutralisation of greater than or equal to 6.5. Note: Net Acid Soluble Sulfur (S_{NAS}) analyses is to be undertaken if ASS investigations indicate the presence of jarosite in the soils. 4. Records of lime used to treat spoil quantities should match records of bulk lime bought on to site and used for that purpose. A general photographic record of the lime mixing procedures should be made and maintained for reference. 5. Photographic records made of the developed site should be used to demonstrate no obvious degeneration of aesthetic value of the site and immediate surrounds. 6. The pH of any surface waters accumulating on site, including during the installation of the pipeline, shall be monitored and if necessary treated on-site to achieve a pH between 7.0 and 8.5 before discharge on-site. 7. Discharge water quality criteria are to be set for local waterways based on either ANZG limits or State/Local Water Quality Objectives (WQOs). Should it become necessary to discharge water from excavations directly to any drain or waterway (e.g. following a heavy rainfall event) monitoring parameters and provisional limits set for discharge of surface waters off site are to be met. 8. Note that other non-ASS related parameters such as nutrient load may be specified for discharge offsite under the auspice of unrelated legislation. 9. Any untreated spoil sent off-site for disposal must meet the acceptance criteria of the proposed disposal facility (e.g. licensed landfill). **Groundwater** 10. Monitoring parameters and provisional limits for groundwater are to be based on 'base line' values established prior to construction. 11. Should results of groundwater monitoring indicate potential impacts to receiving water quality, i.e. rivers or creeks along the alignment, monitoring would be required at upstream and downstream locations within the waterway. **Receiving Waters** 12. Should it become necessary to discharge water directly to any rivers or creeks along the alignment for any reason (e.g. following unexpected heavy rainfall) water quality shall meet the State Government WQOs for the relevant river or creek.
Implementation Strategy	**Treatment of ASS** **Trenching** 1. Additional ASS testing is required where trenching will result in disturbance to soils below 5 m AHD (refer Table 1).

2. A liming regime shall be developed for the trenching works. Lime treatment rates are to be calculated using the approach outlined in the National ASS Sampling Guidelines. Professional judgment by a CPSS is to be used to determine whether Acid Neutralising Capacity (ANC) can be used in the net acidity equation. For example, for high-risk areas, ANC should not be considered unless corroboration testing is undertaken, and ANC is deemed to be effective. In low-risk areas, consideration can be given to utilising ANC in the net acidity equation.
3. Spoil is to be lime treated at the rates determined following the ASS investigations.
4. ASS spoil from trench excavations is required to be limed in-situ and placed as backfill within 24 hrs. Liming rates shall incorporate a factor of safety of 3 which will be sufficient to negate the requirement to undertake verification testing of the material used to backfill the trenches.
5. During trenching, spoil shall be placed on the up-gradient side of the trench.
6. A layer of lime shall be applied to the surface prior to the placement of spoil on the side of the trench (nominally spread at rates of 2.5 - 5 kg/m2 pending the results of additional testing).
7. During excavation of the trench, local drawdown of the groundwater table (where required) shall be undertaken in stages to minimise the risk of oxidation of PASS.
8. During excavation of the trench, lime shall be adequately mixed into the soil as it is backfilled into the trench. Backfilling of treated spoil shall be carried out within 24 hours of disturbance.
9. Excavated material that cannot be backfilled into the pipe trench (mounding of spoil <0.3 m thickness on top of the backfilled trench is acceptable), is to be collected and placed within a purpose-built treatment area for treatment and verification.
10. Spoil at the lime treatment area is to be verified by carrying out the CRS suite or SPOCAS analysis. Testing shall be conducted at a rate of 1 test per 100 m3 of spoil.
11. Any soil that does not meet the performance criteria shall have further lime added and be re-tested to confirm neutralisation.
12. Stockpiling of soil and liming shall not be carried out in areas directly adjacent to creeks and rivers.

Management of Naturally Acidic Non ASS

13. Wherever possible, excavations involving disturbance of ASS are to be carried out in a staged manner to minimise the time that ASS are exposed and minimise the risk of further oxidation and impact to the receiving environment.
14. Spoil to be treated at a lime treatment area must be taken offsite within 48 hours of excavation. No stockpiling is to take place within 25 m of a waterway. Should it be required to stockpile spoil for longer than 48 hours, spoil shall be taken to a stockpiling area that is not
15. within 50 m of a waterway or open drain and shall be positioned above flood levels with appropriate bunding. A guard layer of agricultural lime shall be placed beneath the stockpile at a rate of 5 kg/m2.
16. ASS spoil that is required to be taken to a lime treatment area is to be transported in covered trucks. The top of the spoil shall be moistened by the application of a light water spray before covering. The trucks will then be covered by a tarpaulin or other dust proof cover and effectively sealed prior to transport off-site.
17. All trucks are to be visually checked for closed tailgates and

fastened covers before leaving the site. Trucks are to be free of any considerable amount of adhering soil.

Management of Naturally Acidic Non ASS

18. Spoil identified during investigations as containing naturally acidic non ASS can undergo a lower level of treatment as per the Soil Management Guidelines V4. A reduced factor of safety of 1.2 can be adopted for material reused as backfill in trenches.
19. Any identified naturally acidic non ASS that cannot be used as backfill within trenches can have required aglime added during transport in trucks, thus achieving a degree of mixing during transport and placement. Alternatively, the aglime can be incorporated into the spoil at a designated treatment area/s. Verification testing is not required for naturally acidic Non ASS.

Lime Treatment Areas

20. Design details of designated lime treatment areas is to be included in this EMP once these are available.
21. Lime treatment areas shall not be constructed within 50 m of waterways.
22. Due to the project length, more than one treatment area may be utilised. Treatment areas will be progressively constructed then decommissioned once works cease in a particular area.

    Lime treatment areas are to be free of vegetation and either (a) covered by a sealed hard surface such as concrete or asphalt, or (b) alayer of imported compacted non-ASS clayey material (0.3 metres thick), or (c) if clays are present at the soil surface, have guard layer of agricultural lime applied to the exposed surface at a rate of 5 kg/m2 and worked in using a rotary hoe (or similar) and compacted to create suitable ‘pad’.

23. Lime treatment areas are to be surrounded by an adequate low permeability perimeter bund (low permeability compacted earth or concrete/block work or layers of sandbags or similar) to prevent runoff from escaping following rainfall.
24. All spoil requiring treatment on the pad is to be treated within 24 hours of disturbance.
25. Excavated ASS spoil that is not backfilled in trenches (or taken directly offsite for disposal to landfill) is to be placed in one of the purpose-built lime treatment areas for treatment with agricultural lime.
26. ASS material shall be placed on top of the 'guard layer' in up to 300 mm thick layers (or windrows) to allow drying (if wet) before lime addition and mixing.
27. Materials requiring liming at differing rates are to be kept separated at all times and tracked independently.
28. Once a layer of ASS is sufficiently dry (the length of drying time will depend on the texture of the soil), apply agricultural lime to the spoil using physical or mechanical means, at the required liming treatment rate and mix well.
29. Lime neutralisation of treated ASS spoil is to be verified by carrying out SPOCAS or CSR suite on the treated spoil in accordance with the Monitoring Section of this EMP and held in the bunded treatment area until verification testing is completed and results meet performance criteria. Once verified, the material may be used in earthwork activities subject to the suitability of geotechnical properties of the material.
30. Lime treatment areas are to be reinstated at the conclusion of the project.

Lime Guard Layers

31. Anywhere where alluvium is exposed at the base of the trench excavations, a surface application of lime is to be applied to the base of the excavation prior to backfilling. Rates are to be determined following the site investigations.

32. A surface application of lime is to be applied to the base of all excavations left uncovered for longer than 48 hours, at rates of the order of 2.5-5 kg/m^2 (to be confirmed following additional investigations).

Liming General

33. Mitigation strategies in the Corrective Actions Section shall be implemented if remediation procedures fail to achieve the nominated 'Performance Limits'.

    Sufficient quantities of the lime shall be retained on site to allow replenishment of guard layers and lime treatment of spoil. Stockpile(s) of agricultural lime will be kept well inside the site boundary and covered, where necessary to prevent nuisance dust, in volumes sufficient for predicted treatment works.

34. Personnel working with ASS shall be inducted to a site Occupational Health and Safety Plan. As a minimum, personnel in contact with ASS shall wear nitrile gloves, long sleeved shirt, full length pants and safety footwear when directly handling untreated ASS and during prolonged exposure to lime.

35. Lime to be used shall be of high quality (calculations are based on 96% purity) and kept in a dry state.

Management of Surface Water

36. No 'active' drawdown of the permanent groundwater table is to take place in areas containing PASS during trenching or any other construction activities.

37. Sufficient quantities of the chosen water neutralising agents (e.g. hyrdrated lime) shall be kept on-site in a dry state (eg. locked in a shed, toolbox).

38. Should significant volumes of water become ponded in the trench or open excavations (eg. > 50 litres), water monitoring and when required, treatment, shall be undertaken prior to discharge. Treatment shall involve the application of hydrated lime (in small amounts) until the pH is between 7.0 and 8.5 and other performance indicators are met. Small quantities of the neutralising agent shall be used and the pH shall be regularly monitored during lime addition to limit the risk of over dosing (refer to Table 5 of the SPP 2/02 attached in Appendix C).

39. Once neutralised, the water may be discharged to sewer if a licence is obtained from Council and Councils discharge parameters are met or else discharged on-site using 'soaker' hoses in areas at least 100 m away from waterways.

40. Should discharge to any river or creek be required, the discharge water shall be sampled and analysed to meet either ANZG limits or State/Local Water Quality Objectives (WQOs).

41. Note that other non-ASS related parameters such as nutrient load may be specified for discharge offsite under the auspice of unrelated legislation.

Spatial Tracking

42. Spatial tracking is to be undertaken and records of day to day earthworks and treatment activities operations shall be maintained. This includes in-situ lime treatment and treatment at a designated lime treatment areas.

43. To enable adequate monitoring of lime mixing operations the following must be adopted:

	44. A photographic record of the lime mixing procedure is to be made and retained for reference. 45. Where verification testing is required, lime treated spoil from a specific location shall not be 'accepted' until verification test results are known, reported and accepted.
Monitoring	**Limed Spoil** 1. Lime neutralisation of treated ASS spoil is to be verified by either the SPOCAS or CRS suite. Verification testing should be undertaken at a rate of one sample per 100 m3. 2. Lime verification sampling and analysis is to be undertaken on all treated spoil within 72 hours of lime treatment. 3. Each sample taken for verification testing is to be a composite (of at least 1 kg) blended from a minimum of 6 discrete grab samples collected from within the treatment cell. 4. Verification sampling must be undertaken by a suitably trained person. **Sample Handling** 5. Soil verification samples are to be collected in specified sample containers supplied by a NATA accredited laboratory, and kept refrigerated during sampling and frozen up until dispatched to the laboratory. 6. Samples must be submitted to the NATA accredited laboratory, 7. accompanied by the appropriate 'chain of custody' documentation.
Corrective actions	**Lime Treatment** 1. Should results of verification testing of ASS spoil treated at a lime treatment area indicate residual acidity outside the allowable limits the affected material shall remain within the nominated treatment area, and be re-treated with sufficient lime to achieve the 'Performance 2. Limits' and verification process repeated until these limits are met. **Surface Waters** 3. If the pH of any water to be discharged off-site is outside of the specified performance limits, dose locally with hydrated lime slurry at a concentration sufficient to adequately increase the pH level (refer to the SPP 2/02 Table 5) and monitor pH during dosing to limit risk of over dosing. 4. Once earthworks are underway, should water quality in any monitoring wells fall outside adopted 'Performance Limits', resample affected wells and if the parameters do not return to within the required 'Performance Limits' at the next scheduled event, contact the Environmental Officer, implement more frequent sampling and analysis, and meet with the Principal Contractor to review ASS management strategies.

3 DOCUMENTATION

The following documents are required to measure environmental performance of the project in relation to ASS management:

1. Environmental Management Plan (EMP) – Acid Sulfate Soils
2. Site Induction Form(s)
3. Inspection and Monitoring Records – Form(s)

4. Environmental Compliance Report(s)
5. A Site Activities Register
6. Rectification Request and Instruction – Form(s)
7. General Progress Report(s)
8. Material Tracking Sheet
9. Soil Treatment Monitoring Form
10. Concerns Register

Item 1 is included in Appendix B; the remaining items are defined in Section 4.

4 REPORTING FRAMEWORK

4.1 Site Induction / Training

All employees of the Principal Contractor and sub-contractors working at site must undergo a site induction relating to the Environmental Procedures and Management framework outlined in the EMP. The induction will aim to develop and instil a high level of environmental awareness in all project personnel. It is the responsibility of the Principal Contractor to verify the satisfactory completion of an appropriate Site Induction form.

4.2 Records of Monitoring and Inspection

The outcome of all on-going site monitoring programs, ASS verification testing, weekly meetings, and site ‘walk over’ inspections will be recorded on an appropriate Inspection and Monitoring Record form. Any monitoring that requires more frequent attention shall be completed as required and recorded on a separate form.

4.3 Environmental Compliance Reports

Audit(s) of implementation of this EMP shall be carried out and an Environmental Compliance Report prepared.

4.4 Corrective Action Requests and Instructions

Any non-conformance will be documented on an appropriate form stating the nature of the non-conformance and the mechanisms implemented to rectify the problem. Any CARs (and follow up actions) are to be reported in the Monthly Monitoring Report.

4.5 Material Tracking Sheet

All ASS material excavated shall be recorded by the Site Supervisor daily on the Material Tracking Sheet. Material Tracking Sheets need to be returned to the site environmental officer or the environmental team for record keeping.

Refer to Section 6 for the for the Material Tracking Sheet.

4.6 Soil Treatment Monitoring Form

Soil Treatment Monitoring Forms are required for each lime treatment area in order to log the activities associated with lime treatment, including verification testing of treated ASS material where this is required. Soil Treatment Monitoring Forms need to be retained for record keeping.

Refer to Section 6 for the for the Soil Treatment Monitoring Form.

4.7 Concerns Register

The Concerns Register is to be filled out by the Site Supervisor for each concern raised by a member of the public.

Refer to Section 6 for the Concerns Register.

5 REFERENCES

5.1 Regulatory Documents

- *Queensland Environmental Protection Act 1994*.
- Queensland Environmental Protection (Water and Wetland Biodiversity) Policy 2019.
- State Planning Policy, July 2017
- State Planning Policy – State Interest Guideline Water Quality April 2016 (Policy 9)
- Department of Local Government and Planning and the Department of Natural Resources and Mines 2002, State Planning Policy (SPP 2/02) Guideline "Planning and Managing Development involving Acid Sulfate Soils“
- Sullivan, L, Ward, N, Toppler, N and Lancaster, G 2018, National Acid Sulfate Soils guidance: National acid sulfate soils sampling and identification methods manual, Department of Agriculture and Water Resources, Canberra ACT. CC BY 4.0. (*'National ASS Sampling Guidelines 2018'*)
- Sullivan, L, Ward, N, Toppler, N and Lancaster, G 2018, National Acid Sulfate Soils Guidance: National acid sulfate soils identification and laboratory methods manual, Department of Agriculture and Water Resources, Canberra, ACT. CC BY 4.0. (*'National ASS Laboratory Guidelines 2018'*)
- Shand, P, Appleyard, S, Simpson, SL, Degens, B, Mosley, LM 2018, National Acid Sulfate Soils Guidance: Guidance for the dewatering of acid sulfate soils in shallow groundwater environments, Department of Agriculture and Water Resources, Canberra, ACT. CC BY 4.0. (*'National ASS Dewatering Guidelines 2018*')
- Dear, S-E, Ahern, CR, O'Brien, LE, Dobos, SK, McElnea, AE, Moore, NG and Watling, KM 2014, Queensland Acid Sulfate Soil Technical Manual: Soil Management Guidelines V4.0, Department of Science, Information Technology, Innovation and the Arts, Queensland Government (‘*Soil Management Guidelines V4*')

6 APPENDIX

MATERIAL TRACKING SHEET

This form is to be filled out by the Site Supervisor on a daily basis in order to track the movement of ASS from its excavation location to the lime treatment area.

Material Tracking Sheet No.:

Excavation					Transport to Lime Treatment Area (Yes/No)		Lime Treatment
Area / Chainage	Date excavated	Depth of excavated soil (m)	Approximate Volume excavated (m^3)	Reused as backfill (Yes/No)	Date transported	Time	Treatment Location/ Area

Site Supervisor Name: **Site Supervisor Signature:**_____ **Date:**

Please include additional comments overleaf.

RETURN THIS FORM TO THE SITE ENVIRONMENTAL OFFICER OR THE ENVIRONMENTAL TEAM FOR RECORD KEEPING

SOIL TREATMENT MONITORING FORM

This form is to be filled out by the Site Supervisor for each treatment area in order to log the activities associated with lime treatment including verification testing of treated ASS material.

Soil Treatment Monitoring Form No.:

Origin of excavated spoil requiring lime treatment (i.e. Area/Chainage)	**Date transported to treatment area**	**Treatment Location/ Area**	**Date of soil treatment**	**Spoil has been treated according to the liming rates specified in the ASS EMP** *(Yes / No Liming Rate)*	**Discrete, composite samples have been collected for verification testing** *(Yes / No)*	**Date of verification Sampling**	**Samples have 'passed' verification testing** *(Yes / No)*	**Date of Round 2 Verification Sampling**	**Samples that 'failed' verification (if any) have now 'passed' verification** *(Yes / No / NA)*

Site Supervisor Name: **Site Supervisor Signature:**_____ **Date:**

Please include additional comments overleaf.

RETURN THIS FORM TO THE SITE ENVIRONMENTAL OFFICER OR THE ENVIRONMENTAL TEAM FOR RECORD KEEPING

CONCERNS REGISTER

This form is to be filled out by the Site Supervisor for each concern raised by a member of the public.

Concerns Register Form No:

Fitzroy to Gladstone Pipeline	**CONCERNS REGISTER**	Complaint No.

Complainant Details

Name: _____

Address: _____

Contact Phone No. _____

Date: _____

Time: _____

Received by: _____

Nature of Concern

Detail of Complaint: _____

_____

Location of Incident: _____

Date of Incident: _____

Persons Involved: _____

Concern Received By:

Telephone:

In Person:

In Writing:

Action Taken or Required:

Action Required (Y/N):

Time/date of Action: _____

Type of Action: _____

_____

Responsible Person: _____

Follow Up

Remedial activities performed _____ Date: _____

_____ Performed by: _____

Complainant Response To Action: _____

Further Action Required? (Y/N)

If Yes, Details of Further Action Required: _____

Prevention Of Re-Occurrence

Preventative Action Required? _____

If Yes, Details of Further Action Required: _____

Site Supervisor Name: **Site Supervisor Signature:** _____ **Date:**

RETURN THIS FORM TO THE SITE ENVIRONMENTAL OFFICER OR THE ENVIRONMENTAL TEAM FOR RECORD KEEPING

Gladstone Area Water Board

Bushfire Management and Mitigation Management Plan

DATE OF ISSUE:	November 2025
MAINTAINED BY:	Position of Document Owner
CURRENT VERSION:	Version 1
REVIEW DATE:	12 months from 'Date of Issue'
DOCUMENT TYPE	Management Plan

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Gladstone Area Water Board

CONTENTS

1. INTRODUCTION

The Bushfire Management Sub-Plan (BMP) is one component of the GAWB Construction Environmental Management Plan (CEMP) for the East End Pipeline Project (hereafter referred to as "the Project"). Section 4.1 of the CEMP provides further background and detailed description of the Project.

The BMP describes how bushfires will be managed and any potential impact minimised during construction. This BMP has been prepared with consideration of Project requirements, and to address the legal and other requirements outlined in Section 3

1.1 Plan purpose

The purpose of this BMP is to:

- Describe how GAWB and its contractor(s) will manage and control risks associated with bushfires during the construction of the Project
- Provide strategies to control potential impacts of bushfires during construction
- Address the requirements of applicable legislation
- Address approval, permit/licence and contractual requirements.

1.2 Management objective and performance criteria

Objectives and performance criteria for the Project in relation to bushfires include the following:

Objectives	**Performance Criteria**
• To provide a strategic and systematic framework to enable construction of the project with minimal environmental or social impact due to bushfires • To ensure all construction activities are undertaken with the objective of preventing such impacts	• No uncontrolled bushfires caused by GAWB or its contractors • No loss of protected or native fauna and flora due to uncontrolled bushfires caused by GAWB or its contractors • No damage to property, plant or equipment resulting in delays to the Project due to uncontrolled bushfire

1.3 Plan Scope

This plan applies to all works associated with the Project.

1.4 Interface with other documents

This BMP forms part of the overall CEMP for the Project.

2. LEGAL ANDOTHER COMPLIANCE REQUIREMENTS

2.1 Relevant legislation

- *Environmental Protection Act 1994*
- *Environmental Protection and Biodiversity Conservation Act 1999*
- *Fire and Emergency Services Act 1990*

2.2 Australian Standard and Industry guidelines

- Gladstone Regional Council - Local Disaster Management Plan
- Permits, approvals and licence conditions
- Landowners' requirements
- MCU development permits
- Operational works development permits

3. CONTEXT

3.1 Key risks

Where work is in and around native bushland and grasslands, fuel/fuel load of any type there is a potential risk of bushfire/fire. A robust understanding of bushfire risk is vital to minimising its potential impact and increasing resilience in the Region. By considering a range of factors, including wind, ecology, topography, climate, bushfire prone area mapping, fuel load, fire history and community consequence.

Under the Gladstone Regional Council Planning Scheme, the project predominately passes through high and medium bush fire hazard areas.

Road Centrelines

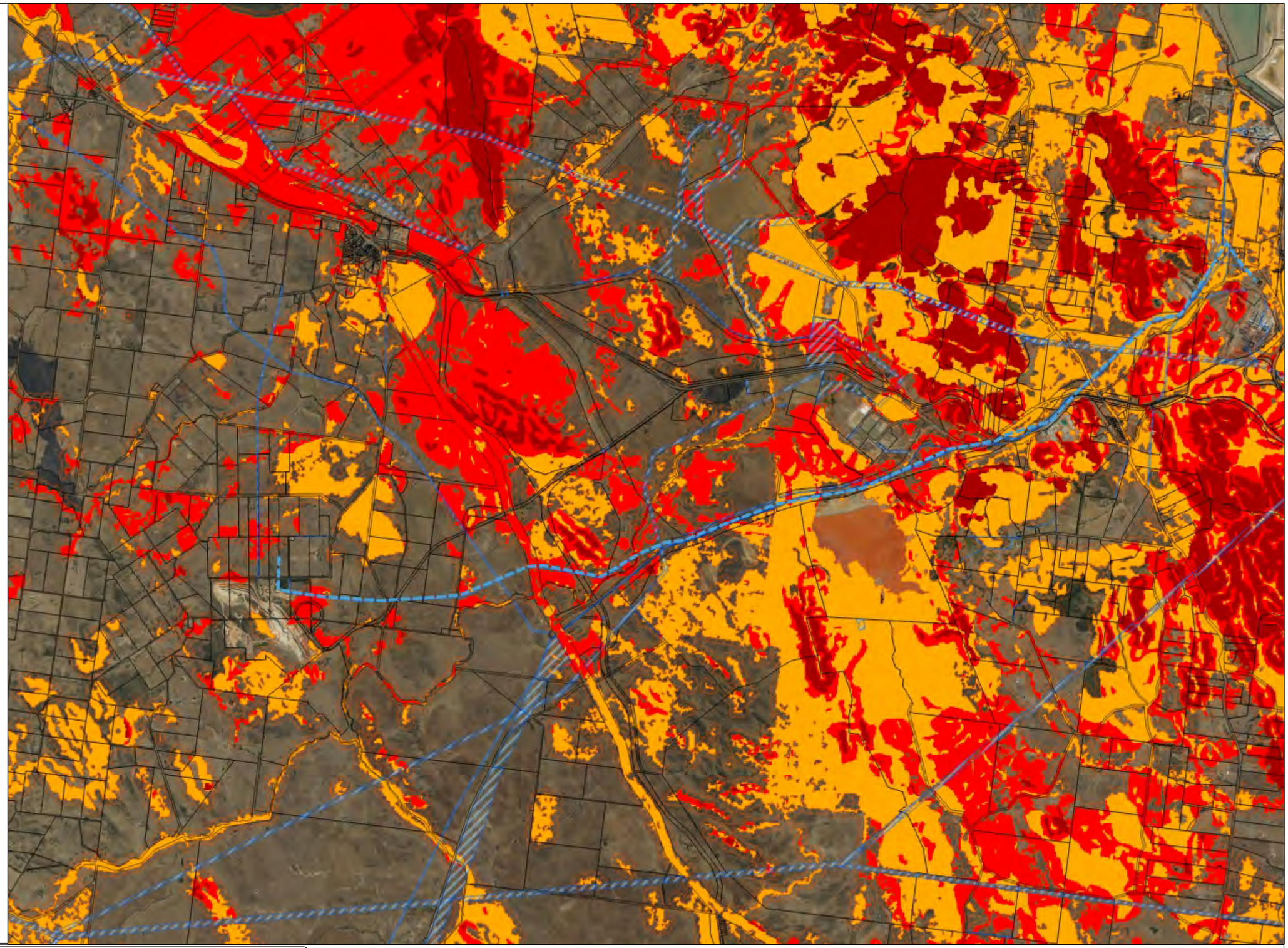
Easement

Base Parcel

Base Point

Bushfire Prone Areas

- Very High Potential Bushfire Intensity
- High Potential Bushfire Intensity
- Medium Potential Bushfire Intensity
- Potential Impact Buffer



GLADSTONE REGIONAL COUNCIL

Map Title

1,891.35 0 945.68 1,891.35 Meters

Printed: 25-Nov-2024

Map Scale 1: 75,654

Original Size: A3

3.1.1 *Risk assessment process*

Due to the inherent nature and seasonal variability of bushfire hazards, bushfire risks shall be incorporated into the Project Risk Register. The risk assessment will consider:

- BOM and Bushfire CRC seasonal and daily predictions
- Existing and predicted fire danger ratings / predicted fuel loads
- Fire history
- Geographic location of project works and local knowledge
- QFRS and other relevant agency advice and recommendations; and
- Status of the project and project activities.

3.1.2 *Risk controls*

Bushfire risk controls are specific to the particular risk, and are prioritised in the order of reduction, mitigation, and suppression activities. All risk controls shall be reviewed annually. Risk treatment shall seek to:

- Provide training to all employees/contractors on fire hazard minimisation
- eliminate all possible ignition sources
- eliminate or restrict available fuel sources
- enable a prompt and effective suppression response to an outbreak
- enable situational awareness of current circumstances (fire risk)
- encourage partnerships with adjoining landowners
- enable safer work practices aligned to Fire Danger Ratings
- consultation and engagement.

3.1.3 *Queensland Fire and Rescue Service (QFRS) and Rural Fire Brigades*

GAWB (or its contractor) will leverage the existing Fitzroy to Gladstone Pipeline's (FGP) close working relationship with the local Queensland Fire and Emergency Services (QFES) / Rural Fire Services (RFS) and Gladstone Regional Councils Disaster Management Committees in its area of operations, including:

- Conduct of emergency response exercises and joint training activities
- consideration of resource support
- corridor and rollingstock familiarisation
- operational communication protocols
- participate in ongoing liaison with Queensland Fire and Emergency Services (QFES) / RFS, including
- membership of appropriate consultative groups and committees
- providing location information regarding the corridor
- providing location of corridor access roads
- providing location of staging areas
- provision of local knowledge for inclusion in CEMP
- review of emergency response plans and procedures
- sharing of fire risk intelligence.

3.1.4 *Emergency Contact list*

Up to-date emergency contact list shall be compiled and maintained for owners and occupiers of all properties adjoining the EEPL site enabling relevant stakeholders to be contacted and advised of any bushfire related activity, threat, or issues.

3.1.5 *Accessibility*

GAWB acknowledges that access to a bushfire is critical in successfully combating the bushfire and its impact. The Contractor, in coordination will aid the QFES and RFS in gaining access to bushfire by providing up-to-date maps and locations of:

- Site access gates and roads
- Signed staging areas

3.1.6 *Fire suppression equipment*

The GAWB engaged principal contractor will provide and maintain in operational condition the following fire suppression equipment for use in fire suppression activities, which will be compatible with QFES and RFS:

- Fire extinguishers (appropriate to the hazard)
- Water Tankers (can be used for dust control and firefighting).

4. ROLES, RESPONSIBILITIES AND AUTHORITIES

All site personnel are responsible to ensure that they minimise environmental nuisance or harm by adherence to all Project Management Plans and other documentation. Site personnel are also responsible for ensuring they do not act in contravention of any Environmental Approval or the Contract. Field Supervisors are responsible for implementation and maintenance of mitigation measures outlined in the BMP for all activities or work areas under their control.

The Environmental Manager is responsible for routine surveillance and monitoring, communication of requirements of this Sub-plan, coordination of visual monitoring, and all other responsibilities related to bushfire management identified within this Sub-plan and overall CEMP. Importantly the Environmental Manager is responsible for the immediate notification of State and/or Commonwealth government authorities of impacts that have mandatory reporting requirements

The Construction Director is responsible for overseeing implementation of this Sub-plan and overall CEMP.

5. IMPLEMENTATION STRATEGY

5.1 Mitigation and Management Actions

The Table below outlines the mitigation and management measures to be carried out to ensure the Project meets all necessary requirements.

Reference	Mitigation and Management Action	Timeframe/s	Responsibility
01	Intent of this sub-plan will be communicated through the Site Induction process, to ensure all site personnel are aware and take ownership of sub-plan requirements relating to this element	Prior to construction	Construction Director
02	Requirements relating to this sub-plan to be revisited frequently (during the induction, site mobilisation and high-risk days such as extreme heat waves) through Toolbox and Prestart meetings	During construction	Environment Team
03	Fire risks will be assessed for each work area prior to works commencing	During construction	Safety Team Superintendent Supervisors
04	Work areas will have adequate road access for emergency vehicles and evacuation.	During construction	Superintendent Supervisors

05	An adequate and accessible water supply will be provided for firefighting purposes. Water will be supplied from local councils, dams and licenced bores in remote locations. It will be stored in dams, water trucks and small mobile firefighting trailers.	During construction	Superintendent Supervisors
06	Fire breaks will be developed to provide setbacks between buildings/structures and hazardous vegetation, and provide access for emergency vehicles	During construction	Superintendent Supervisors
07	Hot works to be undertaken as per requirements of Hot Works Permits.	During construction	Superintendent Supervisors Safety Team Engineers
08	Fire breaks shall be checked regularly and maintained as necessary.	During construction	Superintendent Supervisors
09	Bushfire response methods and evacuation plans will be included in the Emergency Response Plan.	During construction	Safety Team Superintendent
10	Electrical cables will be kept in good condition	During construction	Superintendent Supervisors
11	Chemical and hydrocarbon storage areas will be located in areas with low bushfire potential	During construction	Superintendent Supervisors
12	Water carts on site will be suitable for use in firefighting circumstances (e.g. compatible with QFES).	During construction	Superintendent Supervisors
13	Smoking will not be permitted outside of designated smoking areas.	During construction	All Persons
14	Any stockpiles of vegetation to be used as mulch will be kept moist to prevent outbreak of fire.	During construction	Superintendent Supervisors
15	All site vehicles and access areas will contain a fire extinguisher	During construction	All Persons
16	No intentional fires or wood fired barbeques will be permitted.	During construction	All Persons

6. PERFORMANCE EVALUATION

6.1 Monitoring

General inspections and auditing will be undertaken in accordance with Section 8 of the CEMP. The Environmental Team will undertake environmental inspections to develop and evaluate the effectiveness of environmental controls. This will include:

Monitoring action	Record	Frequency	Responsibility
Routine daily visual observance by all personnel during construction to monitor the site.	Daily Visual Inspection	Daily	Environmental Manager
Weekly inspections using the Weekly Environmental Checklist.	Weekly Environmental Checklist Report	Daily	Site Supervisor
Monthly reporting will be recorded through Project Monthly Reports.	Monthly Report submitted to GAWB	Monthly	Environmental Manager

Regular inspections will be undertaken in relation to bushfires and include the following:

- Effectiveness of the mitigation measures
- Any environmental incidents, hazards or near-misses documented in relation to bushfire management
- Community complaints in relation to bushfire management, and the construction contractor's response
- Bushfire management objectives and tracking against these.

7. REVIEW AND IMPROVEMENT

7.1 Reporting

The Environmental Weekly Checklist, monthly reporting and annual independent audits undertaken throughout the construction phase of the project will be documented and kept on record by the Environmental Manager or their delegate for the duration of the Project.

In the event of a complaint, non-compliance or incident, an investigation will be undertaken to determine the cause of the problem and will be led by the Construction Director. Any identified impacts on bushfire management.

8. DOCUMENT UPDATES

The Site Environmental Management Representative will amend, update, and continue to develop and improve this BMP on an ongoing as the construction program progresses and continual improvement opportunities are identified.

11.6 Appendix F - Bushfire Management and Mitigation Plan