Addendum No.1 to the Bushfire Management Plan

Bushfire Risk Assessment

(and Risk Treatment Plan)

'Tourism' Land Use in a Bushfire Prone Area

Prepared as the performance solution for the proposed development's inability to fully comply with the acceptable solutions (policy measures) established by the Position Statement: Tourism land uses in bushfire prone areas (WAPC October 2019)

Outback Spirit Ngauwudu Safari Camp

Michell Plateau

Shire of Wyndham-East Kimberley

Job Reference No:	200339
Date:	25 August 2020

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VERSION HISTORY		
Version	**Version Details**	**Date**
1.0	Original Document Issue	25 August 2020
-		

Tourism Land Use - Risk Assessment and Treatment Plan Template v1.3

DISTRIBUTION				
Destination	**Version**	**No. Copies**	**Hard Copy**	**Electronic Copy**
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Limitations: The measures contained in this Bushfire Risk Assessment (and Risk Treatment Plan) document, are considered to be minimum requirements and they do not guarantee that a building will not be damaged in a bushfire, persons injured, or fatalities occur either on the subject site or off the site while evacuating. This is substantially due to the unpredictable nature and behaviour of fire and fire weather conditions. Additionally, the correct implementation of the required bushfire protection measures established by the associated Bushfire Management Plan (BMP) and the required risk treatment measures set out in this Risk Treatment Plan, will depend upon, among other things, the ongoing actions of the landowners and/or operators over which Bushfire Prone Planning has no control.

All surveys, forecasts, projections and recommendations made in this report associated with the proposed development are made in good faith based on information available to Bushfire Prone Planning at the time. All maps included herein are indicative in nature and are not to be used for accurate calculations.

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.

Contents

1 THE PROPOSED DEVELOPMENT - STATEMENT OF USE AND OPERATIONS

Summary of Development Application:	The Development Application proposes to replace existing staff accommodation, construct 8 new Eco-tents and extend the existing restaurant and storage shed.	
Buildings / Structures Onsite (No. and Type):	Existing	Proposed
	Existing Situation 14 Eco-tents 1 Staff Accommodation Building 1 Restaurant/Office Building 1 Laundry Building 1 Toilet Block 2 Storage Sheds	Proposed Situation 2 New Accommodation Blocks (Total 6 rooms) 8 New Eco-tents 1 Restaurant Extension 1 Shed Extension
Maximum Persons Onsite	32	50

Use Status of the Proposed Development			
A Continuance of the Existing Use	A New Use	An Intensification of Use	A Maintenance or Reduction in Intensity of Use
☐	☐	☒	☐

Note:

The use status may have relevance regarding the extent to which all bushfire risk mitigation measures - as established by the acceptable solutions (policy measures) of the *Position Statement: Tourism land uses in bushfire prone area (WAPC October 2019)* - will be required to be complied with.

This is predicated on the understanding that approved uses in locations subject to bushfire risk, that have existed prior to the introduction of the bushfire planning provisions in WA (December 2015), may not have the ability (when reasonably considered), to fully comply with the required bushfire risk mitigation measures (the acceptable solutions).

Consequently, planning approval might be appropriately considered when the proposed development is a continuation of an existing use, the use is not intensified, and it can be shown (via this risk assessment) that measures can be established that will reduce the level of identified risks from a bushfire emergency event, to an evident extent.

Otherwise, the proposed development will be required to fully comply with the established acceptable solutions (policy measures) or be able to justify that tolerable levels of risks from bushfire can be achieved via this risk assessment.

2 ESTABLISHING THE RISK ASSESSMENT CONTEXT

2.1 Objectives

2.1.1 Meet the Requirements of State Planning Policy 3.7 *Planning in Bushfire Prone Areas* (SPP 3.7)

SPP 3.7 is framed with the intent of implementing effective risk based land use planning and development to preserve life and reduce the impact of bushfire on property and infrastructure. The preservation of human life is considered paramount.

SPP 3.7 establishes the requirement for development within designated bushfire prone areas, that will be subject to a Bushfire Attack Level (BAL) above BAL-LOW, to comply with the relevant policy measures. The policy measures applicable to the proposed development are summarised below.

SPP 3.7 Policy Measure 6.5: Information to accompany development applications

This measure establishes the requirement to develop a Bushfire Management Plan (BMP), in accordance with the associated *Guidelines for Planning in Bushfire Prone Areas (WAPC 2017 v1.3)*, that is to be submitted with the development application. The BMP will:

1. Determine the extent to which Bushfire Attack Levels (as defined by AS 3959:2018 BAL determination methodology) will impact the development site;
2. Identify any bushfire hazard issues arising from the BAL assessment;
3. Conduct an assessment against the bushfire protection criteria to determine compliance; and
4. Establish the responsibilities to implement and maintain the designated bushfire protection measures.

Except for point No. 3 (refer to Section 2.1.2 below) these requirements have been complied with and are presented within the associated Bushfire Management Plan.

SPP 3.7 Policy Measure 6.6: Vulnerable or high-risk land uses

This policy measure and the associated *Guidelines for Planning in Bushfire Prone Areas (WAPC 2017 v1.3)*, establish the requirement for a vulnerable land use to develop a Bushfire Emergency Plan that:

> *Establishes the procedures to be applied in the preparation for, response to, recovery from and reviewing of, a bushfire emergency event*. This is to be submitted with the development application as a separate operational document.

The proposed development is considered a 'Tourism Land Use' and therefore is also considered a 'Vulnerable Land Use'. The above requirements have been complied with. A separate Bushfire Emergency Plan has been produced and the information supporting its production is presented in the associated Bushfire Management Plan as an addendum.

2.1.2 Meet the Requirements of the Position Statement: Tourism land uses in bushfire prone area (WAPC October 2019)

There are scenarios of tourism development (location/use) for which current deemed to satisfy bushfire planning and construction provisions cannot be met. The intent of the position statement is to provide guidance for this development by:

> *Maintaining primacy for the protection of life, but also recognise that the protection of property or infrastructure may be secondary to the social and economic development of a region. If human safety can be satisfied, the asset may be considered 'replaceable'.*

The position statement states:

> *Many Tourism land uses are intrinsically linked to the natural landscape values of an area and often, to the remoteness of the location. This link to natural amenity and remote locations makes it difficult for many tourism land uses to meet the current provisions of* ***State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7)****, the supporting* ***Guidelines for Planning in Bushfire Prone Areas (Guidelines)*** *and the deemed to satisfy provisions of the* ***National Construction Code****.*

Application of the position statement:

> *Provides acceptable solutions (policy measures) to guide the development of different tourism land uses and a framework for the development of performance principle-based solutions.*

Development applications for tourism land uses:

> *Should be assessed against the acceptable solutions (policy measures) included in Table 1 of the position statement.*

This requirement is reinforced by the following email communication from WAPC dated 6 November 2019.

Department of **Planning, Lands and Heritage**

GOVERNMENT OF WESTERN AUSTRALIA

Western Australian Planning Commission

PLANNING IN
BUSHFIRE PRONE AREAS
BUSHFIRE POLICY FRAMEWORK

Position Statement: Tourism Land Uses in Bushfire Prone Areas

The Western Australian Planning Commission has released a position statement to guide local governments in planning for tourism land uses within bushfire prone areas.

Position Statement: Tourism Land Uses in Bushfire Prone Areas introduces a range of measures to ensure bushfire risk is considered appropriately and cognisant of the land use.

These measures include:

- identifying the bushfire risks and mitigation measures for proposed tourism land use development within BAL-40 or BAL-FZ and/or where access is limited, such as early evacuation, closure on elevated fire risk days and/or provision of on-site bushfire shelters, which could include an open space area (e.g. the beach where no buildings are proposed)
- considering the broader landscape bushfire risk such as the vegetation type and extent surrounding a site
- developing an emergency evacuation plan that clearly identifies mitigation measures and roles and responsibilities in the event of a bushfire
- identifying construction requirements for buildings to be used as an on-site bushfire shelter.

The Position Statement is effective immediately in the determination of planning applications until a revised policy as part of Stage 3 of the Bushfire Framework Review 2019 is gazetted.

A Guide to Developing a Bushfire Emergency Evacuation Plan and a Bushfire Emergency Evacuation Plan Template Plan have also been prepared to assist local governments with the preparation of Emergency Evacuation plans.

For more information, visit https://www.dplh.wa.gov.au/tourism-bushfire-areas

Where the acceptable solutions in Table 1 of the position statement cannot be fully met, the position statement provides for:

> *A risk-based assessment and if necessary, the use of contingencies to reduce the risk to acceptable levels.*

For the proposed development, the assessment against the relevant acceptable solutions is presented in the associated Bushfire Management Plan. This risk assessment is presented as an addendum to the associated BMP.

2.2 Scope of the Risk Assessment

2.2.1 The Level at Which the Risk Assessment Process is to be Conducted

Higher Level / Strategic potential broad mitigation measures	**Operational Level** ongoing specific mitigation measures	**Project / Activity / Event Level** shorter term specific mitigation measures
☐	☒	☐

2.2.2 The Risk Assessment Process to be Applied

Bushfire Prone Planning's approach is to ensure that the process to identify and analyse risks is conducted via a structured process that is compliant with an international risk management standard - ISO 31000.

The format and content of this risk management plan is structured as an adaptation of the emergency risk management process established by the *Australian Disaster Resilience Handbook 10: National Emergency Risk Assessment Guidelines* (NERAG) (AIDR 2020) and illustrated in Figure 1.

NERAG provides a method for undertaking emergency risk assessments and is structured to align broadly with relevant sections of *ISO 31000:2018 Risk management – Guidelines*.

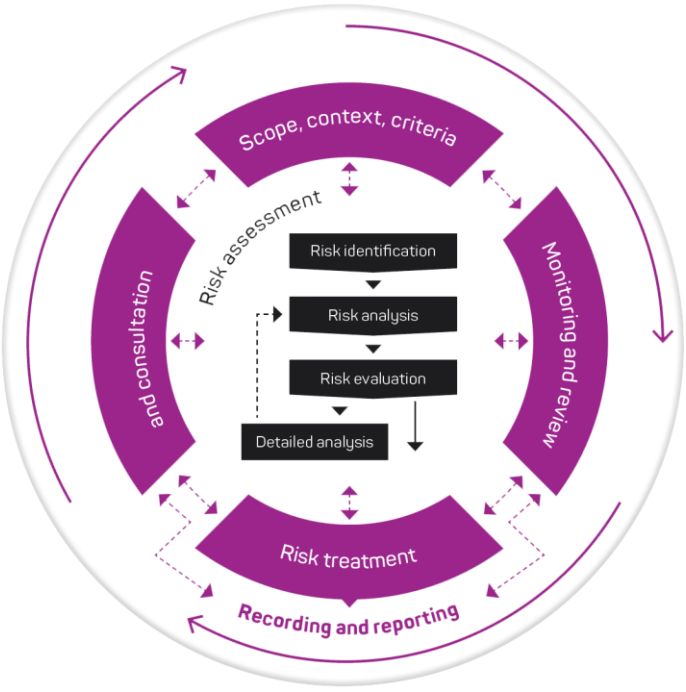

Figure 1: The iterative emergency risk management process (adapted from ISO 31000:2018) – NERAG 2020

Additional guidance, where relevant, is taken from:

- National Land Use Planning Guidelines for Resilient Communities (Planning Institute Australia 2015).
- Land Use Planning for Disaster Resilient Communities (AIDR, 2020).
- *Guidelines for Preparing a Bushfire Risk Management Plan (DFES 2015 – Office of Bushfire Risk Management)* that have been developed to assist local governments fulfil their obligations under the State Emergency Management Plan for Fire (Westplan Fire).

2.2.3 The Concept of Risk to be Applied

Risk:
In this context, risk is being used to describe the likelihood of harmful consequences arising from the interaction of hazards, communities and the environment. The degree of risk presented by that interaction will depend on the likelihood and consequence of the hazard occurring (PIA 2015).

Residual Risk:
Is the risk remaining after any risk treatment (by elimination, avoidance, reduction/mitigation or transfer) has been applied to reduce its potential likelihood and/or its potential consequences. Residual risk can also be any risk that is chosen to be retained rather than treated (NERAG AIDR 2020; PIA 2015)

Universally Acknowledged Concept of Acceptable Risk:
Nothing can be absolutely free of risk, everything under some circumstance can cause harm. There are degrees of risk and consequently degrees of safety. In the real world, attaining zero risk is not possible. Nevertheless, after risk avoidance, elimination or control measures are taken, the residual risk should be acceptable, as judged by the decision makers. For some situations, the residual risk may be high and still be judged by the participants in an activity to be acceptable.

Definition of Acceptable Risk:
Developing a single, distinct and commonly accepted definition of an acceptable (or tolerable) risk level that is universally applicable is not possible. In general terms, all that can be said is that the residual risk, after determining the severity of outcome of an event and the event probability, and the taking of preventative action, must be acceptable in the particular setting being considered.

Applicable 'Acceptable Risk' Statements Include:

- Acceptable risk is the level of risk which is tolerated in a given context based on current values of society.
- Acceptable risk is considered as "that level of risk that is sufficiently low that society is comfortable with it. Society does not generally consider expenditure in further reducing such risks justifiable (Land Use Planning for Disaster Resilient Communities (AIDR, 2020)) and (*Position Statement: Tourism land uses in bushfire prone area - WAPC October 2019)*.
- A level that is sufficiently low to require no new treatments or actions to allow communities to live with the risk.

Relevant 'Risk Tolerance' Statements Include:

- Tolerable risk is risk that is accepted in a given context based on the current values of society.
- Risk tolerance is defined as the organisation's or stakeholder's readiness to bear the risk, after risk treatment, in order to achieve its objectives. Risk tolerance can be influenced by legal or regulatory requirements (ISO Guide 73:2009 Risk management vocabulary).
- Tolerating risk is the willingness to live with a risk, on the understanding that it is being properly controlled and managed. Tolerable does not mean that it is regarded as negligible, or something we may ignore, but rather as something that needs to be kept under review and reduced further, if deemed necessary.

What constitutes an acceptable or tolerable level of risk will vary among local government areas, community context and the considered activity context.

2.2.4 Sources of Risk (Hazard) to be Considered

The definition of sources of risk that will be applied is: **"An element which, alone or in combination, has the intrinsic potential to give rise to risk"** (source: *ISO Guide 73:2009 Risk management – vocabulary*).

Standalone Sources of Risk (Direct)			
Bushfire Prone Vegetation Within the Broader Landscape Adjacent to the Area Proposed for Development (i.e. Offsite).	Bushfire Prone Vegetation Within the Area Proposed for Development (i.e. Onsite)	Combustible (Flammable) Materials (Including Hazardous Materials) Stored Onsite/Offsite	Business Operations that are a Potential Source of Ignition
☒	☒	☒	☐

Sources of Risk that will Exist When Combined with a Fire Event (Indirect)								
The Presence of 'Vulnerable' Persons Onsite (i.e. persons less able to respond in an emergency event)	The Availability of Suitable Access and Egress Routes for Firefighting and Evacuation	The Availability of Adequate Firefighting Water Supplies, Equipment and Emergency Services to Respond	The Availability of Suitable Safer Locations Offsite for Persons to Shelter from the Considered Emergency Events	The Availability of Suitable Vehicles to Evacuate Occupants	The Availability of Suitable Safer Locations Onsite for Persons to Shelter from the Considered Emergency Events	The Availability Onsite of Relevant Emergency Management Information and Responsible Persons for Emergency Management	Tourism Operations that will Involve the Movement of Vulnerable Persons Away from and Returning to the Proposed Development Area.	Events that will Involve the Use, Showing and/or Sale of Animals
☒	☒	☒	☒	☒	☒	☒	☒	☐

2.2.5 The Emergency Events to be Considered

The definition of emergency event that will be applied is: **"An event, actual or imminent, which endangers or threatens to endanger life, property or the environment, and which requires a significant and coordinated response"** (source: *AIDR Glossary 2019*).

Bushfire	Grassfire	Residential Structure Fire	Industrial Structure Fire	Stored Materials Fire
☒	☒	☒	☐	☒

2.2.6 The Consequence Categories to be Considered

People health, safety, support required, death, injury	**Economic** Property/infrastructure damage, production loss, financial loss	**Environmental** loss of species, landscape, values	**Social** community and cultural/heritage impact	**Public Administration** impact on governing	**Legal and Reputation** regulatory and image impact
☒	☒	☐	☐	☐	☐

The consequence categories to be considered will be limited to those selected above. This approach is based on the intent of the *Position Statement: Tourism land uses in bushfire prone area (WAPC October 2019)* which establishes:

- The primacy of protection of life;
- The protection of property or infrastructure being of secondary importance; and

- And the acknowledgement that the retention of environmental values is already inherent in the objectives and attractions provided by the tourism land use.

2.3 Determination of the Risk Assessment Criteria to be Applied

The qualitative and quantitative risk assessment criteria that have been applied, in conducting the risk analysis and evaluation, have been established as being applicable to the circumstances and scale of the development being assessed and in consultation with stakeholders as necessary. These are presented in Appendix 1.

2.4 Stakeholder Engagement

The following stakeholders have been consulted with and have contributed to establishing the context and scope of the risk assessment process.

1	Courtney Ellis, Executive Manager - Outback Spirit
2	Warwick Rock, APT Head of Operations
3	Tom Vigilante, Health Country Manager/Ecologist – Wunambal Gaambera Aboriginal Corporation
4	Felix Mcquistan, District Officer, DFES

3 RISK IDENTIFICATION FOR THE PROPOSED DEVELOPMENT/USE

Intent: To consider risk in this context as being the potential negative effect of uncertainties on the objectives of the proposed development and its operations by consideration of the likelihood of harmful consequences.

To do this a key step is to identify a comprehensive list of risks based on the sources of risk, the emergency events and the consequence categories to be considered. These are established through the defining of the objectives, scope and risk assessment criteria for the proposed development/use and are set out in Section 2 'Establishing the Risk Assessment Context'.

Summary Process:

1. Identify all potential sources of risk (the hazards) and describe their characteristics, including the threats they present. Consideration is given to those risks that currently exist (for an existing development/use) and to those that that will exist post the implementation of the planned development/use;
2. Describe the potential consequences for each relevant category of consequence (established in s2.2.6). These are described as worst case and unmitigated consequences. Any causal link between risk source, event and consequence is noted along with stating if the emergency event and consequences are a current or future possibility; and
3. Describe any risk treatments (controls/risk management measures) that currently exist and/or form part of the proposed development/use, which reduce the severity or likelihood of the defined consequences.

3.1 The Risk Identification Register Part 1: Risk Description

RISK IDENTIFICATION REGISTER PART 1: RISK DESCRIPTION			
RISK DESCRIPTION (STATEMENT)			
No.	**Identified Source of Risk (the hazard - its threats and characteristics)**	**Consequence Category**	**Potential Consequences (worst case and unmitigated)**
1	**OFFSITE VEGETATION** **Potential Source of Risk (General – Not Site Specific):** Bushfire prone vegetation within the broader landscape adjacent to the area proposed for development. The potential threats from the burning of these fuels are flame contact, radiant heat, embers, smoke, and high winds impacting buildings and persons. The severity of these threats is determined by fire weather conditions, the type / structure / quantity / location and extent of the of fuels and the topography of the land on which the fuels exist. Bushfire spreading upslope has increased intensity and rate of spread. **Identified Source of Risk Specific to the Site:** Offsite vegetation consists of large areas of woodland, scrub and grassland.	People	Death or injury of persons from exposure to the potential threats of bushfire and/or accidents while making efforts to avoid these threats. Exacerbation of existing medical conditions (e.g. asthma). Ongoing stress related illness attributed to the emergency event.
		Economic	Potential damage or loss of buildings, plant, equipment and operational infrastructure. Disruption of business with loss of income, employment and future operational capacity. Possible business failure. Local or regional economy may be impacted.
2	**ONSITE VEGETATION** **Potential Source of Risk (General – Not Site Specific):** Bushfire prone vegetation within the area proposed for development. The potential threats from the burning of these fuels are flame contact, radiant heat, embers, smoke, and high winds impacting buildings and persons. The severity of these threats is determined by fire weather conditions, the type / structure / quantity / location and extent of the of fuels, landscaping, constructed or natural barriers and the topography of the land on which the fuels exist. Bushfire spreading upslope has increased intensity and rate of spread. **Identified Source of Risk Specific to the Site:** Onsite vegetation is generally managed around and between existing buildings but areas of woodland, scrub and grassland exist in undeveloped areas.	People	Death or injury of persons from exposure to the potential threats of bushfire and/or accidents while making efforts to avoid these threats. Exacerbation of existing medical conditions (e.g. asthma). Ongoing stress related illness attributed to the emergency event.
		Economic	Potential damage or loss of buildings, plant, equipment and operational infrastructure. Disruption of business with loss of income, employment and future operational capacity. Possible business failure. Local or regional economy may be impacted.

RISK IDENTIFICATION REGISTER PART 1: RISK DESCRIPTION			
	RISK DESCRIPTION (STATEMENT)		
No.	**Identified Source of Risk (the hazard - its threats and characteristics)**	**Consequence Category**	**Potential Consequences (worst case and unmitigated)**
3	**STORED MATERIALS** **Potential Source of Risk (General – Not Site Specific):** Combustible (flammable) materials (including hazardous materials) stored onsite/offsite. These may have the potential to either ignite a bushfire or be a consequential source of risk if ignited by a bushfire. Potential consequential threats include exposing the site and its use to the threats of local fire, potentially prolonging the duration and/or intensity of a bushfire and exposing persons and the surrounding environment to dangerous and uncontrolled substances. **Identified Source of Risk Specific to the Site:** A 10,000 litre diesel storage tank is located on the subject site. However, the full storage capacity is not used due to the installation of solar cells and storage batteries on site. Full and empty gas bottles are stored onsite (45kg and 9kg).	People	Death or injury of persons from exposure to the potential threats of bushfire and/or accidents while making efforts to avoid these threats. Exacerbation of existing medical conditions (e.g. asthma). Ongoing stress related illness attributed to the emergency event.
		Economic	Potential damage or loss of buildings, plant, equipment and operational infrastructure. Disruption of business with loss of income, employment and future operational capacity. Possible business failure. Local or regional economy may be impacted.
4	**'VULNERABLE' PERSONS ONSITE** **Potential Source of Risk (General – Not Site Specific):** Occupants and visitors/customers with a dependency on others for support for reasons that include health and/or awareness and/or relocation guidance and support. Such persons, in a bushfire emergency and without appropriate support and guidance, may be less able to take actions and respond in the manner required to reduce the consequences of the risk to a tolerable level. These persons are typically associated with 'vulnerable land uses' that include: 1. Those designed to accommodate occupants with reduced physical or mental ability such as the elderly, children (under 18 years of age) and the sick or injured. 2. Those that involve 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. 3. Those facilities that, due to building or functional design, offer limited access or the number of people may present evacuation challenges. **Identified Source of Risk Specific to the Site:** The majority of visitors are retired Australians (65 to 80 yrs). Between two tour groups in-house there may be occasional people that could require	People	Death or injury of persons from exposure to the potential threats of bushfire and/or accidents while making efforts to avoid these threats. Exacerbation of existing medical conditions (e.g. asthma). Ongoing stress related illness attributed to the emergency event.

RISK IDENTIFICATION REGISTER PART 1: RISK DESCRIPTION			
	RISK DESCRIPTION (STATEMENT)		
No.	**Identified Source of Risk (the hazard - its threats and characteristics)**	**Consequence Category**	**Potential Consequences (worst case and unmitigated)**
	some assistance to participate in a safari tour. These people are generally accompanied by a staff member as required.		
5	**ACCESS/EGRESS ROUTES** **Potential Source of Risk (General – Not Site Specific):** The identified availability of multiple suitable access/egress routes for emergency services access (for firefighting) or onsite persons evacuation to offsite safer destinations. These include roads, tracks or emergency access ways. **Site Specific Description:** Two access routes are available to the nominated evacuation location. However, these routes travel through bushfire prone vegetation.	People	Death or injury of persons from exposure to the potential threats of bushfire and/or accidents while making efforts to avoid these threats. Exacerbation of existing medical conditions (e.g. asthma). Ongoing stress related illness attributed to the emergency event.
6	**FIREFIGHTING CAPABILITY** **Potential Source of Risk (General – Not Site Specific):** The identified availability of onsite of bushfire/structure firefighting equipment, water and/or persons with appropriate training and expertise. The identified potential for attendance of emergency services. This will vary dependent on location (urban / rural / remote). Risks to persons can be considered as greater if assistance to manage a bushfire and protect persons and dwellings, is not available or will take considerable time to arrive and limited firefighting capability exists onsite. **Identified Source of Risk Specific to the Site:** 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. Fire extinguishers are located in strategic areas throughout the campground. Each Eco-tent has a rooftop sprinkler system. 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. 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. A 3000L firefighting truck is located onsite that can be filled either by drafting or direct fill from onsite water tanks.	People	Death or injury of persons from exposure to the potential threats of bushfire and/or accidents while making efforts to avoid these threats. Exacerbation of existing medical conditions (e.g. asthma). Ongoing stress related illness attributed to the emergency event.
		Economic	Potential damage or loss of buildings, plant, equipment and operational infrastructure. Disruption of business with loss of income, employment and future operational capacity. Possible business failure. Local or regional economy may be impacted.

RISK IDENTIFICATION REGISTER PART 1: RISK DESCRIPTION			
	RISK DESCRIPTION (STATEMENT)		
No.	**Identified Source of Risk (the hazard - its threats and characteristics)**	**Consequence Category**	**Potential Consequences (worst case and unmitigated)**
	A 600L slip on firefighting unit is available onsite that can be filled either by drafting or direct fill from onsite water tanks. A small water tank is attached to the site quadbike. Firefighting appliances and hose reels can be used and would be operated by trained on site staff. Wunambal Gaambera Uuguu Rangers and DBCA would potentially attend bushfires close to, or at, the subject site.		
7	**OFFSITE SAFER LOCATIONS** **Potential Source of Risk (General – Not Site Specific):** The availability of a suitable offsite safer building or area as an evacuation destination within a practical distance away from the proposed development. A suitable location being one that can adequately satisfy any identified support (dependency) requirements and provide an acceptable level of protection from the effects of bushfire to occupants, visitors and staff. The possibility that the risk mitigation (treatment) option of evacuating the site will not be available and there will be a requirement to shelter in place. This potentially, but not in every circumstance, increases the risk of persons exposure to the threats of bushfire and any consequential local fire. **Identified Source of Risk Specific to the Site:** A potential offsite safe location is available at the Mitchell Plateau airstrip. However, some land management at the site is required to achieve an acceptable open space area.	People	Death or injury of persons from exposure to the potential threats of bushfire and/or accidents while making efforts to avoid these threats. Exacerbation of existing medical conditions (e.g. asthma). Ongoing stress related illness attributed to the emergency event.
8	**EVACUATION VEHICLES** **Potential Source of Risk (General – Not Site Specific):** The identified availability of the number and type of vehicles required for evacuation. There are situations where occupants, visitors, customers, and staff will have enough vehicles onsite that can provide the means to evacuate. For the situations for which this is not likely to be the case, additional vehicles (some or all of which may be required to be able to provide the appropriate support to dependent persons), will need to be sourced. Without the required vehicle capacity and capability being planned for and available within the required timeframe, full evacuation of the facility/premises will not be possible.	People	Death or injury of persons from exposure to the potential threats of bushfire and/or accidents while making efforts to avoid these threats. Exacerbation of existing medical conditions (e.g. asthma). Ongoing stress related illness attributed to the emergency event.

RISK IDENTIFICATION REGISTER PART 1: RISK DESCRIPTION			
	RISK DESCRIPTION (STATEMENT)		
No.	**Identified Source of Risk (the hazard - its threats and characteristics)**	**Consequence Category**	**Potential Consequences (worst case and unmitigated)**
	Identified Source of Risk Specific to the Site: Visitors arrive on 4WD tour buses which remains onsite for the duration of their visit. Staff have access to an onsite tour bus and 2 4WD vehicles.		
9	**ONSITE SAFER LOCATIONS** **Potential Source of Risk (General – Not Site Specific):** The identified availability, or unavailability, of an existing suitable building or open area onsite that will meet shelter in place requirements for occupants, visitors / customers, and staff. Additionally, the general vulnerability of all buildings onsite to the impact of fire. This source of risk exists when buildings (or open areas) have not, cannot or it is impractical to be designed, constructed, and maintained to be resilient to or reduce the impact from the potential threats of bushfire and consequential local fire. There is a risk that they cannot provide a tenable environment to protect occupants, visitors, customers and staff for the required length of time (i.e. until the bushfire front passes). The determination of level of risk must give due regard to the levels of exposure (vulnerability) to the threats of fire and the design and construction of existing and proposed buildings with regard to providing reliability, robustness and resilience against these threats. **Identified Source of Risk Specific to the Site:** The Restaurant/office building is located in an area where the potential radiant heat level is less than 10kW/m^2. However, the building is not constructed to bushfire standards.	People	Death or injury of persons from exposure to the potential threats of bushfire and/or accidents while making efforts to avoid these threats. Exacerbation of existing medical conditions (e.g. asthma). Ongoing stress related illness attributed to the emergency event.
10	**EMERGENCY MANAGEMENT** **Potential Source of Risk (General – Not Site Specific):** The identified availability of persons onsite who have some understanding of bushfire behaviour and/or have been trained to manage a bushfire emergency through the application of a bushfire emergency plan developed for the use of a site. The identified availability of appropriate emergency management information that will assist persons to make an informed analysis regarding initiating and/or continuing the most appropriate emergency procedures for the site and its use. Persons without the necessary emergency management information, relevant experience, knowledge and training, may make poor decisions during an emergency event. There is likely no or limited capacity to appreciate the context of the site and its surrounds with respect to its influence on bushfire behaviour. This includes not being aware of any potentially significant	People	Death or injury of persons from exposure to the potential threats of bushfire and/or accidents while making efforts to avoid these threats. Exacerbation of existing medical conditions (e.g. asthma). Ongoing stress related illness attributed to the emergency event.

RISK IDENTIFICATION REGISTER PART 1: RISK DESCRIPTION			
	RISK DESCRIPTION (STATEMENT)		
No.	**Identified Source of Risk (the hazard - its threats and characteristics)**	**Consequence Category**	**Potential Consequences (worst case and unmitigated)**
	limitations to the window of time available to conduct a planned evacuation procedure. These limitations are related to the potential bushfire behaviour of fire impacting the specific site and evacuation routes and the knowledge of what safer locations exist onsite. The risk is increased if specific on-site advice from attending emergency services personnel is unlikely to or cannot be provided. **Identified Source of Risk Specific to the Site:** The site has an emergency procedures document and staff are trained in this during induction. The document has a section devoted to bushfire behaviour and response. Mock response events are practiced. Additional formal training is recommended for site managers in application of the Bushfire Emergency Plan created for this site, and training all staff and bus operators in shelter in place/ evacuation procedures from the Plan.		
11	**OFFSITE OPERATIONS** **Potential Source of Risk (General – Not Site Specific** This is an additional source of risk that potentially exists when the operations of the site involves the movement of vulnerable persons away from and returning to the site on a regular basis – typically day tours. This exposes persons to a different sources and risks from bushfire, and they may no longer be mitigated by the risk treatments that apply when persons remain onsite. **Identified Source of Risk Specific to the Site:** Day tours are conducted from the site to Mitchell Falls. There is a threat of these tours being isolated by a local bushfire event.	People	Death or injury of persons from exposure to the potential threats of bushfire and/or accidents while making efforts to avoid these threats. Exacerbation of existing medical conditions (e.g. asthma). Ongoing stress related illness attributed to the emergency event.

3.2 The Risk Identification Register Part 2: Current Controls (Risk Treatments)

RISK IDENTIFICATION REGISTER PART 2: CURRENT CONTROLS (that reduce the severity or likelihood of the potential consequences)			
IDENTIFIED SOURCE OF RISK		**RELEVANT CONSEQUENCE CATEGORY**	**CURRENT PREVENTION AND PREPAREDNESS CONTROLS**
No.	Title		
1	Offsite Vegetation	People Economic	The Wunambal Gaambera rangers continually inspect and manage the surrounding lands to protect the Kandiwal aboriginal community and 2 Eco-tent lodges nearby.
2	Onsite Vegetation	People Economic	Outback Spirit conduct seasonal controlled burning onsite to reduce vegetation and the subsequent bushfire threat. Grasses and understorey around camp facilities are managed prior to opening up for the tourist season.
3	Stored Materials	People Economic	Diesel is stored in a suitable tank. Gas bottles have metal piping and fittings to buildings, safety valves are directed away from buildings and bottles are tethered with a chain to buildings.
4	Vulnerable Persons	People	All visitors to the site are part of an organised tour with the tour operator. There are numerous staff onsite to provide support to visitors throughout their stay.
5	Access / Egress Routes	People	Two access routes are available to the evacuation location (Mitchell Plateau airstrip). Wunambal Gaambera Uuguu Rangers manage roadside vegetation as part of their burning program generally over a two year rotational period.
6	Firefighting Capability	People Economic	The site has a 3000L firefighting appliance, and a 600L slip on firefighting unit. 1 x 22,000L water tank is available onsite for firefighting use. Fire hose reels and fire extinguishers are available throughout the site.
7	Offsite Safer Locations	People	An open area is available at the Mitchell Plateau Airstrip approximately 5km from the lodge. However, the airstrip may be inaccessible in the event of a localised bushfire.
8	Evacuation Vehicles	People	All visitors to the site arrive at the site on Outback Spirit buses that remain onsite with the visitors. Enough vehicles exist onsite to accommodate evacuation of all staff.
9	Onsite Safer Locations	People	The Outback Spirit Restaurant/Office building is located in area where the potential radiant heat level from a bushfire is less than 10kW/m2. Three fire hose reels are located around the building and fire extinguishers are located within.
10	Emergency Management	People	Onsite staff are trained in emergency procedures including bushfire behaviour and response. Mock response events are practiced.
11	Offsite Operations	People	There is close communication between tour operators on the Mitchell Plateau, the Wunambal Gaambera Uuguu Rangers , the Kadiwal community and DBCA. Through this, information regarding bushfires in the area are well communicated between parties. However, it is possible that a day tour can be isolated from the lodge by a local bushfire event.

RISK IDENTIFICATION REGISTER PART 2: CURRENT CONTROLS (that reduce the severity or likelihood of the potential consequences)			
IDENTIFIED SOURCE OF RISK		RELEVANT CONSEQUENCE CATEGORY	CURRENT RESPONSE AND RECOVERY CONTROLS
No.	Title		
1	Offsite Vegetation	People Economic	Bushfires external to the subject site are responded to by the Wunambal Gaambera Uuguu Rangers , DBCA. DFES, located in Kununurra, will respond dependent upon availability and size and location of the fire. Staff onsite will make contact with relevant authorities to determine location and direction of travel of fire.
2	Onsite Vegetation	People Economic	Staff are trained in the use of onsite firefighting equipment including fire appliances, hose reels, rooftop sprinkler systems and fire extinguishers. Wunambal Gaambera Uuguu Rangers , DBCA and staff from neighbouring APT Lodge may be available to assist.
3	Stored Materials	People Economic	Diesel is stored in a suitable tank. Gas bottles have metal piping and fittings to buildings, safety valves are directed away from buildings and bottles are tethered with a chain to buildings.
4	Vulnerable Persons	People	A coordinated response to bushfire is undertaken through the rollout of the Outback Spirit "Ngauwudu Safari Camp Emergency Procedures" and "Fire Plan, Our Safety First". Visitors will be directed to the Muster Point where they will be under the care of trained staff.
5	Access / Egress Routes	People	An open area is available at the Mitchell Plateau Airstrip approximately 5km from the lodge. Two access routes are available from the lodge. However, the airstrip may be inaccessible via these routes, or an unsafe option in the event of a localised bushfire.
6	Firefighting Capability	People Economic	The site has a 3000L firefighting appliance, and a 600L slip on firefighting unit. 1 x 22,000L water tank is available onsite for firefighting use. Fire hose reels and fire extinguishers are available throughout the site. All Eco-tents have rooftop sprinklers. A secondary pump is located at the creek and can either refill the water tank or operate the rooftop sprinkler systems. Staff are trained in the use of the firefighting equipment.
7	Offsite Safer Locations	People	An open space is available at Mitchell Plateau Airstrip approximately 5km from the site, with access via a gravel road. However, this area currently does not achieve the required 2kW/m2 potential radiant heat level.
8	Evacuation Vehicles	People	All visitors to the site arrive at the site on Outback Spirit buses that remain onsite with the visitors. Enough vehicles exist onsite to accommodate evacuation of all staff.
9	Onsite Safer Locations	People	The Outback Spirit Restaurant/Office building is located in area where the potential radiant heat level from a bushfire is less than 10k/m^2. Three fire hose reels are located around the building and fire extinguishers are located within.
10	Emergency Management	People	Onsite staff are trained in emergency procedures including bushfire behaviour and response. Mock response events are practiced. Staff are given tasks to perform during an emergency situation.
11	Offsite Operations	People	There is close communication between tour operators on the Mitchell Plateau, the Wunambal Gaambera Uuguu Rangers , the Kadiwal community and DBCA. Through this, information regarding bushfires in the area are well communicated between parties.

4 RISK ANALYSIS FOR THE PROPOSED DEVELOPMENT/USE

Intent: To comprehend the nature of the risk and determine the level of the risk. The risk analysis provides the basis for the subsequent risk evaluation and the necessary information to make informed decisions about requirements for risk treatment. Of particular importance in analysing risk, is the determination of appropriate assessment and assignment criteria that establish the terms of reference against which the significance of a risk is evaluated (these are established and presented in Appendix 1) and reported.

Summary Process: Relevant to the scale and specific operations of the proposed development and confined to the determined context and scope of the required risk assessment process – conduct the following:

1. Establish the qualitative descriptors used to determine the levels of any existing controls (risk treatments) by assessing their effectiveness and ease of application;
2. Establish appropriate risk assessment criteria as the terms of reference against which consequence levels can be evaluated for each consequence category that is being considered;
3. Establish the likelihood risk assessment criteria (qualitative and quantitative descriptors as applicable) that are to apply, based on the likelihood of the consequence (as opposed to the likelihood of the emergency event). Note however, that the likelihood level will necessarily reflect the probability of both the emergency event and the resultant consequences;
4. Assess the level of control provided by the identified existing risk treatments by examining their effectiveness and ease of implementation.
5. Determine the consequence and likelihood levels (consequences are influenced by the vulnerability of elements at risk, the exposure of those elements at risk to the hazard and by the characteristics of the hazard. Likelihood is the chance of something happening, a more 'technical' measure (PIA 2015));
6. Determine the resultant risk level (of each identified source of risk, emergency event and consequence category) - at the current level of identified existing controls - by applying the established risk assessment criteria and risk level matrix; and
7. Determine the confidence level in the analysis of risk as an indicator of the robustness of the risk analysis process. This is a means of identifying and communicating uncertainty.

4.1 Assessment of Existing Control (Risk Treatment) Levels

ASSESSED LEVEL OF EXISTING CONTROLS*					
IDENTIFIED SOURCE OF RISK		**CONSEQUENCE CATEGORY**	**LEVEL OF EXISTING CONTROLS**		**SUPPORTING COMMENTS** (if additional information is necessary)
No.	Title		Prevention and Preparedness	Response and Recovery	
1	Offsite Vegetation	People Economic	High	High	Yearly coordinated management of vegetation occurs between Wunambal Gaambera Uuguu Rangers, DBCA and the two neighbouring lodges.
2	Onsite Vegetation	People Economic	High	High	Asset protection zones are managed to varying extents around and between existing buildings. An open reticulated grassed area exists onsite.
3	Stored Materials	People Economic	Low	Low	Storage shed is open and allows ingress of embers during a bushfire event. Diesel is stored in a suitable tank however the tank is located close to bushfire prone vegetation. Gas bottles currently stored near bushfire prone vegetation.
4	Vulnerable Persons	People	High	High	Trained staff are onsite at all times. Staff are trained during induction and role plays are enacted from time to time.
5	Access / Egress Routes	People	Low	Low	An evacuation route is available to the airstrip. Vegetation along the roadside is managed by the Wunambal Gaambera Uuguu Rangers on a rotational basis. However, there is currently no specific response planning or training for this eventuality.
6	Firefighting Capability	People Economic	High	High	Onsite fire appliance and slip on fire unit available. Fire hose reels and fire extinguishers located throughout the site. Rooftop sprinklers on Eco-tents. Availability of Wunambal Gaambera Uuguu Rangers, DBCA and fire appliance from neighbouring lodge.
7	Offsite Safer Locations	People	Low	Low	An open area is available at the airstrip. However, some management of vegetation at the site will be required to achieve a maximum 2kW/m2 potential radiant heat rating for the area.
8	Evacuation Vehicles	People	High	High	Visiting tour buses remain onsite with visitors and suitable vehicles are available to staff for evacuation purposes (Oka and 4WD vehicles).
9	Onsite Safer Locations	People	Medium	Medium	The Outback Spirit Restaurant/Office building is located in area where the potential radiant heat level from a bushfire is less than 10k/m2. However, the building is not built to comply with AS3959-2018 "Construction of buildings in bushfire prone areas" standards.
10	Emergency Management	People	High	High	Onsite staff are trained in emergency procedures including bushfire behaviour and response. Mock response events are practiced. Staff are given tasks to perform during an emergency situation.

ASSESSED LEVEL OF EXISTING CONTROLS*					
IDENTIFIED SOURCE OF RISK		**CONSEQUENCE CATEGORY**	**LEVEL OF EXISTING CONTROLS**		**SUPPORTING COMMENTS** (if additional information is necessary)
No.	Title		Prevention and Preparedness	Response and Recovery	
11	Offsite Operations	People	Low	Low	Provisions are required to be made and staff trained for situations where persons on day tour must return early, or are unable to return, due to local bushfire events.
*Refer to Appendix 1 Table 1 for applied assessment criteria and Table 2 for consequence category.					

4.2 Assessment of Consequence and Likelihood Levels and Determined Risk Level

ASSESSED LEVEL OF CONSEQUENCE AND LIKELIHOOD*						
IDENTIFIED SOURCE OF RISK		**CONSEQUENCE CATEGORY**	**ASSESSED CONSEQUENCE LEVEL**	**ASSESSED LIKELIHOOD LEVEL**	**DETERMINED RISK LEVEL**	**SUPPORTING COMMENTS** (if additional information is necessary)
No.	Title		Post consideration of the impact of any existing controls			
1	Offsite Vegetation	People Economic	Moderate	Unlikely	Medium	Onsite vegetation management around development and safer location building reduces the consequence from an offsite bushfire.
2	Onsite Vegetation	People Economic	Moderate	Unlikely	Medium	Managed vegetation around and between buildings.
3	Stored Materials	People Economic	Major	Rare	High	Diesel is stored close to unmanaged vegetation.
4	Vulnerable Persons	People	Major	Rare	High	Visitors will be directed to the Muster Point where they will be under the care of trained staff.
5	Access / Egress Routes	People	Major	Unlikely	High	Access/egress routes are through bushfire prone vegetation.
6	Firefighting Capability	People Economic	Moderate	Unlikely	Medium	

ASSESSED LEVEL OF CONSEQUENCE AND LIKELIHOOD*						
IDENTIFIED SOURCE OF RISK		CONSEQUENCE CATEGORY	ASSESSED CONSEQUENCE LEVEL	ASSESSED LIKELIHOOD LEVEL	DETERMINED RISK LEVEL	SUPPORTING COMMENTS (if additional information is necessary)
No.	Title		Post consideration of the impact of any existing controls			
7	Offsite Safer Locations	People	Major	Unlikely	High	Requires additional work to achieve 2kW/m^2 safe open space.
8	Evacuation Vehicles	People	Minor	Rare	Low	Visiting tour buses remain onsite with visitors and suitable vehicles are available to staff for evacuation purposes (Oka and 4WD vehicles).
9	Onsite Safer Locations	People	Moderate	Unlikely	Medium	
10	Emergency Management	People	Moderate	Unlikely	Medium	Additional formal training is recommended for site managers in application of the Bushfire Emergency Plan created for this site, and training all staff and bus operators in shelter in place/ evacuation procedures from the Plan.
11	Offsite Operations	People	Major	Unlikely	High	Risk of isolation by local bushfire event.
* No.er to Appendix 1 Tables 2, 3 and 4 for applied assessment criteria.						

4.3 Assessment of Confidence Level (single overall) in the Determined Risk Level

ASSESSED LEVEL OF CONFIDENCE IN RISK LEVEL (SINGLE OVERALL) *				
IDENTIFIED SOURCE OF RISK		CONSEQUENCE CATEGORY	LEVEL OF CONFIDENCE	SUPPORTING COMMENTS (if additional information is necessary)
No.	Title			
1	Offsite Vegetation	People Economic	High	
2	Onsite Vegetation	People Economic	High	
3	Stored Materials	People Economic	High	

ASSESSED LEVEL OF CONFIDENCE IN RISK LEVEL (SINGLE OVERALL) *				
IDENTIFIED SOURCE OF RISK		**CONSEQUENCE CATEGORY**	**LEVEL OF CONFIDENCE**	**SUPPORTING COMMENTS** (if additional information is necessary)
No.	Title			
4	Vulnerable Persons	People	High	
5	Access / Egress Routes	People	High	
6	Firefighting Capability	People Economic	High	
7	Offsite Safer Locations	People	High	
8	Evacuation Vehicles	People	High	
9	Onsite Safer Locations	People	High	
10	Emergency Management	People	High	
11	Offsite Operations	People	High	
* Refer to Appendix 1 Table 5 and 6 for applied assessment criteria and matrix.				

4.4 The Risk Analysis Register

RISK ANALYSIS REGISTER								
IDENTIFIED SOURCE OF RISK		CONSEQUENCE CATEGORY	ASSESSED EXISTING CONTROL LEVEL		ASSESSED CONSEQUENCE LEVEL	ASSESSED LIKELIHOOD LEVEL	DETERMINED RISK LEVEL	ASSESSED CONFIDENCE IN RISK LEVEL
No.	Title		Prevention and Preparedness	Response and Recovery	Post consideration of the impact of existing controls			
1	Offsite Vegetation	People Economic	High	High	Moderate	Unlikely	Medium	High
2	Onsite Vegetation	People Economic	High	High	Moderate	Unlikely	Medium	High
3	Stored Materials	People Economic	Low	Low	Major	Rare	High	High
4	Vulnerable Persons	People	High	High	Major	Rare	High	High
5	Access / Egress Routes	People	Low	Low	Major	Unlikely	High	High
6	Firefighting Capability	People Economic	High	High	Moderate	Unlikely	Medium	High
7	Offsite Safer Locations	People	Low	Low	Major	Unlikely	High	High
8	Evacuation Vehicles	People	High	High	Minor	Rare	Low	High
9	Onsite Safer Locations	People	Medium	Medium	Moderate	Unlikely	Medium	High
10	Emergency Management	People	High	High	Moderate	Unlikely	Medium	High
11	Offsite Operations	People	Low	Low	Major	Unlikely	High	High

5 RISK EVALUATION FOR THE PROPOSED DEVELOPMENT/USE

Intent: To determine which identified risks require further detailed assessment or additional treatment measures and to identify the priority of implementing the different risk treatments to reduce risk levels.

Process: The evaluation section completes the final phase of the risk assessment process (identification, analysis, and evaluation), and then ranks the risks. The steps of the process are:

1. A priority level is determined for taking action on each identified source of risk based on its determined risk level and associated confidence level.
2. A decision is required regarding whether any further action is to be taken for each risk. This is determined by assigning a risk category after consideration of a series of additional issues. This effectively completes the risk evaluation and therefore, the risk assessment process.
3. The sources of risk are ranked based on their determined risk level, priority level and assigned risk category. An adjustment may be made for placing the priority importance of certain consequence categories above others. This is to assist assessors understand the order in which risks should be considered (for treatment planning or further assessment).

5.1 Assignment of Risk Priority for the Proposed Development/Use

ASSIGNED RISK PRIORITY*				
IDENTIFIED SOURCE OF RISK		CONSEQUENCE CATEGORY	RISK PRIORITY	SUPPORTING COMMENTS (if additional information is necessary)
No.	Title			
1	Offsite Vegetation	People Economic	Priority 3	
2	Onsite Vegetation	People Economic	Priority 3	
3	Stored Materials	People Economic	Priority 3	
4	Vulnerable Persons	People	Priority 3	
5	Access / Egress Routes	People	Priority 2	
6	Firefighting Capability	People Economic	Priority 3	
7	Offsite Safer Locations	People	Priority 2	
8	Evacuation Vehicles	People	Priority 5	
9	Onsite Safer Locations	People	Priority 3	
10	Emergency Management	People	Priority 3	
11	Offsite Operations	People	Priority 2	
* Refer to Appendix 1 Table 7 for applied assignment criteria.				

5.2 Assignment of Risk Category for the Proposed Development/Use

ASSIGNED RISK CATEGORY*				
IDENTIFIED SOURCE OF RISK		CONSEQUENCE CATEGORY	RISK CATEGORY	SUPPORTING COMMENTS (if additional information is necessary)
No.	Title			
1	Offsite Vegetation	People Economic	Category 1 - Treat	
2	Onsite Vegetation	People Economic	Category 1 - Treat	
3	Stored Materials	People Economic	Category 1 - Treat	
4	Vulnerable Persons	People	Category 1 - Treat	
5	Access / Egress Routes	People	Category 1 - Treat	
6	Firefighting Capability	People Economic	Category 1 - Treat	
7	Offsite Safer Locations	People	Category 1 - Treat	
8	Evacuation Vehicles	People	Category 3 - Monitor	Monitor continued availability of suitable vehicles.
9	Onsite Safer Locations	People	Category 1 - Treat	
10	Emergency Management	People	Category 1 - Treat	
11	Offsite Operations	People	Category 1 - Treat	
* Refer to Appendix 1 Table 8 for applied assignment criteria.				

5.3 Risk Evaluation Register for the Proposed Development/Use

Risk Evaluation Register							
IDENTIFIED SOURCE OF RISK		**CONSEQUENCE CATEGORY**	**DETERMINED RISK LEVEL** (from risk analysis)	**ASSIGNED RISK PRIORITY**	**ASSIGNED RISK CATEGORY**	**STATEMENT OF REQUIREMENT TO TREAT THE RISK**	**ASSIGNED RISK RANK[2]**
No.	Title						
1	Offsite Vegetation	People Economic	Medium	Priority 3	Category 1 - Treat	No additional treatments warranted. Monitor and review existing risk treatments (controls).	12 out of 27
2	Onsite Vegetation	People Economic	Medium	Priority 3	Category 1 - Treat	Identify additional options for risk treatments (controls). Develop the treatment and evaluate if residual risk meets the treatment objective.	12 out of 27
3	Stored Materials	People Economic	High	Priority 3	Category 1 - Treat	Identify options for risk treatments (controls). Develop the treatment and evaluate if residual risk meets the treatment objective.	11 out of 27
4	Vulnerable Persons	People	High	Priority 3	Category 1 - Treat	Identify additional options for risk treatments (controls). Develop the treatment and evaluate if residual risk meets the treatment objective.	11 out of 27
5	Access / Egress Routes	People	High	Priority 2	Category 1 - Treat	Identify additional options for risk treatments (controls). Develop the treatment and evaluate if residual risk meets the treatment objective.	6 out of 27
6	Firefighting Capability	People Economic	Medium	Priority 3	Category 1 - Treat	Identify additional options for risk treatments (controls). Develop the treatment and evaluate if residual risk meets the treatment objective.	12 out of 27
7	Offsite Safer Locations	People	High	Priority 2	Category 1 - Treat	Identify options for risk treatments (controls). Develop the treatment and evaluate if residual risk meets the treatment objective.	6 out of 27
8	Evacuation Vehicles	People	Low	Priority 5	Category 3 - Monitor	No additional treatments warranted. Monitor and review existing risk treatments (controls).	26 out of 27
9	Onsite Safer Locations	People	Medium	Priority 3	Category 1 - Treat	Identify additional options for risk treatments (controls). Develop the treatment and evaluate if residual risk meets the treatment objective.	12 out of 27
10	Emergency Management	People	Medium	Priority 3	Category 1 - Treat	Identify additional options for risk treatments (controls). Develop the treatment and evaluate if residual risk meets the treatment objective.	12 out of 27
11	Offsite Operations	People	High	Priority 2	Category 1 - Treat	Identify options for risk treatments (controls). Develop the treatment and evaluate if residual risk meets the treatment objective.	6 out of 27
Refer to Appendix 1 Table 9 for applied assignment criteria.							

6 RISK TREATMENT

Intent: Treating identified risk is a related process but distinct from risk assessment. The intent is to identify the most effective risk treatments (controls) to be applied to those identified sources of risk for which the risk assessment has determined that - after consideration of existing and planned treatments - further additional treatments are required to reduce the residual level of risk to an acceptable (tolerable) level. What constitutes an acceptable or tolerable level of risk will vary among local government areas, community context and the proposed development/use context (refer to s2.1.2 for context considerations and s2.2.3 for acceptable risk considerations).

The risk treatment options will be comprised of one or more of the following methods:

- Risk Avoidance
- Risk Removal
- Risk Reduction/Mitigation – through changing the consequences and/or the likelihood of an emergency event originating from the identified source of risk.
- Risk Transfer – to another party (insurance); and
- Risk Acceptance (retention).

Process: Formulate risk treatment objectives for each identified source of risk, identify the treatment options, and conduct an appropriate evaluation of the identified treatments to determine if the objective has been met. Subsequently a risk treatment plan is developed and the requirement for the adoption of the bushfire protection measures (treatments) is incorporated into the associated Bushfire Management Plan.

6.1 Formulating the Objectives of Additional Risk Treatments

RISK TREATMENT - OBJECTIVES				
IDENTIFIED SOURCE OF RISK		**CONSEQUENCE CATEGORY**	**TREATMENT OBJECTIVE**	**SUPPORTING COMMENTS** (if additional information is necessary)
No.	Title			
1	Offsite Vegetation	People Economic	Maintain the operation of existing risk treatments.	Vegetation external to the Ngauwudu Safari Camp lease area is managed by the Wunambal Gaambera rangers on a rotational burning basis.
2	Onsite Vegetation	People Economic	Improve the operation of existing risk treatments to reduce the risk level.	Enlarge APZ around shed. Consolidate a mosaic burning program for portions of the lease area outside of Asset Protection Zones.
3	Stored Materials	People Economic	To change the risk category by reduction in priority level (improved consequence/likelihood outcomes), and/or improved confidence levels in the assessed risk level.	Establish greater separation from vegetation and structures.
4	Vulnerable Persons	People	Improve the operation of existing risk treatments to reduce the risk level.	
5	Access / Egress Routes	People	Maintain the operation of existing risk treatments.	Vegetation along the roadside between the Ngauwudu Safari Camp and airstrip is managed by the Wunambal Gaambera rangers on a rotational burning basis.
6	Firefighting Capability	People Economic	To reduce the consequences and/or likelihood of the emergency event such that they are demonstrably improved compared to the existing state.	Require minimum 50,000 litre static water supply dedicated for fire fighting purposes. Consider further protection of water supply from bore.
7	Offsite Safer Locations	People	To reduce the consequences and/or likelihood of the emergency event such that they are demonstrably improved compared to the existing state.	
8	Evacuation Vehicles	People	Maintain the operation of existing risk treatments.	Enough suitable vehicles are onsite to effect a safe evacuation.
9	Onsite Safer Locations	People	Improve the operation of existing risk treatments to reduce the risk level.	
10	Emergency Management	People	To reduce the consequences and/or likelihood of the emergency event such that they are demonstrably improved compared to the existing state.	Additional formal training is recommended for site managers in application of the Bushfire Emergency Plan

RISK TREATMENT - OBJECTIVES				
IDENTIFIED SOURCE OF RISK		CONSEQUENCE CATEGORY	TREATMENT OBJECTIVE	SUPPORTING COMMENTS (if additional information is necessary)
No.	Title			
				created for this site, and training all staff and bus operators in shelter in place/ evacuation procedures from the Plan.
11	Offsite Operations	People	To reduce the consequences and/or likelihood of the emergency event such that they are demonstrably improved compared to the existing state.	Establish procedures for bushfire event when visitors are on day tour outside the Safari Camp.

6.2 Identifying and Developing Additional Risk Treatment Options

RISK TREATMENT – IDENTIFICATION AND DEVELOPMENT OF OPTIONS					
IDENTIFIED SOURCE OF RISK		CONSEQUENCE CATEGORY	IDENTIFIED TREATMENT OPTIONS		METHOD OF RISK TREATMENT
No.	Title		No.	Details	
1	Offsite Vegetation	People Economic	1	Continued communication, cooperation and joint hazard reduction burns with Wunambal Gaambera Uuguu Rangers , DBCA and neighbouring APT Lodge personnel.	Risk Acceptance (retain)
2	Onsite Vegetation	People Economic	2	Create low fuel buffer Asset Protection Zones, to the specified requirements, around all existing and new buildings as far as practicable, and acceptable by the Wunambal Gaambera native landowners.	Risk Reduction / Mitigation (change likelihood)
			3	Continued management and maintenance of onsite vegetation within the existing and proposed Asset Protection Zones (See Figure 3.2 of this Bushfire Management Plan) to a low bushfire threat state throughout the bushfire season (1st April to 14th January).	Risk Reduction / Mitigation (change likelihood and consequence)
			4	Consolidate a formal rotational prescribed burning program for the portions of the lease area outside existing or proposed Asset Protection Zones.	Risk Reduction / Mitigation (change likelihood)
			5	Establish procedure for management of onsite campfires to prevent escape of embers and ignition of vegetation. Campfires should be located away from bushfire prone vegetation, not be left unattended and should be extinguished after use.	Risk Reduction / Mitigation (change likelihood)

RISK TREATMENT – IDENTIFICATION AND DEVELOPMENT OF OPTIONS					
IDENTIFIED SOURCE OF RISK		**CONSEQUENCE CATEGORY**	**IDENTIFIED TREATMENT OPTIONS**		**METHOD OF RISK TREATMENT**
No.	Title		No.	Details	
3	Stored Materials	People Economic	6	Onsite flammable materials should be stored in appropriate containers and located well away from bushfire prone vegetation and buildings. The diesel storage tank, and gas bottles not in use, should be located a minimum of 6 metres from any building and 20 metres from vegetation that is not managed to a low bushfire threat state. Gas bottles should be stored in a cage.	Risk Reduction / Mitigation (change likelihood and consequence)
4	Vulnerable Persons	People	7	Provide appropriate bushfire emergency information in each Eco-tent, staff accommodation and Restaurant/Office building.	Risk Reduction / Mitigation (change consequences)
			8	Additional formal training is recommended for site managers in application of the Bushfire Emergency Plan created for this site, and training all staff and bus operators in shelter in place/ evacuation procedures from the Plan. Continued training of onsite staff and bus operators in bushfire behaviour and awareness.	
5	Access / Egress Routes	People	9	The existing firebreak along the creek should join with the existing firebreak to the north of Eco-tent 3 to provide for through traffic.	Risk Removal
			10	Liaise with Wunambal Gaambera Uuguu Rangers and DBCA to continue management of roadside vegetation between the Lodge and the evacuation location (Mitchell Plateau Airstrip).	Risk Acceptance (retain)
			11	Liaise with relevant authority to maintain road surface in a trafficable condition.	Risk Acceptance (retain)
6	Firefighting Capability	People Economic	12	Increase number and size of water tanks to be able to adequately supply fire appliances, site hose reels and bushfire sprinklers during a bushfire event. Water tanks should be made of non-combustible material (or suitably shielded) and, installed and dedicated separately to supply firefighting water and bushfire sprinkler systems. The firefighting water supply tank(s) should be a minimum capacity of 50,000 litres. Piping, hoses and fitting for fire water should be non-combustible or buried underground.	Risk Reduction / Mitigation (change likelihood and consequence)
			13	Consider replacing, when feasible, above ground pipe from bore that supplies potable water to the site with pipe made of a non-combustible material.	Risk Removal
			14	Suitable bushfire sprinkler systems to be installed onto the future Eco-tents and on the Restaurant/Office building. Fire hose reels to be installed to service new Eco-tents and staff accommodation buildings.	Risk Reduction / Mitigation (change likelihood)
			15	Continually check and maintain fire appliances, water tanks, water pumps and delivery systems, firefighting equipment and personal protective clothing (Weekly or after use).	Risk Acceptance (retain)

RISK TREATMENT – IDENTIFICATION AND DEVELOPMENT OF OPTIONS					
IDENTIFIED SOURCE OF RISK		**CONSEQUENCE CATEGORY**	**IDENTIFIED TREATMENT OPTIONS**		**METHOD OF RISK TREATMENT**
No.	Title		No.	Details	
7	Offsite Safer Locations	People	16	Liaise with landowner to establish and maintain an area at the Mitchell plateau Airstrip that will be subject to a radiant heat level of no greater than 2kW/m2.	Risk Reduction / Mitigation (change consequences)
8	Evacuation Vehicles	People	17	Continue to ensure that enough vehicles, suited for the purpose, are available to all onsite persons for use in the event of a required evacuation.	Risk Acceptance (retain)
9	Onsite Safer Locations	People	14	Install a suitable bushfire sprinkler system to the Restaurant Office building.	Risk Reduction / Mitigation (change likelihood)
			18	As far as practicable, retrofit existing Restaurant/Office building to comply with BAL-12.5 building requirements as per AS3959-2018 "Construction of buildings in bushfire prone areas". In particular sealing gaps into the roof space, including ember guards for whirlybirds if not already fitted, and enclosing the subfloor space should be considered as these areas are difficult to monitor during a bushfire event.	
10	Emergency Management	People	8	Additional formal training is recommended for site managers in application of the Bushfire Emergency Plan created for this site, and training all staff and bus operators in shelter in place/ evacuation procedures from the Plan. Continued training of onsite staff and bus operators in bushfire behaviour and awareness.	Risk Reduction / Mitigation (change consequences)
11	Offsite Operations	People	19	Establish an emergency response procedure and training for the event that a day tour is isolated from the Lodge by a bushfire.	Risk Reduction / Mitigation (change consequences)

6.3 Evaluating Additional Treatment Options

6.3.1 Part 1 – Revised Risk Analysis (applied if directed by the treatment objective stated in Section 6.1)

REVISED RISK ANALYSIS													
IDENTIFIED SOURCE OF RISK		**CONSEQUENCE CATEGORY**	**TREAT NO.**	**CURRENT ANALYSIS** (before application of the additional risk treatments)				**REVISED ANALYSIS** (after application of the additional risk treatments)				**OUTCOME**
No.	Title			Consequence Level	Likelihood Level	Risk Level	Confidence in Risk Level	Consequence Level	Likelihood Level	Risk Level	Confidence in Risk Level	
1	Offsite Vegetation	People Economic	1	Moderate	Unlikely	Medium	High	Moderate	Unlikely	Medium	High	Maintain the operation of existing risk treatments.– acceptable risk
2	Onsite Vegetation	People Economic	2 3 4 5	Moderate	Unlikely	Medium	High	Moderate	Rare	Medium	High	Effective treatment. No change in risk level but residual risk is reduced
3	Stored Materials	People Economic	6	Major	Rare	High	High	Moderate	Rare	Medium	High	Effective treatment. Risk level is decreased.
4	Vulnerable Persons	People	7 8	Major	Rare	High	High	Major	Rare	High	High	Effective treatment. No change in risk level but residual risk is significantly reduced
5	Access / Egress Routes	People Economic	9 10 11	Major	Unlikely	High	High	Major	Unlikely	High	High	Effective treatment. No change in risk level.
6	Firefighting Capability	People Economic	12 13 14 15	Moderate	Unlikely	Medium	High	Moderate	Rare	Medium	High	Effective treatment. No change in risk level but residual risk is significantly reduced
7	Offsite Safer Locations	People	16	Major	Unlikely	High	High	Moderate	Unlikely	Medium	High	Effective treatment. Risk level is decreased.

REVISED RISK ANALYSIS												
IDENTIFIED SOURCE OF RISK		**CONSEQUENCE CATEGORY**	**TREAT NO.**	**CURRENT ANALYSIS** (before application of the additional risk treatments)				**REVISED ANALYSIS** (after application of the additional risk treatments)				**OUTCOME**
No.	Title			Consequence Level	Likelihood Level	Risk Level	Confidence in Risk Level	Consequence Level	Likelihood Level	Risk Level	Confidence in Risk Level	
8	Evacuation Vehicles	People	17	Minor	Rare	Low	High	Minor	Rare	Low	High	Maintain the operation of existing risk treatments.– acceptable risk
9	Onsite Safer Locations	People	14 18	Moderate	Unlikely	Medium	High	Minor	Rare	Low	High	Effective treatment. Risk level is decreased.
10	Emergency Management	People	8	Moderate	Unlikely	Medium	High	Moderate	Rare	Medium	High	Effective treatment. No change in risk level but residual risk is significantly reduced
11	Offsite Operations	People	19	Major	Unlikely	High	High	Major	Rare	High	High	Effective treatment. No change in risk level but residual risk is reduced

6.3.2 Part 2 – Overall Qualitative Assessment of Treatment Options

PART 2: QUALITATIVE TREATMENT ASSESSMENT FOR EACH EVALUATION PARAMETER CONSIDERED											
RISK NO.	**CONSEQUENCE CATEGORY**	**TREAT. NO.**	**EVALUATION PARAMETERS**								**OUTCOME**
			Effectiveness	Practical / Feasible to Implement	Affordable	Sustainable	Safe	Acceptable to Local Community	Potential for Secondary or Consequential Impacts on Hazard or Consequence	Achieves Treatment Objective	
1	People Economic	1	Very High	Very High	Very Likely	Very Likely	High	Likely	None	Yes	Suitable for Application
			Supporting Comments:	Established offsite joint vegetation management agreement is in place.							
2	People Economic	2	Very High	Very High	Very Likely	Very Likely	Very High	Likely	None	Yes	Suitable for Application
			Supporting Comments:	Asset protection zones are managed to varying extents around and between existing buildings. Asset protection zones will be established and maintained around new tents, staff accommodation and storage shed.							
		3	Very High	Very High	Very Likely	Very Likely	Very High	Likely	None	Yes	Suitable for Application
			Supporting Comments:	Ensure that Asset Protection Zones around buildings are maintained to a low bushfire threat state throughout the bushfire season.							
		4	Very High	Very High	Very Likely	Very Likely	Very High	Very Likely	None	Yes	Suitable for Application
			Supporting Comments:	Outback Spirit are expected to manage vegetation within the sub-lease area and for a distance of 75 metres outside the sub-lease area by collaborative out of season controlled burns with APT lodge personnel and the Wunambal Gaambera Uuguu Rangers.							
		5	High	Very High	Very Likely	Very Likely	Very High	Very Likely	None	Yes	Suitable for Application
			Supporting Comments:	To reduce the risk of embers escaping from campfire and igniting vegetation.							
3	People Economic	6	Very High	Very High	Very Likely	Very Likely	High	Very Likely	None	Yes	Suitable for Application
			Supporting Comments:	Removing or distancing flammable objects from sources of fire will reduce the risk of ignition.							
4	People	7	High	Very High	Very Likely	Very Likely	Very High	Likely	None	Yes	Suitable for Application
			Supporting Comments:	Providing bushfire emergency information will create familiarisation with the shelter in place and evacuation process.							

PART 2: QUALITATIVE TREATMENT ASSESSMENT FOR EACH EVALUATION PARAMETER CONSIDERED											
RISK NO.	**CONSEQUENCE CATEGORY**	**TREAT. NO.**	**EVALUATION PARAMETERS**								**OUTCOME**
			Effectiveness	Practical / Feasible to Implement	Affordable	Sustainable	Safe	Acceptable to Local Community	Potential for Secondary or Consequential Impacts on Hazard or Consequence	Achieves Treatment Objective	
		8	Very High	High	Likely	Likely	Very High	Very Likely	None	Yes	Suitable for Application
			Supporting Comments:	Additional formal training is recommended for site managers in application of the Bushfire Emergency Plan created for this site, and training all staff and bus operators in shelter in place/ evacuation procedures from the Plan. Continued training of onsite staff and bus operators in bushfire behaviour and awareness.							
5	People	9	High	Moderate	Likely	Very Likely	Very High	Likely	None	Yes	Suitable for Application
			Supporting Comments:	Linking the two firebreaks will remove the risk of being entrapped at the end of a dead end track.							
		10	Moderate	Moderate	Possible	Possible	Moderate	Possible	Minor	Partly	Suitable for Application
			Supporting Comments:	The distance to the evacuation location is 5 kilometres and continued management of vegetation either side of the road will be required.							
		11	High	High	Likely	Likely	High	Likely	None	Yes	Suitable for Application
			Supporting Comments:	Maintenance of road to evacuation location will reduce travel time and potential for accidents.							
6	People Economic	12	Very High	High	Likely	Very Likely	Very High	Likely	None	Yes	Suitable for Application
			Supporting Comments:	Although the site is serviced by a bore and backup pump at the creek, provision of a suitable static water supply is a requirement for this site.							
		13	Very High	High	Possible	Very Likely	High	Likely	None	Yes	Suitable for Application
			Supporting Comments:	Replacing vulnerable above ground water supply pipes with pipes made from non-combustible material will reduce the risk of loss of water supply during a bushfire event.							
		14	High	High	Likely	Very Likely	High	Likely	None	Yes	Suitable for Application
			Supporting Comments:	Bushfire sprinkler systems will provide addition protection for buildings during a bushfire event.							
		15	Very High	Very High	Very Likely	Very Likely	Very High	Very Likely	None	Yes	

PART 2: QUALITATIVE TREATMENT ASSESSMENT FOR EACH EVALUATION PARAMETER CONSIDERED											
RISK NO.	**CONSEQUENCE CATEGORY**	**TREAT. NO.**	**EVALUATION PARAMETERS**								**OUTCOME**
			Effectiveness	Practical / Feasible to Implement	Affordable	Sustainable	Safe	Acceptable to Local Community	Potential for Secondary or Consequential Impacts on Hazard or Consequence	Achieves Treatment Objective	
			Supporting Comments:	Continued checking and maintenance of firefighting equipment and supplies is critical.							Suitable for Application
7	People	16	Very High	High	Likely	Likely	High	Likely	None	Yes	Suitable for Application
			Supporting Comments:	Establishment of a <2kW/m^2 area at the airstrip will provide a safe open space location for people to shelter.							
8	People	17	Very High	Very High	Very Likely	Very Likely	Very High	Likely	None	Yes	Suitable for Application
			Supporting Comments:	Provision of sufficient vehicles to be able to evacuate all onsite people is critical.							
9	People	14	High	High	Likely	Very Likely	High	Likely	None	Yes	Suitable for Application
			Supporting Comments:	Bushfire sprinkler systems will provide addition protection for the shelter in place building during a bushfire event.							
		18	Very High	High	Likely	Very Likely	Very High	Likely	None	Yes	Suitable for Application
			Supporting Comments:	Management of the threat of ember attack will greatly reduce the risk of bushfire on the Restaurant/Office building.							
10	People	8	Very High	High	Likely	Likely	Very High	Very Likely	None	Yes	Suitable for Application
			Supporting Comments:	Additional formal training is recommended for site managers in application of the Bushfire Emergency Plan created for this site, and training all staff and bus operators in shelter in place/ evacuation procedures from the Plan. Continued training of onsite staff and bus operators in bushfire behaviour and awareness.							
11	People	19	Moderate	Very High	Very Likely	Very Likely	Moderate	Very Likely	None	Yes	Suitable for Application
			Supporting Comments:	A response procedure and training will provide direction should a tour be isolated from the lodge by a bushfire.							

6.3.3 Evaluation Summary - Recommendations

TREATMENT RECOMMENDATIONS						
IDENTIFIED SOURCE OF RISK		CONSEQUENCE CATEGORY	TREAT NO.	RECOMMENDED MANAGEMENT APPROACH		ADDITIONAL COMMENTS
No.	Title			Treatment Action	Acceptance of Residual Risk	
1	Offsite Vegetation	People Economic	1	Treatment is to be applied.	The residual risk is accepted as being tolerable within the context of the proposed development/use.	Continue with existing treatments.
2	Onsite Vegetation	People Economic	2	Treatment is to be applied	The residual risk is accepted as being tolerable within the context of the proposed development/use.	
			3			
			4			
			5			
3	Stored Materials	People Economic	6	Treatment is to be applied	The residual risk is accepted as being tolerable within the context of the proposed development/use.	
4	Vulnerable Persons	People	7	Treatment is to be applied	The residual risk is accepted as being tolerable within the context of the proposed development/use.	
			8			
5	Access / Egress Routes	People Economic	9	Treatment is to be applied	The residual risk is accepted as being tolerable within the context of the proposed development/use.	
			10	Treatment is to be applied	The residual risk is accepted as being tolerable within the context of the proposed development/use.	Continue with existing treatments.
			11	Treatment is to be applied	residual risk is accepted as being tolerable within the context of the proposed development/use.	
6	Firefighting Capability	People Economic	12	Treatment is to be applied	The residual risk is accepted as being tolerable within the context of the proposed development/use.	
			13			
			14			
			15			
7	Offsite Safer Locations	People	16	Treatment is to be applied	The residual risk is accepted as being tolerable within the context of the proposed development/use.	
8	Evacuation Vehicles	People	17	Treatment is to be applied	The residual risk is accepted as being tolerable within the context of the proposed development/use.	Continue with existing treatments.
9	Onsite Safer Locations	People	14	Treatment is to be applied	The residual risk is accepted as being tolerable within the context of the proposed development/use.	
			18			

TREATMENT RECOMMENDATIONS						
IDENTIFIED SOURCE OF RISK		CONSEQUENCE CATEGORY	TREAT NO.	RECOMMENDED MANAGEMENT APPROACH		ADDITIONAL COMMENTS
No.	Title			Treatment Action	Acceptance of Residual Risk	
10	Emergency Management	People	8	Treatment is to be applied	The residual risk is accepted as being tolerable within the context of the proposed development/use.	
11	Offsite Operations	People	19	Treatment is to be applied	The residual risk is accepted as being tolerable within the context of the proposed development/use.	

6.4 Risk Treatment Plan – Details of Treatments to be Applied

The identified risk treatments that have been selected to be applied are listed in the following table and includes relevant requirements associated with their implementation.

The responsibilities that are established will be incorporated into the landowner/operator responsibilities established in the associated Bushfire Management Plan that has been produced to accompany the development application.

(Note: Notification of the existence of this risk treatment plan and a responsibility for the implementation and maintenance of the identified risk treatments, is created in the bushfire management plan prepared for the proposed development/use).

RISK TREATMENT PLAN	
TREAT. No.	**APPLICATION DETAIL**
1	**Proposed Actions**
	Continued liaison and joint hazard reduction burns with Wunambal Gaambera Uuguu Rangers, DBCA and neighbouring APT Lodge personnel.
	Resource Requirements
	Existing fire fighting equipment, trained personnel.
	Responsibilities/Management
	Lodge Owner/operator and management.
	Timing and Schedule
	Annually, prior to bushfire season.
2	**Proposed Actions**
	Create low fuel buffer Asset Protection Zones, to the specified requirements, around all existing and new buildings as far as practicable, and acceptable by the Wunambal Gaambera native landowners.
	Resource Requirements
	Existing vegetation management and fire fighting equipment, trained personnel.
	Responsibilities/Management
	Site manager/caretaker to as far as practicable, and acceptable by the native landowners, create low bushfire threat asset protection zones around all proposed and existing buildings on the subject site including the vehicle storage shed and its proposed extension.
	Timing and Schedule
	Annually, prior to bushfire season.
3	**Proposed Actions**

RISK TREATMENT PLAN	
TREAT. No.	**APPLICATION DETAIL**
	Continued management and maintenance of onsite vegetation within the existing and proposed Asset Protection Zones (See Figure 3.2 of this Bushfire Management Plan) to a low bushfire threat state throughout the bushfire season (1st April to 14th January).
	Resource Requirements
	Existing vegetation management and fire fighting equipment, trained personnel.
	Responsibilities/Management
	Site manager/caretaker to appoint appropriate person/s to manage onsite vegetation and building asset protection zones prior to the bushfire season, and maintain these areas throughout the bushfire season.
	Timing and Schedule
	During bushfire season.
4	**Proposed Actions**
	Consolidate a formal joint rotational prescribed burning program with APT and the Wunambal Gaambera Uuguu Rangers for the portions of the lease area outside existing or proposed Asset Protection Zones.
	Resource Requirements
	Onsite firefighting equipment, trained staff, trained APT personnel, Wunambal Gaambera Uuguu Rangers..
	Responsibilities/Management
	Site manages/caretaker.
	Timing and Schedule
	As soon as reasonably possible.
5	**Proposed Actions**
	Establish procedure for management of onsite campfires to prevent escape of embers and ignition of vegetation. Campfires should be located away from bushfire prone vegetation, not be left unattended and should be extinguished after use.
	Resource Requirements
	Trained personnel.
	Responsibilities/Management
	Lodge Owner/operator and management.
	Timing and Schedule
	Prior to bushfire season.

RISK TREATMENT PLAN	
TREAT. No.	**APPLICATION DETAIL**
6	**Proposed Actions**
	Onsite flammable materials should be stored in appropriate containers, and located well away from bushfire prone vegetation and buildings. The diesel storage tank, and gas bottles not in use, should be located a minimum of 6 metres from any building and 20 metres from vegetation that is not managed to a low bushfire threat state. Gas bottles should be stored in a cage.
	Resource Requirements
	Cage for storage of gas bottles.
	Responsibilities/Management
	Site manages/caretaker.
	Timing and Schedule
	As soon as reasonably possible.
7	**Proposed Actions**
	Provide appropriate bushfire emergency information in each Eco-tent, staff accommodation and Restaurant/Office building.
	Resource Requirements
	Pamphlets/booklets with appropriate information.
	Responsibilities/Management
	Lodge Owner/operator and management.
	Timing and Schedule
	Prior to bushfire season.
8	**Proposed Actions**
	Additional formal training is recommended for site managers in application of the Bushfire Emergency Plan created for this site, and training all staff and bus operators in shelter in place/ evacuation procedures from the Plan. Continued training of onsite staff and bus operators in bushfire behaviour and awareness.
	Resource Requirements
	Qualified and experienced trainer in bushfire awareness/behaviour and emergency response procedures
	Responsibilities/Management
	Lodge Owner/operator and management.
	Timing and Schedule

RISK TREATMENT PLAN	
TREAT. No.	**APPLICATION DETAIL**
	Prior to bushfire season.
9	**Proposed Actions**
	The existing firebreak along the creek should join with the existing firebreak to the north of Eco-tent 3 to provide for through traffic.
	Resource Requirements
	Machine to create firebreak, labour
	Responsibilities/Management
	Lodge Owner/operator and management.
	Timing and Schedule
	Prior to bushfire season.
10	**Proposed Actions**
	Liaise with Wunambal Gaambera Uuguu Rangers and DBCA to continue management of roadside vegetation between the Lodge and the evacuation location (Mitchell Plateau Airstrip).
	Resource Requirements
	Vegetation management and fire fighting equipment, labour.
	Responsibilities/Management
	Lodge owner/operator.
	Timing and Schedule
	Prior to bushfire season.
11	**Proposed Actions**
	Liaise with relevant authority to reach agreement to maintain road surface along evacuation routes in a trafficable condition.
	Resource Requirements
	Grader and any additional road maintenance equipment as required, labour
	Responsibilities/Management
	Lodge owner/operator, or representative, to liaise with local authority.
	Timing and Schedule
	Prior to bushfire season.

RISK TREATMENT PLAN	
TREAT. No.	**APPLICATION DETAIL**
12	**Proposed Actions**
	Increase number and size of water tanks to be able to adequately supply fire appliances, site hose reels and bushfire sprinklers during a bushfire event. Water tanks should be made of non-combustible material (or suitably shielded) and, installed and dedicated separately to supply firefighting water and bushfire sprinkler systems. The firefighting water supply tank(s) should be a minimum capacity of 50,000 litres. Piping, hoses and fitting for fire water should be non-combustible or buried underground.
	Resource Requirements
	Water tanks and associated fittings, labour.
	Responsibilities/Management
	Lodge owner/operator.
	Timing and Schedule
	Prior to bushfire season.
13	**Proposed Actions**
	Consider replacing, when feasible, above ground pipe from bore, that supplies potable water to the site, with pipe made of a non-combustible material.
	Resource Requirements
	Fire resistant water pipes, labour.
	Responsibilities/Management
	Lodge owner/operator or representative.
	Timing and Schedule
	When feasible.
14	**Proposed Actions**
	Suitable bushfire sprinkler systems to be installed onto the future Eco-tents and on the Restaurant/Office building. Fire hose reels to be installed to service new Eco-tents and staff accommodation buildings.
	Resource Requirements
	Necessary pipework, fittings etc, labour.
	Responsibilities/Management
	Lodge Owner/operator.
	Timing and Schedule

RISK TREATMENT PLAN	
TREAT. No.	**APPLICATION DETAIL**
	Prior to bushfire season.
15	**Proposed Actions**
	Continually check and maintain fire appliances, water tanks, water pumps and delivery systems, firefighting equipment and personal protective clothing.
	Resource Requirements
	Existing resources.
	Responsibilities/Management
	Site manager/caretaker.
	Timing and Schedule
	Weekly or after use.
16	**Proposed Actions**
	Liaise with landowner to establish and maintain an area at the Mitchell plateau Airstrip that will be subject to a radiant heat level of no greater than 2kW/m2.
	Resource Requirements
	Vegetation management and fire fighting equipment, trained personnel.
	Responsibilities/Management
	Lodge owner/operator to seek permission from landowner/custodian to manage required portion of airstrip, and to seek agreement from Wunambal Gaambera Uuguu Rangers to maintain that area to a low bushfire threat state during the fire season.
	Timing and Schedule
	Prior to the beginning of the bushfire season.
17	**Proposed Actions**
	Continue to ensure that enough vehicles, suited for the purpose, are available to all onsite persons for use in the event of a required evacuation.
	Resource Requirements
	Existing resources.
	Responsibilities/Management
	Site manager/caretaker.
	Timing and Schedule

RISK TREATMENT PLAN	
TREAT. No.	**APPLICATION DETAIL**
	Ongoing.
18	**Proposed Actions**
	As far as practicable, retrofit existing Restaurant/Office building to comply with BAL-12.5 building requirements as per AS3959-2018 "Construction of buildings in bushfire prone areas". In particular sealing gaps into the roof space, including ember guards for whirlybirds if not already fitted, and enclosing the subfloor space should be considered as these areas are difficult to monitor during a bushfire event.
	Resource Requirements
	Building materials, labour.
	Responsibilities/Management
	Lodge owner/operator.
	Timing and Schedule
	Prior to bushfire season.
19	**Proposed Actions**
	Establish an emergency response procedure for the event that a day tour is isolated from the Lodge by a bushfire.
	Resource Requirements
	Existing resources.
	Responsibilities/Management
	Lodge owner/operator.
	Timing and Schedule
	Prior to bushfire season.

6.5 Risk Treatments - Responsibility for Implementation and Maintenance

Notification of the existence of proposed risk treatments and the responsibilities for the implementation and maintenance of these treatments - is to be created within the Bushfire Management Plan (BMP) prepared for the proposed development. Within the BMP section that establishes landowner/operator responsibilities, the following statements are to be incorporated.

DEVELOPER/LANDOWNER RESPONSIBILITIES – PRIOR TO OCCUPANCY/OPERATION

All proposed risk treatments that have been identified within the Bushfire Risk Assessment document - and presented as Addendum No.1 in the associated Bushfire Management Plan - must be implemented as part of the development approval and prior to the beginning of the beginning of the fire season. The relevant sections of the document are:

- *Section 3.2 'Existing/Planned Controls (Risk Treatments)'; and*
- *Section 6.4 'Risk Treatment Plan – Details of Additional Treatments to be Applied'.*

LANDOWNER/OPERATOR – ONGOING RESPONSIBILITIES

All proposed risk treatments that have been identified within the Bushfire Risk Assessment document – and presented as Addendum No.1 in the associated Bushfire Management Plan - must be maintained. The relevant sections of the document are:

- *Section 3.2 'Existing/Planned Controls (Risk Treatments)'; and*
- *Section 6.4 'Risk Treatment Plan – Details of Additional Treatments to be Applied'.*

7 MONITOR AND REVIEW

As part of the proposed developments operation, a program should be established for monitoring and reviewing the outcomes of this documented risk management process.

The risk assessment needs to be updated regularly to ensure that it is current, and the recommended treatments and their priorities remain relevant. The monitoring and review process should include:

1. Ensuring the identified controls are operating effectively and adequately and have not changed over time;
2. Ensuring the best and most up to date available information is used as evidence for the likelihood, consequence, and confidence levels;
3. Incorporating information from emergency events that may have occurred since the last risk assessment;
4. Accounting for changes in the context of the risk assessment; and
5. Identifying and accounting for emerging risks.

8 RECORD AND REPORT

As part of the proposed developments operation and to complete the risk management process, the following actions should be undertaken:

1. Document the outcomes of the monitoring and reviewing program; and
2. Communicate the outcomes to the organisations management and other stakeholders defined in establishing the context for this document. The intent is to assist with supporting the improvement of risk management and decision making.

9 APPENDIX 1: RISK ASSESSMENT CRITERIA APPLIED (TABLES)

Table1: Level of Existing Controls - Assessment Criteria Applied

APPLIED DESCRIPTORS (QUALITATIVE) FOR EXISTING CONTROL STRENGTH AND EXPEDIENCY		
LEVEL	**CONTROL STRENGTH** (effectiveness/ability to modify the risk)	**CONTROL EXPEDIENCY** (ease of implementation – cost/practicality/regulations/community acceptance)
Very Low	Control has almost no effect in reducing the level of risk.	Application of the control is outside of the experience and planning of operators, with no effective procedures or plans for its operation. It has not been foreseen that the control will ever need to be used. The application of the control requires significant cost over and above existing resources, and the cost will most likely be objected to by a number of stakeholders.
Low	Control has some effect in reducing the level of risk.	The control is applied rarely, and operators may not have experience using it. The use of the control may have been foreseen and plans for its application may have been considered, but it is not part of normal operational protocols and has not been tested. Extraordinary cost is required to apply the control, which may be difficult to obtain.
Medium	Control is effective in reducing the level of risk.	The control is infrequently applied and is outside of the operators' everyday experience. The use of the control has been foreseen and plans for its application have been prepared and tested. Some extraordinary cost may be required to apply the control.
High	Control is highly effective in reducing the level of risk.	The control is frequently applied. A procedure to apply the control is well understood and resourced. The cost of applying the control is within current resources and budgets.

APPLIED LEVEL OF EXISTING CONTROL MATRIX				
CONTROL STRENGTH	**CONTROL EXPEDIENCY**			
	Very Low	**Low**	**Medium**	**High**
Very Low	**Very Low**	**Very Low**	**Low**	**Low**
Low	**Very Low**	**Low**	**Medium**	**Medium**
Medium	**Low**	**Medium**	**Medium**	**Medium**
High	**Low**	**Medium**	**Medium**	**High**

Table 2: Consequence Levels - Assessment Criteria Applied

APPLIED ASSESSMENT CRITERIA FOR DETERMINING CONSEQUENCE LEVELS (For the outcomes of emergency events. These are the terms of reference against which the significance of a risk is evaluated – as applicable to the scale and use of the development proposal)						
CONSEQUENCE LEVEL	**CONSEQUENCE CATEGORY**					
	People health, safety, support required, death, injury	**Economic** property/infrastructure damage, production loss, financial loss	**Environmental** loss of species, landscape, values	**Social** community function and cultural/heritage impact	**Public Administration** impact on ability to govern	**Legal and Reputation** regulatory and image impact
Insignificant	**Criteria Applied at the Operational Scale – Facility, Premises and Individual Business**					
	No Injuries	No or slight damage to property (< $2000). No or inconsequential business disruption and/or financial loss.	N/A	N/A	N/A	Low-level legal issue. Breach of internal target or objective. No public concern.
	Criteria Applied at the Broader Scale - Jurisdiction, Region, Community, Government					
	No injuries	Inconsequential short-term failure of infrastructure and service delivery. No disruption to public services.	Near misses or incidents without environmental damage. No recovery efforts required. Limited short term damage (up to one year). Minor impact and managed within operating budget.	Inconsequential short-term reduction of services. No damage to objects of cultural/heritage significance. No adverse emotional and psychological impacts.	Governing body manages the emergency event within normal parameters. Public administration functions without disturbance.	N/A
Minor	**Criteria Applied at the Operational Scale – Facility, Premises and Individual Business**					
	Minor injuries only requiring first aid.	Component level replacement / repair ($2000 - $10,000). Minor damage, business disruption, isolated loss of employment, some financial loss.	Localised short term damage (up to one year), that can be recovered. Up to $20,000 to correct.	Some temporary impact on services accessed.	N/A	Minor legal issues, breach of corporate standard or external guideline.
	Criteria Applied at the Broader Scale - Jurisdiction, Region, Community, Government					
	No persons are displaced. Little or no personal support (physical, mental, emotional) required.	Inconsequential damage to assets, with little or no specific recovery efforts required beyond the immediate clean-up. Infrastructure/systems failure impacts on part of communities functioning over a small area for a short period (a few weeks). Localised inconvenience. Government/business sector losses managed within standard financial provisions.	Isolated cases of damage to environmental assets. One-off recovery efforts required to supplement self-repair. Damage localised in extent. Short term impairment of ecosystems functions up to one year.	Isolated and temporary cases of reduced services within community. Isolated and repairable damage to objects of cultural/heritage significance. Localised disruption to community wellbeing and social networks over a small area for a period of weeks.	Governing body manages the emergency event under emergency regime. Public administration functions with inconsequential disruption. Isolated public concern.	N/A

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CONSEQUENCE LEVEL	CONSEQUENCE CATEGORY					
	People health, safety, support required, death, injury	**Economic** property/infrastructure damage, production loss, financial loss	**Environmental** loss of species, landscape, values	**Social** community function and cultural/heritage impact	**Public Administration** impact on ability to govern	**Legal and Reputation** regulatory and image impact
Moderate	**Criteria Applied at the Operational Scale – Facility, Premises and Individual Business**					
	No fatalities, Injuries require medical treatment.	Localised damage. Considerable financial loss. Some equipment replacement or repair ($1M-$3M).	Substantial medium term damage (1-5 years), but recoverable. Up to $100,000 to correct.	Ongoing reduced services available.	N/A	Serious breach of legislation, regulation, or licenses.
	Criteria Applied at the Broader Scale – Jurisdiction, Region, Community, Government					
	No fatalities. Isolated cases of serious injuries. Some hospitalisation required and managed within normal operating capacity of health services. Isolated cases of displaced persons who return within 24 hours. Within capacity of jurisdiction to cope. Personal support (physical, mental, emotional) satisfied through local arrangements.	Localised damage to assets that is rectified by routine arrangements. Local economy impacted with additional financial support required to recover. Disruptions to businesses lead to isolated cases of loss of employment or business failure. Infrastructure/systems failure puts severe pressure on part of communities functioning over a medium/large area for a medium period (up to 3 months). Widespread inconvenience but no external support required. Government sector losses require activation of reserves to cover loss.	Isolated but significant cases of impairment or loss of ecosystem functions at locality within jurisdiction. Some remedial efforts required for recovery. Medium term impairment of ecosystems functions up to two years.	Community functioning with some inconvenience. Ongoing reduced services. Some permanent damage to objects of cultural/heritage significance with long term effects on values. Significant disruption to community wellbeing and social networks over a locality for a period of months.	Governing body manages the emergency event with considerable diversion from policy. Public administration functions limited by focus on critical services. Instances of public protests with emergent alarm. Significant diversion from State policy goals or programs.	N/A
Major	**Criteria Applied at the Operational Scale – Facility, Premises and Individual Business**					
	Isolated fatalities. Extensive injuries, some serious, some permanent disability. Restricted work or lost time through injury or illness.	Significant damage. Significant financial loss. Multiple equipment replacements ($3M-$7M)	Serious medium term damage (1-5 years) with costly remediation. Up to $1,000,000.	Significant services unavailable for an extended period of time.	N/A	Major breach of legislation, regulation, or licenses. Regulator enforcement action fines.
	Criteria Applied at the Broader Scale - Jurisdiction, Region, Community, Government					
	Isolated fatalities. Multiple cases of serious injuries. Significant hospitalisation required, leading to health services being stretched. Large number of persons displaced (more than 24 hours duration). Within capacity of jurisdiction to cope. Significant resources required for personal support (physical, mental, emotional).	Significant damage to assets, with ongoing recovery efforts and external resources required. Local or regional economy impacted for a significant period of time with significant financial assistance required. Significant disruptions across industry sectors leading to multiple business failures and loss of employment. Medium to long term (3-6 months) failure of significant infrastructure and service delivery affecting large parts of the community. Initial external support required.	Severe impairment or loss of ecosystem functions affecting one or more species or regional landscapes. Progressive environmental damage. Extensive recovery effort required. Serious long term impairment or loss of ecosystem functions up to five years. Localised extinction of native species. This may range from loss of a single population to loss of all species within the area being considered (and where the species occupies a greater range than just the considered area).	Community only partially functioning. Widespread inconvenience, with significant services unavailable for an extended period of time. Reduced quality of life. Significant loss or damage to objects of cultural/heritage significance. Severe disruption to community wellbeing and social networks over a wide area for up to two years.	Governing body absorbed with managing the emergency event. Public administration struggles to provide critical services. Loss of public confidence in governance, with serious widespread public outcry and some alarm. State policy goals or programs abandoned.	N/A

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CONSEQUENCE LEVEL	CONSEQUENCE CATEGORY					
	People health, safety, support required, death, injury	**Economic** property/infrastructure damage, production loss, financial loss	**Environmental** loss of species, landscape, values	**Social** community function and cultural/heritage impact	**Public Administration** impact on ability to govern	**Legal and Reputation** regulatory and image impact
Catastrophic	**Criteria Applied at the Operational Scale – Facility, Premises and Individual Business**					
	Multiple fatalities. and severe injuries.	Extensive damage. Possibility it will cause business to fail. (>$7M)	Widespread long-term damage (5 years or longer). Not totally recoverable. More than $1,000,000 to correct or in penalties.	Significant services unavailable locally for a number of years. Required to be accessed externally where possible.	NA	Major breach of legislation, regulation, or licenses. Regulatory intervention, fines, litigation, prosecution, jail terms.
	Criteria Applied at the Broader Scale - Jurisdiction, Region, Community, Government					
	Widespread multiple fatalities. Large number of severe injuries. Extended and large number requiring hospitalisation, leading to health services being unable to cope. Extensive displacement of persons for extended duration. Extensive resources required for personal support (physical, mental, emotional).	Unrecoverable financial losses. Extensive large scale damage to assets that will require significant ongoing recovery efforts and extensive external resources. Regional or State economy impacted for an extended period of time with significant financial assistance required. Significant disruptions across industry sectors leading to widespread business failures or loss of employment. Long term (> 6 months) failure of significant infrastructure and service delivery affecting most of the community. Ongoing external support at a large scale required.	Widespread severe impairment or loss of ecosystem functions affecting many species and multiple or large regional landscapes. Irrecoverable environmental damage. Permanent loss of ecosystem in its pre-existing form. Limited ecosystem recovery over more than five years. Extinction of a native species in nature (i.e. wild specimens and does not include flora or fauna bred or kept in captivity). This category is most relevant to species that are restricted to the area subject to the emergency event or also occur in adjoining areas and are likely to be impacted upon by the same emergency event.	Community unable to function without significant external support. Widespread loss or permanent damage to objects of cultural/heritage significance. Severe disruption to community wellbeing and social networks over a large part or the whole of the area for a period of many years.	Governing body unable to manage the emergency event. Public administration is disordered and does not function effectively. Public alarm and unrest, civil order requires inter jurisdictional reinforcement. Government resigns or alternative governance necessary for some period.	N/A

Table 3: Likelihood Levels – Assessment Criteria Applied

LIKELIHOOD OF THE CONSEQUENCE OCCURRING (REFLECTS THE PROBABILITY OF BOTH THE EMERGENCY EVENT AND THE ESTIMATED CONSEQUENCES OCCURRING AS A RESULT OF THE EVENT)	
LEVEL	**THE APPLIED ASSESSMENT CRITERIA**
Very Rare	**Probability of Occurrence:** On average will occur once per 200 years (equivalent to annual exceedance probability of 0.5%). **Relevant Emergency Event Considerations:** An emergency event created from an identified source of risk (the hazard), is theoretically possible but may only take place in exceptional circumstances. There are no recorded events or any indicative evidence, including in any comparable facility/premises/business/jurisdiction. Miniscule opportunity, reason or means to occur exists. No fuels are available to enable a bushfire to spread and impact the subject site through the production of embers and firebrands from greater distances or flames and radiant heat from closer vegetation.
Rare	**Probability of Occurrence:** On average will occur once per 50 years (equivalent to annual exceedance probability of 2%). **Relevant Emergency Event Considerations:** An emergency event created from an identified source of risk (the hazard) may take place at some time. Few recorded events in the vicinity or little indicative evidence. Some similar events in comparable jurisdictions. The event has not occurred in the life of the facility/premises/business but has occurred in the industry. Little opportunity, reason or means to occur exists. There are no fuels are available to enable a bushfire to spread and impact the subject site through the production of embers and firebrands from greater distances or flames and radiant heat from closer vegetation.
Unlikely	**Probability of Occurrence:** On average will occur once per 20 years (equivalent to annual exceedance probability of 5%). **Relevant Emergency Event Considerations:** An emergency event created from an identified source of risk (the hazard) is unlikely to take place. Recorded history of some events in the vicinity and in comparable jurisdictions. The event has occurred in the life of the facility/premises/business. Exceptional conditions may allow this event to occur. Some opportunity, reason or means to occur exists. There is limited availability of fuels to enable a bushfire to spread and impact the subject site through the production of embers and firebrands from greater distances or flames and radiant heat from closer vegetation.
Possible / Likely	**Probability of Occurrence:** On average will occur once per 5 years (equivalent to annual exceedance probability of 20%). **Relevant Emergency Event Considerations:** An emergency event created from an identified source of risk (the hazard) is possible and is likely to occur in many circumstances. Recorded history of many events in the vicinity and some events in comparable jurisdictions. The event has occurred in the life of the facility/premises/business and/or a number of near misses have occurred. Great opportunity, reason or means to occur exists. Fuels are available to enable a bushfire to spread and impact the subject site through the production of embers and firebrands from greater distances or flames and radiant heat from closer vegetation.
Almost Certain	**Probability of Occurrence:** On average will occur once every year (equivalent to annual exceedance probability of 63%). **Relevant Emergency Event Considerations:** An emergency event created from an identified source of risk (the hazard) is expected to occur in most circumstances. Recorded history of frequent events in the vicinity with strong indicative evidence. The event has previously occurred, and repeated events are expected during the life of the facility/premises/business. Significant levels of fuel are available to enable a bushfire to spread and impact the subject site through the production of embers and firebrands from greater distances or flames and radiant heat from closer vegetation.

Table 4: Risk Level – Qualitative Matrix Applied

APPLIED RISK LEVEL MATRIX (as a combination of emergency event consequence and likelihood)					
LIKELIHOOD	**CONSEQUENCE**				
	Insignificant	**Minor**	**Moderate**	**Major**	**Catastrophic**
Very Rare	**Very Low**	**Very Low**	**Low**	**Medium**	**High**
Rare	**Very Low**	**Low**	**Medium**	**High**	**High**
Unlikely	**Low**	**Low**	**Medium**	**High**	**Extreme**
Possible/Likely	**Low**	**Medium**	**High**	**Extreme**	**Extreme**
Almost Certain	**Medium**	**Medium**	**High**	**Extreme**	**Extreme**
Adapted from Australian Disaster Resilience Handbook 10: National Emergency Risk Assessment Guidelines (NERAG) (AIDR 2020)					

Table 5: Risk Analysis Confidence Levels – Assessment Criteria Applied

APPLIED RISK ANALYSIS CONFIDENCE LEVEL ASSESSMENT CRITERIA				
LEVEL	**DESCRIPTOR**	**SUPPORTING EVIDENCE**	**EXPERTISE**	**PARTICIPANT AGREEMENT**
Highest	Assessed likelihood, consequence or risk is easily assessed to one level, with almost no uncertainty.	Recent historical event of similar magnitude to that being assessed in the community of interest. Quantitative modelling and analysis of highest quality and length of data relating directly to the affected community, used to derive results of direct relevance to the scenario being assessed.	Risk assessment team contains relevant and demonstrated technical expertise in the field being assessed, and experience in data and/or modelling of direct relevance to the scenario being assessed, and technical expertise is highly influential in the decisions of the risk assessment team.	Agreement among participants on the assessment of levels of likelihood, consequence or risk.
High	Assessed likelihood, consequence or risk has only one level, but with some uncertainty in the assessment.	Recent historical event of similar magnitude to that being assessed in a directly comparable community of interest. Quantitative modelling and analysis uses sufficient quality and length of data to derive results of direct relevance to the event being assessed.	Risk assessment team contains relevant technical expertise in the field being assessed, and experience with data and/or modelling relating to the event being assessed, and technical expertise is highly influential in the decisions of the risk assessment team.	Disagreement on only minor aspects, which have little effect on the assessment of levels of likelihood or consequence.
Moderate	Assessed likelihood, consequence or risk could be one of two levels, with significant uncertainty.	Historical event of similar magnitude to that being assessed in a comparable community of interest. Quantitative modelling and analysis with reasonable extrapolation of data required to derive results of direct relevance to the event being assessed.	Risk assessment team contains relevant technical expertise in the field being assessed, and experience in data and/or modelling of relevance to the event being assessed, and technical expertise is used by the risk assessment team.	Disagreement on significant issues, which would lead to different levels of likelihood or consequence depending on which argument was followed.
Low	Assessed likelihood, consequence or risk could be one of three or more levels, with major uncertainty.	Some comparable historical events through anecdotal information. Quantitative modelling and analysis with extensive extrapolation of data required to derive results of relevance to the event being assessed	Risk assessment team contains technical expertise related to the field being assessed. Technical expertise is taken into account by the risk assessment team.	Disagreements on fundamental issues relating to the assessment of likelihood or consequence, which would lead to a range of rating levels.
Lowest	Assessed likelihood, consequence or risk could be one of four or more levels, with fundamental uncertainty.	No historical events or quantitative modelled results to support the levels.	No relevant technical expertise is available to the team for analysis.	Fundamental disagreement on levels of likelihood, consequence or risk, with little prospect of agreement.

Table 6: Risk Analysis Confidence Levels – Matrix Applied

APPLIED RISK ANALYSIS CONFIDENCE LEVEL MATRIX (to determine overall confidence level when separate assessments of consequence and likelihood are made)					
CONFIDENCE IN LIKELIHOOD	**CONFIDENCE IN CONSEQUENCE**				
	Very Low	**Low**	**Moderate**	**High**	**Highest**
Highest	Moderate	Moderate	High	Highest	Highest
High	Moderate	Moderate	Moderate	High	Highest
Moderate	Low	Moderate	Moderate	Moderate	High
Low	Lowest	Low	Moderate	Moderate	Moderate
Lowest	Lowest	Lowest	Low	Moderate	Moderate

Table 7: Assignment of the Risk Priority – Determination Factors Applied

APPLIED RISK PRIORITY MATRIX *																									
LIKELIHOOD	**CONSEQUENCE LEVEL / OVERALL CONFIDENCE IN DETERMINED RISK LEVEL**																								
	Insignificant					**Minor**					**Moderate**					**Major**					**Catastrophic**				
	Highest	High	Moderate	Low	Lowest	Highest	High	Moderate	Low	Lowest	Highest	High	Moderate	Low	Lowest	Highest	High	Moderate	Low	Lowest	Highest	High	Moderate	Low	Lowest
Very Rare	5	5	5	5	4	5	5	5	4	4	5	4	4	3	3	4	3	3	2	2	3	3	2	2	1
Rare	5	5	5	4	4	5	5	4	4	3	5	4	3	3	2	3	3	2	2	1	3	2	2	1	1
Unlikely	5	5	4	4	3	5	4	4	3	3	4	3	3	2	2	3	2	2	1	1	2	2	1	1	1
Possible/Likely	5	4	4	3	3	4	4	3	3	2	4	3	2	2	1	2	2	1	1	1	2	1	1	1	1
Almost Certain	4	4	3	3	2	4	3	3	2	2	3	2	2	1	1	2	1	1	1	1	1	1	1	1	1
*Based on matrices presented in Section 7.1 of *Australian Disaster Resilience Handbook 10: National Emergency Risk Assessment Guidelines (NERAG) (AIDR 2020)*																									
GENERAL DESCRIPTORS OF REQUIRED ACTION ASSOCIATED WITH EACH RISK PRIORITY LEVEL																									
1	Highest priority for treatment (and/or further investigation). Highest authority relevant to context of risk assessment must be formally informed of risks. Each risk must be examined, and any actions of further investigation and/ or risk treatment are to be documented, reported to, and approved by that highest authority.																								
2	High priority for treatment (and/or further investigation). Highest authority relevant to context of risk assessment should be formally informed of risks. Further investigations and treatment plans should be developed.																								
3	Medium priority for treatment (and/or further investigation). Actions regarding investigation and risk treatment should be delegated to appropriate level of organisation, and further investigations and treatment plans may be developed.																								
4	Low priority for treatment (and/or further investigation). Actions regarding investigation and risk treatment should be delegated to appropriate level of organisation, and further investigations and treatment plans may be developed.																								
5	Broadly acceptable risk. No action required beyond monitoring of risk level and priority during monitoring and review phase.																								

Table 8: Assignment of the Risk Category – Descriptors and Further Considerations

APPLIED RISK CATEGORY DESCRIPTORS	
Category 1: Treat	**Risks requiring treatment (with confidence to determine treatment objectives):** For these risks the risk assessment is completed because they are required to be treated and the information contained in the in the risk evaluation register identifies treatment objectives.
Category 2: Further Analysis	**Risks requiring further analysis and re-evaluation:** For these risks the risk assessment process continues. They have been identified during the risk assessment process as requiring further analysis and subsequent re-evaluation. This may be in the form of a revised base analysis or a detailed risk analysis. Detailed analysis may require a more focused context and it is likely that semi quantitative or quantitative methods may be required (e.g. when treatments are expensive, less practical and likely to have a broad community impact).
Category 3: Monitor	**Risks (currently) requiring no additional treatment:** These risks have been assessed as requiring ongoing monitoring and the maintenance and reviewing of any existing controls, as part of the ongoing risk management process.

MODIFICATION OF ASSIGNED RISK CATEGORY – ISSUES CONSIDERED *																	
1. Does the risk need to be treated urgently?		**1.1 Will the treatment alter the behaviour of the hazard and could this have adverse consequences outside the treated area?**			**2. Can the confidence level be improved?**			**3. If confidence were improved, would it affect priority?**			**4. If confidence were improved, would a different decision be made regarding treatment and management?**					
Yes	No	Yes	No		Yes	No		Yes	No		Yes	No					
Question 1.1	Question 2	Question 2	Existing Risk Priority		Question 3	Existing Risk Priority		Question 4	Existing Risk Priority		Category 2 (Further Analysis)	Existing Risk Priority					
			1-4	5		1-4	5		1-4	5		1-4	5				
			Category 1 (Treat)	Category 3 (Monitor)		Category 1 (Treat)	Category 3 (Monitor)		Category 1 (Treat)	Category 3 (Monitor)		Category 1 (Treat)	Category 3 (Monitor)				
*Based on Section 7.2 of *Australian Disaster Resilience Handbook 10: National Emergency Risk Assessment Guidelines (NERAG) (AIDR 2020)*																	

Table 9: Assignment of the Risk Rank - Determination Factors Applied

APPLIED RISK RANK MATRIX																										
RISK PRIORITY	**1**				**2**						**3**						**4**								**5**		
RISK CATEGORY	Treat	Treat	Analysis	Analysis	Treat	Treat	Treat	Analysis	Analysis	Analysis	Treat	Treat	Treat	Analysis	Analysis	Analysis	Treat	Treat	Treat	Treat	Analysis	Analysis	Analysis	Analysis	Monitor	Monitor	Monitor
RISK LEVEL	Extreme	High	Extreme	High	Extreme	High	Medium	Extreme	High	Medium	High	Medium	Low	High	Medium	Low	High	Medium	Low	Very Low	High	Medium	Low	Very Low	Medium	Low	Very Low
RISK RANK	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
ADJUST	For each risk rank, it may be necessary to rank one type of consequence category over another (e.g. ranked as 5a, 5b, 5c etc). The order of priority will be to protect life ⇨ protect property ⇨ protect critical infrastructure ⇨ protect the environment.																										