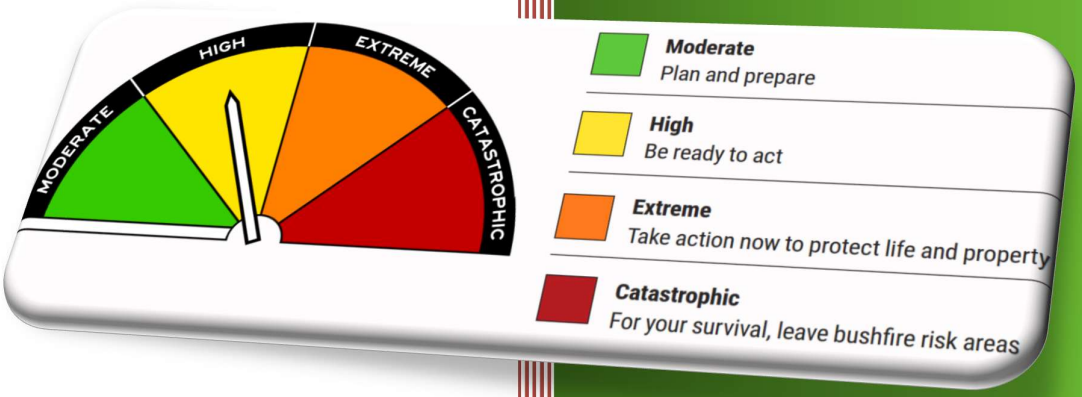
BUSHFIRE PRONE PLANNING

Mixed use development - Capel

Bushfire Emergency Plan

An Information Document for Premises Without Onsite Personnel Responsible for Emergency Management



PREVENT | PREPARE | RESPOND

Lot 12, 28 & 165 (96) Capel Drive, Capel

Shire of Capel

Facility/Premises Use: **Serviced apartment (short stay)**

22 October 2025

Associated BMP: **BPP Ref. No. 180774**

BPP GROUP PTY LTD T/A BUSHFIRE PRONE PLANNING

ACN: 39 166 551 784 | ABN: 39 166 551 784

SUITE 11, 36 JOHNSON STREET
GUILDFORD WA 6055

PO BOX 388
GUILDFORD WA 6935

08 6477 1144 | admin@bushfireprone.com.au

DOCUMENT CONTROL

PREPARATION		
Author:	Joy Graeber (BPAD Level 1 No. 65245)	
Reviewed:	Mike Scott (BPAD Level 3 No. 27795)	

VERSION HISTORY		
Version	Status/Details	Date
1.0	Original	22 October 2025
-	-	

DISTRIBUTION

Destination		Version	No. Copies	Hard Copy	Electronic Copy
Person	Email				
Janine Marsh	janinem@doepelmarsh.com.au	1.0		☐	☒
		-		☐	☐

LIMITATIONS AND DISCLAIMER

Management of Risks Associated with Bushfire

The procedures and their associated actions contained in this Bushfire Emergency Plan do not guarantee that during a bushfire event, no buildings or infrastructure will be damaged, persons injured, or fatalities occur - either on the subject site or off the site when evacuating.

This is substantially due to the unpredictable nature of fire weather conditions, bushfire behaviour and the actions of landowners and/or operators – including the correct implementation and ongoing maintenance of required and recommended protection measures (including bushfire resistant construction) and complying with public bushfire warnings and directions from emergency services - over which Bushfire Prone Planning has no control.

Bushfire Prone Planning's Liability

All surveys, forecasts, projections and recommendations made in this report, associated with the subject planning proposal, are made in good faith based on information available to Bushfire Prone Planning at the time.

Notwithstanding anything contained therein, Bushfire Prone Planning will not, except as the law may require, be liable for any loss or other consequences whether or not due to the negligence of their consultants, their servants or agents, arising out of the services provided by their consultants.

THE PURPOSE AND APPLICATION OF THIS BUSHFIRE EMERGENCY PLAN

The purpose of this Bushfire Emergency Plan (BEP) is to provide usable bushfire emergency management information that is relevant and targeted to the different types of persons who will be associated with the subject premises.

There will be two distinct types of persons who will have different reasons for being onsite and will typically not be on site together at the same time (although for some uses this may occur). These persons are:

1. The owner and/or operator of the premises, who, in most cases, will not reside or work on the site and will have no responsibility for actively managing the safety of occupants during a bushfire emergency event; and
2. Those persons who will typically be short stay occupants of the premises.

To best support the purpose, this BEP is constructed as an **INFORMATION DOCUMENT** to provide the most relevant required information independently to each type of person.

FOR THE OWNER/OPERATOR

This BEP provides the 'Prevention' and 'Preparation' procedures and their associated actions that must be conducted prior to and during the bushfire season. Additional reference information is included as appendices.

FOR THE SHORT STAY OCCUPANTS

This BEP provides a 'Bushfire Emergency Information Poster' that will be displayed within the premises to inform the occupants, in the event of a bushfire emergency, of the appropriate 'Response' procedure (and associated actions), for a given scenario, along with the safer locations for relocation when necessary to reduce their exposure to bushfire threats.

When necessary, the specific site/use data and consultant considerations applied in developing the BEP are included as an addendum to explain and justify the actions established by this BEP.

TABLE OF CONTENTS

LIST OF ADDITIONAL INFORMATION

1. APPLYING THE BUSHFIRE EMERGENCY PLAN

FOR THE OWNER OPERATOR OF THE PREMISES

- **Be familiar with all content in this Bushfire Emergency Plan, including the Appendices.**
- **Prior to and during the bushfire season (October to April) conduct the Site Preparation and Monitor and Maintain procedures.**

FOR THE SHORT STAY OCCUPANTS

- **Refer to the displayed Bushfire Emergency Information Poster**

2. EMERGENCY CONTACTS

2.1. EMERGENCY SERVICES

AGENCY/AUTHORITY	SERVICES	CONTACT
Department of Fire and Emergency Services / Police / Ambulance	Will respond to life threatening emergencies. Use to report a fire.	**Phone call: triple zero '000'** **Phone app: EMERGENCY PLUS**
State Emergency Service (SES)	Emergency assistance - securing your property, rescuing persons.	13 2500

2.2. UTILITIES / MEDICAL / ASSISTANCE

AGENCY/ORGANISATION	SERVICES	CONTACT
Local Hospital Busselton Health Campus	Emergency medical services	08 9753 6000
Regional Hospital Bunbury Hospital at South West Campus	Emergency medical services	08 9722 1000
Western Power	Response to electricity supply outages and damage.	13 1351
Crisis Care	Crisis accommodation	1800 199 008
Australian Red Cross	Humanitarian assistance	1800 733 276 **Website:** redcross.org.au/emergencies
Salvation Army	Social services care	13 72 58 (13 SALVOS) **Website:** salvationarmy.org.au/need-help/disasters-and-emergencies/

3. EMERGENCY INFORMATION SOURCES

THE IMPORTANCE OF BEING AWARE OF YOUR SURROUNDINGS

Know the types of vegetation that grow on surrounding land. Be aware of the potential behaviour of a fire in this vegetation and the threats it can present under different conditions. Relevant information is included in **Appendix 6**.

Knowledge and awareness of the local environment and immediate past and current conditions is a valuable source of information that will assist with decision making – with hot/dry/windy weather presenting the worst conditions.

Lookout for smoke (i.e., evidence of fire) within your surrounding landscape, for as far as you can see. Be aware of the current and forecast wind direction as any fire will be likely to spread in the direction to which the wind is blowing.

YOUR FIRE WEATHER DISTRICT (BOM)	**Geographe**

SOURCE	INFORMATION
Emergency WA emergency.wa.gov.au	This is the primary and most up to date source of information (maps and lists) for: • Current warnings and incidents. • Designated bushfire evacuation centre. • Fire Danger Ratings (FDR) • Total Fire Bans (TFB)
Bureau of Meteorology (BOM) bom.gov.au/wa/forecasts/fire-danger-ratings.shtml	Fire Danger Ratings (FDR) and the corresponding Fire Behaviour Index (FBI).
WA Department of Fire & Emergency Services (DFES) Information Line: 13 3337 (13 DFES) dfes_wa dfeswa dfes.wa.gov.au/hazard-information/bushfire	Republishing of Emergency WA Warnings. General emergency information. Provides overviews of bushfire hazard educational information, including bushfire behaviour and preparation, response, recovery information, and FAQ.
Local Radio Stations ABC (AM/digital) or 6PR (882) abc.net.au/radio/stations	Current bushfire warnings, designated bushfire evacuation centre and other relevant information.
Emergency Alerts – through automated government telephone warning system	Voice messages (landline) and text messages (mobile) can be sent within a defined area under an immediate threat.
Bushfire.IO bushfire.io	Map based bushfire warnings, bushfire incidents and wind forecasts. A visual tool run privately – crosscheck with other sources.
Main Roads WA Phone: 13 8138 travelmap.mainroads.wa.gov.au/Home/Map	Road alerts and closures (incidents and roadworks).

4. SITE PREPARATION PROCEDURE – ACTIONS TO IMPLEMENT

1. ANNUAL REVIEW OF THE BUSHFIRE EMERGENCY PLAN

Prior to the bushfire season (June to October), update and amend the Bushfire Emergency Plan as required. Assistance from a bushfire consultant is advised.

☐ Make required changes to emergency contacts and emergency information sources. Ensure that any changes are also applied to the bushfire emergency information displayed within the facility/premises.

☐ Ensure the designated assembly area, shelter-in-place building/area and the off-site safer locations and nominated evacuation routes are still the best options. Incorporate any changes into the Bushfire Emergency Plan and the information displayed within the premises.

☐ Account for any change to buildings or equipment onsite that has implications for emergency management.

☐ Incorporate any improvements or additions to the emergency management procedures/actions that have been identified through experience with a bushfire event or changes in best practice bushfire emergency management that are developed over time.

☐ In the event any part of this BEP is amended as part of its annual review, replace old copies and destroy them.

2. DISPLAY & AVAILABILITY OF BUSHFIRE EMERGENCY INFORMATION

☐ Ensure the Display Poster 'Bushfire Emergency Information' is displayed (framed or laminated), in a prominent and accessible position within the premises.

Additional information can be displayed when considered appropriate. Examples are contained within the appendices. Copies of these resources are available for download on the DFES website.

☐ Ensure signage for bushfire water supply and evacuation routes are in place and legible.

3. BUILDING PREPARATION

These actions address the required maintenance of premises buildings, prior to and during the bushfire season to ensure:

- Continued compliance with the construction standards that correspond to its Bushfire Attack Level (as determined in the Bushfire Management Plan);
- The vulnerability of buildings and other consequential fire fuels, to the direct and indirect attack mechanisms of bushfire is minimised; and
- The operational readiness of any installed firefighting equipment and infrastructure.

☐ If the facility/premises is constructed to BAL-12.5 requirements or higher, ensure any external gaps continue to be blocked or screened with non-combustible material (e.g. rock wool, sealant, mesh – maximum aperture of 2mm) to prevent ember entry. This includes under eaves, external cladding, roofs, external vents, skylights etc. Otherwise it is recommended that this action is applied.

- ☐ Check that all required window and door screening is in place (prevents ember entry to internal spaces and reduces radiant heat load on the glass).

- ☐ If installed, ensure all installed bushfire shutters are operational.

- ☐ If there is recent construction or planned construction of attached structures (decks, stairs, patio, carport etc.) or adjacent structures (dwelling, shed, carport etc.), ensure bushfire resistant materials (including non-combustible) have been used to the greatest extent possible.

- ☐ If an evaporative air cooler is installed ensure it is either constructed to the required BAL rating or is fitted with an appropriate ember protection screen.

- ☐ LP Gas Cylinders: Be aware of the factors determining cylinder safety in bushfire prone areas and take the appropriate actions.

  The following requirements for their location, design and maintenance are intended to limit the potential for flames and high levels of radiant heat to directly impact a building, adjacent combustible materials or persons. (from gas flaring from the safety release valve or explosion). The cylinders should be:

  - outside of buildings, nominally at ground level;
  - not under a building or stairway;
  - on a firm, level and non-combustible base;
  - have only metal connections to and from gas cylinders (no polymer-sheathed flexible gas lines to be used;
  - be restrained from falling over by securing to a solid structure with chain and metal fixings;
  - be positioned so the safety valves point away from the building, adjacent structures, other cylinders and persons access routes;
  - when cylinders are kept close to a building, be clear of combustible materials out to at least 2 metres; and
  - when cylinders are at a distance from buildings, flammable materials are kept clear to a distance of 10 metres and shielded on the hazard side.

  The heat from the bushfire or a closer consequential fire can cause gas cylinder pressures to reach critical levels beyond which their pressure release valve releases large quantities of LP gas. If these gas cylinders fall over, this pressure release valve may no longer function correctly, and internal pressures continue to rise with continued heating until the cylinder ruptures. The resulting explosion includes a pressure wave and large ball of flame which can threaten nearby life and buildings. Flared or ruptured gas bottles are commonly found in post bushfire surveys.

- ☐ Remove and maintain at low levels, accumulated vegetation debris (fine fuels) near, on, in and against buildings and structures, including:

  - In construction crevices, gaps, on horizontal / shallow angle surfaces and at re-entrant corners in access ways, at wall/floor, wall/ground, roof/wall junctions and around doors, vents, windows;
  - In roof gutters and valleys; and
  - Adjoining/adjacent drains, culverts and pits.

- ☐ Around building(s), including verandahs and decks, remove or relocate away from the facility/premises those combustible items that may be seldom used or able to be stored more appropriately in the bushfire season. This includes furniture and mats. Refer to Appendix 7 'LANDSCAPING DESIGN & CONSTRUCTION PRINCIPLES TO APPLY' for further information regarding consequential fire fuels and recommended separation distances.

☐ Ensure all emergency lighting including pathway lighting and signage lighting is fully functional.

4. GROUNDS PREPARATION

These actions address the required management of onsite combustible items/materials (fuels) around, on or in buildings. By removing or reducing fuels, the likelihood and intensity of consequential fire is significantly reduced.

Consequential (local) fire which is the most significant cause of building/structure damage/loss in bushfire events.

Fuel management must be completed prior to the start of the bushfire season and maintained during the season.

For additional guidance, refer to:

- The *Guidelines for Planning in Bushfire Prone Areas within the Explanatory Notes for Element 2 of the Bushfire Protection Criteria and Schedule 1: Standards for Asset Protection Zones (WAPC 2021);*
- The DFES *'Bushfire Preparation Toolkit'* publication. Website: publications.dfes.wa.gov.au/?hazard=Bushfire; and
- Where initial or renovation landscaping of grounds surrounding the facility/premises is being conducted, apply the directions and principles of the measures presented in Appendix 7 to the greatest extent possible.

☐ **The Firebreak Notice:** Maintain compliance with the local government's annual firebreak and fuel load notice issued under section 33 of the Bush Fires Act 1954. Where the requirements are additional to or provide a greater level of bushfire protection than those established in this Emergency Plan, they must be complied with.

☐ **Accessibility:** Ensure all property access/egress routes are kept clear and easily trafficable.

☐ **The Asset Protection Zone (APZ) Dimensions:** Ensure the APZ dimensions stated below (established by the associated Bushfire Management Plan for the premises/facility), are installed and maintained.

- The required APZ is detailed in the associated BMP. The APZ includes the entire lot to the south, north and west. Towards the east, adjoining the Capel River, the required APZ is 27m from the short stay accommodation units and the over 55's accommodation to the classified vegetation.

☐ **Asset Protection Zone Management:**

Trees (greater than 6 metres in height):

- Remove branches overhanging buildings and powerlines;
- Remove lower branches to a height of 2m above the ground or any surface vegetation; and
- Remove loose bark (rake) to at least a height of 2m above the ground or any surface vegetation.
- Maintain canopy separation.

Shrubs (0.5 metres to 5 metres in height) and ground covers (greater than 0.5 metres in height):

- Ensure location and clump sizes remain in accordance with guidance in Appendix 7; and
- Remove all dead plant material.

Grass to be reduced and maintained at a height of 50 mm.

Fine Fuels (i.e., less than 6 mm in thickness):

- Ensure combustible dead vegetation matter is reduced to and maintained at less than 2 t/ha on average. Collecting and weighing an indicative 1m^2 of this litter above the mineral earth will indicate the fuel load (100g/m^2 = 1 t/ha); and

- Remove all debris piles.

Heavy Fuels (i.e., greater than 6 mm in thickness):

- Such as fallen branches, timber, firewood, packaging materials, building materials, outdoor furniture, garbage bins, debris piles.
- To be removed from the APZ or be separated from buildings/structures in accordance with guidance in Appendix 7.

Applied mulches:

- Should be non-combustible e.g., stone, gravel and crushed rock. Where wood mulch is used it should be greater than 6mm in thickness.

5. MONITOR AND MAINTAIN PROCEDURE – ACTIONS TO IMPLEMENT

1. MAINTAIN BUILDINGS

☐ During the bushfire season (October to April), refer to Action List No. 3 in the 'Site Preparation Prepare Procedure' and ensure all actions applicable to management during the bushfire season are implemented.

2. MAINTAIN ASSET PROTECTION ZONES

☐ During the bushfire season (October to April), refer to Action List No. 4 in the 'Site Preparation Procedure' and ensure all actions applicable to management during the bushfire season are implemented.

BUSHFIRE EMERGENCY INFORMATION

Capel Mixed Use Development

Produced by Bushfire Prone Planning October 2025. Additional procedure details and information are contained in the Bushfire Emergency Plan developed for the Capel mixed use development.

In Emergency Dial 000

or use the EMERGENCY PLUS phone app

EMERGENCY INFORMATION SOURCES

emergency.wa.gov.au | 13 DFES (13 33 37)

@dfeswa | @dfes_wa | Local ABC Radio

EVACUATION DESTINATION(S)

1. **Bunbury Town** – Exit site onto Forrest Road, turn right (north). Turn right at Capel Drive, continue for 1.3km then turn right onto Bussel Highway and continue for 21.7km till destination. (20min, 24km).
2. **Busselton Town** – Exit site onto Forrest Road, turn right (north). Turn left at Capel Drive, continue for 900m then turn left onto Bussel Highway and continue for 17.5km, at the roundabout turn right and continue on Bussell Hwy for 5.8km, continue straight through the next two roundabouts to reach the town centre. (18min, 26.2km)
3. **Capel Community Centre** (**OR as directed by incident controller**) – Exit the site onto Forrest Road, turn left (south) and tale the first right (after 90m) onto Roe Road. The entrance to the Community Centre is on the left after 75m.

A FIRE EXISTS - BROADCAST BUSHFIRE WARNINGS

EMERGENCY WARNING
There is a threat to lives or homes. You are in danger and need to take immediate action to survive.

WATCH AND ACT
There is a possible threat to lives or homes. You need to leave or get ready to defend – do not wait and see.

ADVICE
A fire has started but there is no immediate threat to lives or homes. Be aware and keep up to date.

FORECAST FIRE DANGER (FDR) RATINGS

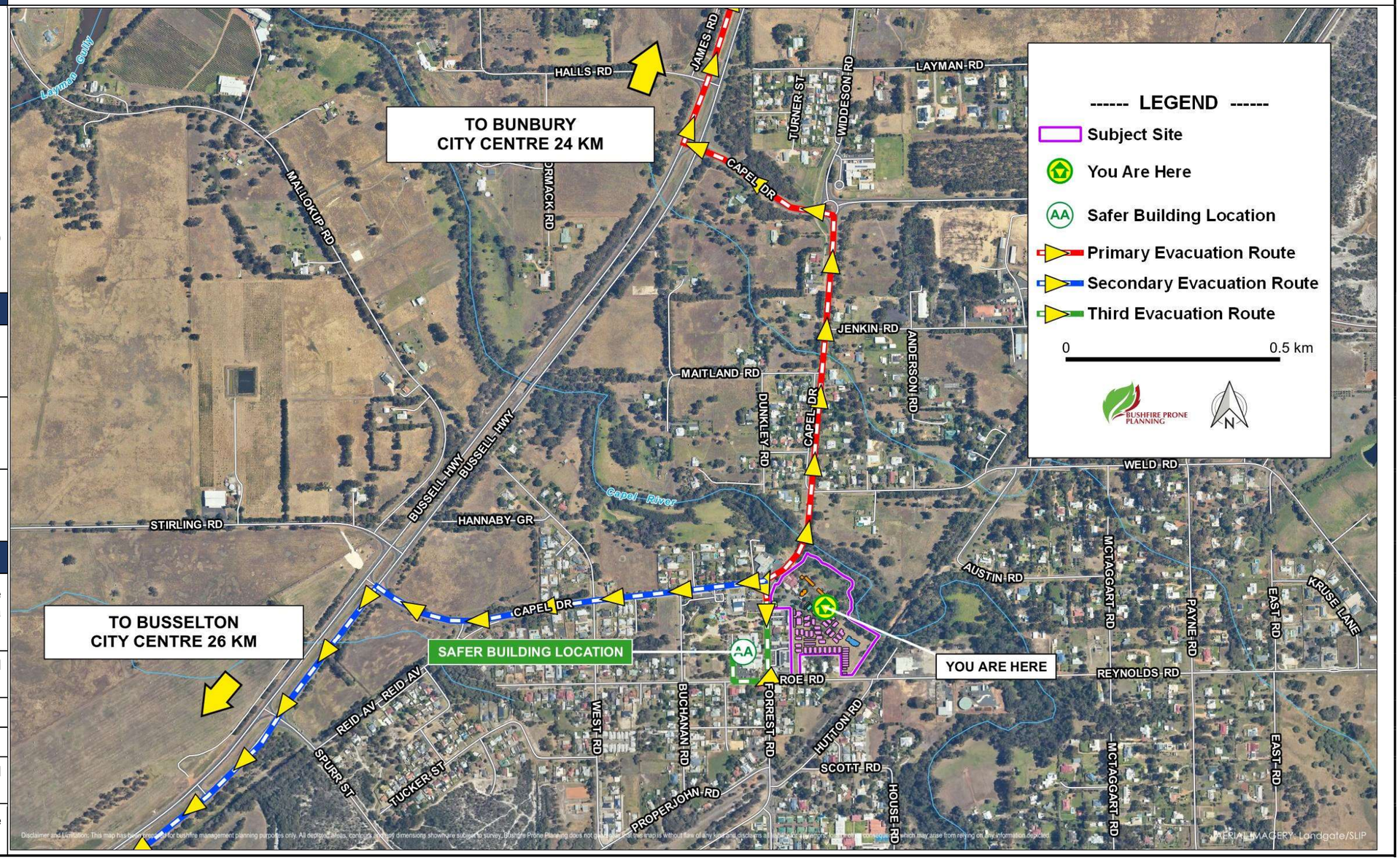
The higher the rating, the more dangerous the conditions and the greater the consequences if a fire starts.

No Rating	No action required. Remain alert and abide by local seasonal laws and regulations.
Moderate	Plan and prepare. Most fires can be controlled.
High	Be ready to act. Fires can be dangerous.
Extreme	Act now to protect your life and property. Fires will spread quickly and be extremely dangerous.
Catastrophic	For your survival, leave bush fire risk areas. If a fire starts and takes hold, lives are likely to be lost.

SCENARIO 1: A BUSHFIRE EXISTS A CONSIDERABLE DISTANCE AWAY; A BUSHFIRE ADVICE WARNING MAY OR MAY NOT BE ISSUED; YOU ARE CONCERNED FOR YOUR SAFETY; IMPLEMENT THE ELEVATED THREAT PROCEDURE ➔ Check for bushfire warning & if none, call 000 to report; Ensure all persons at the premises are aware of the situation; Monitor the sources of emergency information and the situation outside for changes; Consider relocating to a lower threat area for the day If the current FDR is Extreme or Catastrophic or persons have health conditions.

SCENARIO 2: A BUSHFIRE EXISTS RELATIVELY CLOSE; A BUSHFIRE EMERGENCY OR WATCH AND ACT WARNING MAY OR MAY NOT BE ISSUED; IMPLEMENT THE EVACUATION PROCEDURE ➔ Check for bushfire warning & if none, call 000 to report; Shut all doors/windows, turn off bottled (or mains) gas & any evaporative air cooler fans (not water); Gather belongings & prepare vehicles; Check emergency information sources for latest updates; Assess the situation to ensure an evacuation route (see map) remains available; If none available apply the Shelter in Place actions (refer to Scenario 3) otherwise evacuate using the evacuation route & destination identified as the most appropriate.

SCENARIO 3: IMPACT FROM A BUSHFIRE IS IMMINENT; EVACUATION ROUTES ARE THREATENED; THERE IS NO TIME TO PERFORM A SAFE (EARLY) EVACUATION OR EMERGENCY SERVICES HAVE INSTRUCTED YOU TO SHELTER IN PLACE; IMPLEMENT THE SHELTER IN PLACE PROCEDURE ➔ Stay in the accommodation, Call 000 to inform them you are sheltering in place; Shut all doors/windows, turn off bottled (or mains) gas & any evaporative air cooler fans (not water); Outside - move all combustible materials (mats, outdoor furniture, rubbish bins well away from the building; Block gaps around doors to prevent ember entry with wet cloth materials; Stay hydrated and aware of what is happening; Monitor emergency information sources; Move outside after the fire front has passed and conditions outside are tenable; Continually check for spot fires involving the building or nearby materials and extinguish if possible.



APPENDIX 1: BUSHFIRE WARNINGS – WHEN A BUSHFIRE IS IDENTIFIED

APPENDIX 2: FIRE DANGER RATINGS - FORECAST BUSHFIRE RISK

THE HIGHER THE RATING, THE MORE DANGEROUS THE CONDITIONS AND THE GREATER THE CONSEQUENCES IF A FIRE STARTS.

APPENDIX 3: FIRE BEHAVIOUR INDEX - FORECAST BUSHFIRE RISK

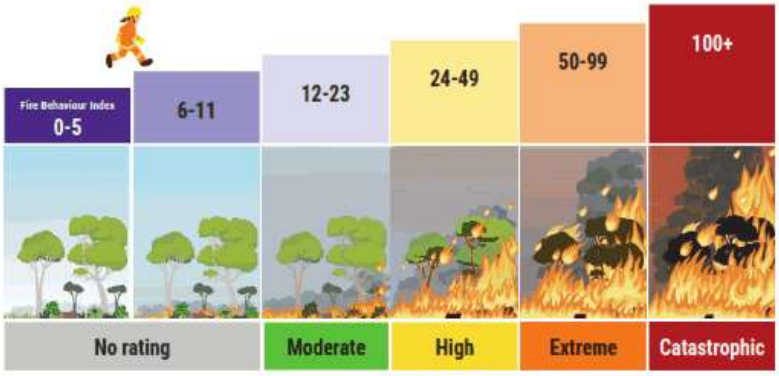
While the AFDRS Fire Danger Ratings are primarily intended for community messaging, the Fire Behaviour Index is intended to support operational fire management decision making.

Features of the FBI:

A Fine Scale of Fire Behaviour	The FBI is expressed in whole numbers from 0 to100+. As the FBI rises, the more dangerous a fire that stars will become.	Takes advantage of decades of improved understanding of fire behaviour, fuels and fire weather.
Stepped Categories	Links transitions in fire behaviour to implications for operational decision making.	Turns the FBI into a powerful operational tool and takes advantage of improved understanding of relationship between fire behaviour, fire spread, suppression and impacts.
Fuel Type Specific	Eight different Fire Behaviour Indexes based on eight different fire behaviour models.	Takes advantage of decades of improved knowledge of fire behaviour in different fuels to produce more specific results.
Nationally Consistent	The index is the same anywhere in Australia.	Supports cross border operations and resource sharing.

The Stepped categories are controlled by tables that define FBI thresholds. The thresholds represent changes in the underlying fire behaviour that have consequences for fire operational decision making, including:

- Indicative fire behaviour and fire weather.
- Implications for prescribed burning.
- Fire suppression and containment strategies that are appropriate.
- Potential for impact on life, property and infrastructure.



For more information visit afac.com.au/initiative/afdrs or email AFDRS@dfes.wa.gov.au

DFES
HOW FIREPROOF IS YOUR PLAN?
AFDRS

APPENDIX 4: BUSHFIRE RISKS AND DANGERS

BUSHFIRE RISKS AND DANGERS

BUSHFIRES HAPPEN EVERY SUMMER; THEY CAN START SUDDENLY AND WITHOUT WARNING.
If you live in or near bushland you need to understand the risks and dangers that bushfires cause.
Remember that flames are not the only risk you face in a bushfire.

EMBER ATTACK

Ember attack occurs before, during and after a fire front passes.

Embers are pieces of burning bark, leaves or twigs that are carried by the wind around the main fire creating spot fires.

Spotting can be carried over half a kilometre from a fire.

Embers can land in areas around your home such as your garden, under or in the gutters of your home and on wooden decks.

If not extinguished, your house could catch fire.

RADIANT HEAT

The hotter, drier and windier the day, the more intense a bushfire will be and the more radiant heat it will generate.

Radiant heat can cause injury and death from burns and cause the body's cooling system to fail, leading to heat exhaustion and possible heart failure.

It is important that you include water and appropriate clothing in your emergency kit and consider where you will shelter during a bushfire to protect yourself from radiant heat.

SMOKE

Lung injuries and suffocation can occur where the body is exposed to smoke and super-heated air.

It is important to seek shelter when heat and smoke are most intense.

Your nose and mouth should be covered with a dust mask, wet towel or scarf.

A special filter mask should be included in your survival kit for people in your family who suffer respiratory conditions such as asthma.

For more information visit
dfes.wa.gov.au/bushfire
or contact DFES Community Preparedness:
Community.Preparedness@dfes.wa.gov.au
or **9395 9816**

DFES Department of Fire & Emergency Services

HOW FIREPROOF IS YOUR PLAN?

APPENDIX 5: GUIDELINES FOR TRAVELLING IN CARS DURING A BUSHFIRE

TRAVELLING DURING A BUSHFIRE

BUSHFIRES CAN START WITHOUT WARNING. People have been killed or seriously injured during bushfires. If you are travelling or staying near bushland, fire is a real risk to you. **Pack an emergency kit including important items such as woollen blankets, drinking water and protective clothing.**

IF THERE IS A LOT OF SMOKE

- ◯ Slow down as there could be people, vehicles and livestock on the road.
- ◯ Turn your car headlights and hazard lights on.
- ◯ Close the windows and outside vents.
- ◯ If you can't see clearly, pull over and wait until the smoke clears.

For more information visit
dfes.wa.gov.au/bushfire
or contact DFES Community Preparedness:
Community.Preparedness@dfes.wa.gov.au
or **9395 9816**

IF YOU BECOME TRAPPED BY A FIRE

Sheltering inside a vehicle is a very high risk strategy. It is unlikely that a person will survive in all but the mildest circumstances.

- ◯ Park the vehicle off the roadway where there is little vegetation, with the vehicle facing towards the oncoming fire front.
- ◯ Turn the engine off.
- ◯ Close the car doors, windows and outside vents, and call 000.
- ◯ Stay in the car until the fire front has passed. Stay as close to the floor as possible and cover your mouth with a damp cloth to avoid inhalation of smoke.
- ◯ Stay covered in woollen blankets, continue to drink water and wait for assistance.
- ◯ Once the front has passed and the temperature has dropped, cautiously exit the vehicle.

IMPORTANT INFORMATION

- ◯ Find the local ABC radio frequency in the area. Stay up to date in a major emergency, when lives and property are at risk, ABC radio will issue broadcast warnings at a quarter to and a quarter past the hour.
- ◯ Main Roads provides updated information on road closures throughout WA. Call 138 138 or www.mainroads.wa.gov.au
- ◯ Check the weather forecast and current fire restrictions. Be aware of the Fire Danger Rating for the area you are travelling to and be prepared to reassess your plans.
- ◯ Download the Bushfire Traveller's Checklist at www.dfes.wa.gov.au

GOVERNMENT OF WESTERN AUSTRALIA
DFES Department of Fire & Emergency Services

HOW FIREPROOF IS YOUR PLAN?

APPENDIX 6: INDICATIVE BUSHFIRE BEHAVIOUR TO IMPACT THE FACILITY/PREMISES

Information Relevance: This information is included in the Bushfire Emergency Plan to inform and assist the decision making of those persons onsite who have the responsibility to manage a bushfire emergency for the subject facility/premises.

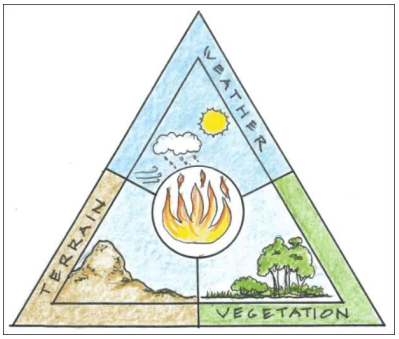
The information establishes the key factors to be considered in understanding the types and scale of key bushfire behaviours that can be expected to impact the facility/premises on a given day. These factors are the type of vegetation that exists on the land surrounding the subject premises/facility, the relevant surrounding terrain, and the forecast Fire Danger Rating (FDR) that applies to the locality.

Information Source: The information is taken from the bushfire behaviour modelling applied within the **Australian Fire Danger Rating System (AFDRS).** Within this system, eight accepted bushfire behaviour models, describing mathematically the way fire moves and spreads through different vegetation types, are currently available and are applied to twenty two different vegetation types across Australia.

The modelling is used to derive the Fire Behaviour Index (FBI) that assists firefighting operational decision making. From the FBI, Fire Danger Ratings (FDR) are derived which provide the broad categories needed to communicate fire danger to the community. The determination of the daily FDR considers the vegetation types present and the forecast fire weather conditions. The higher the rating, the more dangerous the conditions and the greater the consequences if a fire starts. (Source: AFDRS project led by NSW RFS, Australian Bureau of Meteorology and AFAC).

The Fire Behaviour Triangle

The behaviour of a bushfire, including the types of threats, intensity and how quickly it moves, depends on the three factors of vegetation, weather and terrain.



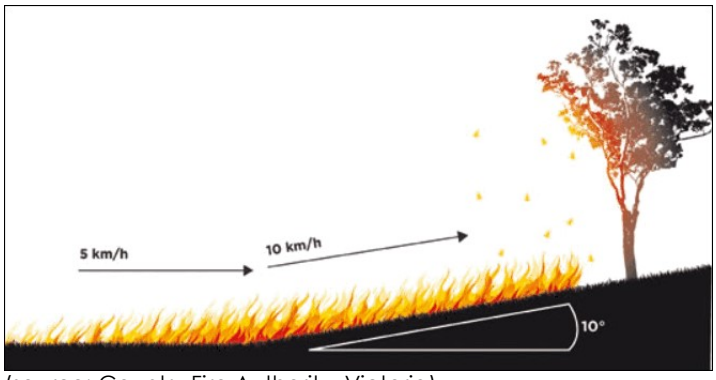
This is known as the fire behaviour triangle – because all three factors combine to shape the characteristics of the bushfire (source: CSIRO 'Bushfire best practice guide' at … research.csiro.au/bushfire/).

The influence of fire weather (FDR) and vegetation types (as per AFDRS) on the potential bushfire impact to the subject facility/premises, can be derived from the tables presented on the following page(s). Greater fuel loads will result in behaviours at the higher end of stated values.

The influence of terrain can be derived by considering the existence and degree of sloping ground and changes in changes in relief (e.g., flat, undulating or rugged land), surrounding the subject facility/premises and particularly under the vegetation.

The Influence of Terrain (topography)

A fire will burn faster uphill. This is because the flames can easily reach more unburnt fuel in front of the fire. Radiant heat pre-heats the fuel in front of the fire, making the fuel even more flammable.



For every 10˚ slope, the fire will double its speed. For example, if a fire is travelling at 5 km per hour along flat ground and it hits a 10˚ slope it will double in speed to 10 km per hour up the hill. By increasing in speed the fire also increases in intensity, becoming even hotter.

The opposite applies to a fire travelling downhill. The flames reach less fuel, and less radiant heat pre-heats the fuel in front of the fire. For every 10˚ of downhill slope, the fire will halve its speed. Fires tend to move more slowly as the slope decreases

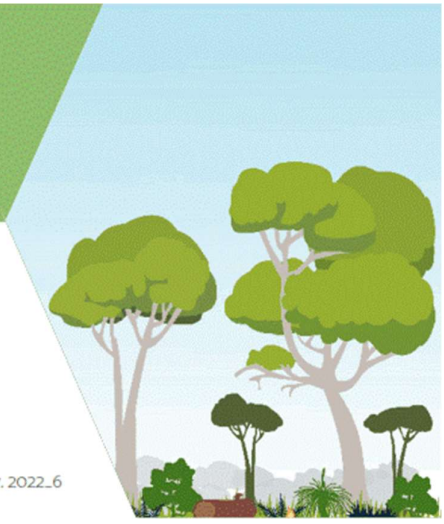
(source: Country Fire Authority, Victoria).

Terrain should be considered for its potential to increase adverse fire behaviour including flame heights, forward rates of spread and ember production (in relevant vegetation i.e., primarily bark fuels). Essentially, where vegetation exists on sloping land near your site, assume that the higher end of adverse fire behaviours is much more likely to apply.

VEGETATION TYPES IDENTIFIED SURROUNDING THE SUBJECT FACILITY/PREMISES		
As Applied in the AFDRS		Vegetation Location Relative to the Facility/Premises
Fire Behaviour Model (short name)	Fuel Types / Description	
Forest	Dry eucalypt forests, shrubby understorey/litter surface fuel. Forests with high moisture content due to structure, topography or inundation.	Along Capel River foreshore, which runs through the lot at the north-eastern boundary. Some areas of forest to the south along Hutton Road. Patchy forest vegetation within and surrounding the town of Capel. Larger scale forest areas to the west within Tuart Forest National Park and south within Capel Nature Reserve.
Grassy Woodland (Savanna)	Woodland and shrubland with a continuous grass understorey. Arid woodland/shrubland with short lasting (seasonal) grass understorey. Perennial woody horticulture with grass understorey (orchard/vineyard). Rural/Urban residential areas of grass with variable tree cover.	Grassy woodland within the subject site, consisting of predominantly Agonis flexuosa. Scattered woodland patches throughout paddocks and crop lands surrounding Capel town site.
Grassland	Continuous/tussock grasslands. Modified/native pasture (grazing). Non-irrigated cropping. Low shrublands (wet or arid) with no overstorey.	Areas of grassland within the subject lot as well as paddocks to the north and north-west of the site. Large farmland areas surrounding the Capel town site, likely predominantly classified as 'grassland' areas.

FOREST

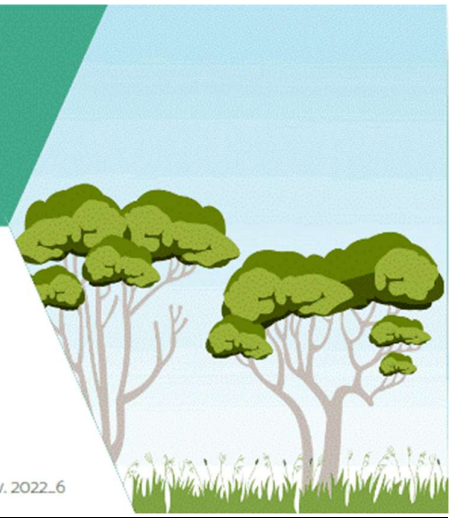
THE INDICATIVE FIRE BEHAVIOUR CORRESPONDING TO THE FIRE BEHAVIOUR INDEX (0-100) AND THE ASSOCIATED FIRE DANGER RATING (FDR)



Source: AFDRS v. 2022_6

FDR	INDICATIVE BUSHFIRE BEHAVIOUR			
NO RATING	MAX FLAME HEIGHT <1 m	0-5	RATE OF SPREAD 0-40 m/hr	Fire difficult to ignite and sustain. Fires generally unlikely to spread and likely to self-extinguish.	**SPOTTING POTENTIAL** Potential for any spotting is very limited and likely **<150 m**
	<4 m	6-11	20-110 m/hr	Slow spreading fires, typically involving surface and near-surface fuels and sometimes bark and elevated fuels. Spotting is sporadic and limited to short-distances.	Potential for spotting is limited with short distance spotting possible up to **400 m**
MODERATE	2-8 m	12-23	60-600 m/hr	Actively spreading fires typically involving surface, near-surface, elevated and bark fuel layers and occasionally canopy fuels. Low-moderate spotting frequency; isolated medium range spotting can occur.	Short distance spotting occurring with increasing frequency with possible medium distance spotting up to **2 km**
HIGH	7-14 m	24-49	0.3-1 km/hr	Rapidly spreading fires with potential for development into large burn areas within burning period. Fires typically involving most fuel layers. Short-range spotting is prevalent, with possibility of medium range and occasional long-range distance spotting.	Short and medium distance spotting occurring with increasing frequency with possible long distance spotting up to **4 km**
EXTREME	11 m - approx. double forest	50-99	0.7-3 km/hr	Fires likely to quickly transition to crowning. Possibility for fire behaviour to become erratic and plume driven. Strong convective column formation. Wind speed and direction likely to be erratic at times.	High ember density in short and medium range with possible long distance spotting up to **12 km**
CATASTROPHIC	>30 m (approx. double forest height)	100+	>2 km/hr can be expected, possibly >3 km/hr	Fires likely to quickly transition to crowning. Possibility for fire behaviour to become erratic and plume driven. Strong convective column formation. Wind speed and direction likely to be erratic at times.	High ember density in short and medium range with possible long distance spotting occurring **20-30 km** ahead of the main fire front

SAVANNA
(GRASSY WOODLAND)



THE INDICATIVE FIRE BEHAVIOUR CORRESPONDING TO THE FIRE BEHAVIOUR INDEX (0-100) AND THE ASSOCIATED FIRE DANGER RATING (FDR)

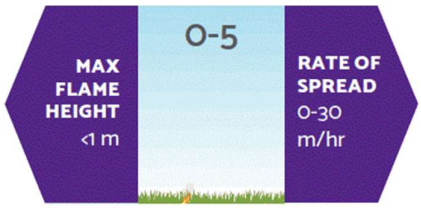
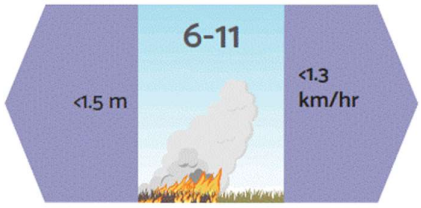
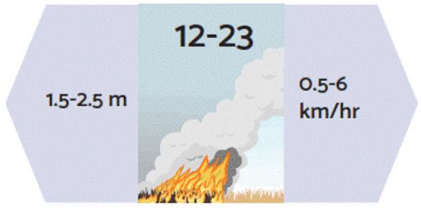
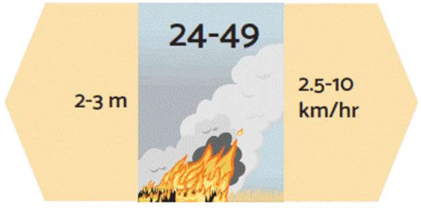
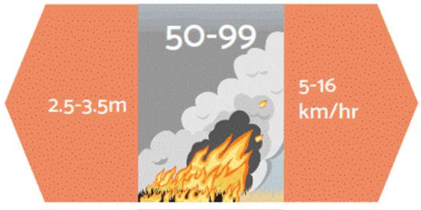
Source: AFDRS v. 2022_6

FDR	INDICATIVE BUSHFIRE BEHAVIOUR			
NO RATING	MAX FLAME HEIGHT <0.5 m	0-5	RATE OF SPREAD 0-50 m/hr	Fire difficult to ignite and sustain. Fires generally unlikely to spread and likely to self-extinguish.	**SPOTTING POTENTIAL** Potential for any spotting is extremely limited
	<0.5-1.5 m	6-11	<1.5km/hr	Fire easily sustained. Typically wind driven fires that can spread quickly. Fires mostly only partially consuming fuels, typically creating a mosaic of burnt and unburnt patches (decreasing patchiness with increasing intensity).	Potential for spotting is limited
MODERATE HIGH	1.5-2.5 m	12-49	1-8 km/hr	Wind driven, rapidly spreading fires with potential for development into large fire area/size and with the potential for short distance spotting and long flame lengths. Fires typically consuming all available fuel. Increasing scorch height of tree canopy (up to 20-25 m) and char height (up to 3-4 m).	Possible short distance spotting occurring
EXTREME CATASTROPHIC	>2.5m	50+	>5 and likely >8 km/hr	Extremely rapid fire growth and increasing likelihood of large final fire area/size. Possibility for fire behaviour to become erratic and plume driven. Strong convective column formation. Wind speed and direction likely to be erratic at times. Fires consuming all available fuel.	Likely short distance spotting

GRASSLAND

THE INDICATIVE FIRE BEHAVIOUR CORRESPONDING TO THE FIRE BEHAVIOUR INDEX (0-100) AND THE ASSOCIATED FIRE DANGER RATING (FDR)

Source: AFDRS v. 2022_6

FDR	INDICATIVE BUSHFIRE BEHAVIOUR			
NO RATING		Fire difficult to ignite and sustain. Fires generally unlikely to spread and likely to self-extinguish.	**SPOTTING POTENTIAL** Potential for any spotting is very limited.
		Fire easily sustained. Typically wind driven fires that can spread quickly.	Potential for spotting Potential for short distance spotting is limited.
MODERATE		Typically wind driven and rapidly spreading fires with the potential to gain size quickly.	Possible short distance spotting occurring.
HIGH		Wind driven, rapidly spreading fires with potential for development into large fire area/size and with the potential for short distance spotting and long flame lengths.	Short distance spotting occurring with increasing frequency.
EXTREME		Extremely rapid fire growth and increasing likelihood of large final fire area/size. Possibility for fire behaviour to become erratic and plume driven. Strong convective column formation. Wind speed and direction likely to be erratic at times.	Likely short distance spotting occurring with increasing frequency.
CATASTROPHIC		Extremely rapid fire growth and high likelihood of large final fire area/size. Possibility for fire behaviour to become erratic and plume driven. Strong convective column formation. Wind speed and direction likely to be erratic at times.	Likely short distance spotting occurring with increasing frequency.

APPENDIX 7: LANDSCAPING DESIGN & CONSTRUCTION PRINCIPLES TO APPLY

Where initial or renovation landscaping of grounds surrounding the facility/premises is being conducted, apply the directions and principles of the following measures to the greatest extent possible.

For additional guidance, refer to:

- The *Guidelines for Planning in Bushfire Prone Areas within the Explanatory Notes for Element 2 of the Bushfire Protection Criteria and Schedule 1: Standards for Asset Protection Zones (WAPC 2021); and*
- The DFES *'Bushfire Preparation Toolkit'* publication. Website: publications.dfes.wa.gov.au/?hazard=Bushfire

☐ **Use of Non-Vegetated Areas and/or Public Open Space:**

Reduce the exposure of the facility/premises to the direct and indirect threats of bushfire by incorporating low threat uses of land adjoining the facility/premises and/or the bushfire hazard. These uses create robust and easier managed asset protection zones and include:

- Non-vegetated areas e.g. footpaths, paved areas, roads, driveways, parking, drainage, swimming pools;
- Formally managed areas of vegetation (public open space and other recreation areas), including irrigated areas; and
- Services installed in a common section of non-vegetated land.

☐ **Landscaping – Non-Combustible Construction:** Ensure non-combustible materials are used for fencing and any other landscaping construction, including retaining walls.

☐ **Landscaping – Tree and Plant Species Selection**

Utilise trees and plants with characteristics that are more resistant to burning. Refer to *Guidelines for Planning in Bushfire Prone Areas, Appendix 4 'Explanatory Notes E2: Plant Flammability' (WAPC 2021) for initial guidance.*

Avoid planting trees with ribbon or stringy barks (ember/firebrand production). Preference for smooth bark.

☐ **Landscaping – Tree and Plant Separation from the Facility/Premises (Location):**

Trees (greater than 6 metres in height: Minimise the potential for tree strike damage (falling or blown) to the facility/premises (allowing flame, radiant heat and ember entry to internal spaces), and debris accumulation on, in and around the facility/premise. Principles to apply are:

- Ideally trees will be separated from buildings/structures by a distance of at least 1.5 times the height of the tallest tree;
- As a minimum, trunks at maturity should be at least 6 metres from all elevations of the building, branches at maturity should not touch or overhang a building or powerlines. Mature tree canopies should be separated at least 5m with total canopy cover not exceeding 15% and not connected to tree canopy outside the APZ;
- Species of trees that produce significant quantities of debris (fine fuels) during the bushfire season should be located a sufficient distance away from vulnerable exposed elements to ensure debris cannot drop and accumulate within at least 4m of buildings/structures or be likely to be relocated by wind to closer than 4m to buildings / structures.

Shrubs and scrub (0.5 metres to 6 metres in height):

- Should not be located under trees or within 3 metres of buildings;
- Should not be planted in clumps greater than 5m^2 in area;

- Clumps of shrubs should be separated from each other and any exposed window or door by at least 10 metres (unless they can be classified as low flammability plants); and
- Shrubs greater than 6 metres in height are to be treated as trees.

Ground covers (less than 0.5 metres in height):

- Can be planted under trees but and no closer than two metres from a structure but 3 metres from doors or windows if greater than 100 mm in height; and
- Ground covers greater than 0.5 metres in height are to be treated as shrubs.

Grass: Where possible utilise irrigated perennial species.

Mulches should be non-combustible e.g., stone, gravel and crushed rock. Where wood mulch is used it should be greater than 6mm in thickness.

☐ **Separation Between the Facility/Premises and the Consequential Fire Fuels of Stored Flammable Products (Fuels / Other Hazardous Materials):**

If applicable. establish sufficient separation distance between the consequential fire fuels and the facility/premises. The required separation distance will be dependent on the fuel and storage type and will need to be determined.

☐ **Separation Between the Facility/Premises and the Consequential Fire Fuels of Stored and Constructed Combustible Items:**

These consequential fire fuels include:

- Stored Combustible Items - Heavy Fuels (greater than 6mm diameter) e.g. building materials, packaging materials, firewood, branches, sporting/playground equipment, outdoor furniture, garbage bins etc:
- Stored Combustible Items – Large Heavy Fuels e.g. vehicles, caravans, boats, trailers and large quantities of dead vegetation materials stored as part of site use.
- Constructed Combustible Items – Heavy Fuels e.g. landscaping structures including fences, screens, walls, plastic water tanks.
- Constructed Combustible Items – Large Heavy Fuels e.g. adjacent buildings/structures including houses, sheds, garages, carports. (Note: If the adjacent structure is constructed to BAL-29 requirements or greater and can implement a significant number of additional bushfire protection measures associated with reducing exposure and vulnerability, these minimum separation distances could be reduced by 30%).

Apply the rule of thumb "assume flames produced from a consequential fire source will be twice as high as the object itself … where the consequential fire source is a structure, then the maximum eave height is a reasonable measure of maximum height".

Apply the following separation distances from the subject building/structure as a multiple of the height of the consequential fire source and dependent on the bushfire construction standard applied to the building/structure:

- At least six times the height when the facility/premises construction incorporates design and materials that is only intended to resist low levels of radiant heat up to 12.5 kW/m^2 and no flame contact (BAL-12.5);
- Between 4 and 6 six times the height when the facility/premises construction incorporates design and materials intended to resist radiant heat up to 29 kW/m^2 and no flame contact (BAL-29).
- Between 2 and 4 times the height when the facility/premises construction incorporates design and materials intended to resist up to 40kW/m^2 and potential flame contact (BAL-40).
- Less than 2 times the height when the facility/premises construction incorporates design and materials intended to resist extreme levels of radiant heat and flame contact (BAL-FZ).

- Zero separation distance is required if the facility/premises is separated by a non-combustible FRL 60/60/60 rated wall, or the potential consequential fire source is fully enclosed by the facility/premises.

☐ **Constructed Barriers to Shield Facility/Premises from Bushfire:** Where applicable, install walls, fences and/or landforms to shield the facility/premises (or any identified consequential fire fuels – refer to previous item) from direct and indirect bushfire attack mechanisms and reduce the potential impact of these threats.

These barriers should be constructed using appropriate fire resistant / non-combustible construction materials (e.g. masonry, steel, earthworks). These are to withstand the impact of direct bushfire attack mechanisms for the required period.

☐ **Constructed Barriers to Shield Facility/Premises from Consequential Fire:** Applicable to all identified consequential fire fuel sources. Install a non-combustible barrier (including complete enclosure when appropriate), of required robustness, that will reduce the exposure of the facility/premises to the threats of consequential fire.

☐ **Planted Vegetation Barrier to Shield Facility/Premises:** Use appropriate species (lower flammability) of hedges and trees strategically to reduce the facility/premises exposure to radiant heat, to filter/trap embers and firebrands, and to lower wind speeds (prevailing synoptic and/or fire driven).

☐ **Shield Non-Structural Essential Elements:** These are vulnerable elements essential to the continued operation of the facility/premises which are potentially exposed to the fire attack mechanisms of both bushfire and consequential fire. They include electricity cabling and water plumbing and also applies to any installed firefighting equipment / water storage.

When the use of fire rated materials to the degree necessary is not possible or practical, the application of non-combustible shielding can be applied to reduce exposure to the bushfire threats. Shielding includes underground installation.

☐ **Constructed Barrier to Shield Persons on Pathways to Safer Onsite Area/Building:** Where possible, alongside the relevant pathways, utilise walls / fences / landforms as shielding structures constructed using fire resistant / non-combustible construction materials (e.g. masonry, steel, earthworks).

These are to withstand the impact of direct bushfire attack mechanisms for the required period and provide the required reduction in threat levels to persons (including firefighters) traversing the pathway.