

Bushfire Emergency Plan

Supporting Information

Location and Use Specific Assessments for the Vulnerable Land Use

Outback Spirit Ngauwudu Safari Camp

Mitchell Plateau

Shire of Wyndham-East Kimberley

Vulnerable Land Use Category: (Guidelines WAPC v1.3)	Category 3: A facility that involves short-stay accommodation or visitation for people who are unaware of their surroundings and who would require assistance or direction in the event of a bushfire.
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Facility/Premises Use Type:	Tourist development
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Date Created:	25 August 2020
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Associated Bushfire Management Plan Reference No:	200339
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Note: This supporting document contains the assessments and considerations - specific to the proposed development/use - that are applied to the preparation of the associated Bushfire Emergency Plan (the operational document).

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Compliance

This Bushfire Emergency Plan supporting information document is produced to meet the requirements established by *A Guide for Developing a Bushfire Emergency Evacuation Plan* (WAPC October 2019).

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1. PLANNING FOR THE EMERGENCY MANAGEMENT OF A BUSHFIRE EVENT

STATE PLANNING POLICY 3.7 PLANNING IN BUSHFIRE PRONE AREAS (SPP 3.7)

State Planning Policy 3.7 *Planning in Bushfire Prone Areas* (SPP 3.7) establishes:

- The policy intent which includes the preservation of life by implementing effective, risk-based land use planning and development;
- The policy objectives that include the provision that preservation of human life is paramount; and
- The policy measure which establishes the concept of a 'Vulnerable Land Use', define it as a land use where persons may be less able to respond in a bushfire emergency; and
- The policy measure that requires a development application for a vulnerable land use to include a Bushfire Emergency Plan (or a more concise form of the required information within the bushfire management plan when relevant, such as for residential based small scale vulnerable land uses). This is to establish the procedures and associated actions for management of a bushfire emergency to ensure the safety of proposed occupants, visitors, customers and staff associated with the use of the site.

Consequently, the development of the required Bushfire Emergency Plan is conducted within the context of the protection of life being the primary focus of the bushfire planning framework in WA. It is focussed on:

- The occupants of or visitors to a site, and associated staff, that are considered 'vulnerable' persons because their ability to respond appropriately to a bushfire emergency is constrained in some way; and
- Ensuring the safe re-location of those vulnerable persons, either offsite or onsite, in the event of a bushfire impacting that site.

DOCUMENTS TO MEET PLANNING AND OPERATIONAL REQUIREMENTS

Bushfire Prone Planning will prepare two documents, each with a specific purpose, to fulfil the requirements of SPP 3.7.

The Bushfire Emergency Plan (BEP)

The Bushfire Emergency Plan (BEP) is required as an operational document for use in the bushfire season. It will establish the required operational procedures and associated actions to be conducted for different scenarios before and during the bushfire season, including a bushfire event. Its purpose is to ensure the safety of occupants, visitors and staff of the facility/premises leading up to, during and following a bushfire emergency event.

Because the BEP will be used in the pressured environment of an emergency, it must be as concise and informative as possible and provide clear triggers for the initiation of well-defined procedures. It must not contain information that does not assist with making immediate operational decisions.

Consequently, within this operational document, it is not appropriate to assess risks associated with the proposed location and its use, or to justify why certain procedures/actions are prescribed in the BEP. Hence the requirement for a supporting information document.

[Note that the content of the BEP, for certain vulnerable land uses, will likely be prepared as a more concise format and presented within the associated BMP as Bushfire Emergency Information. Typically, this will apply to those situations where there will be no designated responsible persons for emergency management onsite and occupants are required to act independently e.g. development considered residential based 'minor' development and certain development associated with remote area tourism and/or basic camping].

The BEP Supporting Information

Planning for a bushfire emergency for a proposed vulnerable land use must account for:

1. The complex and variable characteristics of bushfire threats (flame contact, radiant heat, embers, wind, smoke) that might exist for any given bushfire event and is specific to a given site; and
2. Any constraints, specific site and its use, that might apply to the management of persons and to the implementation of sufficient bushfire protection measures such that the level of residual risk from a bushfire event to 'vulnerable' persons can be assessed as acceptable.

Consequently, this will require an assessment of the vulnerabilities of the proposed site, its location, buildings and persons and the subsequent development of site and use specific protection measures.

To achieve this outcome, Bushfire Prone Planning, prepares the BEP Supporting Information document. This has the primary purpose of developing and justifying the site and use specific information that will be used to establish the procedures and actions that will comprise the operational Bushfire Emergency Plan document (or Bushfire Emergency Information contained within the BMP).

The secondary purpose is to:

1. Assist planning decision makers and their advisors to assess the suitability of the Bushfire Emergency Plan (or Bushfire Emergency Information), for the specific site and its use; and
2. Assist persons associated with the facility/premises, who are given bushfire emergency management responsibilities, by improving their understanding and use of the emergency plan/information.

Typically, this supporting information will be included within the associated Bushfire Management Plan (BMP) as an addendum but may exist as a standalone document in applicable situations.

2. ESTABLISH AN EMERGENCY PLANNING TEAM AND IDENTIFY RESPONSIBLE PERSONS

GUIDANCE

The Emergency Planning Team (EPT) is to be responsible for the development and documentation of the Bushfire Emergency Plan (BEP), its implementation and its subsequent annual reviews.

The type of facility/premises will dictate the makeup of the EPT. It is to be a consultative group representing those who may work and/or live at the facility/premise and have representation of a competent person for advice (and in practice, the preparation of the Bushfire Emergency Plan).

The EPT will typically consist of senior management, staff, nominated fire wardens and a bushfire consultant. As a minimum it will consist of the bushfire consultant and the owner or operator of the facility/premises.

The Emergency Planning Team – Minimum Requirements and Role

The bushfire consultant:

- Prepare the Bushfire Emergency Plan (BEP) – formulate the facility/premises specific emergency procedures and actions;
- Assist with the training of staff and the annual review of the BEP; and
- Consult with the local government and local emergency services as required.

The facility/premise's owner or operator:

- Contribute operational information to inform the preparation of the BEP as required;
- Identify and assign duties and responsibilities to employees regarding the management of a bushfire emergency and ensure they are trained;
- Ensure the BEP is implemented, that the procedures related to preparation of property and people are conducted each year and assist with the annual review; and
- Consult with the local government and local emergency services as required.

Responsible Onsite Persons – Bushfire Emergency Management

The EPT will need to identify persons for specific roles when the proposed use will accommodate this. When persons are available to be given the role of fire warden/s, the following indicates their responsibilities.

Role of the Fire Warden:

- Coordinating the implementation of the relevant emergency procedures and their management during an emergency event (or exercise);
- Arranging the training of employees in the emergency procedures;
- Reviewing the effectiveness of emergency procedures (after exercises or an emergency event); and
- Accounting for persons during an emergency event.

Role of the Assistant Fire Warden:

- Implement directions of the Fire Warden;
- Communicate with the occupants, visitors and other staff and maintain calm; and
- May be required to act as Fire Warden

More information can be sourced from AS 3745 *Planning for emergencies in facilities* and AS 4083 *Planning for emergencies – Health care facilities*.

THE EMERGENCY PLANNING TEAM

Where the persons who will comprise the EPT have not yet been identified, they will be required to be confirmed prior to operation of the facility/premise and their details included in the Bushfire Emergency Plan (the operational document).

Name	Business/Organisation and Position	Contact Details	Currently Unknown
Courtney Ellis	Outback Spirit Tours / Executive Manager	(02) 6049 3500 0419 109 795	<input type="checkbox"/>
Brian Worsley	Outback Spirit Tours / Safari Camp and Lodge General Manager	0428 820 373	<input type="checkbox"/>
Stuart Beath	Outback Spirit Tours / Head Operations Manager for all Safari Camps and Lodges	0478 505 021	<input type="checkbox"/>
	Ngauwudu Safari Camp Site Manager	08 9161 4419	<input checked="" type="checkbox"/>
Mike Scott	Bushfire Prone Planning / Consultant	64771144	<input type="checkbox"/>

AVAILABILITY OF PERSONS TO BE RESPONSIBLE FOR BUSHFIRE EMERGENCY MANAGEMENT

Availability	Details
There will be responsible persons (e.g. owner, manager, caretaker) resident onsite. <input checked="" type="checkbox"/>	The site has a manager/assistant manager/caretaker and a number of staff available to take responsibility/action in the event of a bushfire emergency.
There will be responsible persons (e.g. owner, manager, caretaker) resident offsite but within proximity of the facility/premises. <input type="checkbox"/>	
The use of the facility/premises will not be supervised by any persons within proximity. <input type="checkbox"/>	

Identified Onsite Responsible Persons

Certain person/s will be nominated and trained as the primary contact for occupants/visitors in the event of a bushfire and have an emergency management role for the facility/premises. If persons have not been identified at this stage of planning, they will be required to be confirmed prior to operation of the Facility and their details included in the Bushfire Emergency Plan (the operational document).

Position in the Facility / Premises	Name	Bushfire Responsibility		Mobile Number	Currently Unknown
		Title	Role		
Site Manager	Can be different person each tour season	Fire Warden	Primary Contact. Responsibility for decision making and managing carrying out of emergency procedures.		<input checked="" type="checkbox"/>
Assistant Manager (2IC)	Can be different person each tour season	2nd Fire Warden	Secondary Contact.		<input checked="" type="checkbox"/>
Site Staff	Can be different persons each tour season	Assistants to Fire Wardens	Raising the alarm to guests and assisting guests to the shelter in place building or to the tour vehicles for evacuation. Any other duties required by the Fire Warden.		<input checked="" type="checkbox"/>

3. ASSESSMENT OF SITE AND USE CHARACTERISTICS

To enable the preparation of an appropriate Bushfire Emergency Plan that has considered the specific site and its use, requires the consideration of relevant factors and their characteristics. These will determine the potential impact of a bushfire event and the possible consequences for its occupants, staff or visitors and inform the preparation of appropriate procedures. This assessment is conducted as a qualitative risk assessment.

PERSONS ONSITE CHARACTERISTICS

VULNERABLE LAND USE CATEGORY (as per Guidelines WAPC v1.3)				
Category 3: A facility that involves short-stay accommodation or visitation for people who are unaware of their surroundings and who would require assistance or direction in the event of a bushfire.				
FACILITY USE TYPE				
Tourist development				
TOTAL PERSONS ONSITE				
Maximum Number of Persons Onsite		Age Profile		Detailed operational information as relevant, including any variations during the day or year.
Staff / Employee	10	Children <input type="checkbox"/>	Adults <input checked="" type="checkbox"/>	
		Juveniles <input type="checkbox"/>	Seniors <input type="checkbox"/>	
Visitor / Customer	40	Children <input type="checkbox"/>	Adults <input checked="" type="checkbox"/>	
		Juveniles <input type="checkbox"/>	Seniors <input checked="" type="checkbox"/>	
PERSONS ONSITE THAT MAY BE LESS ABLE TO RESPOND IN A BUSHFIRE EMERGENCY (LIKELY TO REQUIRE ASSISTANCE AND/OR DIRECTION)				
Applicable Types of Constraints Creating a Dependency on Facility/Premises Management		Max No.	Description of Persons and the Types of Support Required (Provided)	
Medical Constraints: A level of medical and healthcare support is required. <input type="checkbox"/>			N/A	
Mobility Constraints: Age (young /old), physical health/disability, mental health/disability, intoxication. <input type="checkbox"/>		4	The majority of visitors are retired Australians (65 to 80 yrs). Between two four groups in-house there may be occasional people that may require some assistance to participate in a safari tour. These people are generally accompanied by a staff member as required.	
Communication Constraints: Non-English speaking, children, mental health/disability. <input type="checkbox"/>			A small proportion of visitors are from overseas. It would be very rare to have a Non-English speaking person on tour.	
Awareness Constraints: Visitors to location, children, mental health/disability, intoxication. <input type="checkbox"/>			N/A	
Confinement Constraints: Issues with numbers and building design and not able to move/respond without authority and assistance. <input type="checkbox"/>			N/A	

ANIMALS/LIVESTOCK ONSITE	
Will interactions with animals/livestock be part of the operations of the proposed vulnerable land use - to the extent that consideration needs to be given to the likely actions of persons in relation to these in the event of a bushfire emergency?	No
ASSESSMENT SUMMARY	
<p>All visitors are part of an Outback Spirit organised tour and are under the supervision and care of the tour operators and site staff. The vulnerability constraints will only apply to a small proportion of visitors to the facility.</p> <p>Managerial staff are continually onsite and are in contact with the Darwin office with a 24hr/day contact number. In an emergency the onsite managers liaise with the Darwin office to organise support and response as required.</p>	

AVAILABILITY OF BUSHFIRE KNOWLEDGE, EMERGENCY WARNINGS AND EMERGENCY SERVICES

Assessment Factors and Comments	Response
Will there be persons onsite who will have bushfire behaviour knowledge and/or have received training in bushfire awareness and the use of the Bushfire Emergency Plan developed for the proposed use i.e. persons able to be responsible for onsite emergency management?	Yes
Staff are trained in bushfire emergency during induction and role plays are acted out from time to time. It will be a requirement of the Bushfire Management Plan that staff have further specific training in bushfire behaviour and use of the Bushfire Emergency Plan.	
When onsite responsible persons are available, the required Bushfire Emergency Plan can provide detailed procedures which can be scaled to respond to different scenarios including preparation and pre-emptive procedures. Does this apply?	Yes
Onsite responsible persons will be available at all times when the lodge is operational.	
When onsite responsible persons are not available (e.g. short stay holiday rental) the occupants of such premises will have to act independently and therefore emergency procedures must be sufficiently clear and simple (Bushfire Emergency Information). Does this apply?	No
N/A	
Likely availability at the site, of the expertise of emergency services personnel in the initial stages of a bushfire event.	Unlikely
Due to the remoteness of the site, it is highly unlikely that emergency services will be present in the initial stages of a localised bushfire emergency. However, it is reasonable to expect the subsequent arrival of local community rangers and DBCA Rangers should the lodge be under threat.	
Will persons onsite have ready and timely access to the official bushfire warnings that are produced by DFES in the event of an emergency?	Very Likely
DFES alert Outback Spirit to known fires on the Mitchell Plateau.	
Existence, location and likely response times of emergency services:	
<p>DBCA Rangers act on behalf of DFES. The Mitchell River National Park, Ranger Station is approximately 18km from the Lodge and travel time from the Ranger Station to the Lodge is approximately 40 minutes. The Wunambal Gaambera community also have local rangers that are able to respond.</p>	

VULNERABILITY OF THE LOCATION AND DEVELOPMENT SITE TO BUSHFIRE

Assessment Factors and Comments
Offsite vegetation types, extent and proximity to subject lot/s:
Offsite vegetation consists of woodland and areas of scrub and grassland.
Onsite vegetation types, extent and proximity to existing/proposed buildings (including landscaping):
Onsite vegetation consists of areas of woodland, scrub and grassland. All existing habitable buildings have surrounding Asset Protection Zones of varying sizes when vegetation is managed to a low bushfire threat state.
Topography:
Offsite: Flat, gently undulating. Onsite: Flat, gently sloping towards creek.
Fuel fragmentation/discontinuity:
Offsite: Continuous fuels, however areas seasonally burnt Onsite: Continuous fuels in undeveloped northern section of lease. Managed vegetation around developed areas.
Considered fire weather conditions:
The northern fire season runs from mid August until mid December. There are no specific fire weather conditions to consider however the late dry season is conducive to the worst fire weather for the region, this being the months of October and November. The tourist season operates from February to the end of September.
Likely fire runs:
The surrounding land will hold running fire. Bushfire can impact the development from any direction.
Potential bushfire forward rates of spread (relative). Likelihood of fast moving unpredictable fire in the vicinity:
The surrounding areas of land consist of varying densities of woodland and open grassland. The vegetation is continuous and there is the possibility of fast moving fires in the area.
The relative potential for flame contact, high and persistent radiant heat, production of embers, generation of high winds:
Due to existing onsite managed vegetation there is little threat of direct flame contact for almost all of the structures, with the exception of Shed 2 and Eco-tent 3. As the lodge is surrounded by native vegetation there is potential for persistent radiant heat and ember attack. However, seasonal burning is undertaken on lands surrounding Outback Spirit's Ngauwudu Safari Camp, the APT Wilderness Lodge, and the Kandiwal Community (Wunambal Gaambera Country).
Relative likelihood of bushfire events:
Early dry season burning is undertaken on lands surrounding Outback Spirit's Ngauwudu Safari Camp, the APT Wilderness Lodge and the Kandiwal Community by staff from both tourist developments and the Wunambal Gaambera Uuguu Rangers. The focus of this burning is on reducing the likelihood of damaging wildfires occurring when conditions are likely to be more severe. The burning is undertaken across country and along roads and around infrastructure to keep tourists, traditional owners and communities safe.
Availability of routes suitable for emergency vehicle access to the site from surrounding areas and availability of offsite firefighting water supply:
Port Warrender Road divides into two roads at a junction south-east of the Outback Spirit Ngauwudu Safari Camp. The main access is via a driveway from the eastern road. An alternative access is available from the south-west passing alongside the APT Wilderness Lodge.
Offsite firefighting water supply is available from the APT Wilderness Lodge and the Kandiwal Community.
ASSESSMENT SUMMARY
Onsite personnel have some training in bushfire emergency events. However, more specific training is required. Vegetation on the subject site is generally well managed with respect to building protection. Seasonal burning of surrounding vegetation reduces the bushfire risk to the site. There are two access routes to the site and onsite and offsite firefighting water supply is available.

Ngauwudu Safari Campsite Spatial Context Map

Pt Lot 25 on Plan 192910
 Outback Spirit Ngauwudu Sub-Lease
 Kandiwal Aboriginal Community
 MITCHELL PLATEAU
 SHIRE OF WYNDHAM-EAST KIMBERLEY

----- **LEGEND** -----

- Subject Site
- Unsealed Road
- Creekline
- Lake
- Cadastre



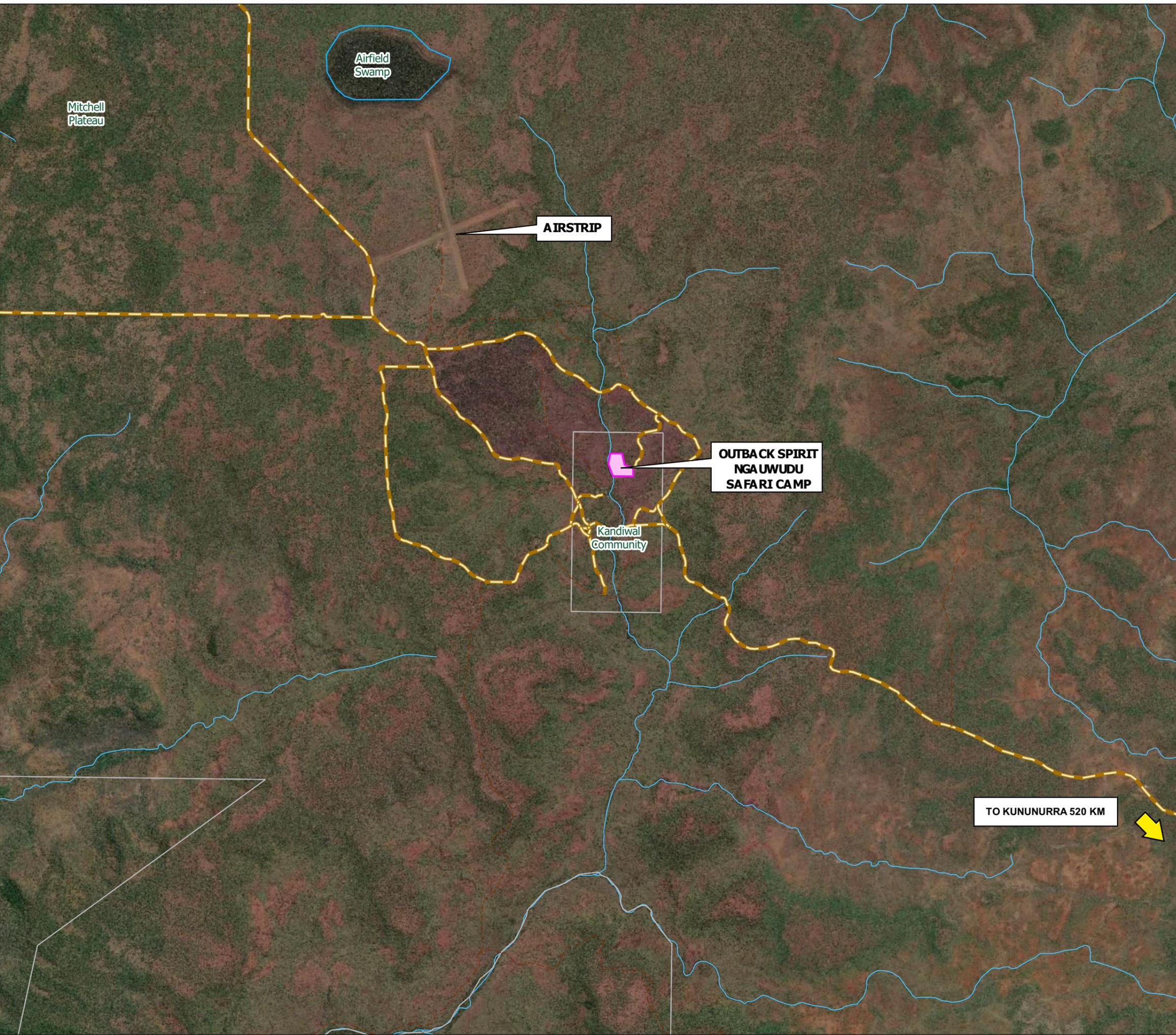
----- **LOCALITY** -----



AERIAL IMAGERY: Landgate/SLIP



Coordinate System: GDA 1994 MGA Zone 50
 Projection: Universal Transverse Mercator Units: Metre
 Map by: Ian Macleod 20-08-2020
 SCALE (A3): 1 : 40000



Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Prone Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted.

VULNERABILITY OF BUILDINGS TO BUSHFIRE AND CONSEQUENTIAL LOCAL FIRE

List of Separate Buildings Onsite	Status	BAL Rated Construction	Potential Bushfire Threat Exposure
Restaurant/Office Building	Existing	None	Flame Contact <input type="checkbox"/> High Radiant Heat <input type="checkbox"/> Low Radiant Heat <input checked="" type="checkbox"/> Ember Attack <input checked="" type="checkbox"/> Smoke <input checked="" type="checkbox"/> High Winds <input checked="" type="checkbox"/>
New Eco-tents	Proposed	None	Flame Contact <input type="checkbox"/> High Radiant Heat <input checked="" type="checkbox"/> Low Radiant Heat <input checked="" type="checkbox"/> Ember Attack <input checked="" type="checkbox"/> Smoke <input checked="" type="checkbox"/> High Winds <input checked="" type="checkbox"/>
Existing Eco-tents	Existing	None	Flame Contact <input type="checkbox"/> High Radiant Heat <input checked="" type="checkbox"/> Low Radiant Heat <input checked="" type="checkbox"/> Ember Attack <input checked="" type="checkbox"/> Smoke <input checked="" type="checkbox"/> High Winds <input checked="" type="checkbox"/>
New Staff Accommodation	Proposed	BAL-12.5	Flame Contact <input type="checkbox"/> High Radiant Heat <input type="checkbox"/> Low Radiant Heat <input checked="" type="checkbox"/> Ember Attack <input checked="" type="checkbox"/> Smoke <input checked="" type="checkbox"/> High Winds <input checked="" type="checkbox"/>
Toilets and Shed 1	Existing	None	Flame Contact <input type="checkbox"/> High Radiant Heat <input checked="" type="checkbox"/> Low Radiant Heat <input checked="" type="checkbox"/> Ember Attack <input checked="" type="checkbox"/> Smoke <input checked="" type="checkbox"/> High Winds <input checked="" type="checkbox"/>
Laundry Building and Solar Battery Shed	Existing	None	Flame Contact <input type="checkbox"/> High Radiant Heat <input checked="" type="checkbox"/> Low Radiant Heat <input checked="" type="checkbox"/> Ember Attack <input checked="" type="checkbox"/> Smoke <input checked="" type="checkbox"/> High Winds <input checked="" type="checkbox"/>
Shed 2	Existing	None	Flame Contact <input type="checkbox"/> High Radiant Heat <input checked="" type="checkbox"/> Low Radiant Heat <input checked="" type="checkbox"/> Ember Attack <input checked="" type="checkbox"/> Smoke <input checked="" type="checkbox"/> High Winds <input checked="" type="checkbox"/>
Shed 2 Extension	Proposed	None	Flame Contact <input type="checkbox"/> High Radiant Heat <input checked="" type="checkbox"/> Low Radiant Heat <input checked="" type="checkbox"/> Ember Attack <input checked="" type="checkbox"/> Smoke <input checked="" type="checkbox"/> High Winds <input checked="" type="checkbox"/>
Design features (existing or proposed) that determine reliability, resilience and robustness against the threats of bushfire:			
<p>The Restaurant/Office building is constructed of metal, fibreboard and wood. A wooden deck exists on three sides. The building sits on metal stumps with an open underfloor space. The building is located a good distance from bushfire prone vegetation. However, some measures should be taken to increase its resistance to ember attack.</p> <p>The existing and proposed Eco-tents are not constructed to a bushfire standard and are susceptible to ember attack and radiant heat effects. The existing tents have Asset Protection Zones established around them to protect against flame contact and extreme radiant heat. This will be similar for the proposed Eco-tents.</p> <p>The proposed staff accommodation units are constructed to a bushfire standard and will be located in an area compliant with the BAL rating for its construction standard.</p> <p>The existing Laundry Building, Solar Battery Shed and Toilets are not constructed to a bushfire standard and are subject to moderate to high potential radiant heat levels.</p> <p>Shed 2 and its proposed extension are currently subject to flame contact and extreme potential radiant heat levels. An Asset Protection Zone will be established around this building.</p>			
Potential for structure to structure fire (building separation): and other consequential (secondary) local fire:			
<p>The Restaurant/Office building is well away from other buildings and will not be subject to structure to structure fire. There is potential for structure to structure fire between some Eco-tents and between the existing staff accommodation and the Laundry Building.</p>			
Availability of suitable onsite emergency vehicle access and firefighting water supply:			
<p>All onsite structures are accessible by either driveway or firebreaks. The firebreak along the creek should join with the firebreak to the north of Eco-tent 3 to provide for through traffic.</p> <p>Water supply to the site is from a bore located approximately 200 metres south of the lease area.</p>			

<p>The facility is provided with fire hose reels at regular intervals throughout the camp with each Eco-tent able to be reached by a fire hose reel.</p> <p>Fire extinguishers are located in strategic areas throughout the campground. Each Eco-tent has a rooftop sprinkler system.</p> <p>2 x 22500L water tanks are located onsite (one is used for firefighting) and are fed from a bore to the south of the lease area. The piping is uncovered in a number of places and is made from materials that would be susceptible to radiant heat and flame contact.</p> <p>A secondary pump is located at a rock pool in the creek and can feed the water tanks directly or the Eco-tent rooftop sprinklers.</p> <p>A 3000L firefighting truck is located onsite that can be filled either by drafting or direct fill from onsite water tanks.</p> <p>A 600L slip on firefighting unit is available onsite that can be filled either by drafting or direct fill from onsite water tanks.</p> <p>Firefighting appliances and hose reels can be used and would be operated by trained on site staff.</p>
<p>Conditions of the grounds in terms of landscaping, types of plantings and proximity of planting to susceptible building elements with regard to separation and maintenance.</p>
<p>Onsite vegetation within the existing development area is generally managed to a low bushfire threat state. However, these areas should be continually maintained throughout the bushfire season. Due to the nature of the camping and maintaining the natural landscape values and style offered by the camping, complete clearing or management is limited.</p>
<p>Ability to establish required or greater sized Asset Protection Zones within the subject lot when required to be applied as an additional bushfire protection measure:</p>
<p>Clearing and management of Asset Protection Zones is subject to approval from the traditional landowners.</p>
<p>ASSESSMENT SUMMARY</p>
<p>Existing structures and proposed Eco-tents are not constructed to bushfire standards and are vulnerable during a bushfire event. Asset protection Zones exist to varying degrees around habitable buildings. There is potential for structure to structure fires for some Eco-tents and some other structures. Access is available to all buildings however firebreaks should be continuous. An onsite firefighting water supply is available.</p>

APPLICATION OF COMPLEMENTARY BUSHFIRE PROTECTION STRATEGIES

Assessment Factors and Comments
<p>Existing strategies (alert systems, suppression systems, hazard management, training):</p> <p>The Lodge is in radio and phone contact with emergency services. There is an emergency horn available to sound to alert all personnel in the event of a bushfire threatening the site. The site manager and 2IC are the fire wardens for the campground and staff are trained in the Outback Spirit Fire Plan</p>
<p>Proposed strategies (alert systems, suppression systems, hazard management, training):</p> <p>It is recommended that bushfire sprinkler systems will be installed onto the future Eco-tents and on the Restaurant/Office building. Water tanks should be installed and dedicated separately to supply firefighting water and bushfire sprinkler systems. It is recommended that above ground water supply pipes (including pipe from bore) should be replaced with pipes made of a fire resistant material as and when feasible.</p> <p>Onsite vegetation management will consist of management and maintenance of grasses and understorey around the lodge throughout the fire season. Joint prescribed burning will be undertaken around the vicinity of the campground.</p> <p>Staff will be trained in the Bushfire Emergency Plan.</p>

4. ASSESSMENT OF EVACUATION REQUIREMENTS

SAFER OFFSITE LOCATION REQUIREMENTS

Assessment Factors	Required
Suitable offsite evacuation destination or destinations are required either as the priority or as a backup. For the proposed development.	<input checked="" type="checkbox"/>
More than one offsite evacuation destination is required due to the extent of bushfire prone vegetation and the potential for evacuation routes to be compromised.	<input type="checkbox"/>
A building with amenities, drinking water and enough space to accommodate all persons being evacuated.	<input type="checkbox"/>
A facility/premises with the capacity to provide all required support services for the number of dependent persons that will be evacuated for the period required (this may be for a short or extended time).	<input type="checkbox"/>
An identified location/area that is available en-route to the evacuation destination (i.e. not used for sheltering), that will not be impacted by the potential impacts of bushfire. The required evacuation times will be calculated for reaching this location.	<input type="checkbox"/>
An area or building that does not need to provide amenities and will function as a pick-up location for a short time (e.g. pick up by relatives, friends, or taxi). Typically, within the vicinity of a built out urban area (e.g. commercial district).	<input type="checkbox"/>
A destination, well away from the facility/premises, that is the evacuees home residence or rented accommodation. Typically, this is a self-evacuate scenario.	<input type="checkbox"/>
An area of enough size to contain all evacuated occupants/visitors and that will not be subject to radiant heat flux greater than 2 kW/m ² (@ 1200 ^o K flame temp.)	<input checked="" type="checkbox"/>

ASSESSMENT OF IDENTIFIED SAFER OFFSITE LOCATIONS AND THEIR SUITABILITY

Identified Locations and Evacuation Routes	
The Mitchell Plateau Airstrip is identified as a suitable evacuation location but will require some additional management to achieve a <2kW/m ² potential radiant heat area. There are two evacuation routes available to the site. One via the main entrance to the north-east and the other via the APT Lodge to the south-west.	
Assessment Factors and Comments	Response
Are the off-site locations away from the potential threats of bushfire and/or resilient to bushfire impact?	Yes
The airstrip landing strip and parking area are managed to a low bushfire threat state.	
If the off-site location is an open area, is it subject to 2 kW/m ² (@ 1200 ^o K flame temp.) or less of radiant heat flux?	No
Not Currently, some additional vegetation management is required to achieve this.	
Do the off-site locations have the required support services and amenities?	No
It is expected that people will arrive by bus or 4WD vehicle and bring essential supplies.	
Can the off-site location accommodate the number of persons who will be evacuating?	No

Open space shelter area and vegetation separation will be established to accommodate the maximum amount of people onsite.	
Has the local government, local emergency management committee and/or the Department of Communities been consulted in the identification of an off-site location?	Yes
Discussed with DFES Kununurra CEM.	
Has the owner/operator of the off-site location been contacted and confirmed that the location can be used as a safe shelter if an evacuation is required?	Yes
Discussed with Wunambal Gaambera Healthy Country Manager. Outback Spirit currently have access to the Mitchell Plateau airstrip.	
Has the owner/operator of the off-site locations provided contact persons and phone numbers any instructions regarding notifying and opening the location (if necessary)?	Not Necessary
Airstrip is accessible at all times.	
The evacuation location is at a distance of approximately 5 kilometres from the Lodge through bushfire prone vegetation. There are no facilities at the airstrip and it is expected that the initial option for occupants will be to shelter in place at the Lodge, where a suitable location and building are available. Travel to the airstrip would only occur in the instance that sheltering at the lodge is no longer viable or early evacuation using aircraft is considered necessary and is feasible.	

ASSESSMENT OF IDENTIFIED EVACUATION ROUTES AND THEIR SUITABILITY

Assessment Factors Comments	Response
Is more than one evacuation route required - to an off-site safer location or to more than one off-site location - due to the high risk nature of the route due to potential bushfire threats?	Yes
Bushfire prone vegetation exists along the routes between the Lodge and airstrip.	
Are the necessary evacuation route/s (and associated off-site location/s) available?	Yes
Two evacuation routes are available to the evacuation location (airstrip).	
Will the routes require travelling through or towards bushfire prone vegetation?	Yes
Both routes will require travelling through bushfire prone vegetation. Wunambal Gaambera rangers conduct prescribed burns along the route.	
Is there a location en-route along the available evacuation routes that can be considered to present a low bushfire threat to evacuees - to the extent that the estimated time to complete the evacuation procedure can be calculated to this location?	No
No en-route safer location available.	

ASSESSMENT OF EVACUATION TRANSPORT REQUIREMENTS AVAILABILITY AND SUITABILITY

Assessment Factors Comments	Response
Have occupants with support needs been considered when determining vehicle types required?	Not Necessary
Occupants will be in same vehicle that they arrived in.	
Are ambulances or other vehicles supplying specialised support for dependent persons required?	No
Not required.	

Will the facility/premises provide its own transport for all occupants, visitors/customers, and staff - and will there be sufficient vehicles (capacity)?	Yes			
Occupants will be in same vehicle that they arrived in. Staff will use site vehicles as required.				
Will occupants, visitors and staff use their own vehicles - and will there be sufficient vehicles (capacity)?	N/A			
N/A				
Is it possible that occupants, visitors/customers, or staff will be dropped at the facility/premises without own transport?	Yes			
Staff will arrive without own transport. However, enough vehicles are onsite to accommodate evacuation.				
Is a community bus and driver expected to be available when required?	N/A			
N/A				
Will third party (commercial) transport providers be required to supply vehicles?	N/A			
N/A				
Have third party (commercial) transport providers been contacted and agreed to an arrangement to supply the required vehicles and capacity in the event of a bushfire emergency?	N/A			
N/A				
Has consideration been given to the capacity of the commercial transport provider to provide the agreed vehicles when there may be demand from other facilities affected by the same bushfire?	N/A			
N/A				
<p>All staff and visitors to the site come under the direction of Outback Spirit tour operators (staff). On any given day tourers are provided with detail instruction for the days activities (times/locations) and therefore are under close management for direction in the event of a bushfire threatening the site.</p> <p>Transport will be available for all occupants. However, the routes to the evacuation location will require travelling through bushfire prone vegetation and this poses a high risk to evacuees dependent upon the location, direction and speed of the bushfire.</p>				
EXPECTED MAXIMUM PERSON NUMBERS				
Person Type	Using Own Vehicles or Onsite Transport	Using Alternative Transport	Details	
Visitors / Customers	0	40	Visitors will arrive by 4WD Tour buses.	
Staff/Employees	10	0	Will use onsite vehicles (Oka and Landcruiser)	
VEHICLE SOURCE				
Visitors / Customers	Own Vehicles <input type="checkbox"/>	Onsite Facility Vehicles <input type="checkbox"/>	4WD tour buses remain onsite with visitors <input checked="" type="checkbox"/>	
Staff/Employees	Own Vehicles <input type="checkbox"/>	Onsite Facility Vehicles <input checked="" type="checkbox"/>	Offsite Facility or Third Party Vehicles <input type="checkbox"/>	
VEHICLE AND DRIVER ARRANGEMENTS				
Location / Organisation	Vehicle Type / Capacity	Number of Vehicles	Contact Details (name & phone)	Date Arranged
Facility Vehicles				

Outback Spirit Tours (4WD Bus)	26	2	N/A	Onsite with four groups
Outback Spirit Tours Toyota Landcruiser	5	1	N/A	Onsite
Outback Spirit Tours Oka	14	1	N/A	Onsite
Third Party (Commercial) Vehicles				
N/A				
N/A				
Additional Information:				

ASSESSMENT OF TIME REQUIRED TO INITIATE AND COMPLETE THE EVACUATION PROCEDURE

The time it takes to coordinate and move occupants from the facility/premises to another location is the minimum time required to evacuate safely. This time needs to be considered within the context of the likely time available given the type of bushfire scenario that the site may be subject to and to ensure that any evacuation is instigated early. Relevant considerations for the bushfire scenario include the possibility of rapid onset fire (i.e. fire starting in close to the site and evacuation routes), proximity of vegetation, potential rates of spread and residence times. If the time required is highly likely to be too long, then identifying/providing shelter in place options become a priority.

Actions	Estimated Time (hrs:min)			
	Less Dependent / Lower Care Persons		High Dependency / High Care Persons	
	Outback Spirit Transport	Other Provided Transport	Outback Spirit Transport	Other Provided Transport
Assess the situation and make decision to evacuate.	0:10	N/A	N/A	N/A
Inform drivers (and bring onsite vehicles to the assembly area (can be staff, residents, or visitors/customers)).	0:05	N/A	N/A	N/A
Inform and prepare persons to evacuate.	0:05	N/A	N/A	N/A
Move persons to the assembly area.	0:05	N/A	N/A	N/A
Board all persons into the vehicles. Re-evaluate availability of evacuation route.	0:10	N/A	N/A	N/A
Total Prepare Time¹	0:35	N/A	N/A	N/A
Travel Time – to furthest designated safe destination	0:10	N/A	N/A	N/A
Travel Time - to first safe location en-route ²	N/A	N/A	N/A	N/A
Total Required Time	0:45	N/A	N/A	N/A
<p>Note¹: In calculating the total time required, consideration is given to the ability to simultaneously carry out relevant stated actions.</p> <p>Note²: Applied as the required travel time if relevant (i.e. considerable time to safe destination but safety en-route is reached much sooner).</p>				
<p>Pragmatic Assessment of Likely Time Available (accounting for likely bushfire scenarios) Compared to the Time Required to Initiate and Complete the Evacuation Procedure</p>				
<p>It is likely that the total prepare time would be less than 35 minutes as some of the above actions can be carried out simultaneously. The travel time to the airport is calculated using an average speed of 30km/hr.</p>				

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SUMMARY ASSESSMENT OF THE EVACUATION REQUIREMENTS

Assessment Factors and Comments	Response
Are suitable offsite safer locations available?	Yes
However, there is no suitable shelter in place building and some additional vegetation management is required to achieve an area having a maximum potential radiant heat of 2kW/m ² . There are no facilities at the airstrip.	
Are suitable evacuation routes available?	Yes
Two evacuation routes are available to the airstrip. However, these travel through bushfire prone vegetation.	
Is suitable evacuation transport readily available?	Yes
4WD buses arrive with visitors and remain onsite. 4WD vehicles are available for staff.	
Can it be most reasonably expected that the time required to initiate and complete the evacuation procedure would fit within the likely window of time available, before conditions outside were untenable, in the event of a bushfire in any vegetation within the locality of the facility/premises - based on the most reasonable expectations of potential fire behaviour that may impact the facility/premises?	Likely
Evacuation will require travel through bushfire prone vegetation. Evacuation will be at the discretion of the Outback Spirit Site Managers based on knowledge of the area, communication with Ngauwudu Safari Camp, the Kandiwal Community, the Wunambal Gaambera Uuguu Rangers and DBCA/DFES.	
Safe (early) evacuation is the least risk response to an emergency bushfire event. Can this be conducted for the proposed facility/premises?	Unlikely
Due to the remoteness of the location, the required travel through bushfire prone vegetation, the lack of facilities or firefighting water at the evacuation location and the availability of a suitable onsite shelter in place building at the Lodge, the primary action would be to shelter in place.	

5. ASSESSMENT OF THE AVAILABILITY AND SUITABILITY OF SHELTER IN PLACE OPTIONS

Identified Shelter in Place Building or Area	
Name: Outback Spirit Ngauwudu Safari Camp Description: Restaurant/Office building Location: Located centrally in the lodge.	
Assessment Factors and Comments	Response
The shelter-in-place building fully complies with the requirements established by the Australian Building Codes Board Handbook Design and Construction of Community Bushfire Refuges (2014).	Does Not Satisfy
It does not and is not intending to comply. This is an existing structure.	
The shelter-in-place building is subject to maximum radiant heat flux of 10 kW/m ² (@ 1200 ^o K flame temp.).	Fully Satisfies
The level of radiant heat the designated building will be exposed to is 5.7 kW/m ² when AS 3959:2018 Method 1 input variables are applied, and a flame temperature of 1200 deg K is applied.	
The existing/proposed shelter-in-place building is/will be construction to the standard corresponding to its BAL rating as per AS 3959 or NASH.	Does Not Satisfy
The Central Facility is an existing structure onsite. A bushfire sprinkler system will be installed to provided added protection to persons taking shelter.	
The existing shelter-in-place building can be modified to reduce the threat from embers by modifying materials used, closing gaps, screening, enclosing underfloor space, modifying the size/number/type of widows/doors etc to more closely align with AS 3959 or NASH requirements.	Partially Satisfies
Modifications to the existing building towards a BAL-12.5 rating will be made, as practicable. In particular sealing gaps into the roof space, including ember guards for whirlybirds if not already fitted, and enclosing the underfloor space should be considered as these areas are difficult to monitor during a bushfire event.	
High levels of non-combustible building elements are incorporated into the building.	Partially Satisfies
External elements are steel, colorbond, cement sheet board, wooden doors and decking.	
Complexity of building design. Complicated roof and wall design (re-entrant corners) can trap debris and embers.	Partially Satisfies
Generally uncomplicated design. Skillion roof with no gutters. Small corridor to rear toilets could trap debris and embers.	
Adequate separation from other buildings (dependent on wall/eave construction rating: 0m for 60/60/60, 4m for BAL-FZ, 8m for BAL-40, 12m for BAL-29) to prevent building to building ignition). Distances can be reduced if both building are rated e.g. 30% less if both BAL-29.	Fully Satisfies
The nearest building is approximately 30 metres distant.	
The open area shelter is subject to maximum radiant heat flux of 2 kW/m ² (@ 1200 ^o K flame temp.).	N/A
N/A	
The open area surrounding the shelter-in-place building can have an APZ established that will ensure the radiant heat flux impact on the building stays below 10 kW/m ² (@ 1200 ^o K flame temp.). Trees within the APZ can provide barrier and ember shielding benefits. The absence of heavy fuels within the APZ, including fences and retaining walls, is desirable.	Fully Satisfies
Asset Protection Zones are established to varying degrees around all habitable buildings. The shelter in place building is located centrally within the lodge and is surrounded by areas of managed vegetation.	

The APZ consists of design elements and vegetation that is easy to maintain in a minimal fuel condition. There is evidence of the property being well maintained.	Fully Satisfies
Areas of vegetation within the Asset Protection Zones are separated by footpaths. There is clear evidence of management of vegetation in these areas. However, care should be taken to ensure that all areas are well maintained during the fire season.	
The existence of an area adjacent /adjoining the shelter-in-place building that is subject to radiant heat flux <math><2\text{kw}/\text{m}^2</math> (@ 1200° K flame temp.) to allow for persons to be able to assemble in the first instance and later move outside should the building be compromised or to allow active ember control for persons suitably dressed (protection).	Does Not Satisfy
There are no areas onsite with a radiant heat flux <math><2\text{kw}/\text{m}^2</math>.	
Be able to identify an area containing no heavy fuels that will be available for relocation outside the shelter-in-place building after the passage of the fire front if conditions inside become untenable.	Fully Satisfies
A parking area and open reticulated grassed area is available to the east of the shelter in place building.	
The shelter-in-place building has the capacity to accommodate all persons within the facility/premises and on site (floor area=0.75m ² /person, volume = 1.2m ³ per person.	Fully Satisfies
There is capacity to accommodate all persons on site. Floor area and air volume requirements are met.	
The shelter-in-place building can provide adequate amenities for the expected period of sheltering.	Fully Satisfies
Drinking water, seating, and ablutions are available the shelter in place building.	
The building design has multiple exit points to different adjacent locations.	Fully Satisfies
The building has multiple exit points to different locations.	
The emergency services have good access in and around the shelter-in-place building.	Fully Satisfies
Driveway access is available to the building and clear access is available around the building.	
Hydrants/fire hoses/tanks are available within a short distance from the shelter-in-place building.	Fully Satisfies
There are 3 fire hose reels and 3 fire extinguishers in separate locations around the building.	
There are staff trained and able to monitor for situational awareness and patrol the building to protect against ember attack in the appropriate situation.	Fully Satisfies
Staff will be trained in bushfire awareness and the operation of the Bushfire Emergency Plan.	
Vehicle parking is designed to be >6m away from the shelter-in-place building (to ensure separation from consequential fire).	Fully Satisfies
There is approximately 13 metres separation distance between vehicle parking and the shelter in place building.	
All gas cylinders are to be installed and maintained in accordance with AS 1596. This standard includes requirements for small portable cylinders and larger cylinders used for domestic house supply. To ensure additional heat/flame load is not placed on the structure and reduce the risk of death or injury, from gas flaring or explosion. Requirements include: <ul style="list-style-type: none"> • 6m separation from any combustible material; • Safety release valve shall be directed away from the building and persons access/egress routes; • Metal piping and fittings shall be used on all piping inside the building's cavities and enclosable occupied spaces and the high pressure side of any gas regulators; and • Tethers securing cylinders are to be non-combustible. 	Partially Satisfies

Summary Statement

The identified shelter in place building will be subject to low potential radiant heat levels, embers will present the primary bushfire threat. Maintaining the specified APZ will ensure that there is no nearby fire that will subject the building to flame contact or higher levels of radiant heat.

The building is not constructed to bushfire standards. However, improvements can be made to reduce the threat from ember attack. There are suitable areas outside the building to move to if conditions inside the building become untenable.

6. DETERMINATION OF THE PRIMARY EMERGENCY MANAGEMENT PROCEDURE TO BE APPLIED

There are two primary procedure options – evacuation or shelter in place. The intent of both is to change the potential consequences of the bushfire event. This is achieved by limiting the exposure of persons to the threats of bushfire by ensuring the re-location of vulnerable persons (occupants/visitors/customers) to a safer offsite (evacuation) or onsite location (shelter in place) such that the level of residual risk is tolerable. Three key considerations are:

Safe evacuation away from the emergency event will always present the least risk. However, the key operative is for it to be safe. In practice 'safe' equates to evacuation being conducted early. Being on roads when a bushfire is close is a high risk action.

Otherwise, sheltering-in-place is likely to provide greater protection to persons – particularly when a suitable location is identified. Additionally, there are other issues that will determine the degree of safety that can be provided by evacuation – two which are considered below;

1. The selection of the primary procedure, in the context of bushfire, must apply an understanding of whether there is a greater residual risk associated with evacuation or sheltering in place in a fit for purpose location, for the specific site and its use.

This requires due consideration of the types of occupants and their level of dependency on assistance and medical support. An example is the high risk of injury or mortality in evacuating a group of sick or elderly occupants, highly dependent on medical care.

2. In certain circumstances there may only be a single primary procedure option available. Consequently, other emergency management actions (contingency measures) will be needed to compensate for the limitation.

For example:

- No shelter in place option - very early evacuation or site closure is likely required; and
- No evacuation option – a shelter in place option and additional bushfire protection measures are likely required, to reduce risk to an acceptable level.

Analysis of the Assessments Conducted - their impact on the determination of the primary procedure to apply)				
Vulnerability Source	Assessed Relative Vulnerability Level of Persons/Buildings	Contribution to Selection of Evacuation as the Primary Procedure	Relative Weight Score (less 1⇒5 greater)	
			Evacuation	Shelter in Place
1. Dependency level of persons onsite	Relatively Low	Insignificant	2	4
2. Availability onsite of persons to be responsible for bushfire emergency management.	Relatively High	Insignificant	3	4
3. Availability of timely bushfire emergency warnings to inform evacuation decisions.	Relatively High	Neutral to evacuation	3	3
4. Availability emergency services and/or firefighting equipment and the likelihood of emergency services attendance.	Relatively High	Significant and negative to evacuation	1	4
5. Vulnerability (to bushfire) of location.	Relatively High	Major and positive to evacuation	1	4

6. Vulnerability (to bushfire) of buildings onsite.	Relatively High	Major and positive to evacuation	4	1
7. Ability to apply complementary bushfire protection measures.	Relatively High	Significant and negative to evacuation	1	4
8. Availability of suitable offsite evacuation destinations.	Relatively Low	Significant and negative to evacuation	1	4
9. Availability of suitable evacuation routes	Relatively Low	Significant and negative to evacuation	1	4
10. Availability of suitable evacuation transport	Relatively High	Significant and positive to evacuation	4	4
11. Expected time required to complete the evacuation procedure is likely less than is expected to be available for likely bushfire scenarios at the site.	Relatively Moderate	Significant and negative to evacuation	2	4
12. Availability of suitable shelter in place location.	Relatively High	Significant and negative to evacuation	1	4
Totals			24	44

The determined Primary Procedure for the proposed development/use is:

SHELTER-IN-PLACE

1. *For this Site and Facility/Premises, it has been assessed that this procedure will result in a tolerable level of risk to the persons to which it is to apply and presents less risk compared to implementing an evacuation;*
2. *Do not apply the evacuation procedure at this facility/premises, for these persons unless specifically instructed by emergency services at the site.*

Summary Statement

Due to the remoteness of the location, the required travel through bushfire prone vegetation, the lack of facilities or firefighting water at the evacuation location, and the availability of a suitable onsite shelter in place building at the Lodge, the primary action is to shelter in place.

The identified shelter in place building will be subject to low potential radiant heat levels, embers will present the primary bushfire threat. Maintaining the specified APZ will ensure that there is no nearby fire that will subject the building to flame contact or higher levels of radiant heat.

The building is not constructed to bushfire standards. However, improvements can be made to reduce the threat from ember attack. There are suitable areas outside the building to move to if conditions inside the building become untenable.

7. ALL EMERGENCY MANAGEMENT PROCEDURES TO BE APPLIED

Statement of Bushfire Emergency Management Procedures to be Applied in the BEP				
Procedure and Possible Triggers	To Be Applied	Procedure Status	Comment as Required	
Safe (Early) Evacuation Procedure A bushfire is identified. An EMERGENCY or WATCH AND ACT warning is in place, or if no bushfire warning has been issued.	Yes	Backup Primary Procedure		
Sheltering in Place Procedure A bushfire is identified. An EMERGENCY or WATCH AND ACT warning is in place, or if no bushfire warning has been issued.	Yes	Primary Procedure		
Elevated Threat Procedure A bushfire is identified. A bushfire 'ADVICE' warning is in place, or if no bushfire warning has been issued. No bushfire is identified. A Total Fire Ban is declared or the forecast fire danger rating (FDR) is Catastrophic or Extreme.	Yes	Secondary Procedure		
Pre-emptive Procedure Application is relevant when other emergency procedures cannot be implemented to the level of safety required. The intent of the pre-emptive procedure is to change the potential consequences of a bushfire event by avoiding the exposure of persons to the potential threats. The procedure is applied in response to forecasts for fire weather to be more extreme than 'normal bushfire weather conditions' ¹ . It can be applied in two ways.	N/A	N/A	The assessed level of vulnerability of persons from the potential threats of bushfire at the proposed facility/premises, does not warrant the application of this emergency management procedure.	
	1. Pre-emptive closing of the facility/premises: For certain periods of the year when the likelihood of adverse fire weather conditions is greatest, shut down operations and prevent persons from entering the facility/premises.	N/A		N/A
	2. Pre-emptive evacuation of the facility/premises: When a Total Fire Ban is declared or the forecast fire danger rating (FDR) is Catastrophic or Extreme, relocate all persons on-site to the designated off-site safer location/s.	N/A		N/A
Recovery Procedure A bushfire is identified. The bushfire is controlled, or the fire front has moved past the facility/premises. Prior evacuation or sheltering in place may have been implemented.	Yes	Secondary Procedure		
In-Season Prepare Procedure No bushfire is identified. The forecast fire danger rating (FDR) is Severe, Very High, High, or Low-Moderate.	Yes	Secondary Procedure		
Pre-Season Prepare Procedure	Yes	Secondary Procedure		
Note ¹ 'Normal Bushfire Weather Conditions' represent fire weather that is experienced on a more frequent basis, rather than the less frequent extreme fire weather conditions.				

8. ADDITIONAL BUSHFIRE PROTECTION MEASURES TO BE APPLIED VIA THE BMP

In conducting the required assessments to facilitate the preparation of the Bushfire Emergency Plan (BEP) it may be determined that additional bushfire protection measures must be recommended to ensure an acceptable level of residual risk (from a bushfire event), for the proposed use of the facility/premises.

Many of these measures will be additional to those established by the 'Acceptable Solutions' of the *Guidelines for Planning in Bushfire Prone Areas (WAPC 2017 v1.3)* or any relevant 'Position Statement' (WAPC).

These measures are generally not actions associated with the emergency management procedures established by the BEP. Consequently, they need to be established in the BMP and are listed below to ensure they are incorporated into the BMP as recommended measures and as responsibilities of the landowner/operator.

Bushfire Protection Measure	Comment (applicability/effectiveness)	To Be Applied
<p>Develop, as a separate operational document, a detailed Bushfire Emergency Plan (BEP) from the requirements established by the assessments in this supporting information document.</p> <p>It must establish the required preparation, response and recovery procedures (and corresponding actions) and include clear and relevant triggers for their implementation.</p> <p>Typically, this measure will be applied when there are designated responsible persons onsite to implement the plan (but not exclusively).</p>	A standalone BEP is required for the proposed vulnerable land use.	Yes
Improve vehicular access - number of routes / turnarounds / signage.	Prescribed burning along the roads reduces the bushfire threat along the two evacuation routes to the Mitchell Plateau airstrip. To be continued.	Yes
Inform potential occupants/visitors - by using appropriate signage - of the bushfire risk (from limited access/water/shelter) and the requirement for them to understand and prepare (i.e. shared responsibility).	Visitors to the site are on a coordinated tour under the guidance of tour operators.	No
For the future location of dwellings, identify areas of 'least risk' on site for development and the installation of appropriately sized APZ's.		N/A
Any proposed buildings that are not Class 1, 2 3 or 10(a), are recommended to be constructed to the bushfire standard established by AS 3959-2018 or the NASH Standard corresponding to their determined BAL rating, or greater.		N/A
<p>Retrofit existing shelter in place building to the construction standards corresponding to its applicable BAL rating, to the extent practically possible.</p> <p>The intent is to enhance reliability, resilience and robustness against the threats of bushfire and consequential local fire.</p>	The greatest bushfire threat to the shelter in place building will be from ember attack. An effective protection measure will be compliance with the bushfire construction requirements of BAL-12.5.	Yes

Bushfire Protection Measure	Comment (applicability/effectiveness)	To Be Applied
Install emergency bushfire sprinkler system to future Eco-tents, shelter in place building.	To add an additional layer of bushfire protection for the buildings.	Yes
Upgrade all above ground water supply pipes to non-combustible materials.	To protect against loss of water supply during a bushfire event (recommendation when feasible).	Yes
Increase the volume of firefighting water stored in tanks onsite.	To protect against loss of water supply during a bushfire event.	Yes
A responsible person, with appropriate training, will always be present on-site (staff / caretaker / landowner) to oversee emergency management procedures.	To achieve the greatest effectiveness from a Bushfire Emergency Plan this an important protection measure.	Yes
The facility/premises staff are provided with the required training to understand and manage the application of the BEP (including the use of any installed emergency response equipment and understanding of human behaviour as applicable). Onsite persons are to be identified and assigned emergency management responsibility.	To achieve the greatest effectiveness from a Bushfire Emergency Plan this an important protection measure. It is essential that it is applied.	Yes
Establish an appropriately dimensioned asset protection zone surrounding buildings on the site and maintain any bushfire prone vegetation within the APZ in a minimal fuel (low threat) state.	Separation from bushfire prone vegetation is a primary and highly effective risk treatment.	Yes
Heavy (coarse) fuel items such branches, logs, firewood and large heavy fuel items are to be located a minimum of 4m (heavy fuels) or 6m (large heavy fuels) away from any building, except where: <ul style="list-style-type: none"> 0m for non-combustible FRL 60/60/60 rated wall; 4m for BAL-FZ rated walls and eaves; or They reside within a building or fully enclosed under the building. 	These are additional specifications to apply to an APZ to increase its effectiveness.	Yes
Within or near the APZ a safer external area is identified to provide a safe place for occupants sheltering-on-site to move to, external to the house, after the fire front has passed. This may become necessary should conditions within the house became untenable due to contents fire and/or the infiltration of smoke.	Suitable areas exist and include the carpark and lawned area. The size and distance of the areas from the designated shelter-in-place building will provide effective shelter post the passage of the fire front and should conditions within the building become untenable.	Yes

Bushfire Protection Measure	Comment (applicability/effectiveness)	To Be Applied
<p>To limit the probability of structure to structure fire (i.e. consequential local fire) future buildings on site will be separated by these distances:</p> <ul style="list-style-type: none"> • 0m where the separating wall non-combustible with an FRL 60/60/60; or • 4m for BAL-FZ rated walls and eaves; • 8m for BAL-40 rated walls and eaves; • 12m for BAL-29 rated walls and eaves; <p>If the adjacent building is rated BAL-29 or greater, these minimum separation distances can be reduced by 30%.</p> <p>For retained existing buildings, where possible, improve the constructions resistance to the threats from an adjacent structure fire from adjacent buildings with insufficient separation distance.</p>	<p>Buildings are not constructed to a BAL rating. These separation distances cannot be achieved for this development as it is an existing campground. It is not a suitable treatment to apply.</p>	<p>No</p>
<p>To reduce the risks from gas flaring or explosion all gas cylinders are required to be installed and maintained in accordance with AS 1596. This standard includes requirements for small portable cylinders and larger cylinders used for domestic house supply. These include:</p> <ul style="list-style-type: none"> • 6m separation from any combustible material • Safety release valve shall be directed away from the building and persons access/egress routes; • Metal piping and fittings shall be used on all piping inside the building's cavities and enclosable occupied spaces and the high pressure side of any gas regulators; and • Tethers securing cylinders are to be non-combustible. 	<p>Gas is used within the development. Compliance with these requirements will increase the robustness of the new building design by ensuring additional heat/flame load is not placed on the structure. It is a suitable and effective treatment.</p>	<p>Yes</p>

9. RESPONSIBILITIES TO BE INCLUDED IN THE BMP AND BEP

For the Landowner (Developer) and/or Operator, the following responsibilities are to be incorporated into the relevant sections of the associated Bushfire Management Plan (BMP) and as appropriate, into the relevant procedures of the Bushfire Emergency Plan (BEP).

Development Design

1. The proposed Staff Accommodation buildings must comply with the bushfire construction standard established by AS 3959-2018 or the NASH Standard corresponding to BAL-12.5.
2. The shelter in place building (Restaurant/Office) should comply, as near as practicable, with the bushfire construction standard established by AS 3959-2018 or the NASH Standard corresponding to BAL-12.5.
3. Installation of LP Gas in accordance with AS 1596 and 6m separation from any combustible materials, the use of metal piping and fittings, safety valves directed away from the building and tethers securing cylinders to be non-combustible.

Prior to Facility/Premises Operation/Occupancy

1. Identify the emergency management team and ensure these details are entered into the Bushfire Emergency Plan.
2. Ensure staff receive training in Bushfire Awareness and the understanding and application of the Bushfire Emergency Plan. Thereafter, conduct annual training prior to the bushfire season if there have been significant staff changes
3. Ensure all relevant actions of the Pre-Season Procedure contained in the Bushfire Emergency Plan have been fully implemented.

Ongoing

1. Ensure the Pre-Season and In-Season Preparation Procedures established in the Bushfire Emergency Plan are carried out.
2. The Bushfire Emergency Plan is to be reviewed annually prior to each bushfire season and modified if:
 - a. There are material changes to off-site potential bushfire threats;
 - b. There are material changes to the facility's operations, buildings and on-site vegetation;
 - c. There are material changes to the surrounding road network;
 - d. The details of the on-site responsible persons are changed; or
 - e. Recommendations for modification are made after a bushfire season and/or a bushfire event.