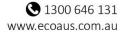


842 Mulgoa Road, Mulgoa

Penrith Waste Services







DOCUMENT TRACKING

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Template 2.8.1

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Abbreviations

Abbreviation	Description	
APZ	Asset protection zone	
BFPL	Bush fire prone land	
ВМР	Bushfire management plan	
FDI	Fire danger index	
FFDI	Forest fire danger index	
PBP	Planning for Bush fire Protection 2019	
RFS	NSW Rural Fire Service	

1. Introduction

1.1 Overview

The purpose of this Bushfire Management Plan (BMP) is to incorporate the Bushfire Protection Measures (BPM) identified in the Bushfire Design Brief (ELA 2021) for the gas collection facility. This report provides guidance for the implementation and ongoing maintenance of identified bushfire risk management strategies and activities, in order to mitigate the risk from bushfires to or from the infrastructure. It satisfies the request from the NSW Rural Fire Service (RFS) for a BMP, in their pre-DA advice found in ELA (2021).

1.2 Property details

Table 1 identifies the subject property covered by this Bushfire Management Plan (BMP).

Table 1: Subject site and development proposal summary

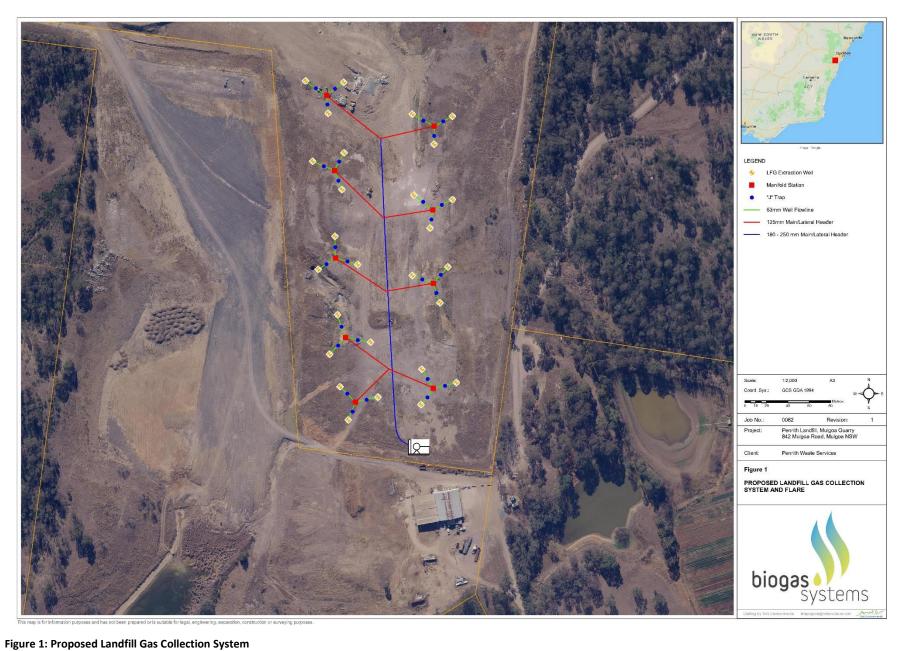
Street address:	842 Mulgoa Road, Mulgoa		
Postcode:	2745		
Lot/DP no:	Lot 201 DP 804405		
Local Government Area:	Penrith City Council		
Fire Danger Index (FDI)	100		
Current land zoning:	RU2 Rural Landscape		
Type of development:	Hazardous Industry		

The proposed development involves the installation and operation of an active gas (methane) collection system within the existing landfill site at Penrith Waste Services (PWS) located at 842 Mulgoa Road, Mulgoa. The subject property is zoned RU2, covers approximately 46 ha and is located on land identified as bush fire prone land (BFPL) on the Bushfire Prone Land layer within the ePlanning Spatial Viewer¹.

The gas collection system is located along the eastern boundary of the site as shown in Figure 1.

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¹ https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address



2. Bushfire Protection Measures

2.1 Asset Protection Zones (APZ)

2.1.1 APZ location and size

The APZ for the proposed gas collection facility is located along the eastern boundary directly adjoining the new infrastructure and is 50 m wide. The area is also referred to as the above ground gas infrastructure exclusion zone.

The remainder of the property is APZ compliant with the majority of the site slashed or actively grazed grassland on the east and north boundaries. The site also has extensive non-vegetated roads and mineral earth areas to the south and west. The APZ area to the north is >240 m, to the west >175 m and south >185 m. Access tracks are located within the APZ on all elevations between the proposed development and the boundary and off-site hazards.

2.1.2 APZ maintenance plan

The entire APZ (referred to as the above ground gas infrastructure exclusion zone) identified in **Figure 2** is to be managed to an Inner Protection Area standard as per the specifications in **Table 2**. This APZ is to be maintained in perpetuity and management undertaken on an annual basis (as a minimum) and prior to the commencement of the bushfire season.

Table 2: APZ management specifications (RFS 2019)

Vegetation Strata	Inner Protection Area (IPA)
Trees	Tree canopy cover should be less than 15% at maturity; Trees (at maturity) should not touch or overhang the building; Lower limbs should be removed up to a height of 2 m above ground; Canopies should be separated by 2 to 5 m; and Preference should be given to smooth barked and evergreen trees.
Shrubs	Create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings should be provided; Shrubs should not be located under trees; Shrubs should not form more than 10% ground cover; and Clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.
Grass	Should be kept mown (as a guide grass should be kept to no more than 100 mm in height); and Leaves and vegetation debris should be removed.

Ongoing management of the remainder of the site should continue in its current form, being a mix of slashing and grazing to maintain a low fuel load.

Further details on APZ implementation and management can be found on the NSW RFS website including: https://www.rfs.nsw.gov.au/ data/assets/pdf_file/0010/13321/Standards-for-Asset-Protection-Zones.pdf

2.1.3 Landscaping

No landscaping is included as part of the proposal, however any future landscaping (if proposed in the future) should be designed and maintained in accordance with Appendix 4 of *Planning for Bushfire* Protection (PBP) (RFS 2019).

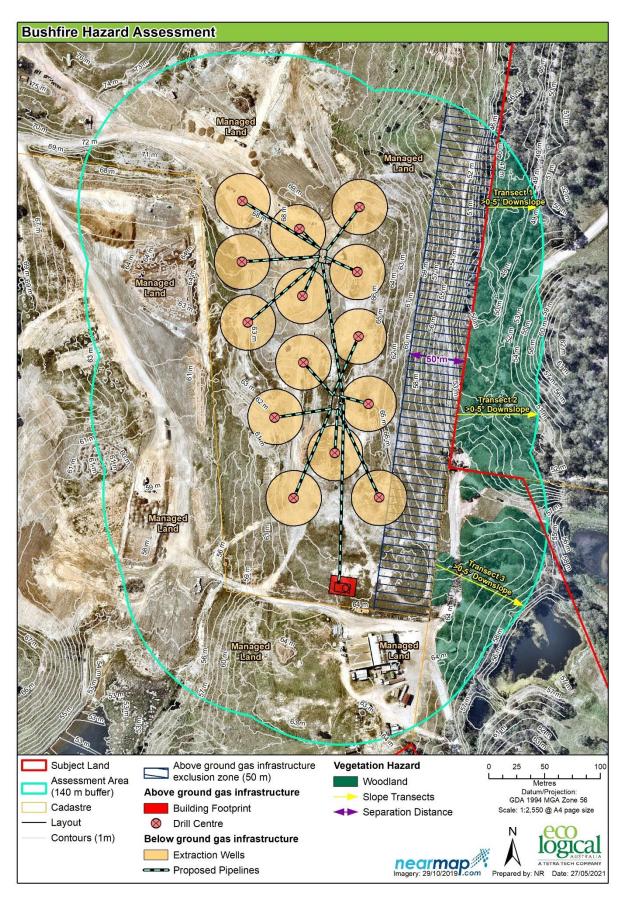


Figure 2: Bushfire hazard assessment

2.2 Access

Public road access to the subject property is via Mulgoa Road and Chain-O-Ponds Road.

The site has both a primary access route from Mulgoa Road and a secondary access route from Chain-O-Ponds Road as shown in **Figure 3**. There is an internal road system throughout the site as shown in **Figure 3** that connects the primary and secondary access as well as to the internal perimeter trail.

The primary access is approximately 660 m in length, sealed and varies in width from 6-9 m. Passing opportunities are provided by managed verges. This access road contains a bridge across Mulgoa Creek. Secondary access is provided via a gravel access road, 5 m in width and 625 m in length.

An additional external access route is provided from Forestwood Drive on the north-east along a gated formal trail maintained by Penrith City Council that adjoins the secondary access on the south of the site.

The above access should be maintained in perpetuity whilst the facility is operational.

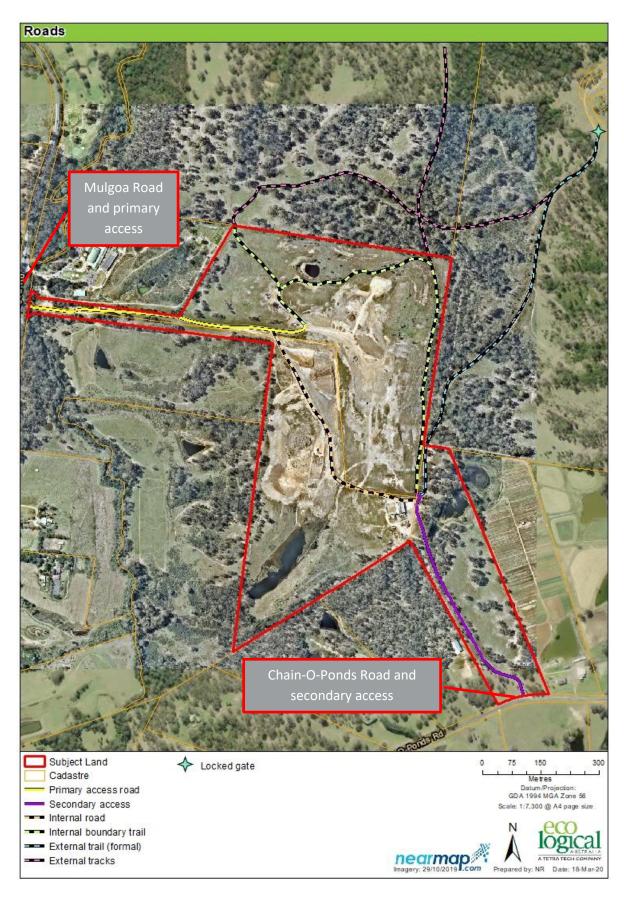


Figure 3: Site access

2.3 Services – Water, electricity and gas

2.3.1 Water

The site is not serviced by reticulated water. Existing dams in the north and south provide water supply for all onsite activities. There are no specific implementation or maintenance tasks with regards to static water supply. This is based on safety design features built into the gas facility and no need for an active fire suppression system as detailed in the Fire Safety Study (Riskcon Engineering 2020) and Bushfire Design Brief (ELA 2021).

If any new above-ground water service pipes are installed, they should be metal, including and up to any taps and above-ground water storage tanks shall be concrete or metal.

2.3.2 Electricity

The above ground electricity supply to the site is to the main office only. Where possible, any new electrical services should be located underground.

Where electrical services are located above ground, the following management applies:

- Lines with short pole spacing (30 metres) are required, unless crossing gullies, gorges or riparian areas; and
- No part of a tree is closer to a power line than the distance set out in accordance with the specifications in 'Guide for the Management of Vegetation in the Vicinity of Electricity Supply Infrastructure' issued by the Industry Safety Steering Committee 3 (ISSC3 2016).

2.3.3 Gas

There is no existing reticulated or bottled gas on site.

2.4 Construction standards

The following construction measures are incorporated into the new facility. This schedule of requirements is to be maintained in perpetuity whilst the facility is operational:

- No aboveground gas infrastructure is to be located within the identified exclusion zone (Figure 2):
- Install as much of the proposed infrastructure underground;
- Where infrastructure cannot be located below ground, it is recommended that non-combustible materials are used i.e. steel piping;
- Additional radiant heat shielding in the form of Colorbond fencing (minimum height of 1.8 m) is provided to the hazard side of the flare unit; and
- Ensure the design incorporates best practice industry safety measures for development in a bushfire prone area, including industry design guides i.e. *Industry Guideline: Gas Infrastructure in Bushfire Prone Areas* (ENA 2018).

2.5 Bushfire emergency management and evacuation

A bushfire emergency management and evacuation plan developed for the proposed development is included in Appendix A and should be incorporated into the overall site Emergency Response Plan. The preparation of the bushfire emergency management and evacuation plan considered relevant

legislation, standards and guidelines such as the NSW RFS document 'Development Planning: A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan' (RFS 2014).

2.6 Other fire safety mitigation measures

The gas facility has several fire safety mitigation systems built into the design including automated flare shutdown with remote restart abilities. All gas safety systems are to be monitored and maintained to identified specifications and standards to ensure ongoing functionality. This is to also incorporate any items identified in the associated Fire Safety Study (FSS) (Riskcon Engineering 2020).

The FSS made four recommendations based on its analysis being that:

- The biogas system shall be subject to a hazardous area classification per AS/NZS 60079.10.1:2009 to identify the potential for hazardous areas to exist around the system;
- Where electrical equipment is required to be installed within a hazardous area it shall comply with AS/NZS 60079.14:2017;
- All site personnel are to be trained in specific site procedures, emergency and first aid procedures; and
- A site Emergency Response Plan per the requirements of HIPAP No. 1 shall be prepared and shall
 include measures to advise neighbouring premises in the event of an emergency with potential
 offsite impacts

These four recommendations are to be incorporated into the over safety design and implementation of the gas facility and although they are not necessarily bushfire specific, they contribute to the overall safety of the design, implementation and running of the facility. Bushire safety measures should be included into the overall fire safety measures of the site and not considered in isolation.

3. Conclusion

This bushfire management plan outlines the bushfire management strategies and actions to mitigate the risk posed by bushfire to the proposed development and from the development. The strategies and actions contained herein, should be incorporated into annual operating plans and monitored and reported on.

Bruce Horkings
Senior Bushfire Consultant
FPAA BPAD Certified Practitioner No. BPAD29962-L3



Nathan Kearnes

Principal Consultant - Landscape Mapping & Bushfire

4. References

Eco Logical Australia (ELA). 2021. Bushfire Protection Assessment and Design Brief: Penrith Waste Services Gas Flare. Prepared for Sydney Business Park.

Energy Networks Australia (ENA). 2018. *Industry Guideline: Gas Infrastructure in Bushfire Prone Areas*. ENA DOC 043-2018. ENA

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NSW Rural Fire Service (RFS). 2014. *Development Planning: A guide to developing a Bush Fire Emergency Management and Evacuation Plan*. Australian Government Publishing Service, Canberra.

NSW Rural Fire Service (RFS). 2019. *Planning for Bush Fire Protection: A Guide for Councils, Planners, Fire Authorities, Developers and Homeowners* - issued December 2019. Australian Government Publishing Service, Canberra.

Riskcon Engineering (RE). 2020. Fire Safety Study 842 Mulgoa Road, Mulgoa. Penrith Waste Services Pty Ltd. Prepared by Riskcon Engineering Pty Ltd.

Appendix A – Bushfire Evacuation Plan

1. Site details

Name

• Penrith Waste Services - Gas collection facility.

Location:

842 Mulgoa Road, Mulgoa.

Buildings and infrastructure:

- · Office / gatehouse located near entrance and Workshop to the south-east; and
- No reticulated water supply however, existing dams to north and south.

Usage numbers:

- Staff: three.
- Public: Average 40-45 occupants daily.
- Open six days a week.

Access:

- · Primary Access is via Mulgoa Road; and
- Secondary Access via Chain-O-Ponds Road to the south.

Vehicles on site:

· Various work vehicles and public users on the site at any given time.

2. Communications

Mobile:

- Mobile reception is good across all networks; and
- . If a Smart Phone is available, RFS Fires Near Me app should be installed.

Landline / NBN:

• Landline number: (02) 4773 8778.

Radio:

- ABC: 702 AM.
- If a Smart Phone is available, ABC Radio app should be installed.

Internet Sites:

- Preparing your Property https://www.rfs.nsw.gov.au/plan-and-prepare/prepare-your-property; and
- RFS Fires Near Me https://www.rfs.nsw.gov.au/fire-information/fires-near-me.

3. Contacts

Emergency Response – Fire, po	000		
Penrith Waste Services (PWS)	Fire Warden	(02) 4773 8778	
Local Council	Penrith City Council	(02) 4732 7777	
Local Hospital	Nepean Hospital (Emergency Department 24 hrs)	(02) 4734 2000	
SES	Penrith Unit	13 25 00	

4. Characteristics of the bushfire risk

- The woodland / forest vegetation on undulating slopes in all directions is the primary bushfire risk to the site, although grassland areas can increase the risk of rapid attack;
- While grasslands contain less fuels than forest/woodland, grass fires can move very rapidly;
- Bushfire fighter assistance cannot be relied upon. Bushfire attack could occur before their arrival or they may be fully committed elsewhere; and
- Hazard reduction burning will not stop bushfires burning under adverse weather conditions; it may reduce intensity but does not remove bushfire risk.

5. Prevention

- No open fires during the Bush Fire Danger Period (BFDP); fire permit only in appropriate weather conditions;
- No mowing, slashing or hotworks from maintenance staff during Total Fire Ban (TOBAN);
- No open fires on days of Total Fire Ban (TOBAN);
- · APZs to be managed around the site to the property boundary in all directions; and
- \bullet Site to close on days of Extreme and Catastrophic Fire Danger Rating (FDR).

6. Preparedness

- Entire property to be managed to Inner Protection Area Asset Protection Zone standards including maintain grassy areas in a minimal fuel load state; and
- See preparedness matrix (overleaf) which provides a guide of monitoring actions to be completed during the Bushfire Danger Period to allow situational awareness of potential bushfires and triggers for shelter in place or evacuation.

7. Response

- All bushfires are to be reported to 000; and
- After reporting to 000, notify the Fire Warden who is to take the appropriate action and implement the evacuation guidance in proceeding sections.

8. Evacuation preparedness

During the NSW Bush Fire Danger Period (BFDP) (October - March) and on any days of Very High Fire Danger or above outside of the BFDP:

- · All staff must be briefed on bushfire evacuation procedures; and
- Implement Bushfire Preparedness Action Matrix (overleaf).

9. Evacuation Plan

The primary evacuation option is Offsite Evacuation.

Onsite (shelter in place) evacuation is not the safest option as no buildings have been constructed to withstand bushfire attack and should only be used as a last resort to shelter in place. The last resort shelter in place building is the office area adjoining the weighbridge near Mulgoa Road.

10. Evacuation triggers

Evacuation triggers are linked to either direct instructions from Emergency services OR Bushfire warning system alerts (see decision matrix overleaf).

The site should be closed on days of Extreme and Catastrophic Fire Danger Rating (FDR). Two offsite evacuation locations are proximal to the site (north and south). These sites are as follows and are formally recognised as Neighbourhood Safer Places (NSP) by the RFS:

- · North Glenmore Heritage Valley (Golf course); and
- South Mulgoa Park (Cnr Mulgoa Road and Littlefields Road, Mulgoa)

Further to this, townships to the north (Glenmore Park) and south (Mulgoa) are viable evacuation options OR alternatively Mulgoa Rise via road access to the east along St Thomas Road, Kings Hill Road and The Northern Road.

If Emergency Services provides alternate advice, then it should be followed.

11. Evacuation notifications

- A decision to evacuate offsite is to be communicated to every person known to be present on site; and
- Fire warden to ensure everyone evacuates safely offsite and access to the facility is closed.

12. Evacuation procedures

Offsite evacuation guidance

- Actions for offsite evacuation have been aligned to triggers associated with bushfire warnings and are detailed in the bushfire action matrix (overleaf);
- Ensure the welfare of all occupants through advice and first aid where required; and
- Evacuate either to the north or south to the predefined evacuation locations OR as advised by Emergency Services only if safe to do so.

Shelter-in-place (Last Resort) Guidance

- Shelter-in-place IS THE LAST RESORT OPTION, when it is not safe to leave the site;
- The last resort shelter in place building is the office adjoining the weighbridge near Mulgoa Road:
- Fire Warden to notify all staff and visitors of the need to seek immediate shelter on site
 and activate the Bushfire Evacuation Plan;
- Notify 000:
- Close all windows and doors and draw curtains and blinds. Ensure backup lighting and
 power are available in the event of a power blackout;
- Ensure the welfare of all occupants through advice and first aid where required;
- Watch for sparks entering the site and extinguish where safe to do so; and
 Occupants to stay inside building until instructed otherwise by emergency services or
- Fire Warden.

If caught in a bushfire, Section 14 provides recommendations on what to do.

13. Notes on Fire Danger Rating and Total Fire Ban Declaration

- The Fire Danger Rating (FDR) gives an indication of the consequences of a fire, if a fire was to start;
- The rating is based on predicted conditions such as the forecast temperature, humidity, wind and dryness of the landscape;
- The higher the FDR, the more dangerous the conditions;
- During the Bushfire Danger Period (October - March) the forecast FDR for the following day is released around 4pm;

The FDR actually achieved on any given day may differ from that which was forecast; and

Both predicted and current FDR are available from the RFS or BoM website.

Both predicted and current FDR are available from the RFS or Bom website.

Total Fire Ren' (known as TORAN) is a capacate declaration (i.e. a particular day may be

A 'Total Fire Ban' (known as TOBAN) is a separate declaration (i.e. a particular day may have both 'Severe' FDR and a TOBAN, but not all 'Severe' FDR days will have a TOBAN)

14. What to do if caught in a bushfire

The following provide current guidelines from the NSW RFS on what to do if caught in a bushfire in a vehicle or on foot. Each requires a different response involving critical decisions for your survival (adapted from NSW RFS bushfire training modules).

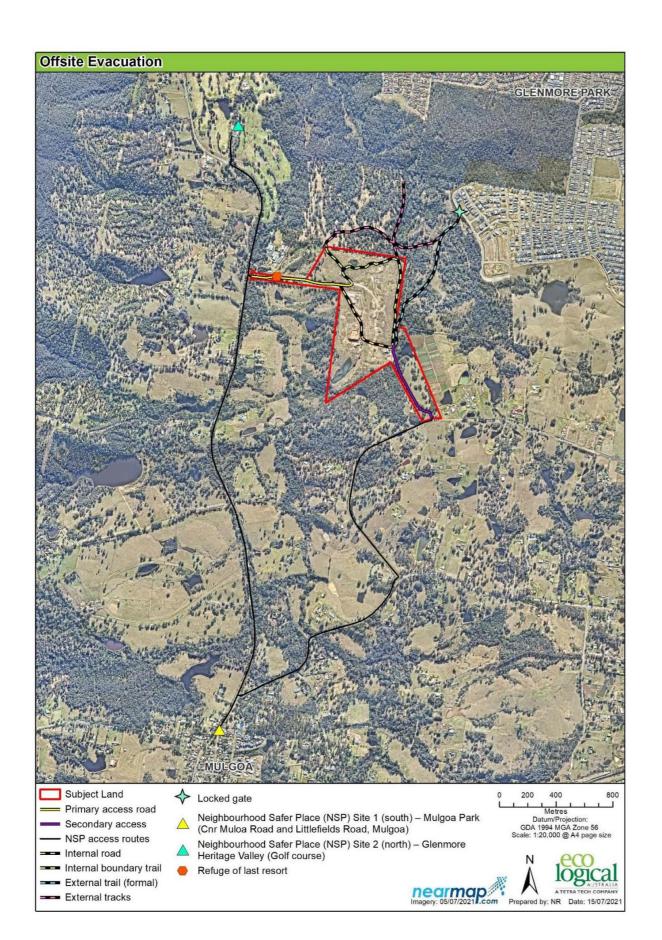
What to do if caught in a bushfire IN A VEHICLE

- A vehicle can provide protection when caught in a bush fire;
- If caught by a bush fire STOP immediately and look for a clear area, preferably off the road;
- Look for large areas clear of grass or bush as these may not sustain fires of high intensity e.g. places where you can be over 100 m from the trees or thicker bushes;
 Look for grazed paddocks, large gravel surfaces or large water bodies;
- Avoid sites with dense bush or trees and where the fire can approach uphill toward you;
- If you shelter in your vehicle:
- · Do not leave your vehicle (until it is safe to do so);
- Drive your car into a bare, clear area well away from surrounding trees;
- Determine the direction the fire will approach from, and if you can position your
 vehicle in the centre of the chosen cleared area and then move slightly further from
 the centre in the direction away from the approaching fire;
- Face in the direction of escape;
- Apply the hand brake;
- Leave your headlights and hazard lights on, turn ignition off;
- · Do not lock the doors or remove ignition keys;
- Close all windows and shelter below window level:
- · Close all vents;
- Cover all parts of the body with woollen or cotton blankets to protect all passengers from radiant heat (do not use synthetic blankets);
- · Drink water frequently;
- · Stay in vehicle until fire front has passed;
- · When fire front has passed exit vehicle and inspect for damage; and
- If possible report your situation and location to 000.

What to do if caught in a bushfire ON FOOT

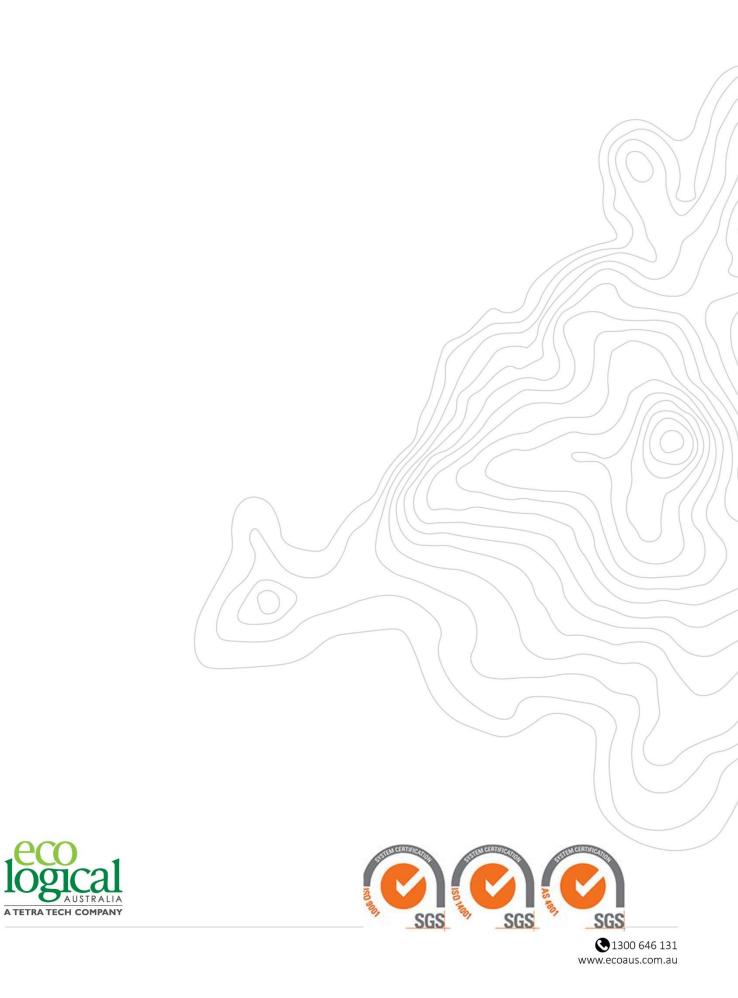
- Try to move on to bare or burnt ground at least 100 m from where fire is likely to burn,
 if this is not feasible find the largest bare or burnt ground possible;
- Do not run uphill or away from the fire unless you know a safe refuge is able to be reached before the fire arrives;
 Move across the slope out of the path of the fire front and work your way downslope
- towards the back of the fire or onto burnt ground;

 Do not attempt to run through flames unless you can see clearly behind them. This generally means that the flames are less than 1 metre high and less than 1 to 2 metres
- deep at the back or on the flanks of the fire;
 Lulls in the fire often result in the flames in these parts being low enough to step or run through to the burnt ground beyond;
- When conditions become severe use every possible means to protect yourself from radiation. On bare ground cover yourself, use wheel ruts, depressions, large rocks or logs to give protection:
- Take refuge in ponds, running streams or culverts, but behind solid objects such a rock;
- Remain calm and do not run blindly from the fire. If you become exhausted, you are
 much more prone to heat stroke and you may easily overlook a safe refuge. Consider
 an alternative course of action.



ALERT	DESCRIPTION	ACTION			
Advice	A fire has started but there is no known danger, this is general information to keep you informed and up to date with developments.	(Section 9-12 overleaf) if there is the potential for the fire to rapidly reach			
Watch and Act	There is a possible threat to lives and homes. Conditions are changing, you need to leave the area or prepare to actively defend.	 If a fire is spotted, report immediately to 000 and initiate 'shelter-in-place' plan (Section 9-12 overleaf) if there is the potential for the fire to reach the site and place life and property at risk. Close site to public access. Follow all advice in issued Bushfire Alert or directly from Emergency Services. Evacuate the site if safe to do so in a direction away from on-coming fire; Neighbourhood Safer Places (NSP) are available to the north or south. 			
Emergency Warning	You are in danger as your area will be impacted by fire. You need to take immediate action to survive. Listen carefully as you will be advised whether you can leave the area or if you must shelter where you are as the fire burns through your area. An emergency warning may be supported with a siren sound called the Standard Emergency Warning Signal (SEWS). These factors should be reviewed on a regular basis as they may change at any time and without notice.	 If a fire is spotted, report immediately to 000 and initiate 'shelter-in-place' plan (Section 9-12 overleaf). Establish communication between the Fire Warden and all staff, contractors and visitors to provide awareness of potential bushfire threat. Establish communication with Emergency Services and seek advice on evacuation or sheltering in place. Close site to public access. Follow all advice in issued Bushfire Alert or directly from Emergency Services. Evacuate the site if safe to do so; Neighbourhood Safer Places (NSP) are available to the north or south otherwise continue to 'shelter-in-place' plan (Section 9-12 overleaf). 			
All clear	The danger has passed and the fire is under control, but you need to remain vigilant in case the situation changes. It may still not be safe to return.	 If a fire restart or flare up is spotted, report immediately to 000 and initiate 'shelter-in-place' plan or evacuate if instructed by Emergency Services. Remain vigilant and ensure regular communication is established between the Fire Warden and all people onsite to confirm personnel locations and consider evacuation strategies in the event of a change in warning level. 			

Bushfire Preparedness Action Matrix						
ACTION by Fire Danger Rating (FDR)	LOW/MOD	HIGH	VERY HIGH	SEVERE	EXTREME	CATASTROPHIC
Pre-emptive site closure responding to extreme bushfire weather conditions	No specific requirement			Facility to close	Facility to close	
Fire Warden to monitor BOM website for FDR	Daily	Daily	At 9 am and 12 pm	At 9 am and 12 pm	Facility to close	Facility to close
Fire Warden to monitor Fires Near Me app or RFS website for bushfire alerts / nearby incidents (refer to Alert Matrix for further actions if required)	Refer to Alert Matrix for further actions if required	At 9 am, 12 pm and 3 pm	At 9 am, 12 pm and 3 pm	Minimum hourly	Facility to close	Facility to close



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