

Bushfire management plan/Statement addressing the Bushfire Protection Criteria coversheet

Site address:

Site visit: Yes No

Date of site visit (if applicable): Day Month Year

Report author or reviewer:

WA BPAD accreditation level (please circle):

Not accredited Level 1 BAL assessor Level 2 practitioner Level 3 practitioner

If accredited please provide the following.

BPAD accreditation number: Accreditation expiry: Month Year

Bushfire management plan version number:

Bushfire management plan date: Day Month Year

Client/business name:

	Yes	No
Has the BAL been calculated by a method other than method 1 as outlined in AS3959 (tick no if AS3959 method 1 has been used to calculate the BAL)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Have any of the bushfire protection criteria elements been addressed through the use of a performance principle (tick no if only acceptable solutions have been used to address all of the bushfire protection criteria elements)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Is the proposal any of the following (see [SPP 3.7 for definitions](#))?

	Yes	No
Unavoidable development (in BAL-40 or BAL-FZ)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Strategic planning proposal (including rezoning applications)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
High risk land-use	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vulnerable land-use	<input checked="" type="checkbox"/>	<input type="checkbox"/>

None of the above

Note: Only if one (or more) of the above answers in the tables is yes should the decision maker (e.g. local government or the WAPC) refer the proposal to DFES for comment.

Why has it been given one of the above listed classifications (E.g. Considered vulnerable land-use as the development is for accommodation of the elderly, etc.)?

The information provided within this bushfire management plan to the best of my knowledge is true and correct:

Signature of report author or reviewer

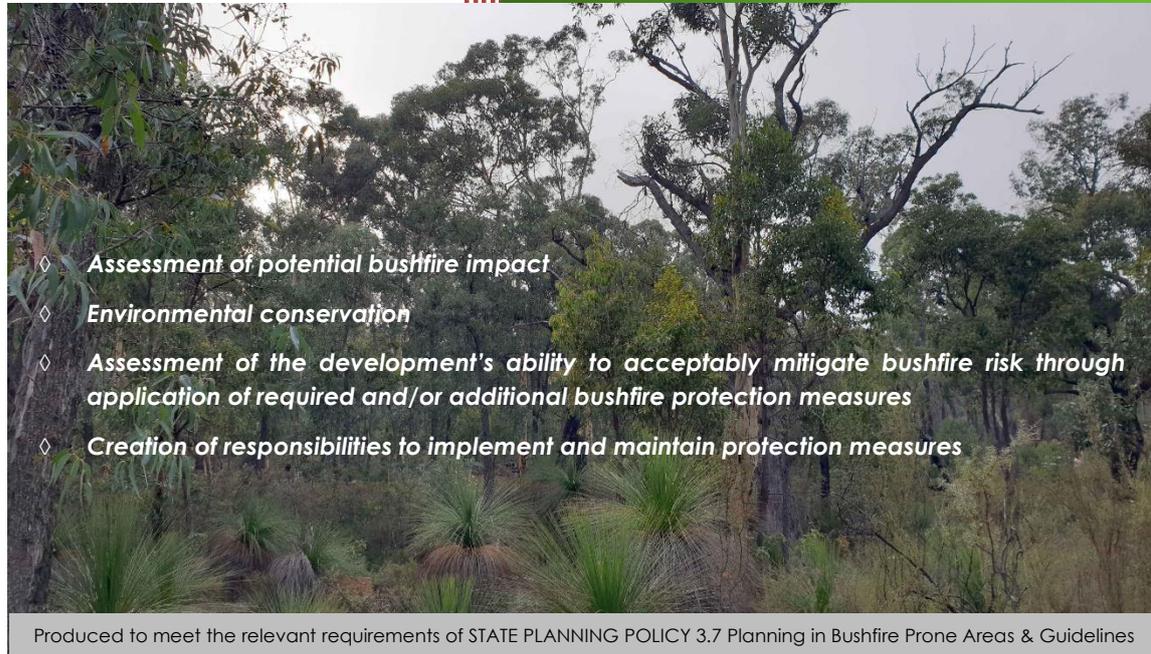


Date



Dunes Beach Resort (Mindarie
Beach Reserve)

Bushfire Management Plan (BMP)



Lot 211 (2) Quinns Road, Mindarie, 6030

City of Wanneroo

Development Application - Vulnerable
Tourism Land Use

28 February 2024

Job Reference No: 230008

BPP GROUP PTY LTD T/A BUSHFIRE PRONE PLANNING

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		-		<input type="checkbox"/>	<input type="checkbox"/>
<p>Limitations: The protection measures that will be implemented based on information presented in this Bushfire Management Plan are minimum requirements and they do not guarantee that buildings or infrastructure will not be damaged in a bushfire, persons injured, or fatalities occur either on the subject site or off the site while evacuating.</p> <p>This is substantially due to the unpredictable nature and behaviour of fire and fire weather conditions. Additionally, the correct implementation of the required protection measures (including bushfire resistant construction) and any other required or recommended measures, will depend upon, among other things, the ongoing actions of the landowners and/or operators over which Bushfire Prone Planning has no control.</p> <p>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.</p> <p>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.</p> <p>Copyright © 2023 BPP Group Pty Ltd: All intellectual property rights, including copyright, in format and proprietary content contained in documents created by Bushfire Prone Planning, remain the property of BPP Group Pty Ltd. Any use made of such format or content without the prior written approval of Bushfire Prone Planning, will constitute an infringement on the rights of the Company which reserves all legal rights and remedies in respect of any such infringement.</p>					

TABLE OF CONTENTS

SUMMARY STATEMENTS.....	3
1 PROPOSAL DETAILS AND THE BUSHFIRE MANAGEMENT PLAN.....	6
1.1 THE PROPOSED DEVELOPMENT/USE DETAILS, PLANS AND MAPS	6
1.2 THE BUSHFIRE MANAGEMENT PLAN (BMP).....	12
1.2.1 COMMISSIONING AND PURPOSE.....	12
1.2.2 OTHER DOCUMENTS WITH IMPLICATIONS FOR DEVELOPMENT OF THIS BMP.....	12
2 BUSHFIRE PRONE VEGETATION – ENVIRONMENTAL & ASSESSMENT CONSIDERATIONS	14
2.1 ENVIRONMENTAL CONSIDERATIONS – ‘DESKTOP’ ASSESSMENT	14
2.1.1 DECLARED ENVIRONMENTALLY SENSITIVE AREAS (ESA)	16
2.1.2 OTHER PROTECTED VEGETATION ON PUBLIC LAND	17
2.1.3 LOCALLY SIGNIFICANT CONSERVATION AREAS – LOCAL NATURAL AREAS (LNA)	17
2.1.4 RESPONSE OF PROPOSED DEVELOPMENT TO IDENTIFIED ENVIRONMENTAL LIMITATIONS	19
2.2 BUSHFIRE ASSESSMENT CONSIDERATIONS.....	20
2.2.1 PLANNED ONSITE VEGETATION LANDSCAPING	20
2.2.2 PLANNED / POTENTIAL OFFSITE REHABILITATION OR RE-VEGETATION	20
2.2.3 IDENTIFIED REQUIREMENT TO MANAGE, MODIFY OR REMOVE ONSITE OR OFFSITE VEGETATION	20
2.2.4 VARIATIONS TO ASSESSED AREAS OF CLASSIFIED VEGETATION TO BE APPLIED	21
3 BUSHFIRE ATTACK LEVEL (BAL) ASSESSMENT	22
3.1 BAL ASSESSMENT SUMMARY (CONTOUR MAP FORMAT)	23
3.1.1 BAL DETERMINATION METHODOLOGY AND LOCATION OF DATA AND RESULTS.....	23
3.1.2 BAL RATINGS DERIVED FROM THE CONTOUR MAP.....	24
3.1.3 SITE ASSESSMENT DATA APPLIED TO CONSTRUCTION OF THE BAL CONTOUR MAP(S).....	25
3.1.4 CLASSIFIED VEGETATION AND TOPOGRAPHY MAP(S)	28
3.1.5 BAL CONTOUR MAP(S).....	30
4 IDENTIFICATION OF BUSHFIRE HAZARD ISSUES	31
5 ASSESSMENT AGAINST THE BUSHFIRE PROTECTION CRITERIA (GUIDELINES V1.4).....	32
5.1 BUSHFIRE PROTECTION CRITERIA ELEMENTS APPLICABLE TO THE PROPOSED DEVELOPMENT/USE	32
5.2 LOCAL GOVERNMENT VARIATIONS TO APPLY.....	32
5.3 ASSESSMENT STATEMENTS FOR ELEMENT 5: VULNERABLE TOURISM LAND USES	33
5.3.1 OTHER SHORT TERM ACCOMMODATION.....	33
6 BUSHFIRE PROTECTION MEASURES - RESPONSIBILITY FOR IMPLEMENTATION CHECKLIST.....	40
6.1 DEVELOPER / LANDOWNER RESPONSIBILITIES – PRIOR TO BUILDING AND OPERATION.....	40
6.2 LANDOWNER / OCCUPIER RESPONSIBILITIES – ONGOING MANAGEMENT	42
6.3 LOCAL GOVERNMENT RESPONSIBILITIES – ONGOING MANAGEMENT	44

APPENDIX A: DETAILED BAL ASSESSMENT DATA AND SUPPORTING INFORMATION	45
A1: BAL ASSESSMENT INPUTS COMMON TO THE METHOD 1 AND METHOD 2 PROCEDURES	45
A1.1: FIRE DANGER INDICES (FDI/FDI/GFDI)	45
A1.2: VEGETATION ASSESSMENT AND CLASSIFICATION.....	45
A1.3: EFFECTIVE SLOPE.....	56
A1.4: SEPARATION DISTANCE.....	57
APPENDIX B: ADVICE - ONSITE VEGETATION MANAGEMENT - THE APZ	58
B1: ASSET PROTECTION ZONE (APZ) DIMENSIONS	58
B1.1: THE APZ DIMENSIONS REQUIRED TO BE IMPLEMENTED BY THE LANDOWNER	60
B2: THE STANDARDS FOR THE APZ AS ESTABLISHED BY THE GUIDELINES (DPLH, V1.4).....	61
B3: THE STANDARDS FOR THE APZ AS ESTABLISHED BY THE LOCAL GOVERNMENT	62
B4: VEGETATION AND AREAS EXCLUDED FROM CLASSIFICATION - ENSURE CONTINUED EXCLUSION.....	63
APPENDIX C: TECHNICAL REQUIREMENTS FOR VEHICULAR ACCESS.....	64
APPENDIX D: TECHNICAL REQUIREMENTS FOR FIREFIGHTING WATER SUPPLY.....	65
D1: RETICULATED AREAS – HYDRANT SUPPLY	65

LIST OF FIGURES

Figure 1.1: Proposed development plan.	7
Figure 1.2: Proposed development map.	8
Figure 1.3: Location map (spatial context).....	9
Figure 1.4: Extract from Map of Bushfire Prone Areas (Office of Bushfire Risk Management, DFES)	11
Figure 2.1: Land identified with known environmental, biodiversity and conservation values.	15
Figure 3.1: Classified vegetation and topography map.	28
Figure 3.1.1: Post-Development Classified vegetation and topography map.....	29
Figure 3.2: BAL Contour Map.....	30

SUMMARY STATEMENTS

THIS DOCUMENT – STATEMENT OF PURPOSE

The Bushfire Management Plan (BMP)

The BMP sets out the required package of bushfire protection measures to lessen the risks associated with a bushfire event. It establishes the responsibilities to implement and maintain these measures.

The BMP also identifies the potential for any negative impact on any environmental, biodiversity and conservation values that may result from the application of bushfire protection measures or that may limit their implementation.

Risks Associated with Bushfire Events

The relevant risks are the potential for loss of life, injury, or destroyed or damaged assets which results in personal loss and economic loss. For a given site, the level of that risk to persons and assets (the exposed elements) is a function of the potential threat levels generated by the bushfire hazard, and the level of exposure and vulnerability of the at risk elements to the threats.

Bushfire Protection Measures

The required package of protection measures is established by *State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7)*, its associated *Guidelines* and any other relevant guidelines or position statements published by the Department of Planning, Lands and Heritage. These measures are limited to those considered by the WA planning authorities as necessary to be addressed for the purpose of land use planning. They do not encompass all available bushfire protection measures as many are not directly relevant to the planning approval stage. For example:

- Protection measures to reduce the vulnerability of buildings to bushfire threats is primarily dealt with at the building application stage. They are implemented through the process of applying the Building Code of Australia (Volumes 1 and 2 of the national Construction Code) in accordance with WA building legislation and the application of construction requirements based on a building's level of exposure - determined as a Bushfire Attack Level (BAL) rating); or
- Protection measures to reduce the threat levels of consequential fire (ignited by bushfire and involving combustible materials surrounding and within buildings) and measures to reduce the exposure and vulnerability of elements at risk exposed to consequential fire, are not specifically considered.

The package of required bushfire protection measures established by the Guidelines includes:

- The requirements of the bushfire protection criteria which consist of:
 - Element 1: Location (addresses threat levels).
 - Element 2: Siting and Design of Development (addresses exposure levels of buildings).
 - Element 3: Vehicular Access (addresses exposure and vulnerability levels of persons).
 - Element 4: Water (addresses vulnerability levels of buildings).
 - Element 5: Vulnerable Tourism Land Uses (addresses exposure and vulnerability as per Elements 1-4 but in use specific ways and with additional considerations of persons exposure and vulnerability).
- The requirement to develop Bushfire Emergency Plans / Information for 'vulnerable' land uses for persons to prepare, respond and recover from a bushfire event (this addresses vulnerability levels).
- The requirement to assess bushfire risk and incorporate relevant protection measures into the site emergency plans for 'high risk' land uses (this addresses threat, exposure and vulnerability levels).

Compliance of the Proposed Development or Use with SPP 3.7 Requirements

The BMP assesses the capacity of the proposed development or use to implement and maintain the required 'acceptable' solutions and any additionally recommended bushfire protection measures - or its capacity to satisfy the policy intent through the justified application of additional bushfire protection measures as supportable 'alternative' solutions.

THE PROPOSED DEVELOPMENT/USE – BUSHFIRE PLANNING COMPLIANCE SUMMARY		
Environmental Considerations		Assessment Outcome
Will land with identified environmental, biodiversity and conservation values limit the full application of the required bushfire protection measures?		No
Will land with identified environmental, biodiversity and conservation values need to be managed in the implementation and maintenance of the bushfire protection measures - but not limit their application?		No
Required Bushfire Protection Measures		Assessment Outcome
The Acceptable Solutions of the Bushfire Protection Criteria (Guidelines)		
Element	The Acceptable Solutions	
5: Vulnerable Tourism Land Uses		
Other Short Term Accommodation	A5.7a Siting and design – APZ – caravan park	N/A
	A5.7b Siting and design – APZ – certain accommodation	Fully Compliant
	A5.7c Siting and design – APZ – all other accommodation	Fully Compliant
	A5.7d Siting and design – APZ – landscape management	N/A
	A5.7e Siting and design – onsite shelter – pedestrian paths	N/A
	A5.7f Siting and design – onsite shelter – exposure to hazard	N/A
	A5.7g Siting and design – onsite shelter – construction requirements.	N/A
	A5.8.1a Vehicular access – internal access/private driveway - availability	Fully Compliant
	A5.8.1b Vehicular access – internal access/private driveway – tech. req.	Fully Compliant
	A5.8.1c Vehicular access – signage	Fully Compliant
	A5.8.2a Vehicular access – multiple access routes	N/A
	A5.8.2b Vehicular access – no-through roads – maximum length	N/A
	A5.8.2c Vehicular access – EAW – alternative access option	N/A
	A5.8.2d Vehicular access – public roads - technical requirements	N/A
	A5.8.2e Vehicular access – access limitations - onsite shelter option	N/A
	A5.9a Provision of water - reticulated	Fully Compliant
	A5.9b Provision of water – non-reticulated	N/A

<p style="text-align: center;">Other 'Bushfire Planning' Documents to Be Produced</p> <p>This necessity for additional documents is determined by the proposed development/use type and the requirements established by SPP 3.7 and the associated Guidelines (as amended). They may be produced concurrently or subsequent to the BMP. Relevant actions will be identified within Section 6 'Responsibilities for Implementation of Bushfire Protection Measures.</p>	<p style="text-align: center;">Required</p>
<p>Bushfire Emergency Plan: An operational document presenting prevent, prepare, respond and recover procedures and associated actions. As necessary, supporting information to justify determinations is included.</p>	<p style="text-align: center;">Yes</p>
<p>Summary Statement: The land use includes overnight accommodation and hospitality functions. It is therefore considered a Vulnerable Tourism Land Use, for which a Bushfire Emergency Plan has been prepared.</p>	

1 PROPOSAL DETAILS AND THE BUSHFIRE MANAGEMENT PLAN

1.1 The Proposed Development/Use Details, Plans and Maps

The Proposal's Planning Stage For which certain bushfire planning documents are required to accompany the planning application.		Development Application	
The Subject Land/Site		Lot 211 (2) Quinns Road Mindarie, 6030, in the City of Wanneroo	
Total Area of Subject Lot/Site		11.0570 hectares	
Primary Proposed Construction	Type(s)	Caravan and camping sites	New Building(s)
	NCC Classification	N/A	Class 6 (building for sale of retail goods or supply of services)
The 'Specific' Land Use Type for Bushfire Planning When applicable, this classification establishes a requirement to conduct assessments and develop documents that are additional to this Bushfire Management Plan.		Vulnerable Tourism Land Use	
Factors Determining the 'Specific' Land Use Type		<p>The proposed development is a land use that is categorised as a Short term accommodation (other than B&B/Holiday House) including motel, serviced apartments, tourist development (includes cabins and chalets), holiday accommodation and caravan park (which incorporates camping grounds).</p> <p>The proposed tourism land use involves visitors who are unfamiliar with the surroundings and/or where they present evacuation challenges.</p> <p>The proposal would benefit from a Bushfire Emergency Plan to manage the safety of occupants in a bushfire event. Therefore, it should be treated as 'vulnerable'.</p>	
Description of the Proposed Development/Use			
<p>This BMP addresses the development of Mindarie Beach Reserve as an 'eco-resort' (<i>Dunes Beach Resort</i>). The development is proposed to include:</p> <ul style="list-style-type: none"> Licensed café and bar within an events/function building, and Short-term accommodation (40 x 'glamping style' eco-tents) <p>The eco-tents are expected to accommodate a maximum of 95 guests at one time. The function/café/events use is expected to accommodate a total maximum of 240 guests at one time (which includes the 95 eco-tent guests).</p>			



LEGEND

-  OUTPOST TENT
-  DELUXE TENT
-  FAMILY/BRIDAL TENT
-  SUPERIOR TENT
-  UNIVERSAL ACCESS TENT (UAT)
-  EXISTING TREES TO REMAIN
-  SELECTED CARPARK VEGETATION
-  DATE PALM

QUINNS
MINDARIE
COMMUNITY
CENTRE SURF
CLUB

NEW CARPARK

PICK UP/DROP
OFF ZONE

MAIN BUILDING

RECEPTION

DATE PALM

LAWN AREA

<small># 28 18:32 25 ISSUED FOR DEVELOPMENT APPROVAL REV. BY DATE REVISION DESCRIPTION REFER TO COVER PAGE FOR NOTES THIS DOCUMENT IS COPYRIGHT & MAY NOT BE REPRODUCED WITHOUT PERMISSION FROM HOSPITALITY TOTAL SERVICES</small>	
<small>CLIENT ECO TOURISM PTY LTD</small>	
	
<small>Hospitality Management & Design Consultants Office 2, 48 Kiahara Road, Applecross WA 6153 PO Box 1154, Canning Bridge, Applecross WA 6153</small>	
<small>PROJECT TITLE / CLIENT MINDARIE GLAMPING PROJECT 2 QUINNS ROAD MINDARIE WA 8030</small>	
<small>DRAWING TITLE SITE PLAN - PARTIAL SITE PLAN</small>	
<small>SCALE 1:200</small>	<small>CHECKED BY @A1</small>
<small>PROJECT NUMBER HTS---</small>	<small>DRAWING NO. DA - 1.01</small>
<small>DATE 26.02.2024</small>	<small>0</small>

Figure 1.2
Proposed Development

Lot 211 on Diagram 27023, Area : 11.0570 ha
 2 Quinns Road,
 MINDARIE 6030
CITY OF WANNEROO

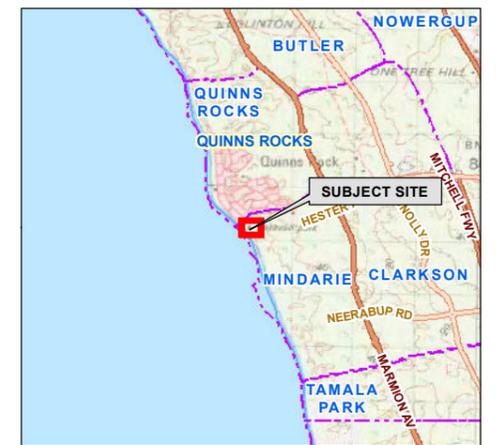


----- **LEGEND** -----

- Subject Site
- Other Lots
- Proposed Building**
- Venue
- Accomodation
- Universal Access Tent
- Paved Areas
- Reception



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



Aerial Imagery : Landgate/SLIP
 Image Date : Feb 2023

Coordinate System: GDA 1994 MGA Zone 50
 Projection: Universal Transverse Mercator Units: Metre
 Map compiled by: Ian Ross 1/03/2024
 Map updated by: Ian 1/03/2024
 A3 Scale 1:1,000



Figure 1.3
Location Plan

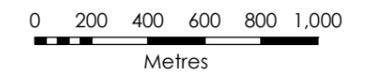
Lot 211 on Diagram 27023, Area : 11.0570 ha
 2 Quinns Road,
 MINDARIE 6030
CITY OF WANNEROO



SUBJECT SITE

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

-  Subject Site
-  Local Government Authority
-  Locality / Suburb
-  Bush Fire Brigade
-  Career Fire & Rescue Service
- Reserves**
-  Reserves
- Legislated Lands and Waters**
-  National Park
- DBCAs Lands of Interest**
-  Crown Freehold - Dept Interest



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



Aerial Imagery : Landgate/SLIP
 Image Date : Feb 2023

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WHERE SPP 3.7 AND THE GUIDELINES ARE TO APPLY – DESIGNATED BUSHFIRE PRONE AREAS

All higher order strategic planning documents, strategic planning proposals, subdivisions and development applications located in designated bushfire prone areas need to address SPP 3.7 and its supporting Guidelines. This also applies where an area is not yet designated as bushfire prone but is proposed to be developed in a way that introduces a bushfire hazard.

For development applications where only part of a lot is designated as bushfire prone and the proposed development footprint is wholly outside of the designated area, the development application will not need to address SPP 3.7 or the Guidelines. (Guidelines DPLH 2021 v1.4, s1.2).

For subdivision applications, if all the proposed lots have a BAL-LOW indicated, a BMP is not required. (Guidelines DPLH 2021 v1.4, s5.3.1).

Figure 1.4
Bushfire Prone Area

Lot 211 on Diagram 27023, Area : 11.0570 ha
 2 Quinns Road,
 MINDARIE 6030
CITY OF WANNEROO

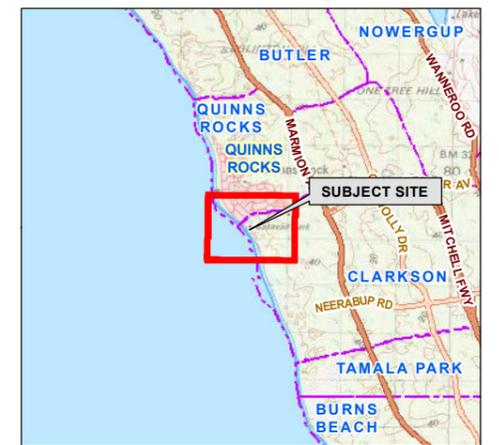


----- **LEGEND** -----

- Subject Site
- Locality / Suburb
- H Hydrant
- Proposed Building**
- Venue
- Accomodation
- Universal Access Tent
- Paved Areas
- Reception
- Bush Fire Prone Areas**
- Bushfire Prone Areas (2021)



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



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Coordinate System: GDA 1994 MGA Zone 50
 Projection: Universal Transverse Mercator Units: Metre
 Map compiled by: Ian Ross 1/03/2024
 Map updated by: Ian 1/03/2024
 A3 Scale 1:5,000

1.2 The Bushfire Management Plan (BMP)

1.2.1 Commissioning and Purpose

Proponent:	Hospitality Total Services
Bushfire Prone Planning commissioned to produce the BMP by:	Mario Sequeira of Hospitality Total Services
Purpose of the BMP:	To assess the proposal's ability to meet all relevant requirements established by State Planning Policy 3.7: Planning in Bushfire Prone Areas (SPP 3.7), the associated 'Guidelines and any relevant Position Statements; and To satisfy the requirement for the provision of a Bushfire Management Plan to accompany the development application.
BMP to be submitted to:	City of Wanneroo

1.2.2 Other Documents with Implications for Development of this BMP

This section identifies any known assessments, reports or plans that have been conducted and prepared previously, or are being prepared concurrently, and are relevant to the planned proposal for the subject. They potentially have implications for the assessment of bushfire threats and the identification and implementation of the protection measures that are established by this Bushfire Management Plan.

Table 1.4: Other relevant documents that may influence threat assessments and development of protection measures.

RELEVANT DOCUMENTS					
Document	Relevant	Currently Exists	To Be Developed	Copy Provided by Proponent / Developer	Title
Structure Plan	No	No	No	N/A	-
Bushfire Management Plan	Yes	Yes	N/A	N/A	<i>This document</i>
Bushfire Emergency Plan or Information	Yes	Yes	N/A	N/A	<i>Lot 211 (2) Quinns Road Mindarie (BEP) v1.0, Bushfire Prone Planning (2023)</i>
Implications for this BMP: Developed concurrently with this BMP.					
Bushfire Risk Assessment and Management Report	No	No	No	N/A	-
Environmental Asset or Vegetation Survey	Yes	Yes	No	Yes	<i>Vertebrate Fauna Survey (Terrestrial Ecosystems, 2020). Flora and Vegetation Survey – Detailed and Targeted (One Tree Botanical, 2020)</i>
Implications for the BMP: The existing environmental surveys are relevant to this BMP, however do not impact the ability to apply the required bushfire protection measures.					

Landscaping and Revegetation Plan	No	No	No	No	-
Land Management Agreement	No	No	No	N/A	-

2 BUSHFIRE PRONE VEGETATION – ENVIRONMENTAL & ASSESSMENT CONSIDERATIONS

2.1 Environmental Considerations – ‘Desktop’ Assessment

This ‘desktop’ assessment must not be considered as a replacement for a full Environmental Impact Assessment. It is a summary of potential environmental values at the subject site, inferred from information contained in listed datasets and/or reports, which are only current to the date of last modification.

These data sources must be considered indicative where the subject site has not previously received a site-specific environmental assessment by an appropriate professional.

Many bushfire prone areas also have high biodiversity values. Consideration of environmental priorities within the boundaries of the land being developed can avoid excessive or unnecessary modification or clearing of vegetation. Approval processes (and exemptions) apply at both Commonwealth and State levels.

Any ‘modification’ or ‘clearing’ of vegetation to reduce bushfire risk is considered ‘clearing’ under the **Environmental Protection Act 1986** (EP Act) and requires a clearing permit under the **Environmental Protection (Clearing of Native Vegetation) Regulations 2004** (Clearing Regulations) – unless for an exempt purpose.

Clearing native vegetation is an offence, unless done under a clearing permit or the clearing is for an exempt purpose. Exemptions are contained in the EP Act or are prescribed in the Clearing Regulations (note: these do not apply in environmentally sensitive areas).

The **Department of Water and Environmental Regulation** (DWER) is responsible for issuing ‘clearing’ permits and the framework for the regulation of clearing. Approvals under other legislation, from other agencies, may also be required, dependent on the type of flora or fauna present.

Local Planning Policy or Local Biodiversity Strategy: Natural areas that are not protected by the above Act and Regulation (or any other National or State Acts) may be protected by a local planning policy or local biodiversity strategy. Permission from the local government will be required for any modification or removal of native vegetation in these Local Natural Areas (LNA's). Refer to the relevant local government for detail.

For further Information refer to Guidelines v1.4, the Bushfire and Vegetation Factsheet - WAPC, Dec 2021 and <https://www.der.wa.gov.au/our-work/clearing-permits>

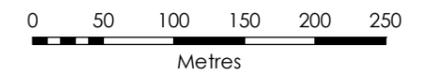
Figure 2.1
Environmental Considerations

Lot 211 on Diagram 27023, Area : 11.0570 ha
 2 Quinns Road,
 MINDARIE 6030
CITY OF WANNEROO



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

- Subject Site
- Locality / Suburb
- H Hydrant
- Proposed Building**
- Venue
- Accomodation
- Universal Access Tent
- Paved Areas
- Reception
- Reserves**
- Reserves
- Bush Forever
- Clearing Regulations**
- Clearing Regulations



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



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 A3 Scale 1:5,000

2.1.1 Declared Environmentally Sensitive Areas (ESA)

IDENTIFICATION OF RELEVANT ENVIRONMENTALLY SENSITIVE AREAS							
ESA Class	Relevant to Proposal	Influence on Bushfire Threat Levels and / or Application of Bushfire Protection Measures	Relevant Dataset	Information Source(s) Applied to Identification of Relevant Vegetation			Further Action Required
				Dataset	Landowner or Developer	Environmental Asset or Vegetation Survey	
Wetlands and their 50m Buffer (Ramsar, conservation category and nationally important)	No	No	DBCA-010 and 011, 019, 040, 043, 044	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None
Bush Forever	Yes	Yes - Moderate	DPLH-022, SPP 2.8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Confirm with relevant agency
Threatened and Priority Flora + 50m Continuous Buffer	Unknown	Unknown	DBCA-036	Restricted Scale of Data Available (security)	<input type="checkbox"/>	<input type="checkbox"/>	Data not available - confirm with relevant agency
Threatened Ecological Community	Unknown	Unknown	DBCA-038		<input type="checkbox"/>	<input type="checkbox"/>	
Heritage Areas National / World	No	No	Relevant register or mapping	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None
Environmental Protection (Western Swamp Tortoise) Policy 2002	No	No	DWER-062	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None

DESCRIPTION OF THE IDENTIFIED ENVIRONMENTALLY SENSITIVE AREAS:

The entire subject site is classed as Bush Forever. The development site includes a mix of remnant native vegetation and introduced species, as well as significant patches of cleared/disturbed land. The proponent intends for all vegetation (where possible) to remain in its current state. Minor vegetation management will be required to be undertaken to establish the required APZ surrounding the main proposed building, for which the appropriate local government authority must be attained. Refer to Section 3 and Appendix A & B detailing the classified vegetation and required vegetation works.

2.1.2 Other Protected Vegetation on Public Land

IDENTIFICATION OF PROTECTED VEGETATION ON PUBLIC LAND							
Land with Environmental, Biodiversity, Conservation and Social Values	Relevant to Proposal	Influence on Bushfire Threat Levels and / or Application of Bushfire Protection Measures	Relevant Dataset	Information Source(s) Applied to Identification of Relevant Vegetation			Further Action Required
				Dataset	Landowner or Developer	Environmental Asset or Vegetation Survey	
Legislated Lands (tenure includes national park/reserve, conservation park, crown reserve and state forest)	Yes	Yes - Minor	DBCA-011	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None
Conservation Covenants	Unknown	Unknown	DPIRD-023	Only Available to Govt.	<input type="checkbox"/>	<input type="checkbox"/>	Data not available - confirm with relevant agency
National World Heritage Areas	No	No	-	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None
Designated Public Open Space	No	No	-	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None

DESCRIPTION OF THE IDENTIFIED AREA(S) OF VEGETATION

The land (coastal dunes) between the development site and the ocean is classed as a Reserve (R 20561). The classified vegetation in this area (Class C Shrubland) has been mapped and accounted for in the assessment. This vegetation does not impact the ability to implement the appropriate bushfire protection measures for the site.

2.1.3 Locally Significant Conservation Areas – Local Natural Areas (LNA)

IDENTIFICATION OF LOCALLY SIGNIFICANT CONSERVATION AREAS							
Land with Environmental, Biodiversity and Conservation Values	Relevant to Proposal	Influence on Bushfire Threat Levels and / or Application of Bushfire Protection Measures	Relevant Dataset	Information Source(s) Applied to Identification of Relevant Vegetation			Further Action Required
				Dataset	Landowner or Developer	Environmental Asset or Vegetation Survey	
Native Vegetation / Remnant Vegetation	Yes	Yes - Significant	Identified mapping, Environmental surveys	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Confirm with relevant agency
Riparian Zones / Foreshore Areas	No	No		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	None

Habitat Vegetation and Wildlife Corridors	Possible	Unlikely		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Confirm with relevant agency
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DESCRIPTION OF THE IDENTIFIED AREA(S) OF VEGETATION

The proponent has acquired flora and fauna environmental surveys/assessments across the subject site. The proponent should confirm with the relevant agency prior to undertaking any modification or removal of native vegetation within the subject site (i.e. to establish the required APZs).

2.1.4 Response of Proposed Development to Identified Environmental Limitations

Consideration of the implications that identified protected areas of vegetation (i.e., those with environmental and subject to conservation) have for the proposed development.

PROPOSED DEVELOPMENT RESPONSE TO IDENTIFIED 'PROTECTED' VEGETATION	
The existence of 'protected' areas of vegetation has implications for the ability of the proposed development to reduce potential bushfire impact through modification or removal of vegetation.	Yes
Application of Design and/or Construction Responses to Limit Vegetation Modification or Removal	
Modify the development location to reduce exposure by increasing separation distance.	Not required
Redesign development, structure plan or subdivision.	N/A
Reduction of lot yield where this can increase available separation distances.	N/A
Cluster development to limit modification or removal of vegetation.	N/A
Construct building(s) to the requirements corresponding to higher BAL ratings to reduce required separation distances.	Considered and applied
<p>The proposed main building is able to achieve a BAL-29 dimensioned APZ entirely within the subject lot, and will be required to be constructed to BAL-29 standards. Establishment of the APZ will require minimal disturbance to remnant native vegetation onsite. All other proposed accommodation buildings (eco-tents) are not required to establish APZs (they are considered by the proponent as a 'tolerable loss'). Refer to Section 5.3.1 of this document for further detail.</p>	

2.2 Bushfire Assessment Considerations

2.2.1 Planned Onsite Vegetation Landscaping

Identification of areas of the subject site planned to be landscaped, creating the potential for increased or decreased bushfire hazard for proposed development.

PLANNED LANDSCAPING	
Relevant to Proposal:	No
No landscaping plan currently exists for the development.	

2.2.2 Planned / Potential Offsite Rehabilitation or Re-Vegetation

Identification of areas of land adjacent to the subject site on which re-vegetation (as distinct from natural re-generation) will or may occur and is likely to present a greater bushfire hazard for proposed development.

POTENTIAL RE-VEGETATION PROGRAMS		
Land with Environmental, Biodiversity, Conservation and Social Values	Relevant to Proposal	Description
Riparian Zones / Foreshore Areas	No	<p>No onsite or offsite re-vegetation is planned for the development.</p> <p>Any future re-vegetation on the subject site may impact the BAL rating and APZ dimensions for the proposed main building.</p>
Wetland Buffers	No	
Legislated Lands	No	
Public Open Space	No	
Road Verges	No	
Other	No	

2.2.3 Identified Requirement to Manage, Modify or Remove Onsite or Offsite Vegetation

Identification of native vegetation subject to management, modification or removal.

REQUIREMENT TO MANAGE, MODIFY OR REMOVE NATIVE VEGETATION	
Has a requirement been identified to manage, modify or remove onsite native vegetation to establish the required bushfire protection measures on the subject site?	Yes
Refer to Figure 3.1.1 showing the Post-Development vegetation after the appropriately sized APZ for the main building has been established on the subject site. This is likely to require minimal disturbance to native vegetation, as most of the subject site has been previously cleared/disturbed.	
Is approval, from relevant state government agencies and/or the local government, to modify or remove onsite native vegetation required? (Note: if 'Yes' evidence of its existence should be provided in this BMP).	No
Has a requirement been identified to manage, modify or remove offsite native vegetation to establish the required bushfire protection measures on the subject site?	No
Is written approval required, from relevant state government agencies and/or the local government, that permits the landowner, or another identified party, to modify or remove offsite	No

<p>bushfire prone vegetation and/or conduct other works, to establish an identified bushfire protection measure(s)?</p> <p>If 'Yes', appropriate evidence of the approval or how it is to be established, shall be provided in this BMP as an addendum.</p>	
<p>Is a written management agreement required that states the obligation of the landowner, or another responsible party, to manage defined areas of offsite bushfire prone vegetation, in perpetuity, to ensure the conditions of no fire fuels and/or low threat vegetation and/or vegetation managed in a minimal fuel condition, continue to be met?</p> <p>If 'Yes', appropriate evidence of the agreement or how it is to be established, shall be provided in this BMP as an addendum.</p>	No

2.2.4 Variations to Assessed Areas of Classified Vegetation to be Applied

FOR THE PROPOSED DEVELOPMENT SITUATIONS TO BE ACCOUNTED FOR IN ASSESSING THE POTENTIAL BUSHFIRE IMPACT (BAL)	
<p>Area(s) of land will be subject to future vegetation rehabilitation or re-vegetation that will require a change to a higher threat classification of vegetation on that land to. (Note: this is not regeneration to the mature natural state which is accounted for in the 'existing state' assessment in accordance with AS 3959:2018).</p>	No
<p>The proponent has determined that no re-vegetation is planned on the subject site.</p>	
<p>Modification of existing area(s) of classified vegetation due to the implementation of the proposed development and/or prior to the site's occupancy or use. This modification will require a change to a lower threat classification (or exclusion from classification) for that area of vegetation.</p>	Yes
<p>Refer to Figure 3.1.1 'Post Development Classified Vegetation' and Appendix A1.2 for justification details supporting the change.</p>	
<p>Complete removal of existing area(s) of classified vegetation due to the implementation of the proposed development and/or prior to the site's occupancy or use. This modification will require an exclusion from classification for that area of vegetation.</p>	No

3 BUSHFIRE ATTACK LEVEL (BAL) ASSESSMENT

BUSHFIRE ATTACK LEVELS (BAL) - UNDERSTANDING THE RESULTS

The potential transfer (flux/flow) of radiant heat from the bushfire to a receiving object is measured in kW/m². The AS 3959:2018 BAL determination methodology establishes the ranges of radiant heat flux that correspond to each bushfire attack level. These are identified as BAL-LOW, BAL-12.5, BAL-19, BAL-29, BAL-40 and BAL-FZ.

The bushfire performance requirements for certain classes of buildings are established by the Building Code of Australia (Vol. 1 & 2 of the NCC). The BAL will establish the bushfire resistant construction requirements that are to apply in accordance with AS 3959:2018 - *Construction of buildings in bushfire prone areas* and the NASH Standard – *Steel framed construction in bushfire areas (NS 300 2021)*, whose solutions are deemed to satisfy the NCC bushfire performance requirements.

DETERMINED BAL RATINGS

A BAL Certificate can be issued for a determined BAL. A BAL can only be classed as 'determined' for an existing or future building/structure when:

1. It's final design and position on the lot are known and the stated separation distance from classified bushfire prone vegetation exists and can justifiably be expected to remain in perpetuity; or
2. It will always remain subject to the same BAL regardless of its design or position on the lot after accounting for any regulatory or enforceable building setbacks from lot boundaries as relevant and necessary (e.g., R-codes, restrictive covenants, defined building envelopes) or the retention of any existing classified vegetation either onsite or offsite.

If the BMP derives determined BAL(s), the BAL Certificate(s) required for submission with building applications can be provided, using the BMP as the assessment evidence.

INDICATIVE BAL RATINGS

A BAL Certificate cannot be issued for an indicative BAL. A BAL will be classed as 'indicative' for an existing or future building/structure when the required conditions to derive a determined BAL are not met.

This class of BAL rating indicates what BAL(s) could be achieved and the conditions that need to be met are stated.

Converting the indicative BAL into a determined BAL is conditional upon the currently unconfirmed variable(s) being confirmed by a subsequent assessment and evidential documentation. These variables will include the future building(s) location(s) being established (or changed) and/or classified vegetation being modified or removed to establish the necessary vegetation separation distance. This may also be dependent on receiving approval from the relevant authority for that modification/removal.

BAL RATING APPLICATION – PLANNING APPROVAL VERSUS BUILDING APPROVAL

1. **Planning Approval:** SPP.3.7 establishes that where BAL- LOW to BAL-29 will apply to relevant future construction (or existing structures for proposed uses), the proposed development may be considered for approval (dependent on the other requirements of the relevant policy measures being met). That is, BAL40 or BAL-FZ are not acceptable on planning grounds (except for certain limited exceptions).

Because planning is looking forward at what can be achieved, as well as looking at what may currently exist, both determined and indicative BAL ratings are acceptable assessment outcomes on which planning decisions can be made (including conditional approvals).

2. **Building Approval:** The Building Code of Australia (Vol. 1 & 2 of the NCC) establishes that relevant buildings in bushfire prone areas must be constructed to the bushfire resistant requirements corresponding to the BAL rating that is to apply to that building. Consequently, a determined BAL rating and the BAL Certificate is required for a building permit to be issued - an indicative BAL rating is not acceptable.

3.1 BAL Assessment Summary (Contour Map Format)

INTERPRETATION OF THE BAL CONTOUR MAP

The BAL contour map is a diagrammatic representation of the results of the bushfire attack level assessment.

The map presents different coloured contours extending out from the areas of classified vegetation. Each contour represents a set range of radiant heat flux that potentially will transfer to an exposed element (building, person or other defined element), when it is located within that contour.

Each of the set ranges of radiant heat flux corresponds to a different BAL rating as defined by the AS 3959:2018 BAL determination methodology.

The width of each shaded BAL contour will vary dependant on both the BAL rating and the relevant parameters (calculation inputs) for the subject site. Their width represents the minimum and maximum vegetation separation distances that correspond to each BAL rating (refer to the relevant table below for these distances).

The areas of classified vegetation to be considered in developing the BAL contours, are those that will remain at the intended end state of the subject development once earthworks, clearing and/or landscaping and re-vegetation have been completed. Variations to this statement that may apply include:

- Both pre and post development BAL contour maps are produced; and/or
- Each stage of a development is assessed independently.

3.1.1 BAL Determination Methodology and Location of Data and Results

LOCATION OF DATA & RESULTS					
BAL Determination Methodology		Location of the Site Assessment Data			Location of the Results
AS 3959:2018	Applied to Assessment	Classified Vegetation and Topography Map(s)	Calculation Input Variables		Assessed Bushfire Attack Levels and/or Radiant Heat Levels
			Summary Data	Detailed Data with Explanatory and Supporting Information	
Method 1 (Simplified)	Yes	Figure 3.1 & Figure 3.1.1	Table 3.2	Appendix A1	Table 3.1 Table 3.3 / BAL Contour Map

3.1.2 BAL Ratings Derived from the Contour Map

Table 3.1: Indicative and determined BAL(s) for existing and/or proposed building works.

BUSHFIRE ATTACK LEVEL FOR EXISTING/PLANNED BUILDINGS/STRUCTURE ¹		
Building/Structure Description	Indicative BAL ²	Determined BAL ²
Main hospitality building (bar/café/restaurant/events centre)	BAL-29	BAL-FZ
Eco-tents ³	N/A	BAL-FZ

¹ The assessment data used to derive the BAL ratings is sourced from Table 3.1 and Figure 3.2 'BAL Contour Map'.

² Refer to the start of Section 3 for an explanation of indicative versus determined BAL ratings.

³ Proposed eco-tents are considered by the proponent as a tolerable loss, therefore can be constructed in an area greater than BAL-29. Refer to Section 5 (Element A5.7b) for further information.

3.1.3 Site Assessment Data Applied to Construction of the BAL Contour Map(s)

RELEVANT CLASSIFIED VEGETATION	
Identification of Classified Vegetation that is Relevant to the Production of the BAL Contour Map(s)	Relevant Vegetation Map
The relevant vegetation will be all areas of classified vegetation that exist at the time of the site assessment – both within the subject site (onsite) and external to the subject site (offsite).	Figure 3.1
The relevant vegetation for the post-development BAL contour map will be any area of classified vegetation - both within the subject site (onsite) and external to the subject site (offsite) - that will remain at the intended end state of the subject development once earthworks, any clearing and/or landscaping and re-vegetation have been completed.	Figure 3.1.1
Supporting Assessment Details: None required.	

Table 3.2: The calculation inputs applied to determining the site specific separation distances corresponding to levels of potential radiant heat transfer (including BAL's).

SUMMARY OF CALCULATION INPUT VARIABLES APPLIED TO THE DETERMINATION OF SEPARATION DISTANCES CORRESPONDING TO RADIANT HEAT LEVELS ¹												
Applied BAL Determination Method		METHOD 1 - SIMPLIFIED PROCEDURE (AS 3959:2018 CLAUSE 2.2)										
The Calculation Variables Corresponding to the BAL Determination Method Applied												
Methods 1 and 2		Method 1			Method 2							
Vegetation Classification		FDI	Effective Slope		Site Slope	FFDI or GFDI	Flame Temp.	Elevation of Receiver	Flame Width	Fireline Intensity	Flame Length	Modified View Factor
Area	Class		Applied Range	Measured								
			degree range	degrees	degrees		K	metres	metres	kW/m	metres	% Reduction
1	(C) Shrubland	80	Upslope or flat 0	N/A								
2	(C) Shrubland	80	Downslope >0-5									
3	(D) Scrub	80	Upslope or flat 0									
4	(D) Scrub	80	Downslope >0-5									
5	(G) Grassland	110	Upslope or flat 0									
6	Excluded cl 2.2.3.2(e & f)	N/A	N/A									
7	(C) Shrubland	80	Upslope or flat 0									
8	(D) Scrub	80	Downslope >0-5									
9	(C) Shrubland	80	Downslope >0-5									
10	Excluded cl 2.2.3.2(e & f)	N/A	N/A									

¹ All data and information supporting the determination of the classifications and values stated in this table and any associated justification, is presented in Appendix A. Where the values are stated as 'default' these are either the values stated in AS 3959:2018, Table B1 or the values calculated as intermediate or final outputs through application of the equations of the AS 3959:2018 BAL determination methodology. They are not values derived by the assessor.

Table 3.3: Vegetation separation distances corresponding to the radiant heat levels illustrated as BAL contours in Figure 3.2.

THE CALCULATED VEGETATION SEPARATION DISTANCES CORRESPONDING TO THE STATED LEVEL OF RADIANT HEAT ¹									
Vegetation Classification		Separation Distances Corresponding to Stated Level of Radiant Heat (metres)							
		Bushfire Attack Level						Maximum Radiant Heat Flux	
Area	Class	BAL-FZ	BAL-40	BAL-29	BAL-19	BAL12.5	BAL-LOW	10 kW/m ²	2 kW/m ²
1	(C) Shrubland	<7	7-<9	9-<13	13-<19	19-<100	>100	N/A	
2	(C) Shrubland	<7	7-<10	10-<15	15-<22	22-<100	>100		
3	(D) Scrub	<10	10-<13	13-<19	19-<27	27-<100	>100		
4	(D) Scrub	<11	11-<15	15-<22	22-<31	31-<100	>100		
5	(G) Grassland	<6	6-<8	8-<12	12-<17	17-<50	>50		
6	Excluded cl 2.2.3.2(e & f)	-	-	-	-	-	-		
7	(C) Shrubland	<7	7-<9	9-<13	13-<19	19-<100	>100		
8	(D) Scrub	<11	11-<15	15-<22	22-<31	31-<100	>100		
9	(C) Shrubland	<7	7-<10	10-<15	15-<22	22-<100	>100		
10	Excluded cl 2.2.3.2(e & f)	-	-	-	-	-	-		

¹ All calculation input variables are presented in Table 3.2.

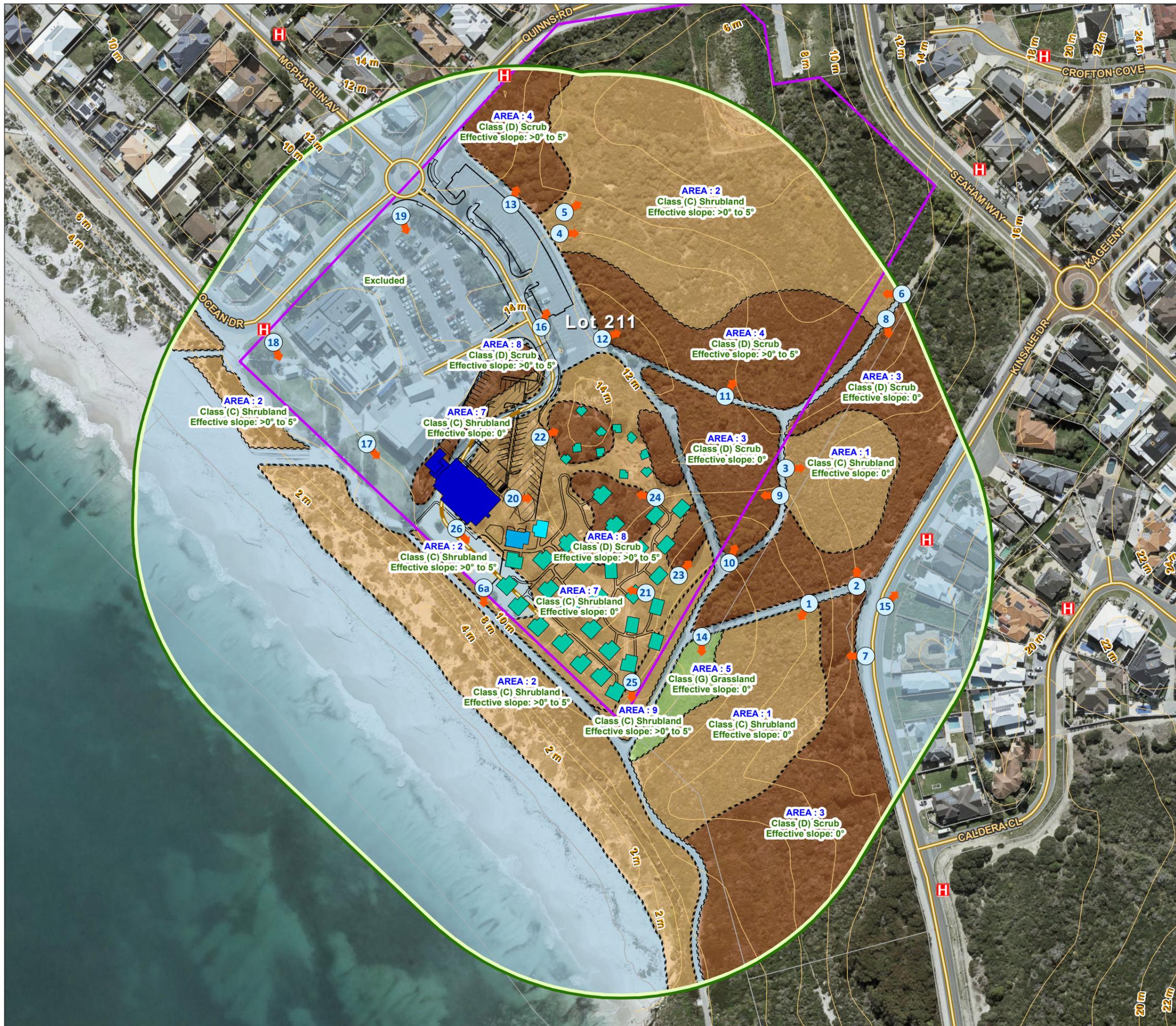
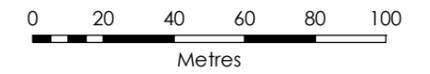
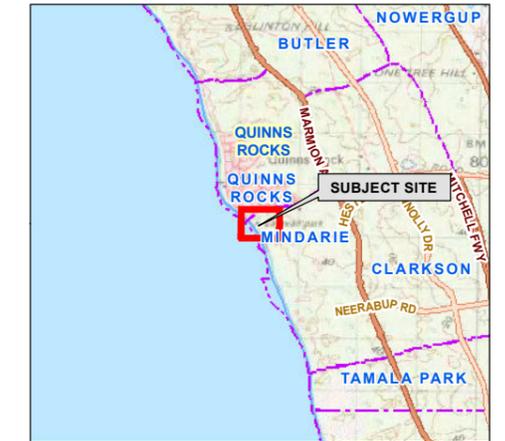


Figure 3.1
Classified Vegetation & Topography (Existing)
 Lot 211 on Diagram 27023, Area : 11.0570 ha
 2 Quinns Road,
 MINDARIE 6030
CITY OF WANNEROO

- LEGEND -----
- Subject Site
 - Other Lots
 - Photo & Direction
 - H Hydrant
- Proposed Building**
- Venue
 - Accomodation
 - Universal Access Tent
 - Paved Areas
 - Reception
- 150m Vegetation Assessment Area**
- 150m from Subject Site
- Classified Vegetation**
- Class (C) Shrubland
 - Class (D) Scrub
 - Class (G) Grassland
 - Exclusion 2.2.3.2



----- LOCALITY -----



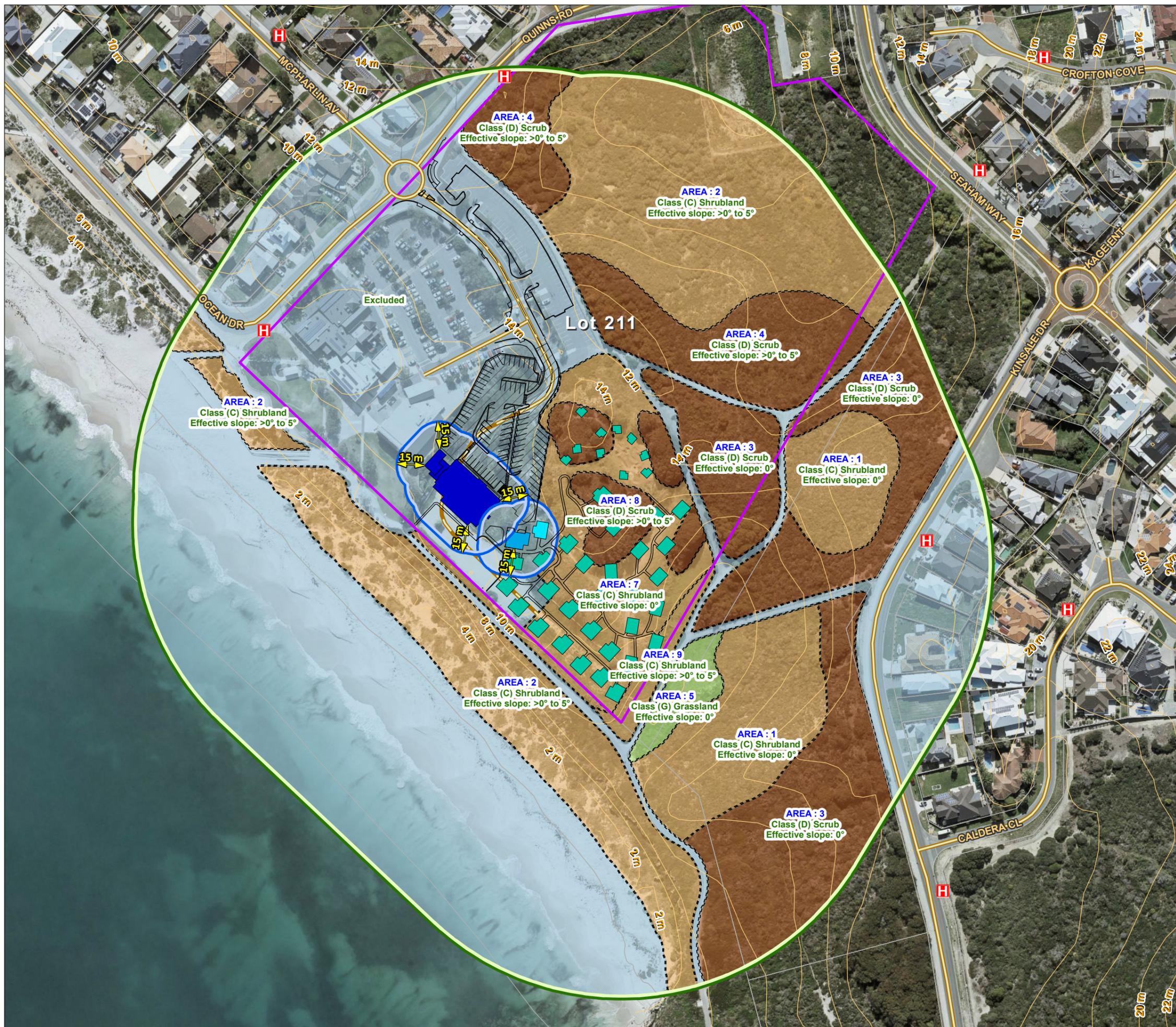
Aerial Imagery : Landgate/SLIP
 Image Date : Feb 2023

Coordinate System: GDA 1994 MGA Zone 50
 Projection: Universal Transverse Mercator Units: Metre
 Map compiled by: Ian Ross 1/03/2024
 Map updated by: Ian 1/03/2024
 A3 Scale 1:2,000

Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Prone Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence arising from relying on any information depicted.
 Map Document Path / Name: K:\Projects\Jobs 2023\230008 - Lot 211 (2) Quinns Road Mindarie (BMP Evac)\Mapping\MXD\230008_Fig3-1_VEG_Lot211_2_Quinns Road Mindarie.mxd

Figure 3.1.1
Classified Vegetation & Topography (Post Development)

Lot 211 on Diagram 27023, Area : 11.0570 ha
 2 Quinns Road,
 MINDARIE 6030
CITY OF WANNEROO



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

- Subject Site
- Other Lots
- H Hydrant

Asset Protection

- APZ - Proposed (BAL 29)

Proposed Building

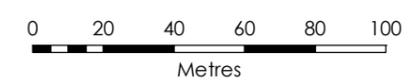
- Venue
- Accomodation
- Universal Access Tent
- Paved Areas
- Reception

150m Vegetation Assessment Area

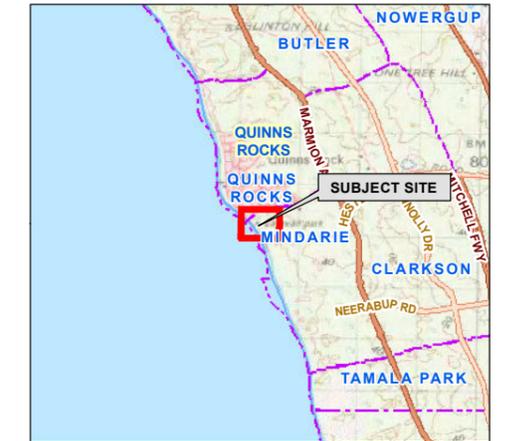
- 150m from Subject Site

Classified Vegetation

- Class (C) Shrubland
- Class (D) Scrub
- Class (G) Grassland
- Exclusion 2.2.3.2
- ↔ APZ Distance



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



Aerial Imagery : Landgate/SLIP
 Image Date : October 2022

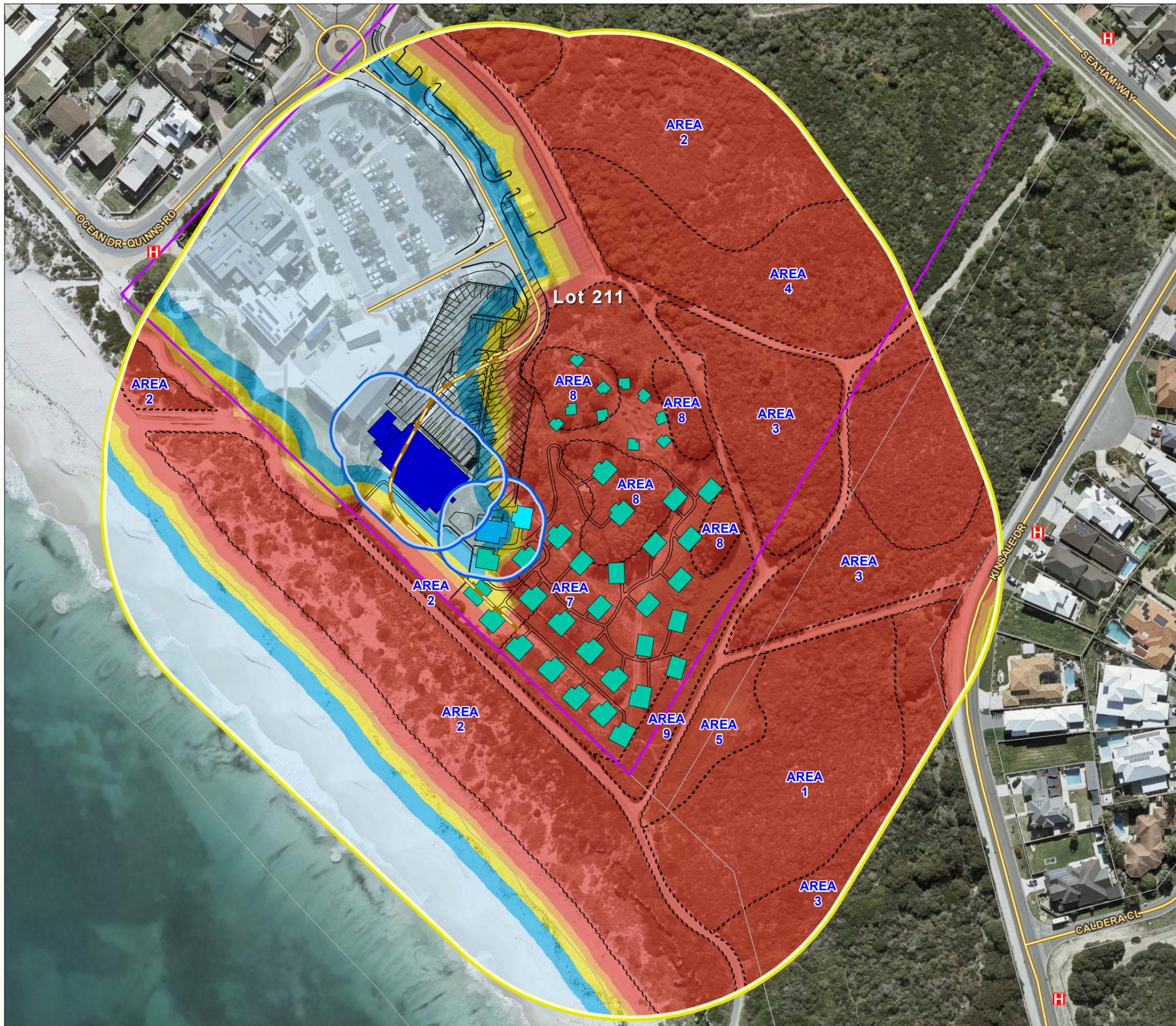
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 A3 Scale 1:2,000

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Map Document Path / Name: K:\Projects\Jobs 2023\230008 - Lot 211 (2) Quinns Road Mindarie (BMP Evac)\Mapping\MXD\230008_Fig3-1-1_VEG_POST_Lot211_2_Quinns Road Mindarie.mxd

Figure 3.2
BAL Contour Map

Lot 211 on Diagram 27023, Area : 11.0570 ha
 2 Quinns Road,
 MINDARIE 6030
CITY OF WANNEROO



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

- Subject Site
- Other Lots
- Hydrant

Asset Protection

- APZ - Proposed (BAL 29)

Proposed Building

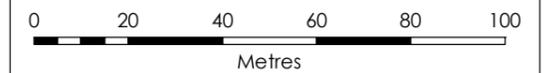
- Venue
- Accomodation
- Universal Access Tent
- Paved Areas
- Reception

100m Vegetation Assessment Area

- 100m from Subject Site

Indicative Bushfire Attack Levels

- BAL FZ
- BAL 40
- BAL 29
- BAL 19
- BAL 12.5
- Classified Vegetation Boundary



Aerial Imagery : Landgate/SLIP
 Image Date : Feb 2023

Coordinate System: GDA 1994 MGA Zone 50
 Projection: Universal Transverse Mercator Units: Metre
 Map compiled by: Ian Ross 1/03/2024
 Map updated by: Ian 1/03/2024
 A3 Scale 1:1,500

BUSHFIRE PRONE PLANNING

4 IDENTIFICATION OF BUSHFIRE HAZARD ISSUES

The Guidelines for Planning in Bushfire Prone Areas (WAPC 2021 v1.4), Appendix 5, establish that the application of this section of the BMP is intended to support **strategic planning** proposals. At the strategic planning stage there will typically be insufficient proposed development detail to enable all required assessments, including the assessment against the bushfire protection criteria.

Strategic Planning Proposals

For strategic planning proposals this section of the BMP will identify:

- Issues associated with the level of the threats presented by any identified bushfire hazard;
- Issues associated with the ability to implement sufficient and effective bushfire protection measures to reduce the exposure and vulnerability levels (of elements exposed to the hazard threats), to a tolerable or acceptable level; and
- Issues that will need to be considered at subsequent planning stages.

All Other Planning Proposals

For all other planning stages, this BMP will address what are effectively the same relevant issues but do it within the following sections:

- Section 2 – Bushfire Prone Vegetation - Environmental and Assessment Considerations: Assess environmental, biodiversity and conservation values;
- Section 3 – Potential Bushfire Impact: Assess the bushfire threats with the focus on flame contact and radiant heat; and
- Section 5 – Assessment Against the Bushfire Protection Criteria (including the guidance provided by the *Position Statement: 'Planning in bushfire prone areas – Demonstrating Element 1: Location and Element 2'*): Assess the ability of the proposed development to apply the required bushfire protection measures thereby enabling it to be considered for planning approval for these factors.

Is the proposed development a strategic planning proposal?

No

5 ASSESSMENT AGAINST THE BUSHFIRE PROTECTION CRITERIA (GUIDELINES V1.4)

5.1 Bushfire Protection Criteria Elements Applicable to the Proposed Development/Use

APPLICATION OF THE CRITERIA, ACCEPTABLE SOLUTIONS AND PERFORMANCE ASSESSMENT

The criteria are divided into five elements – location, siting and design, vehicular access, water and vulnerable tourism land uses. Each element has an intent outlining the desired outcome for the element and reflects identified planning and policy requirements in respect of each issue.

The example acceptable solutions (bushfire protection measures) provide one way of meeting the element's intent. Compliance with these automatically achieves the element's intent and provides a straightforward pathway for assessment and approval.

Where the acceptable solutions cannot be met, the ability to develop design responses (as alternative solutions that meet bushfire performance requirements) is an alternative pathway that is provided by addressing the applicable performance principles (as general statements of how best to achieve the intent of the element).

A merit based assessment is established by the SPP 3.7 and the Guidelines as an additional alternative pathway along with the ability of using discretion in making approval decisions (sections 2.5, 2.6 and 2.7). This is formally applied to certain development (minor and unavoidable – sections 5.4.1 and 5.7). Relevant decisions by the State Administrative Tribunal have also supported this approach more generally.

Elements 1 – 4 should be applied for all strategic planning proposals, subdivision or development applications, except for vulnerable tourism land uses which should refer to Element 5. Element 5 incorporates the bushfire protection criteria in Elements 1 – 4 but caters them specifically to tourism land uses. (Guidelines DPLH 2021v1.4)

The Bushfire Protection Criteria	Applicable to the Proposed Development/Use
Element 1: Location	No
Element 2: Siting and Design	No
Element 3: Vehicular Access	No
Element 4: Water	No
Element 5: Vulnerable Tourism Land Uses	Yes

5.2 Local Government Variations to Apply

Local governments may add to or modify the acceptable solutions to recognise special local or regional circumstances (e.g., topography / vegetation / climate). These are to be endorsed by both the WAPC and DFES before they can be considered in planning assessments. (Guidelines DPLH 2021v1.4).

Do endorsed regional or local variations to the acceptable solutions apply to the assessments against the Bushfire Protection Criteria for the proposed development /use?

No

5.3 Assessment Statements for Element 5: Vulnerable Tourism Land Uses

5.3.1 Other Short Term Accommodation

VULNERABLE TOURISM	
Element Intent	To provide bushfire protection for tourism land uses relevant to the characteristics of the occupants and/or the location, to preserve life and reduce the impact of bushfire on property and infrastructure.
Proposed Development/Use – Relevant Type	Short term accommodation (other than B&B/Holiday House) including motel, serviced apartments, tourist development (includes cabins and chalets), holiday accommodation and caravan park (which incorporates camping grounds).
Element Compliance Statement	The proposed development/use achieves the intent of this element by being fully compliant with all applicable acceptable solutions.
Pathway Applied to Provide an Alternative Solution	N/A
Acceptable Solutions - Assessment Statements	
<p>All details of acceptable solution requirements are established in the Guidelines for Planning in Bushfire Prone Areas, DPLH v1.4 (Guidelines) and apply the guidance established by the 'Bushfire Management Plan Guidance for the Dampier Peninsula' (WA Department of Planning, Lands and Heritage, 2021 Rev B) as relevant. These documents are available at https://www.wa.gov.au/government/document-collections/state-planning-policy-37-planning-bushfire-prone-areas.</p> <p>The technical construction requirements for access types and components, and for each firefighting water supply component, are also presented in Appendices C and D. The local government will advise the proponent where different requirements are to apply and when any additional specifications such as those for signage and gates are to apply (these are included in the relevant appendix if requested by the local government).</p>	
Solution Component Check Box Legend	<input checked="" type="checkbox"/> Relevant & met <input checked="" type="checkbox"/> Relevant & not met <input type="checkbox"/> Not relevant
A5.7 Siting and Design	
A5.7a Asset protection zone (APZ) – caravan park only	Applicable: No Compliant: N/A
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <p>The existing and/or proposed campground facilities (i.e. office, managers residence, camper's kitchen, showers, laundry etc.) can be sited within an asset protection zone of the required dimensions that will ensure their exposure to the potential radiant heat impact of a bushfire does not exceed 29 kW/m² (BAL-29).</p>	
Supporting Assessment Details: The development is not a caravan park. Refer to acceptable solution A5.7b and A5.7c.	
A5.7b Asset protection zone (APZ) – certain accommodation	Applicable: Yes Compliant: Yes
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <p>The following accommodation structures are considered by the proponents to be a tolerable loss in the event of a bushfire. Consequently, there is to be no radiant heat limitations applied to these sites (i.e. no specified dimensioned APZ). These structures are:</p> <ul style="list-style-type: none"> • Eco tents 	
Supporting Assessment Details: All proposed eco-tents are considered by the proponent to be a tolerable loss in the event of a bushfire. Therefore, they can and will be sited in BAL-40 and BAL-FZ areas. This must be agreed upon by the local government.	

A5.7c Asset protection zone (APZ) – all other accommodation
Applicable:
Yes
Compliant:
Yes
APZ DIMENSIONS – DIFFERENCES IN REQUIREMENTS FOR PLANNING ASSESSMENTS COMPARED TO IMPLEMENTATION

A key required bushfire protection measure is to reduce the exposure of buildings/infrastructure (as exposed vulnerable elements at risk), to the direct bushfire threats of flame contact, radiant heat and embers and the indirect threat of consequential fires that result from the subsequent ignition of other combustible materials that may be constructed, stored or accumulate in the area surrounding these structures. This reduces the associated risks of damage or loss.

This is achieved by separating buildings (and consequential fire fuels as necessary) from areas of classified bushfire prone vegetation. This area of separation surrounding buildings is identified as the Asset Protection Zone (APZ) and consists of no vegetation and/or low threat vegetation or vegetation continually managed to a minimal fuel condition. The required separation distances will vary according to the site specific conditions and local government requirements.

The APZ dimensions stated and/or illustrated in this Report can vary dependent on the purpose for which they are being identified.

Note: Appendix B 'Onsite Vegetation Management' provides further information regarding the different APZ dimensions that can be referenced, their purpose and the specifications of the APZ that are to be established and maintained on the subject lot.

THE 'PLANNING BAL-29' APZ DIMENSIONS

Purpose: To provide evidence of the development or use proposal's ability to achieve minimum vegetation separation distances. To achieve 'acceptable solution' planning approval for this factor, it must be demonstrated that the minimum separation distances corresponding to a maximum level of radiant transfer to a building of 29 kW/m², either exist or can be implemented (with certain exceptions). These separation distances are the 'Planning BAL-29' APZ dimensions.

The 'Planning BAL-29' APZ is not necessarily the size of the APZ that must be physically implemented and maintained by a landowner. Rather, its sole purpose is to identify if an acceptable solution for planning approval can be met.

THE 'REQUIRED' APZ DIMENSIONS

Purpose: Establishes the dimensions of the APZ to be physically implemented by the landowner on their lot: These will be the minimum required separation distances from the subject building(s) to surrounding bushfire prone vegetation (identified by type and associated ground slope). These are established by:

- A. The 'BAL Rating APZ' of the subject building(s) when distances are greater than 'B' below (except when 'B' establishes a maximum distance); or
- B. The 'Local Government' APZ' derived from the Firebreak/Hazard Reduction Notice when distances are greater than 'A' above, other than when a maximum distance is established, in which case this will apply; or
- C. A combination of 'A' and 'B'.

Within this Report/Plan it is the 'Planning BAL-29' APZ that will be identified on maps, diagrams and in tables as necessary – unless otherwise stated.

The 'Required' APZ dimension information will be presented in Appendix B1.1 and on the Property Bushfire Management Statement, when required to be included for a development application.

- APZ Width:** Every existing or a future habitable building on the lot(s) of the proposed development, can be located within the developable portion of the lot and be surrounded by a 'Planning BAL-29' APZ of the required dimensions (measured from any external wall or supporting post or column to the edge of

<p>the classified vegetation), that will ensure their exposure to the potential radiant heat impact of a bushfire does not exceed 29 kW/m².</p>
<p><input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> Restriction on Building Location: It has been identified that the current developable portion of a lot(s) provides for a future building location that will result in that building being subject to a BAL-40 or BAL-FZ rating. Consequently, it may be considered necessary to impose the condition that a restrictive covenant to the benefit of the local government pursuant to section 129BA of the Transfer of Land Act 1893, is to be placed on the certificate(s) of title of the proposed lot(s) advising of the existence of a restriction on the use of that portion of land (refer to Code F3 of Model Subdivision Conditions Schedule, WAPC June 2021 and Guidelines s5.3.2).</p>
<p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> APZ Location: The required dimensions for a 'Planning BAL-29' APZ can be contained solely within the boundaries of the lot(s) on which the existing or future building(s) is situated.</p>
<p><input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> APZ Location: The required dimensions for a 'Planning BAL-29' APZ can be partly established within the boundaries of the lot(s) on which the existing or future building(s) is situated. The balance of the APZ would exist on adjoining land that satisfies the exclusion requirements of AS 3959:2018 cl 2.2.3.2 for non-vegetated areas and/or low threat vegetation and/or vegetation managed in a minimal fuel condition.</p>
<p><input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> APZ Location: It can be justified that any adjoining (offsite) land forming part of a 'Planning BAL-29' APZ will:</p> <ul style="list-style-type: none"> • If non-vegetated, remain in this condition in perpetuity; and/or • If vegetated, be low threat vegetation or vegetation managed in a minimal fuel condition in perpetuity.
<p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> APZ Management: The area of land (within each lot boundary), that is to make up the required 'Landowner' APZ dimensions (refer to Appendix B, Part B1), can and will be managed in accordance with the requirements of the Guidelines Schedule 1 'Standards for Asset Protection Zones' (refer to Appendix B).</p>
<p><input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> Subdivision Staging: There are undeveloped future stages of subdivision, containing bushfire prone vegetation, that have been taken into consideration for their potentially 'temporary' impact on the ability to establish a 'Planning BAL-29 APZ' on adjoining developed lots. A staging plan is developed to manage this.</p>
<p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Firebreak/Hazard Reduction Notice: Any additional requirements established by the relevant local government's annual notice to install firebreaks and manage fuel loads (issued under s33 of the Bushfires Act 1954), can and will be complied with.</p>
<p>Supporting Assessment Details: The Planning BAL-29 APZ for the main proposed building can be established wholly within the subject lot (Lot 211). Refer to Figure 3.1.1 showing the BAL-29 APZ. A minor amount of onsite native vegetation we be required to be modified and/or removed to establish the APZ, for which the appropriate local government authority will be required (refer to Section 2 of this BMP).</p>
<p>A5.7d Asset protection zone (APZ) – landscape management Applicable: No Compliant: N/A</p>
<p><input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The preparation of a landscape management plan, to identify ongoing onsite vegetation management, is appropriate for the proposed development. This will be prepared.</p>
<p>Supporting Assessment Details: The proposed development does not include any planned future landscaping or re-vegetation.</p>

A5.7e Onsite shelter – pedestrian paths	Applicable:	No	Compliant:	N/A
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> To comply with acceptable solution A5.8.2e (lack of vehicular access), pedestrian paths to an onsite shelter area or building, with the required signage, can and will be provided.				
Supporting Assessment Details: None required.				
A5.7f Onsite shelter – exposure to the bushfire hazard	Applicable:	No	Compliant:	N/A
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> To comply with acceptable solution A5.8.2e (lack of vehicular access), a building that will function as a suitable onsite shelter can and will be provided that will reduce persons exposure to bushfire threats (through the shielding provided by the building).				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The building's exposure to the bushfire hazard threat of radiant heat will be limited to a maximum radiant heat flux of 10 kW/m ² (calculated with an assumed flame temperature of 1200K) by providing the required separation distances from the bushfire hazard.				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> To comply with acceptable solution A5.8.2e (lack of vehicular access), an open area that will function as a suitable onsite shelter can and will be provided that will limit persons exposure to a maximum radiant heat flux of 2 kW/m ² (calculated with an assumed flame temperature of 1200K) by providing the required separation distances from the bushfire hazard.				
Supporting Assessment Details: None required.				
A5.7g Onsite shelter – bushfire construction requirements	Applicable:	No	Compliant:	N/A
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> To comply with acceptable solution A5.8.2e (lack of vehicular access), the building(s) provided as an onsite shelter can and will be designed and constructed in accordance with the National Construction Code and the ABCB Community Shelter Handbook.				
Supporting Assessment Details: None required.				
A5.8 Vehicular Access				
A5.8.1 Vehicular Access for All Proposals				
A5.8.1a Internal access/private driveway - availability	Applicable:	Yes	Compliant:	Yes
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> The internal vehicular access/private driveway can provide emergency access/egress for all patrons and staff in the event of a bushfire.				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> It is possible to provide at least two internal access/egress points to the public road network.				
Supporting Assessment Details: The proposed internal driveways can provide emergency access/egress for all patrons and staff in the event of a bushfire, refer to Figure 1.1 showing the internal driveway layout. Lot 211 is separated by an existing un-developed road reserve (P Road, Land ID: 3133102), which is located at the south-eastern edge of the proposed development area. The road reserve will not be constructed as part of this development, therefore it is considered that it is 'not possible' to provide two internal access/egress points to the public road network.				
A5.8.1b Internal access/private driveway - technical requirements	Applicable:	Yes	Compliant:	Yes
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The internal vehicular access/private driveway length is no greater than 70m. No technical requirements need to be met.				

<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	The technical construction requirements for widths, clearances, capacity, gradients and curves (Guidelines, Table 6. Refer also to Appendix C in this BMP), can and will be complied with.
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Passing bays can and will be installed every 200m with a minimum length of 20m and a minimum additional trafficable width of 2m.
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	The turnaround area requirements (Guidelines, Figure 28, and within 30m of the habitable building) can and will be complied with.
Supporting Assessment Details: The development includes the addition of a new carpark at the terminus of the existing adjoining carpark. The proposed loop layout is expected to meet turnaround requirements, and due to the multiple rows of parking bays, will provide suitable passing bays. All technical requirements for construction, passing bays and turnarounds can and will be met, and any future changes to the proposed driveway and carpark layouts must meet the requirements referred to in this acceptable solution.	
A5.8.1c Signage	Applicable: Yes Compliant: Yes
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	The required information to inform the actions of those persons onsite in the event of a bushfire will be prominently displayed within the site.
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	This information will include evacuation routes and distance and the site specific procedural detail that will be established by the Bushfire Emergency Plan (or Information) that is required to be developed for the proposed use.
Supporting Assessment Details: The required signage can and will be installed in prominent locations within the main proposed building, and within each eco-tent.	
A5.8.2 Vehicular Access for Short Term Accommodation Outside a Residential Built-out Area	
A5.8.2a Multiple access routes	Applicable: No Compliant: N/A
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/>	Two-way public road access is provided in two different directions to at least two different suitable destinations.
Supporting Assessment Details: The development is within a residential built-out area. A5.8.2 is not applicable.	
A5.8.2b No-through roads – maximum length	Applicable: No Compliant: N/A
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/>	The no-through public road for the proposed development is no longer than 200 metres. It is existing and the adjoining classified vegetation (excluding the road reserve) is categorised an Extreme Bushfire Hazard Level (Guidelines, Table 3).
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/>	The no-through public road for the proposed development is no longer than 500 metres. It is unavoidable and the adjoining classified vegetation (excluding the road reserve) is categorised a Moderate Bushfire Hazard Level (Guidelines, Table 3).
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/>	The no-through public road is unavoidable and the adjoining classified vegetation (excluding the road reserve) is categorised a Low Bushfire Hazard Level (Guidelines, Table 3) or is not identified as bushfire prone. Consequently, there is no limit on its length.
Supporting Assessment Details: None required.	

A5.8.2c Emergency access way – alternative access option	Applicable:	No	Compliant:	N/A
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> A5.8.2a and A5.8.2b cannot be achieved.				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The proposed or existing EAW provides a through connection to a public road.				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The proposed or existing EAW is less than 500m in length and will be signposted and gated (remaining unlocked) to the specifications stated in the Guidelines and/or required by the relevant local government.				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The technical construction requirements for widths, clearances, capacity, gradients and curves (Guidelines, Table 6. Refer also to Appendix C in this BMP), can and will be complied with.				
Supporting Assessment Details: None required.				
A5.8.2d Public roads - technical requirements	Applicable:	No	Compliant:	N/A
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The technical construction requirements of vertical clearance and weight capacity (Guidelines, Table 6. Refer also to Appendix C in this BMP), can and will be complied with.				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> All other applicable technical requirements of trafficable width, gradients and curves, are required to be in "accordance with the class of road as specified in the IPWEA Subdivision Guidelines, Liveable Neighbourhoods, Ausroad Standards and/or any applicable standard in the local government area" (Guidelines, Table 6 and sE3.1. Refer also to Appendix C in this BMP). The assessment conducted for the bushfire management plan indicates that it is likely that the proposed development can and will comply with the requirements. However, the applicable class of road, the associated technical requirements and subsequent proposal compliance, will need to be confirmed with the relevant local government and/or Main Roads WA.				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> A traversable verge is available adjacent to classified vegetation (Guidelines, E3.1), as recommended.				
Supporting Assessment Details: None required.				
A5.8.2e Access limitations - onsite shelter option	Applicable:	No	Compliant:	N/A
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The access requirements of two-way access, restricted no-through road length and provision of an EAW (established by A8.5.2a, A8.5.2b and A8.5.2c) cannot be achieved. The Guidelines provide for the protection measure of an onsite shelter to be provided in lieu of achieving these acceptable solutions.				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The capacity of the proposed development is no greater than 100 guests and staff at any one time.				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> An onsite shelter can and will be provided that complies with the requirements for exposure to the bushfire hazard, building requirements and pedestrian paths (established by acceptable solutions A5.7e, A5.7f and A5.7g in 'Siting and Design').				
Supporting Assessment Details: None required.				

A5.9 Provision of Water for Firefighting Purposes			
A5.9a Reticulated supply	Applicable:	Yes	Compliant: Yes
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/>	A reticulated water supply is available to the proposed development. The existing hydrant connection(s) are provided in accordance with the specifications of the relevant water supply authority.		
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	A reticulated water supply is available to the proposed development. Hydrant connection(s) can and will be provided in accordance with the specifications of the relevant water supply authority.		
<p>Supporting Assessment Details: The development is located in an area with a reticulated water supply, however, needs to meet maximum distance requirements as per the relevant water supply authority (Water Corporation, Appendix D). The closest hydrant is located approximately 130 metres from the proposed main building on Quinns Road (which is approximately 320 metres measured by hose-lay). An additional hydrant is located further north-east on Quinns Road approximately 150 metres from the proposed main building (300 metres by hose-lay). As per requirements of the relevant water supply authority (Appendix D), an additional hydrant is required to be installed within a maximum of 120 metres of the main building. It is recommended that the hydrant be sited in an accessible area within the proposed new carpark, allowing emergency access at all times. All technical hydrant construction and location requirements can and will be complied with (as per Appendix D).</p>			
A5.9b Non-reticulated supply	Applicable:	No	Compliant: N/A
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/>	A static water supply (tank) for firefighting purposes will be installed on the lot that is additional to any water supply that is required for drinking and other domestic purposes.		
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/>	The technical requirements (location, volumes, design, materials, pipes and fittings), as established by the Guidelines (Schedule 2 and E4) and/or the relevant local government, can and will be complied with.		
<p>Supporting Assessment Details: None required.</p>			

6 BUSHFIRE PROTECTION MEASURES - RESPONSIBILITY FOR IMPLEMENTATION CHECKLIST

6.1 Developer / Landowner Responsibilities – Prior to Building and Operation

DEVELOPER/LANDOWNER RESPONSIBILITIES – PRIOR TO BUILDING AND OPERATION	
No.	Implementation Actions
1	<p>The local government may condition a development application approval with a requirement for the landowner/proponent to register a notification onto the certificate of title and deposited plan (with the required wording stated by the local government).</p> <p>This will be done pursuant to <i>Section 70A Transfer of Land Act 1893 (as amended) as per 'Factors affecting use and enjoyment of land, notification on title'</i>.</p> <p>This is to notify owners and prospective purchasers of the land that:</p> <ol style="list-style-type: none"> 1. The land is in a designated bushfire prone area as designated by an Order made by the Fire and Emergency Services Commissioner; 2. The land is subject to a Bushfire Management Plan that establishes certain protection measures to manage bushfire risk that are to be implemented and continue to be applied at the owners cost; and 3. That additional planning and building requirements may apply to development on this land.
2	<p>Prior to relevant building work, inform the builder of the existence of this approved Bushfire Management Plan (BMP). The plan identifies that the development site is within a designated bushfire prone area and states the indicative (or determined) BAL rating(s) that may (or will) be applied to buildings/structures. A BAL assessment report may be required to confirm determined ratings and will be required when ratings are indicative. BAL certificates will need to be issued to accompany building applications.</p> <p>The BMP may also establish, as an additional bushfire protection measure, that construction requirements to be applied will be those corresponding to a specified higher BAL rating.</p> <p>Compliance with the Building Code of Australia (Volumes 1 and 2 of the National Construction Code), will require certain bushfire resistant construction requirements be applied to residential buildings in bushfire prone areas (i.e., Class 1, 2 and 3 and associated Class 10a buildings and decks). Other classes of buildings may also be required to comply with these construction when established by the relevant authority or if identified as an additional bushfire protection measure within the BMP.</p> <p>The deemed to satisfy solutions that will meet the relevant bushfire performance requirements are found in AS 3959 – Construction of Building in Bushfire Prone Areas (as amended) and the NASH Standard - Steel Framed Construction in Bushfire Areas (as amended).</p>
3	<p>Prior to operation establish the 'Required' Asset Protection Zone (APZ) around habitable buildings (and other structures as required) to satisfy:</p> <ul style="list-style-type: none"> • The minimum required dimensions established in Appendix B1; and • The standards established by the Guidelines DPLH, 2021 v1.4, Schedule 1, or as varied by the local government through their annually issued firebreak / hazard reduction notice when the variations have been endorsed by the WAPC and DFES as per s4.5.3 of the Guidelines. <p>If native vegetation is required to be modified or removed, ensure that approval has been received from the relevant authority (refer to the applicable local government for advice).</p>
4	<p>Prior to operation (and/or sale), a copy of the Bushfire Emergency Plan (BEP) must be provided to the landowner, and they are to be informed that it contains responsibilities that must be actioned due to the use of the land</p>

	being defined as a 'Vulnerable Land Use' for the reasons identified in Section 1.1. The 'Pre-Season Preparation Procedure' instructions must be complied with.
5	Prior to occupancy, construct the private driveways to comply with the technical requirements referenced in the BMP.
6	Prior to occupancy, install the required reticulated water supply hydrant to comply with the technical requirements stated in the BMP.
7	Prior to occupancy, signage must be prominently displayed within the site that informs the actions of those persons onsite in the event of a bushfire. This will include evacuation route information, site procedures – as per the instructions within the Bushfire Emergency Plan developed for the site and use.
8	Prior to occupancy, all actions contained within the 'Pre-Season Preparation Procedure' established by the Bushfire Emergency Plan, must be completed.

6.2 Landowner / Occupier Responsibilities – Ongoing Management

LANDOWNER/OCCUPIER – ONGOING MANAGEMENT	
No.	Management Actions
1	<p>Maintain the 'Required' Asset Protection Zone (APZ) around habitable buildings (and other structures as required) to satisfy:</p> <ul style="list-style-type: none"> • The minimum required dimensions established in Appendix B1; and • The standards established by the Guidelines DPLH, 2021 v1.4, Schedule 1, or as varied by the local government through their annually issued firebreak / hazard reduction notice when the variations have been endorsed by the WAPC and DFES as per s4.5.3 of the Guidelines.
2	<p>Comply with the City of Wanneroo Fire Mitigation Notice issued under s33 of the Bush Fires Act 1954. Check the notice annually for any changes.</p>
3	<p>Maintain vehicular access routes within the lot to comply with the technical requirements referenced in the BMP and the relevant local government's annual firebreak / hazard reduction notice.</p>
4	<p>Maintain the reticulated water supply and associated pipes/fittings/pump and hardstands in good working condition.</p>
5	<p>Ensure that builders engaged to construct dwellings/additions and/or other relevant structures on the lot, are aware of the existence of this approved Bushfire Management Plan (BMP). The plan identifies that the development site is within a designated bushfire prone area and states the indicative (or determined) BAL rating(s) that may (or will) be applied to buildings/structures.</p> <p>A BAL assessment report may be required to confirm determined ratings and will be required when ratings are indicative. BAL certificates will need to be issued to accompany building applications.</p> <p>Compliance with the Building Code of Australia (Volumes 1 and 2 of the National Construction Code), will require certain bushfire resistant construction requirements be applied to residential buildings in bushfire prone areas (i.e., Class 1, 2 and 3 and associated Class 10a buildings and decks). The deemed to satisfy solutions that will meet the relevant bushfire performance requirements are found in AS 3959 – Construction of Building in Bushfire Prone Areas (as amended) and the NASH Standard - Steel Framed Construction in Bushfire Areas (as amended).</p> <p>As an additional bushfire protection measure, other classes of buildings may also be required to comply with these construction requirements when established by the relevant authority or if identified as an additional bushfire protection measure within the BMP. The BMP may also establish that construction requirements to be applied will be those corresponding to a specified higher BAL rating. When applicable, these requirements will be identified in Section 5.7.</p>
6	<p>Ensure all future buildings the landowner has responsibility for, are designed and constructed in full compliance with:</p> <ul style="list-style-type: none"> • The bushfire resistant construction requirements of the Building Code of Australia (Volumes 1 and 2 of the National Construction Code), as established by the Building Regulations 2012 (WA Building Act 2011); and • Any additional bushfire protection measures this Bushfire Management Plan has established are to be implemented.

7	Annually review the Bushfire Emergency Plan and complete all actions contained within the 'Pre-Season Preparation Procedure' and the 'In-Season Preparation Procedure' at the appropriate times of the year.
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6.3 Local Government Responsibilities – Ongoing Management

LOCAL GOVERNMENT – ONGOING MANAGEMENT	
No.	Management Actions
1	<p>Monitor landowner compliance with the annual City of Wanneroo Fire Mitigation Notice and with any bushfire protection measures that are:</p> <ul style="list-style-type: none"> • Established by this BMP; • Are required to be maintained by the landowner/occupier; and • Are relevant to local government operations.

APPENDIX A: DETAILED BAL ASSESSMENT DATA AND SUPPORTING INFORMATION

A1: BAL Assessment Inputs Common to the Method 1 and Method 2 Procedures

A1.1: FIRE DANGER INDICES (FDI/FDI/GFDI)

When using Method 1 the relevant FDI value required to be applied for each state and region is established by AS 3959:2018, Table 2.1. Each FDI value applied in Tables 2.4 – 2.7 represents both the Forest Fire Danger Index (FFDI) and a deemed equivalent for the Grassland Fire Danger Index (GFDI), as per Table B2 in Appendix B. When using Method 2, the relevant FFDI and GFDI are applied.

The values may be able to be refined within a jurisdiction, where sufficient climatological data is available and in consultation with the relevant authority.

Relevant Jurisdiction:	WA	Region:	Whole State	Method 1	Applied FDI:	80
				Method 2	Applied FFDI:	N/A
					Applied GFDI:	N/A

A1.2: VEGETATION ASSESSMENT AND CLASSIFICATION

Vegetation Types and Classification

In accordance with AS 3959:2018 clauses 2.2.3 and C2.2.3.1, all vegetation types within 100 metres of the 'site' (defined as "the part of the allotment of land on which a building stands or is to be erected"), are identified and classified. Any vegetation more than 100 metres from the site that has influenced the classification of vegetation within 100 metres of the site, is identified and noted. The maximum excess distance is established by AS 3959: 2018 cl 2.2.3.2 and is an additional 100 metres.

Classification is also guided by the Visual Guide for Bushfire Risk Assessment in WA (WA Department of Planning February 2016) and any relevant FPA Australia practice notes.

Modified Vegetation

The vegetation types have been assessed as they will be in their natural mature states, rather than what might be observed on the day. Vegetation destroyed or damaged by a bushfire or other natural disaster has been assessed on its expected re-generated mature state. Modified areas of vegetation can be excluded from classification if they consist of low threat vegetation or vegetation managed in a minimal fuel condition, satisfying AS 3959:2018 s2.2.3.2(f), and there is sufficient justification to reasonable expect that this modified state will exist in perpetuity.

The Influence of Ground Slope

Where significant variation in effective slope exists under a consistent vegetation type, these will be delineated as separate vegetation areas to account for the difference in potential bushfire behaviour, in accordance with AS 3959:2018 clauses 2.2.5 and C2.2.5.

THE INFLUENCE OF VEGETATION GREATER THAN 100 METRES FROM THE SUBJECT SITE

Vegetation area(s) within 100m of the site whose classification has been influenced by the existence of bushfire prone vegetation from 100m – 200m from the site:		None
Assessment Statement:	No vegetation types exist close enough, or to a sufficient extent, within the relevant area to influence classification of vegetation within 100 metres of the subject site.	

VEGETATION AREA 1					
Classification	C. SHRUBLAND				
Types Identified	Closed (low) heath C-10				
Effective Slope	Measured	flat 0 degrees	Applied Range (Method 1)	Upslope or flat 0 degrees	
Foliage Cover (all layers)	>30%	Shrub/Heath Height	1-2m	Tree Height	N/A
Additional Justification:	Coastal shrubland ranging in height from approximately 0.5 metres to 2 metres.				
Post Development Assumptions:	Vegetation classified as worst-case scenario. Vegetation outside of the development site cannot be altered or removed by the subject site landowner.				
<div style="display: flex; justify-content: space-around;"> <div style="width: 45%;">  <p style="text-align: right; font-size: small; color: gray;">-31.67956, 115.69861, -27.7m, 221° 2023-02-14 09:16:49</p> </div> <div style="width: 45%;">  <p style="text-align: right; font-size: small; color: gray;">-31.67959, 115.69879, -28.2m, 333° 2023-02-14 09:17:25</p> </div> </div>					
PHOTO ID: 1			PHOTO ID: 2		
 <p style="text-align: right; font-size: small; color: gray;">-31.67902, 115.69832, -23.2m, 105° 2023-02-14 09:07:19</p>					
PHOTO ID: 3					

VEGETATION AREA 2					
Classification	C. SHRUBLAND				
Types Identified	Closed (low) heath C-10		Low shrubland C-12		
Effective Slope	Measured	d/slope 2 degrees	Applied Range (Method 1)	Downslope >0-5 degrees	
Foliage Cover (all layers)	>30%	Shrub/Heath Height	1-2m	Tree Height	N/A
Additional Justification:	Dense coastal shrubland ranging in height from approximately 0.5 metres to 2 metres. Vegetation within the coastal dunes between the ocean and the subject site is typically patchy and less than 1 metre in height.				
Post Development Assumptions:	Vegetation classified as worst-case scenario. Vegetation outside of the development site cannot be altered or removed by the subject site landowner.				
					
PHOTO ID: 4			PHOTO ID: 5		
					
PHOTO ID: 6			PHOTO ID: 6A		

VEGETATION AREA 3					
Classification	D. SCRUB				
Types Identified	Closed scrub D-13		Closed (low) heath C-10		
Effective Slope	Measured	flat 0 degrees	Applied Range (Method 1)	Upslope or flat 0 degrees	
Foliage Cover (all layers)	>30%	Shrub/Heath Height	Up to 6m	Tree Height	N/A
Additional Justification:	Area is dominated by dense shrubs ranging from 2 to 6 metres in height, with some low heath throughout. Foliage cover is greater than 30% and is underlain by coastal sandy dunes/soil.				
Post Development Assumptions:	Vegetation classified as worst-case scenario. Vegetation outside of the development site cannot be altered or removed by the subject site landowner.				
					
PHOTO ID: 7			PHOTO ID: 8		
					
PHOTO ID: 9			PHOTO ID: 10		

VEGETATION AREA 4					
Classification	D. SCRUB				
Types Identified	Closed scrub D-13		Closed (low) heath C-10		
Effective Slope	Measured	d/slope 2 degrees	Applied Range (Method 1)	Downslope >0-5 degrees	
Foliage Cover (all layers)	>30%	Shrub/Heath Height	Up to 6m	Tree Height	N/A
Additional Justification:	Area is dominated by dense shrubs ranging from 2 to 6 metres in height, with some low heath throughout. Foliage cover is greater than 30% and is underlain by coastal sandy dunes/soil.				
Post Development Assumptions:	Vegetation classified as worst-case scenario. Vegetation outside of the development site cannot be altered or removed by the subject site landowner.				
					
PHOTO ID: 11			PHOTO ID: 12		
					
PHOTO ID: 13					

VEGETATION AREA 5					
Classification	G. GRASSLAND				
Types Identified	Closed tussock grassland G-21				
Effective Slope	Measured	flat 0 degrees	Applied Range (Method 1)	Upslope or flat 0 degrees	
Foliage Cover (all layers)	N/A	Shrub/Heath Height	N/A	Tree Height	N/A
Additional Justification:	Small area of low grassland under 0.2 metres in height. No remnant native vegetation occurs within this vegetation area.				
Post Development Assumptions:	Vegetation classified as worst-case scenario. Vegetation outside of the development site cannot be altered or removed by the subject site landowner.				
 <p style="text-align: right; font-size: small;">31.67987, 115.69773, 26.7m, 165° 2023-02-14 09:14:49</p>					
PHOTO ID: 14					

VEGETATION AREA 6

Exclusion Clause	2.2.3.2 (e) non-vegetated areas and (f) vegetation managed in a minimal fuel condition.
Additional Justification:	<p>Non vegetated areas include large sealed public carparks, sealed public roads, sealed footpaths, limestone footpaths, landscaped public gardens, private driveways, and buildings.</p> <p>Low threat vegetation includes reticulated lawns under 100mm in height, private cultivated gardens, and nature strips (within carparks and on road verges).</p>
Post Development Assumptions:	Low threat vegetation is reasonably expected to remain in a low threat state in perpetuity. Low threat vegetation within the subject lot (Lot 211) is the responsibility of the subject site landowner.



PHOTO ID: 15



PHOTO ID: 16



PHOTO ID: 17

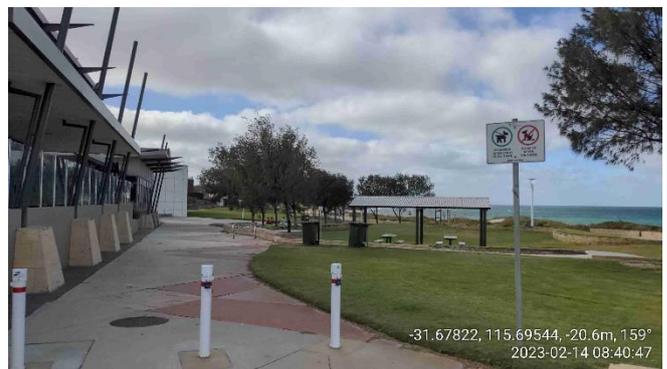


PHOTO ID: 18

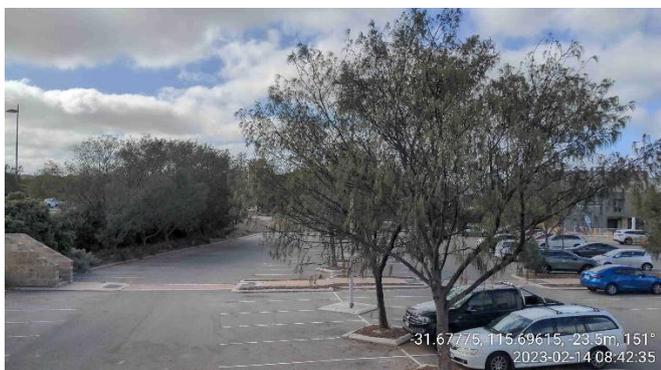


PHOTO ID: 19

VEGETATION AREA 7					
Classification	C. SHRUBLAND				
Types Identified	Low shrubland C-12		Closed tussock grassland G-21		
Effective Slope	Measured	flat 0 degrees	Applied Range (Method 1)	Upslope or flat 0 degrees	
Foliage Cover (all layers)	>30%	Shrub/Heath Height	<2m	Tree Height	N/A
Additional Justification:	Degraded shrubland consisting of scattered low shrubs (typically less than 1 metre in height) and grasses under 0.5 metres in height, and scattered invasive/introduced shrubs.				
Post Development Assumptions:	Vegetation classified as worst-case scenario. The proponent will be required to modify/remove a small portion of this vegetation to establish and perpetually maintain the required APZ around the proposed building (Refer to Figure 3.1.1). Refer to Appendix B for specific APZ requirements. Native vegetation cannot be altered or removed without permission from the relevant authority.				
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p style="font-size: small; color: gray;">-31.67936, 115.6966, -23.9m, 99° 2023-02-14 09:36:55</p> </div> <div style="text-align: center;">  <p style="font-size: small; color: gray;">-31.67981, 115.69757, -25.9m, 298° 2023-02-14 09:23:51</p> </div> </div>					
PHOTO ID: 20			PHOTO ID: 21		

VEGETATION AREA 8						
Classification	D. SCRUB					
Types Identified	Closed scrub D-13			Open scrub D-14		
Effective Slope	Measured	d/slope 2-5 degrees	Applied Range (Method 1)		Downslope >0-5 degrees	
Foliage Cover (all layers)	>30%	Shrub/Heath Height	Up to 6m	Tree Height	N/A	
Additional Justification:	Mixed species composition of shrubs (native and introduced) ranging from 2 to 6 metres in height. Scattered low shrubs and grasses throughout.					
Post Development Assumptions:	Vegetation is classified as worst-case scenario. Dune landform is irregularly undulating, and proposed buildings/eco-tents are scattered across the entire site. Therefore a worst-case scenario slope range of 0-5° was applied to the entire vegetation area. The proponent intends to retain all native vegetation within Vegetation Area 8. No works are required.					
						
PHOTO ID: 22			PHOTO ID: 23			
						
PHOTO ID: 24						

VEGETATION AREA 9					
Classification	C. SHRUBLAND				
Types Identified	Low shrubland C-12		Closed tussock grassland G-21		
Effective Slope	Measured	d/slope 4 degrees	Applied Range (Method 1)	Downslope >0-5 degrees	
Foliage Cover (all layers)	>30%	Shrub/Heath Height	<2m	Tree Height	N/A
Additional Justification:	Small area of vegetation on the edge of the development site consisting of low shrubs typically less than 1 metre in height. Grasses scattered throughout. Photo ID: 25 shows Vegetation Area 9 in the foreground of the image.				
Post Development Assumptions:	Vegetation classified as worst-case scenario.				
					
PHOTO ID: 25					

VEGETATION AREA 10	
Exclusion Clause	2.2.3.2 (e) non-vegetated area
Additional Justification:	Onsite non vegetated area includes a limestone driveway/turnaround area devoid of any vegetation.
Post Development Assumptions:	Non vegetated area expected to remain in a low threat state in perpetuity. This is the responsibility of the subject site landowner.
 <p style="font-size: small; text-align: right;">-31.67936, 115.69661, -26.5m, 153° 2023-02-14 09:36:51</p>	 <p style="font-size: small; text-align: right;">-31.67913, 115.69638, -23.8m, 37° 2023-02-14 09:39:52</p>
PHOTO ID: 26	PHOTO ID: 27

A1.3: EFFECTIVE SLOPE

Measuring

Effective slope refers to the slope “under the classified vegetation which most significantly influences bushfire behaviour (AS 3959:2018, clause B4, CB4). It is not the average slope.

It is described as upslope, flat or downslope when viewed from the exposed element (e.g., building) looking towards the vegetation – and measured in degrees. Ground slope has a direct and significant influence on a bushfire's rate of spread and intensity, which increases when travelling up a slope.

The slope under the vegetation in closest proximity to the exposed element(s), over the distance that will most likely carry the entire depth of the flaming front, will be a significant consideration in the determination of the effective slope. This distance is determined as a function of the potential quasi-steady rate of spread and expected residence time (i.e., the flaming combustion period at a single point on the ground), of a bushfire in the specific vegetation type/landscape scenario.

Slope Variation Within Areas of Vegetation

Where a significant variation in effective slope exists under a consistent vegetation type, these will be delineated as separate vegetation areas to account for the difference in potential bushfire behaviour, in accordance with AS 3959:2018 clauses 2.2.5 and C2.2.5.

Slope Variation Due to Multiple Development Sites

When the effective slope, under a given area of bushfire prone vegetation, will vary significantly relative to multiple proposed development sites (exposed elements), then the effective slopes corresponding to each of the different locations, are separately identified.

The relevant (worst case) effective slope is determined in the direction corresponding to the potential directions of fire spread towards the subject building(s).

Differences in Application of Effective Slope - AS 3959:2018 Method 1 versus Method 2 Procedures

The Method 1 procedure provides five different slope ranges from flat (including all upslopes) to 20 degrees downslope to define the effective slope and bushfire behaviour model calculations apply the highest value in each range (i.e., 0°, 5°, 10°, 15° or 20°).

The Method 2 procedure requires an actual slope (up or down in degrees) to be determined. AS 3959:2018, clause B1 limits the effective slope that can be applied to 30 degrees downslope and 15 degrees upslope. Where any upslope is greater than 15 degrees, then 15 degrees is to be used.

SITE ASSESSMENT DETAILS - EXPLANATION & JUSTIFICATION

The effective slopes determined from the site assessment are recorded in Table 3.2 of this Bushfire Management Plan. When their derivation requires additional explanation and justification, this is provided below.

A1.4: SEPARATION DISTANCE

Measuring

The separation distance is the distance in the horizontal plane between the receiver (building/structure or area of land being considered) and the edge of the classified vegetation (AS 3959:2018, clause 2.2.4)

The relevant parts of a building/structure from which the measurement is taken is the nearest part of an external wall or where a wall does not exist, the supporting posts or columns. Certain parts of buildings are excluded including eaves and roof overhangs.

The edge of the vegetation, for forests and woodlands, will be determined by the unmanaged understorey rather than either the canopy (drip line) or the trunk (AS 3959:2018, clause C2.2.5).

Measured Separation Distance as a Calculation Input

If a separation distance can be measured because the location of the building/structure relative to the edge of the relevant classified vegetation is known, this figure can be entered into the BAL calculation. The result is a determined BAL rating.

Assumed Separation Distance as a Calculation Input

When the building/structure location within the lot is not known, an assumed building location may be applied that would establish the closest positioning of the building/structure relative to the relevant area of vegetation.

The assumed location would be based on a factor that puts a restriction on a building location such as:

- An established setback from the boundary of a lot, such as a residential design code setback or a restrictive covenant; or
- Within an established building envelope.

The resultant BAL rating would be indicative and require later confirmation (via a Compliance Report) of the building/structure actual location relative to the vegetation to establish the determined BAL rating.

Separation Distance as a Calculation Output

With the necessary site specific assessment inputs and using the AS 3959:2018 bushfire modelling equations, the range of separation distances that will correspond to each BAL rating (each of which represents a range of radiant heat flux), can be calculated. This has application for bushfire planning scenarios such as:

- When the separation distance cannot be measured because the exact location of the exposed element (i.e., the building, structure or area), relative to classified vegetation, is yet to be determined.

In this scenario, the required information is the identification of building locations onsite that will correspond to each BAL rating. That is, indicative BAL ratings can be derived for a variety of potential building/structure locations; or

- The separation distance is known for a given building, structure or area (and a determined BAL rating can be derived), but additional information is required regarding the exposure levels (to the transfer of radiant heat from a bushfire), of buildings or persons, that will exist at different points within the subject site.

The calculated range of separation distances corresponding to each BAL rating can be presented in a table and/or illustrated as a BAL Contour Map – whichever is determined to best fit the purpose of the assessment.

For additional information refer to the information boxes in Section 3 'Bushfire Attack Levels (BAL) - Understanding the Results and Section 3.2. 'Interpretation of the BAL Contour Map'.

SITE ASSESSMENT DETAILS - EXPLANATION & JUSTIFICATION

For the subject development/use the applicable separation distances values are derived from calculations applying the assessed site data. They are an output value, not an input value and therefore are not presented or justified in this appendix.

The derived values are presented in Section 3, Table 3.1 and illustrated as a BAL contour map in Figure 3.2.

APPENDIX B: ADVICE - ONSITE VEGETATION MANAGEMENT - THE APZ

THE ASSET PROTECTION ZONE (APZ) - DESCRIPTION

This is an area surrounding a habitable building containing low threat fire fuel fuels (including vegetation), or vegetation managed in a minimal fuel condition, no fire fuels or any combination. The primary objectives include:

- To ensure the building is sufficiently separated from the bushfire hazard to limit the impact of its direct attack mechanisms. That is, the dimensions of the APZ will, for most site scenarios, remove the potential for direct flame contact on the building, reduce the level of radiant heat to which the building is exposed and ensure some reduction in the level of ember attack (with the level of reduction being dependent on the vegetation types of present);
- To ensure any vegetation retained within the APZ is low threat and/or is managed in a minimum fuel condition and prevents surface fire spreading to the building;
- To ensure other combustible materials that can result in consequential fire (typically ignited by embers) within both the APZ and parts of the building, are eliminated, minimised and/or appropriately located or protected. (Note: The explanatory notes in the Guidelines provide some guidance for achieving this objective and other sources are available. Research shows that consequential fire, ignited by embers, is the primary cause of building loss in past bushfire events); and
- To provide a defensible space for firefighting activities.

B1: Asset Protection Zone (APZ) Dimensions

APZ DIMENSIONS – DIFFERENCES IN REQUIREMENTS FOR PLANNING ASSESSMENTS COMPARED TO IMPLEMENTATION

THE 'PLANNING BAL-29' APZ DIMENSIONS

The 'Planning BAL-29' APZ is not necessarily the size of the APZ that must be physically implemented and maintained by a landowner. Rather, its purpose is to identify if an acceptable solution for planning approval can be met i.e., can a specified minimum separation distance from bushfire prone vegetation exist.

An assessment against the Bushfire Protection Criteria is conducted for planning approval purposes. To satisfy 'A2.1: Asset Protection Zone', it must be demonstrated that certain minimum separation distances between the relevant building/structure and different classes of bushfire prone vegetation, either exist or can be created and will remain in perpetuity. These minimum separation distances determine the 'Planning BAL-29' APZ dimensions.

Dimensions: The minimum dimensions are those that will ensure the potential radiant heat impact on subject buildings does not exceed 29 kW/m². These dimensions will vary dependent on the vegetation classification, the slope of the land they are growing on and certain other factors specific to the subject site.

Note: For certain purposes associated with vulnerable land uses, the 'Planning BAL-29' APZ may be replaced with dimensions corresponding to radiant heat impact levels of 10 kW/m² and 2 kW/m² and calculated using 1200K flame temperature.

Location: The identified 'Planning BAL-29' APZ must not extend past lot boundaries onto land the landowner has no control over either now or potentially at some point in the future. Limited exceptions include:

- When adjoining land is not vegetated (e.g., built out, roads, carparks, drainage, rock, water body etc.);
- When adjoining land currently or, will in the short term, contain low threat vegetation and or vegetation managed in a minimal fuel condition as per AS 3959:2018 cl. 2.2.3.2. It must be reasonable (justifiable) to expect this low threat vegetation and/or level of management will continue to exist or be conducted in perpetuity and require no action from the owner of the subject lot.

Such areas of land include formally managed areas of vegetation (e.g., public open space / recreation areas / services installed in a common section of land). For specific scenarios, evidence of the formal

commitment to manage these areas to a certain standard may be required and would be included in the BMP.

These areas of land can also be part of the required APZ on a neighbouring lot for which the owner of that lot has a recognised responsibility to establish and maintain; and

- When there is a formalised and enforceable capability and responsibility created for the subject lot owner, or any other third party, to manage vegetation on land they do not own in perpetuity. This would be rare, and evidence of the formal authority would be included in the BMP.

The bushfire consultant's 'Supporting Assessment Detail', that is presented in the assessment against the acceptable solution A2.1, will identify and justify how any adjoining land within the 'Planning BAL-29 APZ will meet the APZ standards. Or otherwise, explain how this condition cannot be met.

THE 'BAL RATING' APZ DIMENSIONS

The applicable BAL rating will have been stated in the BAL Assessment Data section of the BAL Assessment Report or BMP (as relevant). The BAL rating can be assessed as 'determined' or 'indicative' or be 'conditional', dependent of the specific conditions associated with the site and the stage of assessment or planning. It is the eventual assessment of the 'Determined' BAL that will establish both the BAL rating that is to apply and its corresponding 'BAL Rating' APZ dimensions.

Dimensions: The minimum dimensions of the 'BAL Rating' APZ to be established and maintained will be those that correspond to the determined BAL rating for the subject building/structure that has accounted for surrounding vegetation types, the slope of the land they are growing on and certain other factors specific to the subject site and surrounding land.

Establishing the 'BAL Rating' APZ will ensure that the potential radiant heat exposure of the building/structure will be limited to the level that the applied construction requirements are designed to resist when that building/structure is required to be constructed to the standard corresponding to the Determined BAL.

Note: For certain purposes associated with vulnerable land uses, the 'BAL Rating' APZ dimensions may be replaced with dimensions corresponding to the specific radiant heat impact levels of 10 kW/m² and 2 kW/m² and calculated using 1200K flame temperature.

Location: The same conditions will apply as for the 'Planning BAL-29' APZ.

THE 'LOCAL GOVERNMENT' APZ DIMENSIONS

Some Local Government's establish the dimensions of the APZ that must be established surrounding buildings in their annual Firebreak/Hazard Reduction Notice. Or for a specific site they may establish a maximum allowable dimension (typically that corresponding to BAL-29). When established, the landowner will need to be comply with these.

THE 'REQUIRED' APZ DIMENSIONS

This is the APZ that is to be established and maintained by the landowner within the subject lot and surrounding the subject building(s). It will be identified on the Property Bushfire Management Statement when it is required to be included in this Report/Plan.

Dimensions: The 'Required APZ' dimensions are the minimum (or maximum when relevant) distances away from the subject building(s) that the APZ must extend. These distances will not necessarily be the same all around the building(s). They can vary and are dependent on the different vegetation types (and their associated ground slope) that can exist around the building(s), and specific local government requirements. The dimensions to implement are determined by:

- A. The 'BAL Rating APZ' of the subject building(s) when distances are greater than 'B' below (except when 'B' establishes a maximum distance); or
- B. The 'Local Government' APZ' derived from the Firebreak/Hazard Reduction Notice when distances are greater than 'A' above, other than when a maximum distance is established, in which case this will apply; or
- C. A combination of 'A' and 'B'.

Location: The same conditions will apply as for the 'Planning BAL-29' APZ.

B1.1: THE APZ DIMENSIONS REQUIRED TO BE IMPLEMENTED BY THE LANDOWNER

DETERMINATION OF THE 'REQUIRED' APZ DIMENSIONS TO BE IMPLEMENTED AND MAINTAINED BY LANDOWNER WITHIN THEIR LOT										
Relevant Buildings(s)	Vegetation Classification [Refer to Fig 3.1]		Minimum Required Separation Distances from Building to Vegetation (metres)							The 'Required' APZ Dimensions [see note]
			Established by the 'BAL Rating' APZ Dimension				Established by the "Local Government" APZ Dimension		Firebreak / Hazard Reduction Notice	
	Area	Class	Determined Radiant Heat Impact	Stated 'Indicative' or 'Conditional' BAL						
				BAL-29	BAL-19	BAL-12.5	BAL-LOW			
Proposed Main hospitality building (bar/café/restaurant/events centre)	1	(C) Shrubland	N/A	9	13	19	>100	"Additional mitigation work may be required by a Fire Control Officer to maintain a 20 metre asset protection zone around buildings".	N/A	15 metres around main building
	2	(C) Shrubland		10	15	22	>100			
	3	(D) Scrub		13	19	27	>100			
	4	(D) Scrub		15	22	31	>100			
	5	(G) Grassland		8	12	17	>50			
	6	Excluded cl 2.2.3.2(e & f)		-	-	-	-			
	7	(C) Shrubland		9	13	19	>100			
	8	(D) Scrub		15	22	31	>100			
	9	(C) Shrubland		10	15	22	>100			
	10	Excluded cl 2.2.3.2(e & f)		-	-	-	-			

Note: The 'Required' APZ Dimension corresponding to each area of vegetation is the greater of the 'BAL Rating' or the 'Firebreak/Hazard Reduction Notice' APZ dimensions - unless a local government maximum distance(s) is established as a result of their environmental assessment of the subject site. The area of the APZ will also be limited to the subject lot boundary unless otherwise justified in this Report/Plan. Final determination of the dimensions will require that any indicative or conditional BAL becomes a 'Determined' BAL.

Comments: A 15 metre BAL-29 APZ should be established around the main building. No APZs are required to be installed for the eco-tents, refer to the assessment against the bushfire protection criteria in Section 5 for further explanation. The local government may additionally require a 20 metre APZ around building/s onsite. A BAL Assessment will be required prior to building to convert indicative BAL ratings into determined BAL ratings, which may alter the required APZ dimensions (and/or the indicative BAL rating).

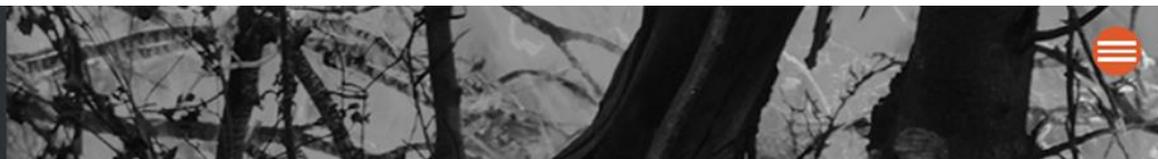
B2: The Standards for the APZ as Established by the Guidelines (DPLH, v1.4)

Within the Guidelines (source: <https://www.wa.gov.au/government/document-collections/state-planning-policy-37-planning-bushfire-prone-areas>), the management Standards are established by:

- Schedule 1: Standards for Asset Protection Zones (see extract below) established by the Guidelines; and
- The associated explanatory notes (Guidelines E2) that address (a) managing an asset protection zone (APZ) to a low threat state (b) landscaping and design of an asset protection zone and (c) plant flammability.

Guidelines for
Planning in
Bushfire
Prone Areas

71

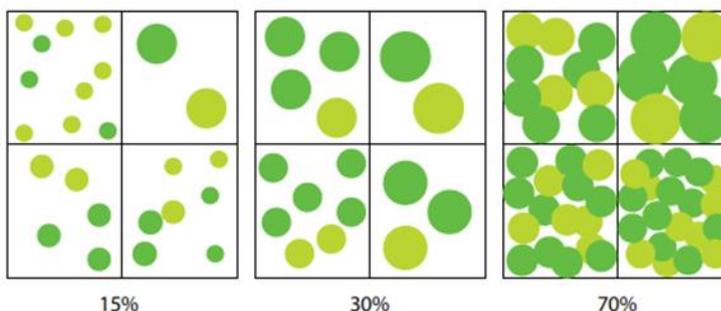


ELEMENT 2: SITING AND DESIGN OF DEVELOPMENT

SCHEDULE 1: STANDARDS FOR ASSET PROTECTION ZONES

OBJECT	REQUIREMENT
Fences within the APZ	<ul style="list-style-type: none"> • Should be constructed from non-combustible materials (for example, iron, brick, limestone, metal post and wire, or bushfire-resisting timber referenced in Appendix F of AS 3959).
Fine fuel load (Combustible, dead vegetation matter <6 millimetres in thickness)	<ul style="list-style-type: none"> • Should be managed and removed on a regular basis to maintain a low threat state. • Should be maintained at <2 tonnes per hectare (on average). • Mulches should be non-combustible such as stone, gravel or crushed mineral earth or wood mulch >6 millimetres in thickness.
Trees* (>6 metres in height)	<ul style="list-style-type: none"> • Trunks at maturity should be a minimum distance of six metres from all elevations of the building. • Branches at maturity should not touch or overhang a building or powerline. • Lower branches and loose bark should be removed to a height of two metres above the ground and/or surface vegetation. • Canopy cover within the APZ should be <15 per cent of the total APZ area. • Tree canopies at maturity should be at least five metres apart to avoid forming a continuous canopy. Stands of existing mature trees with interlocking canopies may be treated as an individual canopy provided that the total canopy cover within the APZ will not exceed 15 per cent and are not connected to the tree canopy outside the APZ.

Figure 19: Tree canopy cover – ranging from 15 to 70 per cent at maturity



<p>Shrub* and scrub* (0.5 metres to six metres in height). Shrub and scrub >6 metres in height are to be treated as trees.</p>	<ul style="list-style-type: none"> • Should not be located under trees or within three metres of buildings. • Should not be planted in clumps >5 square metres in area. • Clumps should be separated from each other and any exposed window or door by at least 10 metres.
<p>Ground covers* (<0.5 metres in height. Ground covers >0.5 metres in height are to be treated as shrubs)</p>	<ul style="list-style-type: none"> • Can be planted under trees but must be maintained to remove dead plant material, as prescribed in 'Fine fuel load' above. • Can be located within two metres of a structure, but three metres from windows or doors if >100 millimetres in height.
<p>Grass</p>	<ul style="list-style-type: none"> • Grass should be maintained at a height of 100 millimetres or less, at all times. • Wherever possible, perennial grasses should be used and well-hydrated with regular application of wetting agents and efficient irrigation.
<p>Defendable space</p>	<ul style="list-style-type: none"> • Within three metres of each wall or supporting post of a habitable building, the area is kept free from vegetation, but can include ground covers, grass and non-combustible mulches as prescribed above.
<p>LP Gas Cylinders</p>	<ul style="list-style-type: none"> • Should be located on the side of a building furthest from the likely direction of a bushfire or on the side of a building where surrounding classified vegetation is upslope, at least one metre from vulnerable parts of a building. • The pressure relief valve should point away from the house. • No flammable material within six metres from the front of the valve. • Must sit on a firm, level and non-combustible base and be secured to a solid structure.

* Plant flammability, landscaping design and maintenance should be considered – refer to explanatory notes

B3: The Standards for the APZ as Established by the Local Government

Refer to the firebreak / hazard reduction notice issued annually (under s33 of the Bushfires Act 1954) by the relevant local government. It may state Standards that vary from those established by the Guidelines and that have been endorsed by the WAPC and DFES as per Section 4.5.3 of the Guidelines.

A copy of the applicable notice is not included here as they are subject to being reviewed and modified prior to issuing each year. Refer to ratepayers notices and/or the local government's website for the current version.

B4: Vegetation and Areas Excluded from Classification - Ensure Continued Exclusion

AS 3959:2018 establishes the methodology for determining a bushfire attack level (BAL). The methodology includes the classification of the subject site's surrounding vegetation according to their 'type' and the application of the corresponding relevant bushfire behaviour models to determine the BAL.

Certain vegetation can be considered as low threat or managed in a minimal fuel condition and can be excluded from classification. Where this has occurred in assessing the site, the extract from AS3959:2018 below states the requirements that must continue to exist for the vegetation on those areas of land to be excluded from classification (including the size of the vegetation area if relevant to the assessment).

15

AS 3959:2018

2.2.3.2 Exclusions—Low threat vegetation and non-vegetated areas

The following vegetation shall be excluded from a BAL assessment:

- (a) Vegetation of any type that is more than 100 m from the site.
- (b) Single areas of vegetation less than 1 ha in area and not within 100 m of other areas of vegetation being classified vegetation.
- (c) 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 vegetation.
- (d) 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 vegetation.
- (e) Non-vegetated areas, that is, areas permanently cleared of vegetation, including waterways, exposed beaches, roads, footpaths, buildings and rocky outcrops.
- (f) 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 windbreaks.

NOTES:

- 1 Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack (recognizable as short-cropped grass for example, to a nominal height of 100 mm).
- 2 A windbreak is considered a single row of trees used as a screen or to reduce the effect of wind on the leeward side of the trees.

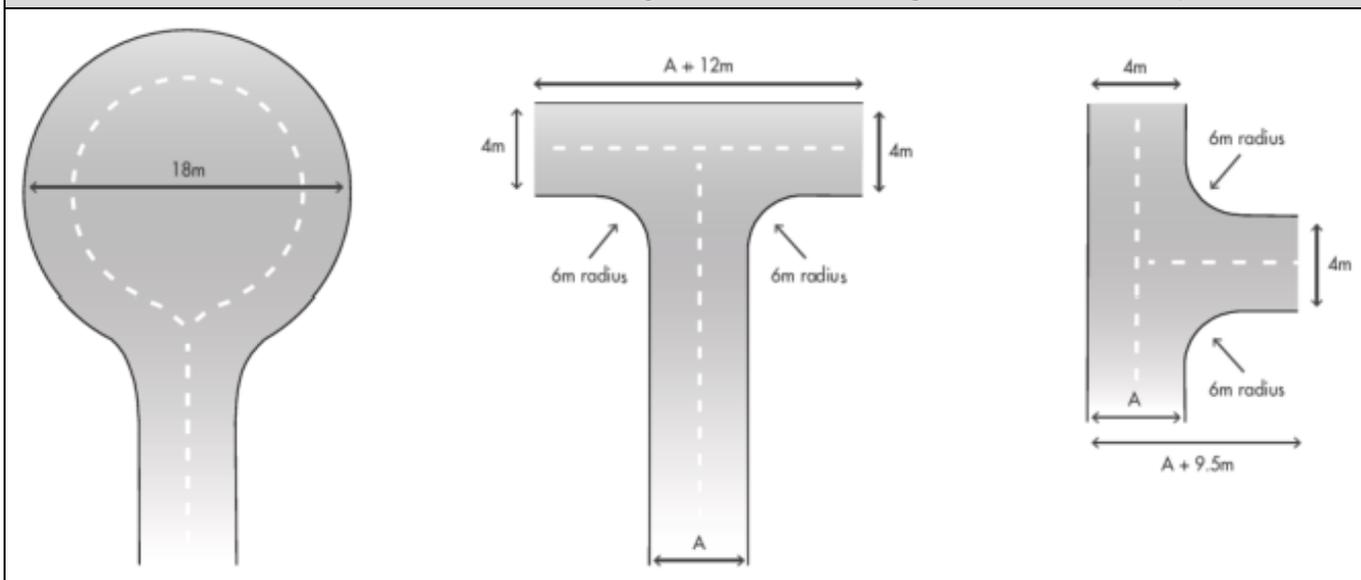
APPENDIX C: TECHNICAL REQUIREMENTS FOR VEHICULAR ACCESS

The design/layout requirements for access are established by the acceptable solutions of the Guidelines (DPLH, 2021 v1.4) Element 3 and vary dependent on the access component, the land use and the presence of 'vulnerable' persons. Consequently, the best reference source are the Guidelines. The technical requirements that are fixed for all components and uses are presented in this appendix.

GUIDELINES TABLE 6, EXPLANATORY NOTES E3.3 & E3.6 AND RELEVANT ACCEPTABLE SOLUTIONS

Technical Component	Vehicular Access Types / Components			
	Public Roads	Emergency Access Way ¹	Fire Service Access Route ¹	Battle-axe and Private Driveways ²
Minimum trafficable surface (m)	In accordance with A3.1	6	6	4
Minimum Horizontal clearance (m)	N/A	6	6	6
Minimum Vertical clearance (m)	4.5			
Minimum weight capacity (t)	15			
Maximum Grade Unsealed Road ³	As outlined in the IPWEA Subdivision Guidelines	1:10 (10%)		
Maximum Grade Sealed Road ³		1:7 (14.3%)		
Maximum Average Grade Sealed Road		1:10 (10%)		
Minimum Inner Radius of Road Curves (m)		8.5		

Turnaround Area Dimensions for No-through Road, Battle-axe Legs and Private Driveways ⁴



Passing Bay Requirements for Battle-axe leg and Private Driveway

When the access component length is greater than the stated maximum, passing bays are required every 200m with a minimum length of 20m and a minimum additional trafficable width of 2m (i.e. the combined trafficable width of the passing bay and constructed private driveway to be a minimum 6m).

Emergency Access Way – Additional Requirements

Provide a through connection to a public road, be no more than 500m in length, must be signposted and if gated, gates must be open the whole trafficable width and remain unlocked.

¹ To have crossfalls between 3 and 6%.

² 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.

³ Dips must have no more than a 1 in 8 (12.5% or 7.1 degree) entry and exit angle.

⁴ The turnaround area should be within 30m of the main habitable building.

APPENDIX D: TECHNICAL REQUIREMENTS FOR FIREFIGHTING WATER SUPPLY

D1: Reticulated Areas – Hydrant Supply

The Guidelines state "where a reticulated water supply is existing or proposed, hydrant connection(s) should be provided in accordance with the specifications of the relevant water supply authority."

The main scheme water suppliers / authorities in WA are The Water Corporation, AqWest – Bunbury Water Corporation and Busselton Water Corporation. Various local authority exists in other non-scheme and regional areas. However, most existing fire hydrants are connected to Water Corporation water mains.

Consequently, the hydrant location specifications from The Water Corporation's 'No 63 Water Reticulation Standard' (Ver 3 Rev 15) are provided in the extract below with the key distances relevant to bushfire planning assessments being highlighted. This Standard is deemed to be the baseline criteria for developments and should be applied unless different local water supply authority conditions apply. Other applicable specification will be found in the Standard.

Note: The maximum distance from a hydrant to the rear of a lot/building is generally interpreted as not applicable to large lot sizes where the maximum distance becomes an impractical limitation i.e., typically rural residential areas.

Design Standard DS 63
Water Reticulation Standard



2.2.1.5 Appurtenances

c. Hydrants

Hydrants shall be screw-down hydrant with built-in isolation valve and installed only on DN100 or larger pipes. Hydrants shall be located:

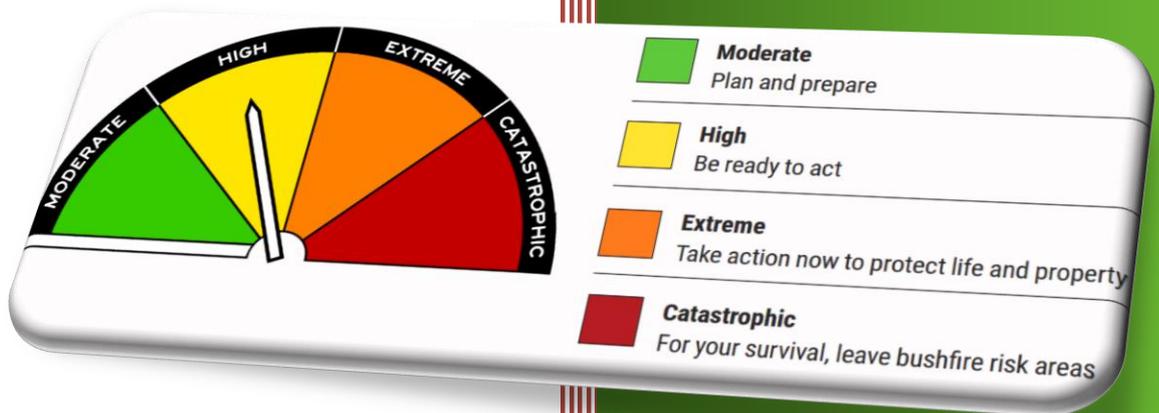
- so that the maximum distance between a hydrant and the rear of a building envelope, (or in the absence of a building envelope the rear of the lot) shall be 120m;
- so that spacing (as measured by hose-run) between hydrants in non-residential or mixed use areas shall be maximized and no greater than 100m;
- so that spacing (as measured by hose-run) between hydrants in residential areas with lots per dwelling <10,000m² shall be maximized and no greater than 200m;
- so that spacing between hydrants (as measured by hose-run) in rural residential areas where minimum lots per dwelling is >10,000 m² (1ha) shall be maximized and no greater than 400m;
- centrally along the frontage of a lot to avoid being under driveways, unless the lot features a frontage 6m or less, in which case it shall be placed to the side opposite the driveway;
- at lots that have the widest frontage in the local area;
- where appropriate at the truncation of road junctions or intersections so that they can serve more than one street and can be readily located;
- on both sides of the major roads at staggered intervals where there are mains on both sides of the road;
- at major intersections on dual multi-lane roads, where two hydrants are to be sited on diagonally opposite corners;
- hydrants should be located at least 20m from traffic calming devices i.e., median slow points or chokers, chicanes, mini traffic circles, and intersection 'pop-outs' to ensure traffic is not impeded;
- in a position not less than 10m from any high voltage main electrical distribution equipment such as transformers and distribution boards, liquefied petroleum gas or other combustible storage;
- directly on top of the main using a tee unless proved to be impractical.



Dunes Beach Resort (Mindarie Beach Reserve)

Bushfire Emergency Plan

The Operational Document for Onsite Personnel Responsible for Emergency Management



PREVENT | PREPARE | RESPOND | RECOVER

Lot 211 (2) Quinns Road, Mindarie, 6030

City of Wanneroo

Facility/Premises Use: Tourist development

31 October 2023

Associated BMP: v1.0

BPP Ref. No. 230008

ATTENTION

It is important that all relevant persons at this facility/premises receive formal training in the application of this Bushfire Emergency Plan, as established in the associated Bushfire Management Plan.

BPP GROUP PTY LTD T/A BUSHFIRE PRONE PLANNING

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

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DOCUMENT CONTROL

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		-		<input type="checkbox"/>	<input type="checkbox"/>
<p>Limitation of Liability: The procedures and their associated actions contained in this Bushfire Emergency Plan do not guarantee that, in the event of a bushfire, buildings or infrastructure will not be damaged, 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 procedures will depend upon, among other things, the ongoing actions of the landowners and/or operators over which Bushfire Prone Planning has no control.</p> <p>Any representation, statement, opinion, or advice expressed or implied in this document is made in good faith based on information available to Bushfire Prone Planning at the time. 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, lack of care or otherwise of their consultants, their servants or agents, arising out of the services provided by their consultants.</p> <p>Copyright ©2023 BPP Group Pty Ltd: All intellectual property rights, including copyright, in format and proprietary content contained in documents created by Bushfire Prone Planning, remain the property of BPP Group Pty Ltd. Any use made of such format or content without the prior written approval of Bushfire Prone Planning, will constitute an infringement on the rights of the Company which reserves all legal rights and remedies in respect of any such infringement.</p>					

THE BUSHFIRE EMERGENCY PLAN – ITS PURPOSE AND APPLICATION

The purpose of this Bushfire Emergency Plan (BEP) is to assist persons conduct the operations of the facility/premises that are directed at managing and protecting persons and property from the risks associated with a bushfire event.

To best support the purpose, this BEP is constructed to be used as an **OPERATIONAL DOCUMENT** that facilitates the reliable implementation of required actions at different times of the year, including during the urgent and high pressure conditions of a bushfire event.

The BEP utilises an approach that:

- **Establishes Situational Scenarios as Triggers to Implement an Emergency Procedure:** Each scenario has a corresponding initial bushfire emergency procedure, and associated actions, that is to be implemented. These have been developed considering the specifics of the facility/premises and its use.
- **Facilitates Effective Implementation:** It is structured logically and written concisely. The important reference information in the appendices assists with applying the procedures and their actions, of which the included indicative fire behaviour for the bushfire prone vegetation relevant to the facility/premises is particularly important.
- **Encourages Formal Training in the Application of the BEP:** It is important that persons responsible for actioning this BEP are fully aware of and knowledgeable in the application of the information presented in both the operational sections and the appendices.
- **Presents Supporting Data as Necessary:** This is data that may include identification of the level and types of potential risks to the site and its use and justifies the choice of protection measures incorporated into this BEP to manage those risks.

The necessity for inclusion (as an addendum) is dependent on the complexity and scale of the facility/premises site/use and when there is a need to explain why certain procedures/actions have been applied to inform relevant persons (managers and decision makers as applicable).

TABLE OF CONTENTS

1. APPLYING THE BUSHFIRE EMERGENCY PLAN	2
2. PRIMARY GUIDANCE TABLE – THE TRIGGERS TO IMPLEMENT AN INITIAL BUSHFIRE EMERGENCY PROCEDURE	3
3. EMERGENCY CONTACTS.....	5
3.1. EMERGENCY SERVICES.....	5
3.2. FACILITY/PREMISES PERSONNEL WITH EMERGENCY RESPONSIBILITIES	5
3.3. UTILITIES / MEDICAL / ASSISTANCE.....	5
4. EMERGENCY INFORMATION SOURCES	6
5. RELOCATING PERSONS - IDENTIFIED SAFER LOCATIONS AND TRANSPORT	7
5.1. RELOCATION ONSITE – ASSEMBLY AND/OR SHELTER IN PLACE.....	7
5.2. RELOCATION OFFSITE – EVACUATION DESTINATIONS	7
5.3. EVACUATION TIME & TRANSPORT – PERSONS AND VEHICLES.....	9
6. DISPLAY MAP – SITE EMERGENCY INFORMATION	10
7. DISPLAY MAP - EVACUATION ROUTES	11
8. BUSHFIRE EMERGENCY PROCEDURES AND ACTIONS.....	12
8.1. PRE-SEASON PREPARE	12
8.2. MONITOR AND MAINTAIN	17
8.3. PRE-EMPTIVE.....	18
8.4. ELEVATED THREAT	19
8.5. SAFE (EARLY) EVACUATION	22
8.6. SHELTER IN PLACE.....	25
8.7. RECOVERY	28

LIST OF ADDITIONAL INFORMATION

APPENDIX 1: BUSHFIRE WARNINGS – WHEN A BUSHFIRE IS IDENTIFIED	29
APPENDIX 2: FIRE DANGER RATINGS - FORECAST BUSHFIRE RISK	30
APPENDIX 3: FIRE BEHAVIOUR INDEX - FORECAST BUSHFIRE RISK.....	31
APPENDIX 4: BUSHFIRE RISKS AND DANGERS	32
APPENDIX 5: GUIDELINES FOR TRAVELLING IN CARS DURING A BUSHFIRE	33
APPENDIX 6: INDICATIVE BUSHFIRE BEHAVIOUR TO IMPACT THE FACILITY/PREMISES.....	34
APPENDIX 7: LANDSCAPING DESIGN & CONSTRUCTION PRINCIPLES TO APPLY.....	37

1. APPLYING THE BUSHFIRE EMERGENCY PLAN

TO DETERMINE THE REQUIRED ACTIONS TO IMPLEMENT

- At any time of the year;
- For any day of operation; and
- Whether a bushfire exists or not.

REFER TO THE PRIMARY GUIDANCE TABLE ON THE NEXT PAGE AND

1. Identify the applicable situational scenario that acts as the trigger for implementing an initial procedure; and
2. Identify the corresponding initial procedure and its page number.

THEN PROCEED TO THE APPLICABLE INITIAL PROCEDURE AND CONDUCT ALL STATED ACTIONS.

2. PRIMARY GUIDANCE TABLE – THE TRIGGERS TO IMPLEMENT AN INITIAL BUSHFIRE EMERGENCY PROCEDURE

THE IMPLEMENTATION TRIGGERS ESTABLISHED AS SITUATIONAL SCENARIOS RELEVANT TO THE SITE		THE INITIAL PROCEDURE TO IMPLEMENT ¹						
		PREVENT	PREPARE		RESPOND			RECOVER
		NO BUSHFIRE EXISTS			A BUSHFIRE EXISTS			
		PRE-SEASON PREPARE	MONITOR & MAINTAIN	PRE-EMPTIVE	ELEVATED THREAT	SAFE (EARLY) EVACUATION	SHELTER-IN-PLACE	RECOVERY
Page 12	Page 17	Page 18	Page 19	Page 22	Page 25	Page 28		
I.D.								
DURING THE BUSHFIRE SEASON (NOVEMBER TO APRIL)								
A	A BUSHFIRE EXISTS	A bushfire EMERGENCY or WATCH AND ACT warning has been issued and applies to the site. The highest level response procedure (the primary response), as determined specifically for the site and its use, is triggered.				☒		
B	A BUSHFIRE EXISTS	A bushfire ADVICE warning has been issued and applies to the site.			☒			
C	A BUSHFIRE EXISTS	A bushfire warning has not been issued.			☒			
D	A BUSHFIRE EXISTS	The bushfire is either now controlled, or the fire front has moved past the facility/premises. Evacuation or shelter in place procedures may have been implemented earlier.						☒
E	NO BUSHFIRE EXISTS	The forecast Fire Danger Rating (FDR) is Catastrophic; OR The forecast Fire Danger Rating (FDR) is Extreme, and the forecast Fire Behaviour Index (FBI) is 75 or greater (refer to BOM website, see Section 4 'Emergency Information Sources'); AND/OR A Total Fire Ban is declared. A Harvest and Vehicle Movement Ban (HVMB) may also be declared.						
F	NO BUSHFIRE EXISTS	The forecast fire danger rating (FDR) is High or Moderate or there is no FDR.		☒				

PROCEDURE IMPLEMENTATION TRIGGERS SITUATIONAL SCENARIOS RELEVANT TO THE SITE		THE INITIAL PROCEDURE TO IMPLEMENT ¹						
		PREVENT	PREPARE		RESPOND		RECOVER	
		NO BUSHFIRE EXISTS			A BUSHFIRE EXISTS			
		PRE-SEASON PREPARE	MONITOR & MAINTAIN	PRE-EMPTIVE	ELEVATED THREAT	SAFE (EARLY) EVACUATION	SHELTER-IN-PLACE	RECOVERY
I.D.	Page 12	Page 17	Page 18	Page 20	Page 22	Page 25	Page 28	
PRIOR TO THE BUSHFIRE SEASON (MAY TO OCTOBER)								
G	For the site location, this is the period of the year during which a bushfire event is considered to have a lower likelihood of occurrence and expected fire intensity will be lower. If a bushfire event does occur, the relevant 'Bushfire Identified' trigger will apply (see below).			<input checked="" type="checkbox"/>				
Note ¹: Each trigger will activate an initial single emergency management PROCEDURE. The corresponding ACTIONS can include conducting a re-evaluation of the current situation. This can result in a different PROCEDURE needing to be implemented.								

3. EMERGENCY CONTACTS

3.1. EMERGENCY SERVICES

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

3.2. FACILITY/PREMISES PERSONNEL WITH EMERGENCY RESPONSIBILITIES

EMERGENCY ROLE	POSITION HELD AT FACILITY/PREMISES	LOCATION	CONTACT
Chief Fire Warden	Position TBC		TBC prior to operation / Name Phone
Fire Warden	Position TBC		TBC prior to operation / Name Phone

3.3. UTILITIES / MEDICAL / ASSISTANCE

AGENCY/ORGANISATION	SERVICES	CONTACT
Joondalup Health Campus	Emergency medical services	(08) 9400 9999 Cnr Lakeside Dr &, Shenton Ave, Joondalup
Royal Perth Hospital	Emergency medical services	(08) 9224 2244 197 Wellington St, Perth
Western Power	Response to electricity supply outages and damage.	13 1351
Crisis Care	Crisis accommodation	1800 199 008
Australian Red Cross	Humanitarian assistance	1800 733 276 redcross.org.au/emergencies
Salvation Army	Social services care	13 72 58 (13 SALVOS) salvationarmy.org.au/need-help/disasters-and-emergencies/

4. EMERGENCY INFORMATION SOURCES

THE IMPORTANCE OF BEING AWARE OF YOUR SURROUNDINGS

Know the types of vegetation that grow on surrounding land. Be aware of the potential behaviour of a fire in this vegetation and the threats it can present under different conditions. Relevant information is included in **Appendix 6**. Knowledge and awareness of the local environment and immediate past and current conditions is a valuable source of information that will assist with decision making – with hot/dry/windy weather presenting the worst conditions. Lookout for smoke (i.e., evidence of fire) within your surrounding landscape, for as far as you can see. Be aware of the current and forecast wind direction as any fire will be likely to spread in the direction to which the wind is blowing.

YOUR FIRE WEATHER DISTRICT (BOM)	Swan Coastal North
SOURCE	INFORMATION
Emergency WA emergency.wa.gov.au	This is the primary and most up to date source of information (maps and lists) for: <ul style="list-style-type: none"> Current warnings and incidents. Designated bushfire evacuation centre. Fire Danger Ratings (FDR) Total Fire Bans (TFB)
Bureau of Meteorology (BOM) bom.gov.au/wa/forecasts/fire-danger-ratings.shtml	Fire Danger Ratings (FDR) and the corresponding Fire Behaviour Index (FBI).
WA Department of Fire & Emergency Services (DFES) Information Line: 13 3337 (13 DFES)  dfes_wa  dfeswa dfes.wa.gov.au/hazard-information/bushfire	Republishing of Emergency WA Warnings. General emergency information. Provides overviews of bushfire hazard educational information, including bushfire behaviour and preparation, response, recovery information, and FAQ.
Local Radio Stations ABC (AM/digital) or 6PR (882) abc.net.au/radio/stations	Current bushfire warnings, designated bushfire evacuation centre and other relevant information.
Emergency Alerts – through automated government telephone warning system	Voice messages (landline) and text messages (mobile) can be sent within a defined area under an immediate threat.
Bushfire.IO bushfire.io	Map based bushfire warnings, bushfire incidents and wind forecasts. A visual tool run privately – crosscheck with other sources.
WA Parks and Wildlife Service dpaw.wa.gov.au Website	Bushfire alerts and warnings, current prescribed burns in national parks.
Main Roads WA Phone: 13 8138 travelmap.mainroads.wa.gov.au/Home/Map	Road alerts and closures (incidents and roadworks).

5. RELOCATING PERSONS - IDENTIFIED SAFER LOCATIONS AND TRANSPORT

5.1. RELOCATION ONSITE – ASSEMBLY AND/OR SHELTER IN PLACE

DESIGNATED ON-SITE ASSEMBLY AREA	REFERENCE
Name: Carpark Location: Onsite carpark adjacent to main bar/café/restaurant/events building	Site Information Map
DESIGNATED ONSITE SHELTER BUILDING	REFERENCE
Name: Main building (bar/café/restaurant/events centre) Location: Adjacent to carpark	Site Information Map

5.2. RELOCATION OFFSITE – EVACUATION DESTINATIONS

IDENTIFICATION OF THE OFFSITE SAFER LOCATION(S) [this will correspond to use of the facility/premises and types of occupants]		
IMPORTANT: DECLARATION OF OPERATIONAL BUSHFIRE EVACUATION CENTRES		
<p>If the facility/premises has potential Bushfire Evacuation Centres available, the declaration of which centre will become the operational centre will only be made by DFES and/or WA Police and with the involvement the Local Government - once the bushfire exists.</p> <p style="text-align: center;">IN THE EVENT OF A BUSHFIRE ⇒ CHECK INFORMATION SOURCES FOR THE OPERATIONAL EVACUATION CENTRE</p> <p>If this information is not yet available or if it is identified below that a Bushfire Evacuation Centre is not required, then the applicable offsite safer locations are stated on the following page. Multiple types may be applicable.</p>		
Safer Location Type	Description	Identified as Relevant to Facility / Premises
Type 1	Designated bushfire evacuation centres. Providing a safer location, away from the existing bushfire threats. Provides a temporary habitable space with potable water, toilet facilities, communication and possibly some medical services. Overnight(s) stay is likely required before returning to facility/premises or other arrangements are made.	
Type 2	Suitable buildings/grounds but not a designated bushfire evacuation centre. Providing the facilities and level of services required by the evacuees from the facility/premises. In some instances, such as significant health care dependency, these can be high level requirements. Overnight(s) stay may be required before returning to facility/premises or other arrangements are made.	

Type 3	Established urban/residential centres. Providing a safer location, away from the existing bushfire threats, that will likely provide some access to potable water and toilet facilities but no overnight stays. The evacuees will typically have no need to return to the facility/premises. From this location, relocation decisions will be made which may include returning home (local persons) or finding alternative accommodation.	
Type 4	A safer location within the public road network to initially head towards. No facilities or services will exist at this location. The evacuees will typically have no need to return to the facility/premises. From this location options exist for returning home (local persons), returning to local accommodation or otherwise relocating.	✓
Type 5	Safer open area. Providing the necessary reduction in exposure to bushfire threats for the limited period for which the threats will exist. Services and facilities will be non-existent or minimal, dependent on what provisions are possible and have been established by the Bushfire Emergency Plan and associated Bushfire Management Plan.	
SAFER OFFSITE LOCATION NO. 1		
Destination	Name: Quinns Village Shopping Centre Address: Quinns Road, Quinns Rocks WA	
Evacuation Route	Exit the venue and turn right at the roundabout onto Quinns Road. Travel east along Quinns Road for 1.4km. The Shopping Centre is on the left just after the roundabout at Salerno Drive.	
Location En-Route at Which Higher Risk Conditions Will No Longer Exist	N/A	
SAFER OFFSITE LOCATION NO. 2		
Destination	Description: Head towards Frederick Stubbs Park via Ocean Drive (safer location within the public road network)	
Evacuation Route	Exit the venue and turn left at the roundabout onto Quinns Road. Follow Quinns Road around the corner as it turns into Ocean Drive. Follow Ocean Drive northwards for 800m until you reach Frederick Stubbs Park. Continue along the public road network from here.	
Location En-Route at Which Higher Risk Conditions Will No Longer Exist	N/A	

5.3. EVACUATION TIME & TRANSPORT – PERSONS AND VEHICLES

ESTIMATED TIME REQUIRED FOR EVACUATION - INITIATION TO COMPLETION

CONSIDERATION	ESTIMATED TIME (minutes)	
	Less Dependent / Lower Care Persons	
	Own Transport	Provided Transport*
Preparation for evacuation (occupants, visitors/customers, staff)	5	TBD
Travel to furthest designated evacuation destination	3	TBD
When travelling to the furthest designated evacuation destination, relative safety for persons in vehicles may be attained at an earlier point enroute (refer to map). When applicable, this shorter time is applied.	-	TBD
APPLIED TOTAL	8	TBD

* If provided transport is to be a part of the premises/facility operation, this table must be completed prior to operation.

PLANNED MAXIMUM PERSON NUMBERS AND VEHICLE SOURCE

Person Type	Own Vehicles	Facility Transport	Contract Transport	Details
Occupants	N/A	-	-	There are no permanent occupants within the site.
Visitors / Customers	240	-	-	It is assumed that all visitors, customers and guests will access the site in their own vehicle. This must be confirmed prior to operation.
Staff	TBD	-	-	Staff person numbers & vehicle source must be determined prior to operation.

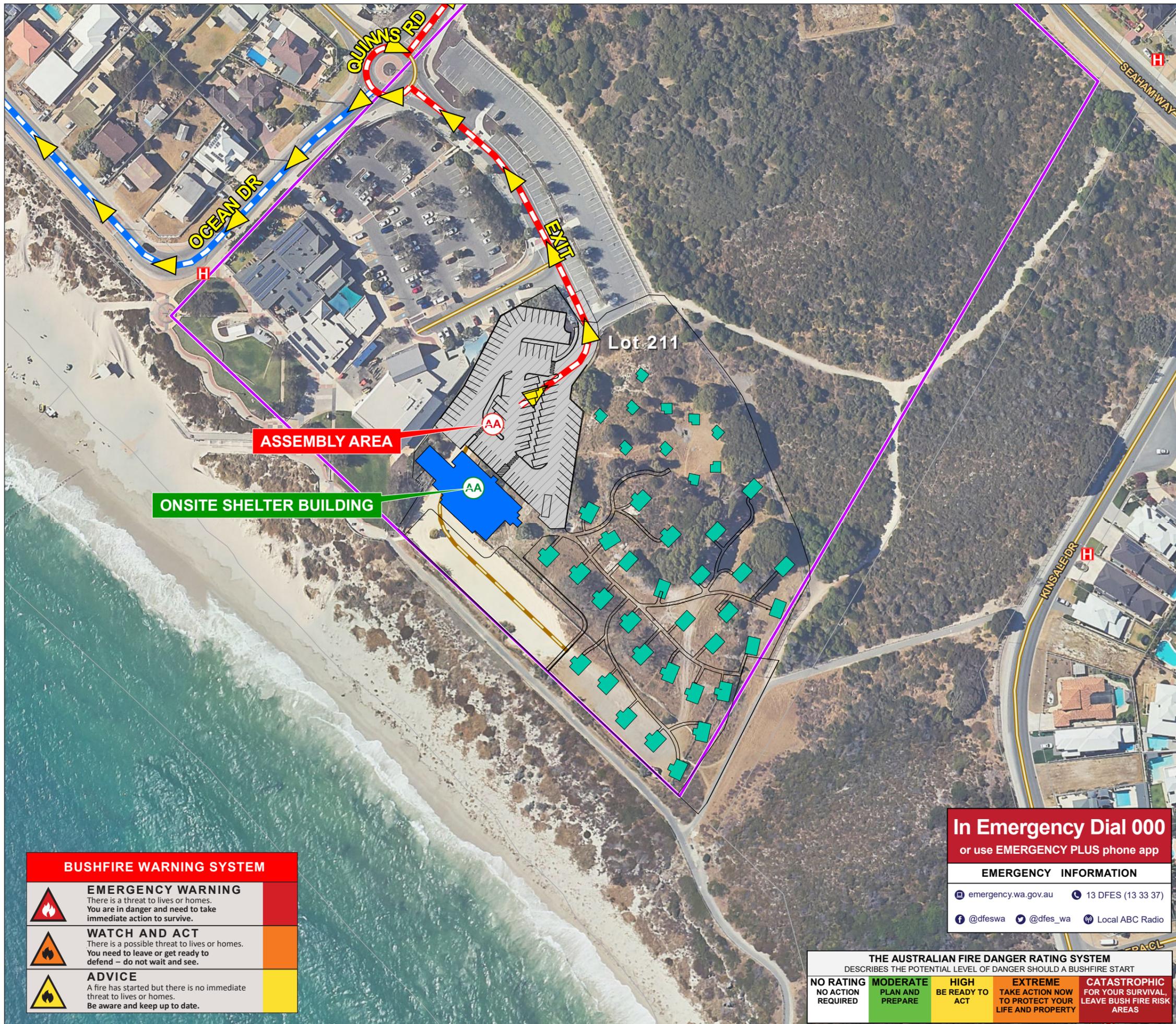
EVACUATION VEHICLE ARRANGEMENTS (OTHER THAN OWN VEHICLES)

Location / Organisation	Vehicle Type / Capacity	Number of Vehicles	Contact Details (name & phone)	Date Arranged
Facility/Premises Vehicles				
TBD prior to operation				

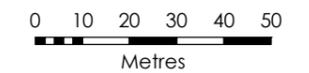
Additional Information: Vehicle arrangements to be determined prior to operation of premises.

Figure 1
Site Emergency Information

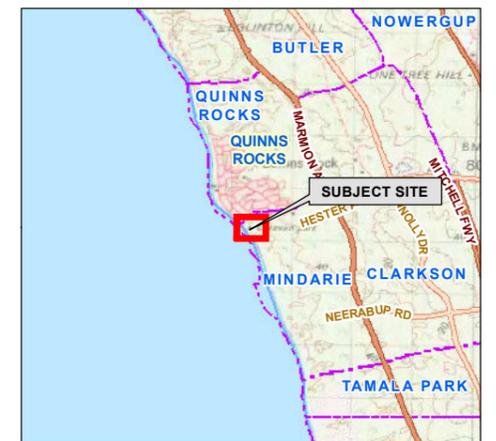
Lot 211 on Diagram 27023, Area : 11.0570 ha
 2 Quinns Road,
 MINDARIE 6030
CITY OF WANNEROO



- **LEGEND** -----
- Subject Site
 - Other Lots
 - H Hydrant
 - Proposed Building**
 - Venue
 - Accomodation
 - Paved Areas
 - AA Onsite Shelter Building
 - AA Car Park Assembly Area
 - ▶ Primary Route
 - ▶ Secondary Route



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



In Emergency Dial 000
 or use EMERGENCY PLUS phone app

EMERGENCY INFORMATION

emergency.wa.gov.au 13 DFES (13 33 37)
[@dfeswa](https://www.facebook.com/dfeswa) [@dfes_wa](https://twitter.com/dfes_wa) Local ABC Radio

THE AUSTRALIAN FIRE DANGER RATING SYSTEM

DESCRIBES THE POTENTIAL LEVEL OF DANGER SHOULD A BUSHFIRE START

NO RATING NO ACTION REQUIRED	MODERATE PLAN AND PREPARE	HIGH BE READY TO ACT	EXTREME TAKE ACTION NOW TO PROTECT YOUR LIFE AND PROPERTY	CATASTROPHIC FOR YOUR SURVIVAL, LEAVE BUSH FIRE RISK AREAS
---	--	-----------------------------------	---	--

BUSHFIRE WARNING SYSTEM

	EMERGENCY WARNING There is a threat to lives or homes. You are in danger and need to take immediate action to survive.
	WATCH AND ACT There is a possible threat to lives or homes. You need to leave or get ready to defend – do not wait and see.
	ADVICE A fire has started but there is no immediate threat to lives or homes. Be aware and keep up to date.

Aerial Imagery : Landgate/SLIP
 Image Date : Feb 2023
 Coordinate System: GDA 1994 MGA Zone 50
 Projection: Universal Transverse Mercator Units: Metre
 Map compiled by: Ian Ross 31/10/2023
 Map updated by: Ian 31/10/2023
 A3 Scale 1:1,500

Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Prone Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence arising from relying on any information depicted.
 Map Document Path / Name: K:\Projects\Jobs 2023\230008 - Lot 211 (2) Quinns Road Mindarie (BMP Evac)\Mapping\MXD\230008_BEP_Fig1_SITE_Lot211_2_Quinns Road Mindarie.mxd

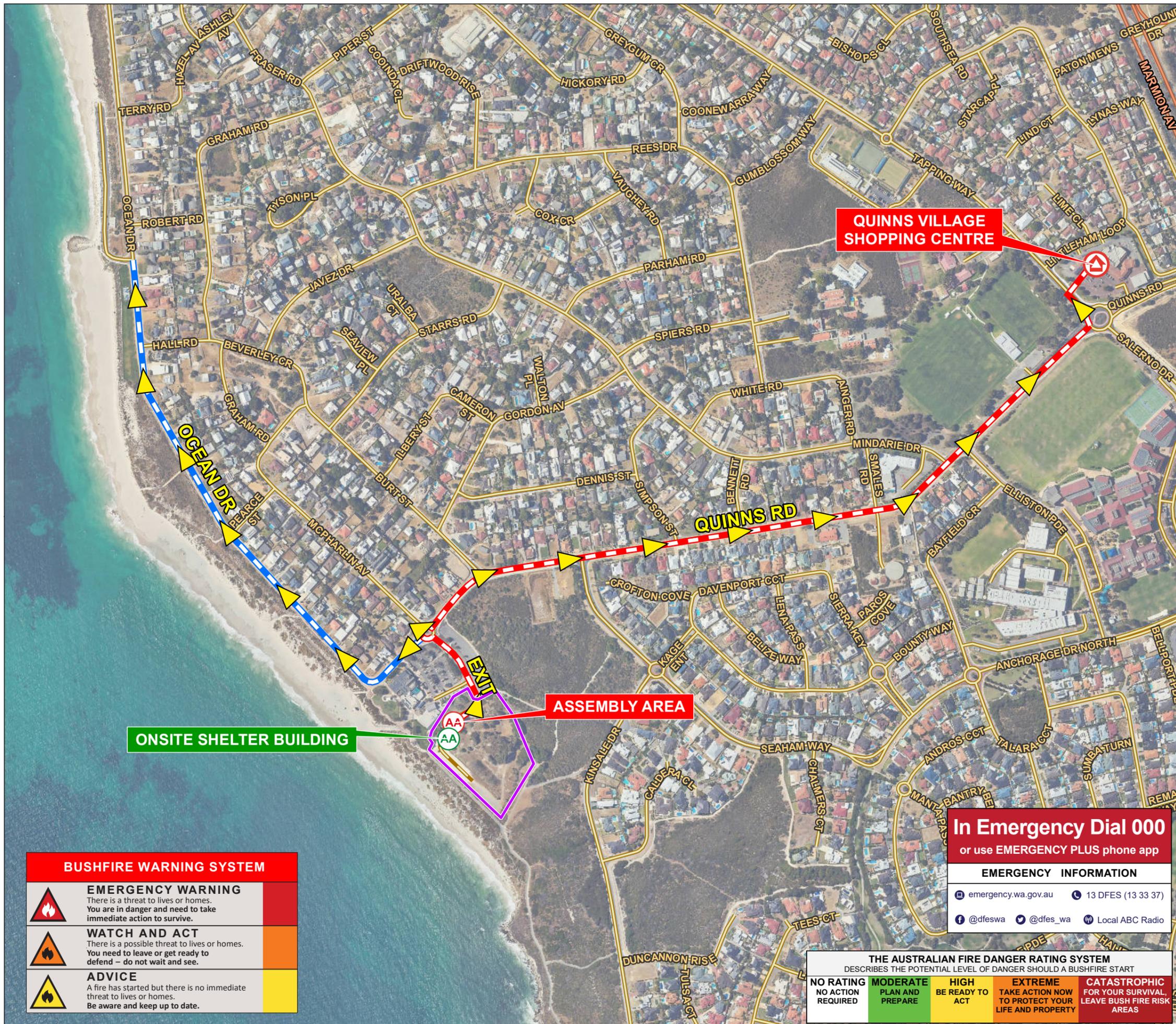


Figure 2
Evacuation Routes and Destinations Map

Lot 211 on Diagram 27023, Area : 11.0570 ha
 2 Quinns Road,
 MINDARIE 6030
CITY OF WANNEROO

- **LEGEND** -----
- Onsite Shelter Building
 - Car Park Assembly Area
 - Emergency Evacuation Location
 - Primary Route
 - Secondary Route
 - Development Area

0 50 100 150 200 250
 Metres

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



Aerial Imagery : Landgate/SLIP
 Image Date : Feb 2023

Coordinate System: GDA 1994 MGA Zone 50
 Projection: Universal Transverse Mercator Units: Metres
 Map compiled by: Ian Ross 19/09/2023
 Map updated by: Ian Ross 19/09/2023
 A3 Scale 1:5,873



QUINNS VILLAGE SHOPPING CENTRE

ASSEMBLY AREA

ONSITE SHELTER BUILDING

In Emergency Dial 000

or use EMERGENCY PLUS phone app

EMERGENCY INFORMATION

[emergency.wa.gov.au](https://www.emergency.wa.gov.au) 13 DFES (13 33 37)
 @dfeswa @dfes_wa Local ABC Radio

THE AUSTRALIAN FIRE DANGER RATING SYSTEM
 DESCRIBES THE POTENTIAL LEVEL OF DANGER SHOULD A BUSHFIRE START

NO RATING NO ACTION REQUIRED	MODERATE PLAN AND PREPARE	HIGH BE READY TO ACT	EXTREME TAKE ACTION NOW TO PROTECT YOUR LIFE AND PROPERTY	CATASTROPHIC FOR YOUR SURVIVAL, LEAVE BUSH FIRE RISK AREAS
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BUSHFIRE WARNING SYSTEM

	EMERGENCY WARNING There is a threat to lives or homes. You are in danger and need to take immediate action to survive.
	WATCH AND ACT There is a possible threat to lives or homes. You need to leave or get ready to defend – do not wait and see.
	ADVICE A fire has started but there is no immediate threat to lives or homes. Be aware and keep up to date.

Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Prone Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence arising from relying on any information depicted.
 Map Document Path / Name: K:\Projects\Jobs 2023\230008 - Lot 211 (2) Quinns Road Mindarie (BMP Evac)\Mapping\MXD\230008_BEP_Fig2_EVAC_Lot211_2_Quinns Road Mindarie.mxd

8. BUSHFIRE EMERGENCY PROCEDURES AND ACTIONS

8.1. PRE-SEASON PREPARE

PRE-SEASON PREPARE PROCEDURE – ACTIONS TO IMPLEMENT

When these actions are to be conducted by the facility/premises personnel with designated emergency responsibilities, ensure the Chief Fire Warden is informed of their completion.

1. STAFF PREPARATION – FORMAL TRAINING

Prior to the bushfire season (May to October), provide, to all staff, induction and refresher training to the degree necessary and corresponding to the scale and complexity of the facility/premises use.

Training is to consist of:

- Bushfire behaviour awareness specific to the site and its surrounds. Establish the necessity to operate and maintain an environment that mitigates the risks to persons and property from the direct threats of bushfire (flame contact, radiant heat, ember attack) and indirect threats of bushfire threats of bushfire (debris accumulation, consequential fire, wind attack and tree strike);
- Understand the content of this site specific Bushfire Emergency Plan and its application; and
- For staff assigned bushfire emergency management roles, provide the necessary training.

- All new and existing staff/employees to complete mandatory training in bushfire awareness and the application of the Bushfire Emergency Plan procedures and associated actions.
- Identify and assign the necessary bushfire emergency management roles to appropriate staff and provide training as necessary.
- Ensure enough daily rostered staff/employees hold current Senior First Aid Certification.
- Conduct simulation drills for evacuation and shelter in place procedures.

2. ANNUAL REVIEW OF THE BUSHFIRE EMERGENCY PLAN

Update and amend the Bushfire Emergency Plan as required. Assistance from a bushfire consultant is advised.

- Identify any requirements for reassignment of bushfire emergency management roles for facility/premises personnel.
- As necessary, change contact details (names, phone number) of those persons responsible for bushfire emergency management and planning at the facility/premises and any changes in roles.
- Make required changes to emergency contacts and emergency information sources. Ensure that any changes are also applied to the bushfire emergency information displayed within the facility/premises.
- Ensure the designated assembly area, shelter-in-place building/area and the off-site safer locations and nominated evacuation routes are still the best options. Incorporate any changes into the Bushfire Emergency Plan and the information displayed within the facility/premises.

- Account for any change to buildings or equipment onsite that has implications for emergency management.
- Incorporate any improvements or additions to the emergency management procedures/actions that have been identified by staff and/or emergency services resulting from relevant experience with a bushfire event or changes in best practice bushfire emergency management that are developed over time.
- In the event any part of this Bushfire Emergency Plan is amended as part of its annual review, replace old copies and destroy them.

3. DISPLAY & AVAILABILITY OF BUSHFIRE EMERGENCY INFORMATION

The required bushfire emergency information is to be displayed in prominent position/s and readily accessible to all persons.

- Ensure the following up to date bushfire emergency information is displayed (framed or laminated) within the relevant buildings (including near an assembly area and inside the designated 'shelter in place' building).
 - The Site Emergency Information Map
 - The Evacuation Routes Map
 - The Emergency Contacts
 - The Bushfire Information Sources to Monitor
 - The relevant indicative bushfire behaviour information (Appendix 6)

Additional information can be displayed when considered appropriate, examples of which are contained within the appendices and are available for download from the DFES website.

- Ensure signage for bushfire water supply, emergency assembly area and evacuation routes are in place and legible. This should be displayed in each eco-tent, and in prominent areas of the main café/bar/events building
- Have available copies of the current Bushfire Emergency Plan in locations accessible by the facility/premises persons with bushfire emergency responsibilities.

4. BUILDING / EQUIPMENT PREPARATION

These actions address the required preparation of the buildings that comprise the facility/premises, prior to and during the bushfire season to ensure:

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

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

- Check that all required window and door screening is in place. This prevents ember entry to internal spaces and reduces radiant heat load on the glass.
- If installed, ensure all installed bushfire shutters are operational.
- If there is recent construction or planned construction of attached structures (decks, stairs, patio, carport etc.) or adjacent structures (dwelling, shed, carport etc.), ensure bushfire resistant materials (including non-combustible) have been used to the greatest extent possible.
- If an evaporative air cooler is installed ensure it is either constructed to the required BAL rating or is fitted with an appropriate ember protection screen.
- Ensure all installed firefighting infrastructure and associated equipment including water storage tanks, pump, valves, pipework, fire hose reels & fire extinguishers are serviced, operating and correctly located.
- All gas cylinders to be installed and maintained in accordance with AS 1596. This standard includes requirements for small portable cylinders and larger cylinders used for domestic house supply. These include:
 - Safety release valve shall be directed away from the building and persons access/egress routes;
 - Metal piping and fittings shall be used on all piping inside the building's cavities and enclosable occupied spaces and the high pressure side of any gas regulators; and
 - Tethers securing cylinders are to be non-combustible.

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

- Remove and maintain at low levels, accumulated vegetation debris (fine fuels) near, on, in and against buildings and structures, including:
 - In construction crevices, gaps, on horizontal / shallow angle surfaces and at re-entrant corners in access ways, at wall/floor, wall/ground, roof/wall junctions and around doors, vents, windows;
 - In roof gutters and valleys; and
 - Adjoining/adjacent drains, culverts and pits.
- Around building(s), including verandahs and decks, remove or relocate away from the facility/premises those combustible items that may be seldom used or able to be stored more appropriately in the bushfire season. This includes furniture and mats. Refer to Appendix 7 'LANDSCAPING DESIGN & CONSTRUCTION PRINCIPLES TO APPLY' for further information regarding consequential fire fuels and recommended separation distances.
- Ensure all first aid equipment and supplies are stocked, current and accessible.
- Ensure mobile phones are available for facility/premises personnel with emergency management roles.
- Ensure the designated Shelter-in-Place Building is stocked with adequate supplies of drinking water.

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

5. GROUNDS PREPARATION

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

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

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

For additional guidance, refer to:

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

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

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

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

- 15 metres around the main café/bar/events building

- Asset Protection Zone Management:**

Trees (greater than 6 metres in height):

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

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

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

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

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

- Ensure combustible dead vegetation matter is reduced to and maintained at less than 2 t/ha on average. Collecting and weighing an indicative 1m² of this litter above the mineral earth will indicate the fuel load (100g/m² = 1 t/ha); and
- Remove all debris piles.

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

- Such as fallen branches, timber, firewood, packaging materials, building materials, outdoor furniture,

and garbage bins.

- To be removed from the APZ or be separated from buildings/structures in accordance with guidance in Appendix 7.

Applied mulches:

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

8.2. MONITOR AND MAINTAIN

MONITOR AND MAINTAIN PROCEDURE – ACTIONS TO IMPLEMENT

When these actions are to be conducted by the facility/premises personnel with designated emergency responsibilities, ensure the Chief Fire Warden is informed of their completion.

1. MONITOR BUSHFIRE INFORMATION SOURCES

- Be aware of your surroundings:
 - High temperatures, wind and low humidity will increase the threat levels of bushfire attack mechanisms and their potential impact.
 - Regularly scan the broader landscape in all directions, for any smoke that might indicate the ignition or existence of a bushfire.

If a potential bushfire is noticed and it is not yet been identified by emergency information sources, then report the fire by calling '000'. Refer to the 'Primary Guidance Table' for the relevant procedure to action.

- Regularly monitor the applicable 'Emergency Information Sources' for current information regarding Bushfire Warnings, Fire Danger Ratings (FDR), Fire Behaviour Index (FBI), Total Fire Bans (TFB) and Harvest Vehicle Movement Bans (HVMB). For next day forecasts, check after 4.00pm.

Be aware of the relevant 'Procedure Implementation Triggers' in the 'Primary Guidance Table' that incorporates these warnings, ratings and bans.

TFB: A TFB can automatically exist when higher Fire Danger Ratings apply, or they are declared by the Department of Fire and Emergency Services (DFES) on days when fires are most likely to threaten lives and property due to adverse weather conditions or when widespread fires are stretching firefighting resources. During a TFB it is illegal to carry out any activity in the open air likely to cause a fire. Refer to the DFES website for ban details.

HVMB: Harvest and Vehicle Movement Bans are declared by the local Bushfire Control Officer and may impose a ban on the use or operation of engines, vehicles, plant, or machinery. They are imposed to restrict activities that are likely to cause a bush fire or contribute to the spread of a bush fire when the expected weather conditions indicate that if a wildfire was to start, it would be dangerous, destructive and difficult to stop once started. They can be issued for any period during a day and in conjunction with a TFB. Refer to the DFES website for ban details.

2. MAINTAIN BUILDINGS AND FIRE FIGHTING EQUIPMENT

- During the bushfire season (November to April), refer to Action List No. 4 in the 'Pre-Season Prepare Procedure' and ensure all actions applicable to management during the bushfire season are implemented.
- Ensure the designated Shelter-in-Place Building is stocked with adequate supplies of water.
- Ensure all mobile phones and any radio communication devices are fully charged.
- Periodically test start the firefighting water pump and emergency power generator.

3. MAINTAIN ASSET PROTECTION ZONES

- During the bushfire season (November to April), refer to Action List No. 5 in the 'Pre-Season Prepare Procedure' and ensure all actions applicable to management during the bushfire season are implemented.

8.3. PRE-EMPTIVE

PRE-EMPTIVE PROCEDURE – ACTIONS TO IMPLEMENT

When these actions are to be conducted by the facility/premises personnel with designated emergency responsibilities, ensure the Chief Fire Warden is informed of their completion.

THIS PROCEDURE IS NOT REQUIRED AS A RISK MANAGEMENT MEASURE FOR THIS FACILITY/PREMISES

This has been determined through assessments conducted to support the development of this bushfire emergency plan.

8.4. ELEVATED THREAT

ELEVATED THREAT PROCEDURE – ACTIONS TO IMPLEMENT

When these actions are to be conducted by the facility/premises personnel with designated emergency responsibilities, ensure the Chief Fire Warden is informed of their completion.

BE PREPARED TO MAKE AND CHANGE DECISIONS AS NECESSARY

As a person onsite, you are likely to not always have access to expert guidance during different stages of a bushfire event, if at all. Consequently, you must be prepared to take responsibility and make decisions regarding the actions to take, as best as possible.

A bushfire is a dynamic emergency with many variables. However, you have knowledge of the immediate situation regarding local conditions, how the bushfire is impacting the site and the status of persons onsite. This is important information to apply to 'on the ground' practical decision making.

When a bushfire is close to the facility/premises and/or evacuation routes, exercise greater situational awareness, judgement and caution as the margin of safety is less.

Utilise the information provided in this BEP to assist with your decision making, including **Appendix 6 'Indicative Bushfire Behaviour To Impact the Facility/Premises'**. Prior to the bushfire season, training in the use of this BEP is important preparation for an emergency event.

1. CONTINUALLY RE-EVALUATE THE SITUATION TO ENSURE APPROPRIATE PROCEDURE IS IMPLEMENTED

EVALUATION	RESPONSE	
Evaluation No.1: It remains unknown if a bushfire warning has been issued.	YES	Conduct Evaluation No. 2
	NO	A warning is issued. Refer to the Primary Guidance Table and identify if the trigger to implement a different procedure applies and proceed to implement that procedure.
Evaluation No.2: Is the bushfire relatively close, continuing to develop and you are concerned for the immediate safety of persons onsite?	YES	Refer to the Primary Guidance Table and identify the emergency procedure corresponding to Implementation Trigger A and implement this procedure.
	NO	Continue the Elevated Threat Procedure.

2. INFORM PERSONS ON-SITE

- Inform all persons that a bushfire warning exists for the location (or a bushfire has been identified) and the requirement to initiate the Elevated Threat Procedure. Advise that you will continue to keep persons informed about the situation including if it becomes necessary to activate a different procedure or when the bushfire threat no longer exists.
- Make all persons aware of the location of the displayed bushfire emergency information. This may be displayed in prominent areas of the facility/premises and in a 'Guest Bushfire Emergency Guide'. Encourage to read and take any necessary preparatory actions. These include:
 - Having belongings ready to move at short notice.
 - Know the designated evacuation destinations and shelter in place building or area.
- Advise those persons that may be more vulnerable due to health conditions or impaired mobility, to consider relocating as soon as possible to accommodation outside the higher risk area as a precautionary measure.

3. MONITOR THE BUSHFIRE

- Try to locate the position of the bushfire on the Evacuation Routes Map (Section 7):
 - Be aware of the local wind and the direction it is blowing to, as this will indicate the direction the flame front is likely to be moving. If an internet connection is available, utilise the maps on the Emergency WA and Bushfire IO websites to locate (refer to Section 4: Emergency Information Sources). A bushfire moving directly away from the facility/premises, or an evacuation route presents a lower threat;
 - Identify if the fire is moving towards a designated evacuation route and its proximity to the route. This information will be important in making the correct choice of evacuation route should this become necessary.
 - Be aware there may be more than one bushfire.

4. MONITOR BUSHFIRE INFORMATION SOURCES

- Continue to monitor relevant information sources for updated information. If a Bushfire Warning is issued or the existing Bushfire Warning is changed to a higher level, this may trigger the implementation of a different bushfire emergency procedure – refer to the 'Primary Guidance Table'.
- Check the relevant information sources to determine if a Total Fire Ban (TFB) and/or a Harvest Vehicle Movement Ban (HVMB) has been issued. These will restrict the activities that can be conducted or continued onsite (refer to Action List No. 5 below).

5. PRECAUTIONARY EVACUATION

- Commence an early precautionary evacuation by applying the 'Safe (Early) Evacuation Procedure' in the following situations:
 - No bushfire warning has been issued and no emergency services are present, but the occupants of the premises are concerned about their safety, and it is considered a practical and desirable action for this premises; or
 - When an emergency services authority has ordered an evacuation.

6. SITE OPERATIONS

- If a Total Fire Ban (TFB) and/or a Harvest Vehicle Movement Ban (HVMB) has been declared, comply with the relevant operation and activity bans. Refer to the DFES website for additional ban details.

TFB: A TFB can automatically exist when higher Fire Danger Ratings apply, or they are declared by the Department of Fire and Emergency Services (DFES) on days when fires are most likely to threaten lives and property due to adverse weather conditions or when widespread fires are stretching firefighting resources. During a TFB it is illegal to carry out any activity in the open air likely to cause a fire.

HVMB: Harvest and Vehicle Movement Bans are declared by the local Bushfire Control Officer and may impose a ban on the use or operation of engines, vehicles, plant, or machinery. They are imposed to restrict activities that are likely to cause a bush fire or contribute to the spread of a bush fire when the expected weather conditions indicate that if a wildfire was to start, it would be dangerous, destructive and difficult to stop once started. They can be issued for any period during a day and in conjunction with a TFB.

- Ensure that non-essential staff, visitors and contractors are kept away from the site.

7. FACILITY/PREMISES PREPAREDNESS

- If practicable, and not recently been conducted as part of the 'Monitor and Maintain Procedure', remove from the APZ:

- Accumulated vegetation debris from the land surface within the APZ, including any stored piles of debris.
 - Accumulated vegetation debris from on, in and against buildings/structures.
-
- Move heavy consequential fire fuels such building materials, packaging materials, firewood, branches, sporting/playground equipment, outdoor furniture, garbage bins and mats at least 6 metres away from buildings/structures and access/egress paths, unless they are enclosed.

 - Move large heavy consequential fire fuels such as boats, caravans, cars, trailers etc at least 12 metres away from buildings/structures and access/egress paths, unless they are enclosed.

8.5. SAFE (EARLY) EVACUATION

SAFE (EARLY) EVACUATION PROCEDURE – ACTIONS TO IMPLEMENT

When these actions are to be conducted by the facility/premises personnel with designated emergency responsibilities, ensure the Chief Fire Warden is informed of their completion.

DO NOT EVACUATE LATE

Analysis of past events identify that most people who die in bushfires are caught in the open, either in vehicles or on foot, because they have left their property too late.

Being in vehicles on roads when a bushfire is close is a high risk action. For evacuation to be the safest response, it must be conducted early.

Otherwise, sheltering-in-place is likely to provide greater protection to persons than a vehicle, particularly when a suitable onsite shelter building or area has been identified in the Bushfire Emergency Plan.

1. CONTINUALLY RE-EVALUATE THE SITUATION TO ENSURE APPROPRIATE PROCEDURE IS IMPLEMENTED

EVALUATION	RESPONSE	
Evaluation No.1: Is the controlling agency of the emergency services in contact with you or are emergency services personnel in attendance at your facility/premises?	YES	Conduct Evaluation No.2.
	NO	Conduct Evaluation No.3.
Evaluation No.2: Have the attending emergency services specifically instructed you to either evacuate or shelter in place?	YES	Implement the Procedure they have instructed.
	NO	Conduct Evaluation No.3.
Evaluation No.3: Does a safe evacuation route remain available to use? The route must not be impacted or likely to be imminently impacted by the bushfire, including by smoke. This condition can be met if: <ul style="list-style-type: none"> Any effects of the bushfire will be a sufficient distance away from the evacuation route; or The route will require driving directly away from the existing bushfire; or The bushfire is moving away from the evacuation route. 	YES	Commence the Safe (Early) Evacuation Procedure. Be aware the procedure may have to be stopped for some persons if the continued availability of a safe evacuation route is threatened.
	NO	Commence the Shelter In Place Procedure

2. TRANSPORT - ORGANISE PREMISES TRANSPORT

- Arrange for the premises onsite vehicles planned to be utilised in evacuation (the use of onsite vehicles is to be determined prior to operation), to be moved near assembly area. Keep all driveways clear for emergency vehicles.

3. INSTRUCT ALL (OR RELEVANT) PERSONS ON-SITE TO MOVE TO THE DESIGNATED ASSEMBLY AREA

- Inform all persons onsite of the conditions (FDR, Bushfire Warning etc.) that exist and have triggered the requirement to initiate the Safe (Early) Evacuation Procedure.

- Instruct all persons onsite to move to the Designated Assembly Area (except those with specific bushfire responsibilities). Communicate instructions loud and clearly. Inform that briefing will take place once assembled.
- Instruct all persons onsite to mobilise to the Assembly Area on foot. Keep all driveways clear for emergency vehicles.
- Account for all persons onsite. Do not assume any building on site is empty – check!

4. AT ASSEMBLY AREA - INSTRUCTIONS

- Inform persons at the Assembly Area of the possible evacuation routes and that the decision regarding which route/s to use will be made shortly after conducting a current situation check including an assessment of evacuation route continuing availability.

5. CEASE FACILITY/PREMISES OPERATIONS

- Cease all indoor and outdoor activities. This may include ending an event, closing café/bar/restaurant food and drinks services.
- Ensure any flammable materials are stored in the dangerous goods store or a designated storage area.
- If time permits - check perimeter of all buildings and store inside all combustible, easy to move outdoor mats and furniture otherwise move them well away from buildings.

6. CURRENT SITUATION CHECK

BE PREPARED TO MAKE AND CHANGE DECISIONS AS NECESSARY

As a person onsite, you are likely to not always have access to expert guidance during different stages of a bushfire event, if at all. Consequently, you must be prepared to take responsibility and make decisions regarding the actions to take, as best as possible.

A bushfire is a dynamic emergency with many variables. However, you have knowledge of the immediate situation regarding local conditions, how the bushfire is impacting the site and the status of persons onsite. This is important information to apply to 'on the ground' practical decision making.

When a bushfire is close to the facility/premises and/or evacuation routes, exercise greater situational awareness, judgement and caution as the margin of safety is less.

Utilise the information provided in this BEP to assist with your decision making, including **Appendix 6 'Indicative Bushfire Behaviour To Impact the Facility/Premises'**. Prior to the bushfire season, training in the use of this BEP is important preparation for an emergency event.

- Try to locate the position of the bushfire on the Evacuation Routes Map (Section 7):
 - Be aware of the local wind and the direction it is blowing to, as this will indicate the direction the flame front is likely to be moving. If an internet connection is available, utilise the maps on the Emergency WA and Bushfire IO websites to locate (refer to Section 4: Emergency Information Sources). A bushfire moving directly away from the facility/premises, or an evacuation route presents a lower threat;
 - Identify If the fire is moving towards a designated evacuation route and its proximity to the route. This information will be important in making the correct choice of evacuation route should this become necessary.
 - Be aware there may be more than one bushfire.

- Confirm the current Bushfire Warning level and its advice, through the relevant bushfire emergency information sources (refer to Section 4).
- Consider variations in the facility/premises operational routines that can impact the length of time to initiate and complete the evacuation procedure – including informing and preparing occupants. Refer to Section 5.3 'Evacuation Time and Transport – Persons and Vehicles'.
- Consider that you may not have enough time to initiate and fully complete the evacuation procedure, depending on the bushfire's direction and speed of movement and its location relative to the facility/premises and the evacuation routes.

Evacuating a proportion of occupants with the remainder sheltering in place may be a necessary outcome. The decision to evacuate and continuing to evacuate must be continually evaluated.
- Re-evaluate the correct response procedure to be applying by using Action No. 1 in this list. In particular, Evaluation No.3 - Does a safe evacuation route remain available to use?
- Follow the specific direction/advice of emergency services personnel if they are present on the site and providing directions.

7. LEAVING THE PREMISES CHECKS

- Notify emergency services by calling triple zero (000) that the decision has been taken to evacuate the facility/premises. State the intended destination, numbers of persons and the means of transport.
- Shut down all air conditioning and any mechanical ventilation.
- If gas is plumbed into the building, turn off at the meter or bottles.
- Ensure all doors and windows of all buildings are closed but left unlocked. Close fire shutters where installed.
- Start and leave running the emergency power generator.
- Leave on adequate lighting including points of entry lighting.

8. AT THE EVACUATION DESTINATION (f this has been designated by the relevant authority)

- Account for all persons.
- Call triple zero (dial 000) to notify emergency services of arrival at the evacuation destination and the status of all persons.

8.6. SHELTER IN PLACE

SHELTER IN PLACE PROCEDURE – ACTIONS TO IMPLEMENT	
<i>When these actions are to be conducted by the facility/premises personnel with designated emergency responsibilities, ensure the Chief Fire Warden is informed of their completion.</i>	
DESIGNATED ONSITE SHELTER BUILDING	LOCATION
Main building (bar/café/restaurant/events centre)	Adjacent to carpark (shown on the Site Emergency Information Map, page 11)

1. CONTINUALLY RE-EVALUATE THE SITUATION TO ENSURE APPROPRIATE PROCEDURE IS IMPLEMENTED

EVALUATION	RESPONSE	
Evaluation No.1: Is the controlling agency of the emergency services in contact with you or are emergency services personnel in attendance at your facility/premises?	YES	Conduct Evaluation No. 2
	NO	Continue the Sheltering-in-Place Procedure.
Evaluation No.2: Have the relevant emergency services specifically instructed you to evacuate despite being made aware that Shelter-in-Place is the designated procedure to implement according to the Implementation Trigger in this Bushfire Emergency Plan?	YES	Commence the Safe (Early) Evacuation Procedure.
	NO	Continue the Shelter-in-Place Procedure.

2. INSTRUCT ALL PERSONS ON-SITE TO MOVE TO THE DESIGNATED ASSEMBLY AREA

- Inform all persons onsite of the conditions that have triggered the requirement to initiate the Shelter in Place Procedure.
- Instruct all persons onsite to move to the Designated Assembly Area (except those with specific bushfire responsibilities). Communicate instructions loud and clearly. Inform that briefing will take place once assembled.
- Assemble on foot - do not bring vehicles or luggage. Only bring mobile phone, other communication devices, required medicines, health/mobility aids and water.
- Account for all persons onsite. Do not assume any building on site is empty – check!

3. CEASE FACILITY/PREMISES OPERATIONS

- Cease all indoor and outdoor activities. This may include ending an event, closing café/bar/restaurant food and drinks services.
- Ensure any flammable materials are stored in the dangerous goods store or the designated storage area.
- If time permits - check perimeter of all buildings and store inside all combustible, easy to move outdoor mats and furniture otherwise move them well away from buildings.

4. NOTIFY EMERGENCY SERVICES

- Notify emergency services by calling triple zero (000), that the decision has been taken to shelter in the designated Shelter-in-Place Building.
- Describe the designated Shelter-in-Place Building and state its location (street address and site position as relevant).
- State the number of persons sheltering and if any special needs persons.
- Describe current bushfire observations – distance / direction / flames / embers / smoke / spot fires.
- Notify emergency services by calling triple zero (000) if the situation changes regarding conditions being experienced, number of persons sheltering and when the bushfire is no longer presenting a threat.

5. MANAGEMENT OF PERSONS

- Direct persons with health issues or mobility impairments, to enter the designated shelter-in-place building.
Inform others that while conditions remain tenable it will likely be more comfortable to assemble in the area near to the building entry but remain outside.
- When conditions outside the designated shelter-in-place building are no longer tenable, all persons must move inside.
- Shelter in areas furthest from the fire front but ensure some visibility to what is happening outside is available, that two ways of accessing the outside is available if conditions inside become untenable and if possible, a water supply is available (e.g. laundry).
- Drink water to avoid becoming dehydrated.
- Shelter within the building for as long as possible.

6. MANAGEMENT OF THE DESIGNATED SHELTER IN PLACE BUILDING

- If gas is plumbed into the building, turn off at the meter or bottles.
- Move furniture/combustible materials as far away from windows as possible. Fill any available containers, (e.g. sinks, baths, bins) with water. Wet materials (e.g. towels, sheets, woollen blankets) and place alongside doors/windows to block any gaps.
- If an evaporative cooler is installed, keep the water running and turn off the fan if possible
- If possible, ensure there is access (e.g. ladder) through manhole to monitor the roof space for spot fires.
- While conditions outside are not subject to excessive radiant heat, embers or smoke (i.e. tenable), keep accessible doors and windows open as necessary to manage internal conditions.

Close all doors, windows, vents, blinds, curtains and bushfire shutters (if fitted) once all persons are required to be within the designated shelter-in-place building.
- While conditions outside are still tenable, two persons, if wearing appropriate protection from bushfire, are to make regular exterior inspection for embers and ignition of small local fires and extinguish where possible.

7. MONITOR

- Continue to monitor the progress of the bushfire through windows. Be aware of what is happening to assist with decision making and informing emergency services.
- Monitor the relevant Emergency Information Sources for updated information.
- Monitor the health condition of any 'at risk' persons.

8. AFTER PASSAGE OF THE FIRE FRONT

- Be aware of any embers or fires starting in materials against or close to the building. Designated onsite responsible persons to use available water supplies to douse the embers/fires if necessary.
- If necessary, cautiously begin to open windows to maintain tenable conditions inside.
- If necessary, move to an area that has already burnt if the building catches fire and conditions inside become untenable.

8.7. RECOVERY

RECOVERY PROCEDURE – ACTIONS TO IMPLEMENT

When these actions are to be conducted by the facility/premises personnel with designated emergency responsibilities, ensure the Chief Fire Warden is informed of their completion.

1. FOR PERSONS SHELTERING ONSITE AND THE BUSHFIRE IS CONTROLLED OR THE FRONT HAS PASSED

- Always follow the directions of emergency services personnel.
- If you have been sheltering in a building and if necessary, cautiously begin to open windows to maintain tenable conditions inside.
- If the shelter building catches fire and conditions inside become untenable, move to an area that has already burnt.
- If persons are in discomfort, consider evacuation if a route is available. Seek medical assistance for those requiring it e.g. smoke inhalation.
- Monitor building/s and surrounds for any ignition of combustible material. Be prepared to initiate the Evacuation Procedure if necessary and an evacuation route is available.
- Be aware of any embers or fires starting in materials close to the building. Use available water supplies to douse the embers/fires if necessary.

2. FOR PERSONS EVACUATED TO A SAFER OFFSITE DESTINATION

- Always follow the directions of emergency services personnel.
- Seek medical assistance for those requiring it.
- No person is to re-enter any evacuated building or site until advised by the relevant emergency service that it is safe.
- The premises management is to arrange inspection of the site to ensure a safe environment before return of any persons.
- The premises Fire Warden (fire emergency manager) is to arrange the movement of occupants back to the premises and/or their respective accommodation.
- Inform emergency services (Dial 000) of the status of persons returning to the premises.

APPENDIX 1: BUSHFIRE WARNINGS – WHEN A BUSHFIRE IS IDENTIFIED



EMERGENCY WARNING

An out of control fire is approaching fast and you need to take immediate action to survive. If you haven't prepared your home it is too late.

You must seek shelter or leave now if it is safe to do so.



WATCH AND ACT

A fire is approaching and there is a possible threat to lives or homes. Put your plan into action. If your plan is to leave, make sure you leave early. If your plan is to stay, check all your equipment is ready.

Only stay and defend if you are mentally and physically prepared.



ADVICE

A fire has started but there is no immediate danger. Stay alert and watch for signs of a fire.

Be aware and keep up to date.

Where can I get information during an emergency?

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

@dfeswa @dfes_wa Local ABC Radio



APPENDIX 2: FIRE DANGER RATINGS - FORECAST BUSHFIRE RISK

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



<p>Moderate: Plan and prepare. Most fires can be controlled. Stay up to date and be alert for fires in your area.</p>	
<p>High: Be ready to act. Fires can be dangerous. Decide what you will do if a fire starts. Leave bushfire risk areas if necessary.</p>	
<p>Extreme: Take action now to protect your life and property. Fires will spread quickly and be extremely dangerous. Put your bushfire plan into action. If you and your property are not prepared to the highest level, plan to leave early.</p>	
<p>Catastrophic: For your survival, leave bushfire risk areas. These are the most dangerous conditions for a fire. If a fire starts and takes hold, lives are likely to be lost. Homes cannot withstand fires in these conditions.</p>	



When there is minimal risk, Fire Danger Ratings will be set to 'No Rating'. On these days you still need to remain alert and abide by local seasonal laws and regulations.



Monitor conditions and [emergency.wa.gov.au](https://www.emergency.wa.gov.au) for ratings and bushfire warnings. If a fire starts near you, take action immediately to protect your life. Do not wait for a warning.



Your life may depend on the decisions you make, even before there is a fire. Create or review your bushfire plan at mybushfireplan.wa.gov.au



This publication is intended to be a guide only. While every effort is made to ensure accuracy at the time of publication, DFES makes no representation about the content or suitability of the information provided. DFES expressly disclaims liability for any act or omission done or not done in the reliance on the information and for any consequences whether direct or indirect, arising from such act or omission.

JUNE 2022/V1.0



APPENDIX 3: FIRE BEHAVIOUR INDEX - FORECAST BUSHFIRE RISK



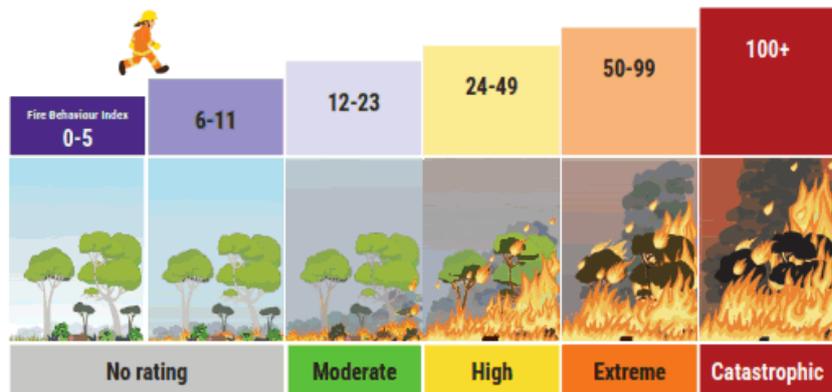
While the AFDRS Fire Danger Ratings are primarily intended for community messaging, the Fire Behaviour Index is intended to support operational fire management decision making.

Features of the FBI:

A Fine Scale of Fire Behaviour	The FBI is expressed in whole numbers from 0 to 100+. As the FBI rises, the more dangerous a fire that starts will become.	Takes advantage of decades of improved understanding of fire behaviour, fuels and fire weather.
Stepped Categories	Links transitions in fire behaviour to implications for operational decision making.	Turns the FBI into a powerful operational tool and takes advantage of improved understanding of relationship between fire behaviour, fire spread, suppression and impacts.
Fuel Type Specific	Eight different Fire Behaviour Indexes based on eight different fire behaviour models.	Takes advantage of decades of improved knowledge of fire behaviour in different fuels to produce more specific results.
Nationally Consistent	The index is the same anywhere in Australia.	Supports cross border operations and resource sharing.

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

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



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

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APPENDIX 4: BUSHFIRE RISKS AND DANGERS



BUSHFIRE RISKS AND DANGERS



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



EMBER ATTACK

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

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

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

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

If not extinguished, your house could catch fire.

RADIANT HEAT

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

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

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

SMOKE

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

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

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

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



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

The information contained in this material is provided voluntarily as a public service by the Department of Fire and Emergency Services (DFES). This material has been prepared in good faith and is derived from sources believed to be reliable and accurate at the time of publication. Nevertheless, the reliability and accuracy of the information cannot be guaranteed and DFES expressly disclaims liability for any act or omission done or not done in the reliance on the information and for any consequences whether direct or indirect, arising from such act or omission. This publication is intended to be a guide only and viewers should obtain their own independent advice and make their own necessary inquiries.



APPENDIX 5: GUIDELINES FOR TRAVELLING IN CARS DURING A BUSHFIRE



TRAVELLING DURING A BUSHFIRE



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



IF THERE IS A LOT OF SMOKE

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

IF YOU BECOME TRAPPED BY A FIRE

- Sheltering inside a vehicle is a very high risk strategy. It is unlikely that a person will survive in all but the mildest circumstances.**
- Park the vehicle off the roadway where there is little vegetation, with the vehicle facing towards the oncoming fire front.
- Turn the engine off.
- Close the car doors, windows and outside vents, **and call 000.**
- Stay in the car until the fire front has passed. Stay as close to the floor as possible and cover your mouth with a damp cloth to avoid inhalation of smoke.
- Stay covered in woollen blankets, continue to drink water and wait for assistance.
- Once the front has passed and the temperature has dropped, cautiously exit the vehicle.

IMPORTANT INFORMATION

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

For more information visit dfes.wa.gov.au/bushfire

or contact DFES Community Preparedness: Community.Preparedness@dfes.wa.gov.au or **9395 9816**



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

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

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

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

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

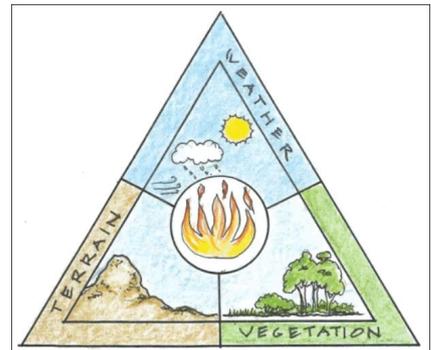
The Fire Behaviour Triangle

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

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

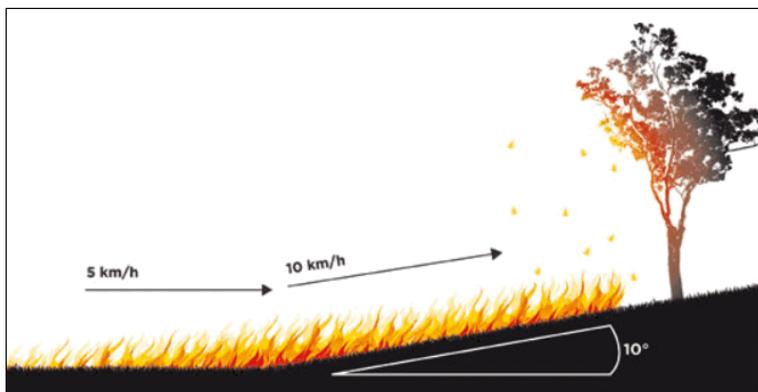
The influence of fire weather (FDR) and vegetation types (as per AFDRS) on the potential bushfire impact to the subject facility/premises, can be derived from the tables presented on the following page(s). Greater fuel loads will result in behaviours at the higher end of stated values.

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



The Influence of Terrain (topography)

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



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

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

(source: Country Fire Authority, Victoria).

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

VEGETATION TYPES IDENTIFIED SURROUNDING THE SUBJECT FACILITY/PREMISES		
As Applied in the AFDRS		Vegetation Location Relative to the Facility/Premises
Fire Behaviour Model (short name)	Fuel Types / Description	
Shrubland	Temperate shrublands and heathlands of varying heights. Includes wet heathlands.	Coastal Shrubland and Scrub are the dominant vegetation type surrounding the site and in the broader area. Vegetation is on gently undulating coastal dunes, typically in the range of 0-5° downslope.

SHRUBLAND

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

Source: AFDRS v.2022_6



FDR	INDICATIVE BUSHFIRE BEHAVIOUR				
NO RATING	<p>MAX FLAME HEIGHT <0.5 m</p>	<p>0-5</p>	<p>RATE OF SPREAD 0-20 m/hr</p>	<p>Flame dimensions are generally insufficient to breach sparse and discontinuous fuels or inter-hummock gaps.</p>	<p>SPOTTING POTENTIAL</p> <p>Potential for any spotting is extremely limited</p>
	<p><0.5-1.5 m</p>	<p>6-11</p>	<p>20-150 m/hr</p>	<p>Sustained spread of fire.</p>	<p>Potential for spotting is limited</p>
MODERATE	<p>1-4 m</p>	<p>12-23</p>	<p>150-1300 m/hr</p>	<p>Fast moving, wind-driven fires that are mostly actively crowning.</p>	<p>Potential for spotting is limited except where eucalypt/mallee trees are present where spotting is likely to be minimal and limited</p>
HIGH	<p>2-8 m</p>	<p>24-49</p>	<p>up to 6.5 km/hr</p>	<p>Fast moving, wind-driven, crown fires with high potential for large fire areas. Mostly complete combustion of fuels and few unburnt patches.</p>	<p>Possible short distance spotting mostly <20 m or where eucalypt/mallee trees are present where spotting is likely to be minimal and limited to short distances (<100 m). Any spot fires are typically overrun by the main head fire</p>
EXTREME	<p>>4m and likely >8m</p>	<p>50+</p>	<p>>1.5 and likely >6.5 km/hr</p>	<p>Rapid fire growth, extremely fast moving, wind-driven fires. High potential for large fire areas with complete combustion of fuels and few unburnt patches.</p>	<p>Possible short distance spotting mostly <40 m except where eucalypt/mallee trees are present where spotting may be up to 200 m with spot fires typically quickly overrun by the main head fire</p>
CATASTROPHIC					

APPENDIX 7: LANDSCAPING DESIGN & CONSTRUCTION PRINCIPLES TO APPLY

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

For additional guidance, refer to:

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

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

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

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

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

Landscaping – Tree and Plant Species Selection

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

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

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

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

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

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

- Should not be located under trees or within 3 metres of buildings;
- Should not be planted in clumps greater than 5m² in area;

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

Ground covers (less than 0.5 metres in height):

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

Grass: Where possible utilise irrigated perennial species.

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

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

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

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

These consequential fire fuels include:

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

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

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

- At least six times the height when the facility/premises construction incorporates design and materials that is only intended to resist low levels of radiant heat up to 12.5 kW/m² and no flame contact (BAL-12.5);
- Between 4 and 6 six times the height when the facility/premises construction incorporates design and materials intended to resist radiant heat up to 29 kW/m² and no flame contact (BAL-29).
- Between 2 and 4 times the height when the facility/premises construction incorporates design and materials intended to resist up to 40kW/m² and potential flame contact (BAL-40).
- Less than 2 times the height when the facility/premises construction incorporates design and materials intended to resist extreme levels of radiant heat and flame contact (BAL-FZ).

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

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

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

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

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

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

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

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

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