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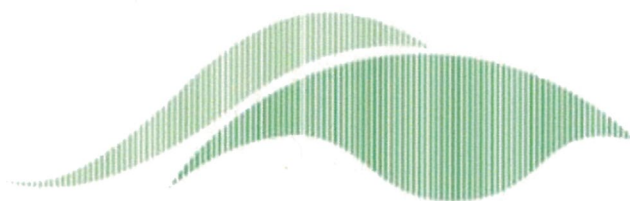
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# Bushfire Management Plan



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Date: 28 September 2016

Project: CBH Knotts Road

Address: 39 Knotts Road Balladong

Prepared by: James Terenciuk, BPAD Accredited Level 2 Assessor, BSC 434, MAIBS, AIMM.

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## Executive Summary

The aim of this report is to take a detailed look into bushfire management strategies to reduce the risk to future development on the subject site. A preliminary site assessment resulted in a BAL rating of BAL-FZ. Through the implementation of the elements and recommendations of this BMP a BAL rating of BAL-29 can be achieved. Furthermore, development of the land is consistent with the principles of orderly and proper planning and is not considered to impact the safety of future residents.

### 1. Background Information

This Bushfire Management Plan was prepared to provide guidance for the planning and management of potential bushfire threat. The standards and recommendations within this plan are based on the performance criteria as set out in Guidelines for Planning in Bushfire Prone Areas (2015).

This Bushfire Management Plan meets the requirements of SPP 3.7 and the Guidelines for Planning in Bushfire Prone Areas



James Terenciuk  
Level 2 BPAD Practitioner

#### 1.1 Purpose of Plan

The purpose of this Plan is minimise the occurrence and impact of bushfires and their devastating effects to life, property and the environment, and to document fire prevention requirements at the Site. By providing acceptable solutions the BAL level can be managed to an acceptable level.

#### 1.2 Proposed Development

The proposal at 39 Knotts Road Balladong seeks erection of a building on an existing site. The site has been identified as being located within a bushfire prone area according to the most recent map published by the Department of Fire and Emergency Services.

### 1.3 Objectives

The objectives of this Plan are to:

- Define areas where values are located
- Define and rank hazard areas
- Identify individuals and organizations responsible for fire management and associated works within the area of the plan
- Develop fire management strategies for all land with regard to life, property and the environment
- Nominate an assessment procedure that evaluates the effectiveness and impact of proposed and existing fire prevention work and strategies
- Identify performance criteria and acceptable solutions for all fire management works, including acceptable solutions for fire breaks, low fuel areas and building construction standards.

This Plan will achieve the objectives by:

- Assessing the bushfire hazard level
- Assessing the bushfire attack level
- Determining bushfire management requirements
- Determining ongoing management responsibilities

### 1.4 Site Details and Overview

The Site address is 39 Knotts Road Balladong, located approximately 85km east of the Perth CBD. The Site lot area is approximately 18.556ha. The Site is located in a bushfire prone area. A development is proposed at the Site.

### 1.5 Bushfire Risk Assessment

Risk	Impact	Pre BMP Risk Level	Strategy	Post development Risk Level
The potential of bushfire to cause injury or death.	People	Moderate	Egress available in 2 directions.	Low
The potential of bushfire to cause damage to the proposed buildings.	Buildings	Moderate	APZ to be created.	Low
The potential of bushfire to cause damage to the environment	Environment	Low	No significant clearing proposed. Agricultural land.	Low



### 1.6 Solutions applied

The Guidelines for Planning in Bushfire Prone Areas require a statement of which Acceptable Solutions are proposed, and where applicable, a summary of any alternative solutions proposed and in what sections of the Bushfire Management Plan they are documented.

Applicable Acceptable Solutions addressed in Part 4 of this Bushfire Management Plan: A1.1, A2.1, A3.1, A3.5 & A4.1.

Alternative Solutions forming part of this report: Nil.

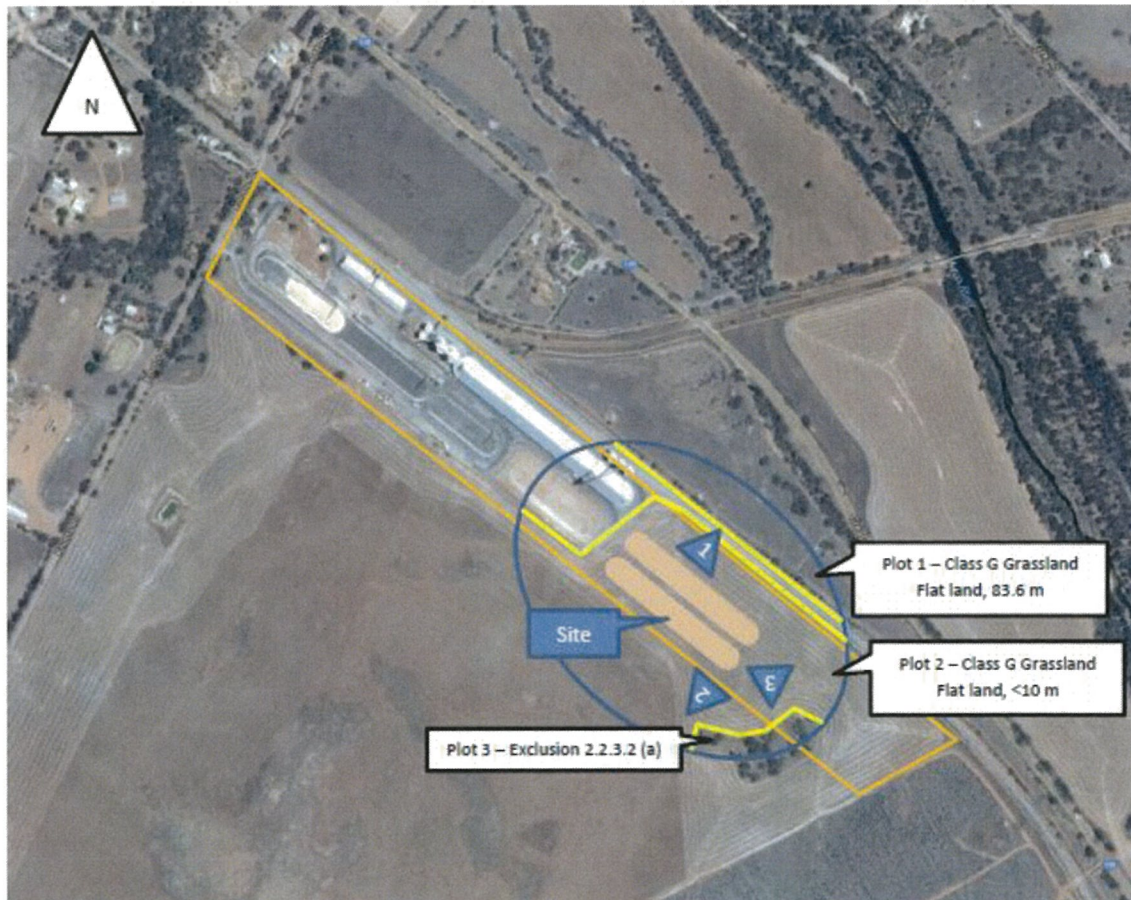
## 2. Spatial Considerations of Bushfire Threat

The location and extent of the classifiable vegetation in relation to the proposed buildings have been assessed and recorded in the attached BAL Assessment Report extract. The BAL Assessment Report is produced based on a methodology 1 assessment, with the vegetation being assessed “as is” in accordance with AS3959. The proposed BAL is given in the table below. Exemptions in Clause 2.2.3.2 of AS3959 have been utilized where appropriate and results in a maximum BAL of BAL-29, in accordance with the Guide to Planning in Bushfire Prone Areas.

Structure	Vegetation Classification	Effective Slope	Proposed Separation	Achievable BAL Rating on implementation of APZ
Proposed	Grassland	Flatland	13.2m	BAL-29

#### Site Assessment & Site Plans

The assessment of this site / development was undertaken on 29 August 2016 by a BPAD Accredited Practitioner for the purpose of determining the Bushfire Attack Level in accordance with AS 3959 - 2009 Simplified Procedure (Method 1).



#### Legend


-  = Photo location
-  = 150m wide buffer
-  = Vegetation plots
-  = Site boundary
-  = Building envelope

Figure 1: Location plan



## Vegetation Classification

All vegetation within 100m of the site / proposed development was classified in accordance with Clause 2.2.3 of AS 3959-2009. Each distinguishable vegetation plot with the potential to determine the Bushfire Attack Level is identified below.

<b>Photo ID:</b> 1 <b>Plot:</b> 1 <b>Vegetation Classification or Exclusion Clause</b> Class G Grassland – Closed tussock grassland G-21 <b>Description / Justification for Classification</b> All forms, including situations with shrubs and trees, if the overstorey foliage cover is less than 10%.	 <p>DIRECTION 34 deg(T) SBJ PK 79-78 ACCURACY 5 m DATUM WGS84</p>
<b>Photo ID:</b> 2 <b>Plot:</b> 2 <b>Vegetation Classification or Exclusion Clause</b> Class G Grassland – Closed tussock grassland G-21 <b>Description / Justification for Classification</b> All forms, including situations with shrubs and trees, if the overstorey foliage cover is less than 10%.	 <p>DIRECTION 270 deg(T) SBJ PK 79-69 ACCURACY 5 m DATUM WGS84</p>
<b>Photo ID:</b> 2 <b>Plot:</b> 2 <b>Vegetation Classification or Exclusion Clause</b> Excludable - 2.2.3.2(a) >100m from site <b>Description / Justification for Classification</b> All forms of vegetation greater than 100 m from the site.	 <p>DIRECTION 211 deg(T) SBJ PK 79-69 ACCURACY 5 m DATUM WGS84</p>





### 3. Proposal Compliance and Justification

#### 3.1 Meeting the Objectives of SPP3.7

<p>Objective 5.1</p> <p>Avoid any increase in the threat of bushfire to people, property and infrastructure. The preservation of life and the management of bushfire impact are paramount.</p> <p>Objective 5.1 is satisfied by addressing all of the 4 Elements in the Guidelines for Planning in Bushfire Prone Areas.</p>
<p>Objective 5.2</p> <p>Reduce vulnerability to bushfire through the identification and consideration of bushfire risks in decision-making at all stages of the planning and development process.</p> <p>Objective 5.2 is satisfied by identifying the bushfire risks present to this particular site and considering them in the attached Bushfire Attack Level Assessment.</p>
<p>Objective 5.3</p> <p>Ensure that higher order strategic planning documents, strategic planning proposals, subdivision and development applications take into account bushfire protection requirements and include specified bushfire protection measures</p> <p>Objective 5.3 is satisfied by the compliance with the 4 elements of the bushfire protection criteria listed in section 4 of this report.</p>
<p>Objective 5.4</p> <p>Achieve an appropriate balance between bushfire risk management measures and, biodiversity conservation values, environmental protection and biodiversity management and landscape amenity, with consideration of the potential impacts of climate change.</p> <p>Objective 5.4 is satisfied by minimal clearing maintaining the amenity valued in the area.</p>

### 3.2 Policy Measures Which Apply To This Proposal

6.1 Higher order strategic planning documents in bushfire prone areas
The subject site has been identified on the Map of Bushfire Prone Areas 2016 as being at risk. This Bushfire Management Plan demonstrates compliance with the requirements.
6.2 Strategic planning proposals, subdivision and development applications
Site has been identified as being rated above BAL-LOW therefore Policy Measures 6.4 and 6.5 are triggered.
6.3 Information to accompany strategic planning proposals
Not applicable.
6.4 Information to accompany subdivision applications
Not applicable.
6.5 Information to accompany development applications
The preliminary BAL certificate from the initial site visit attached in the appendix of this document along with the included mapping demonstrate all hazards identified on site and the BAL rating prior to this BMP being implemented.
6.6 Vulnerable or high-risk land uses
Not Applicable
6.7 Strategic planning proposals, subdivision or development applications in areas where an extreme BHL and/or BAL-40 or BAL-FZ applies
Not applicable.
6.8 Advice of State/relevant authority/s for emergency services to be sought
Not Applicable
6.9 Advice of State/relevant agencies/authorities for environmental protection to be sought
Not applicable.
6.10 Bushfire conditions may be imposed
Notice on title to be enforced by Local Government notifying future owners of Bushfire Management Plan and requirement to areas of property in low fuel conditions.
6.11 Precautionary principle
The precautionary principle is a fundamental part of bushfire planning and has been incorporated in all aspects of this Bushfire Management Plan.

### 3.3 How Does the Proposal Address the Bushfire Protection Criteria

The Bushfire Protection Criteria are addressed in Part 4 of this Bushfire Management Plan.

### 3.4 Statement Against Other Relevant Documents

This Bushfire Management Plan meets the intent of:

1. State Planning Policy 3.7,
2. Guidelines for Planning in Bushfire Prone Areas,
3. Local planning strategy references to bushfire risk management,
4. Local planning scheme provisions relating to bushfire risk management,
5. Applicable structure plans, special control area provisions, previous planning approvals or similar referencing bushfire risk management applicable to the subject site,
6. Standard fire break orders of the area; and
7. AS3959 Construction of Buildings in Bushfire-Prone Areas.

There is currently no Bushfire Management Plan prepared over the subject site, no existing Bushfire Hazard Level assessment or BAL assessment prepared over the site and no applicable landscaping plans. No noncomplying areas have been identified.

## 4. Bushfire Risk Management Measures

The 4 elements of bushfire protection criteria to follow have been provided to assist in the design and development of strategic planning proposals, subdivision applications and development applications in bushfire prone areas.

### 4.1 Element 1: Location

**Intent:** To ensure that strategic planning proposals, subdivision and development applications are located in areas with the least possible risk of bushfire to facilitate the protection of people, property and infrastructure.

**Performance Principle P1:** The strategic planning proposal, subdivision and development application is located in an area where the bushfire hazard assessment is or will, on completion, be moderate or low, or a BAL-29 or below, and the risk can be managed. For minor or unavoidable development in areas where BAL-40 or BAL-FZ applies, demonstrating that the risk can be managed to the satisfaction of the Department of Fire and Emergency Services and the decision-maker.

**Acceptable Solution A1.1 Development location:** The strategic planning proposal, subdivision and development application is located in an area that is or will, on completion, be subject to either a moderate or low bushfire hazard level, or BAL-29 or below.

**Response:** The Bushfire Attack Level proposed on site will be BAL-29 or below.



## 4.2 Element 2: Siting

**Intent:** To ensure that the siting and design of development minimises the level of bushfire impact.

**Performance Principle P2:** The siting and design of the strategic planning proposal, subdivision or development application, including roads, paths and landscaping, is appropriate to the level of bushfire threat that applies to the site. That it minimises the bushfire risk to people, property and infrastructure, including compliance with AS 3959 if appropriate.

**Acceptable Solution A2.1 Asset Protection Zone (APZ):** Every building is surrounded by an Asset Protection Zone (APZ), depicted on submitted plans, which meets the following requirements:

- a. Width: 20 metres measured from any external wall of the building or building envelope. Where the slope increases above 10 degrees, the APZ should be increased to ensure the potential radiant heat impact of a fire does not exceed  $29\text{kW/m}^2$ . Where a full 20 metre APZ is not possible, the APZ should be sufficient enough to ensure the potential radiant heat impact of a fire does not exceed  $29\text{kW/m}^2$ ;
- b. Location: within the boundaries of the lot on which the building is situated;
- c. Fine Fuel load: reduced to and maintained at two tonnes per hectare;
- d. Trees (crowns) are a minimum distance of ten metres apart. A small group of trees within close proximity to one another may be treated as one crown provided the combined crowns do not exceed the area of a large or mature crown size for that species;
- e. No tall shrubs or trees located within two metres of a building;
- f. No tree crowns overhang the building;
- g. Fences within the APZ are constructed using non-combustible materials (e.g. iron, brick, limestone, metal post and wire); and h. Sheds within the APZ should not contain flammable materials.

**Response:** An APZ is to be created by the builder at construction stage. It is the responsibility of landowners to reestablish the APZ before use of the structure and maintain the APZ throughout the life of the building. The APZ proposed of 13.556m on site to the western boundary as shown on plan.

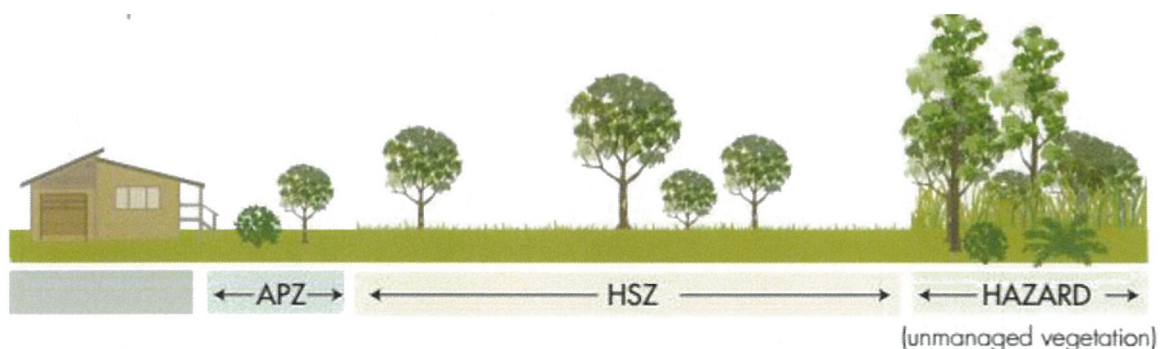


Diagram of Asset Protection Zone and Hazard Separation Zone

#### 4.3 Element 3: Vehicular Access

**Intent:** To ensure that the vehicular access serving a subdivision/development is available and safe during a bushfire event.

**Performance Principle P3:** The internal layout, design and construction of public and private vehicular access and egress in the subdivision/ development allow emergency and other vehicles to move through it easily and safely at all times.

**Acceptable Solution A3.1 Two access routes:** Two different vehicular access routes are provided, both of which connect to the public road network, provide safe access and egress to two different destinations and are available to all residents/the public at all times and under all weather conditions

**Response:** Access will primarily be provided to Knotts Road giving a choice of two safe egress destinations to the north-east and south-west, which are available to all people at all times.

**Acceptable Solution A3.5 Private driveway longer than 50 metres:** A private driveway is to meet all of the following requirements:

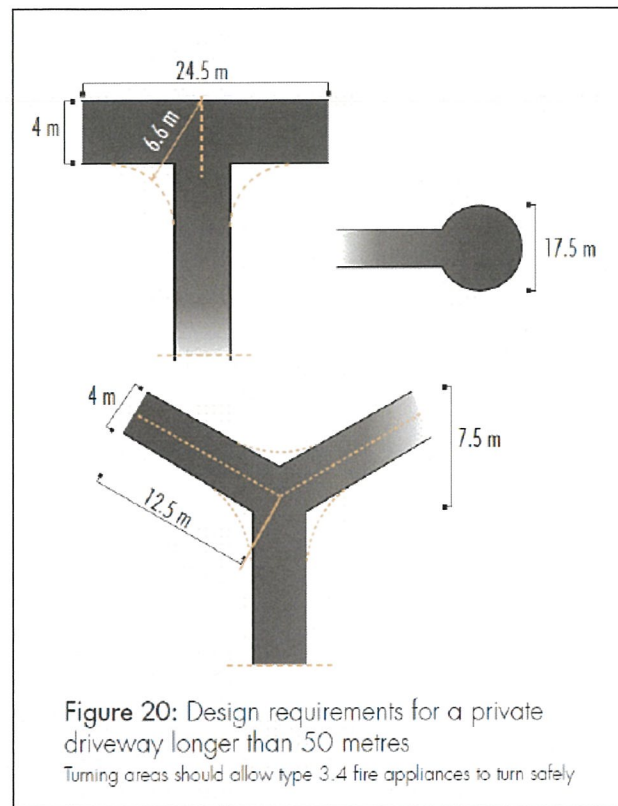
- a) Requirements in Table 4, Column 3;
- b) Required where a house site is more than 50 metres from a public road;
- c) Passing bays: every 200 metres with a minimum length of 20 metres and a minimum width of two metres (i.e. the combined width of the passing bay and constructed private driveway to be a minimum six metres);
- d) Turn-around areas designed to accommodate type 3.4 fire appliances and to enable them to turn around safely every 500 metres (i.e. kerb to kerb 17.5 metres) and within 50 metres of a house; and
- e) Any bridges or culverts are able to support a minimum weight capacity of 15 tonnes. All-weather surface (i.e. compacted gravel, limestone or sealed). A3.6

**Response:**

- a) The requirements of Table 4, Column 3 have been met. This site's driveway is currently used by heavy vehicles.
- b) No house is proposed on site.
- c) The combined width of the road is currently approximately 8m, satisfying this requirement.
- d) Current road network satisfies this requirement.
- e) No bridges or culverts on site. All weather surface currently provided.







**Table 4:** Vehicular access technical requirements

TECHNICAL REQUIREMENTS	1 Public road	2 Cul-de-sac	3 Private driveway	4 Emergency access way	5 Fire service access routes
Minimum trafficable surface (m)	6*	6	4	6*	6*
Horizontal clearance (m)	6	6	6	6	6
Vertical clearance (m)	4.5	N/A	4.5	4.5	4.5
Maximum grade <50 metres	1 in 10	1 in 10	1 in 10	1 in 10	1 in 10
Minimum weight capacity (t)	15	15	15	15	15
Maximum crossfall	1 in 33	1 in 33	1 in 33	1 in 33	1 in 33
Curves minimum inner radius (m)	8.5	8.5	8.5	8.5	8.5
*Refer to E3.2 Public roads: Trafficable surface					

#### 4.4 Element 4: Water

**Intent:** To ensure that water is available to the subdivision, development or land use to enable people, property and infrastructure to be defended from bushfire.

**Performance Principle P4:** The subdivision, development or land use is provided with a permanent and secure water supply that is sufficient for fire fighting purposes.

**Acceptable Solution A4.1 Reticulated areas:** The subdivision, development or land use is provided with a reticulated water supply in accordance with the specifications of the relevant water supply authority and Department of Fire and Emergency Services.

**Response:** Reticulated water is available on site.

## 5. Implementation and Enforcement

Task	Upfront tasks needing to be completed		Individuals and/or organisations responsible for ongoing fire management and works proposed in the Bushfire Management Plan (e.g. local government for land vested in it and private property owners for freehold land)	
	Responsible Party	Time Frame	Responsible Party	Time Frame
Asset Protection Zone	Developer	Prior to construction	Land owner	Ongoing
Construction requirements	Builder and Building Surveyor	Before construction commences	Land owner	Ongoing
Private driveway	Land owner	Before completion of construction	Land owner	Ongoing
Firefighting water and hydrants	DFES and Local Volunteer Brigade	Prior to use	Land owner	Ongoing
Firefighting Response	DFES and Local Volunteer Brigade	Ongoing	DFES and Local Volunteer Brigade	Ongoing
Fuel reduction and Fire Break Notice			Local Government	Annually
Inspection and Enforcement			Local Government	Ongoing

To ensure that the above individuals/organisations are able to comply with the Bushfire Management Plan they are to be notified of their responsibilities by the proponent and be given a copy of the endorsed Bushfire Management Plan.

This Bushfire Management Plan relates to a specific planning approval and should be referred to periodically as part of the owners fire mitigation strategy. As time passes any items found to require review due to changing circumstances are to be brought to the attention of the local government and the Bushfire Management Plan author.

## 6. Recommendations

1. A notice is to be placed on title by the local government alerting future landowners to this BMP.
2. An asset protection zone is to be created and maintained in accordance with siting requirements of element 2 of the Guidelines for Planning in Bushfire Prone Areas – Appendices.
3. Landowner to thoroughly read this BMP. If there are any items which require clarification it is recommended that they contact the author of this report.
4. Implementation and enforcement schedule to be actively adhered to.

## 7. References

Standards Australia. (2009). AS 3959:2009 Construction of buildings in bushfire prone areas: SAI Global.

WAPC. (2006). State Planning Policy 3.4 Natural Hazards and Disasters. State Law Publisher.

WAPC. (2015). State Planning Policy 3.7 Planning in Bushfire Prone Areas. Western Australian Planning Commission & Department of Planning.

WAPC. (2015). Guidelines for Planning in Bushfire Prone Areas. Western Australian Planning Commission, Department of Planning & Department of Fire and Emergency Services.

WAPC. (2015). Guidelines for Planning in Bushfire Prone Areas Appendices. Western Australian Planning Commission, Department of Planning & Department of Fire and Emergency Services.

WAPC. (2015). Planning Bulletin 111/2015 Planning in Bushfire Prone Areas. Western Australian Planning Commission.



## 7. Appendix – BAL Certificate Issued Prior to BMP



### Bushfire Attack Level (BAL) Certificate

Determined in accordance with AS 3959-2009

This certificate has been issued by a person by Fire Protection Association Australia under the Bushfire Planning and Design (BPAD) Accreditation Scheme. The certificate details the conclusions of the full Bushfire Attack Level Assessment Report (full report) prepared by the Accredited Practitioner.



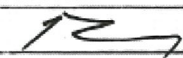
#### Property Details and Description of Works

Address Details	Unit no	Street no 39	Lot no	Street name / Plan Reference Knotts Road		
	Suburb Balladong			State WA	Postcode 6302	
Local government area	Shire of York					
Main BCA class of the building	Class 7b	Use(s) of the building		Grain Storage		
Description of the building or works	Proposed open bulkheads					

#### Determination of Highest Bushfire Attack Level

AS 3959 Assessment Procedure	Vegetation Classification	Effective Slope	Separation Distance	BAL
Method 1	Class G Grassland	Flatland	<10 m	BAL – FZ

#### BPAD Accredited Practitioner Details

Name James Terenciuk				<div><div>I hereby declare that I am a BPAD accredited bushfire practitioner.</div><div>Accreditation No. BPAD36529</div><div>Signature </div><div>Date 1 September 2016</div></div> <div>Authorised Practitioner Stamp</div>
WA Bushfire Attack Level Report admin@wabalreport.com.au Phone: (08) 6114 9356				
Green Start Consulting admin@greenstartconsulting.com.au Phone: (08) 6114 9356				
I hereby certify that I have undertaken the assessment of the above site and determined the Bushfire Attack Level stated above in accordance with the requirements of AS 3959-2009 (Incorporating Amendments 1,2 and 3).				

*Reliance on the assessment and determination of the Bushfire Attack Level contained in this report should not extend beyond a period of 12 months from the date of issue of the report. If this report was issued more than 12 months ago, it is recommended that the validity of the determination be confirmed with the Accredited Practitioner and where required an updated report issued.*