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Construction Environmental Management Plan

Moranbah North and Grosvenor Mines
Rail & Pipeline Realignment

Document control

Approval

Name	Title	Signature	Date
Cameron Young	Initial Version		6/05/25
Cameron Young	Final		17/11/25

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Abbreviations and symbols

Abbreviation	Term
Anglo American	Anglo American plc
Anglo Coal	Anglo Coal (Moranbah North Management) Pty Limited (ACN 069 603 587)
CEMP	Construction Environmental Management Plan
DCCEEW	Department of Climate Change, Energy, the Environment and Water
EMP	Environmental Management Plan (contractor's)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
(the) Project	Moranbah North and Grosvenor Mines Rail & Pipeline Realignment
MNES	Matters of National Environmental Significance
ANZG	Australian and New Zealand governments and Australian state and territory governments
NTC	National Transport Commission
IECA	International Erosion Control Association

Abbreviation	Term
WHSQ	Workplace Health and Safety Queensland
Cth	Commonwealth (of Australia)
AS	Standards Australia
ISO	International Organization for Standardization

1 Introduction

1.1 Purpose

The purpose of this Construction Environmental Management Plan (CEMP) is to describe the controls and mitigation strategies that will be implemented to reduce risks to the environment during the construction of the Moranbah North and Grosvenor Mines Rail and Pipeline Realignment (the Project).

1.2 Project overview

Anglo Coal (Moranbah North Management) Pty Limited (ACN 069 603 587) (Anglo Coal) operates on behalf of the Moranbah North Coal Joint Venture, two underground metallurgical coal mines north of the Moranbah township in central Queensland – Moranbah North Mine and Grosvenor Mine. Anglo Coal is owned by Anglo American.

An existing rail line known as the North Goonyella Branch rail line (owned by the State of Queensland and operated by Aurizon) and a water pipeline known as the Braeside West Water Pipeline (owned and operated by Whitehaven Coal) traverse the surface areas of both mines and overlie the coal resource.

To allow the progression of mining the identified coal resource, sections of the rail line and water pipeline are proposed to be relocated. The rail line is a multi-user facility that transports coal from several mines in the region to the coal ports at Dalrymple Bay and Abbot Point. Collectively, the relocation of sections of the rail line and pipeline (and associated infrastructure) is referred to as the Project.

The Project and associated proposed action area are located in Central Queensland, approximately 8 km north of Moranbah, with Emerald lying approximately 180 km to the south, and Mackay 150 km to the northeast (See Figure 1-1).

1.3 Scope

This CEMP has been developed to provide an overarching framework and detail the environmental management required for the civil construction phase of the Project in order to:

- Protect environmental values
- Meet requirements of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act), and
- Align environment management with regulatory frameworks and standards.

The scope of this CEMP is applies to the civil construction phase of the Project (Section 5). Actions undertaken by Anglo Coal during construction will comprise:

- Clearing and establishing the rail and pipeline corridors
- Construction of the rail track formation
- Construction of the water pipeline.

Construction activities which will facilitate the above include, but are not limited to:

- Vegetation clearing, grubbing and topsoil stripping
- Civil works
- Bridge and culvert construction
- Relocation of overhead powerlines and buried services
- Revegetation of temporarily disturbed areas
- Laydown, construction areas and access roads establishment
- Heavy vehicle movements
- Erosion, sediment and dust control.

As the Rail Operator, Aurizon will install the rail infrastructure (ballast, sleepers, tracks, overhead traction power, signals etc.) on top of the track formation constructed by Anglo Coal. These works do not involve vegetation clearing, grubbing, topsoil stripping or civil works and are not part of the Project.

Figure 1-1 Proposed action area showing existing and relocated rail and water infrastructure

2 Regulatory framework

2.1 Commonwealth

2.1.1 Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

The *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) is the Australian Government's key environmental legislation. It provides the legal framework to protect and manage Matters of National Environmental Significance (MNES), including, nationally and internationally important flora and fauna, ecological communities, and heritage places.

Anglo Coal is currently seeking approval for the Project under the EPBC Act. The Project was referred to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) on 10 March 2023 and accepted on 19 June 2023 (EPBC 2023/09489). The delegate of the Minister for the Environment (Cth) determined on 15 February 2024 that the Project was a Controlled Action in accordance with sections 18 and 18A (Listed threatened species and communities) of the EPBC Act. The Minister's delegate determined the proposed action (the Project) will be assessed by Preliminary Documentation (PD). On 9 March 2025 the Minister decided to accept a variation to the proposed action for the Project.

This CEMP is being developed as part of the ongoing assessment process and will help to ensure Anglo Coal meets it obligations to protect and manage MNES under the EPBC Act during construction.

2.2 State

2.2.1 Nature Conservation Act 1992 (and subordinate legislation)

The *Nature Conservation Act 1992* (Qld) (NC Act) classifies and protects significant areas (Protected Areas) and protects Threatened plant and animal species. The *Nature Conservation (Wildlife) Regulation 1994* (Qld) (NCWR) lists plant and animal species presumed extinct, endangered, vulnerable, near threatened, least concern, international or prohibited.

The NC Act is considered in this CEMP with respect to disturbance of animal breeding places during vegetation clearing activities.

2.2.2 The Planning Act 2016 (Qld) (and subordinate legislation)

The *Planning Act 2016* (Qld) (Planning Act) is the primary legislation guiding land use and development in Queensland. It establishes the framework for plan-making, development assessment, and compliance, aiming to achieve ecological sustainability through coordinated planning. Its subordinate legislation includes the *Planning Regulation 2017* (Qld), which details processes, assessment benchmarks, referral agencies, and regulated requirements that support the implementation of the Act.

The Planning Act is considered in this CEMP with respect of the water pipeline, as relevant.

2.2.3 The Transport Infrastructure Act 1994 (Qld)

The *Transport Infrastructure Act 1994* (Qld) provides the legislative framework for planning, developing, operating, and managing transport infrastructure across Queensland, including roads, railways, ports, and public transport systems. It enables the designation of transport corridors and outlines the powers of the state in relation to transport infrastructure development and regulation. The Act supports integrated transport planning to ensure safe, efficient, and sustainable transport networks.

The *Transport Infrastructure* Act is considered in this CEMP with respect to land access and tenure conversion for the rail line.

3 Environmental management framework

3.1 Environmental management process

The environmental management process applied to this CEMP is illustrated in in Figure 3-1. It describes a continuous improvement process entailing ongoing stakeholder consultation and the identification, monitoring, and assessment of environmental impacts, controls, and mitigation measures.

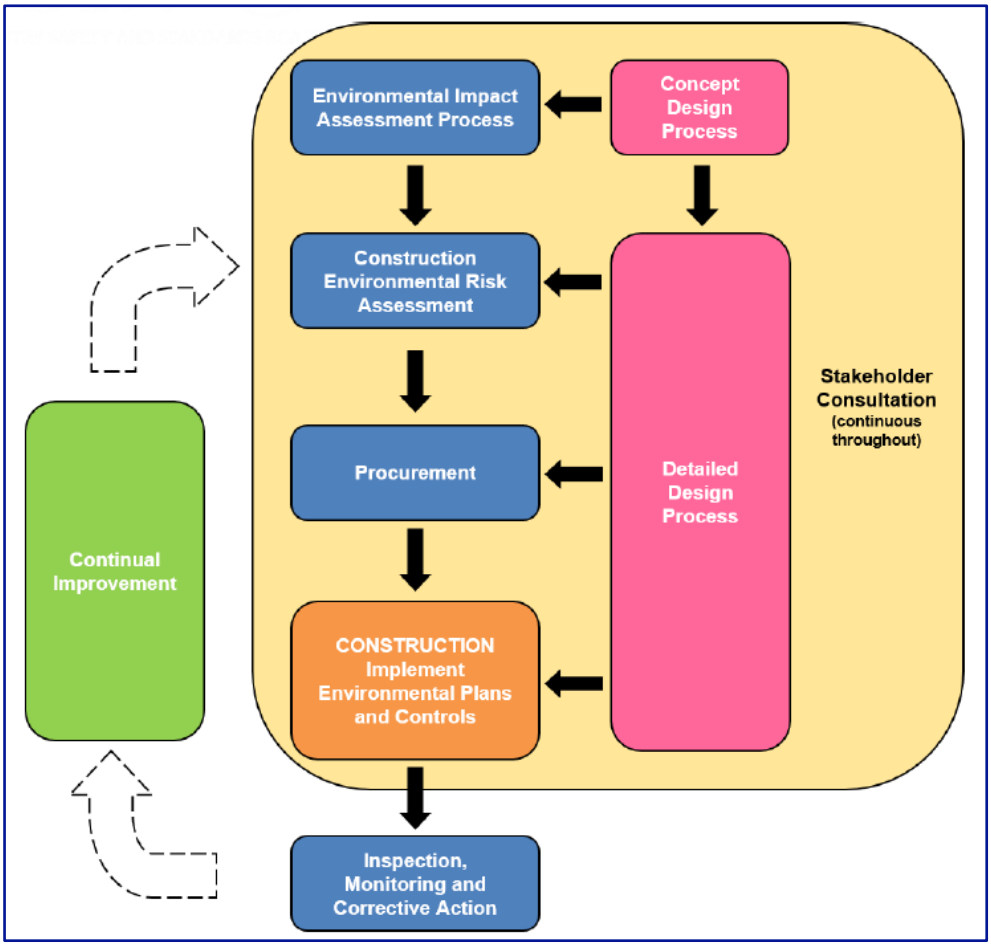

Figure 3-1 Environmental management process

3.2 Environmental management roles

The Anglo Coal Construction Management Team will manage the implementation of and compliance with this CEMP. Roles in the CMT with specific responsibilities for environmental management include:

- Project Manager
- Construction Superintendents
- Construction Supervisors
- Project Administrator.

The CMT will manage the construction contractor to ensure that the requirements of this CEMP are being met.

3.3 Environmental training

All personnel working on the Project will be required to undertake a Project-specific induction program. The induction will include an environmental education element. The training will cover environmental risks and controls that are specific to this CEMP. The Project induction and training program will also include emergency and incident response procedures. Training records will be maintained to demonstrate compliance with this requirement.

3.4 Stakeholders

Stakeholders for this CEMP include:

Anglo Coal

Anglo Coal is the overall manager of the civil construction activities, responsible for CEMP implementation and compliance. Anglo Coal is also the Project proponent, landholder and occupier of the proposed action area and surrounding land.

Construction contractor and subcontractors

The construction contractor and subcontractors are responsible for implementation of the controls and mitigation measures set out in this CEMP, including non-conformance reporting, corrective actions, and compliance auditing. The construction contractor and subcontractor personnel will be trained and familiarised with the requirements of this CEMP.

3.5 Inspections, monitoring, and corrective action

The Project will comply with all environmental inspection, monitoring, auditing and reporting requirements to ensure all non-compliances are identified and reported. All site personnel will receive training in the Project environmental management plans prior to accessing site and will be familiarised with the Project's environmental management objectives, performance criteria, and mitigation measures described in this CEMP. A copy of the CEMP will be kept on site throughout construction of the Project.

3.5.1 Inspections

Environmental inspections will be conducted weekly by construction contractor. Inspections will monitor and evaluate the effectiveness of the construction contractor's environmental mitigation measures.

3.5.2 Monitoring

Environmental performance and implementation of management measures for each environmental value will be monitored by the Construction Superintendent. Performance will be assessed against the environmental performance criteria set out for each environmental value in Section 5.

3.5.3 Auditing

Environmental audits will be conducted by the Project Manager or delegate at the following times to verify compliance with all aspects of the CEMP:

- Prior to each stage of the construction works; and
- At the completion of each stage of the construction works.

Audits will include a review of compliance with the CEMP, compliance with each condition of approval, and any prior corrective actions.

3.5.4 Non-compliance procedure

Incidences of non-compliances with this CEMP must be reported to the Construction Superintendent as soon as practical for corrective action/s. Remedial and preventative actions will be established and implemented via consultation with relevant Anglo Coal stakeholders.

4 Risk Assessment

4.1 Method

A risk assessment for the Project was undertaken to identify the potential impacts to Matters of National Environmental Significance (MNES) (Appendix A), and determine those with a greater environmental risk level, in order to be best develop and focus management actions. Through undertaking a risk assessment, proposed measures can be understood as to their expected effectiveness.

The risk assessment was undertaken using a systematic risk-based approach modified from international best practice standards, including the AS/NZS ISO 31000:2009: Risk management - Principles and Guidelines (Standard).

The risk assessment is depicted conceptually in Figure 4-1.

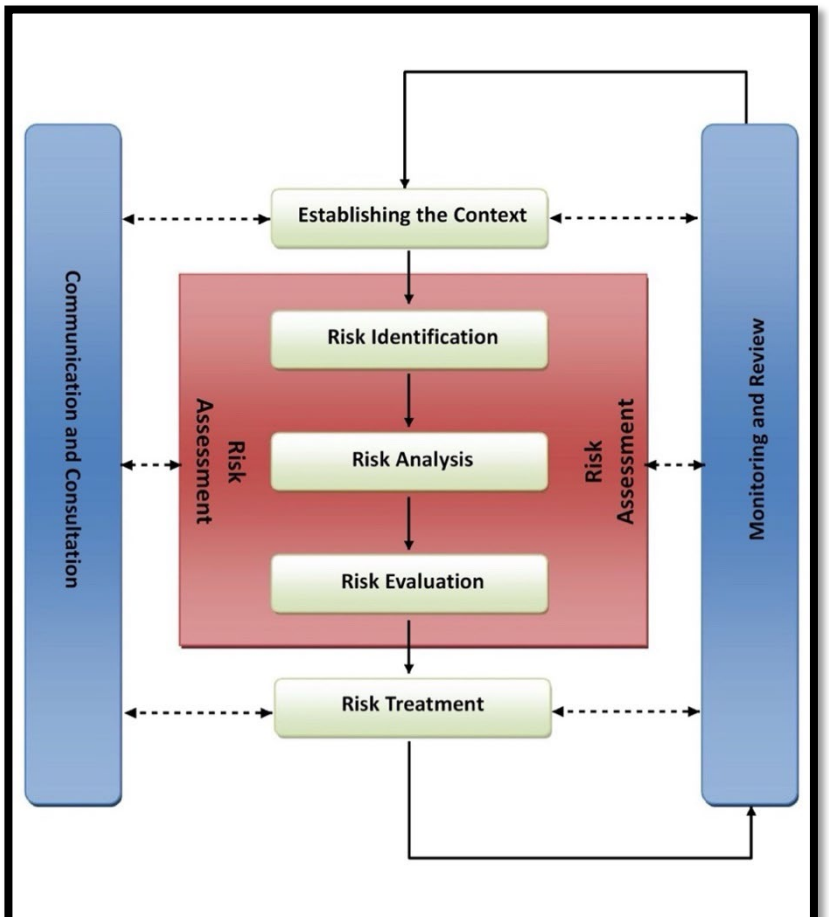

Figure 4-1 Risk Assessment Process

4.2 Potential impacts

Potential impacts and threats to MNES from construction activities include:

- Vegetation clearance
- Habitat disturbance and degradation via:
  - Weeds and pest incursions
  - Dust emissions
  - Noise
  - Changes to the hydrological regime (including erosion and sedimentation)
  - Fire
  - Contamination from spills and leaks
- Fauna injury and mortality
- Increased human presence.

Note: Due to the existing level of habitat fragmentation along the proposed Disturbance Footprint and the nature of the Project, no changes to habitat fragmentation are expected to impact upon MNES and are therefore excluded from management under this CEMP (refer Section 6.1 of the Preliminary Documentation).

4.3 Risk activities

Project activities during constructions that contribute to the risk of impacts on MNES include:

- Vegetation clearing
- Civil works
- Bridge and culvert construction
- Relocation of overhead powerlines
- Revegetation of temporarily disturbed areas
- Laydown and construction area establishment
- Vehicle movements
- Erosion, sediment and dust control.

4.4 Risk matrix

Environmental impacts are rated by likelihood and consequence, which in turn determine the risk rating. The qualitative risk assessment criteria for likelihood and consequence are described in Table 1 and Table 2, and the risk matrix is shown in Table 3.

Table 4 provides on associated management response to potential impacts or threats during construction.

Table 1 Likelihood rating

Qualitative measure of likelihood	How likely is it that this event/issue occur after control strategies have been put in place
Highly likely	Is expected to occur in most circumstances
Likely	Will probably occur during the life of the Project
Possible	Might occur during the life of the Project
Unlikely	Could occur but considered unlikely or doubtful
Rare	May occur in exceptional circumstances

Table 2 Consequence rating

Qualitative measure of consequences	What will be the consequence/result if this issue does occur rating
Minor	Minor incident of environmental damage that can be reversed
Moderate	Isolated but substantial instances of environmental damage that could be reversed with intensive efforts
High	Substantial instances of environmental damage that could be reversed with intensive efforts
Major	Major loss of environmental amenity and real danger of continuing
Critical	Severe widespread loss of environmental amenity and irrecoverable environmental damage

Table 3 Risk matrix

		Consequence				
		Minor	**Moderate**	**High**	**Major**	**Critical**
Likelihood	**High Likely**	Medium	High	High	Severe	Severe
	Likely	Low	Medium	High	High	Severe
	Possible	Low	Medium	Medium	High	Severe
	Unlikely	Low	Low	Medium	High	High
	Rare	Low	Low	Low	Medium	High

Table 4

Risk rating and associated risk management response

Residual risk score	Risk management response
Severe	Risks that significantly exceed the risk acceptance threshold and need urgent and immediate attention. Modify the threat, likelihood or consequence so that the risk is reduced.
High	Risks that exceed the risk acceptance threshold and require proactive management. Modify the threat, likelihood or consequence so that the risk is reduced.
Medium	Risk sits below risk acceptance threshold - requires active monitoring. The implementation of additional measures could be used to reduce the risk further. Modify the threat, the likelihood or consequence to reduce the risk to 'Low' if practicable.
Low	Determine management for the threat / to prevent occurrence and monitor changes that could affect the classification.

4.5 Assessment outcomes

Outcomes of the risk assessment are provided in Appendix A. Inherent risk was greatest for vegetation clearing (medium) and for fire (medium). Vegetation clearing has the potential to result in major consequences for MNES if improperly managed. Unmanaged vegetation clearing can result in:

- (Unapproved) loss of MNES habitat
- Habitat degradation
- Soil erosion and sedimentation of waterways
- Injury and mortality to fauna
- Fauna impacts from excess noise

If fires start and cannot be contained, they may have a significant effect on local patches of remnant vegetation (relative to the fire weather at the time of ignition). However, due to the fragmented nature of native vegetation within the mining complex, and the presence of established firebreaks, consequences are not likely to extend beyond the Project site.

The residual risk of other threats / impacts was low (with vegetation clearing and fire identified as medium risk (or higher)). As per Table 4 above, this means all risks sit below the ‘acceptance threshold’, with vegetation clearing and fire requiring active monitoring.

Outcomes of the risk assessment have been factored into and informed the management of threats and potential impacts to MNES during construction of the Project (see Section 5). Awareness of these risks is required by all staff working on the Project.

5 Environmental Management - Construction

The civil construction phase of the Project requires environmental management that will mitigate potential impacts to MNES identified within the risk assessment. To this end, the CEMP has been broken down into sub-sections to specifically address each of the threats and potential impacts to environmental values identified by the risk assessment:

- Air quality (dust).
- Soils and sediments
- Contamination and hazardous materials
- Weeds
- Pests
- Fire
- Noise and Vibration
- Waste.

5.1 'S.M.A.R.T' principle

All proposed management measures in these sub-sections have been drafted to meet the 'S.M.A.R.T' principle:

- S – Specific
- M – Measurable
- A – Achievable
- R – Relevant
- T – Time-bound.

Each sub-section has set management objectives which are outlined in the relevant sections below. These objectives have set targets and associated measurement criteria so that the performance of the management plan can be assessed. An adaptive management approach will be taken to ensure that management objectives are achieved. This involves ongoing evaluation of this CEMP against Project performance criteria, environmental policies, objectives and targets, and will allow for continuous improvement of this management plan and an overall improvement in outcomes for MNES. Sub-sections include management measures for the construction of the Project.

As part of the adaptive management approach, each sub-section also prescribes monitoring requirements. These are time-specific, identify the person responsible for monitoring, and are set out to measure the success of management measures. Measurable triggers are set out to accompany monitoring requirements, to ensure that management objectives remain on target, and provide a pathway for adaptive management where corrective actions are needed.

5.2 Project design and avoidance

As described in the Preliminary Documentation, the following avoidance measures have been applied prior to the application of management measures in this CEMP, including:

- Altering rail and pipeline corridor alignment to minimise the earthworks footprint and avoiding an area of MNES habitat
- Co-locating the rail and pipeline
- Narrowing the design to the minimum area required to adequately construct the main (and ancillary pipeline) easement
- Specific siting of infrastructure to avoid impacting areas of MNES value where practicable
- Utilising a bridge crossing where the rail line crosses Teviot Brook in order to maintain species movement across the proposed action area
- Where practicable, construction laydown areas, stockpiles, facilities and other temporary disturbance areas have been located within already disturbed areas.

5.3 Air quality (dust)

5.3.1 Environmental value

Dust generation from traffic on unsealed roads and movement / use of mobile plant may potentially impact local air quality. The local environment contains a mixture of agricultural activities, mining and gas production activities that influence the background dust levels.

5.3.2 Policies, standards, and guidelines

The following policies, standards, and guidelines are applicable:

- National Environment Protection (Ambient Air Quality) Measure 2003
- AS/NZS 3580.10.1:2016 Methods for sampling and analysis of ambient air, Method 10.1: Determination of particulate matter—Deposited matter—Gravimetric method
- *Product Emissions Standards Act 2017* (Cth).

5.3.3 Environmental activities to be managed

Construction activities have the potential to release dust emissions to the air through the following activities:

- Vegetation clearing and earthworks for construction
- An increase in vehicle movements on unsealed roads.

5.3.4 Potential impacts

Construction of the Project has the potential to result in the following impacts relevant to MNES:

- Habitat degradation

5.3.5 Management objectives

Environmental targets and performance indicators have been prescribed in line with dust emission management objectives for the Project, as indicated in Table 5.

Table 5 Air quality (dust) management objectives

Impact/s	Objective	Target	Measurement Criteria
Habitat degradation	Dust levels from the Project are not materially different to existing land uses	• No increased dust levels compared to existing land uses.	• Visual assessment of dust

5.3.6 Management measures

Specific actions for implementation throughout clearing and construction have been identified to assist in achieving air emission objectives for the Project, as indicated in Table 6.

Table 6 Air quality (dust) management measures

Parameter	Management Measure	Responsibility
Weather	• Local weather conditions will be monitored to determine whether additional dust controls are likely to be required.	Construction Contractor
Prevention of dust emissions	• The construction schedule shall be planned to minimise the elapsed time between clearing, grading and revegetation • Limit the cleared (exposed) area through a Permit to Disturb process	Construction Superintendent

Parameter	Management Measure	Responsibility
	• Undertake progressive revegetation, where possible	
Vehicle movements	• Vehicle movements will be speed and access limited to designated construction roads	Construction Contractor
Dust control	• Appropriate dust controls will be implemented throughout construction including but not limited to: ○ Water carts ▪ Watering on earthworks circuits ○ Water topsoil stripping operations ○ Speed limits on construction roads (<40kmph)	Construction Contractor

5.3.7 Monitoring

The monitoring program for air quality has been designed to ensure that construction of the Project are consistent with the control measures. Monitoring will measure the success of these actions in accordance with management objectives and targets, as indicated in Table 7.

Table 7 Air quality (dust) monitoring

Monitoring	Details	Timing	Responsibility	Records
Visual airborne dust emissions	Ongoing visual inspection to monitor dust emissions required. Ensure dust suppression is undertaken when necessary	Ongoing	Construction Contractor	Environmental Inspection Environmental Incident Report

5.3.8 Corrective actions

If monitoring indicates that environment objectives and targets for air emissions are not being achieved, contingency actions will be enacted, as indicated in Table 8.

Table 8 Air quality (dust) corrective actions

Trigger	Action
Dust levels are materially different to the existing land uses.	1. Increase the frequency of dust suppression measures. 2. See above for implementation of dust suppression measures

5.4 Soils and sediment

5.4.1 Environmental value

Soils and sediment/s should be considered with respect to MNES, especially in the context of impacts associated with erosion and the movement of sediments into waterways.

5.4.2 Policies, standards, and guidelines

The following policies, standards, and guidelines are applicable:

- Anglo Coal detailed designs for earthworks, structures, drainage and scour protection, incorporating catchment flood modelling, soil testing, and engineering standards
- Best Practice Erosion and Sediment Control Manual (IECA, 2008)

5.4.3 Environmental activities to be managed

Construction activities have the potential to alter soils and sediment through the following activities:

- Vegetation clearing
- Excavation
- Vehicle movements outside of designated areas.

5.4.4 Potential impacts

Construction of the Project has the potential to result in the following impacts relevant to MNES:

- Accelerated soil erosion
- Sedimentation of watercourses
- Topsoil loss.

5.4.5 Management objectives

Environmental targets and performance indicators have been prescribed in line with soils and sediment management objectives for the Project and identified in Table 9.

Table 9 Soils and sediments management objectives

Impact/s	Objective	Target	Measurement Criteria
Topsoil loss	Minimising the clearing and topsoil stripping extents to only what is needed to execute the Project	• No evidence of subsoil on surface within excavated areas following backfill	• Subsoil on surface (as detected by colour and texture) within excavated areas following backfill
Accelerated soil erosion	Prevent occurrence of soil erosion during and following construction	• No soil erosion inconsistent with that of the surrounding land outside of the construction footprint	• Presence of soil erosion inconsistent with that of the surrounding land
Sedimentation of watercourses	Prevent sediment laden water from civil works entering waterways prior to treatment	• No sediment laden water from civil works entering dry waterways • Civil works sediment water must pass through sediment control structures before entering flowing waterways.	• Erosion and sediment controls are effective.

5.4.6 Management measures

Specific actions for implementation throughout clearing and construction have been identified to assist in achieving soils and sediments objectives for the Project, as indicated in Table 10.

Table 10 Soils and Sediments management measures

Parameter	Management Measure	Responsibility
Weather	• BOM forecasts and local weather conditions will be consulted daily to appropriately manage earthworks during heavy rainfall / storm events. Erosion and sediment controls will be checked prior to and following heavy rainfall.	Construction Contractor
Prevention of erosion and sedimentation	• Contractor will be required to submit and have approved a contractor's erosion sediment control plan plan (ESCP) prior to works commencement. • The ESCP will detail how the contractor will manage sediment and erosion control measures on a staged basis during the construction phase • Adequate supplies of drainage, erosion and sediment controls equipment and materials will be maintained on site during the construction period6	Construction Contractor
Topsoil	• Topsoil will be limited to civil requirements within the Project area. • Topsoil will be retained on site during the construction period and reused 6for revegetation	Construction Contractor
Waterways	• Minimise disturbance to riparian zones and waterway channel • Installation, monitoring and maintenance of erosion and sediment control devices. • Diversion of clean runoff to drainage lines and natural watercourses • Segregation of clean runoff and Project-affected water	Construction Contractor
Vegetation	• Revegetation or stabilisation of disturbed areas on completion of civil works	Construction Contractor

5.4.7 Monitoring

The monitoring program for soils and sediment has been designed to ensure that construction of the Project is consistent with the control measures. Monitoring will measure the success of these actions in accordance with management objectives and targets and identified in Table 11.

Table 11 Soils and sediments monitoring

Monitoring	Details	Timing	Responsibility	Records
Topsoil stockpile inspection	Visual inspection of topsoil stockpiles, waterways and ESC control devices for evidence of erosion	Weekly	Construction Contractor	Environmental Inspection
Watercourses		Weekly	Construction Contractor	Environmental Inspection
Erosion and sediment control devices		Monthly; or Immediately after significant rainfall event (if earlier)	Construction Contractor	Environmental Inspection

5.4.8 Corrective actions

If monitoring indicates that environment objectives and targets for soils and sediment are not being achieved, contingency actions will be enacted, as indicated in

Trigger	Action
Evidence of erosion of topsoil stockpiles	1. Apply erosion control measures such as stabilisers, or other, as appropriate to prevent further loss
Formation of gullies	1. Investigate cause 2. Undertake maintenance as required
Instability or compaction of watercourse beds and banks	1. Investigate cause (e.g. vehicle movements) 2. Remediate through stabilisation, as required 3. Maintain remediated area 4. Review vehicle access to beds and banks, if required 5. Monitor bed and banks and maintain remediated area

5.5 Contamination and hazardous materials

5.5.1 Environmental value

Contamination from spills and leaks has the potential to impact on MNES by degrading or disturbing habitat.

Note: According to the Contaminated Land Register, there is no contaminated land registered in the proposed action area.

5.5.2 Policies, standards, and guidelines

The following policies, standards, and guidelines are applicable:

- National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No.1)
- AS 1940-2017 The storage and handling of flammable and combustible liquids

5.5.3 Environmental activities to be managed

Construction activities have the potential to cause contamination through the following activities:

- Storage, handling and disposal of hydrocarbons and hazardous materials
- Refuelling activities
- Vehicle and equipment maintenance.

5.5.4 Potential impacts

Construction of the Project has the potential to result in the following impacts relevant to MNES:

- Contamination of soils and water resources
- Degradation or loss of vegetation and/or fauna habitat.

5.5.5 Management objectives

Environmental targets and performance indicators have been prescribed in line with hazardous material management objectives for the Project, as indicated in Table 12.

Table 12 Contamination and hazardous materials management objectives

Impact/s	Objective	Target	Measurement Criteria
Contamination and degradation	Minimise any environment harm due to contamination Management of any introduced or existing identified contamination and hazardous material to minimise environmental harm	• No significant spills or leaks of hazardous materials. • No spills or leaks in or near watercourses. • Containment of any existing identified contamination and hazardous material	• No spills or leaks of hazardous materials in excess of 100 L • No spills or leaks within 100 m of waterbodies. • Identification of existing contamination and hazardous materials present within the proposed action area

5.5.6 Management measures

Specific actions to be implemented clearing and construction have been identified to assist in achieving hazardous material management objectives for the Project, as indicated in Table 13.

Table 13 Contamination and hazardous material management measures

Parameter	Management Measure	Responsibility
Induction and training	• All personnel involved in hazardous materials handling shall be adequately trained	Construction Contractor

Parameter	Management Measure	Responsibility
Management of hazardous materials	• The contractor's CEMP matches or exceeds the contamination and hazardous material objectives of this CEMP • Relevant Material Safety Data Sheet (MSDS) shall be readily accessible and available • All chemicals used during operations shall be transported, stored, handled and disposed of in accordance with statutory requirements, codes of practice and industry standards • If disturbance of contamination and hazardous material is required, suitable storage and treatment will be required	Construction Superintendent
Spill response	• Spills kits are to be provided where appropriate • Additional spill containment facilities such as compacted pads or drip trays are to be provided at refueling stations, oil and chemical storage sites and vehicle maintenance areas	Construction Contractor
Spill prevention	• Transport, use, storage and disposal of all hazardous substance to be undertaken in accordance with relevant safety data sheets • Establish and maintain hazardous substance and safety data sheet registers • Anglo Coal will review and approve all hazardous substances before they are permitted on the Project site	Construction Contractor

5.5.7 Monitoring

The monitoring program for hazardous materials has been designed to ensure that construction of the Project is consistent with the control measures. Monitoring will measure the success of these actions in accordance with management objectives and targets, as indicated in Table 14.

Table 14 Contamination and hazardous materials monitoring

Monitoring	Details	Timing	Responsibility	Records
MSDS and chemicals inventory	Inspect MSDS register and inventory to ensure records are accurate and up to date	Prior to mobilisation and Monthly	Construction Contractor	Environmental Inspection
Handling procedures	Random monitoring of personnel handling to ensure compliance with safe handling procedures	Ongoing	Construction Contractor	Environmental Inspection
Storage areas and bunding	Inspect integrity of bunding and supply of leak-proof trays to ensure adequate containment in the event of a spill	Monthly	Construction Contractor	Environmental Inspection
Spill kits	Inspect spill kits to ensure adequately stocked to ensure adequate spill response	Monthly or after spill event	Construction Contractor	Environmental Inspection

Monitoring	Details	Timing	Responsibility	Records
	supplies and equipment are available			
Signage	Inspect storage and handling areas to ensure signage in place	Quarterly	Construction Contractor	Environmental Inspection
Refuelling equipment	Inspect tanks, lines, hoses, pumps, couplings, valves and associated equipment to ensure in good working order	Weekly	Construction Contractor	Environmental Inspection

5.5.8 Corrective actions

If monitoring indicates that environment objectives and targets for hazardous material management are not being achieved, contingency actions will be enacted, as indicated Table 15.

Table 15 Contamination and hazardous materials corrective actions

Trigger	Action
Spill of hazardous materials – less than 100L or outside 100m of a watercourse	1. Identify source of spill 2. Exclude workforce from affected area 3. Stop leak or spill, where practicable 4. Implement containment and control to prevent dispersal of hazardous materials 5. Capture and contain hazardous materials 6. Engage wildlife rescue service to treat any injury to fauna
Spill of hazardous materials in excess of 100L or within 100m of a watercourse	1. Identify source of spill 2. Exclude workforce from affected area 3. Stop leak or spill, where practicable 4. Implement containment and control to prevent dispersal of hazardous materials 5. Capture and contain hazardous materials 6. Engage wildlife rescue service to treat any injury to fauna 7. Remediate affected area 8. Review hazardous materials procedures

5.6 Native vegetation

5.6.1 Environmental value

Native vegetation corresponds with MNES habitat across the proposed action area. 7.8 ha of endangered Brigalow (*Acacia harpophylla* dominant and codominant) (Brigalow TEC) also occurs within the disturbance footprint of the Project.

5.6.2 Policies, standards, and guidelines

The following policies, standards, and guidelines are applicable:

- *Vegetation Management Act* (1999 Qld)
- For Matters of National Environmental Significance (MNES), refer to the *Environment Protection and Biodiversity Conservation Act 1999* (Cth).
- Approved Conservation Advice for the Brigalow (*Acacia harpophylla* dominant and co-dominant) ecological community.

5.6.3 Environmental activities to be managed

Construction activities have the potential to cause contamination through the following activities:

- Land clearing and removal of native vegetation.

5.6.4 Potential impacts

Construction of the Project is likely to result in the following impacts relevant to MNES:

- Habitat loss
- Habitat degradation due to weed / pest incursion and/or proliferation (to be managed under Weeds and Fauna per Sections 5.7 and 5.8)
- Fire incursion (to be managed under Fire per Section 5.9).

Habitat loss in the proposed action area will result from the clearing for the construction of the rail line and pipeline. The estimated habitat loss across broad habitat types is described in Table 16 below.

Table 16 Extent of broad habitat types and non-remnant areas within Project disturbance footprint

Broad habitat type	Coinciding REs	Impact area (ha)
Acacia Regrowth	11.7.2	0
Acacia Woodland	11.7.2	1.3
Brigalow Regrowth	11.4.9	5.0
Brigalow (*Acacia harpophylla*) woodland	11.4.9	7.8
Eucalypt and Corymbia woodland	11.3.7, 11.5.3, 11.5.9	10.3
Eucalypt woodland associated with ephemeral streams and watercourses	11.3.25	1.9
Eucalypt Woodland Dominated by Poplar Box	11.3.2, 11.5.3	35.6
Mixed Eucalypt Regrowth	11.3.25, 11.5.3	0.3
Non-remnant areas	-	133.1

5.6.5 Management objectives

Environmental targets and performance indicators have been prescribed in line with flora and vegetation management objectives for the Project. These are described in Table 17.

Table 17 Vegetation management objectives

Impact/s	Objective	Target	Measurement Criteria
Loss of native vegetation	Minimise and manage disturbance to native vegetation particularly sensitive vegetation communities (e.g. of concern REs) and threatened ecological communities / habitats	• Total area of native vegetation to be cleared not to exceed 195 ha • No contravention of vegetation clearing permits or EPBC approval specifying spatial limits to vegetation clearing	• Conformance with spatial delineation of approved vegetation clearance

5.6.6 Management measures

Control measures to reduce the potential for impacts on vegetation are provided in Table 18.

Table 18 Vegetation management measures

Parameter	Management measures	Responsibility
General	• All staff will attend site inductions prior to commencing works, being educated on clearing limits and demarcation zones • All environmental requirements, risks and measures will also be reflected in the relevant work SWMS	Construction contractor
Vegetation clearing	• If works occur outside the approved area, an incident investigation will be undertaken as soon as possible and appropriate controls instated in response	Construction contractor

5.6.7 Monitoring

The monitoring program for vegetation and flora species has been designed to ensure construction of the Project is consistent with the management measures. Monitoring will measure the success of these actions and is described in Table 19.

Table 19 Vegetation monitoring

Monitoring	Details	Timing	Responsibility	Records
Vegetation clearing boundary demarcation review	Inspection of adequacy of demarcation of all approved boundaries; ensure all flagging & fencing is in good condition	Weekly	Construction Contractor	Environmental Inspection
Vegetation clearing	Record the location, date of clearing and total hectares of all vegetation clearing; ensure	Ongoing	Construction Contractor	Disturbance limits register

	cumulative totals tracked against approved limits			
Analysis of Incident Trends	Analyse incidents reported for any non-compliances, incidents (including unauthorised clearing)	Monthly	Construction Superintendent	Incident report

5.6.8 Corrective actions

Where required corrective actions will be implemented, as outlined in Table 20.

Table 20 Vegetation corrective actions

Trigger	Action
Marked vegetation clearing boundary not in accordance with approvals	1. Stop work in relevant area 2. Investigate and complete an incident report 3. Implement corrective actions, including the amendment of clearing boundaries
Vegetation clearing outside the approved area is identified	1. Stop work in relevant area 2. Investigate and complete an incident report 3. Report to regulators as required (with notice of proposed corrective action). 4. Implement corrective actions, including rehabilitation where required (refer Section 6)

5.7 Fauna

5.7.1 Environmental value

There are several MNES fauna species that are known or may potentially occur within the proposed action area. These species include:

- Koala (known to be in the proposed action area)
- Greater glider (known to the proposed action area)
- Squatter pigeon (known to be in the proposed action area)
- Australian painted snipe (potentially in the proposed action area)
- Ornamental snake (potentially in the proposed action area).

5.7.2 Policies, standards, and guidelines

The following policies, standards, and guidelines are applicable:

- *Nature Conservation Act 1992* (Qld)
- For Matters of National Environmental Significance (MNES), refer to the *Environment Protection and Biodiversity Conservation Act 1999* (Cth).
- Conservation advice, recovery plans and other key literature as captured in Table 21.

Table 21 Policy documentation on MNES Fauna used to inform management

MNES	Key Literature
Koala (*Phascolarctos cinereus*)	Department of Agriculture, Water and the Environment (2022). *Conservation Advice for* Phascolarctos cinereus *(Koala) combined populations of Queensland, New South Wales and the Australian Capital Territory*. Canberra: Department of Agriculture, Water and the Environment. Department of Agriculture, Water and the Environment (2022). *National Recovery Plan for the Koala* Phascolarctos cinereus *(combined populations of Queensland, New South Wales and the Australian Capital Territory)*. Department of Agriculture, Water and the Environment, Canberra. Department of Climate Change, Energy, the Environment and Water (2024). *Threat abatement plan for predation by feral cats 2024*. Canberra: Commonwealth of Australia.
Greater glider (southern and central) (*Petauroides volans*)	Department of Climate Change, Energy, the Environment and Water (2022). *Conservation Advice for* Petauroides volans *(greater glider (southern and central))*. Canberra: Department of Climate Change, Energy, the Environment and Water. Department of Climate Change, Energy, the Environment and Water (2024). *Threat abatement plan for predation by feral cats 2024*. Canberra: Commonwealth of Australia.
Squatter pigeon (*Geophaps scripta scripta*)	Threatened Species Scientific Committee (2015). *Conservation Advice* Geophaps scripta scripta *squatter pigeon (southern)*. Canberra: Department of the Environment. Department of Climate Change, Energy, the Environment and Water (2024). *Threat abatement plan for predation by feral cats 2024*. Canberra: Commonwealth of Australia. Department of the Environment and Energy (2016). *Threat abatement plan for competition and land degradation by rabbits*. Canberra, ACT: Commonwealth of Australia. Department of the Environment, Water, Heritage and the Arts (2008). *Threat abatement plan for predation by the European red fox*. DEWHA, Canberra.

MNES	Key Literature
Australian painted snipe (*Rostratula australis*)	Department of Sustainability, Environment, Water, Population and Communities (2013). *Approved Conservation Advice for* Rostratula australis *(Australian painted snipe)*. Canberra: Department of Sustainability, Environment, Water, Population and Communities. Department of Climate Change, Energy, the Environment and Water (2022). *National Recovery Plan for the Australian Painted Snipe* (Rostratula australis). Department of Climate Change, Energy, the Environment and Water, Canberra. Department of Climate Change, Energy, the Environment and Water (2024). *Threat abatement plan for predation by feral cats 2024*. Canberra: Commonwealth of Australia.
Ornamental snake (*Denisonia maculata*)	Department of the Environment (2014). *Approved Conservation Advice for* Denisonia maculata *(Ornamental Snake)*. Canberra: Department of the Environment.

5.7.3 Environmental activities to be managed

Construction activities which have the potential to impact MNES fauna include:

- Land clearing and removal of native vegetation
- Civil works
- Bridge and culvert construction
- Relocation of overhead powerlines
- Laydown and construction area establishment
- Heavy vehicle movements.

5.7.4 Potential impacts

Construction activities have the potential to impact on fauna through:

- Habitat loss (refer to Table 22) (to be managed under Vegetation per Section 5.6)
- Fragmentation and edge effects (to be managed via Project design / avoidance – refer Preliminary Documentation)
- Habitat disturbance / degradation, including from:
    - Weeds (to be managed under Weeds per Section 5.8)
    - Pests (to be managed under Fauna per Section 5.7)
    - Dust (to be managed under Air quality (dust) per Section 5.3)
    - Noise (to be managed under Noise and Vibration per Section 5.10)
    - Erosion and Sediment runoff (to be managed under Soils and sediments per Section 5.4)
    - Contamination from spills and leaks (to be managed under Contamination and hazardous materials per Section 5.5)
    - Fauna injury and mortality (e.g. vehicle strike)
    - Increased human presence.

Where these impacts are managed via measures in other sub-sections, they have been excluded from fauna management objectives / measures.

Table 22 Summary of predicted habitat loss for MNES fauna

MNES	Presence in proposed action area	Area of impact
Koala	Known	• 1.9 ha of breeding and foraging habitat • 46.2 ha of dispersal habitat

Greater glider	Known	• 1.0 ha of denning and breeding habitat • 3.0 ha of foraging and dispersal habitat
Squatter pigeon	Known	• 0.05 ha of breeding habitat • 48.2 ha of foraging and dispersal habitat
Australian painted snipe	Potential	• 1.9 ha of habitat
Ornamental snake	Potential	• 0.2 ha of habitat

5.7.5 Management objectives

Environmental targets and performance indicators have been prescribed in line with fauna management objectives for the Project and are identified in Table 23.

Table 23 Fauna management objectives

Impact/s	Objective	Target	Measurement Criteria
Injury / mortality	To minimise the direct impacts on fauna through impacts with clearing, vehicle strike and trenching	• No deaths of MNES fauna because of construction activities.	• Environmental Incident Reports for fauna encounters • Daily fauna clearance reports (whilst works occurring in habitat areas).
Increased human presence (i.e. disturbance)	To minimise the disturbance of fauna that roost or forage in habitat adjacent to disturbance footprint	• Total area of threatened fauna habitat cleared by completion of construction shall not exceed areas approved within the EPBC Act approval conditions • No disturbance of MNES fauna in habitat external to disturbance footprint	• All activities undertaken within the boundaries of the approved proposed action area and limits of the native vegetation clearing permits and EPBC approval • Environmental Incident Reports for fauna encounters external to disturbance footprint • Implementation of approved Species Management Program(s)

5.7.6 Management measures

A range of management measures to reduce the potential for impacts on MNES fauna are provided in Table 24.

Table 24 Fauna management measures

Parameter	Management measures	Responsibility
General	• All staff will attend site inductions prior to commencing works • All environmental requirements, risks and measures will also be reflected in the relevant safe work methods statement (SWMS) • Implementation of a Permit to Disturb process	Construction contractor

Parameter	Management measures	Responsibility
	• Implementation of Species Management Program to avoid and/or minimise impacts on protected wildlife during construction	
Vegetation clearing	A fauna spotter-catcher will be present during all habitat clearance activities, with the authority to cease habitat clearance if required	Construction contractor
Vehicle movement and operation of machinery	• All machinery will be inspected daily prior to use for sheltering fauna • Access tracks will be appropriately designed to cater for the size of vehicle required • Unauthorised off-road driving will be prohibited • Limit speeds on roads to 40 kph to reduce the risk of animal vehicle strikes • Roadkill will be dragged at least 10 m sideways, away from the edge of the track where possible to prevent vehicle strike of birds (or other fauna) that feed on the roadkill • All injured wildlife will be managed using the injured fauna protocol (see Appendix B: Injured Animal Protocol)	Construction contractor
Open trench excavations	• Trench excavations will be backfilled as soon as possible. • Trenches will be inspected a minimum of daily and any fauna that are trapped will be removed to a safe and suitable relocation area • Open excavations will contain fauna escape structures – such as fauna ladders, ramps or benching dug into the side of the excavation	Construction contractor
Feral predators	• Pets including dogs will be prohibited on site • Feeding of wild dogs and feral cats is prohibited • Manage pits and trenches to prevent entrapment (refer Open trench excavations, refer above) • Appropriate waste management (i.e., no deposition of food wastes within proposed action area; waste appropriately stored and secured) to avoid attraction of pest species.	Construction contractor

5.7.6.1 Consistency with policy, standards and guidelines

Management measures within Table 24 have been develop with respect to broad conservation actions and threats outlined within the literature of Table 21 (alongside other potential impacts identified as relevant to the Project). This includes management of vehicles and machinery speed to reduce potential risk of injury / mortality of MNES fauna (e.g. via strike). Additional potential impacts that reflect established threats (for MNES fauna species in Section 5.7.1) within conservation policy include:

- Weed incursion reducing habitat quality / viability, or impeding native species movement
- Pest animals predating on or competing with native species.

These potential impacts are mitigated within the proposed action area via the implementation of management measures in subsections 5.7 and 5.8.

5.7.7 Monitoring and Recording

The monitoring program for fauna has been designed to ensure that construction of the Project is consistent with the control measures. Monitoring will measure the success of these actions and is described in Table 25.

Table 25 Fauna monitoring

Monitoring	Details	Timing	Responsibility	Records
Excavation	Monitor open trenches daily	Weekly & ongoing	Construction Contractor	Environmental Checklist
Habitat boundary demarcation review	As per Table 19 (Vegetation monitoring)	Weekly	Construction Contractor	Environmental checklist
Habitat clearing		Ongoing	Construction Contractor	Disturbance limits register
Pre-clearing & fauna recovery	Record methods & outcomes of all preclearing surveys undertaken by spotter-catchers, including any fauna recovery incidents	Ongoing	Construction Contractor; spotter catcher	Pre-clearing inspection report
Analysis of Incident Trends	Analyse incidents reported for any non-compliances, incidents (including unauthorised clearing or fauna injury/fatality)	Monthly	Construction Superintendent	Incident report

5.7.8 Corrective actions

Where required contingency actions will be implemented, as outlined in Table 26.

Table 26 Fauna corrective actions

Trigger	Action
Injury or death of conservation significant vertebrate fauna as a result of vehicle strike, or other Project activity.	1. Investigate cause 2. Undertake appropriate remedial action (i.e. injured animal protocol) as required 3. Report as an incident to relevant regulatory body and undertake specific, additional actions as required 4. Revise procedures and education / induction programs as required to prevent reoccurrence 5. Collate reports of any such incidents for reporting
Marked habitat clearing boundary not in accordance with approvals.	1. Stop work in relevant area 2. Investigate and complete an incident report 3. Implement corrective actions, including the amendment of clearing boundaries
Habitat clearing outside the	1. Stop work in relevant area 2. Investigate and complete an incident report 3. Report to regulators as required (with notice of proposed corrective action)

Trigger	Action
approved area is identified.	4. Implement corrective actions, including rehabilitation where required

5.8 Weeds

5.8.1 Environmental value

Weeds can impact MNES species and their habitats. A number of weed species have been identified within the proposed action area and surrounding landscape. These include two introduced flora species listed as a Weed of National Significance (WoNS) and listed under the Queensland *Biosecurity Act 2014* (Qld) within the disturbance footprint:

- Rubber vine (*Cryptostegia grandiflora*)
- Velvety prickly-pear (*Opuntia tomentosa*).

5.8.2 Policies, standards, and guidelines

The following policies, standards, and guidelines are applicable:

- Clean Down Record in line with the Vehicle and machinery clean down procedures (Qld Government)
- *Biosecurity Act 2014* (Qld)
- *Biosecurity Regulation 2016*—made under *Biosecurity Act 2014* (Qld).

5.8.3 Environmental activities to be managed

Construction activities have the potential to introduce or disperse weeds through the following aspects of the Project:

- Vegetation clearing
- Excavation and earthworks for construction
- Vehicle and personnel movements.

5.8.4 Potential impacts

Vegetation clearing and other construction activities have the potential to introduce and / or disperse weeds which may:

- Increased infestations of existing weeds
- Introduction of new weed species
- Degrade or alter structure / composition of MNES habitat.

5.8.5 Management objectives

Environmental targets and performance indicators have been prescribed in line with weed management objectives for the Project, as indicated in Table 27.

Table 27 Weeds management objectives

Issue	Objective	Target	Measurement Criteria
Introduction of new weeds	Minimise the potential for new weeds to be introduced into the proposed action area	• No new species of weeds recorded in the proposed action area during construction • Obtain known weed location details in the proposed action area • Compliance with the Biosecurity Act.	• Species of weed recorded in the proposed action area • No non-compliance with Biosecurity Act and internal weed hygiene procedures
Spread of existing weeds	Minimise the risk of spreading existing weeds within the proposed action area and to adjacent areas	• No significant change to the distribution of existing weeds during construction • Compliance with the Biosecurity Act	• Number of recorded locations of weed infestation in Project database

5.8.6 Management measures

The minimum weed management measures to be implemented during construction are outlined in Table 28.

Table 28 Weeds management measures

Parameter	Management measures	Responsibility

Training	• Education of the workforce regarding:
	  ○ weed presence in the proposed action area
	  ○ reporting requirements
	  ○ vehicle and equipment washdown requirements
	  ○ weed hygiene declaration requirements
		Construction Superintendent

Prevention of weed proliferation	• Application of the Permit to Disturb process • Declared weeds within disturbance footprint will be treated or removed prior to the commencement of construction • New weed infestation shall be treated at the earliest stage while small and manageable • Treatment options must follow published advice (e.g. weed control fact sheets published by Queensland Department of Agriculture and Fisheries (https://www.daf.qld.gov.au/business-priorities/biosecurity/invasive-plants-animals/fact-sheets)) • Report all new weed sightings to the Project Environmental Representative	Construction contractor
Vehicle movements	• Vehicle and equipment hygiene protocols will be observed consistent with QLD government advice • Vehicles entering site must be free of weed and seeds and weed hygiene declaration to be completed • Vehicle movement will be restricted to-preexisting access tracks and disturbed areas	Construction contractor
Exposed areas	• Areas of exposed earth will be minimised and revegetated	Construction contractor

5.8.7 Monitoring

The monitoring program for weeds has been designed to ensure that construction of the Project is consistent with the control measures, management objectives and targets. Monitoring measures are identified in Table 29.

Table 29 Weeds monitoring

Monitoring	Details	Timing	Responsibility	Records
Weed infestations or outbreaks	Record any evidence of weed infestations or outbreaks, particular focus on high-risk weeds	Ongoing	Construction Contractor	Weed register
Clean entry for vehicles	Ensure all vehicles are adhering to weed hygiene protocols including strict clean on entry requirements	Ongoing	Construction Contractor	Weed hygiene

Monitoring	Details	Timing	Responsibility	Records
				inspection register
Analysis of Incident Trends	Analyse incidents reported for any non-compliances, incidents (including weed incursion)	Monthly	Construction Superintendent	Incident report

5.8.8 Corrective actions

If monitoring indicates that environment objectives and targets for weeds are not being achieved, contingency actions will be enacted, as indicated in Table 30.

Table 30 Weeds corrective actions

Trigger	Action
Weed outbreaks	1. Infestations are identified 2. Source of infestation is investigated and addressed 3. Infections are controlled via appropriate use of herbicide or other control techniques 4. Implement any revegetation as required

5.9 Fire

5.9.1 Environmental value

Fire, specifically bushfire, can form a significant risk to MNES and their habitats, especially in rural and remote areas of development. The disturbance footprint of the Project forms a wide and continuous fire break. Neighbouring stakeholders also assist in the management of bushfire risk within the surrounding landscape. As such, fire management for the Project's construction is focussed on managing ignition sources, firefighting resources, and emergency response.

5.9.2 Policies, standards, and guidelines

The following policies, standards, and guidelines are applicable:

- State Planning Policy 1/03 guideline: mitigating the adverse impacts of flood, bushfire and landslide
- *Sustainable Planning Act 2009* (Qld).

5.9.3 Environmental activities to be managed

Construction activities have the potential to increase the risk of fire, through the following aspects of the Project:

- Introduction of ignition sources (e.g. vehicles and machinery)
- Hot works
- Introduction or spread of weed species which can increase fuel load (to be managed under Weeds per Section 5.8).

5.9.4 Potential impacts

Construction of the Project may result in the following impacts from fire:

- Fauna injury / mortality
- Loss / degradation of habitat (i.e. native vegetation)
- Reduction in surface water quality.

5.9.5 Management objectives

Environmental targets and performance indicators have been prescribed in line with fire management objectives for the Project and identified in Table 31.

Table 31 Fire management objectives

Impact/s	Objective	Target	Measurement Criteria
All	To prevent fires occurring because of Project activities	No fires caused by Project activities	Number of fires caused by Project activities

5.9.6 Management measures

Management measures have been identified to assist in achieving fire management objectives for the Project as identified in Table 32.

Table 32 Fire management measures

Parameter	Management Measure	Responsibility
Training	• Relevant personnel shall be trained in the use of firefighting equipment	Construction Contractor

Fire prevention	• Firebreaks shall be maintained around buildings and facilities • Firefighting water sources will be identified and communicated to all personnel	Construction Contractor
Fire control equipment	• Appropriate fire control / suppression equipment will be provided in all vehicles, plant, and when and where hot works are undertaken, and will be regularly replenished and maintained	Construction Contractor
Ignition sources	• Smoking only permitted in suitable designated areas with firefighting equipment	All personnel
Weather	• Fire weather warnings will be monitored daily	Construction Contractor
Hot works	• Hot work only permitted in suitable designated areas with firefighting equipment • Exclusion zones will be maintained around hot works to maintain safe distance from much, vegetation, and any unused vehicles or machinery	Construction Contractor
Reporting	• All fires must be immediately reported to a supervisor	All personnel

5.9.7 Monitoring

Fire monitoring has been designed to ensure that construction of the Project is consistent with the control measures. Monitoring will measure the success of these actions in accordance with fire management objectives and targets and identified in Table 33.

Table 33 Fire monitoring

Monitoring	Details	Timing	Responsibility	Records
Weather conditions	Monitor weather conditions and fire rating to assess fire risk in order to prevent and minimise risk of fire	Daily	Construction Contractor	Environmental Inspections
Hot works	Spotters to be engaged during hot works to identify evidence of hot spots or fire activity to identify fire risk early	During hot works	Construction Contractor	Environmental Inspections
Site Inspections	Opportunistic observation for evidence of ignition sources or fire hazards to reduce the risk of fires	Daily	Construction Contractor	Environmental Inspections
Fire control equipment	Monitor fire control equipment to ensure in good working order and sufficient supply to ensure preparedness for fire event	Weekly	Construction Contractor	Environmental Inspections
Fire events	Maintain records of fires and near misses including cause, date/time, location, response, outcome. Modify activities to reduce fire risk in the future	Ongoing, as required	Construction Contractor	Fire Incident Report

5.9.8 Corrective actions

If monitoring indicates that environment objectives and targets for bushfire management are not being achieved, contingency actions will be enacted, as identified in Table 34.

Table 34 Fire corrective actions

Trigger	Action
Fire activity	1. In the event of a Project-initiated fire (including hot spots or fire), activate and implement fire control (including on-site response and notification of emergency response authorities, as required) 2. Investigate and complete an incident report 3. Implement appropriate measures to avoid re-occurrence 4. Rehabilitate vegetation in the affected area, as required

5.10 Noise and vibration

5.10.1 Environmental value

Noise and vibration can impact on MNES fauna in various manners, often leading to behaviour alteration. Ambient noise levels exist within the proposed action area due to the surrounding land uses.

5.10.2 Policies, standards, and guidelines

The following policies, standards, and guidelines are applicable:

- National Code of Practice for Noise management and Protection of Hearing at Work (Safe Work Australia, 2004)
- *Environmental Protection Act 1994* (Qld)
- Fact sheet: Noise regulation under the Environmental Protection Act 1994 (Queensland Government, 2022).

5.10.3 Environmental activities to be managed

Construction activities have the potential to generate noise and/or vibration through the following aspects of the Project:

- Vegetation clearing and earthworks activities
- Infrastructure installation
- General operation of equipment during construction
- Construction traffic during the Project.

5.10.4 Potential impacts

Construction of the Project has the potential to result in the following impacts:

- Disruption to fauna behaviour.

5.10.5 Management objectives

Environmental targets and performance indicators have been prescribed in line with noise management objectives for the Project and indicated in Table 35.

Table 35 Noise and vibration management objectives

Impact/s	Objective	Target	Measurement Criteria
Fauna disruption	To minimise the impact of Project generated noise and vibration emissions on MNES	• Equipment is maintained to minimise noise and vibration impacts	• Equipment maintenance records

5.10.6 Management measures

Specific actions have been identified to assist in achieving noise management objectives for the Project, as indicated in Table 36.

Table 36 Noise and vibration management measures

Parameter	Management Measure	Responsibility
Noise generating equipment	• Noise abatement devices (e.g. mufflers, silencers and screens) will be utilised where relevant • Equipment will be shut down (or throttled down if shut down is not feasible) when not in use • Construction will occur only during designated construction times	Construction Contractor

Parameter	Management Measure	Responsibility
	• Vehicles will utilise designated construction access roads • Semi-fixed noise generating equipment (e.g. generators, compressors) shall be located as far as practicable from known MNES habitat	

5.10.7 Monitoring

Monitoring for noise has been designed to ensure that construction of the Project is consistent with the control measures. Monitoring will measure the success of these actions in accordance with management objectives and targets, as indicated in Table 37.

Table 37 Noise and vibration monitoring

Monitoring	Details	Timing	Responsibility	Records
Noise generating equipment	Inspection of equipment maintenance records and noise abatement	Prior to use onsite	Construction Contractor	Maintenance records

5.10.8 Corrective actions

If monitoring indicates that environment objectives and targets for noise are not being achieved, contingency actions will be enacted, as indicated in Table 38

Table 38 Noise and vibration corrective actions

Trigger	Action
Management measures have not been implemented	Report as Environmental Incident and initiate Incident Response Procedure, including: 1. Investigate cause 2. Implement corrective actions where required

6 Revegetation

As discussed within the Preliminary Documentation (See Preliminary Documentation Section 6.3), the Project does not propose rehabilitation of cleared remnant vegetation, but rather revegetation / stabilisation of temporarily cleared areas. The following provides details on proposed revegetation, including for:

- The salvage of topsoil
- Surface preparation and implementation
- Final landform of revegetated areas.

There are no rehabilitation requirements within Commonwealth, State, or local government approvals.

6.1 Topsoil salvage

Topsoil will be stripped from certain areas as a part of the Project. The following controls will be implemented for topsoil stockpiles:

- Stockpiles will be placed at intervals along the diversion alignment to enable progressive respreading on the finished earthworks during construction
- Stockpiles will be long and low in height to avoid compaction, or heating and retain desirable seek bank.
- If stockpiled for an extended period of time, areas will be temporarily vegetated with fast establishing grasses (e.g. Japanese Millet, Annual Ryegrass) to reduce dust / soil erosion in stockpiles.
- Designated stockpiles will be marked out to avoid any resulting impacts. These should not be located:
    - Beneath canopies of existing vegetation
    - Within 50 m of waterways
    - Against any temporary fences or flagging
- Stockpiles will be monitored for invasive weed species (as part of ongoing weed monitoring) and correctively treated where necessary

6.2 Preparation and implementation

The following provides a general summary of the preparation and implementation of revegetation activities within the proposed action area.

- Revegetation will be undertaken progressively throughout construction
- Surface preparation for each area to be revegetated will occur once temporary disturbance of that area is complete, throughout the Project's construction
- Amelioration of soil will be undertaken (e.g. gypsum application) where necessary.
- Stockpiled topsoil will be respread to a minimum depth of 20 mm (as resources allow)
- Hydromulching will be used where appropriate across the proposed action area to achieve soil stabilisation and erosion control along relevant areas (e.g. riparian zones, embankments). This will occur after construction phase completion, but prior to hand-over of operation to Aurizon
- Watering of exposed areas will occur prior to hydromulching
- Seed mixes will be consistent with operator requirements, and will typically comprise a blend of grass species consistent with surrounding pasture profiles, including:
    - Pioneer Rhodes
    - Buffel Grass
    - Green Couch
    - Indian Blue Grass
    - Verano Stylo.
- The construction contractor will consult with specialists to determine exact seed mix, also considering:
    - Use of climate suitable local seeds
    - Species germination rates
    - Species potential for erosion control (i.e. rooting).

6.3 Final landform

The final landform is a railway embankment within a rail corridor. It will not be rehabilitated to the pre-disturbance state.

The constructed landform will be revegetated using the seed mixes listed in Section 6.2 above to:

- provide a stable surface that is not prone to erosion and./or dispersion; and
- Minimise treatments that require high maintenance e.g. long grass

Revegetation activities will be repeated if necessary until effective. No long-term monitoring of revegetation is proposed as the Project relates only to construction activities. Anglo American has no legal access to the site following completion.

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Appendix A Risk Assessment

Potential environmental impacts	Planned management / mitigation measures	Likelihood	Consequence	Risk rating

Vegetation clearance and loss of habitat	• Training and awareness
	  • Inductions
	  • Safe work method statements (SWMS)
	  • Implementation of a Permit to Disturb process – area surveyed and demarcated as required
	• A fauna spotter-catcher being present during all habitat clearance activities, with the authority to cease habitat clearance for an appropriate timeframe where one or more protected matters could be impacted
	• Sequential clearing
	• Vehicle speed limits and access restrictions
	• Roadkill removal
	• Application of the 'injured animal protocol'
	• Excavation backfill as soon as possible
	• Daily trench inspections
	• Fauna escape structures
		Rare	Major	Medium

Weeds and pest fauna	• Training and awareness
	  • Inductions
	• Weed hygiene certificates for equipment onboarded
	• Application of the Permit to Disturb process
	• Declared weeds removal / treatment
	• Weed control (spraying) measures across proposed action area in the event of a weed infestation within the construction footprint.
	• Vehicle washdown and hygiene procedures
	  • Hygiene declaration on site entry
	• Vehicle access restriction – use of existing tracks and non-remnant areas
	• Reporting sightings / incursions
	• Minimise exposed areas and revegetate
		Unlikely	Moderate	Low

Light	• Training and awareness • Designated construction times during daylight hours, with limited night operations. • Implementation of best practice lighting design, where required (e.g. offices and compound areas for security) • Short duration of construction (nominally 12 months)	Unlikely	Minor	Low

Potential environmental impacts	Planned management / mitigation measures	Likelihood	Consequence	Risk rating
Dust	• Training and awareness • Use of weather forecasting to inform dust suppression activities • Implementation of a Permit to Disturb process • Prompt operation schedule between clearing, grading and reinstatement • Dust suppression in the form of water carts • Designated roads / vehicle access • Stockpile barriers • Speed limit of 40 kph; vehicle covers • Progressive revegetation	Unlikely	Minor	Low

Noise	• Training and awareness
	• Designated construction times
	• Equipment selection and maintenance
	  • Shut down / throttle down when not in use
	  • Use of noise abatement devices where relevant
	  • Semi-fixed equipment to be located as far from MNES habitat as practicable
	• Vehicles keep to designated access roads
		Unlikely	Minor	Low

Erosion and Sediment runoff	• Training and awareness
	• Use of weather forecasting
	• Implementation of a Permit to Disturb process
	• Erosion and Sediment control (ESC), including:
	  • Minimise and control topsoil stripping
	  • Topsoil retention for reuse in disturbed areas, embankment and cut batters
	  • Minimise riparian disturbance
	  • Implementation and monitoring of ESC devices
	  • Clean run-off diversion
	  • Segregation of sediment laden water
	• Staged clearing
	• Revegetation / stabilisation of areas when no longer required for Project
		Unlikely	Moderate	Low

Potential environmental impacts	Planned management / mitigation measures	Likelihood	Consequence	Risk rating
Contamination from spills and leaks	• Training and awareness • Inductions • Availability and application of MSDS • Best practice handling and storage of chemicals • Assessment and testing for contamination • Avoiding disturbance of identified contaminated area/s / hazardous material • Application of suitable treatment where contaminated area / hazardous material require disturbance • Spill kits provided • Additional containment at relevant facilities • Hazardous material review/s • Incident reporting	Possible	Minor	Low
Fire	• Training • Use of weather forecasting • Hot works exclusion zones and availability of designated firefighting equipment • Fire-breaks maintained at all facilities • Firefighting water sources identified and communicated to staff • Smoking only permitted in designated areas • Reporting	Unlikely	High	Medium

Fauna injury and mortality	• Training and awareness
	  • Inductions
	  • Safe work method statements (SWMS)
	  • Implementation of a Permit to Disturb process – area surveyed and demarcated as required
	• A fauna spotter-catcher being present during all habitat clearance activities, with the authority to cease habitat clearance for an appropriate timeframe where one or more protected matters could be impacted
	• Implementation of Species Management Program
	• Application of vehicle, excavation and trenching mitigation measures per ‘Vegetation clearance and loss of habitat’.
		Unlikely	Moderate	Low

Increased human presence	• Training and awareness • Minimise excess personnel during construction • Application of mitigation measures across all other potential impact pathways	Possible	Minor	Low

Appendix B Injured Animal Protocol

If fauna is injured on site, the following procedures will be adopted for the handling of the injured animals:

- All nearby operations (within an ~50 m radius) will cease immediately.
- The site fauna handler will request, whilst monitoring the location of the injured animal, that the work site is made safe to allow access to the injured animal.
- The fauna handler is to conduct a rapid assessment to determine the state of health and any injury to the animal.
- Where it is safe for the animal and fauna handler, the animal will be carefully removed into a secure holding container, kept warm (or cool as required) and taken to a quiet location.
- If it is unsafe or not possible to handle/recover the animal, then:
    - An additional fauna handler (preferably the most experienced one) and Project environmental representative will be contacted immediately to assist in the capture of the injured fauna
    - The fauna handler will GPS-mark the location of the injured animal and keep a watch on the animal at a safe distance to monitor the condition of the animal and be on standby if the animal moves
    - The Project environmental representative and fauna handler will arrange the best method for removal of the injured fauna
    - The fauna handler will secure and capture the injured animal.
- Injured fauna will be referred to an appropriate wildlife carer group or veterinarian
    - Other Local wildlife carers can be accessed through the RSPCA hotline ph 1300 264 625
- Department of Environment and Science will be notified of wildlife incidences within 24 hours of any injuries or deaths Ph 1300 130 372 (Press Option 1).
- Fauna injured/killed will be recorded within a Fauna Interactions Register and a Fauna Handling Report-Injury/Death report will be completed within 24 hrs.
- Seriously injured animals will be euthanised on site at the discretion of the experienced/trained fauna handler who is licensed to administer euthanasia under the Queensland *Health (Drugs and Poisons) Regulation 1996* and *Animal Care and Protection Act 2001*.

Following the capture/recovery of injured fauna, an investigation into the cause of the incident will be undertaken and reported to regulators as part of the annual compliance report.