

Plan

Vegetation Health Monitoring and Management Plan

Eliwana

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Appendix 1: Risk Assessment Relationship Matrix

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ACRONYMS

The following acronyms, defined in Table 1, have been used throughout this Plan.

Table 1: Acronyms			
Acronyms	Definitions		
BMS	Business Management System		
CAR	Compliance Assessment Report		
DBCA	Parks and Wildlife Service within Department of Biodiversity, Conservation and Attractions		
DRF	Declared Rare Flora		
DWER	Department of Water and Environmental Regulation (formerly the Office of the Environmental Protection Authority)		
EAG	Environmental Assessment Guidelines		
EMS	Environmental Management System		
EPA	Environmental Protection Authority		
EPA Services of the DWER	Environmental Protection Authority Services of the DWER		
GDE	Groundwater Dependent Ecosystem		
LUC	Land Use Certificate		
NDVI	Normalised Difference Vegetation Index		
PaWS	Parks and Wildlife Service (within the Department of Biodiversity, Conservation and Attractions)		

1. INTRODUCTION



Fortescue Metals Group (Fortescue) is an integrated business comprised of mine, rail and port operations based in the Pilbara region of Western Australia, with its head office located in Perth.

Detailed background information regarding the timing and nature of Fortescue's environmental approvals under the *Environmental Protection Act 1986* (WA), *the Environment Protection and Biodiversity Conservation Act 1999* (Cwlth), details of the location and nature of current operations, environmental information relevant to these locations and plans for future expansion are contained in Appendix 1 and 2.

1.1 Requirement for the Management Plan

The Vegetation Health Monitoring and Management Plan is required by the Environmental Scoping document as part of the environmental scoping document for development approval for Fortescue Iron Ore related infrastructure in the Pilbara under:

- Environmental Scoping Document: Action item 11 Eliwana Railway Project
- Environmental Scoping Document: Action item 32 Eliwana Iron Ore Mine Project

The conditioned environmental objectives and targets for vegetation management are outlined in Table 2.

1.2 Objective and Scope

The Plan addresses the EPA's objective for the key environmental factor Flora and Vegetation "to protect flora and vegetation so that biological diversity and ecological integrity are maintained".

The objective of this Plan is to identify vegetation management and monitoring measures to minimise the impact on conservation significant vegetation within and adjacent to Fortescue controlled sites¹.

This Plan addresses management issues relevant to conservation significant vegetation as defined in Section 1.4 of this Plan.

¹ Fortescue controlled site means sites that are under the legislative control of Fortescue including exploration sites, sites under construction, operational sites (sites that are managed and operated by Fortescue and sites that are managed by Fortescue but operated by contractors) and the Perth offices.



The conditioned environmental objectives and targets for flora and vegetation management are in Iron Ore outlined in Table 2.

This Plan has been provided to meet the requirements of the EPA's "Instructions on how to *prepare Environmental Protection Act 1986* Part IV Environmental Management Plan". The provisions addressed within this Plan are outlined in Table 2 below.

Provision	Location in Plan
Requirement for Plan	1.1
Outcomes	1.2
Performance Indicators	1.2
Key Environmental values	1.3
Management actions ²	3
Key environmental impacts and risk	3.1
Monitoring	4
Corrective actions	4.5
Reporting	6
Adaptive management and review of the EMP	7 and 8
Stakeholder Consultation	9

Table 2: Management Plan Provisions

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² Outcomes based Environmental Management Plans do not require management actions in accordance with the EPA's "Instructions on how to *prepare Environmental Protection Act 1986* Part IV Environmental Management Plan". Management actions have been included in the Plan to demonstrate effective management of the factor but will not be reported against to demonstrate compliance.



Project	Condition Type	Environmental Outcome	Measure/ Target
Eliwana Railway/Mine	Outcome	No adverse impact to Conservation Significant Vegetation and Flora that are not authorised to be cleared under the environmental approval	Trigger Criteria : A statistically significant difference ³ in primary parameter (see Table 7) trends at predicted impact areas in comparison to baseline monitoring values over two consecutive monitoring events.
			Threshold Criteria : A statistically significant difference ³ in the primary parameter (see Table 7) trends between impact sites and baseline monitoring values.
			The decline is detected over four consecutive monitoring events and is associated with a decline in vegetation health condition in comparison to the reference sites. AND
			Subsequent investigation determine that the impacts are probably a result of the implementation of the proposal.
		Maintain the health of the Threatened Ecological Community (TEC) Themeda Grasslands and the Brockman Iron Cracking	Trigger Criteria: If mean vegetation index values within significant flora buffers ⁴ of priority ecological communities is significantly different from the baseline monitoring values.
		Clay/ Triodia sp. Robe River assemblages of mesas of the West Pilbara (PEC) within the Development Envelope not authorised to be	Threshold Criteria: If mean vegetation index values within significant flora buffers ⁴ of ecological communities is significantly different from the baseline monitoring values.
			The decline is detected over four consecutive monitoring events and is associated with a decline in vegetation health condition in comparison to the reference sites.
			Ground-truthing confirms the decline in vegetation index values has resulted in significant decline.
			AND

Table 3: Environmental outcomes and measures/targets

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³ A statistically significant difference is determined objectively using accepted statistical techniques with significance (P) set at P<0.05.

⁴ The buffers for TECs/PECs are 500 metres.



Project	Condition Type	Environmental Outcome	Measure/ Target
			Subsequent investigation determines that the impacts are probably a result of the implementation of the proposal.

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1.3 Key environmental values

Key environmental values associated with conservation significant flora and vegetation at the Eliwana Railway and Mine are outlined in the *Public Environmental Review: Eliwana Railway Project* (Fortescue reference EW-RP-EN-0004_A) and *Public Environmental Review: Eliwana Iron Ore Mine* (EW-RP-EN-0003_0) and as listed here:

- Groundwater and groundwater dependent systems (including potential GDEs)
- Riparian Vegetation
- Surface water and surface water dependent systems.

1.4 Definitions

1.4.1 Conservation Significant Flora Species and Vegetation

Fortescue's vegetation health management and monitoring activities are targeted at conservation significant flora species and vegetation. In the Environmental Factor Guideline for Flora and Vegetation, the Environmental Protection Authority states flora and vegetation may be considered significant for a range of reasons, including but not limited to the following:

Flora

- Being identified as threatened or priority species
- Locally endemic or associated with a restricted habitat type (e.g. surface water or groundwater dependent ecosystems)
- New species or anomalous features that indicate a potential new species
- Representatives of the range of a species (particularly, at the extremes of range, recently discovered range extensions, or isolated outliers of the main range)
- Unusual species, including a restricted subspecies, varieties or naturally occurring hybrids
- Relictual status, being representative of taxonomic groups that no longer occur widely in the broader landscape.

Vegetation

- Being identified as threatened or priority ecological communities
- Restricted distribution
- Degree of historical impact from threatening processes

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- A role as a refuge
- Providing an important function required to maintain ecological integrity of a significant ecosystem.

Fortescue's vegetation health management and monitoring activities are targeted at conservation significant flora and vegetation where they form the dominant community striatum. Fortescue defines conservation significant species or communities as:

- Declared Rare Flora
- Threatened Species
- Priority Flora
- Threatened Ecological Communities/Priority Ecological Communities
- Sheet flow dependent Mulga Vegetation
- Phreatophytic Vegetation (GDE and Potential GDE)
- Riparian Vegetation.

For the purposes of this Plan, conservation significant flora and vegetation have been limited to those species that meet the criteria above and have been recorded within Fortescue controlled sites or where monitoring requirements have been specified in State and/or Commonwealth approval conditions.





1.5 Legislation and Regulatory Framework

Fortescue employees and contractors are obliged to comply with all relevant environmental Commonwealth and State legislation. Legislation directly relevant to the management of native vegetation in Western Australia is provided in Table 3.

Table 4:	State and Commonwealth Legislation Relating to Vegetation Health Management
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Legislation	Application	
Biodiversity Conservation Act 2016 (WA)	Conservation and protection of biodiversity and biodiversity components. This Act repeals the <i>Wildlife Conservation Act 1950</i> .	
Conservation and Land Management Act 1984 (WA)	Provides for the vesting or reservation of land for conservation purposes, and the ability to enter into agreements with private landholders and pastoral leases. It establishes a number of statutory bodies including the Conservation and Parks Commission	
Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)	Protection on environmental matters of national significance.	
Environment Protection Act 1986 (WA)	Prevention, control and abatement or pollution and conservation protection and enhancement of environment.	
Environmental Protection (Clearing of Native Vegetation) Regulations 2004 (WA)	Regulates the clearing of native vegetation.	
Rights in Water and Irrigation Act 1914 (WA)	Relates to rights in water resources, to make provisions for the regulation, management, use and protection of water resources, to provide for irrigation schemes and for related purposes.	





2. ROLES AND RESPONSIBILITIES

All Fortescue employees and contractors are required to comply with the requirements of this Plan.

Accountability for fulfilling the requirements of this Plan is dependent on the stage of project development (construction, operations, decommissioning) and the project type (port, rail or mine).

During construction stages, whether activities are undertaken by an external service provider or internal Fortescue personnel, the Project Director (Port/ Rail or Mine) will be accountable for ensuring the requirements of this Plan are met.

During operational, decommissioning and closure stages, the General Manager (Port/ Rail or Mine) will be accountable for ensuring the requirements of this Plan are met.

Where responsibilities are delegated, this must be clearly recorded and communicated.

In Section 4 specific Management Actions have been attributed to the appropriate personnel.

When site specific Vegetation Health Management and Monitoring Programs are developed to support this Plan, the RASCI framework should be utilised to delegate roles, responsibilities, and review and approval levels. RASCI is used to denote:

R-Responsible Those who do the work to achieve the task.

A-Accountable Those who are ultimately accountable for the completion of the deliverable or task and the one to whom the Responsible person is accountable.

S-Supportive Resources allocated to the Responsible person and who will also assist in completing the task.

C-Consulted Those whose opinions are sought, two-way communication.

I-Informed Those whom are kept informed, one-way communication.





3. ENVIRONMENTAL MANAGEMENT

A series of environmental management objectives have been developed to mitigate environmental impacts on vegetation health that could potentially be caused by Fortescue's activities (exploration, construction, operation and decommissioning). These include:

- 1. Establish the potential direct and indirect impacts on conservation significant flora and vegetation within Fortescue controlled sites
- 2. Establish management strategies to minimise potential impacts on conservation significant flora and vegetation
- 3. Develop and implement a vegetation health monitoring program to detect impacts on conservation values of conservation significant flora and vegetation.

For each objective, management actions have been developed to ensure the impacts from Fortescue's operations are managed, and that appropriate monitoring, reporting and corrective action functions are implemented to support the successful implementation of the management actions.

The key elements of the environmental management process associated with each objective are described in Table 4.

Element	Definition/ Description
Objective	What is intended to be achieved
Management Action	Tasks undertaken to enable the objective to be met
Performance Indicators	Metrics for evaluating the outcomes achieved by Management Actions
Reporting/ Evidence	Demonstrates that the Management Action has been applied and the outcome evaluated.
Timing	Period during which the Management Action should be undertaken.
Responsibility	Accountability for ensuring management action is completed. The responsible role is dependent on project timing.

 Table 5:
 Description of Key Elements of Environmental Management Process to Achieve Identified

 Objectives

The key management actions, performance indicators, evidence, timing and responsibilities for each objective are provided in Table 5.

3.1 Managing Environmental Risk

Fortescue actively manages risk by undertaking an Annual Environmental Impact Risk Review. Although the review considers all environmental risks, there is a focus on the inherently moderate to high risk impacts. The review considers the effectiveness of management actions that are

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currently in place for these impacts. The review also considers any relevant incidents that may have occurred, if the actions from incident investigations have translated into new management actions, and generally considers the need for any new management actions to ensure lower risk targets can be achieved.

Key impacts and risk associated with conservation significant vegetation and flora at Eliwana Mine and Railway Project as outlined in Appendices of the Plan include:

- Direct clearing of native vegetation
- Direct and/or indirect impacts to conservation significant vegetation
- Direct and/or indirect impacts to conservation significant flora
- Indirect impacts to sheetflow/ surface water dependent vegetation
- Fragmentation of significant vegetation
- Introduction and spread of weeds and invasive species
- Groundwater abstraction.

Appendices provides details as to the relationship between key risks associated with conservation significant vegetation and flora and the proposed management actions. (Namely, the management actions that are detailed in Table 5, under Objective 2).



Objective 1	Establish the	Establish the potential direct and indirect impacts on conservation significant flora and vegetation					
Reference	Site Location		Management Action	Performance Indicators	Reporting/ Evidence	Timing	Responsibility
	Eliwana Rail	Eliwana Mine		·	·	•	
1.1			Undertake targeted flora surveys in accordance with EPA Technical Guidance <i>Flora and Vegetation Surveys for Environmental Impact Assessment and the Flora and Vegetation Assessment Guidelines</i> (100-GU-EN-0005) to determine presence and distribution of conservation significant flora and vegetation within the project area.	Survey undertakenGIS and PIMS updated	Survey reportsGIS datasetPIMS record	Design	Manager, Environmental Approvals
1.2			Conduct a risk assessment to identify high risk areas where conservation significant flora and vegetation have been identified and potential impacts are likely. See Surface Water Impact Assessment for Eliwana Railway Project (750EE-3100-AS-HY-0002), Surface Water Impact Assessment for Eliwana Mine Project (750EW-5700-AS-HY-0001) and the Groundwater Impact Assessment for Eliwana Rail Water Supply (750ES-3100-RP-HY-0002).	 Risk assessment conducted High risk areas identified See management target in Table 1 	 Risk assessment High risk areas identified 	Design/ Construction/ Operation	Manager Environmental Approvals/ Project Manager/ HSES Manager
1.3			Conduct a desktop flora assessment for Land Use Certificate (LUC)) applications for construction and operational activities. In areas where a Detailed Survey (or equivalent level of survey effort) has not been conducted and conservation significant flora and vegetation have been identified during the desktop assessment ensure a flora survey is conducted in accordance with EPA Technical Guidance <i>Flora and Vegetation Surveys for Environmental Impact Assessment</i> and reassess accordingly.	 Assessments conducted prior to disturbance Where required, survey undertaken 	 Survey reports Approval documentation 	Development/ Construction/ Operation	LUC Process Project Manager/ HSES Manager Undertake Survey Group Manager Environment

Table 6: Key Management Actions for Vegetation Health Management in Fortescue Controlled Sites





Objective 2	Establish management strategies to minimise potential impacts on conservation significant flora and vegetation						
Reference	Eliwana Rail	Eliwana Mine	Management Actions	Performance indicators	Reporting/ Evidence	Timing	Responsibility
2.1			Ensure staff and contractors are provided with the appropriate training to ensure conservation significant flora and vegetation are protected.	 Site induction include conservation significant flora and vegetation Toolbox presentations delivered to targeted work groups 	 Site induction Toolbox presentations Training materials/ registers 	Construction/ Operation	Project Manager/ HSES Manager
2.2			Ensure drainage infrastructure location and design aligns with the risk assessment outcomes where possible to minimise interference and disruption of natural surface water flows that support conservation significant flora and vegetation. See Surface Water Impact Assessment for Eliwana Railway Project (750EE-3100-AS-HY-0002), Surface Water Impact Assessment for Eliwana Mine Project (750EW-5700-AS-HY-0001) and Surface Water Management Plan (100-PL-EN-1015 Rev0b).	Location and design of drainage infrastructure aligns with risk assessment outcomes where possible	 Risk assessment 	Design/ Construction/ Operation	Project Manager/ Manager Infrastructure (Rail)/ Manager Operation Planning
2.3			Where sheet flow dependent Mulga communities have been identified and significant impacts from changes to sheet flow regimes are likely, incorporate appropriate drainage infrastructure into project design. See Surface Water Impact Assessment for Eliwana Railway Project (750EE-3100-AS-HY-0002) and Surface Water Management Plan (100-PL-EN-1015).	Drainage infrastructure is included in areas of sheet flow dependent Mulga communities	Audit/ inspection reports	Design/ Construction/ Operation	Project Manager/ Manager Infrastructure (Rail)
2.4			Where possible, align linear infrastructure with existing transport corridors or approved disturbance corridors so that surface water flow regimes are minimally impacted.	Linear infrastructure aligned with existing transport/disturbance corridors where possible	Audit/ inspection reports	Design/ Construction/ Operation	Project Manager/ Manager Infrastructure (Rail)/ Group Manager Operational Mine Planning
2.5			Manage dewatering activities and water discharge/reinjection to minimise impacts on groundwater dependent ecosystems.	 Changes to groundwater levels are minimised Changes to groundwater quality are minimised Vegetation Health Monitoring Program implemented 	Monitoring data	Mine: Construction/ Operations Rail: Construction only	Project Manager/ Group Manager Operational Mine Planning
2.6			Prior to conducting disturbance activities, ensure known locations of conservation significant flora and vegetation and their associated buffers are identified and management measures to minimise any impacts to those areas are implemented.	 LUC identifies conservation significant flora and vegetation and their associated buffers Management measures implemented Surface water management measures implemented where required 	 LUC Inspection/Audit records 	Construction/ Development	Project Manager/ HSES Manager





			 Weed management measures implemented where required Dust management measures implemented where required See management targets in Table 1 Vegetation Health monitoring program implemented 	
2.7		Prior to conducting ground disturbance activities, ensure known locations of weed populations are identified and management measures to minimise the potential for weed spread are included in the LUC.	 Weed populations and management measures are identified in the LUC Vegetation Health Monitoring program implemented 	 LUC Monitor report
2.8		To minimise the potential for dust deposition on conservation significant flora and vegetation, ensure relevant dust suppressions measures are included in the LUC for areas identified as high- risk areas.	 Dust suppression measures implemented Vegetation Health Monitoring program implemented 	 Compl assess report Monito report
2.9		When unauthorised clearing of conservation significant flora and vegetation occurs, report the incident in accordance with the <i>Incident Event Management Procedure</i> (100-PR-SA-0011) and implement corrective actions defined in Table 9 and any reporting requirements defined in Section 8 of the Plan.	 Incident reported in BMS incident module Where required the incident is reported within the specified legislative or licensing timeframe 	 Incider in BMS Corres with th Regula Annua
2.10		Conduct rehabilitation of disturbed areas, particularly those areas with known conservation significant flora and vegetation, no longer required for operations. Rehabilitation for the Eliwana Railway will be managed under the <i>Integrated Rail Network Closure Plan</i> (R-PL-EN-0041). Rehabilitation for the Eliwana Mine will be managed under the <i>Eliwana Mine Closure Plan</i> (EW-PL-EN-0001).	 Disturbed areas rehabilitated in accordance with the Plan Compliance with the Plan GIS updated with rehabilitation data 	 Compl Assess Report GIS date



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Objective 3	Develop and implement vegetation health monitoring programs to detect impacts on conservation values of conservation significant flora and vegetation				
Reference	Eliwana Rail	Eliwana Mine	Management Actions	Performance indicators	Reporting/ Evide
3.1			Develop and implement a vegetation health monitoring program to determine the effectiveness of the management strategies on conservation significant flora and vegetation.	 Vegetation health monitoring program implemented Vegetation health monitoring undertaken in accordance with the required frequency Monitoring location are identified in consultation with the appropriate Regulator where required See management targets in Table 1 	 Vegeta health monito progra Record consul approg Regula (email
3.2			 Undertake a baseline⁵ vegetation health survey of identified vegetation health sites prior to the first monitoring event where possible to: Document all conservation significant flora and vegetation within impact and reference sites Identify the baseline for existing conservation significant flora and vegetation at impact and reference sites Compare conservation significant flora and vegetation health between impact and reference sites. 	 Baseline survey undertaken for all monitoring sites Baseline survey undertaken prior to the first monitoring event Baseline survey undertaken in accordance with the Technical Guide (EPA, 2016) 	Baselin monitor reports
3.3			When monitoring results indicate a potential impact on vegetation health, implement corrective actions defined in Table 9 and any reporting requirements defined in Section 8. Update the Plan where required, to inform an adaptive management approach to vegetation management across the business.	 Corrective actions implemented Reporting requirements met Plan updated where required 	 Vegeta health monito report Report record Update

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ence	Timing	Responsibility
ation pring am ds of Itation with priate ators s, letters)	Construction/ Operation	Group Manager Environment
ne oring s	Construction/ Operation	Project Manager/ Group Manager Environment
ation oring ting Is ed Plan	Construction/ Operation	Corrective Actions: Project Manager/ HSES Manager Reporting/ Program and Plan updates: Group Manager Environment



⁵ The baseline assessment will include impacts from nearby operations.



4. MONITORING GUIDELINES

A vegetation health monitoring program is required to measure the effectiveness of the management actions outlined in the Vegetation Health Management and Monitoring Plan. The outcomes of the monitoring program for each site will contribute to ongoing improvements in management actions to ensure an adaptive management approach is adopted.

4.1 Objectives

The overall objective of Fortescue's vegetation health monitoring program is to monitor and measure the success of management actions to minimise impacts on conservation significant vegetation and flora and ensure compliance with applicable State and Commonwealth approval conditions.

The guiding objectives of the vegetation health monitoring program include:

- 1. Measure adverse impacts of Fortescue's activities on conservation significant flora and vegetation health within Fortescue controlled sites.
- 2. Monitor and measure the success of management measures to inform an adaptive management approach.
- 3. Identify if vegetation changes are impacting or threatening to impact vegetation values.
- 4. Determine if changes in vegetation health within Fortescue controlled sites is a direct or indirect result of Fortescue activities or broader regional changes.

Operational monitoring will be informed by the findings of the monitoring itself as they become available. These findings may similarly lead to ongoing refinements to this Plan and its management strategies to ensure an adaptive management approach is undertaken during Fortescue activities.

4.2 Baseline Survey

Baseline monitoring surveys⁵ will be undertaken for all monitoring sites to assess health and cover of the vegetation prior to the first monitoring event⁵. The baseline survey aims to:

- Document all conservation significant flora and vegetation within impact and reference sites.
- Identify the baseline for existing conservation significant flora and vegetation at impact and reference sites inclusive of impacts from other nearby operations.

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• Compare conservation significant flora and vegetation health between impact and reference sites.

4.3 **Program Summary**

An effective long-term vegetation health monitoring program may be adaptive. Innovations in monitoring techniques and methods should be incorporated into the program design over time. This would, however, be dependent on, and driven by, the quality and quantity of data collected from each site. Further, program design should be based on replicable sampling at impact and reference sites.

For the vegetation health monitoring program, each vegetation unit will consist of a minimum of six monitoring sites per location (three impact and three reference) across all locations (EPA, 2016). However, given the nature of the operational activities covered by this plan there are some variations.

Where possible, initial baseline survey(s) will be conducted during the pre-construction phase to assess the health and cover of vegetation prior to the first monitoring event (see Section 4.2).

Where baseline survey results are available, monitoring sites should be established in suitable locations within potential impact areas (impact sites) to allow for replication of results.

The number and approach to the selection of monitoring sites varies dependent upon the vegetation type being monitored.

Table 15 provides a summary of the vegetation types, methods monitoring parameters, monitoring effort and timing and frequency for all conservation significant vegetation and flora monitored under this Plan.

4.4 Monitoring parameters and methods

A set of monitoring parameters and methods have been selected to provide broad coverage of potential changes in vegetation health and that can be expected under a range of different mining related impacts. The number of monitoring parameters will vary depending on the site-specific conditions and vegetation units. The advent of new technology may result in changes to sampling methods employed.

A summary of monitoring parameters and methods have been provided in Table 6.

Table 7:	Vegetation health monitoring parameters and methods
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Monitoring Parameter	Method				
Primary Parameters					
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Monitoring Parameter	Method
Condition and Health (All)	Visual assessment of vegetation health (Table 8)
	Remote Sensing (NDVI or equivalent)
Condition and Health (Mulga, Riparian and Phreatophytic vegetation)	Visual assessment of condition and health (Table 9)
Leaf water potential	Leafy shoots are collected pre dawn and midday from mid-canopy to be
(Phreatophytic vegetation)	tested for water potential using a pressure chamber
Secondary Parameters	
Groundcover	Estimated cover of grasses
Weed cover	Number of plants and percentage cover
Major Erosion	Measurement of vertical shift of soil surface using erosion stakes.
	A visual assessment is also undertaken within the quadrat (Table 11 and 12).
Surface water	Sheetflow using pressure transducer
	Surface water flows measured using peak level indicator
	Water quality measured using rising stage samplers
Groundwater	Groundwater level measured at identified monitoring bores
Grazing pressure	Document grazing pressure from cattle and feral animals. Faecal units are recorded as '1' for each discrete (fresh, untrampled) occurrence, and as '1' for each 1 m2 of older, more dispersed or scattered occurrence. The number of defined tracks within each monitoring site is recorded and the total ground impacted by hoof marks is estimated as a percentage.
Meteorological data	Data from weather stations installed near monitoring sites location.
Environmental threats	Observation, mapping, photographs etc.
Photopoint monitoring	Photos taken from fixed points

Table 13 provides a summary of the monitoring parameters to be monitored for each vegetation type within Fortescue controlled sites.

Vegetation Condition and Health 4.4.1

Vegetation condition and health for all vegetation is assessed using a condition rating scale (Table 7) adapted from Keighery (1994) and Trudgen (1998).

Table 8: Vegetation Condition Scale for all vegetation communities (adapted from Keighery 1994 and Trudgen 1988)

Condition Code	Definition
Excellent (E)	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
Very Good (VG)	Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks.

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Condition Code	Definition
Good (G)	More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds.
Poor (P)	Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement man such as grazing, partial clearing, frequent fires or aggressive weeds.
Degraded (D)	Severely impacted by grazing, very frequent fire, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species present including very aggressive species.
Completely degraded (CD)	Areas that are completely or almost completely without native species in the structure of their vegetation, e.g. areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated, native trees or shrubs.

Vegetation condition and health of mulga, riparian and phreatophytic vegetation is assessed using Souter et.al (2010) condition rating scale (Table 9).

Score	Health Ranking	Health rating/ description		
Crown extent and density				
0	0%	None		
1	1-10%	Minimal		
2	11-25%	Sparse		
3	26-75%	Medium		
4	76-90%	Major		
5	91-100%	Maximum		
Epicori	nic growth			
1	Absent	Effect is not visible		
2	Scarce	Effect is present within the assessable crown but not readily visible		
3	Common	Effect is clearly visible through the assessable crown		
New tip	growth scores			
1	Absent	Effect is not visible		
2	Scarce	Effect is present within the assessable crown but not readily visible		
3	Common	Effect is clearly visible through the assessable crown		
Reprod	luction scores			
1	Absent	Effect is not visible		
2	Scarce	Effect is present within the assessable crown but not readily visible		
3	Common	Effect is clearly visible through the assessable crown		
Leaf di	e off			
1	Absent	Effect is not visible		
2	Scarce	Effect is present within the assessable crown but not readily visible		

Table 9: Ve	egetation Health	Assessment for	Trees and Shrubs	(adapted from	Souter et.	al 2010)

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Score	Health Ranking	Health rating/ description
3	Common	Effect is clearly visible through the assessable crown
Presen	ce of Mistletoe	
1	Absent	Effect is not visible
2	Scarce	Effect is present within the assessable crown but not readily visible
3	Common	Effect is clearly visible through the assessable crown
Bark Condition		
0	Intact	Intact bark
1	Minor	Minor cracks
2	Moderate	Moderate bark cracks
3	Extensive	Extensive bark cracks
4	Absent	Long term dead tree

4.4.2 Erosion patterns

A visual assessment of erosion will be conducted, using the descriptive characteristics in Table 9 and 10.

Table 10:	Erosion features as per Tongway and Hindley (2004)	

Type of Erosion	Description
Sheeting or sheet erosion (E)	The progressive removal of very thin layers of soil across extensive areas, with few if any sharp discontinuities to demarcate them. This is not always easy to detect with assurance, and may need to be inferred from other soil surface features, such as downslope eroded materials, or surface nature. It is sometimes confused with scalded surfaces, but characteristically is associated with gradational or uniform textured soils.
Pedestalling (P)	The result of removing soil by erosion of an area to a depth of at least several cm, leaving the butts of surviving plants on a column of soil above the new general level of the landscape. Exposed roots are a hallmark of this erosion form. This is a sign that the soil type itself is very erodible and that loss of vegetation in the landscape was preceded by erosion, and not the other way about. Often associated with stones in the post mining environment.
Rills and gullies (R)	Are channels cut by flowing water. Rills are less than 300 mm deep and gullies are greater than 300 mm deep (McDonald et al). They may be initiated by water flowing down sheep or cattle paths. Their presence is a sure sign that water flows rapidly off the landscape, often carrying both litter and soil with it. They are aligned approximately with the maximum local slope.
Terracettes (T)	Are abrupt walls from 1 to 10 cm or so high, aligned with the local contour, Terracettes progressively cut back up-slope, the eroded material being deposited in an alluvial fan downslope of the feature. The location of a terracette should be noted in the comments of the landscape organisation sheet for the line transect so that its progress upslope can be monitored over time. A change of zone will occur at the location of the terracette and it is assessed as occurring in the upslope zone (i.e. it will have an Erosion type and Severity class value of 1 or 2. The erosion type downslope of the terracette may be sheeting with alluvial deposits.
Scalding (S)	Is the result of massive loss of A-horizon material in texture-contrast soils which exposes the A2 or B horizon which are typically very hard when dry and have extremely low infiltration rates. Scalds have a productive potential of zero, and pond or shed water

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Type of Erosion	Description
	readily. They are often on flat landscapes, though not exclusively, whereas sheeting is on gentle slopes.

 Table 11:
 Erosion Severity and classes (Tongway and Hindley 2004)

Severity	Class
Insignificant	4
Slight	3
Moderate	2
Severe	1

4.4.3 Multi-Spectral Imagery

Vegetation Health can be measured using remote sensed data. There are a number of Indices that can be used, but the most commonly currently applied in Normalised Difference Vegetation Index (NDVI). This index is used by Fortescue in vegetation health monitoring, but future monitoring may investigate different indices as they are developed.

NDVI is a vegetation index derived from multispectral imagery to provide a quantitative measure of plant health/vigour. NDVI is a modulation ration between near infra-red (NIR) and red radiation as per the formula NDVI = (NIR – red)/ (NIR +red). Values range from -1 (red dominant) to 1 (NIR dominant). Healthy green vegetation (Chlorophyll content) exhibits low red and high NIR reflectance, resulting in positive NDVI values.

The multispectral imagery used to derive NDVI measurements is generally captured to a spatial resolution of 0.5 m.

The following tables provide on-ground and NDVI health score for trees and shrubs (Table 11) and grasslands that have been developed through Fortescue's monitoring programs (Table 12).

	NDVI value range	Health score ranking
NDVI Category	NDVI value range	Treattri Score ranking
Major decline	<-0.3	1 to 2
Moderate decline	-0.3 to -0.2	3
Low decline	-0.2 to -0.1	4
Neutral	-0.1 to 0.1	5
Low Gain	0.1 to 0.2	6
Moderate Gain	0.2 to 0.3	7 to 8
High Gain	>0.3	9 to 11

Table 12	On-ground and NDVI health score comparison for trees and shrubs
	on ground and NDVT health score comparison for trees and sinubs





NDVI Category	NDVI value range	Health score ranking
Major decline	<03	1
Moderate decline	-0.3 to -0.2	2
Low decline	-0.2 to -0.1	3
Low decline to Neutral	-0.1 to -0.05	4
Neutral	0.05 to 0.05	5
Neutral to Low Gain	0.05 to 0.1	6
Low Gain	0.1 to 0.2	7
Moderate Gain	0.2 to 0.3	8-9
High Gain	>0.3	10-11

Table 13:	On-ground and NDVI health score comparison for grasslar	nds
	- J · · · · · · · · · · · · · · · · · ·	

Ground based validation of NDVI will be undertaken concurrent with monitoring of transects, in order to confirm the accuracy of NDVI satellite imagery based assessment. The individual parameters will then be totalled to obtain a health score for each site. Comparison of the data collected during the ground based validation process with the NDVI results will be achieved by dividing the total health ranking into categories aligned with the NDVI categories.

Analysis of variance (ANOVA) or similar statistical test is then used to compare NDVI change values between impact and reference sites and across all survey sites assessed using NDVI.



Vegetation Type	Fortescue Sites	Design	Monitoring parameters	Method	Monitoring Effort	Timing Freque
All vegetation types	All	As per vegetation type	Meteorological data	Local weather stations Tipping bucket rain gauge	One per operating site	As per type
			Environmental threats	Visual assessment	Visual assessment of the quadrat	
			Photo point monitoring	Fixed photo points	At least one per site	
Sheet Flow Mulga	Rail	Nested design with 100 m	Condition and health	Visual assessment (Table 8 and 9)	Each mulga within the 10m x 10m quadrats	August
		transects installed upstream (reference) with 400 m transects	Stem growth	Physical measurement of stem diameter	Each mulga within the 10m x 10m quadrats	
		installed downstream (impact) of the railway. 10 m x 10 m quadrats	Sheetflow	Pressure transducer	Upstream and downstream of existing rail infrastructure	
		impact transects.	Major erosion	Erosion stakes Visual assessment	1 samples per site	
			Groundcover	Permanent circular plots	3 samples per quadrat	
Phreatophytic Vegetation (including partially phreatophytic)	Mine	2,500 m ² quadrats containing ten mature sample trees	Groundwater (quality and level)	Monitoring bores	Bores in close proximity to quadrat, where available	April - N Octobe
Communities and potential Groundwater			Surface water (quality and flow)	Peak level indicators Rising stage samplers	Assessments per quadrat	
Dependent Ecosystems			Leaf water potential	Scholander pressure chamber	3 samples per tree, 10 trees per quadrat	
(GDE))			Condition and health	Visual assessment (Table 8 and 10)	10 trees per quadrat	
				NDVI validation undertaken concurrent with field monitoring.	Assessment per site	
	Rail	Two 50 m x 50 m quadrats in each zone.	Groundcover Condition and health	Visual assessment (Table 8 and 10)	Assessment of the quadrat	June-Ju
		Zones include: • > 100m downstream • 0-100 m downstream • 0 m impact • 0-100 m upstream • > 100 m upstream	Condition and health	NDVI validation undertaken concurrent with field monitoring.	Five zones, with two 50 m x 50 m quadrats. A total of ten quadrats per crossing	
Riparian	Rail and Mine	10m x 10m quadrats are nested on	Condition and health	Visual assessment	10 trees per site	Octobe
Vegetation (non GDE)		both reference and impact transects.		NDVI validation undertaken concurrent with field monitoring.	Assessment per site	- NDVI -
Themeda Grasslands (TEC)/ Brockman Iron Cracking Clay (PEC)	Rail and Mine	10m x 10m quadrats, 6 quadrats in total, 3 impact, 3 reference	Weed Cover	Count number of plants and estimate percentage cover	Assessments per quadrat	Мау
			Condition and health	Visual assessment (Table 8)	Assessments per quadrat	1

Table 14: Summary of Conservation Significant Vegetation Health Monitoring



and ancy

vegetation

t - September

May er - November

luly

er – November - June



Vegetation Type	Fortescue Sites	Design	Monitoring parameters	Method	Monitoring Effort	Timing Freque
				NDVI validation undertaken concurrent with field monitoring (optional)	Assessment per site	
			Major erosion	Erosion stakes	1 samples per site	
				Visual assessment	Assessments per quadrat	
			Grazing pressure	Number of faecal units of all grazing animals and estimated ground disturbed by tracks and hoof marks counted.	Assessments per quadrat	
			Groundwater levels	Monitoring bores, where available	Bores in close proximity to quadrats where available	



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4.4.4 Monitoring Program Review

The overarching monitoring program will be technically assessed and reviewed upon acceptance of this plan⁶ and then every three years thereafter. The main objective of the assessment and review will be to ensure that the methods, parameters and frequency used are considerate and appropriate to the findings of the monitoring program. If no triggers are exceeded (detailed in Table 14) after three years, the frequency of monitoring will be reduced to a frequency supported by the review.

Monitoring sites may need to be adapted over time in response to project impacts.

The assessment and review will be undertaken by an independent Pilbara ecology expert with a relevant tertiary qualification and a minimum 10 years terrestrial Pilbara ecology experience.

Contingency action (Section 4.5) and reporting requirements (Section 6) will be implemented where required.

4.4.5 Data handling and Statistical Analysis

Data will be handled in accordance with the data handling protocol established as part of the annual monitoring tender. The protocol will include the requirements as to data storage and protection, data extraction, quality control, analysis, interpretation, reporting and presentation. The protocol will also directly reference and align with the requirements detailed in *Document Control, Information Management (100-ST-DC-001)* and *Geographic Information Systems and Raw Data Guidelines (100-GU-EN-0009)*.

Statistical analysis of data will be undertaken where data permits. Where data capture allows, analysis will include univariate or multivariate analysis, as deemed appropriate, to determine whether there are any statistical variations in monitoring data.

A statistically significant difference will be determined objectively using accepted statistical techniques with significance (P) set at P<0.05.

Statistical analysis methods for vegetation health monitoring may include:

• Scatterplots may be used for assessing relationships between parameters including identification of situations where statistical inference is not feasible.

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⁶ This is primarily due to the fact that a number conservation significant flora and vegetation monitoring programs have been ongoing for over 5 years.



- Statistical tests such as parametric tests for difference between means (T test, ANOVA) and non-parametric test (Kruiskal Wallas etc.)
- Least Square Means plots (with error bars) may also be used to help interpret p-value results with 95% confidence intervals of the difference between treatments also considered.

4.5 Contingency Actions

Contingency actions will be initiated during construction, operational and decommissioning activities when an exceedance of a trigger is identified, and monitoring indicates that implemented management measures are not successfully mitigating impacts on conservation values of vegetation health and/or the management objectives are not being achieved.



Table 15:	Trigge	er Criteria and Asso	ciated Contingency Actions
A I			March 17 and

Approval	Condition Type	Measure/ Target	Contingency Action	
Eliwana Railway and Mine	Outcome	 Trigger Criteria: A statistically significant difference³ in primary parameter (see Table 7) trends at predicted impact areas in comparison to baseline monitoring values over two consecutive monitoring events. OR If mean vegetation index values within significant flora buffers⁷ of priority ecological communities is significantly different from the baseline monitoring values. Threshold Criteria: A statistically significant difference³ in the primary parameter (see Table 7) trends between impact sites and baseline monitoring values. AND The decline is detected over four consecutive monitoring events and is associated with a decline in vegetation health condition in comparison to the reference sites. AND Subsequent investigation determine that the impacts are probably a result of the implementation of the proposal. 	 Trigger Contingency Actions Determine whether the changes observed in the impact sites are compara Re-examine applied monitoring parameters to validate they are operating or implement changes to the water management system to address exceeda Ground truth the results of the disturbance to validate if findings of NDVI at the increase vegetation monitoring frequency to a three-month cycle at VMUs no comparable observation in the reference sites. After the four consecutive monitoring events, determine if threshold criteria required: compilation of all relevant, available data for detailed statistical at impacts account for the trends detected. If after the four consecutive monitoring events, a threshold exceedance has frequency. Threshold Contingency Actions Implement contingency measures within 24 hours of the exceedance being determination being made by the OEPA. Where it was not caused by construction, operation or decommissionil Report the threshold exceedance to the OEPA which allows determinative exceedance being identified. Where the exceedance is a result of construction, operation or decommission of the exceedance being identified. Continue to implement actions to remediate the exceedance until approval 	

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- able to the observations in the reference sites.
- within management levels and where necessary nce
- ssessment are correct
- where trigger criteria was exceeded in impact sites with
- a have been exceeded and a management response is nalyses to further test the probability that project related
- as not been identified, resume standard monitoring
- ng identified.
- activities, submit a plan with actions within 21 days of the
- ng activities, resume standard monitoring frequency.
- dance being identified.
- ion of the cause of the exceedance within 21 days of the
- sioning activities, submit a plan of actions within 21 days
- I to cease has been given by the OEPA.

⁷ The buffers for PECs are 500 metres.



5. COMPLIANCE

Fortescue ensures compliance with its legal obligations through first party quality assurance by site and corporate environment teams with a focus on effective environmental management through the implementation of the Fortescue wide Environmental Management System (EMS).

Fortescue has adopted a risk based approach to monitor compliance with its legal obligations. Site environment teams will monitor their compliance with this Plan and the required site specific management and monitoring programs using the *Self-Verification of High Risk Environmental Legal Obligations Guideline* (100-GU-EN-0030).

Where non-conformance issues or opportunities for improvement are identified these will be documented and tracked via Fortescue's BMS.





6. **REPORTING**

6.1 Annual Monitoring Report

An Annual Monitoring Report will be developed with the results of the vegetation health programs across all Fortescue controlled sites. This report will outline the vegetation health monitoring data captured during the reporting period and the analysis required to report compliance against management targets and conditioned environmental objectives.

Monitoring reports will be provided to the State and Commonwealth Governments as dictated by annual reporting requirements. In addition, the monitoring raw data will be made available to the Western Australian State Government and the Commonwealth Government upon request or where conditioned to provide it.

6.2 Annual Compliance Assessment Report

Fortescue is required to report against its compliance with the Vegetation Health Monitoring and Management Plan in the Compliance Assessment report prepared in accordance with the OEPA's *Post Assessment Guideline for Preparing a Compliance Assessment Report, Post Assessment Guideline No. 3.*

Annual Compliance Assessment Reports (CAR) will be submitted where required under a Ministerial Statements with vegetation health related conditions:

6.3 Reporting of Potential Non-Compliances

Fortescue is required to report against vegetation health monitoring outcomes as per conditioned timeframes. Management targets, triggers criteria and where required threshold criteria have been identified in Table 1.

In the event that monitoring, tests, surveys or investigations indicate an exceedance of a management target has occurred within the reporting period, Fortescue will:

- Where the exceedance is attributable to construction, operation or decommissioning activities, report the exceedance in writing to the OEPA within 7 days of the exceedance being identified.
- Implement the threshold contingency actions specified in Table 15 within 24 hours and continue to implement those actions until the CEO has confirmed by notice in writing that it has been demonstrated that the threshold criteria are being met and the implementation of the threshold contingency actions is no longer required.

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- Investigate to determine the cause of the management targets being exceeded.
- Investigate to provide information for the OEPA to determine potential environmental harm or alteration of the environment that occurred due to threshold criteria being exceeded.
- Provide a report to the OEPA within 90 days of the exceedance being reported. The report shall include:
 - o Details of threshold contingency actions implemented,
 - The effectiveness of the threshold contingency actions implemented, against the threshold criteria,
 - The findings of the investigations,
 - o Measures to prevent the threshold criteria being exceeded in the future,
 - Measures to prevent, control or abate the environmental harm which may have occurred,
 - Justification of the threshold remaining, or being adjusted based on better understanding, demonstrating that outcomes will continue to be met.

In the event that monitoring, tests, surveys or investigations indicate that one or more management actions have not been implemented, Fortescue will:

- Report the failure to implement management action(s) in writing to the OEPA within 7 days of identification
- Investigate to determine the cause of the management action(s) not being implemented
- Investigate to provide information for the OEPA to determine potential environmental harm or alteration of the environment that occurred due to the failure to implement management actions.
- Provide a report to the OEPA within 21 days of the reporting.





7. ADAPTIVE MANAGEMENT

Fortescue will implement adaptive management practices to learn from the implementation of mitigation measures, monitoring and evaluation against management targets, to more effectively meet the conditioned environmental objective. Adaptive management practices that will be assessed for the vegetation health management and monitoring program as part of this approach may include:

- Evaluation of the monitoring program, data and comparison to baseline data and reference sites on an annual basis to verify whether responses to project activities are the same or similar to predictions.
- Evaluation of assumptions and uncertainties of the vegetation health management and monitoring program.
- Re-evaluation of the risk assessment and revision of risk based priorities as a result of monitoring outcomes.
- Review of data and information gathered over the review period that has increased understanding of site environment in the context of the regional ecosystem.
- Review of management actions as the project matures and new management measures and technologies become available that may be more effective for vegetation health management.
- Assessment of changes which are outside the control of the project and the management measures identified (i.e. a new project within the area or region; regional change affecting vegetation health management).
- Evaluation and introduction of new or different monitoring methods due to changes in technology.
- Review of the Vegetation Health Monitoring and Management Plan will be undertaken every five years or as required by a condition.



8. **REVIEW OF THE PLAN**

Review of this Plan will be undertaken every five years or as required by a condition. Revisions of this Plan will be submitted to the relevant State and Commonwealth Governments for approval, in accordance with relevant approval conditions.

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9. STAKEHOLDER CONSULTATION

Fortescue has undertaken extensive stakeholder consultation program whereby landowners, regulators and other relevant parties have been consulted with regard to investigation and design of the mine sites and port and rail infrastructure through the environmental approvals process.

The then Department of Environmental Regulation (DER), the then Office of the Environmental Protection Authority (OPEA) and the then Department of the Environment (DoE) were consulted and, where required, approved the content of the original plans for which this Plan will replace.

Table 15 will be updated following receipt of stakeholder comment as a result of the review and approval process.

Stakeholder	Correspondence	Comments	Changes
DWER – Terrestrial Ecosystems	CMS 17164	Revise the Vegetation Health Monitoring and Management Plan in accordance with previously provided advice prior to re- submission of the ERD.	The VHMMP has been revised to take into consideration previously provided advice from DWER (UID 71373).
	CMS 17164 CMS 171123	Revise the Vegetation Health Monitoring and Management Plan to include management measures that will be taken, including details of objectives/ outcomes, monitoring regimes, and measurable thresholds and triggers to ensure impacts to flora and vegetation are not greater than predicted	The VHMMP includes including details of objectives/ outcomes, monitoring regimes, and triggers and thresholds in accordance with EPA Guidance <i>EAG 17</i> <i>Preparation of management plans</i> <i>under Part IV of the</i> <i>Environmental Protection Act</i> <i>1986.</i>

 Table 16:
 Stakeholder Consultation, Comments and Responses





10. REFERENCES

Fortescue Metals Group (FMG), 2017. PER: Eliwana Mine Proposal – Surface Water Impact Assessment.

Fortescue Metals Group (FMG), 2017. PER: Eliwana Rail Proposal – Surface Water Impact Assessment.

Fortescue Metals Group (FMG), 2017. PER: Eliwana Rail Proposal – Groundwater Impact Assessment.

Fortescue Metals Group (FMG), 2017. PER: Eliwana Mine Proposal – Groundwater Impact Assessment.

Fortescue Metals Group (FMG), 2017. PER: Eliwana Mine Proposal –*Eliwana Mine Closure Plan* (EW-PL-EN-0001).

Fortescue Metals Group (FMG), 2017. PER: Eliwana Rail Proposal – *Integrated Rail Network Closure Plan* (R-PL-EN-0041).





Figure 1: Surface Water Management Near Conservation Significant Vegetation: Eliwana Rail

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Figure 2: Environmental Considerations and Groundwater Impact Assessment Areas: Eliwana Rail

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Appendix 1: Risk Assessment Relationship Matrix

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Objective 2 Establish management stratgies to minimise the potential impacts on conservation significant flora and vegetation within Fortescue Controlled Sites

		Direct dea conservat	ath to tion										
		significan	t flora and										
	Risk	vegetatio	n	Indirect dea	th to conse	ervation sign	nificant flo	a and veget	ation				
		Clearing v	will reduce			Ū							
		extent, di	isturbance										
		to flora o	r					Increased f	ire	Alteratio	ons to	Groundw	vater
	Cause/ Unwanted Event	ecological		Weed spread		Dust generation		frequency/intensity		surface water flows		drawdown	
Ref #	Management Action	Rail	Mine	Rail	Mine	Rail	Mine	Rail	Mine	Rail	Mine	Rail	Mine
2.1	Training	Х	Х	Х	Х		Х	Х		Х	Х		
	Drainage infrastructure location												
2.2	and design												
	Incorporate drainage												
2.3	infrastructure									Х	Х		
2.4	Align linear infrastructure	х								х	х		
	Dewatering and water												
2.5	discharge												Х
	Locations of conservation												
	significant flora and vegetation												
2.6	are known	Х	Х							Х	Х		
	Weed locations are known and												
	management measures												
2.7	idenified			Х	Х								
2.8	Dust management						Х						
2.9	Incident management	Х	Х	Х	Х		Х	Х	Х	Х	Х		Х
2.10	Rehabilitation	Х	Х										

Ref #	Management Action	Full Description
		Ensure staff and contractors are provided with appropriate training to ensure conservation significant fauna
2.1	Training	and associated habitat are protected.
	Know locations of fauna	Prior to conducting ground disturbance acivities, esnure known locations of conservation significant fauna and
2.2	identified	their associated fauna habitat and buffers are identified and management measures are implemented.
	Drainage infrastructure location	Ensure drainage infrastructure location and design aligns with the risk assessment outcomes to minimise
2.3	and design	interference and disruption of natural surface water flows that support conservation significant fauna habitat.
		habitat, and the records have been verified through survey activities undertaken in the last five years, ground-
		truth the area and similar habitats within the area. Where individual animals are present implement mitigation
2.4	Pre clearance surveys	measures, in consultation with DPaW, including the relocation of fauna, prior to disturbance.
		Prior to conducting ground disturbance activities, ensure known locations of priority weed populations are
2.6	Weed management	identified and management measures to minimise the potential for weed spread are included in the LUC.
		Fauna management measures including exclusion or exit/egress structures, to minimise potential impacts to
		conservation significant fauna are in place:
		- For mining infrastructure that poses a fauna entrapment and drowning risk (including storage ponds and
		tailings storage areas).
2.7	Fauna exclusion and/or egress	- When conducting excavation or trenching activities.
		Develop and implement a Feral Animal Control Program to effectively manage and control feral animals within
2.8	Feral animal control	Fortescue controlled sites to minimise impacts on conservation significant fauna.
		To minimize the potential for dust deposition on vegetation on conservation significant fauna habitat,
2.9	Dust mitigation	implement relevant dust suppression measures within identified high risk areas
		Conduct progressive rehabilitation of disturbed areas no longer required for operations prioritising areas with
2.14	Progressive rehabilitation	known conservation significant fauna and associated habitat.