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Whitehaven

Werris Creek Coal Bushfire Management Plan

Approval	Name	Position	Signed	Date
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Docusign Envelope ID: 7D568295-D859-46E7-9EE4-43C6418738A9

Whitehaven

Contents

Docusign Envelope ID: 7D568295-D859-46E7-9EE4-43C6418738A9

List of Tables

List of Figures

Docusign Envelope ID: 7D568295-D859-46E7-9EE4-43C6418738A9

1. Introduction

1.1 Overview of Approved

The Werris Creek Coal Mine (WCC) is operated by Werris Creek Coal Pty Limited (WCC) and is located within the Northwest Slopes and Plains of New South Wales, approximately 45km southwest of Tamworth (Figure 1). WCC is located approximately 4km south of Werris Creek and 11km north-northwest of Quirindi.

WCC was granted Project Approval (PA) 10_0059 on the 25th of October 2011 by the Minister of Planning and Infrastructure for the Life of Mine (LOM) project. The Project involves a northerly extension of the existing mine footprint, increasing the projected mine life by approximately 10 to 15 years. PA 10_0059 has subsequently been modified five times under Section 75W of the Environmental Planning and Assessment Act 1979 (EP&A Act), with the most recent modification (MOD 5) regarding changes to the final landform being approved December 2024.

A full project description, including baseline data, history of operations, current operating approach and mining methods are outlined within the WCC Project Environmental Assessment and previous Annual Reviews for the site. These documents can be found on the Whitehaven Coal website.

1.2 Baseline Data

The topography, vegetation, and weather are described in detail and the bush fire risks associated with the WCC. Key findings include:

- The topography around the site is best described as soft undulating open country (<5 deg slopes) with steeper sections 5 to 15-degree slopes associated with the min rehabilitation areas.
- The dominate slopes >5 degrees are southerly aspect which, under a southerly wind influence may create an opportunity for rapid fire growth under elevated fire weather and increased rate of spread impacting on the regeneration are of the sites with limited human intervention and suppression operations able to occur.
- The vegetation in within the site is classified as PCT 433: White Box grassy woodland to open woodland on basalt flats and rises in the Liverpool Plains sub-region, BBS Bioregion, with small patches of PCT 599: Blakelys Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion within the south of the site. Both PCT fall with and is classified as Western Slopes Grassy Woodlands in accordance with Keith Classes (2004) applied with the 'NSW Comprehensive Fuel Loads'.
- The hot season lasts for 3.7 months, from 27 November to 17 March, with an average daily high temperature above 29°C. The hottest month of the year in Quirindi is January, with an average high of 32°C and low of 17°C.
- The cool season lasts for 3.0 months, from 26 May to 26 August, with an average daily high temperature below 18°C. The coldest month of the year in Quirindi is July, with an average low of 2°C and high of 15°C.
- The wetter season lasts 4.5 months, from 19 October to 2 March, with a greater than 22% chance of a given day being a wet day. The month with the most wet days in Quirindi is January, with an average of 8.8 days with at least 1 millimetre of precipitation.
- The drier season lasts 7.5 months, from 2 March to 19 October. The month with the fewest wet days in Boggabri is April, with an average of 4.2 days with at least 1 millimetre of precipitation.
- Prevailing weather conditions associated with the Bush fire season in the district are strong south-westerly to north-westerly winds accompanied by high daytime temperatures and low relative humidity. On average the district has 300 Bush fires per year with around 3 can be major Bush fires. The main sources of ignition are dry thunderstorms, escape private burns, accidental ignition (agricultural land use) and arson.

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Docusign Envelope ID: 7D568295-D859-46E7-9EE4-43C6418738A9

1.2.1 Site Values

WCC is an open-cut mine, currently undergoing rehabilitation, decommissioning and removal of infrastructure and assets not required for the final land use. Infrastructure intended to be retained in closure at WCC is outlined in **Table 1.**

Table 1 - WCC Asset List

Onsite Asset List	Offsite Assets
Mobile plant and equipment required for rehabilitation activities	Surrounding cropping/grazing land and associated buildings and residences
Water management assets (clean water dams, sediment basins, diversion drains, pipelines)	Local Biodiversity offset areas
Werris Creek Road and the main northern railway	Habitat for threatened fauna species; Regent Honey Eater, Swift Parrot, Brown Treecreeper, Hooded Robin, Little Lorikeet, Barking Owl, Eastern Bent-wing Bat, Eastern False Pipistrelle, Yellow-bellied Bent-wing Bat and Greater Broad-nosed Bat.
Mine industrial area (Infrastructure, offices, workshop buildings, equipment laydown areas, pipelines and water) including powerlines and refuelling facility	Heritage sites such as grinding grooves (stored at Liverpool Plains Visitor Information Center).

1.2.2 Identified Bushfire Hazards at WCC

The following are recognised as bush fire hazards at the site:

- On-site storage of hydrocarbons, oils, greases, chemicals and flammable material;
- Electrical infrastructure;
- Lighting strike;
- Operation of plant and equipment because of rehabilitation and maintenance activities;
- Hot works; and
- Regional or localised bush fires originating from outside the Site.

1.3 Purpose

The purpose of this Bush Fire Management Plan (BFMP) is to provide an overview and direction to the systems, processes and documentation that have been established to manage bushfires on site and protect the site from bushfires arriving from surrounding land. The BFMP has been developed to:

- Ensure compliance with operating conditions of all active approvals;
- minimise the occurrence and spread of bush fires from land under WCC's management on the environment and nearby residences;
- evaluate and report on the effectiveness of the Bush Fire Management system; and
- maintain an effective response mechanism to deal with non-compliances and complaints.

1.4 Scope

This Management Plan applies to all land within the WCC Mining Leases (ML) including by ML 1563, ML1671 and ML1672. The location of the Werris Creek mining lease boundary is provided in **Figure *1***. Though this plan governs actions within the Werris Creek Mine Operational boundary, it acknowledges that bushfire risks and threats, from or to, nearby or neighbouring properties can impact life, assets, and other physical,

Docusign Envelope ID: 7D568295-D859-46E7-9EE4-43C6418738A9

environmental, social, and heritage values within the mine site.

1.5 Management Systems

WCC, as a Whitehaven Coal operation, has well-established management systems. These management systems provide the framework to support the planning, implementation, monitoring and review to achieve continual improvement inbushfire management. To minimise the occurrence and spread of bushfire impacts, a risk-based approach has been established, which includes mechanisms for predictive forecasting and bushfire monitoring, providing feedback on the effectiveness of controls and enabling adaptive bushfire management.

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Docusign Envelope ID: 7D568295-D859-46E7-9EE4-43C6418738A9

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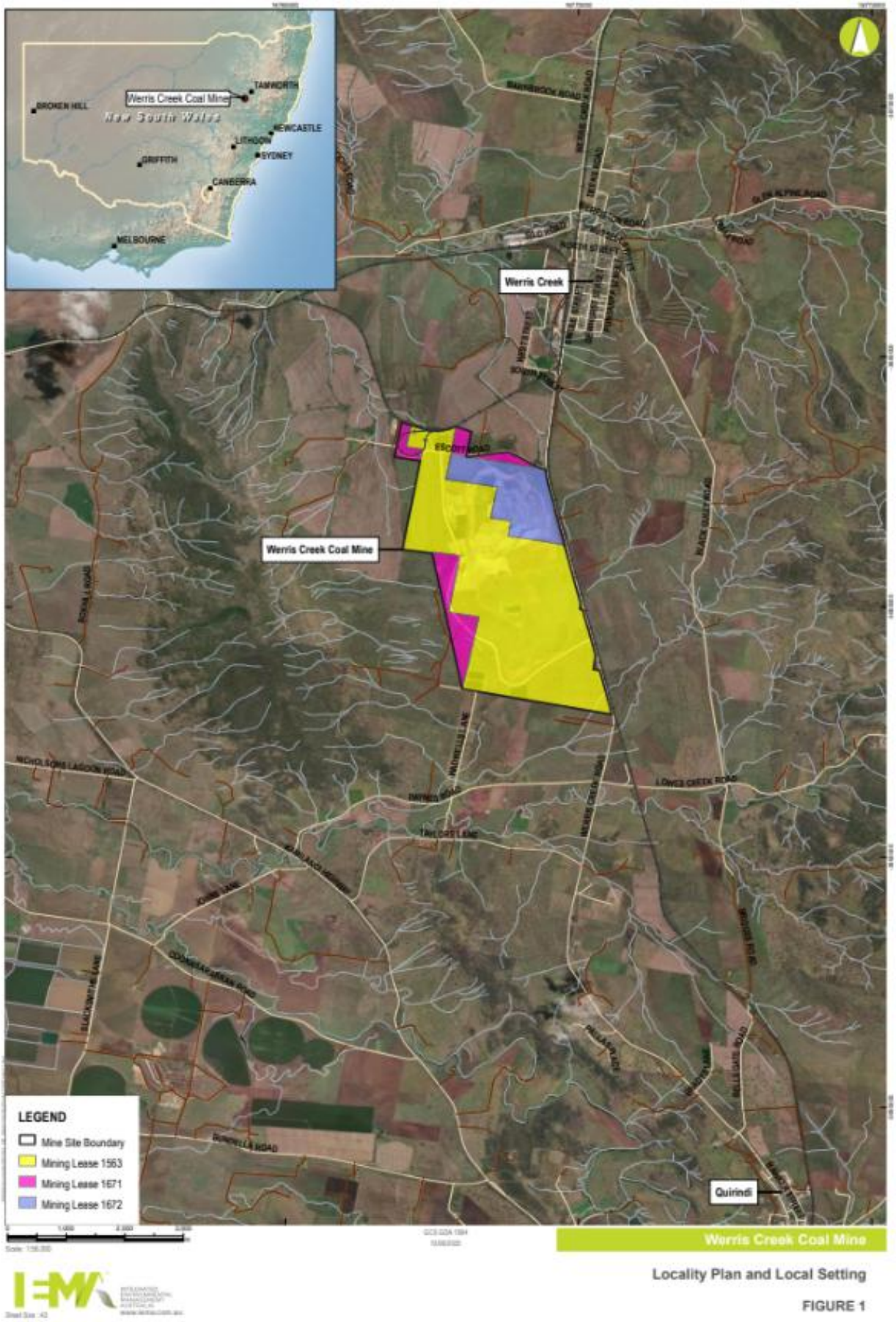
Figure 1 - Locality Plan and Local Setting



Docusign Envelope ID: 7D568295-D859-46E7-9EE4-43C6418738A9

2. Legislative Requirements

Requirements and commitments associated with minimising occurrence and spread of bush fire are defined within the following:

- Werris Creek Coal Project Approval (MP) 10_0059; and
- Environmental Protection Licence (EPL) 12290 (NSW Government, 2023).

This BFMP has been developed in accordance with the Approval, EPL and other relevant conditions. Standards, guidelines and other legislation relevant to the preparation this BFMP and the management of bush fire risk from and to WCC are available in **Section 10**.

3. Consultation and Communication

The BFMP was developed in consultation with a Principal Bush Fire Consultant.

WCC has extensive consultation and communication processes, including but not limited to:

- A comprehensive community engagement program which includes a Community Consultative Committee (CCC);
- Ongoing consultation with relevant government agencies;
- A community response line (1800 942 836) which enables members of the community to contact environment and community staff directly to discuss concerns regarding bushfire management and response; and,
- Publicly available project approvals, environmental and other related documentation (annual reports, complaints register, CCC minutes) via the Whitehaven Coal website.

4. Risk Management

WCC implements a comprehensive risk management system as documented in the Whitehaven Coal HSE Risk Management Standard (WHC-STD-HSE Risk Management) and the Whitehaven Coal HSE Risk Management Procedure (WHC-PRO-HSE Risk Management). Bush fire risks and their associated control measures are documented in the WCC Broadbrush Risk Assessment; the control measures are summarised in **Section 5** of this Management Plan. Operational and project related changes that have the potential to materially alter the occurrences and spread of bush fires are managed through the Whitehaven Coal Management of Change Standard (WHC-STD-Management of Change).

5. Control Measures

5.1 Overview of Operation Controls

The Project Approval requires WCC to implement reasonable and foreseeable avoidance and mitigation measures regarding occurrences and spread of bush fires. Key operational control measures are included in **Table 2**.

Docusign Envelope ID: 7D568295-D859-46E7-9EE4-43C6418738A9

Table 2 - Control Measures

Source	Mitigation Measures	**Responsibility**	Timing
People	All employees and contractors must complete the Werris Creek Site familiarisation before commencing work. Within employee and contractor induction, bush fire awareness, safety and reporting processes shall be included to ensure early detection and suppression operations are initiated as soon as possible	Manager	Ongoing
	Emergency response training, procedures, manuals, and systems	Manager	Ongoing
	Prohibition of smoking on site	Manager	Ongoing
Plant and Equipment	Equipment and plant introduction to site process includes requirements for fire suppression equipment and inspections	Operation Superintendent	Ongoing
	Regular scheduled plant inspection and maintenance to identify and repair faults. All earthmoving equipment will have efficient exhaust systems and spark arrestors	Manager	Ongoing
	All earthmoving machinery and mobile equipment will be fitted with appropriately sized and approved fire extinguishers and/or fire suppression systems suitable for the control of flammable liquid and electrical fires	Manager	Ongoing
	Use of diesel vehicles on site only	Manager	Ongoing
	Vehicle movements will be tightly controlled to reduce the risk of vehicles igniting a fire, including the restriction of vehicles on designated tracks only	Manager	Ongoing
Fuel loads	Controlled high intensity, short term grazing where practicable to reduce fuel loads	Manager or delegate	Ongoing
	Implementation and management of fire breaks and management of fuel loads in Asset Protection Zones (APZs, LMZs, and SFAZs) around assets at risk (refer to section **Error! Reference source not found.**) (**Error! Reference source not found.**)	Manager	Ongoing
Systems and processes	Rapid response to any outbreak of fire. Bush fire response measures to be implemented according to WHC_PRO_OC_WCC_Emergency Response Action and Duty Cards (Section 5.1.4)	Manager	Ad hoc

Docusign Envelope ID: 7D568295-D859-46E7-9EE4-43C6418738A9

Hazardous materials	Storage of flammable materials in accordance with relevant *AS1940 – 2004 The Storage and Handling Flammable and Combustible Liquids* (Standards Australia, 2004)	Manager	Ongoing
Hot Works	All hot works activities must have an approved hot work permit (WHC-STD-OC-HOT WORK). The hot work permit identifies circumstances where hot works are/are not permitted, and the safety measures needed to reduce the risk of fires	Operation Superintendent	Ongoing
	All welding activities will, as far as practicable, be conducted and confined to the main workshop area. If welding or cutting is to be conducted outside the main workshop area, the mine's Hot Work Permit system will be implemented	Manager	Ongoing
Adjoining properties/ WCC on adjoining properties	Assistance with the control of offsite bush fires, as directed by RFS	Manager	Ad hoc
	Implement WHC_PLN_WCC_Biodiversity Management Plan to reduce risk to biodiversity due to unplanned bush fires.	Group Biodiversity Manager or delegate	Ongoing
Firefighting equipment, plant and infrastructure	Firefighting equipment located in appropriate locations	Operation Superintendent	Ongoing
	Sediment basins and clean water dams are to be made safely accessible by water carts	Operation Superintendent	Ongoing
	Regular inspection schedule for firefighting resources on site	Operation Superintendent	Ongoing
	Maintenance of entrance, internal roads, firetails, and tracks (including to water sources) for emergency response purposes (**Error! Reference source not found.**)	Operation Superintendent	Ongoing

Docusign Envelope ID: 7D568295-D859-46E7-9EE4-43C6418738A9

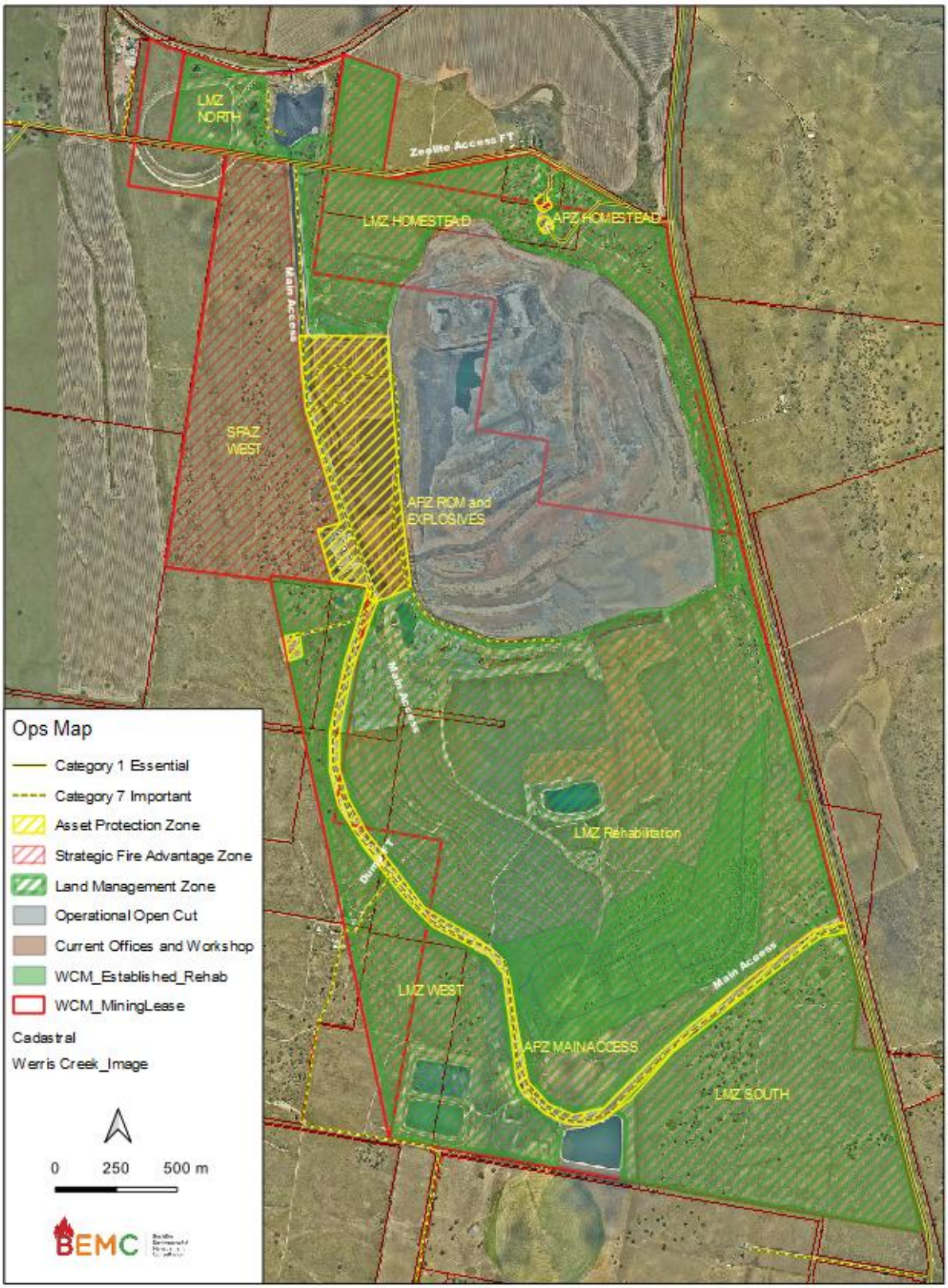
5.2 Bushfire Protection

Areas of high ignition risk and fire advantage zones are typically protected from the effects of bush fire by the establishment of Asset Protection Zones (APZs), Fire Exclusion Zones (FEZs), Ignition Management Zones (IMZ), Land Management Zones (LMZs) and Strategic Fire Advantage Zones (SFAZs). These zones act as buffers between a bush fire hazard and high risk areas. These zones surround at risk assets and are the subject of protection measures to reduce the risk of being impacted by a bush fire.

Asset protection zones at WCC are shown in **Figure 2** and **Appendix 3** contains an overview of fire management zones at WCC, including required treatments.

Docusign Envelope ID: 7D568295-D859-46E7-9EE4-43C6418738A9

Figure 2 - Asset Protection Zones



Docusign Envelope ID: 7D568295-D859-46E7-9EE4-43C6418738A9

5.3 Site Based Water Storages

The site is equipped with multiple water storage points to support effective bushfire management. These include sediment basins and clean water dams which can be accessed and utilised for firefighting efforts. The void water dam will provide a fill point for emergency firefighting efforts and is shown in **Figure 3**.

To ensure a reliable water supply in the event of a bushfire, the site features an interconnected network of pipes and pumps strategically located throughout the area. This infrastructure ensures that adequate water is available across the site, should it be needed for firefighting operations.

Docusign Envelope ID: 7D568295-D859-46E7-9EE4-43C6418738A9

Figure 3 - Emergency Fill Points

Docusign Envelope ID: 7D568295-D859-46E7-9EE4-43C6418738A9

5.4 Evacuation Plan

In the event of a fire or bush fire emergency, all personnel, contractors, and visitors must adhere to the established Werris Creek Coal Mine Site Evacuation and Emergency Response Procedures as outlined in the following documents:

- WHC-PLN-OC-GOC-Emergency Control
- WHC-PLN-OC-WC-Emergency Response Action Cards

Evacuation will be initiated upon direction from the authorised personnel when it has been determined that conditions present a risk to personnel safety or critical infrastructure.

5.5 Key operational control procedures

5.5.1 WHC-PLN-OC-GOC-Emergency Control

This plan describes the emergency preparedness requirements to manage, in the event of a fire (including natural fires) or other emergency, the rapid containment of the event or to manage the event with a defined response plan.

5.5.2 WHC-STD-OC-Fire Systems

The purpose of this standard is to define the Fire Systems at Whitehaven Coal Open Cut Operations. It addresses the requirements from Clause 26 of the *Work Health and Safety (Mines and Petroleum Sites) Regulation* (NSW Government, 2013) which requires the development of control plans to manage risks, including fire. It covers resourcing, training and competency of workers, development of fire risk assessments, fire management systems, emergency response and inspections and maintenance.

5.5.3 WHC-PLN-OC-WC-Fire or Explosion Principal Hazard Management Plan

This Principal Mining Hazard Management Plan forms part of the Werris Creek Health and Safety Management System. The management plan provides a framework for managing risks associated with fire and explosions and identifies the potential sources flammable, combustible and explosive hazards and ignition sources; determines the potential for fires or explosions; and identifies measures to prevent, manage and control fires or explosions.

5.5.4 WHC-PLN-OC-GOC-Spontaneous Combustion

The purpose of this plan is to describe the systems in place for managing spontaneous combustion. This plan is aligned to the requirements of Work Health and Safety (Mines and Petroleum Sites) Regulation 2022:

- Section 28 Preparation of principal hazard management plan.
- Schedule 1, 5 Spontaneous combustion.

5.5.5 WHC-STD-OC-Hot Work

This standard covers the requirements for hot work at Whitehaven Coal Open Cut Operations. Hot work is only permitted on site following completion and approval of a hot work permit (refer to section 5.5.6). The Hot Work Standard covers cutting, heating, welding, grinding, gouging, lancing, gas fuel operations (and associated tools and equipment) etc. It includes: competency requirements; equipment; the process of carrying out hot work including restricted hot work; the need for a hot work permit (refer to section 5.5.6); and risk controls.

5.5.6 WHC-FRM-OC-Hot Work Permit

This form is required for any welding, thermal/frictional cutting, heating, gouging or other fire/spark producing operation in any area. The checklist covers hot work hazard identification and includes additional checklists targeted on grinding, gas cutting/welding/heating/thermal lancing and electric welding. In addition, the form includes a checklist for the “observer”. Finally, it requires that the form be accompanied by a Job Hazard Analysis (JHA).

Docusign Envelope ID: 7D568295-D859-46E7-9EE4-43C6418738A9

5.5.7 WHC-PLN-OC-WC-Emergency Response Action Cards

This document includes an Emergency Response Action Plan for managing bush fires. It covers warning systems, site resources, response actions and contact details for external support. It also covers Building/Workshop Fire/Explosion emergency scenario and scenarios involving plant or equipment fires.

5.5.8 WHC-PRO-OC-WC-Fire System Operation

The purpose of this document is to outline a safe procedure for the starting and shutting down of the fire pump system, in accordance with the Whitehaven Coal Open Cut Occupational Health and Safety Management System at Werris Creek Coal. The procedure outlines how to protect the pump equipment as well as providing necessary firefighting capabilities should it be required.

5.6 Biodiversity Offset Area Bushfire Management

Biodiversity Offset Areas (BOAs) bushfire risk will be managed in accordance with the Biodiverstiy and Offset Management Plan (BOMP). Management measures include monitoring of fuel loads within BOAs and controlled ecological burns in consultation with RFS.

For further detail on fire management within BOAs, refer to Section 8.13 of the BOMP.

6. Monitoring Program

6.1 Annual Bush Fire Preparation

Each year in the lead up to summer, August – November, WCC, will review landscape, land use, access and egress, emergency services, and remaining infrastructure in terms of bush fire risk and identify actions needed to reduce bush fire risk to as low as reasonably practicable (ALARP). Focus will be on:

- Fuel loads in and surrounding APZs – **Appendix 1** includes a template for inspecting fuel loads and fire trails. **Appendix 2** provides a visual assessment tool for monitoring fuel loads and **Appendix 3** provides details on management zones for WCC and visual treatment triggers.
- Condition of firebreaks;
- Condition of water points and storages – Water volume and access for fire response vehicles and equipment.

Areas will be inspected and then prioritised to be slashed, targeted for combustible waste removal, fuel reduction activities and grazing for pastoral areas. For detail on each category refer to Table 4.2.1 from the Planning for Bush Fire Protection – A guide for councils, planners, fire authorities and developers (NSW Rural Fire Service, 2019).

Docusign Envelope ID: 7D568295-D859-46E7-9EE4-43C6418738A9

7. Responsibilities

Key roles and responsibilities regarding bushfire management are displayed in **Table 3**.

Table 3 – Site Roles and Responsibilities

Role	Responsibility
Operations Manager	Accountable for the implementation of the BFMP Responsibility for site compliance with the commitments within this Bushfire Management Plan. Coordinating required incident reports/records. Responsibility for contractor compliance with the commitments within this Bushfire Management Plan. Responsible for leading consultation with RFS and Narrabri Shire Council Accountable for ensuring that onsite safeguards and controls are in place
Operations Superintendent	Monitor compliance with this Procedure in their area of responsibility. Ensure that all supervisors and workers are aware of the contents of this Procedure. Provide sufficient resources for emergency response on each shift. Liaise with the local community on bushfire related activities including the implementation of fire breaks.
Environmental Advisor	Conduct pre-bushfire season inspection and fuel load reports. Notify relevant authorities/neighbours/community where a threat to fire from the WCC on to private land is present.
All employees	Be aware of and comply with BFMP Notify line manager of bush fires or bush fire hazards Participate in fire training where appropriate Carry out pre-task risk assessments before commencing work, considering bush fire risk Apply best practice when handling flammable or hazardous materials and operating heavy machinery

Docusign Envelope ID: 7D568295-D859-46E7-9EE4-43C6418738A9

7.1 External Emergency Bushfire Contacts

External emergency contact details for the WCC and relevant authorities to be contacted in the case of or threat of a bushfire are included in **Table 4**.

Table 4 - Emergency Bushfire Contacts

Contact	Contact number
Emergency	000
Local RFS/RFS Liverpool Range District	02 6746 5800

8. Compliance Obligations

8.1 Pollution Incident Response Management Plan (PIRMP)

Clause O6.3 of EPL12290 requires the development and implementation of a Pollution Incident Response Management Plan (PIRMP). The PIRMP documents the systems and procedures to deal with all types of includes (including explosions and fires) that may occur at the premises or that may be associated with activities that occur at the premises and which are likely to cause harm to the environment. In accordance with Schedule 5 Condition 8 MP 10_0059 and under Section 148 of the Protection of the Environment Operations Act 1997 (POEO Act) the Secretary of the Department of Planning, Housing and Infrastructure (DPHI) DPHI and representatives of all relevant regulatory agencies will be informed of any incident that has caused, or threatens to cause, material harm to the environment. The PIRMP lists the authorities that must be contacted (as a minimum), provides details on the need to notify the community and outlines the information that must be included with the notification. The PIRMP is included on the company website.

8.2 Incident Notification

A notification will be provided to the DPHI immediately after becoming aware of an incident via the major project's website. A written report on the incident will be provided to the DPHI via the major project's website, and a detailed report prepared for relevant agencies within 7 days of becoming aware of the incident (or as otherwise directed by the DPHI) as per the requirements of Schedule 5 Condition 6, MP 10_0059. Further reports will be prepared as requested.

8.3 Complaint Handling

Whilst all endeavours will be made by WCC to avoid adverse planned and unplanned bush fire impacts on local landowners / residents, it is acknowledged that impacts may occur. To ensure an appropriate and consistent level of reporting, response and follow-up to any complaints is adopted by WCC, the following complaints management protocol will be followed:

- a publicly advertised telephone complaints line will be in place to receive complaints.
- initial response is provided where practical within 24 hours of receipt of a complaint.
- all details regarding the complaint including investigation outcomes and follow up actions will be documented in a complaints register.

A copy of the Complaints Register will be made available to the CCC and the complainant (on request) and updated monthly on the WCC website. A summary of complaints received every 12 months will be included in the Annual Review.

Docusign Envelope ID: 7D568295-D859-46E7-9EE4-43C6418738A9

9. Reporting and Review

9.1 Reporting

9.1.1 CCC Reporting

A Community Consultative Committee (CCC) has been established and will continue to be operated for the duration of operations on site. Regular briefings to the CCC will be provided.

9.1.2 Annual Review

By the end of March each year, WCC will review the environmental performance of WCC's occurrences and response to bush fire management for the previous calendar year. The bush fire management component of the Annual Review includes the required detail as per the DPHI Annual Review Guideline (NSW Department of Planning & Environment, 2015). The Annual Review will be sent to the relevant regulatory agencies for review and made publicly available on the WHC website.

9.2 Review

If necessary, this BFMP will be revised to incorporate any recommended measures to improve the environmental performance of WCC resulting from audits, community complaints (Section 8.3) and incident investigation findings (Section 8.2). In addition, the review process will include ongoing evaluation of operational modifications, alternative methodologies and new technologies that become available for their potential to lessen occurrences and spread of bush fire impacts.

9.3 Independent Audit

In accordance with Schedule 5 Condition 8 and Condition 9 of MP 10_0059, an Independent Environmental Audit (IEA) will be undertaken every 3 years. The IEA includes a review of the Bush fire Management performance of WCC, assess compliance with the requirements in this plan, and the implementation of occurrence and spread of bush fire management measures.

Docusign Envelope ID: 7D568295-D859-46E7-9EE4-43C6418738A9

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Docusign Envelope ID: 7D568295-D859-46E7-9EE4-43C6418738A9

Appendix 1: Annual Monitoring Templates

Fuel Accumulation Monitoring Points

Rapid visual assessment of bush fire fuel hazard, Grassland assessment, or Overall Fuel Hazard Guide Assessment shall be undertaken to determine the fire fuel load. Once accumulation has reached the treatment trigger, an assessment within the annual audit shall be undertaken to determine the appropriate treatment to reduce fuel loads and bush fire risks.

NAME / CODE	GPS LOCATION	VEGETATION TYPE	TREATMENT TRIGGER	2023	2024	2025	2026	2027
Fuel Monitoring 1	-31.382 / 150.626	Western Slopes Grassy Woodlands	Grassland 5.5t/ha fuel load No greater than every 5 years and no burning if substantial regenerating woodland canopy species <8m height					
Fuel Monitoring 2	-31.391 / 150.627	Western Slopes Grassy Woodlands	Grassland 5.5t/ha fuel load No greater than every 5 years and no burning if substantial regenerating woodland canopy species <8m height					
Fuel Monitoring 3	-31.408 / 150.638	Western Slopes Grassy Woodlands	Grassland 5.5t/ha fuel load No greater than every 5 years and no burning if substantial regenerating woodland canopy species <12m height					
Fuel Monitoring 4	-31.405 / 150.644	Western Slopes Grassy Woodlands	Grassland 5.5t/ha fuel load No greater than every 5 years and no burning if substantial regenerating woodland canopy species <12m height					

(BEMC, Undated,c)

Fire Trails

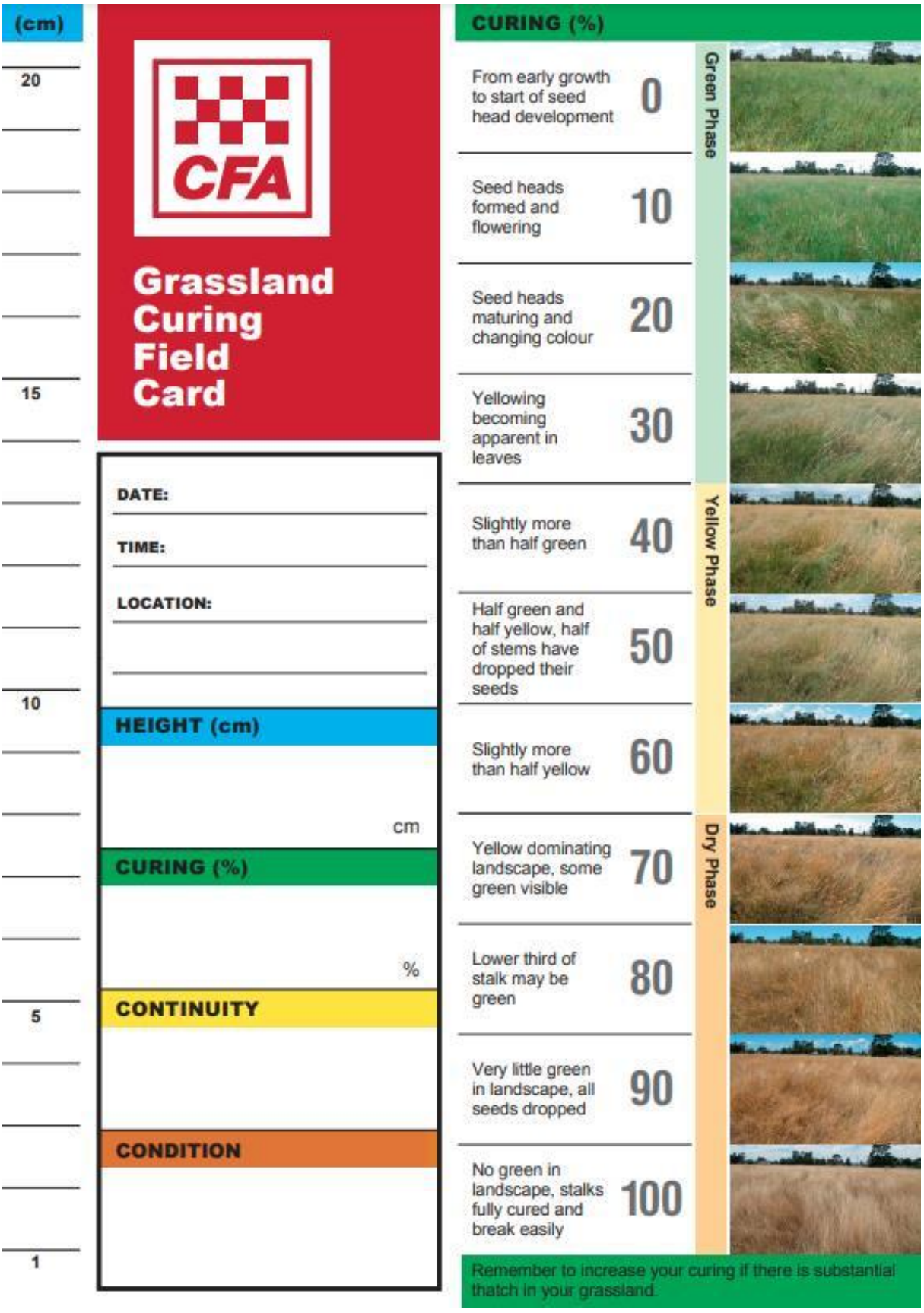
The trails shall be maintained to the classification and category criteria. Remedial works shall be recommended where trails standards have decreased below the fire trail standard.

NAME / CODE	GPS START	GPS END	LENGTH	CATEGORY AND CLASSIFICATION	DESCRIPTION	WORKS REQUIRED
Main Trail	-31.406 / 150.649	-31.378 / 150.626	5.8km	Cat 7 important	*Main north-south access linking Zeolite access to Werris Creek Road.*	
Dump fire trail	-31.402 / 150.632	-31.406 / 150.628	580m	Cat 7 important	*Departing Main access to the west into the off-set lands.*	
Zeolite Access	-31.380 / 150.642	-31.377 / 150.620	2.2km	Cat 7 important	*Main Access for Zeolite*	
Homestead access	-31.378 / 150.638	-31.379 / 150.637	190m	Cat 7 important	*Access to homestead*	

(BEMC, Undated,b)

Docusign Envelope ID: 7D568295-D859-46E7-9EE4-43C6418738A9

Appendix 2: Fire Fuel Monitoring



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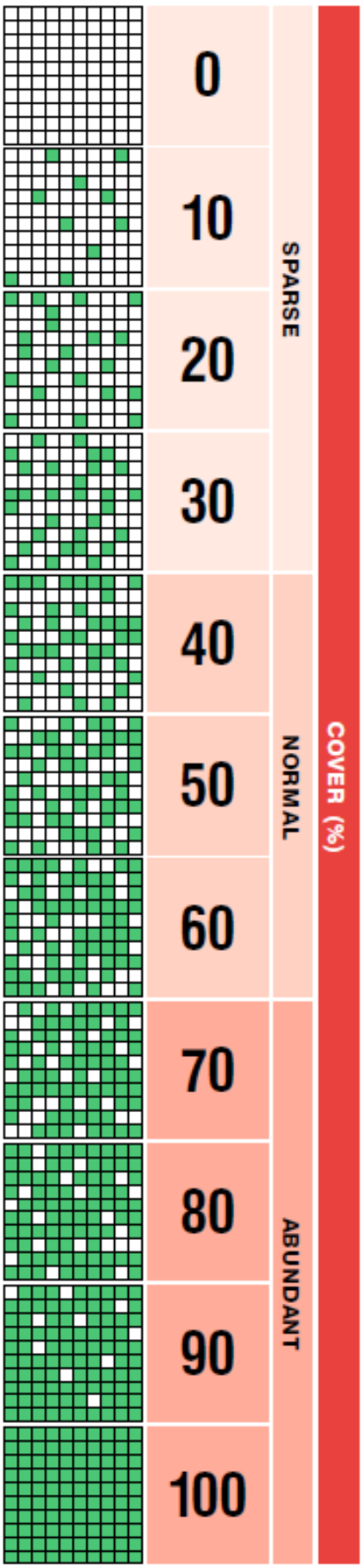

Fuel Load (dry t/ha)										
Height	Cover (%)									
(cm)	10	20	30	40	50	60	70	80	90	100
10	0.1	0.6	0.8	1.0	1.1	1.2	1.4	1.5	1.6	1.8
20	0.6	0.9	1.1	1.4	1.6	1.8	2.0	2.1	2.3	2.5
30	0.7	1.1	1.4	1.7	2.0	2.2	2.5	2.7	2.9	3.2
40	0.8	1.3	1.7	2.0	2.3	2.6	2.9	3.2	3.5	3.8
50	1.0	1.5	1.9	2.3	2.6	3.0	3.4	3.7	4.0	4.3
60	1.1	1.6	2.1	2.5	3.0	3.4	3.8	4.1	4.5	4.9
70	1.1	1.8	2.3	2.8	3.3	3.7	4.2	4.6	5.0	5.4
80	1.2	1.9	2.5	3.1	3.6	4.1	4.6	5.0	5.5	6.0
90	1.3	2.1	2.7	3.3	3.9	4.4	4.9	5.5	6.0	6.5
100	1.4	2.2	2.9	3.5	4.1	4.7	5.3	5.9	6.4	7.0

Weekly Rainfall (mm)	Rate of Drying
mm	☐ Rapid ☐ Unchanged ☐ Slow ☐ Greening Up

Notes:

Contact Us

Website: **www.cfa.vic.gov.au/grass**
Phone: **1800 100 168**
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Edition 4 – May 2014

CFA

Docusign Envelope ID: 7D568295-D859-46E7-9EE4-43C6418738A9

Date Assessed:	Assessors:
Sampling Location:	Veg Type:

Plot Information			
Plot No.			
Zone:			
Easting (GDA94 MGA UTM):			
Northing (GDA94 MGA UTM):			

Canopy Height (Assess over a 20m radius)			
Ave Hgt to Top of Canopy:	m	m	m
Ave Hgt to Base of Canopy:	m	m	m

Bark fuel (Assess over a 20m radius.) (Note: NP is bark type not present.)															
Stringybark Fuel Hazard:	NP	M	H	VH	E	NP	M	H	VH	E	NP	M	H	VH	E
Ribbon Bark Fuel Hazard:	NP	M	H	VH		NP	M	H	VH		NP	M	H	VH	
Other Bark Fuel Hazard:	L	M	H			L	M	H			L	M	H		

Select the Bark Hazard rating from above that will be used to determine Overall Fuel Hazard. (Only use the Stringybark hazard rating if more than 10% of the trees are Stringybark **AND** it has the highest rating. Otherwise use the bark with next highest rating.)

Bark Fuel Hazard:	L	M	H	VH	E	L	M	H	VH	E	L	M	H	VH	E

Elevated fuel layer (Assess over a 10m radius)															
Elevated % Cover:	%					%					%				
Elevated % Dead	%					%					%				
Elevated Fuel Ave Height (m)	m					m					m				
Elevated Fuel Hazard:	L	M	H	VH	E	L	M	H	VH	E	L	M	H	VH	E

Near-surface fuel layer (Assess over a 10m radius)															
Near-surface % Cover:	%					%					%				
Near-surface % Dead	%					%					%				
NS Average Height (cm):	cm					cm					cm				
NS Fuel Hazard:	L	M	H	VH	E	L	M	H	VH	E	L	M	H	VH	E

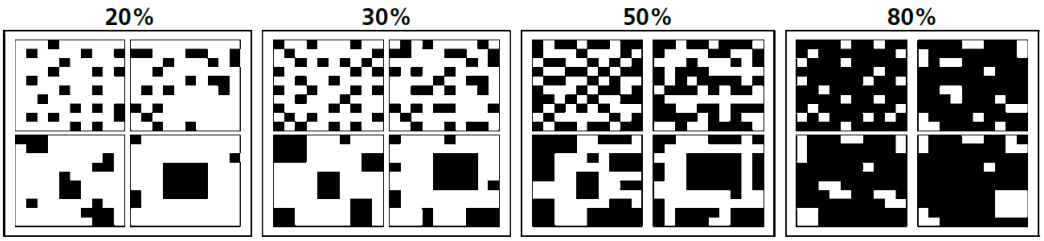
Surface fuel layer (Assess over a 10m radius)															
Surface Litter % Cover:	%					%					%				
Average Litter Depth (mm):	mm					mm					mm				
Surface Fuel Hazard	L	M	H	VH	E	L	M	H	VH	E	L	M	H	VH	E

Combined Surface and Near-surface Fine Fuel Hazard calculation (refer Section 7)															
Combined Hazard	L	M	H	VH	E	L	M	H	VH	E	L	M	H	VH	E

Overall Fuel Hazard calculation (refer Section 8)															
Overall Fuel Hazard	L	M	H	VH	E	L	M	H	VH	E	L	M	H	VH	E

Are the plots representative of the average fuels across the sampling location?	Yes	No

If no, explain any significant difference between plots. For example, wet gully runs through the sampling area, no plots were located in this gully.



(Victorian Government (2010)

Docusign Envelope ID: 7D568295-D859-46E7-9EE4-43C6418738A9

Appendix 3: Protection Measures and Treatment Plan

Fire Management Zones

Each APZ, SFAZ, and LMZ will be inspected to determine if there is adequate maintenance to protect the identified asset. Works will be conducted as required to maintain recommended treatments.

The management zones are displayed in Error! Reference source not found. and treatment plans are described in **Table 5**, **Table 6**, and **Table 7.**

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Table 5 - Asset Protection Zones

NAME / CODE	PROTECTED ASSETS and VULNERABILITY	SIZE	VISUAL TREATMENT TRIGGER	TREATMENT PERIOD	TREATEMENT
APZ MAIN ACCESS	Rehabilitation and egress	Minimum 0.6ha	4t/ha or 40cm in height	Annually and when visual treatment trigger has been reached	Mechanical treatment all grasses and shrubs to 10cm in height. Preferred 30m to the south of the road (facilitates egress, otherwise 17.5m either side of centre line of road.
APZ HOMESTEAD	Residential and outbuildings	13.6ha	4t/ha or 40cm in height	Annually and when visual treatment trigger has been reached	Mechanical treatment all grasses and shrubs to 10cm in height. Determine bushfire construction standards of the building and extend to 35m if limited ember protection is offered to the building.

(BEMC, Undated,c)

Table 6 - Strategic Fire Advantage Zone

NAME / CODE	VEGETATION COMMUNITY (KEITH 2004)	MINIMUM FIRE FREQUENCY	MAXIMUM FIRE FREQUENCY	PREVIOUS BURN HISTORY	YEAR MINIMUM FIRE PERIOD REACHED	TREATEMENT
SFAZ WEST	Western Slopes Grassy Woodlands	5 years	40 years	Nil	Current	Assess continuity of burn with off-set lands (use suitable containment within off-set lands). Moderate intensity grass burn will facilitate woodland canopy species germination. Prepare perimeter/containment trails.

Table 7 - Land Management Zones

NAME / CODE	DOMINANT VEGETATION COMMUNITY (KEITH 2004)	MINIMUM FIRE FREQUENCY	MAXIMUM FIRE FREQUENCY	PREVIOUS BURN HISTORY	YEAR MINIMUM FIRE PERIOD REACHED	TREATEMENT
LMZ Rehabilitation	Western Slopes Grassy Woodlands	5 years	40 years	Nil	Wait till regeneration has reach appropriate age/structure	Monitor fuel loads and canopy heights within regeneration. Consider ecological burn once canopy height has reach >8m and: •Surface and elevated fuel loads reach 10t/ha OR •Overall fuel loads reach 18 T/ha
LMZ SOUTH	Western Slopes Grassy Woodlands	5 years	40 years	Nil	Current	Manage LMZ for grazing and cultivation production. Prescribed burning Woodland area can be considered for regenerative outcomes.
LMZ WEST	Western Slopes Grassy Woodlands	5 years	40 years	Nil	Current	Manage LMZ for grazing and cultivation production. Prescribed burning Woodland area can be considered for regenerative outcomes.
LMZ NORTH	Western Slopes Grassy Woodlands	5 years	40 years	Nil	Current	Manage LMZ for grazing and cultivation production. Prescribed burning Woodland area can be considered for regenerative outcomes.
LMZ HOMESTEAD	Western Slopes Grassy Woodlands	5 years	40 years	Nil	Current	Manage LMZ for grazing and cultivation production. Prescribed burning Woodland area can be considered for regenerative outcomes.