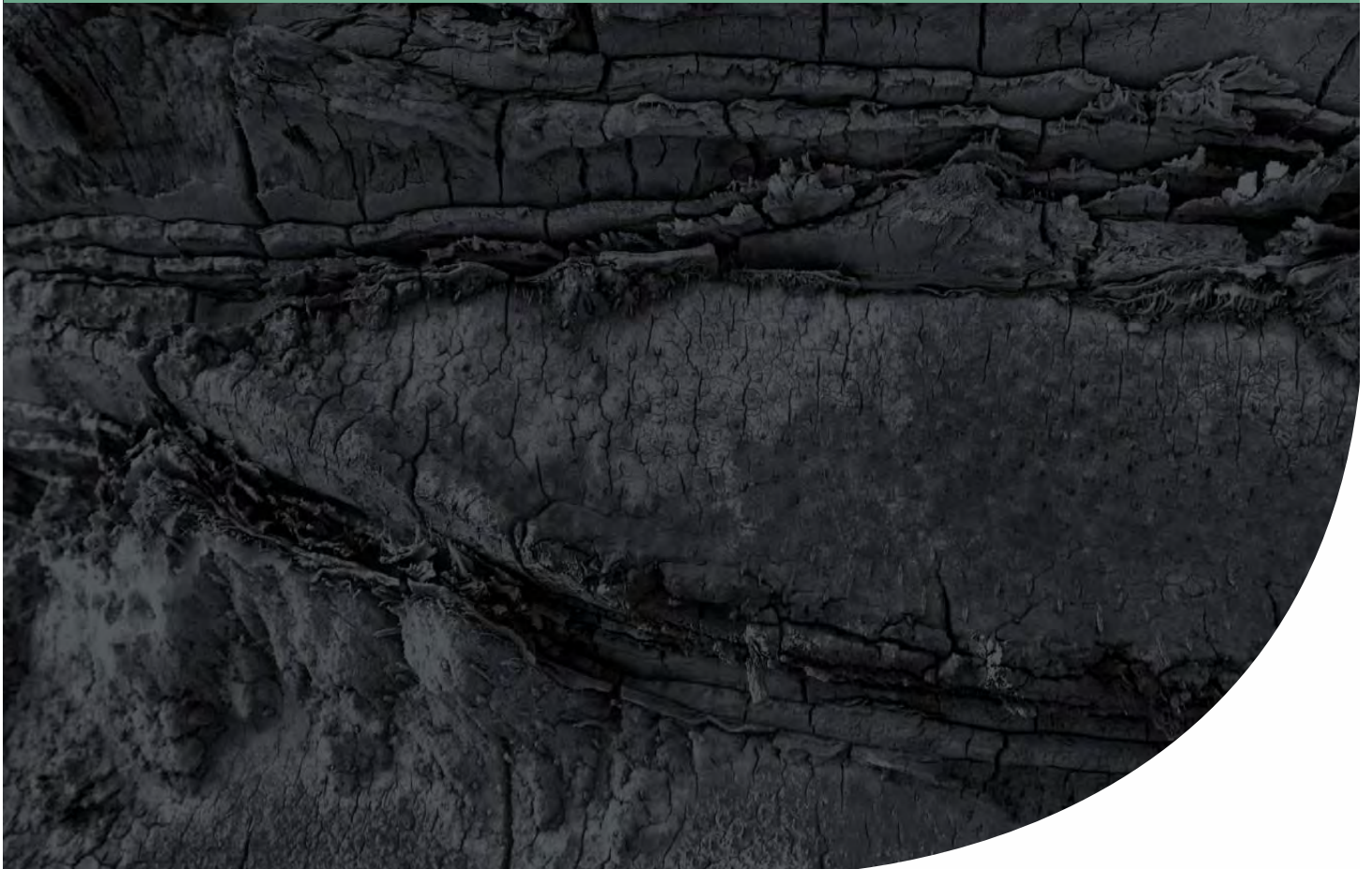


# Bushfire Management Plan

Ningaloo Reef Resort

Project No: EP22-033(02)

**Prepared for RAC Tourism Assets Pty Ltd  
July 2023**



# Bushfire Management Plan

## Ningaloo Reef Resort



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This document has been prepared primarily to consider the layout of development and/or the appropriate building construction standards applicable to development, where relevant. The measures outlined are considered to be prudent minimum standards only based on the standards prescribed by the relevant authorities. The level of bushfire risk mitigation achieved will depend upon the actions of the landowner or occupiers of the land and is not the responsibility of the author. The relevant local government and fire authority (i.e. Department of Fire and Emergency Services or local bushfire brigade) should be approached for guidance on preparing for and responding to a bushfire.

Notwithstanding the precautions recommended in this document, it should always be remembered that bushfires burn under a wide range of conditions which can be unpredictable. An element of risk, no matter how small, will always remain. The objective of the Australian Standard AS 3959:2018 is to “prescribe particular construction details for buildings to reduce the risk of ignition from a bushfire” (Standards Australia 2018). Building to the standards outlined in AS 3959 does not guarantee a building will survive a bushfire or that lives will not be threatened by the effects of bushfire attack.

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# Bushfire Management Plan

## Ningaloo Reef Resort



## Executive Summary

RAC Tourism Assets Pty Ltd (the proponent) are seeking to progress the redevelopment of the Ningaloo Reef Resort located at 14 (Lot 1), 6 (Lot 54) and 2 (Lot 68) Robinson Street, Coral Bay (herein referred to as 'the site') as a continuing tourism use. The use of the site includes tourism accommodation, vehicle parking, common open spaces and a clubhouse. The site is approximately 2.41 hectares in size and is located at the western edge of the Coral Bay townsite adjacent to the Ningaloo Marine Park in the Shire of Carnarvon. The site adjoins Robinson Street to the north, existing and developing tourism accommodation to the east and vegetated dunes to the south and west. The Banksia Drive road reserve is located immediately south of the site.

The entirety of the site is zoned 'Tourism' under the Shire of Carnarvon Local Planning Scheme No. 13 and is also within a Special Control Area 'SCA5 - General'. The Coral Bay Settlement Structure Plan 2014 applies to the site and plans for the redevelopment and continuing use of the site.

The site is located within a 'bushfire prone area' under the state-wide *Map of Bush Fire Prone Areas* prepared by the Office of Bushfire Risk Management (OBRM 2021). The identification of a site within an area declared as bushfire prone necessitates further assessment of the determined bushfire risk affecting the site in accordance with *Australian Standard 3959:2018 Construction of buildings in bushfire prone areas* (AS 3959), and the satisfactory compliance of the proposal with the policy measures described in *State Planning Policy 3.7 Planning in Bushfire Prone Areas* (SPP 3.7) (WAPC 2015) and the *Guidelines for Planning in Bushfire Prone Areas Version 1.4* (the Guidelines) (DPLH & WAPC 2021).

The purpose of this BMP is to assess the bushfire hazards, both within and nearby the site, and identify the 'management' strategies required to ensure the development of the land is consistent with the intent of SPP 3.7 - *to preserve life and reduce the impact of bushfire on property and infrastructure*.

This BMP has followed the requirements of SPP 3.7 to identify bushfire risk and the bushfire protection measures that will make the land suitable for its intended purpose. As part of this, a Bushfire Attack Level (BAL) assessment involving the classification of vegetation within 150 m of the site has been undertaken.

As part of assessing the long-term bushfire risk to the site, vegetation classifications have been detailed for the post-development scenario (in accordance with AS 3959) in order to inform the BAL assessment. The following bushfire hazards were identified as applicable to the site following development:

- Shrubland (Class C) vegetation, which was identified to the north, west, south and east of the site and is associated with remnant foreshore (coastal heath) vegetation, and recently planted areas within nearby landholdings.
- Scrub (Class D) vegetation, which was identified to the north-east of the site and is associated with taller Acacia species within the foreshore reserve to the north of Robinson Street.
- Grassland (Class G) vegetation, which was identified to the south-east and east of the site and is associated native and non-native grass species with the adjacent landholding to the east and Crown land to the south-east.

## Bushfire Management Plan

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In order to resolve the potential for bushfire to affect the site, a post development scenario has been assumed in which all classified vegetation within the site and associated driveway extension connecting to Robinson Street (located within Lot 68) will be removed and converted to non-vegetated (exclusion 2.2.3.2(e)) and/or low threat vegetation (exclusion 2.2.3.2(f)). Outside of the carparking along Robinson Street and identified management areas, all other classified vegetation outside the site, is assumed to remain in its existing condition and therefore pose a bushfire risk to the site in the long-term.

### Compliance Assessment

The existing and ongoing use of the site is considered a 'vulnerable tourism land use' in accordance with the SPP 3.7 and the Guidelines. Accordingly, bushfire risk has been considered based on Element 5 (other short-term accommodation) of the Guidelines. The outcomes of this BMP demonstrate that as development progresses, it will be possible for an acceptable solution to be adopted for each of the applicable bushfire protection criteria outlined in Element 5 of the Guidelines. This includes:

- **Location:** The site is an existing part of the Coral Bay town site, with the redevelopment contributing to the expansion of the site. The site will be subject to a moderate bushfire hazard (it is a low hazard, but is within 100 m of classified vegetation) and habitable buildings can be sited to achieve BAL-29 or less.
- **Siting and Design:** all future habitable buildings can be sited so that BAL-29 or less can be achieved based on the proposed development layout and the implementation of management strategies/management areas outlined in the BMP, including an appropriate asset protection zone that will be managed by the proponent. All buildings can achieve BAL-19 or BAL-12.5.
- **Vehicular Access:** Coral Bay is a coastal townsite within the north-west of Western Australia. It is accessed by a single road and serviced by reticulated water supply, with the development contiguous to the town. Accordingly, the site is located within a residential built-out area, which includes a 'suitable destination', an area either not designated as 'bushfire prone' or more than 100 m from classified vegetation. The tourism development within the site will have access to at least two suitable destinations, namely Coral Bay townsite and Coral Bay Road, which intersects Minilya-Exmouth Road, a major transport route that provides egress to the north and south. Internal vehicle access provides for two-way traffic (roads are a minimum 6 m-wide) and suitable turning areas.
- **Water:** the development will be provided with a permanent and reticulated water supply to support onsite firefighting requirements.

Consideration of emergency evacuation planning has been undertaken as part of preparing the BMP on whether there are any elements of an emergency evacuation plan that would fundamentally change the approval and therefore should be addressed as part of the development approval. The assessment completed as part of this BMP indicates that an emergency evacuation plan could be completed to support occupancy and doing it at this stage would not fundamentally affect the ability of the proposal to be implemented. In particular:

- Permanent staff trained in emergency procedures will be present at all times to direct visitors/occupants in the case of emergency.

## Bushfire Management Plan

### Ningaloo Reef Resort



- Local fire emergency response planning, including risk assessment, has been completed for the Shire of Carnarvon and Coral Bay identifying key risk areas which allows for holistic management.
- Egress to two different suitable destinations is available, namely Coral Bay townsite (the site forms part of the town) and Minilya-Exmouth Road.
- The buildings achieve a BAL rating of BAL-29 or less, satisfying the requirements of SPP 3.7, and will be constructed in accordance with AS 3959 and the requirements of the *Building Act 2011*.
- Sufficient water supply and hydrants will be available to support fire-fighting requirements.

Therefore, a bushfire emergency evacuation plan has not been prepared to support the development application but is required to be prepared prior to occupancy (in the form of a standalone report, or as part of a broader development emergency response plan). This is specified in the responsibilities of the BMP.

In addition to bushfire, the site may also be subject to cyclone and other natural hazards (such as flooding) which have minimum site planning requirements. The proponent takes their responsibilities for the safety of guests and staff seriously and as a standard of operation prepare emergency response plans. Bushfire evacuation considerations are able to be accommodated as part of this process.

The management/mitigation measures to be implemented for the site have been outlined as part of this BMP and the requirements of SPP 3.7 can be satisfied. Following certification, the BAL ratings determined within this BMP can be used to support future building approval processes.

# Bushfire Management Plan

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Proposed Development Plan (Architectus 2023)

### Appendix B

Landscape Concept Plan (SeeDesign 2023)

# Bushfire Management Plan

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## List of Abbreviations

*Table A1: Abbreviations – General terms*

General terms	
AHD	Australian Height Datum
AS	Australian Standard
APZ	Asset Protection Zone
BAL	Bushfire Attack Level
BMP	Bushfire Management Plan
BPAD	Bushfire Planning and Design
ESA	Environmentally Sensitive Area
FDI	Fire Danger Index
FZ	Flame Zone
LCP	Landscape concept plan
TEC	Threatened ecological community

*Table A2: Abbreviations – Organisations*

Organisations	
DBCA	Department of Biodiversity, Conservation and Attractions
DWER	Department of Water and Environmental Regulation
DFES	Department of Fire and Emergency Services
DPLH	Department of Planning, Lands and Heritage
OBRM	Office of Bushfire Risk Management
WAPC	Western Australian Planning Commission

*Table A3: Abbreviations – Legislation and policies*

Legislation	
Guidelines	<i>Guidelines for Planning in Bushfire Prone Areas version 1.4 (DPLH &amp; WAPC 2021)</i>
SPP 3.7	State Planning Policy 3.7 Planning in Bushfire Prone Areas (WAPC 2015)



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*Table A4: Abbreviations – Planning and building terms*

Planning and building terms	
LPS	Local Planning Scheme
NCC	National Construction Code

*Table A4: Abbreviations – units of measurement*

Units of measurement	
cm	Centimetre
ha	Hectare
m	Metre
m <sup>2</sup>	square metre
m AHD	m in relation to the Australian height datum
mm	Millimetre

# Bushfire Management Plan

## Ningaloo Reef Resort



## 1 Introduction

### 1.1 Background

RAC Tourism Assets Pty Ltd (the proponent) are seeking to progress the redevelopment of Ningaloo Reef Resort located at 14 (Lot 1), 6 (Lot 54) and 2 (Lot 68) Robinson Street, Coral Bay (herein referred to as 'the site') in the Shire of Carnarvon, as shown in **Figure 1**. The proposed development will be subject to development approval and involves the redevelopment of the site, including the construction of new tourism accommodation, a change to the driveway access and provision of additional carparking areas along Robinson Street, in accordance with the proposed development layout provided in **Appendix A**. The site is approximately 2.41 hectares (ha) in size and is located at the western edge of the Coral Bay townsite adjacent to the Ningaloo Marine Park. The site adjoins Robinson Street to the north, existing and developing tourism accommodation to the east, and undeveloped and vegetated dunes to the south and west.

The entirety of the site is zoned 'Tourism' under the Shire of Carnarvon Local Planning Scheme No. 13, and is also within a Special Control Area 'SCA5 - General'. The Coral Bay Settlement Structure Plan 2014 applies to the site and plans for the redevelopment and continuing use of the site. The site is located within a 'bushfire prone area' under the state-wide *Map of Bush Fire Prone Areas* prepared by the Office of Bushfire Risk Management (OBRM 2021) as shown in **Plate 1**. The identification of a site within an area declared as bushfire prone necessitates a further assessment of the determined bushfire risk affecting the site in accordance with *Australian Standard 3959:2018 Construction of buildings in bushfire prone areas* (AS 3959), and the satisfactory compliance of the proposal with the policy measures described in *State Planning Policy 3.7 Planning in Bushfire Prone Areas* (SPP 3.7) (WAPC 2015) and the *Guidelines for Planning in Bushfire Prone Areas Version 1.4* (the Guidelines) (DPLH & WAPC 2021).



Plate 1: Areas within and surrounding the site identified as 'bushfire prone areas' (as indicated in purple) under the state-wide Map of Bush Fire Prone Areas (OBRM 2021).

# Bushfire Management Plan

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The purpose of SPP 3.7 and its policy intent is to preserve life and reduce the impact of bushfire on property and infrastructure through effective risk-based land use planning. Importantly, it is risk-based, requiring a methodical approach to identify and evaluate the hazards and provide the treatments to ameliorate these hazards to an acceptable level. SPP 3.7 requires that the determining authority give consideration to the precautionary principle (clause 6.11 in SPP 3.7) and they must be satisfied that the potential for significant adverse impacts can be adequately reduced or managed. In particular:

*SPP 3.7 does not require that there be no increase at all in the threat of bushfire to people property or infrastructure. Rather, as is seen in clause 2 of SPP 3.7, the intention of the policy is to 'implement effective, risk-based land use planning and development to preserve life and **reduce the impact of bushfire on property and infrastructure**'. (emphasis added) <sup>1</sup>*

SPP 3.7 and the associated Guidelines provides for the specific consideration of tourism land uses, recognising these types of uses are generally intrinsically linked to the natural landscape and remote locations and accordingly may have different considerations for managing bushfire risk.

### 1.2 Aim of this report

The purpose of this BMP is to assess bushfire hazards both within the site and nearby and demonstrate that the threat posed by any identified hazards can be appropriately mitigated and managed. This BMP has been prepared to support the proposed redevelopment of the site and addresses the requirements of SPP 3.7 (WAPC 2015), the Guidelines (DPLH & WAPC 2021) and AS 3959 (Standards Australia 2018). The document includes:

- An assessment of the existing classified vegetation in the vicinity of the site (within 150 m) and consideration of bushfire hazards that will exist in the post development scenario (**Section 3**).
- Commentary on how the future development can achieve the bushfire protection criteria outlined within the Guidelines including an indication of BAL ratings likely to be applicable to habitable buildings (**Section 5**).
- An outline of the roles and responsibilities associated with implementing this BMP (see **Section 6**).

### 1.3 Statutory policy and framework

The following key legislation, policies and guidelines are relevant to the preparation of a bushfire management plan:

- *Bush Fires Act 1954*
- *Fire and Emergency Services Act 1998*
- *Planning and Development Act 2005* and associated regulations
- *Building Act 2011* and associated regulations
- *State Planning Policy 3.7 Planning in Bushfire Prone Areas* (WAPC 2015)
- *Guidelines for Planning in Bushfire Prone Areas Version 1.4* (DPLH & WAPC 2021)

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<sup>1</sup> Harmanis Holdings No. 2 Pty Ltd and Western Australian Planning Commission [2019] WASAT 43 (Harmanis).

# Bushfire Management Plan

## Ningaloo Reef Resort



- *Australian Standard AS 3959 – 2018 Construction of buildings in bushfire prone areas* (Standards Australia 2018)

### 1.4 Description of the proposed development

The site is already utilised for overnight tourism accommodation, and is proposed to be redeveloped in line with the development plan provided in **Appendix A**. The development within the site will include:

- Demolition of the existing buildings
- Construction and operation of new tourism accommodation, including a clubhouse that will be available to the broader community
- Upgrade/extension to the internal private driveway connecting to Robinson Street (incorporating Lot 68), including vehicle parking and circulation areas; and
- Low threat landscaping, including communal spaces for guests in/around the buildings.

Coral Bay is a coastal town providing direct access to the Ningaloo Marine Park. As outlined, the existing and proposed ongoing use of the site is consistent with the 'Tourism' zoning of the site under the Shire of Carnarvon Local Planning Scheme No.13, as shown in **Plate 2** below, and the redevelopment of the Ningaloo Reef Resort was included in the Coral Bay Settlement Structure Plan 2014 ('the Structure Plan'). The proposed layout is intended to provide a pedestrian-friendly entrance to the Ningaloo Marine Park foreshore whilst ensuring safe access and egress is achieved.

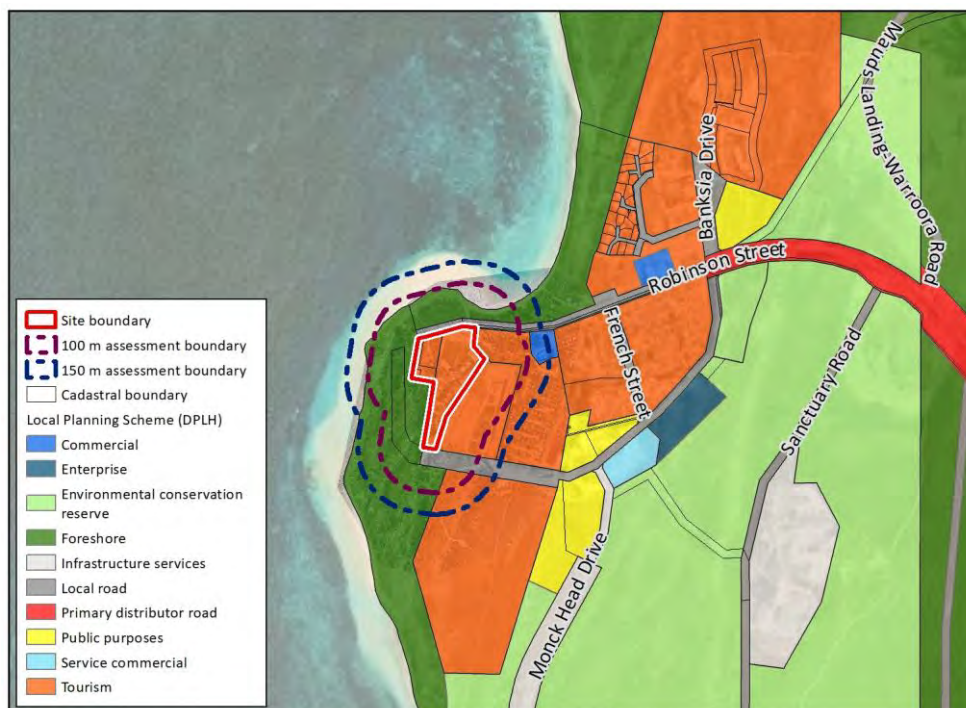


Plate 2: Shire of Carnarvon Local Planning Scheme No.13 Zoning, in and surrounding the site.

## Bushfire Management Plan

### Ningaloo Reef Resort



#### 1.5 Description of land characteristics

The site has predominantly been cleared of native vegetation, with accommodation units, communal open space and parking areas already existing within the site, as well as vehicle access for Water Corporation sewer assets. A review of publicly available historic aerial imagery indicates that the majority of the site was cleared prior to 1969, with expansions of clearing and development to the north and the south occurring sometime between 1970 and 2001 (Landgate 2023).

Surrounding land uses include:

- Native coastal scrub vegetation to the west and south. Portions of these areas are identified as part of the Banksia Drive road reserve.
- Areas zoned tourism to the east that are undergoing development in accordance with a development approval. This landholding has been partially cleared, with some areas being subject to landscaping/revegetation to stabilise existing dune features. The development approval identifies this entire landholding as being low threat in the future.
- A caravan park to the north-east.
- Robinson Street, carparking and existing recreation facilities associated with the nearby beach areas to the north.

Available contour data and site observations shows the dunal features surrounding the site reach a maximum height of approximately 10 m AHD, with the site lying lower than the surrounding dunes, as shown in **Figure 1**. The entirety of the site is generally flat, with the neighbouring land to the east sitting higher atop an embankment, while land to the west is dominated by undulating coastal dune features, and land to the north slopes down towards the beach.

## Bushfire Management Plan

### Ningaloo Reef Resort



## 2 Environmental Considerations

In accordance with the *Bushfire Management Plan – BAL Contour* template prepared by the Department of Planning, Lands and Heritage (DPLH) (2018), this BMP has considered whether there are any environmental values that may require specific consideration through either protection, retention or revegetation. To support this, a review of publicly available databases has been undertaken, with particular reference to the Shared Location Information Platform (SLIP) databases. A summary of the search results has been provided in **Table 1**.

*Table 1: Summary of potential environmental considerations that may be associated with the site (based on a search of the SLIP databases)*

Key environmental feature (information in brackets refers to mapping data source)	Yes / no / potentially occurring within the site	If yes / potentially, describe value that may be impacted
Conservation category wetlands and buffer	No	No wetlands occur within or near to the site.
RAMSAR wetlands (DBCA-010)	No	No RAMSAR wetlands are identified within the site or in close proximity to it.
EPA-SIER (DWER-060)	No	Whilst not within the site, it is noted that the Ningaloo Marine Park Area is located to the north and west of the site and is subject to the Ningaloo Marine Park and Muiron Islands Marine Management Area Plan 2005-2015.
Clearing regulations – Environmentally Sensitive Areas (DWER-046)	No	No environmentally sensitive areas (ESAs) are identified within the site or areas proposed to form part of the broader works area. The Ningaloo Marine Park Area (and adjacent beach areas) to the north and west of the site is an environmentally sensitive area.
Bush Forever areas	No	No Bush Forever sites intersect or exist nearby to the site.
Threatened and priority flora		A review of the DBCA-036 database indicates that three priority species are identifying with the broader area. One occurrence (Database ID 90678) is listed as a priority two flora occurrence, whilst the remaining three (Database ID 90704, Database ID 90703 and Database ID 90700) all are mapped as priority three occurrences. Due to restrictions on the transparency of the DBCA-036 dataset to the public, it is difficult to confirm if these priority species are listed within the site, however, it is highly unlikely they do as the site and immediate adjacent areas have been historically cleared and primarily consist of hardscape areas and landscaped gardens.



# Bushfire Management Plan

## Ningaloo Reef Resort



Table 1: Summary of potential environmental considerations that may be associated with the site (based on a search of the SLIP databases) (continued)

Key environmental feature (information in brackets refers to mapping data source)	Yes / no / potentially occurring within the site	If yes / potentially, describe value that may be impacted
Threatened and priority fauna		A review of the DBCA-037 database indicates that a multitude of threatened and priority fauna species have been recorded within or nearby to the site. Due to spatial security measures placed on public databases indicating the location of priority and threatened fauna, it is difficult to determine which species have been recorded in the general area and if they intersect the site. The majority of the species are likely to be marine species, associated with the adjacent ocean areas. It is highly unlikely that any threatened or priority fauna species occur within the site due to a lack of suitable habitat, given the historic clearing (and existing development) of the site and adjacent areas.
Threatened ecological communities		A review of the DBCA-038 database indicates that no threatened ecological communities occur within the site.

### 2.1 Native vegetation – modification and clearing

As outlined above, the majority of the site is already cleared of native vegetation and includes, buildings, hardstand areas and landscape areas. As per the proposed development plan, provided in **Appendix A**, all vegetation within the site will be managed to achieve low threat in accordance with Section 2.2.3.2 of AS 3959.

The majority of vegetation outside the site is assumed to remain in its existing condition. An exception is the asset protection zone areas in adjacent landholdings to the east and south (discussed in **Section 5**), which will be managed and maintained by the proponent to a low threat standard in accordance with Section 2.2.3.2 of AS 3959. The maintenance of landscaped areas and management areas will be the responsibility of the proponent in perpetuity, except in regard to the eastern management areas which exist in the neighbouring Lot 10, which will initially be the responsibility of the proponent and will then subsequently be handed over to the Lot 10 landowner as development progresses within that landholding.

It is possible that clearing of native vegetation will be required for bushfire management purposes as part of implementing this BMP, specifically to enable the relevant siting requirements of the Guidelines. It is likely that clearing of native vegetation within the site will be exempt from requiring a clearing permit in accordance with Schedule 6 of the *Environmental Protection Act 1986* (EP Act), including those associated with addressing Section 33 of the *Bush Fires Act 1954*. Other exemptions pursuant to the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 (where outside an ESA) could also apply, such as those associated with a building/other structure approval.



## Bushfire Management Plan

### Ningaloo Reef Resort



## 2.2 Revegetation and landscape plans

A landscape concept plan (LCP) has been prepared by SeeDesign and is provided in **Appendix B**. The LCP outlines the proposed landscape approach for the site (tree planting, turf, landscape gardens, pedestrian access etc.) and provides an indication of the areas that will be managed by the proponent.

Internal roads and landscaped areas are proposed as part of future development. These areas will be designed to achieve low threat in accordance with Section 2.2.3.2 of AS 3959. Any future verges and areas of turf and garden planting will be maintained by the proponent and irrigated (as required). Ongoing management is likely to include:

- Irrigation of grass and garden beds (where achievable and where required).
- Regular removal of weeds and built up dead material (such as fallen branches, leaf litter etc.)
- Low pruning of trees (branches below 2 m in height removed where appropriate).
- Application of ground/surface covers such as mulch or non-flammable materials as required.
- Regular mowing/slashing of grass to less than 100 mm in height.

The proponent will be responsible for managing landscaped areas within their identified asset protection zone area in perpetuity, or as agreed with the Shire of Carnarvon and other land managers.

## Bushfire Management Plan

### Ningaloo Reef Resort



## 3 Bushfire Assessment Results

Bushfire risk for the site has been appropriately considered both in context to the site and potential impact upon the site using AS 3959 and the Guidelines.

The objective of AS 3959 is to reduce the risk of ignition and loss of a building to bushfire. It provides a consistent method for determining a radiant heat level (radiant heat flux) as a primary consideration of bushfire attack. AS 3959 measures the Bushfire Attack Level (BAL) as the radiant heat level ( $\text{kW/m}^2$ ) over a distance of 100 m. AS 3959 also prescribes deemed-to-satisfy construction responses that can resist the determined radiant heat level at a given distance from the fire. It is based on six Bushfire Attack Level (BAL) ratings: BAL-LOW, BAL-12.5, BAL-19, BAL-29, BAL-40 and BAL-FZ.

A BAL contour plan has been prepared in accordance with Appendix Three of the Guidelines and Method 1 of AS 3959 to determine the BAL ratings likely to be applicable to future buildings.

### 3.1 Assessment inputs

This bushfire attack level (BAL) assessment was undertaken in accordance with Method 1 of AS 3959. A site visit was undertaken on 18 August 2022 and the inputs underpinning the assessment have been detailed below.

#### 3.1.1 Assumptions

The BAL assessment is based on the following assumptions:

- **Designated FDI:** 80
- **Flame temperature:** 1090 K
- **Effective slope beneath classified vegetation:** downslope  $>0-5^\circ$  and flat/upslope (**Figure 2**)
- The proponent will maintain an asset protection zone (APZ) for the buildings within the site, which will include areas within the site as well as external. The APZ is generally based on enabling buildings to achieve BAL-12.5. External areas are associated with small pockets that extend to land in the east (which will eventually be low threat, in accordance with the existing development approval) and south (associated with the Banksia Drive road reserve, which will eventually be developed).
- Areas of low threat vegetation outside the site will continue to be managed and/or considered to achieve low threat (in accordance with Section 2.2.3.2 of AS 3959) based on the existing maintenance regimes.
- Classified vegetation that has been identified outside of the proponent's landholdings has been assumed to remain in its current state (unless stated otherwise) and will therefore continue to be a bushfire hazard to development within the site.
- Areas of grassland can include up to 10% foliage cover from shrubs and trees, per AS 3959.

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#### 3.1.2 Vegetation Classification

Assessing bushfire hazards takes into account the vegetation classifications and exclusions within the site and surrounding area for a minimum of 100 m, in accordance with AS 3959 and the Guidelines. The assignment of vegetation classifications is based on an assessment of vegetation structure, which includes consideration of the various fuel layers of different vegetation types, as outlined in **Plate 3**. All vegetation within 150m of the site was classified in accordance with Clause 2.2.3 of AS 3959. Each distinguishable vegetation plot is described in **Table 2** and shown in **Figure 2**.

Not all vegetation is classified as a bushfire risk. Vegetation and ground surfaces that are exempt from classification as a potential hazard are identified as a low threat under Section 2.2.3.2 of AS 3959. Low threat vegetation includes the following:

- Vegetation of any type that is more than 100 m from the site.*
- Single areas of vegetation less than 1 ha in area and not within 100 m of other areas of vegetation being classified.*
- Multiple areas of vegetation less than 0.25 ha in area and not within 20 m of the site, or each other or of other areas of vegetation being classified.*
- Strips of vegetation less than 20 m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20 m of the site or each other, or other areas of vegetation being classified.*
- Non-vegetated areas, that is, areas permanently cleared of vegetation, including waterways, exposed beaches, roads, footpaths, buildings, and rocky outcrops.*
- Vegetation regarded as low threat due to factors such as flammability, moisture content or fuel load. This includes grassland managed in a minimal fuel condition, mangroves, and other saline wetlands, maintained lawns, golf courses (such as playing areas and fairways), maintained public reserves and parklands, sporting fields, vineyards, orchards, banana plantations, market gardens (and other non-curing crops), cultivated gardens, commercial nurseries, nature strips and wind breaks.*



Plate 3: The five fuel layers in a forest environment that could be associated with fire behaviour (Gould et al. 2007)






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Table 2: AS 3959 Vegetation Classification (refer to **Figure 2**)

Photo ID:	1	Plot:	3
Vegetation classification or exclusion clause and effective slope			
Scrub (Class D) – Downslope > 0-5			
Description / justification for classification			
Scrub (Class D) has been identified to the north-east of the site. This vegetation is between 2-6 m in height and includes Acacia species. This vegetation is associated with the foreshore reserve to the north of Robinson Street. Photopoint 1 refers largely to the taller vegetation in the background of the photograph.			
			
Photo ID:	2	Plot:	3
Vegetation classification or exclusion clause and effective slope			
Scrub (Class D) – Downslope > 0-5			
Description / justification for classification			
Scrub (Class D) vegetation has been identified to the north-east of the site and is primarily associated with the Acacia dominated vegetation found within the foreshore reserve to the north of Robinson Street. This vegetation is between 2 m and 6 m in height.			
			
Photo ID:	3	Plot:	1
Vegetation classification or exclusion clause and effective slope			
Shrubland (Class C) – Downslope > 0-5			
Description / justification for classification			
Shrubland (Class C) vegetation has been identified to the north-east of the site and is primarily associated with pockets of low coastal heath vegetation found within the foreshore reserve to the north of Robinson Street (and more generally to the west). This vegetation is between 1-2 m in height. Scrub vegetation (Plot 3) is in the background of the photo.			
			






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Table 2: AS 3959 Vegetation Classification (refer to **Figure 2**) (continued)



Photo ID:	4	Plot:	1
Vegetation classification or exclusion clause and effective slope			
Shrubland (Class C) – Downslope > 0-5			
Description / justification for classification			
Shrubland (Class C) vegetation has been identified to the north-east of the site and is primarily associated with pockets of low coastal heath vegetation found within the foreshore reserve to the north of Robinson Street (and more generally to the west). This vegetation is between 1-2 m in height.			
			
Photo ID:	5	Plot:	2
Vegetation classification or exclusion clause and effective slope			
Shrubland (Class C) – Flat/upslope			
Description / justification for classification			
Shrubland (Class C) vegetation has been identified to the north, west, south and east. This vegetation is typical of coastal dunes of the region and consists of a mix of grasses and small shrub species between 1-2 m in height, as well as limestone outcrops and areas of sand.			
			
Photo ID:	6	Plot:	2
Vegetation classification or exclusion clause and effective slope			
Shrubland (Class C) – Flat/upslope			
Description / justification for classification			
Shrubland (Class C) vegetation has been identified to the north, west, south and east. This vegetation is typical of coastal dunes of the region and consists of a mix of grasses and small shrub species between 1-2 m in height as well as limestone outcrops and areas of sand.			
			

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Table 2: AS 3959 Vegetation Classification (refer to **Figure 2**) (continued)

Photo ID:	7	Plot:	4	
Vegetation classification or exclusion clause and effective slope				
Grassland (Class G) – Flat/upslope				
Description / justification for classification				
Grassland (Class G) vegetation was identified to the south, south-east and east of the site. The grassland plots are dominated by native grass species that vary in height, but are typically less than 1 m in height. Occasional shrub species are present, however these consist of less than 10% of the total foliage cover and therefore this area has been classified based on the predominant vegetation as per AS 3959.				
Photo ID:	8	Plot:	4	
Vegetation classification or exclusion clause and effective slope				
Grassland (Class G) – Flat/upslope				
Description / justification for classification				
Photopoint 8 shows grassland (Class G) that was identified to the east of the site at the base of the embankment. The grassland areas shown are dominated by a mix of native and non-native species. Occasional shrub or groundcover species are present, however, these consist of less than 10% of the total foliage cover and therefore this area has been classified based on the predominant vegetation as per AS 3959.				
Photo ID:	9	Plot:	5	
Vegetation classification or exclusion clause and effective slope				
Clause 2.2.3.2 exclusion (e)				
Description / justification for classification				
Non-vegetated areas such as roads, existing developed areas, the beach and the ocean have been excluded from classification under Clause 2.2.3.2 (e) of AS 3959. This photo shows the Robinson Street carpark to the north of the site, with the site in the background.				



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Table 2: AS 3959 Vegetation Classification (refer to **Figure 2**) (continued)

Photo ID:	10	Plot:	6
Vegetation classification or exclusion clause and effective slope			
Clause 2.2.3.2 exclusion (f)			
Description / justification for classification			
<p>Photopoint 10 shows a managed lawn area within the site. The area is irrigated and grass is regularly mown to below 100 mm in height. Maintained lawns and gardens have been excluded from classification under Clause 2.2.3.2 (f) of AS 3959.</p>			
			



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### 3.2 Assessment outputs

The vegetation classifications determined in **Section 3.1** are summarised in **Table 3** and incorporate the known changes to vegetation post-development as well as effective slope. The resultant BAL ratings are shown in **Figure 3**.

*Table 3: AS 3959 Vegetation Classification and Effective Slope*

Plot	Applied vegetation classification	Effective slope
1	Shrubland (Class C)	Downslope 0-5
2	Shrubland (Class C)	Flat/upslope
3	Scrub (Class D)	Downslope 0-5
4	Grassland (Class G)	Flat/upslope
5	Exclusion 2.2.3.2(e)	N/A
6	Exclusion 2.2.3.2(f)	N/A

BAL ratings are based on the minimum distance outlined in Table 2.5 of AS 3959 and relevant distances are outlined in **Table 4**.

*Table 4: Setback distances based on vegetation classification and effective slope and Table 2.5 of AS 3959, as determined by the method 1 BAL assessment*

Plot number (see Figure 2)	Vegetation classification (see Figure 2)	Effective slope (see Figure 2)	Distance to vegetation (from Table 2.5 of AS 3959)	BAL rating (see Figure 3)
1	Shrubland (Class C)	Downslope 0-5	< 7 m	BAL-FZ
			7 - < 10 m	BAL-40
			10 - < 15 m	BAL-29
			15 - < 22 m	BAL-19
			22 - < 100 m	BAL-12.5
			> 100 m	BAL-LOW
2	Shrubland (Class C)	Flat/upslope	< 7 m	BAL-FZ
			7 - < 9 m	BAL-40
			9 - < 13 m	BAL-29
			13 - < 19 m	BAL-19
			19 - < 100 m	BAL-12.5
			> 100 m	BAL-LOW

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Table 4: Setback distances based on vegetation classification and effective slope and Table 2.5 of AS 3959, as determined by the method 1 BAL assessment (continued)

Plot number (see Figure 2)	Vegetation classification (see Figure 2)	Effective slope (see Figure 2)	Distance to vegetation (from Table 2.5 of AS 3959)	BAL rating (see Figure 3)
3	Scrub (Class D)	Downslope 0-5	< 10 m	BAL-FZ
			10 - < 13 m	BAL-40
			13 - < 19 m	BAL-29
			19 - < 27 m	BAL-19
			27 - < 100 m	BAL-12.5
			> 100 m	BAL-LOW
4	Grassland (Class G)	Flat/upslope	< 6 m	BAL-FZ
			6 - < 8 m	BAL-40
			8 - < 12 m	BAL-29
			12 - < 17 m	BAL-19
			17 - < 50 m	BAL-12.5
			> 50 m	BAL-LOW

The BAL assessment, based on the proposed asset protection zone (e.g. areas to be managed by the proponent to achieve low threat, shown in **Figure 2**) and upgrade to the driveway/carparking, demonstrates that all buildings within the site are able to achieve BAL-29 or less, with buildings subject to either BAL-19 or BAL-12.5. A summary of the BAL ratings applicable to the building is provided in **Table 5**.

Table 5: AS 3959 Method 1 BAL determination for each building

Building no. (see Figure 3)	Proposed use	Bushfire Attack Level (BAL)
1	Accommodation	BAL-12.5
2	Accommodation	BAL-12.5
3	Accommodation	BAL-12.5
4	Accommodation	BAL-12.5
5	Accommodation	BAL-12.5
6	Workshop	BAL-19
7	Reception and accommodation	BAL-12.5
8	Clubhouse	BAL-19

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## 4 Identification of Bushfire Hazard Issues

Bushfire risk will be predominantly associated with a fire that travels towards the site from the west or south-west, travelling through coastal heath/grasses. From a bushfire hazard management perspective, based on the requirements of SPP 3.7 and the Guidelines, the key issues that are likely to require management and/or consideration as part of ongoing operation and any future development within the site include:

- Provision of appropriate separation distance from bushfire hazards to ensure a BAL rating of BAL-29 or less can be achieved at buildings (built form). This includes consideration of areas of land within adjacent landholdings, which are proposed to be the responsibility of the proponent (except for land to the east, which will be the responsibility of the landowner as development in their landholding progresses).
- Ensuring that site access is designed, constructed and managed to ensure safe access and egress for fire fighting vehicles and occupants.
- Ensuring that the asset protection zone (including site landscaping) is designed, implemented and managed to achieve low threat standards to reduce the risk of fires starting onsite.
- Ensuring that the provision of water for firefighting is sufficient and accessible by firefighting services.

### 4.1 Permanent hazards

The site and portions of the surrounding 150 m (particularly to the east) comprises areas of non-vegetated land and low threat vegetation. Classified shrubland, scrub and grassland vegetation have been identified within the foreshore area and Crown land to the north, west and south. Apart from the areas identified as part of the proponent's asset protection zone, or for the carparking upgrades on Robinson Street, this vegetation is not proposed to be modified and therefore poses a risk to development.

### 4.2 Temporary/manageable hazards

The buildings within the site are proposed to achieve BAL-19 or BAL-12.5. To achieve this, small areas of vegetation surrounding the site that will be subject to future modification/management as part of existing or proposed approved development will be managed by the proponent until development in these areas is progressed. These areas will form part of the asset protection zone (APZ) and will be managed to achieve low-threat in accordance with Section 2.2.3.2 of AS 3959. These areas include:

- Land to the east within the neighbouring landholding (Lot 10). The maintenance of this eastern management area will initially be the responsibility of the proponent and then will be handed over to the neighbouring landowner to be managed in perpetuity as part of their development approval and associated bushfire management plan (WA Planning and Logistics Pty Ltd 2020). The proponent has regular ongoing discussions regarding land management with the Lot 10 landowner. This will continue and will address the management extent required adjacent to the eastern boundary to enable the respective buildings to achieve BAL-19 and BAL-12.5 (as outlined in **Table 5**). An agreement will be formalised as part of construction and prior to occupation of

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the buildings, and will also be in accordance with the approved Lot 10 BMP (WA Planning and Logistics Pty Ltd 2020).

- Land to the south which is reserved for the future Banksia Drive extension.
- Areas of foreshore vegetation to the north will be removed and hardscaped as part of the proposed carparking upgrades to Robinson Street.

Areas to be managed by the proponent as part of this BMP surrounding the site are shown in **Figure 4**.

This report, **Section 5.1**, provides guidance on mitigating these hazards to reduce the risk to the existing and future development within the site.

### 4.3 Vulnerable land use

The proposed development is considered a vulnerable use for the purposes of planning in a bushfire prone area, as it is a tourism land use that may involve visitors who are unfamiliar with the surroundings. The definition of a vulnerable land use is where occupants are less able to respond in an emergency and with regard to tourism land uses, where visitors may be unfamiliar with the surroundings and/or where they present evacuation challenges. The identification of land use as a vulnerable use is at the discretion of the decision maker in the event of a proposed development being lodged for planning approval.

At this stage in the process, not all details relevant for preparing a bushfire emergency evacuation plan (BEEP) area available to inform the process, however consideration of emergency evacuation planning has been undertaken as part of preparing the BMP. In particular, whether there are any elements of an emergency evacuation plan that would fundamentally change the approval and therefore should be addressed as part of the development approval. With regard to the operation of the site and consideration of managing people who may not be familiar with the area, it is noted that:

- Permanent staff trained in emergency procedures will be present at all times to direct visitors/occupants in the case of emergency.
- Local fire emergency response planning, including risk assessment, has been completed for the Shire of Carnarvon and Coral Bay identifying key risk areas which allows for holistic management.
- Egress to two different suitable destinations is available, namely Coral Bay townsite (the site forms part of the town) and Minilya-Exmouth Road. Good circulation is available within the site, to support the movement of guests and emergency services.
- The buildings achieve a BAL rating of BAL-29 or less, satisfying the requirements of SPP 3.7, and will be constructed in accordance with AS 3959 and the requirements of the *Building Act 2011*.
- Sufficient water supply and hydrants will be available to support fire-fighting requirements.

It is relevant to note that in addition to bushfires, the site may also be subject to cyclone and other natural hazards (such as flooding) which have a set of minimum site planning requirements. The proponent (RAC) takes their responsibilities for the safety of personnel, contractors and the community seriously and as a standard of operation prepare emergency response plans for all its facilities and/or operations.

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Overall, the consideration of emergency evacuation undertaken as part of this BMP indicates that the preparation and approval of a bushfire emergency evacuation plan as a part of occupancy (and therefore as a condition of approval) would not fundamentally affect the ability of the proposal to be implemented. Bushfire considerations are able to be accommodated as part of this process, and either a standalone or holistic emergency response plan (addressing bushfire, cyclone and other considerations) would satisfy the requirements of a bushfire emergency evacuation plan.

An emergency response plan (which will include bushfire provisions, in accordance with the requirements of a BEEP) will be developed prior to occupancy of the site, and the development and implementation of a BEEP (or equivalent) can be listed as a condition of approval for the site, as stated within **Section 6** of this document.

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## 5 Assessment Against the Bushfire Protection Criteria

This BMP provides an outline of the mitigation strategies that will ensure that as development progresses within the site, an acceptable solution can be adopted for each of the applicable bushfire protection criteria detailed within Appendix Four of the Guidelines. The existing and ongoing use of the site is considered a ‘vulnerable tourism land use’ in accordance with the SPP 3.7 and the Guidelines. It is best categorised as an ‘Other short-term accommodation’, defined as *“including motel, serviced apartments, tourist development (includes cabins and chalets), holiday accommodation and caravan park (which incorporates camping grounds)”*. No caravan park or camping grounds are proposed. Accordingly, bushfire risk has been considered based on ‘Element 5 (other short-term accommodation)’ of the Guidelines.

The site forms part of and is contiguous with the Coral Bay townsite (which provides a suitable destination, as defined by the Guidelines) and is serviced by reticulated water. The Guidelines define a ‘residential built-out area’ as *“a locality serviced with reticulated water and is within or contiguous with an urban area or town (or similar), which incorporates a suitable destination.”* The site therefore occurs within a residential built out area and this is considered further below as part of the bushfire protection criteria response.

As part of future development, an ‘acceptable solution’ will be able to address the intent of the bushfire protection criteria applicable to Element 5 as part of redevelopment of the site. A summary of how this can be achieved and an associated compliance statement for each has been provided in **Table 6**.

Table 6: Assessment against the bushfire protection criteria from the Guidelines

Bushfire protection criteria	Proposed bushfire management strategies
<b>Element 1: Location</b>	
A1.1 Development location	The suitability of the site for development was determined as part of the local planning scheme (and associated zoning) and the <i>Coral Bay Settlement Structure Plan 2014</i> . The site is an existing part of the Coral Bay townsite, with the redevelopment contributing to the expansion of the townsite. The site will be subject to a moderate bushfire hazard (it is a low hazard, but is within 100 m of classified vegetation) and habitable buildings can be sited to achieve BAL-29 or less.
<b>Element 5: Vulnerable Tourism Land Uses (Other short-term accommodation)</b>	
<b>A5.7 Siting and design</b>	
A5.7a For caravan parks, the provision of an APZ to achieve BAL-29 (29kW/m <sup>2</sup> ) around the campground facilities, which may include the office, manager’s residence, camper’s kitchen, and shower/laundry.	All habitable buildings can be sited to achieve BAL-29 or less.
A5.7b Where the BMP identifies accommodation structures, including, but not limited to, caravan and camping sites, eco tents and cabins, as a tolerable loss in the event of a bushfire, these accommodation structures can be sited in areas above BAL-29 (29kW/m <sup>2</sup> ).	Not applicable. No accommodation structures have been identified as a tolerable loss. All habitable buildings within the site will be able to achieve BAL-29 or less.

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Table 6: Assessment against the bushfire protection criteria from the Guidelines (continued)

Bushfire protection criteria	Proposed bushfire management strategies
<b>Element 5: Vulnerable Tourism Land Uses (Other short-term accommodation) (continued)</b>	
<b>A5.7 Siting and design (continued)</b>	
A5.7c For all other short-term accommodation, an APZ to be provided in accordance with Element 2: Siting and Design of Development A2.1 Asset Protection Zone.	<p>The buildings within the site are proposed to achieve BAL-19 or BAL-12.5. An asset protection zone (APZ) has been determined for development within the site and includes the site and small areas surrounding (as shown in <b>Figure 4</b>). The APZ will be managed to achieve low threat in accordance with Section 2.2.3.2 of AS 3959 and the principles outlined within Schedule 1 of Appendix Four in the Guidelines. This will include (but is not limited to) separation of garden areas from buildings, irrigation of landscape areas, ongoing removal of built-up dead material and weeds, mowing/slashing of grass and low pruning of trees.</p> <p>Small areas of vegetation surrounding the site that will be subject to future modification/management in accordance with other approvals are proposed to be managed by the proponent until development in these areas is progressed. These areas form part of the APZ as shown in <b>Figure 4</b> and were discussed in <b>Section 4.2</b>. With regard to Lot 10m, the proponent has regular ongoing discussions regarding land management with the Lot 10 landowner. This will continue and address the management extent required adjacent to the eastern boundary to enable the respective buildings to achieve BAL-19 and BAL-12.5 (as outlined in <b>Table 5</b>). An agreement will be formalised as part of construction and prior to occupation of the buildings, and will also be in accordance with the approved Lot 10 BMP (WA Planning and Logistics Pty Ltd 2020). The approved BMP for that landholding identified all of Lot 10 as achieving low threat.</p>
A5.7d A landscape management plan is to be prepared to identify on-going onsite vegetation management (where appropriate).	<p><b>Figure 4</b> outlines the areas that will be managed as an APZ and includes comment on ongoing management requirements. A landscape concept plan has been prepared for the site by SeeDesign (attached in <b>Appendix B</b>) and identifies the landscape design intent for the development, as well as general areas of ongoing management.</p>



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Table 6: Assessment against the bushfire protection criteria from the Guidelines (continued)

Bushfire protection criteria	Proposed bushfire management strategies
<b>Element 5: Vulnerable Tourism Land Uses (Other short-term accommodation) (continued)</b>	
<b>A5.7 Siting and design (continued)</b>	
<p>Where an on-site shelter is proposed, to comply with A5.8.2e, it is to meet all the following requirements:</p> <p>A5.7e Pedestrian paths to any on-site shelter are to be provided on-site and be clearly signposted.</p> <p>A5.7f Where a building is to function as an on-site shelter, there is to be sufficient separation distance from the predominant bushfire prone vegetation to avoid exposure to a radiant heat flux exceeding 10kW/m<sup>2</sup> (with an assumed flame temperature of 1200K); or where an open space area is to function as an onsite shelter, there is to be sufficient separation distance from the bushfire prone vegetation to avoid exposure to a radiant heat flux exceeding 2kW/m<sup>2</sup> (with an assumed flame temperature of 1200K).</p> <p>A5.7g Buildings identified as suitable for on-site shelter be designed and constructed in accordance with National Construction Code and the ABCB Community Shelter Handbook.</p>	<p>Not applicable. No on-site shelter is required or proposed. The site is part of the Coral Bay townsite, and is a residential built out area, as defined by the Guidelines (see 5.8.2a Suitable destination below).</p>
<b>A5.8.1 Vehicular access for all proposals</b>	
<p>A5.8.1a Internal vehicular access/private driveway is to provide emergency egress/access for all patrons and staff, in the event of a bushfire. Where possible, this is to include the provision of at least two internal access/egress points to the public road network.</p>	<p>The site provides for access and egress from carparking areas within the site to the public road network (Robinson Street) through an extension/upgrade to the internal vehicular loop road, which includes Lot 68. It is anticipated that in the future a further connection to the public road network will be available via an extension to Banksia Drive, but is not required for the proposed development to be compliant. The proposal is compliant with A5.8.1a.</p>
<p>A5.8.1b Internal vehicular access/private driveways longer than 50 metres are to meet all the following requirements:</p> <ul style="list-style-type: none"> <li>• Requirements in Table 6, Column 4;</li> <li>• Passing bays every 200 metres with a minimum length of 20 metres and a minimum additional trafficable width of two metres (that is, the combined trafficable width of the passing bay and constructed private driveway to be a minimum six metres); and</li> <li>• Turn-around areas as shown in Figure 28.</li> </ul>	<p>The internal road network meets the requirements outlined in Column 4 of Table 6 in Appendix Four of the Guidelines (an excerpt of which is provided in <b>Plate 4</b>). The internal road network provides a minimum trafficable width of 6 m (excluding parking areas), and accordingly passing bays are not required. The southmost portion of the internal vehicle access requirement has provided for a turnaround area between Building 5 and 6 addressing the form/dimensions shown in Figure 28 of the Guidelines. This is shown in <b>Figure 4</b> and <b>Appendix A</b>. The proposed road layout is compliant with A5.8.1b.</p>

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Table 6: Assessment against the bushfire protection criteria from the Guidelines (continued)

Bushfire protection criteria	Proposed bushfire management strategies
<b>Element 5: Vulnerable Tourism Land Uses (Other short-term accommodation) (continued)</b>	
<b>A5.8.1 Vehicular access for all proposals (continued)</b>	
A5.8.1c Signage to be provided within the site, advising of where each access route travels to and the distance and general information signs on what to do in the event of a bushfire.	Signage will be provided within the site advising of where each route travels to and general information signage indicating what to do in the event of a bushfire. The proposal can comply with 5.8.1c.
A5.8.2a Public road access is to be provided in two different directions to at least two different suitable destinations.	Not applicable. Coral Bay is a coastal townsite within the north-west of Western Australia. It is accessed by a single road and serviced by a reticulated water supply, with the development contiguous to the town. Accordingly, the site is located within a residential built-out area which includes a 'suitable destination' (an area either not designated as 'bushfire prone' or more than 100 m from classified vegetation) and therefore these requirements are not applicable.
<p>A5.8.2b All public roads to be through roads. No-through roads are not recommended but if unavoidable, or they are existing, the following requirements apply:</p> <ul style="list-style-type: none"> <li>• No more than 200 metres in length, where adjoining classified vegetation, excluding the road reserve, has an extreme BHL; or</li> <li>• No more than 500 metres in length, where the adjoining classified vegetation, excluding the road reserve, has a moderate BHL; or</li> <li>• No limitation, where the adjoining classified vegetation, excluding the road reserve, has a low BHL or is not identified as bushfire prone.</li> </ul>	Regardless, public road access is provided to at least two suitable destinations (an area either not designated as 'bushfire prone' or more than 100 m from classified vegetation and/or away from an area of bushfire risk), namely Coral Bay townsite and Coral Bay Road, which intersects Minilya-Exmouth Road, a major transport route that provides egress from the area to the north and south. Robinson Street (and other nearby public roads) meets the public road requirements of Column 1 in Table 6 of the Guidelines (excerpt provided in <b>Plate 4</b> ) and is a through road. It is anticipated that in the future a further connection to the public road network will be available via an extension to Banksia Drive along the southern boundary of the site.
<p>A5.8.2c Where it is demonstrated that A5.8.2a and 5.8.2b cannot be achieved, an emergency access way can be considered as an acceptable solution.</p> <p>An emergency access way is to meet all of the following requirements:</p> <ul style="list-style-type: none"> <li>• Requirements in Table 6, Column 2;</li> <li>• Provide a through connection to a public road;</li> <li>• Be no more than 600 metres in length; and</li> <li>• Must be signposted and if gates, gates must remain unlocked.</li> </ul>	
A5.8.2d A public road is to meet the requirements in Table 6, Column 1.	
A5.8.2e Where A5.8.2a, A5.8.2b and A5.8.2c (if required), cannot be achieved, and the proposed development has a capacity of up to a maximum of 100 guests and staff at any one time, an on-site shelter is to be provided in accordance with A5.7e, A5.7f and A5.7g Siting and Design.	

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Table 6: Assessment against the bushfire protection criteria from the Guidelines (continued)

Bushfire protection criteria	Proposed bushfire management strategies
<b>Element 5: Vulnerable Tourism Land Uses (Other short-term accommodation) (continued)</b>	
<b>A5.9 Provision of water</b>	
A5.9a The development or land use is provided with a reticulated water supply in accordance with the specifications of the relevant water supply authority; or	The proposed development is located in an area serviced with reticulated water. There is an existing water hydrant located in the Robinson Street road reserve immediately north of the site. Additional provision will be made for structural fire-fighting needs within the site, including boosters or additional hydrant infrastructure if required, which would also support bushfire fighting needs. The proposal is compliant with A5.9a.
A5.9b Provision of a water tank(s) in accordance with the requirements of Element 4, Schedule 2, 2.2 Technical requirements.	Not applicable.

Table 6: Vehicular access technical requirements

TECHNICAL REQUIREMENTS	1 Public roads	2 Emergency access way <sup>1</sup>	3 Fire service access route <sup>1</sup>	4 Battle-axe and private driveways <sup>2</sup>
Minimum trafficable surface (metres)	In accordance with A3.1	6	6	4
Minimum horizontal clearance (metres)	N/A	6	6	6
Minimum vertical clearance (metres)	4.5			
Minimum weight capacity (tonnes)	15			
Maximum grade unsealed road <sup>3</sup>	As outlined in the IPWEA Subdivision Guidelines	1:10 (10%)		
Maximum grade sealed road <sup>3</sup>		1:7 (14.3%)		
Maximum average grade sealed road		1:10 (10%)		
Minimum inner radius of road curves (metres)		8.5		

**Notes:**

<sup>1</sup> To have crossfalls between 3 and 6%.

<sup>2</sup> Where driveways and battle-axe legs are not required to comply with the widths in A3.5 or A3.6, they are to comply with the Residential Design Codes and Development Control Policy 2.2 Residential Subdivision.

<sup>3</sup> Dips must have no more than a 1 in 8 (12.5% -7.1 degree) entry and exit angle.

Plate 4: Excerpt of Table 6 from The Guidelines

## Bushfire Management Plan

### Ningaloo Reef Resort



## 5.1 Additional management strategies

### 5.1.1 Future approval considerations

The BAL assessment is a conservative and cautious assessment of the potential bushfire risk posed to future habitable buildings within the site based on the proposed management of vegetation and assumptions outlined in **Section 3**.

The development will be subject to a building license application as part of construction. Class 1, 2, 3 and 10a buildings in an area designated bushfire prone and subject to a BAL rating of BAL-12.5 or higher will need to satisfy construction standards in accordance with the National Construction Code (NCC) (i.e., AS 3959 or the National Association for Steel-framed Housing (NASH) (Standard). The BAL assessment outcomes documented in this BMP for each building (see **Table 5**) can be used to support building licence provided the APZ is implemented as outlined in **Figure 4**.

### 5.1.2 Landscape management

#### 5.1.2.1 Within the site

The proponent will be responsible for managing and maintaining all areas identified as an APZ in **Figure 4** to achieve low threat in accordance with Section 2.2.3.2 of AS 3959 (or as agreed with the Shire of Carnarvon and other land managers), particularly landscape/vegetated areas. The APZ requirements outlined within the Guidelines (Schedule 1 of Appendix Four) can also be referred to for guidance.

#### 5.1.2.2 Surrounding the site

Small areas of vegetation surrounding the site that will be subject to future modification/management a part of existing approvals are proposed to be managed by the proponent until development in these areas is progressed. These areas form part of the APZ and will be managed to achieve low-threat in accordance with Section 2.2.3.2 of AS 3959. These areas include:

- Land to the east within the neighbouring landholding (Lot 10). The maintenance of this eastern management area will initially be the responsibility of the proponent and then will be handed over to the neighbouring landowner to be managed in perpetuity as part of their development approval and associated bushfire management plan. As previously outlined, the proponent has regular ongoing discussions regarding land management with Lot 10. This will continue and will address the management extent required adjacent to the eastern boundary to enable the respective buildings to achieve BAL-19 and BAL-12.5 (as outlined in **Table 5**). An agreement will be formalised as part of construction and prior to occupation of the buildings, and will also be in accordance with the approved Lot 10 BMP (WA Planning and Logistics Pty Ltd 2020) which the Lot 10 landowner has said will be managed to achieve low threat.
- Land to the south which is reserved for the future Banksia Drive extension.

Outside of the areas identified as part of the APZ, classified vegetation (including areas that may be subject to development in the future as part of the existing zoning and structure plans, such as the Coral Bay Settlement Structure Plan 2014)) has been assumed to be subject to no ongoing fuel load

## Bushfire Management Plan

### Ningaloo Reef Resort



management. This is particularly relevant for areas under a management order that is the responsibility of the Department of Biodiversity, Conservation and Attractions (DBCA).

The public road reserves will continue to be managed in accordance with existing maintenance regimes, including the additional carparking to be included within Robinson Street.

#### 5.1.3 Shire of Carnarvon Firebreak Notice

The Shire of Carnarvon releases a Firebreak Notice on an annual basis to provide a framework for bushfire management within the Shire. Shire of Carnarvon are able to enforce this notice in accordance with Section 33 of the *Bush Fires Act 1954*. In addition, Section 33 1(b) also provides the Shire with additional power to direct landowners to undertake works to remedy conditions conducive to the outbreak or spread of bushfire.

The proponent will be required to comply with the Firebreak Notice (or as agreed with Shire of Carnarvon), including the maintenance of perimeter firebreaks (or equivalent) and building APZs.

#### 5.1.4 Public education and preparedness

Community bushfire safety is a shared responsibility between individuals, the community, government and fire agencies. DFES has an extensive Community Bushfire Education Program including a range of publications, a website and Bushfire Ready Groups. The DFES website (<https://www.dfes.wa.gov.au/bushfire/prepare/>) provides a range of materials to help the community prepare for and survive the bushfire season.

The Shire of Carnarvon provides bushfire information to residents available from their website <https://www.carnarvon.wa.gov.au/services/emergency-management/fire.aspx>. Professional, qualified consultants also offer bushfire safety advice and relevant services to residents and businesses in high risk areas in addition that that provided in this BMP.

In the case of a bushfire in the area, advice would be provided to guests/visitors/staff by the Department of Fire and Emergency Services (DFES), Department of Biodiversity Conservation and Attractions (DBCA) and/or the Shire of Carnarvon with regard to responding to the bushfire, including evacuation if required.

## Bushfire Management Plan

### Ningaloo Reef Resort



## 6 Responsibilities for Implementation and Management of Bushfire Measures

**Table 7** outlines the future and/or ongoing responsibilities of the proponent, the Shire of Carnarvon and the Water Corporation associated with implementing this BMP.

The proponent is responsible for maintaining a reduced level of risk from bushfire within their land (or land under their responsibility), and will be responsible for undertaking, complying with and implementing measures to protect their own assets (and people under their care) from the threat of bushfire. The time/stage of development that particular actions will be required is also detailed.

*Table 7: Responsibilities for the implementation of this BMP*

Proponent/Operator		Timing
No.	Implementation action	
1	<p>Install internal vehicle access (where longer than 50 m) to comply with the requirements in Appendix Four of the Guidelines, including:</p> <ul style="list-style-type: none"> <li>• Requirements in Table 6, Column 4 (excerpt provided in <b>Plate 4</b>);</li> <li>• Passing bays every 200 metres with a minimum length of 20 metres and a minimum additional trafficable width of two metres (that is, the combined trafficable width of the passing bay and constructed private driveway to be a minimum six metres); and</li> <li>• Turn-around areas as shown in Figure 28 of the Guidelines.</li> </ul> <p>If the internal road is installed as proposed within <b>Appendix A</b>, it will satisfy these requirements. In particular, no passing bays will be required as roads are a minimum 6 m-wide.</p>	As part of development.
2	If required, reticulated water supply and hydrants are to be installed as per standard Water Corporation requirements, unless otherwise agreed. Hydrants are already located along Robinson Street directly adjacent to the site.	As part of development.
3	<p>The habitable buildings (dwelling) are to be located in an area that can achieve BAL-29 or less.</p> <p>Where within a bushfire prone area, ensure construction of new habitable buildings (Class 1, 2, 3 and 10a) complies with the <i>Building Act 2011</i>, including AS 3959 and/or the National Association of Steel-frame Housing (NASH) Standard for Steel Framed Construction in Bushfire Areas (or as updated). This should be as per the applicable BAL rating, determined by this BMP where satisfactory implemented (<b>Figure 3</b> and <b>Table 5</b>) or a separate BAL assessment prepared to support building license.</p>	As part of development.
4	<p>Design, implement and maintain all areas identified as an APZ in <b>Figure 4</b> to achieve low threat in accordance with Section 2.2.3.2 of AS 3959, particularly landscaped/vegetated areas. The APZ requirements outlined within the Guidelines (Schedule 1 of Appendix Four) can also be referred to for guidance. Where areas extend outside the site, these are to be maintained by the proponent until development is progressed or formal agreement on ongoing management by others is confirmed. Ongoing management is likely to include (but is not limited to):</p> <ul style="list-style-type: none"> <li>• Clearing/modification of existing vegetation (where required)</li> <li>• Irrigation of grass and garden beds (where required).</li> <li>• Regular removal of weeds and built up dead material (such as fallen branches, leaf litter etc.).</li> <li>• Low pruning of trees (i.e. removal of branches less than 2 m in height).</li> <li>• Application of ground/surface covers such as mulch or non-flammable materials as required.</li> <li>• Regular mowing/slashing of grass to less than 100mm in height.</li> </ul>	Prior to occupation and ongoing as required.

# Bushfire Management Plan

## Ningaloo Reef Resort



Table 7: Responsibilities for the implementation of this BMP (continued)

Proponent/Operator		Timing
No.	Implementation action	
5	Formalise and implement an agreement with the Lot 10 landowner to access and manage any applicable areas of vegetation that may be bushfire hazards within Lot 10 to the east, to meet the BAL ratings specified in <b>Table 5</b> .	As part of development works and prior to building occupancy.
6	Prepare a bushfire emergency evacuation plan, or include bushfire considerations within an emergency response plan, incorporating bushfire and other considerations prior to occupancy. This should be provided to the Shire of Carnarvon.	Prior to occupancy.
7	Ensuring fire hydrants remain accessible at all times.	Ongoing, where applicable.
8	Implement (and as required update) the bushfire emergency evacuation plan or emergency response plan in accordance with the triggers and procedures outlined within the plan.	Ongoing, as required.
Shire of Carnarvon		Timing
No.	Implementation action	
1	Maintaining the fuel loads in existing public road reserves and public open space (under their management) to existing/appropriate standards.	Ongoing, as required.
2	Monitoring vegetation fuel loads in private landholdings against the requirements of the Shire's Firebreak Notice and other relevant approvals and liaising with relevant stakeholders to maintain fuel loads at minimal/appropriate fuel levels, in accordance with the Shire's responsibilities under the <i>Bush Fires Act 1954</i> .	Ongoing, as required.
Water Corporation		Timing
No.	Management action	
1	The Water Corporation is responsible for the ongoing maintenance and repair of water hydrants.	Ongoing, as required.



## Bushfire Management Plan

### Ningaloo Reef Resort



## 7 Applicant Declaration

### 7.1 Accreditation

This assessment report has been prepared by Emerge Associates who have a number of team members who have undertaken Bushfire Planning and Design (BPAD) Level 1 and Level 2 training and are Fire Protection Association of Australia (FPAA) accredited practitioners. Emerge Associates have been providing bushfire risk management advice for more than 10 years, undertaking detailed bushfire assessments (and associated approvals) to support the land use development industry.

Anthony Rowe is a Fire Protection Association of Australia (FPAA) Level 3 Bushfire Planning and Design (BPAD) accredited practitioner (BPAD no. 36690) in accordance with clause 6.12 of the Guidelines.

### 7.2 Declaration

I declare that the information provided is true and correct to the best of my knowledge.

Signature:

A handwritten signature in black ink, appearing to read 'Anthony Rowe', written over a light blue horizontal line.

**Name:** Anthony Rowe

**Company:** Envision Bushfire Protection/Emerge Associates

**Date:** 25/07/2023

**BPAD Accreditation:** Level 3 BPAD No. 36690

## Bushfire Management Plan

### Ningaloo Reef Resort



## 8 References

### 8.1 General references

The references listed below have been considered as part of preparing this document.

Department of Planning, Lands and Heritage, and Western Australian Planning Commission, (DPLH & WAPC) 2021, *Guidelines for Planning in Bushfire Prone Areas Version 1.4*, Perth, Western Australia.

Gould, J., McCaw, W., Cheney, N., Ellis, P. and Matthews, S. 2007, *Field Guide: Fuel Assessment and Fire Behaviour Prediction in Dry Eucalypt Forest*, CSIRO and Department of Environment and Conservation, Perth, Western Australia.

Office of Bushfire Risk Management (OBRM) 2021, *Map of Bush Fire Prone Areas*, Landgate, <https://maps.slip.wa.gov.au/landgate/bushfireprone/>.

Standards Australia 2018, *AS 3959:2018 Construction of buildings in bushfire-prone areas*, Sydney.

WA Planning and Logistics Pty Ltd 2020, *Bushfire Management Statement*, Version 1.

Western Australian Planning Commission (WAPC) 2015, *State Planning Policy 3.7 Planning in Bushfire Prone Areas*, Perth.

### 8.2 Online references

The online resources that have been utilised in the preparation of this report are referenced in **Section 8.1**, with access date information provided in **Table R-1**.

*Table R 1 Access dates for online references*

Reference	Date accessed	Website or dataset name
(OBRM 2021)	16 June 2023	Map of Bush Fire Prone Areas
Landgate (2023)	16 June 2023	Mapviewer Plus

# Figures



*Figure 1: Site Location and Topographic Contours*

*Figure 2: AS 3959 Vegetation Classifications and Effective Slope*

*Figure 3: Bushfire Attack Level Contour Plan*

*Figure 4: Spatial Representation of Bushfire Management Strategies*







**Figure 1: Site Location and Topographic Contours**

**Project:** Bushfire Management Plan  
Ningaloo Reef Resort

**Client:** RAC Tourism Assets Pty Ltd

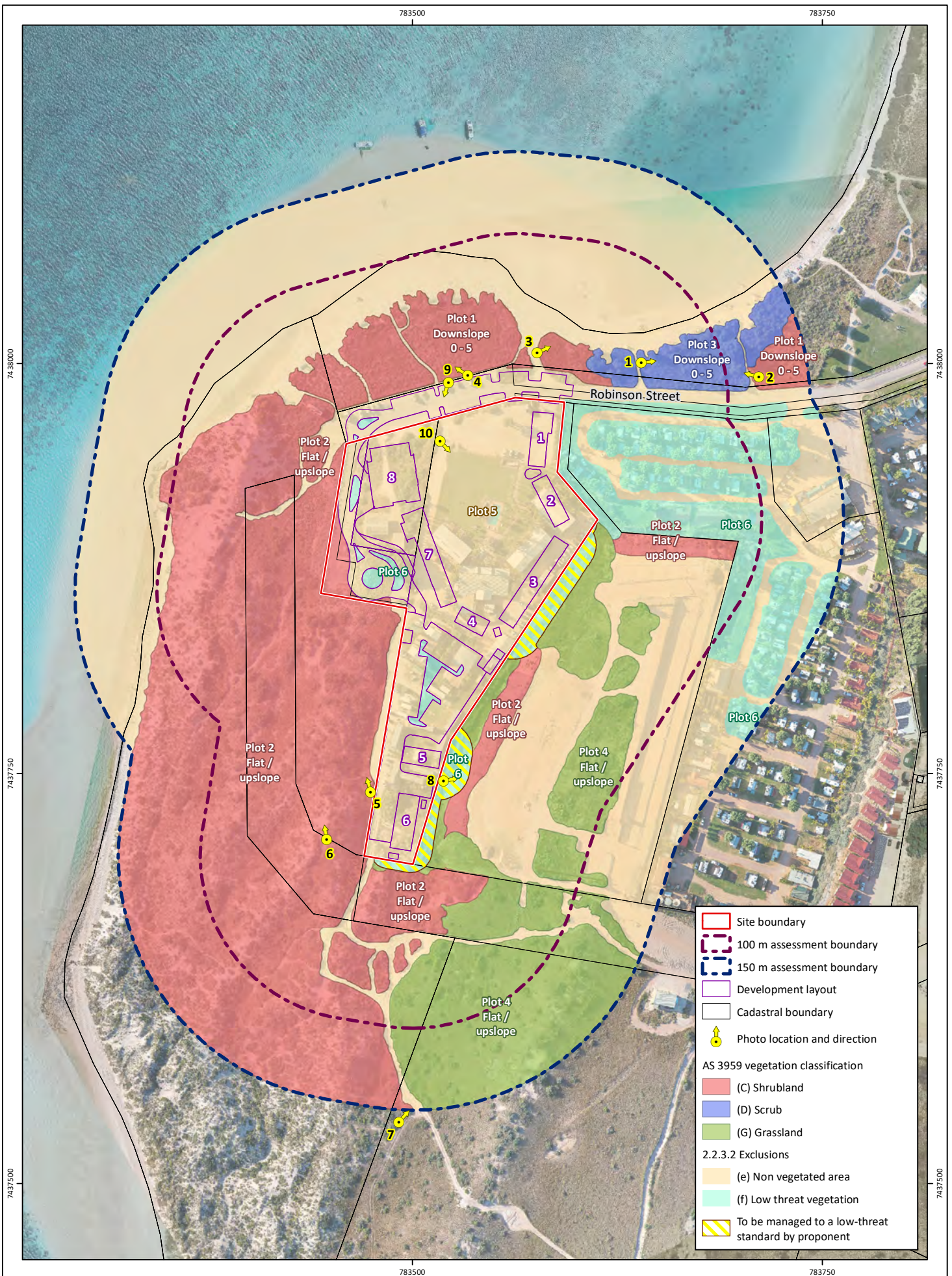
**Plan Number:** EP22-033(02)--F05a  
**Drawn:** WJC  
**Date:** 20/06/2023  
**Checked:** LSW  
**Approved:** KK  
**Date:** 25/07/2023



0 50 100  
Metres  
Scale: 1:3,500@A4  
GDA 1994 MGA Zone 49

**emerge**  
ASSOCIATES





**Figure 2: AS 3959 Vegetation Classifications and Effective Slope**

**Project:** Bushfire Management Plan  
Ningaloo Reef Resort

**Client:** RAC Tourism Assets Pty Ltd

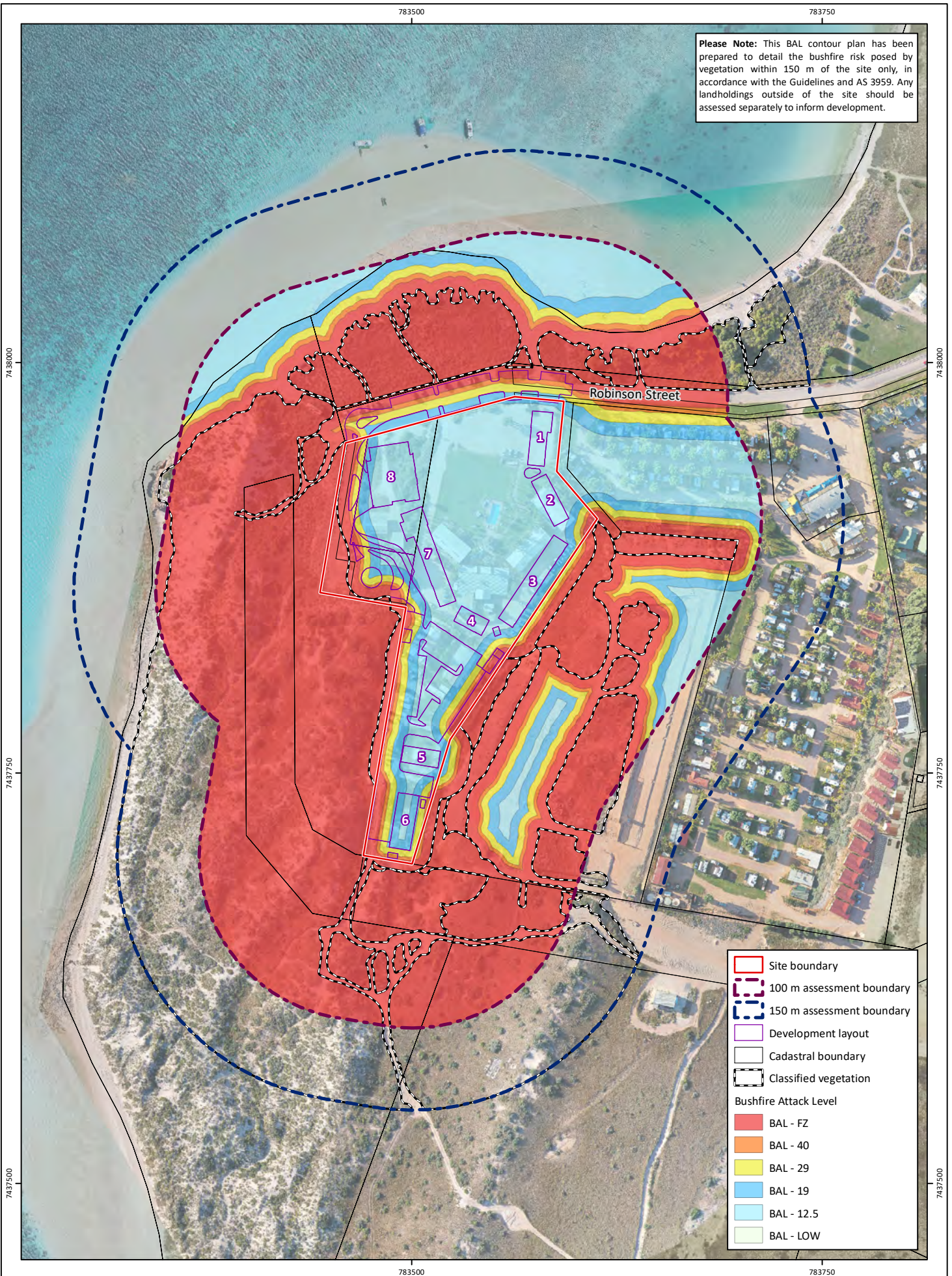
**Plan Number:** EP22-033(02)--F06b  
**Drawn:** WJC  
**Date:** 21/07/2023  
**Checked:** LSW  
**Approved:** KK  
**Date:** 25/07/2023



0 40 80  
Metres  
Scale: 1:3,000@A4  
GDA 1994 MGA Zone 49







**Figure 3: Bushfire Attack Level Contour Plan**

**Project:** Bushfire Management Plan  
Ningaloo Reef Resort

**Client:** RAC Tourism Assets Pty Ltd

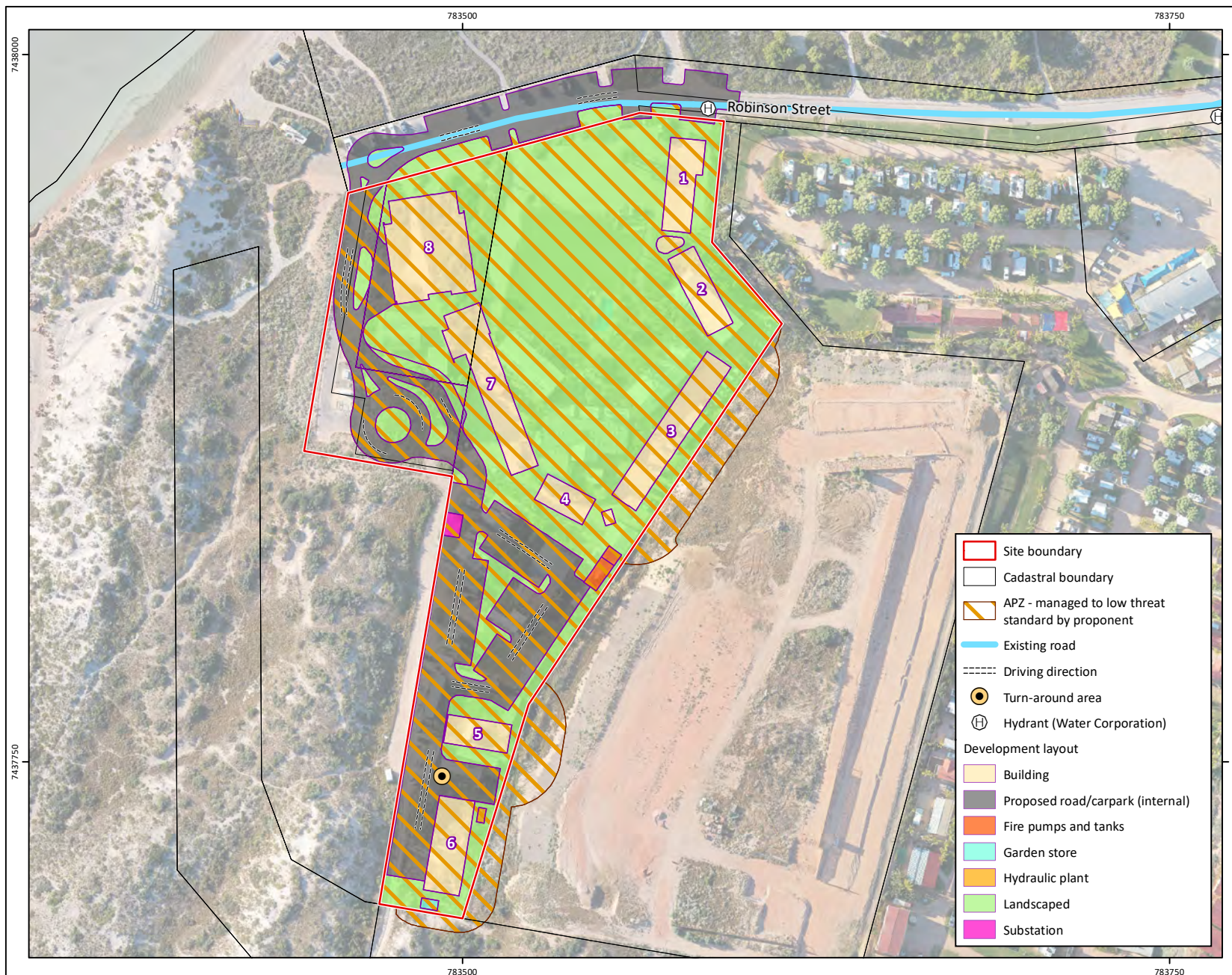
**Plan Number:** EP22-033(02)--F07b  
**Drawn:** WJC  
**Date:** 21/07/2023  
**Checked:** LSW  
**Approved:** KK  
**Date:** 25/07/2023



0 40 80  
Metres  
Scale: 1:3,000@A4  
GDA 1994 MGA Zone 49







#### Habitable buildings

Where designated bushfire prone, habitable buildings (Class 1, 2, 3 and related 10a structures) within the site must be constructed in accordance with the BAL ratings determined in accordance with AS 3959. Habitable buildings should be located to achieve BAL-29 or less.

#### Asset Protection Zone (APZ)

Each habitable buildings is required to have an APZ that achieves a low threat standard in accordance with AS 3959 and/or the Shire of Carnarvon.

#### Vehicle Access

- The development occurs within a residential built-out area.
- The public road (associated with the Robinson Street extension) is to meet the requirements of Appendix Four of the Guidelines, in particular Table 6 Column 1, unless agreed otherwise with the Shire of Carnarvon.
- The internal road network is to meet the requirements outlined in Column 4 of Table 6 in Appendix Four of the Guidelines (see also Section 5 of this BMP). This includes:
  - + Passing bays every 200 m with a minimum length of 20 m and minimum additional trafficable width of 2 m (for a total trafficable width of 6 m). The road width proposed in the development plan meets a minimum 6 m width, so not passing bays are required.
  - + Turn around areas as per Figure 28 (of the Guidelines).
- Signage will be provided within the site advising of where each vehicle route travels to and general information indicating what to do in the event of a bushfire.

#### Water Supply

The site is located within an area serviced by reticulated water and an associated hydrant network. Additional hydrants will be installed as required in consultation with Water Corporation and/or the Shire of Carnarvon. It is the responsibility of the proponent to ensure that these hydrants remain accessible at all times.

**Figure 4: Spatial Representation of Bushfire Management Strategies**

**Project:** Bushfire Management Plan  
Ningaloo Reef Resort

**Client:** RAC Tourism Assets Pty Ltd

**Plan Number:**  
EP22-033(02)~F08b

**Drawn:** WJC

**Date:** 21/07/2023

**Checked:** LSW

**Approved:** KK

**Date:** 25/07/2023



0 20 40 60  
Metres

**Scale:** 1:455,620@A4

GDA 1994 MGA Zone 49

**emerge**  
ASSOCIATES

# Appendix A

Proposed Development Plan (Architectus 2023)









- LEGEND
- SITE BOUNDARY
  - EXISTING CADASTRAL BOUNDARY
  - FENCE
  - PROPOSED TREE / SHRUB
  - LANDSCAPING
  - POOL
  - FH FIRE HYDRANT
  - ➡ VEHICULAR FLOW

DEVELOPMENT SUMMARY	
LOT 1	18,407m <sup>2</sup>
LOT 54	3,025m <sup>2</sup>
LOT 68	2,530m <sup>2</sup>
TOTAL	23,962m <sup>2</sup>
*NOTE LOT AMALGAMATION SUBJECT TO SEPARATE APPLICATION	
No. OF GUEST ROOMS	90
No. OF STAFF ACCOMMODATION	3
DEVELOPMENT FOOTPRINT	
CLUBHOUSE / BLOCK A	1,294m <sup>2</sup>
RECEPTION	172m <sup>2</sup>
BLOCK B	740m <sup>2</sup>
BLOCK C	278m <sup>2</sup>
BLOCK D	895m <sup>2</sup>
BLOCK E	446m <sup>2</sup>
BLOCK F	530m <sup>2</sup>
BLOCK G	340m <sup>2</sup>
ANCILLARY	98m <sup>2</sup>
WORKSHOP	471m <sup>2</sup>
TOTAL DEVELOPMENT FOOTPRINT	5,264m <sup>2</sup>
CARBAYS	
GUEST BAYS	95
STAFF BAYS	12
EV CHARGING BAYS	4
DROP OFF BAYS	4
BOAT BAYS	5
BUS BAYS	2
TOTAL	122

REFER TO LANDSCAPE CONSULTANT DRAWING FOR LANDSCAPE DESIGN

REFER TO CIVIL CONSULTANT DRAWING FOR CIVIL DESIGN

1 SITE PLAN - PROPOSED  
DA-04 SCALE: 1:500

<table><tr><td>REV</td><td>DATE</td><td>BY</td><td>APPD</td><td>ISSUE FOR DEVELOPMENT APPLICATION</td></tr><tr><td>A</td><td>21/07/23</td><td>CD</td><td></td><td>AMENDMENT</td></tr></table>	REV	DATE	BY	APPD	ISSUE FOR DEVELOPMENT APPLICATION	A	21/07/23	CD		AMENDMENT	CONSULTANT <b>architectus</b> Architectus Perth QV1 Upper Plaza West 250 St. Georges Terrace Perth WA 6000 T (61 8) 9412 8355 perth@architectus.com.au ABN 90 131 245 684	CONSULTANT PROJECT NUMBER <b>210037</b>	LEGEND --- SITE BOUNDARY --- HORIZONTAL SHORELINE DATUM (HSD) 3.4m AHD CONTOUR --- COASTAL HAZARD LINE - 2022 PLANNING HORIZON --- COASTAL HAZARD LINE - 2047 PLANNING HORIZON --- COASTAL HAZARD LINE - 2062 PLANNING HORIZON --- COASTAL HAZARD LINE - 2072 PLANNING HORIZON --- COASTAL HAZARD LINE - 2122 PLANNING HORIZON			SCALE (A1) <b>As indicated</b>	PROJECT <b>RAC NINGALOO REEF RESORT</b>
REV	DATE	BY	APPD	ISSUE FOR DEVELOPMENT APPLICATION													
A	21/07/23	CD		AMENDMENT													
PLOT DATE: 25/07/2023 9:33:52 AM	Adelaide Brisbane Melbourne Perth Sydney	DESIGNED CJ / MT CHECKED CJ APPROVED BP PROJECT MANAGER MB	DATE 20/07/23 DATE 20/07/23 DATE 20/07/23 DATE 20/07/23	JL RAC APPROVED	J. LOURENS	DRAWING No <b>CRB-003-BLD-DA-014</b>	REV <b>A</b>										





# Appendix B

Landscape Concept Plan (SeeDesign 2023)











