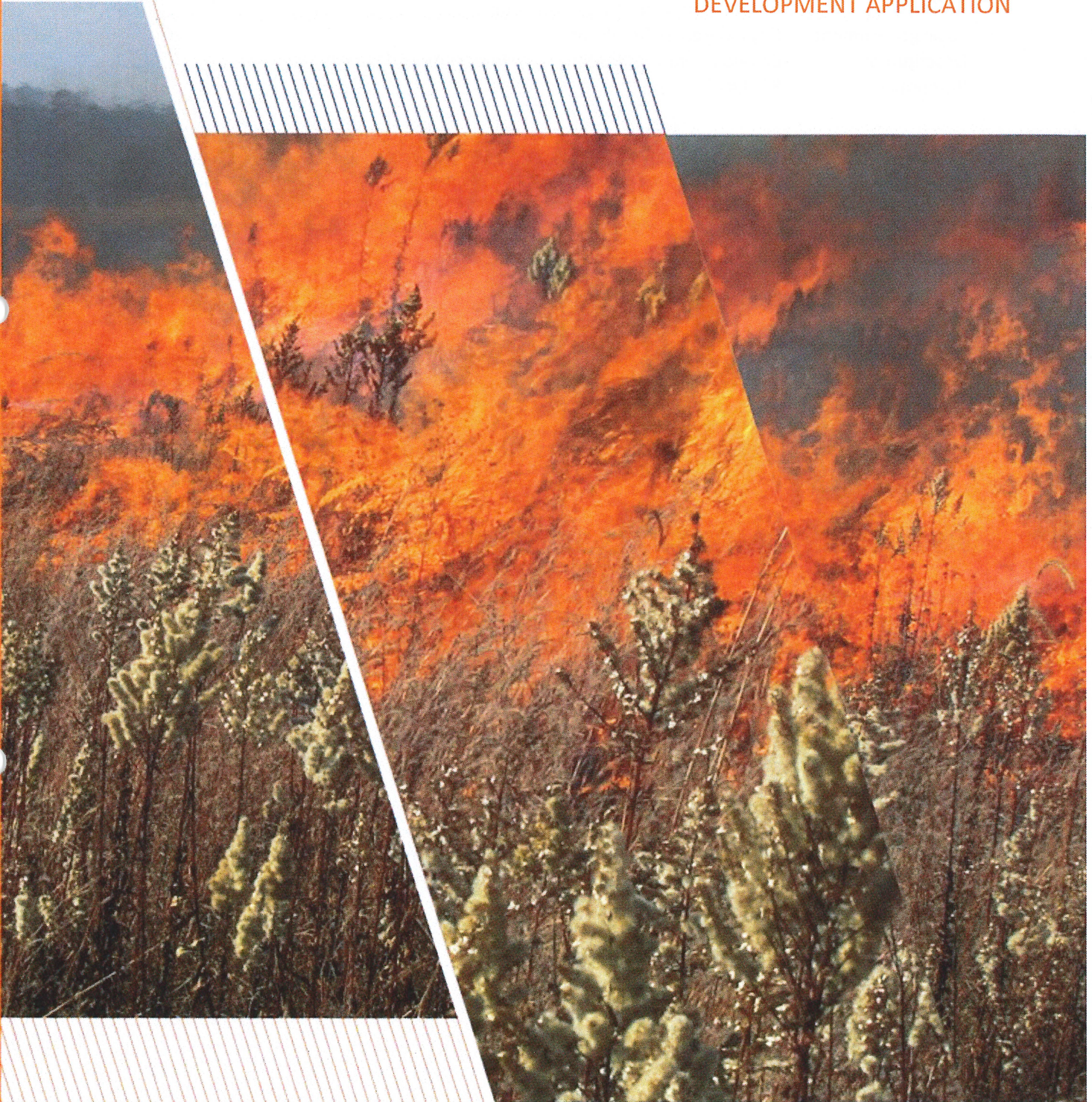


# BUSHFIRE MANAGEMENT PLAN

413 RED EMPEROR DRIVE, GREENOUGH  
DEVELOPMENT APPLICATION



'Ecostays'  
Low Impact Rural Tourism

Date: November 2019  
Version: 2  
Reference: REDE413



**PLANNING**  
& LOGISTICS





## REPORT REFERENCES

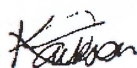
### DETAILS

Address: 413 Red Emperor Drive, Greenough  
Local government: City of Greater Geraldton  
Description: Development Application – Low Impact Rural Tourism  
Reference: REDE413

### PRACTITIONER DETAILS

Kathryn Jackson  
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*I hereby certify that I have undertaken the assessment of the site and determined the Bushfire Attack Level stated in accordance with the requirements of A 3959-2018 (Incorporating Amendments 1, 2 & 3)*

Signed: 

### Document Control

Report Version	Purpose	Author / Reviewer	Date Submitted
1.0	Initial document	Kathryn Jackson	July 2019
2.0	Element 3 revisions per DFES	Kathryn Jackson	18 November 2019

## DISCLAIMER/LIMITATIONS STATEMENT

This Bushfire Management Plan outlines what are considered the minimum standards to be applied, and do not guarantee against damage or loss to property in a bushfire. It is recognised that bushfires are unpredictable and can be influenced by many factors such as, but not limited to, temperature, wind speed, wind direction, humidity, the slope of the land, vegetation fuel load, growth, planting or removal, level of implementation and maintenance of fire prevention measures and the construction of additional structures upon the property.

The recommendations, forecasts and projections supplied in this management plan are made in good faith from the information available to WA Planning & Logistics at the time.

As permitted by the law and to its greatest extent, WA Planning & Logistics Pty Ltd and its associated employees excludes all liability whatsoever for: Damage, loss, injury, death or claim to any property and/or person caused by a fire regardless of how that fire was caused and Errors and/or omissions in this management plan with the client expressly acknowledging that such exclusion of liability is reasonable in all circumstances.

I hereby certify that I have undertaken the assessment of the site and determined the Bushfire Attack Level stated in accordance with the requirements of AS3959-2018.



Kathryn Jackson



## CONTENTS

<b>1. PROPOSAL DETAILS .....</b>	<b>4</b>
<b>2 ENVIRONMENTAL CONSIDERATIONS .....</b>	<b>7</b>
2.1 NATIVE VEGETATION – MODIFICATION AND CLEARING.....	7
2.2 RE-VEGETATION/LANDSCAPE PLANS .....	7
<b>3. BUSHFIRE ASSESSMENT RESULTS .....</b>	<b>8</b>
3.1 ASSESSMENT INPUTS .....	8
3.2 ASSESSMENT OUTPUTS.....	10
<b>4. IDENTIFICATION OF BUSHFIRE HAZARD ISSUES .....</b>	<b>15</b>
<b>5. BUSHFIRE PROTECTION CRITERIA.....</b>	<b>16</b>
6.1 COMPLIANCE TABLE.....	16
5.2 ADDITIONAL MANAGEMENT STRATEGIES .....	19
<b>6. IMPLEMENTATION &amp; MANAGEMENT OF BUSHFIRE MEASURES .....</b>	<b>21</b>
<b>7. REFERENCES.....</b>	<b>23</b>



## 1. PROPOSAL DETAILS

WA Planning and Logistics Pty Ltd has been engaged to undertake a Bushfire Management Plan to accompany the lodgement of a development application for Holiday Accommodation at 413 Red Emperor Drive, Greenough which will enable the establishment of two (2) holiday homes.

**Figure 1: Aerial photograph of subject site area**



The purpose of this Bushfire Management Plan is to fulfil the requirements of *State Planning Policy 3.7 Planning in Bushfire Prone Areas* (WAPC, 2015) ('SPP 3.7'). As accommodation is considered a 'vulnerable land use' under SPP 3.7 a Bushfire Emergency Evacuation Plan (BEEP) has been prepared to support the development application (**Attachment 1**).

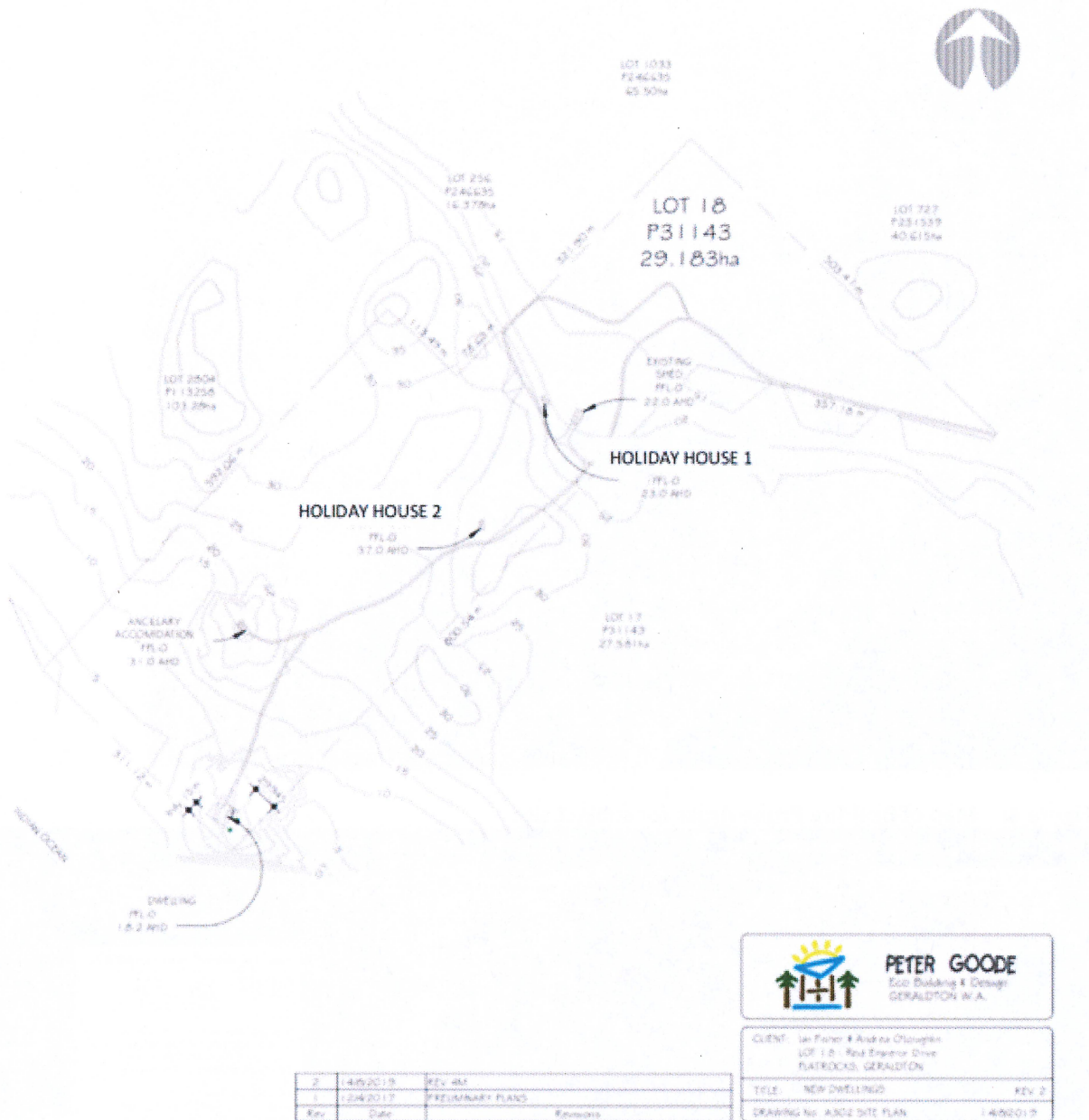
A copy of the proposed development site plan has been included as **Figure 2** and a Location Plan as **Figure 3**. An extract of the designated bushfire prone area mapping as declared by the Department of Fire & Emergency Services showing the subject property has been included as **Figure 4**.

For the purposes of this BMP the 'Proprietor' or 'developer' is acknowledged to be the owner and/or delegated managers of the holiday accommodation for the life of the development.



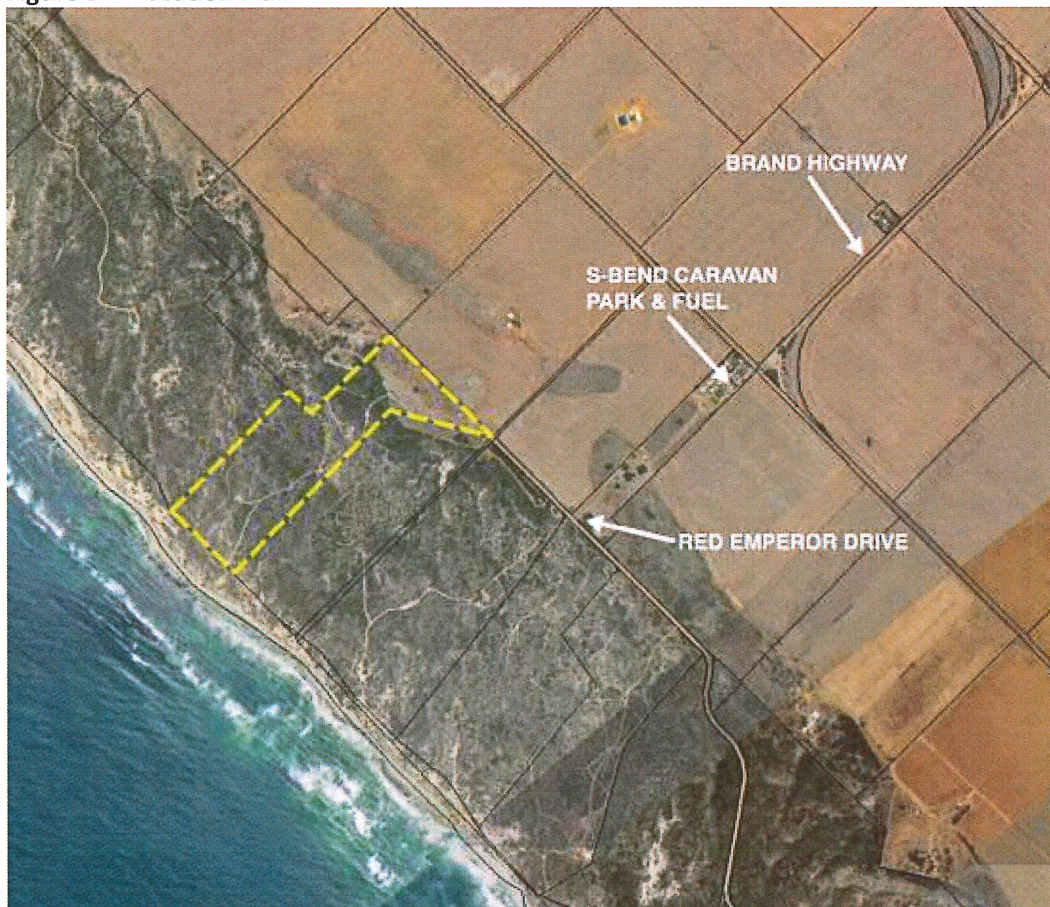


Figure 2: Development Site Plan





**Figure 3: Location Plan**



**Figure 4: Map of Bushfire Prone Areas for subject site**





## 2 ENVIRONMENTAL CONSIDERATIONS

### 2.1 NATIVE VEGETATION – MODIFICATION AND CLEARING

A small and strictly limited modification of vegetation is required as part of the establishment of the holiday accommodation. Each unit already encompasses a cleared area surrounding and therefore only minor modification is required to reduce fuel load and vegetation density within the Asset Protection Zone surrounding each holiday home.

The following Table represents an assessment of the development site against relevant environmental datasets.

Table 1: Environmental, Biodiversity & Conservation Values

Values	Applicable Yes/No	Details
Conservation category wetlands and buffer	No	
Threatened and priority flora	No	
Threatened Ecological Communities	No	
Bush Forever Sites	No	
Conservation Covenants	No	
Local Planning Strategy	No	No relevant recommendations/objectives
Environmental Assessment or Management Plan	No	No plan previously undertaken
Local Biodiversity Strategy	No	No Local Biodiversity Plan applicable to the area

### 2.2 RE-VEGETATION/LANDSCAPE PLANS

There are no revegetation or landscaping plans relevant to this application.



### 3. BUSHFIRE ASSESSMENT RESULTS

#### 3.1 ASSESSMENT INPUTS

##### 3.1.1 HOLIDAY HOME 1

##### Vegetation Classification


All vegetation within 150m of the site / proposed development was classified in accordance with Clause 2.2.3 of AS 3959-2018.

All information has been determined at an onsite inspection which was undertaken on 18 June 2019.

Each distinguishable vegetation plot with the potential to determine the Bushfire Attack Level has been identified with the results of this assessment provided in the following tables with a spatial representation of the vegetation assessment included as Figure 5 to this report.

See **FIGURE 5: Site Assessment Map**

<b>Photo ID:</b>	1	<b>Plot:</b>	1
<b>Vegetation Classification or Exclusion Clause</b>			
Class C – Shrubland			
<b>Description / Justification for Classification</b>			
Vegetation is under 2m in height and located upon an undeveloped sand dune system that extends along the coastline.			
5-10° downslope.			



<b>Photo ID:</b>	2	<b>Plot:</b>	2
<b>Vegetation Classification or Exclusion Clause</b>			
Class C – Shrubland			
<b>Description / Justification for Classification</b>			
Vegetation is under 2m in height and located upon an undeveloped sand dune system that extends along the coastline.			
Upslope			




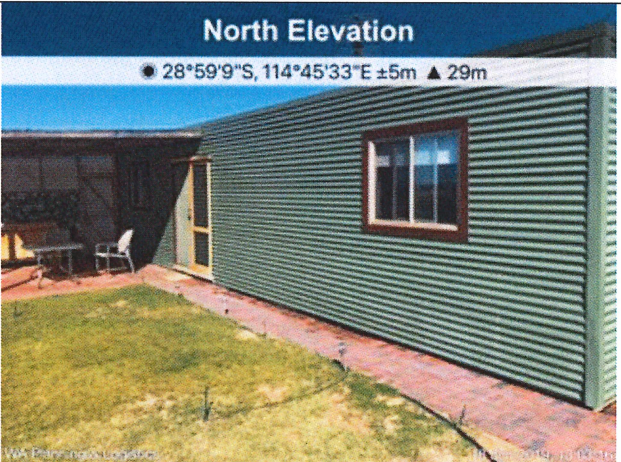
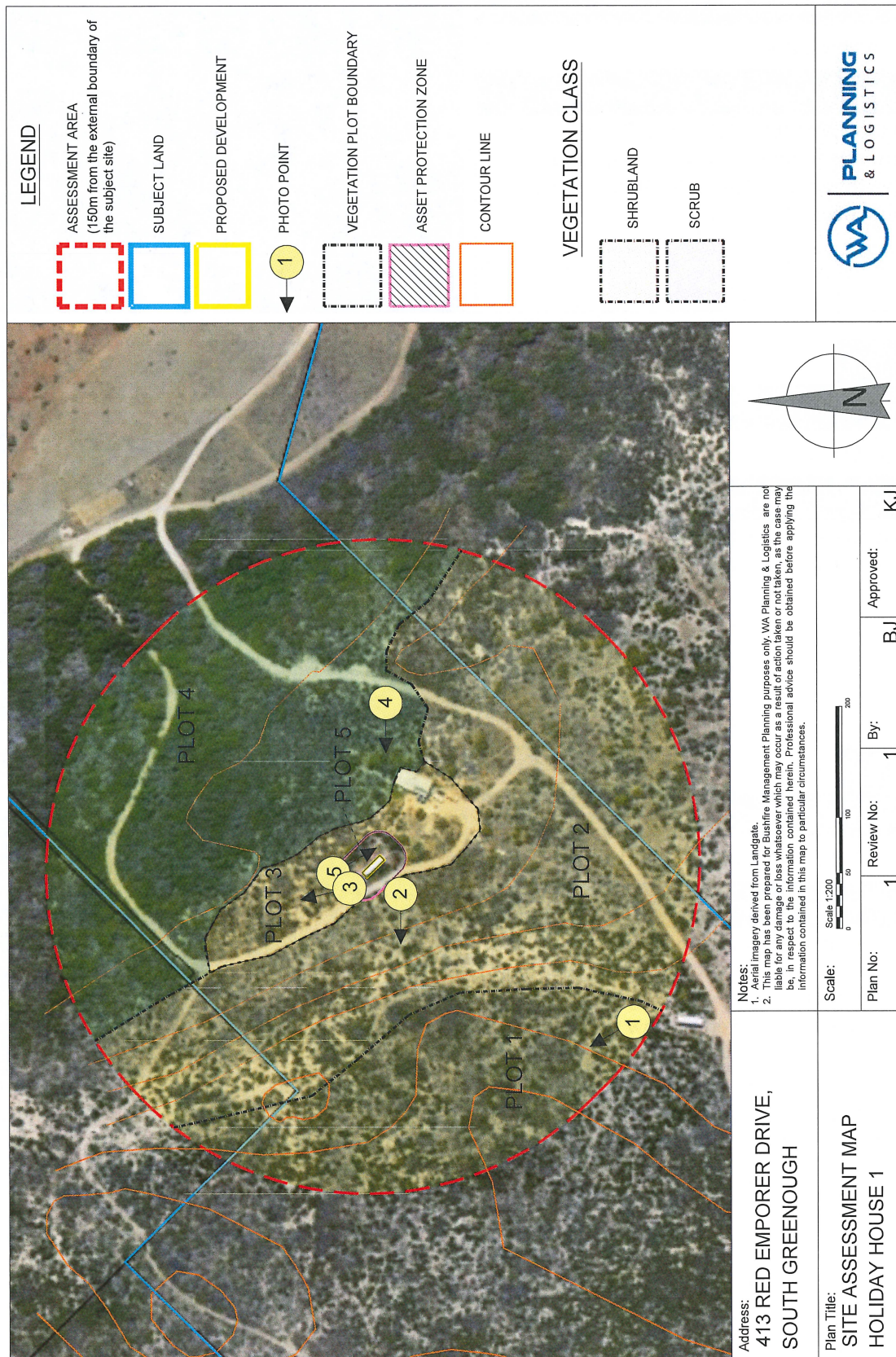




Photo ID: 3	Plot: 3	
Vegetation Classification or Exclusion Clause		
Class C – Shrubland		
Description / Justification for Classification		
Vegetation predominately under 2m in height. This is the area within which the vegetation changes from lower coastal heath to a scrub structure beyond.		
Photo ID: 4	Plot: 4	
Vegetation Classification or Exclusion Clause		
Class D – Scrub		
Description / Justification for Classification		
Vegetation over 2m in height with an understorey of shrubs and grasses.		
Photo ID: 5	Plot: 5	
Vegetation Classification or Exclusion Clause		
Excluded 2.2.3.2 (e) & (f)		
Description / Justification for Classification		
Build development, access roads and areas with no vegetation. Asset Protection Zone to be implemented surrounding existing building with vegetation to be managed in a low threat state.		



**Figure 5: Site Assessment Map Holiday Home 1**





### 3.1.2 HOLIDAY HOME 2

#### Vegetation Classification

All vegetation within 150m of the site / proposed development was classified in accordance with Clause 2.2.3 of AS 3959-2018.

All information has been determined at an onsite inspection which was undertaken on 18 June 2019.

Each distinguishable vegetation plot with the potential to determine the Bushfire Attack Level has been identified with the results of this assessment provided in the following tables with a spatial representation of the vegetation assessment included as Figure 6 to this report.

See **FIGURE 6: Vegetation Classification Map**

<b>Photo ID:</b>	1	<b>Plot:</b>	1
<b>Vegetation Classification or Exclusion Clause</b>			
Class C – Shrubland			
<b>Description / Justification for Classification</b>			
Vegetation is under 2m in height and located upon an undeveloped sand dune system that extends along the coastline.			
Upslope			

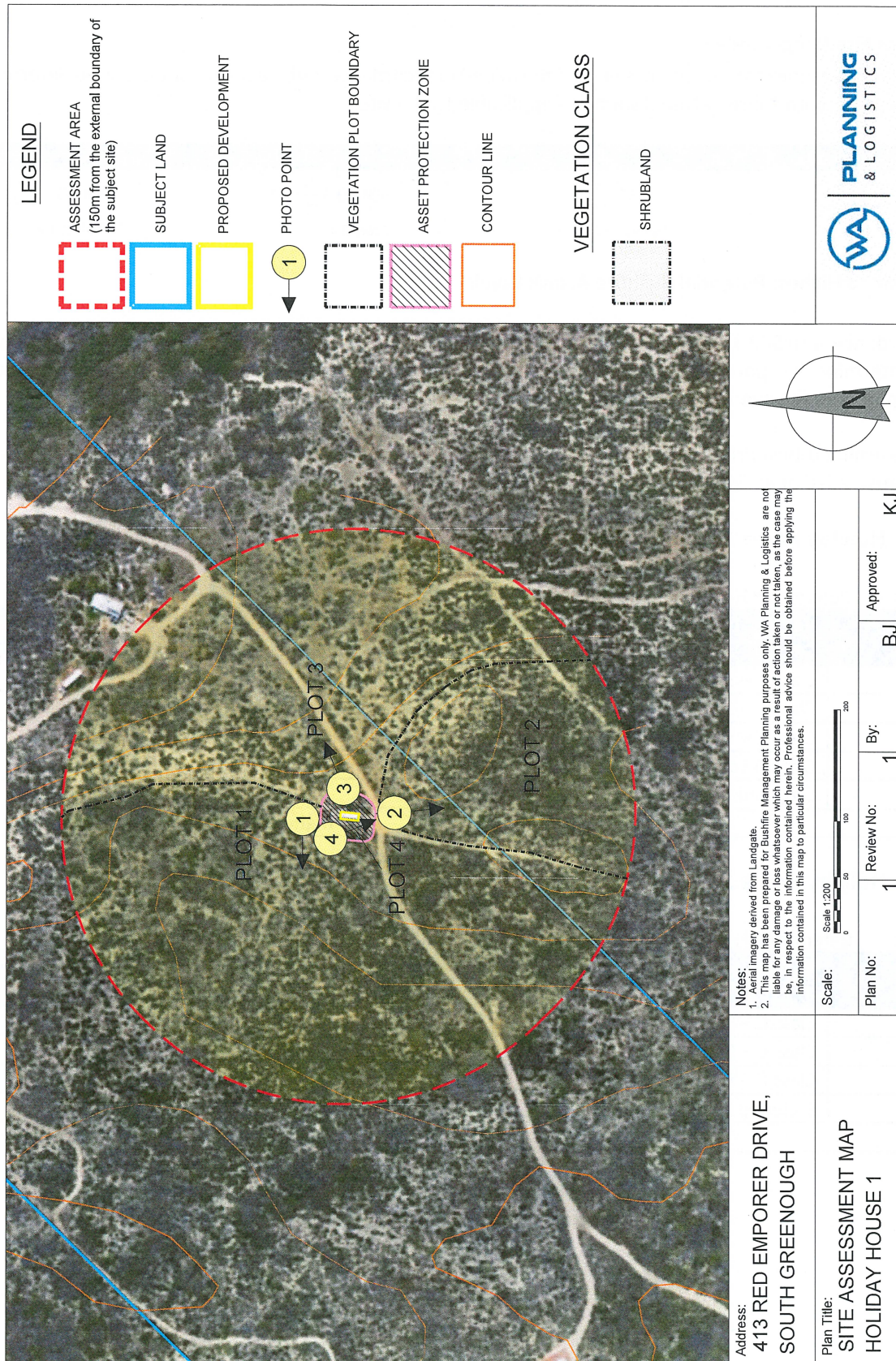
<b>Photo ID:</b>	2	<b>Plot:</b>	2
<b>Vegetation Classification or Exclusion Clause</b>			
Class C – Shrubland			
<b>Description / Justification for Classification</b>			
Vegetation is under 2m in height and located upon an undeveloped sand dune system that extends along the coastline.			
5-10° downslope			



<b>Photo ID:</b>	3	<b>Plot:</b>	3
<b>Vegetation Classification or Exclusion Clause</b>			
Class C – Shrubland			
<b>Description / Justification for Classification</b>			
Vegetation is under 2m in height and located upon an undeveloped sand dune system that extends along the coastline.			
5-10° downslope			
<b>Photo ID:</b>	4	<b>Plot:</b>	4
<b>Vegetation Classification or Exclusion Clause</b>			
Excluded 2.2.3.2 (e) & (f)			
<b>Description / Justification for Classification</b>			
Build development, access roads and areas with no vegetation. Asset Protection Zone to be implemented surrounding existing building with vegetation to be managed in a low threat state.			



**Figure 6: Site Assessment Map Holiday Home 2**





## 3.2 ASSESSMENT OUTPUTS

### Relevant Fire Danger Index

The fire danger index for this site has been determined in accordance with Table 2.1 or otherwise determined in accordance with a jurisdictional variation applicable to the site.

#### Fire Danger Index

 FDI 40 ☐
*Table 2.4.5*

 FDI 50 ☐
*Table 2.4.4*

 FDI 80 ☒
*Table 2.4.3*

 FDI 100 ☐
*Table 2.4.2*

### Determined Highest Potential Bushfire Attack Levels

In accordance with SPP 3.7 a BAL Assessment was undertaken in accordance with AS3959-2018 Methodology 1 to determine the potential worst-case scenario radiant heat impact on each building in the proposed development in the event of bushfire within vegetation classifiable in accordance with AS3959-2018.

The Determined Bushfire Attack Level (highest BAL) for each building has been determined in accordance with clause 2.2.6 of AS 3959-2018.

#### 3.2.1 Holiday Home 1

Table 2: Determined Highest Potential Bushfire Attack Level Holiday Home 1

Plot	Vegetation Classification	Effective Slope	Separation (m)	BAL
1	Class C – Shrubland	5-10° downslope	11m	BAL-29
2	Class C – Shrubland	Upslope	9m	BAL-29
3	Class C – Shrubland	5-10° downslope	11m	BAL-29
4	Class D Scrub	0-5° downslope	18m	BAL-29
5	Excluded 2.2.3.2 (e) & (f)	-	-	BAL-LOW
Highest Determined BAL				BAL-29

#### 3.2.2 Holiday Home 2

Table 3: Determined Highest Potential Bushfire Attack Level Holiday Home 1

Plot	Vegetation Classification	Effective Slope	Separation (m)	BAL
1	Class C – Shrubland	Upslope	9m	BAL-29
2	Class C – Shrubland	5-10° downslope	11m	BAL-29
3	Class C – Shrubland	5-10° downslope	11m	BAL-29
4	Excluded 2.2.3.2 (e) & (f)	-	-	BAL-LOW
Highest Determined BAL				BAL-29



## 4. IDENTIFICATION OF BUSHFIRE HAZARD ISSUES

Bushfire behaviour is significantly affected by weather conditions. Bushfires will burn more aggressively when high temperatures combine with low humidity and strong winds. Generally, the greatest fire risk occurs from summer through to autumn, when the moisture levels in the soil and vegetation are low.

Bushfire safety is a shared responsibility between governments, fire agencies, communities and landowners. The controls outlined in the plan will reduce the risk of bushfire to people and property, but it will not remove all risk however. People interpret risk differently and the way they prepare and respond in a bushfire event will greatly influence their personal safety.

Through the implementation of the recommendations of this BMP it is considered that the development application will achieve compliance with the requirements of SPP3.7 and the Guidelines and thereby provide adequate risk management measures that will assist in the event of a bushfire.

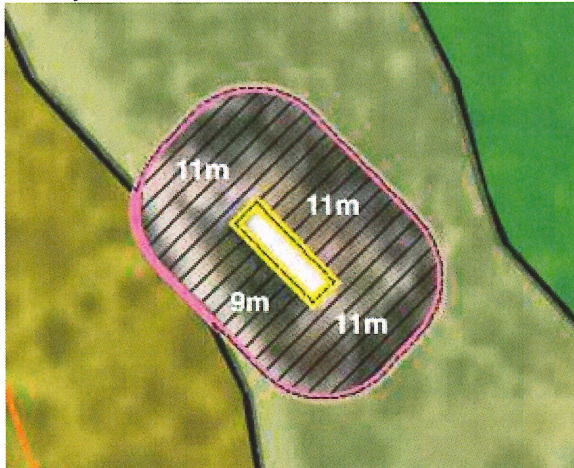


## 5. BUSHFIRE PROTECTION CRITERIA

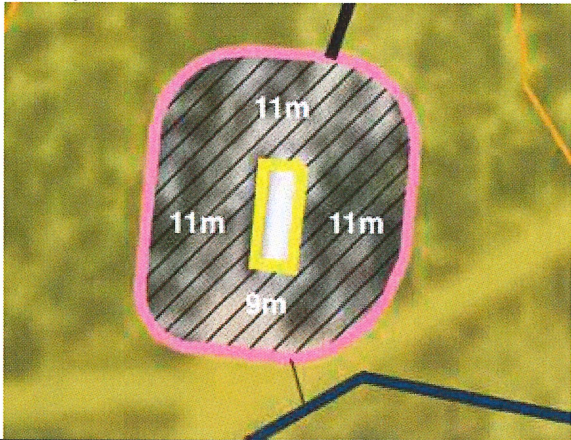

The bushfire protection criteria are a performance-based system of assessing bushfire risk management measures. Management Recommendations are discussed in the following sections and illustrated upon the **Spatial Representation of Bushfire Management Strategies Map (Figure 8)**.

### 5.1 COMPLIANCE TABLE


Table 4: Bushfire Protection Criteria Assessment Compliance Table

BUSHFIRE PROTECTION CRITERIA	METHOD OF COMPLIANCE	PROPOSED BUSHFIRE MANAGEMENT STRATEGIES
	ACCEPTABLE SOLUTIONS	
Element 1: Location	A1.1 Development location	<p>The development site is located within a designated Bushfire Prone Area.</p> <p>A BAL Assessment has been undertaken to determine the potential BAL rating for future development within the site.</p> <p>Each element of the proposal has the ability to achieve a BAL-29 separation distance. As the buildings are existing the dwellings shall be modified to achieve a BAL-19 construction standard in accordance with AS3959-2018.</p> <p>By implementing the recommendations of this BMP it is considered that the bushfire risk can be adequately managed.</p>
Element 2: Siting and design	A2.1 Asset Protection Zone (APZ)	<p>An Asset Protection Zone has been shown surrounding each holiday home upon Figure 5 and Figure 6 of this report.</p> <p>The Asset Protection Zones are required to be implemented and managed in accordance with Schedule 1 of the <i>Guidelines for Planning in Bushfire Prone Areas</i> and the local governments annual Fire Break Notice.</p> <p>The proponent is responsible for the implementation and maintenance of the required Asset Protection Zone.</p> <p>The implementation of the Asset Protection Zones will ensure that a BAL-29 or lower separation distance is maintained surrounding each building.</p> <p><b>Holiday House 1 Asset Protection Zone Dimensions</b></p> 



		<p><b>Holiday House 2 Asset Protection Zone Dimensions</b></p> 
Element 3: Vehicular Access	A3.1 Two access routes	<p>Two access routes to two destinations are available to this site.</p> <p>In the event of an emergency people evacuating the site are provided with the following options:</p> <ol style="list-style-type: none"> <li>1. Evacuation via Red Emperor Drive Travel east along Red Emperor Drive, turning right onto Flat Rocks Road. Head north until next intersection which is with Brand Highway. Can turn left (towards Geraldton) or right (towards Dongara/Perth).</li> </ol>  <p>This road complies with the requirements of Column 1 Table 6. The constructed gravel road width exceeds 4m with greater than 6m (horizontal) and 4.5m (vertical) clearance. The road is existing and cannot be altered or conditioned as part of this BMP.</p> <ol style="list-style-type: none"> <li>2. Evacuation via unnamed road reserve. Evacuation via an unnamed but constructed road heading north to meet with company road. Turn right onto Company Road. Company Road ends at Brand Highway. Can turn left (towards Geraldton) or right (towards Dongara/Perth).</li> </ol>



		 <p>This road is constructed within a designated road reserve and is not signposted for general public use. The gate at the beginning of the road states that the road is for emergency access only. The road complies with Column 1 Table 6 in that it has a constructed width of approximately 4m with a 6m wide and 4.5m high clearance. The road surface is to a compacted standard and does not have gradients of more than 1 in 10. The road is existing and cannot be altered or conditioned as part of this BMP.</p> <p>Plan of routes provided as <b>Figure 7</b>. Full details in relation to these routes are provided within the BEEP.</p> <p>All roads are constructed to a trafficable surface and available to all residents/the public at all times and under all weather conditions.</p>
	A3.2 Public road	N/A All public roads are existing. No new roads are proposed as part of this application.
	A3.3 Cul-de-sac	N/A
	A3.4 Battle-axe	N/A
	A3.5 Private driveway longer than 50 metres	<p>The internal access way within the lot will be required to be constructed to the requirements of A3.5 of the Guidelines and incorporate a turnaround area to allow manoeuvrability of a 3.4 fire appliance within 50m of each dwelling.</p> <p>The gradient of 1 in 10 (5.7°) cannot be achieved for all lengths of the driveway given the slopes across the site. It is considered that as all other requirements of A3.5 can be met that this is a minor variation and one that can be supported.</p>
	A3.6 Emergency access way	N/A
	A3.7 Fire service access routes	N/A
	A3.8 Firebreak width Alternative Solution	<p>No firebreaks are currently installed around the perimeter of the property or neighbouring properties as directed by the local government authority.</p> <p>Firebreaks are not installed around the perimeter of the lots within this area given the high quality vegetation upon the land and the level of protection the local government has afforded to protecting the unnecessary clearing of vegetation and the disruption and scarring this would cause both environmentally and visually to the relatively untouched landscape.</p>



		The holiday accommodation access is to be installed in accordance with the Guidelines. This will ensure that in the event of an emergency, evacuation can be undertaken quickly and efficiently.
Element 4: Water	A4.1 Reticulated areas	N/A
	A4.2 Non-reticulated areas	<p>One (1) fire-fighting water tank facility to a minimum effective capacity of 10,000l shall be provided to the construction and vehicle access requirements of A4.2 of the Guidelines.</p> <p>It is the responsibility of the landowner to install and maintain the firefighting facility in good working order and to ensure that the tank is maintained at or above the required 10,000 litre capacity at all times.</p>
	A4.3 Individual lots within non-reticulated areas	N/A

**Figure 7: Two routes to two destinations**



## 5.2 ADDITIONAL MANAGEMENT STRATEGIES

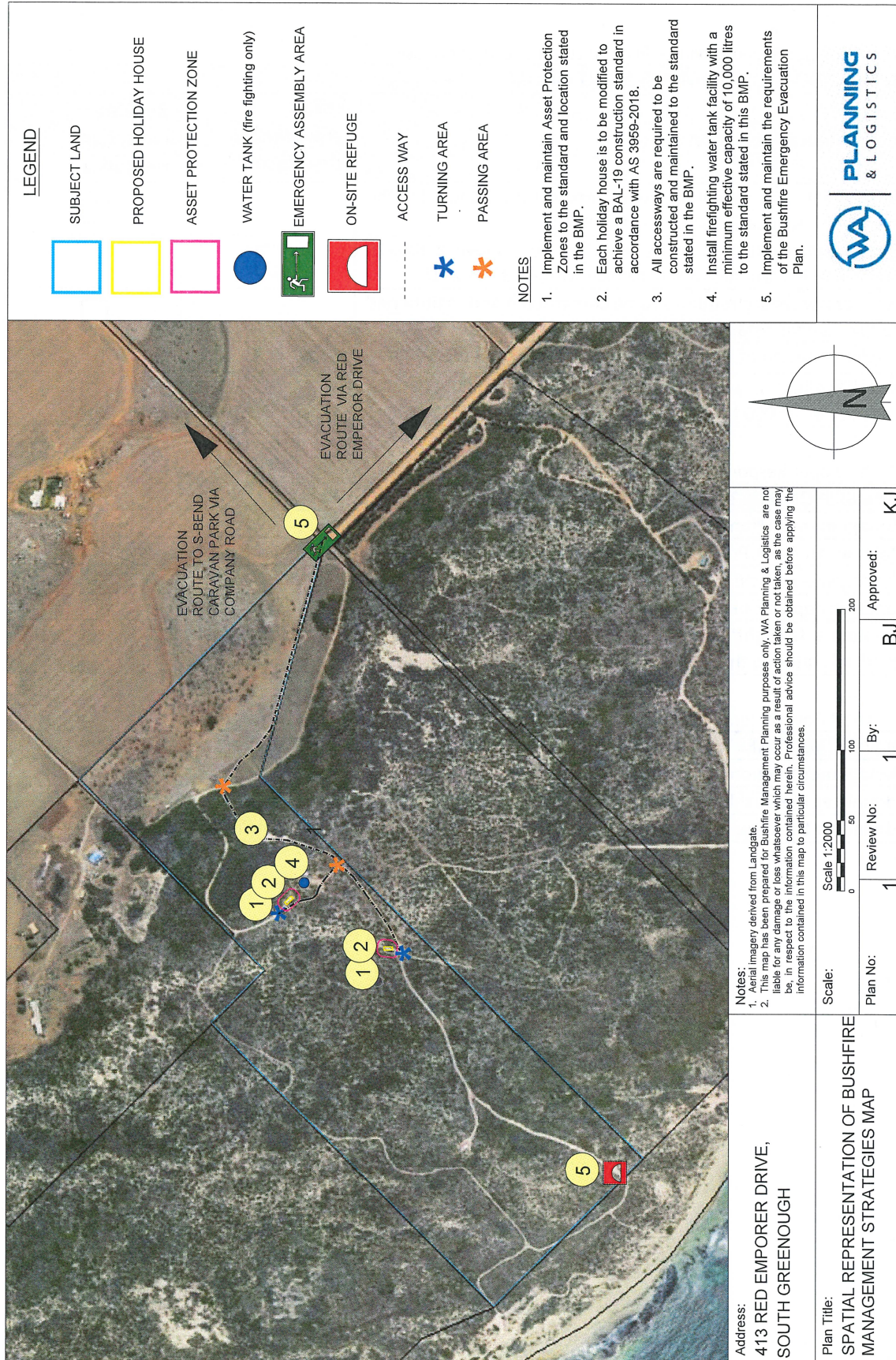
### BUSHFIRE EMERGENCY EVACUATION PLAN (BEEP)

As accommodation is considered a 'vulnerable land use' under SPP 3.7 a Bushfire Emergency Evacuation Plan (BEEP) has been prepared to support the development application.

A copy of the BEEP has been included as a separate document to this BMP.



**Figure 8: Spatial Representation of Bushfire Management Strategies Map**





## 6. IMPLEMENTATION & MANAGEMENT OF BUSHFIRE MEASURES

Table 5: Developer Responsibility – Prior to commencement of use

<b>DEVELOPER - PRIOR TO COMMENCEMENT OF USE</b>			
<b>No.</b>	<b>Implementation action</b>	<b>Local government clearance</b>	<b>Bushfire consultant clearance</b>
1	Implement and maintain Asset Protection Zones to the standard and location stated in the BMP.		<input type="checkbox"/>
2	Each holiday house is to be modified to achieve a BAL-19 construction standard in accordance with AS 3959-2018	<input type="checkbox"/>	
3	All accessways are required to be constructed and maintained to the standard stated in the BMP.		<input type="checkbox"/>
4	Implementation of the Bushfire Emergency Evacuation Plan.	<input type="checkbox"/>	
5	Install firefighting water tank facility with a minimum effective capacity of 10,000 litres to the standard stated in this BMP.		<input type="checkbox"/>

Table 6: Developer Responsibility – Ongoing

<b>DEVELOPER RESPONSIBILITY – ONGOING</b>	
<b>No.</b>	<b>Management Action</b>
1	Maintain an Asset Protection Zones to the standard and location stated in the BMP.
2	All accessways to be maintained to the standard stated in the BMP.
3	Continue implementation of the Bushfire Emergency Evacuation Plan.
4	Maintain a firefighting water tank facility with a minimum effective capacity of 10,000 litres to the standard stated in this BMP

Table 7: Local Government Responsibility

<b>LOCAL GOVERNMENT RESPONSIBILITY – ONGOING</b>	
<b>No.</b>	<b>Management Action</b>
1	Administer the Bushfire Act 1954 and monitor compliance.
2	Administer the requirements of the Planning and Development Act and Building Act 2011.



## 7. REFERENCES

Building Regulations 2012. Retrieved from: [http://www.austlii.edu.au/cgi-bin/viewdb/au/legis/wa/consol\\_reg/br2012200/](http://www.austlii.edu.au/cgi-bin/viewdb/au/legis/wa/consol_reg/br2012200/)

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