# Bushfire Assessment Report

Proposed:
Alterations and
Additions

At:
2 Adams Street,
Frenchs Forest

Reference Number: 240442

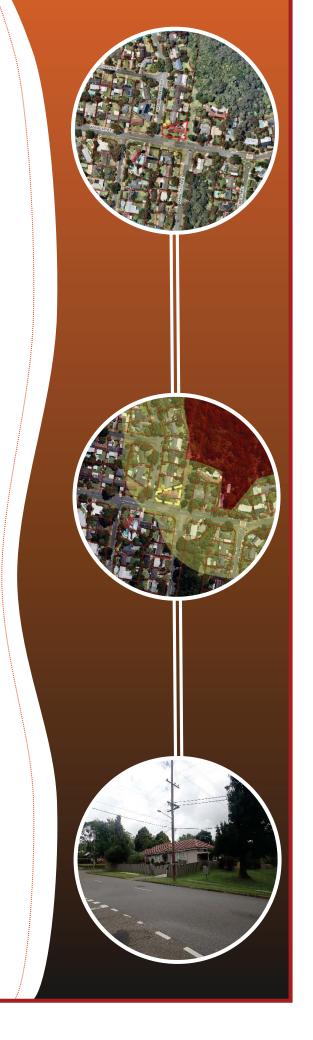
# 24 September 2024



Tel: (02) 9457 6530

PO Box 124 Berowra NSW 2081 ABN 19 057 337 774





www.bushfirehazardsolutions.com.au

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The onus is on the applicant to cross reference this document with any conditions of consent issued by Council or any requirements supplied by the NSW Rural Fire Service following development approval. BCBHS can review and cross reference these documents however the onus is on the applicant to provide them to us and request this review — Building Code and Bushfire Hazard Solutions Pty. Ltd. is not in a position to track every DA through Council and we rely upon the applicant to undertake this role as project co-ordinator.

Where any discrepancy between this document and the development approval or the NSW Rural Fire Service requirements is found, the conditions of consent always take precedence until such time as an application to review, amend or vary these conditions is approved.

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| Version Control     |                        |        |                 |              |
|---------------------|------------------------|--------|-----------------|--------------|
| Version Date Author |                        | Author | Reviewed by     | Details      |
| 1                   | 1 24/09/2024 Rob Crump |        | Andrew Muirhead | Final Report |

### **List of Abbreviations:**

APZ Asset Protection Zone

AS3959 Australian Standard 3959 – 2018

BAL Bushfire Attack Level

BPMs Bushfire Protection Measures

BPLM Bushfire Prone Land Map

Council Northern Beaches Council

DA Development Application

ELVIS Elevation and Depth Foundation Spatial Data

EP&A Act Environmental Planning and Assessment Act - 1979

ESD Ecologically Sustainable Development

FRNSW Fire and Rescue NSW

IPA Inner Protection Area

NASH National Association of Steel-framed Housing

NCC National Construction Code

NP National Park

NSP Neighbourhood Safer Place

OPA Outer Protection Area

PBP Planning for Bush Fire Protection – 2019

ROW Right of Way

RF Act Rural Fires Act - 1997

RFS NSW Rural Fire Service

SEPP State Environmental Planning Policy

SFPP Special Fire Protection Purpose

SWS Static Water Supply

#### 1.0 Introduction

The development proposal relates to the alterations and additions of an existing sole occupancy dwelling within a residential allotment located at 2 Adams Street, Frenchs Forest (Lot 12 DP 204122).

The subject site has street access to Adams Street to the south, an unformed road to the east and Moonbi Crescent to the west and abuts similar private residential allotment to the north.

Properties considered to be affected by possible bushfire impact are determined from the local Bushfire Prone Land Map as prepared by Council and or the Rural Fire Service. All property development within affected areas is subject to the conditions detailed in the document 'Planning for Bush Fire Protection - 2019' (PBP).

PBP formally adopted on the 1<sup>st</sup> March 2020 provides for the protection of property and life (including fire-fighters and emergency service personnel) from bushfire impact.

Northern Beaches Council's Bushfire Prone Land Map identifies the subject property as containing the Vegetation Buffer. As the subject site is bushfire prone in accordance with section 4.14 of the *Environmental Planning and Assessment Act* 1979 development consent cannot be granted unless the proposal satisfies the relevant specifications and requirements of PBP.

As the application relates to the alterations and additions of an existing sole occupancy dwelling within a residential allotment the relevant specifications and requirements under PBP are the aim and objectives detailed in Chapter 1 'Introduction' and specific objectives and bushfire protection measures detailed in Chapter 7 'Residential Infill Development'.



Figure 01: Extract from Northern Beaches Councils' Bushfire Prone Land Map.

### 2.0 Legislative Requirements

The subject site is designated as Bushfire Prone Land (Figure 01).

In accordance with section 4.14 of the *Environmental Planning and Assessment Act* 1979 development consent cannot be granted for the carrying out of development for any purpose (other than a subdivision of land that could lawfully be used for residential or rural residential purposes or development for a special fire protection purpose) on bush fire prone land unless the consent authority:

- (a) is satisfied that the development conforms to the specifications and requirements of the version (as prescribed by the regulations) of the document entitled Planning for Bush Fire Protection, or
- (b) has been provided with a certificate by a person who is recognised by the NSW Rural Fire Service as a qualified consultant in bush fire risk assessment stating that the development conforms to the relevant specifications and requirements.
- (1A) If the consent authority is satisfied that the development does not conform to the relevant specifications and requirements, the consent authority may, despite subsection (1), grant consent to the carrying out of the development but only if it has consulted with the Commissioner of the NSW Rural Fire Service concerning measures to be taken with respect to the development to protect persons, property and the environment from danger that may arise from a bush fire.

This Bushfire Assessment Report and accompanying certificate has been prepared by a person who are recognised by the NSW Rural Fire Service (RFS) as qualified in bushfire risk assessment and has been accredited by the Fire Protection Association of Australia as a Level 2 BPAD qualified practitioner.

### 3.0 Purpose of Report

The purpose of this Bushfire Assessment Report is to provide the owners and Council with an independent bushfire assessment together with appropriate recommendations for both new building construction and bushfire mitigation measures considered necessary having regard to construction within a designated 'bushfire prone' area.

The recommendations contained within this report may assist in forming the basis of any specific construction conditions and/or bushfire mitigation measures that Council and/or the NSW Rural Fire Service may elect to place within any consent conditions issued for the subject Development Application.

### 4.0 Scope of this Report

The scope of this report is limited to providing a bushfire assessment and recommendations for the subject property. Where reference has been made to the surrounding lands, this report does not purport to directly assess those lands; rather it may discuss bushfire impact and/or progression through those lands and possible bushfire impact to the subject property.

# 5.0 Compliance Tables & Notes

The following table sets out the project's compliance with *Planning for Bush Fire Protection – 2019*.

|                                      | North                              | East                   | South                     | West            |
|--------------------------------------|------------------------------------|------------------------|---------------------------|-----------------|
| Vegetation<br>Structure              | Forest                             | Forest                 | Remnant (>1ha)            | Managed Land    |
| Slope                                | 10 – 15 degrees<br>down            | 10 -15 degrees<br>down | 0 - 5 degrees<br>down N/A |                 |
| Asset Protection Zone                | >46 metres >70 metres >63 metres N |                        | N/A                       |                 |
| Significant<br>Landscape<br>Features | cape Neighbouring Neighbouring A   |                        | Adams Street              | Moonbi Crescent |
| Threatened Species                   | APZ<br>Existing                    | APZ<br>Existing        | APZ<br>Existing           | APZ<br>Existing |
| Aboriginal Relics                    | APZ<br>Existing                    | APZ<br>Existing        | APZ<br>Existing           | APZ<br>Existing |
| Bushfire Attack<br>Level             | BAL 29                             | BAL 19                 | BAL 12.5                  | BAL Low         |
| Required Construction Level          | BAL 29                             | BAL 29                 | BAL 19                    | BAL 19          |

| Compliance Summary of Bushfire Protection Measures |                        |                         |                |  |
|--|------------------------|-------------------------|----------------|--|
| Bushfire Protection<br>Measure (s7 PBP)            | Acceptable<br>Solution | Performance<br>Solution | Report Section |  |
| Asset Protection Zones                             |                        |                         | 7.03           |  |
| Access   | $\boxtimes$            |                         | 7.03           |  |
| Water Supplies                                     | $\boxtimes$            |                         | 7.03           |  |
| Electricity and Gas<br>Services                    |                        |                         | 7.03           |  |
| Construction<br>Standards                          |                        |                         | 7.03           |  |
| Landscaping  | $\boxtimes$            |                         | 7.03           |  |

# 6.0 Aerial view of the subject allotment



Figure 02: Aerial view of the subject area C/- Nearmap

#### 7.0 Site Assessment

A representative of Building Code & Bushfire Hazard Solutions completed a site inspection of the subject site and surrounding area on 12 January 2024.

The following external data sources have been relied upon for this assessment:

- Aerial imagery of the subject area (NSW Spatial Services & Nearmap).
- 1 metre contour mapping of the subject area (Elevation and Depth Foundation Spatial Data

   Geoscience Australia)
- NSW Planning Portal Spatial Viewer
- Vegetation mapping (NSW State Vegetation Type Map)
- NSW Bush Fire Prone Land (NSW Rural Fire Service)

#### 7.01 Location

The subject property is known as 2 Adams Street, Frenchs Forest (Lot 12 DP 204122) and is a residential allotment (zoned R2: Low Density Residential) located within Northern Beaches Councils Local Government Area.

The subject site has street access to Adams Street to the south, an unformed road to the east, Moonbi Crescent to the west and abuts a similar private residential allotment to the north.

The vegetation identified as being the potential hazards are located within vegetated allotments to the north, east and south.



Figure 03: Land Zoning of subject area (source ePlanning portal).

### 7.02 Vegetation

The vegetation identified as being the potential hazard is located within vegetated allotments to the north, east and south.

The vegetation posing a threat to the proposed development to the north and east was found to consist of trees 10 - 20 metres in height with 50 - 70% foliage cover and an understorey of low trees and ferns.

The vegetation to the south was found to be less than 1 hectare in size and in accordance with sA1.11.1 of PBP is assessed as a remnant vegetation.

The NSW Vegetation mapping identifies the vegetation to the north, east and south as Sydney Coastal Sandstone Gully Forest (PCT: 3595).

For the purpose of assessment under PBP the vegetation posing a hazard to the north and east has been assessed as Forest. The vegetation posing a hazard to the south has been assessed as remnant and rainforest fuel loads have been applied in accordance with A1.11.1 of PBP..



Figure 04: Extract from Vegetation NSW



Photograph 01: View into the vegetation hazard to the north.



Photograph 02: View north along unformed road towards the hazard to the north, showing the managed land.

### 7.03 Slope and Topography

The slope of the land under the classified vegetation has a direct influence on the forward rate of spread, fire intensity and radiant heat exposure. The effective slope is considered to be the slope under the classified vegetation which will most significantly influence bushfire behaviour toward the development site.

In accordance with A1.4 'Determine slope' of PBP the slope assessment is to be derived from the most detailed contour data available.

The slope that would **most significantly** influence bushfire impact was determined onsite using an inclinometer and verified from topographic imagery to be:

- ➤ 10 15 degrees down slope within the hazard to the north and east
- ▶ 0 5 degrees down slope within the hazard to the to the south



Figure 05: Extract from ELVIS - Geoscience Australia - 1m contours

### 7.04 Fire Weather

All development which attracts an Asset Protection Zone and Bushfire Attack Level under PBP requires the identification of the relevant Forest Fire Danger Index (FFDI). The FFDI required to be used for development assessment purposes is based on the local government boundaries, being Northern Beaches Council in this instance.

In accordance with the NSW Rural Fire Service publication 'NSW Local Government Areas FDI' (2017) Northern Beaches Council forms part of the Greater Sydney Region Fire Weather District and attracts an FFDI of 100.

#### 8.0 Bushfire Protection Measures

### 8.01 Planning for Bush Fire Protection - 2019

Planning for Bush Fire Protection – 2019 (PBP) is applicable to development located on land determined as being 'bushfire prone' in accordance with the local Bushfire Prone Land Map.

Bushfire prone land are defined as those areas;

- containing or within 100m of Category 1 Vegetation; or
- containing or within 30m of Category 2 or 3 Vegetation.

Northern Beaches Council's Bushfire Prone Land Map identifies the subject property as containing the Vegetation Buffer therefore PBP must apply in this instance.

The application of Planning for Bush Fire Protection requires satisfactory demonstration of the aim and objectives and the following bushfire protection measures (BPMs):

- Asset Protection Zones
- Building construction, siting & design
- Access arrangements
- Water supply & utilities
- Landscaping

As the proposal relates to the alterations and additions to an existing sole occupancy dwelling, the proposal must comply with the bushfire protection measures detailed within Chapter 7 'Residential Infill Development' of PBP.

#### 8.02 Asset Protection Zones

An Asset Protection Zone (APZ) is an area between the development (in this instance the building footprint) and the identified bushfire hazards where fuels are maintained to a minimum to prevent the spread of fire between a hazard and an asset.

The width of the APZ is determined by the vegetation structure of the identified hazard, Forest Fire Danger Index, effective slope and the type of development (residential development or Special Fire Protection Purpose).

The Acceptable Solution under Table 7.4a of PBP requires APZs be provided in accordance with Table A1.12.2, consistent with that for residential subdivisions.

The minimum required APZ for the proposed works was determined from Table A1.12.2 of PBP to be 45 metres from the bushfire hazard to the north and east, and 14 metres from the bushfire hazard to the south.

The available APZs to the proposed dwelling is 46 metres from the bushfire hazard to the north, 70 metres to the bushfire hazard to the east and 63 metres to the bushfire hazard to the south, exceeding the minimum required APZ in accordance with A1.12.2 of PBP.

It is proposed that all grounds not built upon shall be maintained in accordance with an APZ (Inner Protection Area). This will result in the provision of a defendable space for attending fire service and in conjunction with the application of the recommended construction provisions will provide APZs commensurate with the construction.



Photograph 03: View of the maintained within unformed road to the east.

### 8.03 Building construction, siting & design

Australian Standard 3959 – 2018 'Construction of buildings in bushfire-prone areas' (AS3959) specifies construction standards for buildings within various Bushfire Attack Levels as determined by Planning for Bush Fire Protection – 2019.

AS3959 provides for six (6) levels of building construction these being BAL - Low, BAL - 12.5, BAL - 19, BAL - 29, BAL - 40 and BAL - FZ.

| Bushfire Attack<br>Level | Maximum radiant heat impact (kW/m²) | Level of construction under AS3959-2018 |  |  |
|--------------------------|-------------------------------------|---|--|--|
| Low                      |                                     | No special construction requirements    |  |  |
| 12.5                     | ≤12.5                               | BAL - 12.5                              |  |  |
| 19                       | 12.6 to 19.0                        | BAL - 19                                |  |  |
| 29                       | 19.1 to 29.0                        | BAL - 29                                |  |  |
| 40                       | 29.1 to 40.0                        | BAL - 40                                |  |  |
| Flame Zone               | >40.0                               | BAL FZ No deemed to satisfy provisions  |  |  |

Table 01: Correlation between bushfire impact and AS3959

The highest Bushfire Attack Level to the proposed works was determined from Table A1.12.5 of PBP to be 'BAL 29'. The proposed works will be constructed to sections 3 and 7 (BAL 29) under AS3959 – 2018 and the additional construction requirements detailed in section 7.5 of PBP.

The southern and western elevation has been downgraded to BAL 19 due to shielding by the dwelling itself.

### 8.04 Property Access

The subject property has street access to Adams Street to the south. Persons seeking to egress from the subject property will be able to do so via the existing access drive and public roads.

The most distant external point of the existing dwelling and proposed works is less than 70 metres from a public road supporting the operational use of fire fighting vehicles and therefore the Access requirements detailed in Table 7.4a of PBP are not applicable.

Access to the hazard is available via Adams Street and surrounding streets for hazard reduction or for fire suppression activities.

The existing access is considered adequate for this development.

### 8.05 Water Supply & Utilities

Hydrants are available throughout Adams Street and surrounding streets for the replenishment of fire service vehicles. The most distant external point of the building footprint is less 70 metres from an operational hydrant and therefore a Static Water Supply is not required in consideration of AS2419.1 - 2021 and Chapter 7 of PBP.

The proposed dwelling will have a new connection to the existing electrical network.

Any new gas connections must comply with Table 7.4a of PBP.

The existing water supply is adequate for this development.

### 8.06 Emergency management arrangements

Evacuation is possible by utilising existing road infrastructure.

It is encouraged that the occupants complete a Bush Fire Survival Plan. The template for this plan is available at https://www.rfs.nsw.gov.au/resources/bush-fire-survival-plan.

### 8.07 Landscaping

Any new landscaping must comply with Table 7.4a of *Planning for Bush Fire Protection* 2019.

### 8.08 Aim & Objectives of PBP

The following table details the aim and objectives of Planning for Bush Fire Protection 2019 and the proposal's ability to comply.

#### Aim / Objective

The aim of PBP is to provide for the protection of human life and minimise impacts on property from the threat of bush fire, while having due regard to development potential, site characteristics and protection of the environment.

#### Comment

With the inclusion of the recommendations made herein it is of our opinion that the aim of PBP has been satisfied.

#### Aim / Objective

#### Comment

(i) afford buildings and their occupants protection The proposed works will be constructed to the relevant Bushfire Attack Level

The proposed works will be constructed to the relevant Bushfire Attack Level and along with the APZ will protect occupants from exposures to a bushfire.

(ii) provide for a defendable space to be located around buildings;

There is a defendable space available to the identified hazard.

(iii) provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings; The APZs, in conjunction with construction measures will prevent the likely fire spread to the building.

(iv) ensure that appropriate operational access and egress for emergency service personnel and occupants is available; The existing access and road network provides appropriate operational access and egress for emergency services.

(v) provide for ongoing management and maintenance of bush fire protection measures, (BPMs); and

All grounds within the subject site will be maintained in accordance with an Asset Protection Zone / Inner Protection Area as detailed in Appendix 4 of Planning for Bush Fire Protection 2019 and the NSW Rural Fire Service publication 'Standards for Asset Protection Zones'.

Any new landscaping is to comply with the provisions of Table 7.4a and Appendix 4 of PBP.

(vi) ensure that utility services are adequate to meet the needs of firefighters.

Hydrants are available throughout Adams Street and surrounding streets for the replenishment of fire service vehicles.

The recommended water supply is adequate for the replenishment of attending fire services.

It is therefore of our opinion that the proposal can satisfactorily comply with the aim and objectives of Planning for Bush Fire Protection 2019.

#### 9.0 Recommendations

The following recommendations are provided as the minimum necessary for compliance with Planning for Bush Fire Protection – 2019 and Australian Standard 3959 'Construction of buildings in bushfire-prone areas - 2018. Additional recommendations are provided to supplement these minimum requirements where considered necessary.

#### **Asset Protection Zones**

1. That all grounds within the subject property shall be maintained as an Asset Protection Zone (Inner Protection Area) as detailed in the NSW Rural Fire Service's document 'Standards for Asset Protection Zones' and Appendix 4 of *Planning for Bush Fire Protection* 2019.

Note: At the time of our inspection no tree removal is required to implement the above recommendation and no additional tree planting is permitted.

#### Construction

- 2. That all new roofing and new construction facing north and east shall comply with sections 3 and 7 (BAL 29) Australian Standard AS3959-2018 "Construction of buildings in bush fire-prone areas' and section 7.5 of "Planning for Bush Fire Protection 2019".
- 3. That all new construction facing south and west shall comply with sections 3 and 6 (BAL 19) Australian Standard AS3959-2018 "Construction of buildings in bush fire-prone areas' and section 7.5 of "Planning for Bush Fire Protection 2019".

### Landscaping

4. That any new landscaping is to comply with Table 7.4a of *Planning for Bush Fire Protection* 2019.

### Gas (where applicable)

- 5. That any new gas services are to comply with Table 7.4a of Planning for Bush Fire Protection 2019 as follows:
  - ➤ reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 and the requirements of relevant authorities, and metal piping is used;
  - all fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side;
  - connections to and from gas cylinders are metal;
  - polymer-sheathed flexible gas supply lines are not used; and
  - above-ground gas service pipes are metal, including and up to any outlets.

### **Emergency management**

6. That the occupants of the subject dwelling complete a Bush Fire Survival Plan.

#### 10.0 Conclusion

Given that the property is deemed bushfire prone under Northern Beaches Council's Bushfire Prone Land Map any development would need to meet the requirements of Planning for Bush Fire Protection – 2019 and of the construction requirements of AS3959 – 2018. The determination of any bushfire hazard must be made on a site-specific basis that includes an assessment of the local bushland area and its possible impact to the subject property.

The subject property is a residential allotment within an area of similar properties. The vegetation identified as being the potential hazard is located within vegetated allotments to the north, east south of the subject property. The vegetation posing a hazard to the north and east has been assessed as Forest, and the vegetation posing a hazard to the south has been assessed as Remnant.

The highest Bushfire Attack Level to the proposed works was determined from Table A1.12.5 of PBP to be 'BAL 29'. The proposed works will be constructed to sections 3 and 7 (BAL 29) under AS3959 - 2018 and the additional construction requirements detailed in section 7.5 of PBP. The southern and western elevation has been downgraded to BAL 19 due to shielding by the dwelling itself.

The existing water supply and access provisions are considered adequate.

In accordance with the bushfire safety measures contained in this report, and consideration of the site-specific bushfire risk assessment it is our opinion that when combined, they will provide a reasonable and satisfactory level of bushfire protection to the subject development.

We are therefore in support of the development application.

Should you have any enquiries regarding this project please contact me at our office.

Prepared by

Building Code & Bushfire Hazard Solutions

Rob Crump Bushfire Consultant

Reviewed and endorsed by Building Code & Bushfire Hazard Solutions

Andrew Muirhead

Bushfire Consultant Graduate Certificate in Bushfire Protection Diploma of Engineering. FPA Australia BPAD Level 2 Accredited Practitioner

BPAD Accreditation No. BPAD46966



#### **11.0 Annexure 01**

### **List of Referenced Documents**

Australian Building Codes Board (2022). National Construction Code Volume Two - Building Code of Australia. ABCB

Dragonfly Architects Pty Ltd (2024), Alterations (Job no: DFS2306, Date 23/09/2024).

*ELVIS* -Elevation -*Foundation Spatial Data*. Elevation.fsdf.org.au. Available at: http://elevation.fsdf.org.au/

Keith, D. (2004). "Ocean Shores to Desert Dunes" Department of Environment and Conservation, Sydney

NSW Department of Planning and Environment (2019). *Planning Portal*. Accessed at: https://www.planningportal.nsw.gov.au/

NSW Rural Fire Service (2019). *Planning for Bush Fire Protection. A Guide for Councils, Planners, Fire Authorities and Developers*.

Standards Australia (2018). AS3959 Construction of buildings in bushfire-prone areas.

Standards Australia (2014). AS/NZS 1596 The storage and handling of LP Gas

Rural Fire Service NSW (2005). Standards for Asset Protection Zones

Acknowledgements to:

Geoscience Australia Nearmaps Street-directory.com.au

#### **Attachments**

Attachment 01: s4.14 Compliance Certificate



**Property Details and Description of Works** 



# **Bush Fire Certificate**

Certificate issued unders4.14(1)(b) of the *Environmental Planning & Assessment Act, 1979* and *Planning for Bush Fire Protection 2019* 

This Certificate has been issued by a person accredited by Fire Protection Association Australia (FPA Australia) under the Bush Fire Planning and Design (BPAD) Accreditation Scheme and who is recognised by the NSW Rural Fire Service as a qualified consultant in bushfire risk assessment within the meaning of section 4.14(1)(b) of the *Environmental Planning and Assessment Act 1979* (NSW).

|  | Unit no                   | Street no                       |  |                   | <b>Lot/Sec/DP</b><br>12/-/DP204122 |                      |  |
|--|---------------------------|---------------------------------|--|-------------------|------------------------------------|----------------------|--|
| Address Details  | Suburb Frenchs Forest     |                                 |  |                   |                                    | Postcode             |  |
| Local Government<br>Area   | Northern Beaches          |                                 |  |                   |                                    |                      |  |
| BCA class of the building  | 1a                        |                                 |  |                   |                                    |                      |  |
| Description of the proposal  | Alterations and Additions |                                 |  |                   |                                    |                      |  |
| Development Application Reference  |                           |                                 |  |                   |                                    |                      |  |
| Bush Fire Assessme   | nt Report                 |                                 |  |                   |                                    |                      |  |
| A detailed Bush Fire Assessment Report is attached, which includes the relevant submission requirements set out in <i>Appendix</i> 2 of <i>Planning for Bush Fire Protection</i> 2019 together with recommendations as to how the relevant specifications and requirements are to be achieved. |                           |                                 |  |                   | ⊒ио                                |                      |  |
| Report Reference and   | Report Reference and date |                                 |  |                   |                                    |                      |  |
| Bushfire Assessment Report 240442  |                           |                                 | ort 240442   | 24 September 2024 |                                    |                      |  |
|  | ·                         |                                 |  |                   |                                    |                      |  |
| BPAD Certification   |                           |                                 |  |                   |                                    |                      |  |
| Name Andrew Muirhead Company Details & A Bushfire Hazard So 19 057 337 774   |                           | Enviror  I ar qua  the req with | qualified consultant in bush fire risk assessment; and |                   |                                    |                      |  |
| BPAD Accreditation Number  |                           |                                 | ignature   |                   | Date                               | - 333                |  |
| 46966  BPAD  Bushfire  Planning & Design  Accredited Practitioner  Level 2   |                           | esign All                       |  |                   | 24 Sep<br>2024                     | 24 September<br>2024 |  |