

This Report has been prepared and submitted by
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Reference: 18/0262

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Date of Issue: 9 May 2018

Bush Fire Assessment Report

in relation to the proposed
new dwelling forming a dual occupancy at

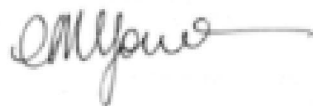
Lot 2 DP 1097876

836 - 842 Richmond Road Berkshire Park

(subject site)



Executive Summary

This Assessment has been Certified by: <u>Catherine Gorrie</u> BPAD-A Certified Practitioner FPAA Cert No: BPAD20751	
What is the recommended level of compliance with AS 3959-2009?	AS 3959 – 2009 BAL 12.5
Can this proposal comply with AS 3959-2009 and Addendum to Appendix 3 of Planning for Bushfire Protection (PBP)?	Yes
Does this development comply with the aims and objectives of PBP?	Yes
Is referral to the NSW Rural Fire Service (RFS) required?	Yes
Plan Reference	Plans by Cook Constructions numbered 1712 dated 10/11/2017
Bushfire Consulting Services Pty Ltd Report Issue No: Date of Issue:	1 9/05/2018

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Disclaimer

Any recommendation or advice expressed in this report is made in good faith and in accordance with the relevant legislation for bushfire prone development in New South Wales. It should be borne in mind that the measures recommended in this report cannot guarantee that a building will survive a bushfire event on every occasion. This is due to the degree of vegetation management, the unpredictable behaviour of bushfires and extreme weather conditions. As such, the author is not liable to any person for any damage or loss whatsoever which has occurred or may occur in relation to the person taking action or not taking action based on the recommendations of this report.

Note: This report remains valid for 12 months from the date of issue.

List of Abbreviations

APZ	Asset Protection Zone
AS3959	Australian Standard 3959 – 2009 including Amendment 3
BAL	Bushfire Attack Level
BCA	Building Code of Australia
BPAD	Bushfire Planning and Design (Accreditation Scheme)
BPMs	Bushfire Protection Measures
BPLM	Bushfire Prone Land Map
Council	Penrith Council
CDC	Complying Development Certificate
DA	Development Application
EP&A Act	Environmental Planning and Assessment Act – 1979
FPAA	Fire Protection Association of Australia
OPA	Outer Protection Area
PBP	Planning for Bushfire Protection 2006
RF Act	Rural Fires Act – 1997
RFS	NSW Rural Fire Service
SEPP	State Environmental Planning Policy
SWS	Static Water Supply

Introduction

The purpose of this report is to determine the category of bushfire attack and subsequent construction standard for the proposed new dwelling forming a dual occupancy at Lot 2 DP 1097876, 836-842 Richmond Road Berkshire Park.

The land has been mapped as being bushfire prone land, and therefore under Section 100B of the Rural Fires Act 1997 the application must be submitted to the Commissioner of the Rural Fire Service for approval and issue of a 'Bushfire Safety Authority'.

A 'Bushfire Safety Authority' authorises development to the extent that it complies with matters considered by the Commissioner to be necessary to protect persons, property or the environment from danger that may occur from a bushfire.

This assessment will address each of the heads of consideration listed under clause 44 of the *Rural Fires Regulation 2008* to provide the Rural Fire Service with the necessary information to allow for the issue of a Bush Fire Safety Authority (BFSA) pursuant to the provisions of Section 100B of the *Rural Fires Act 1997*.

This assessment includes an analysis of the hazard, threat and subsequent risk to the development proposal and provides recommendations that satisfy the objectives and performance requirements of Planning for Bush Fire Protection and Australian Standard AS3959-2009.

Site Assessment

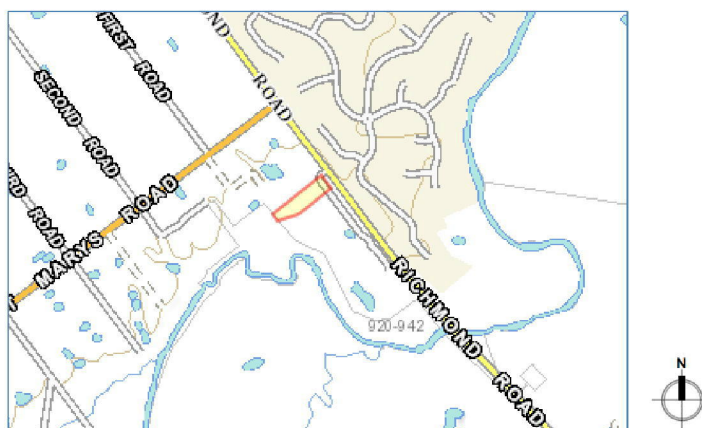
Bushfire Consulting Services Pty Ltd attended the site on 3 May 2018. The assessment relates to the plans referenced on page 2 of this report. The NSW Department of Planning Spatial Information Exchange mapping website has also been used as a reference, and Ocean Shores to Desert Dunes by David Keith, in determining the vegetation type.

Location

The site is located and known as Lot 2 DP 1097876, 836 – 842 Richmond Road Berkshire Park. The property is part of the Penrith Council local government area. It is situated on the southwest side of Richmond Road, and the nearest cross street is St Marys Road.

The allotment is approximately 2.257ha in area and faces northeast toward Richmond Road. It currently contains a single storey dwelling with attached carport and garage, two sheds and three greenhouses.

Figure 1: Location Map: Source: Land & Property Management Authority (LPMA) SIX Viewer



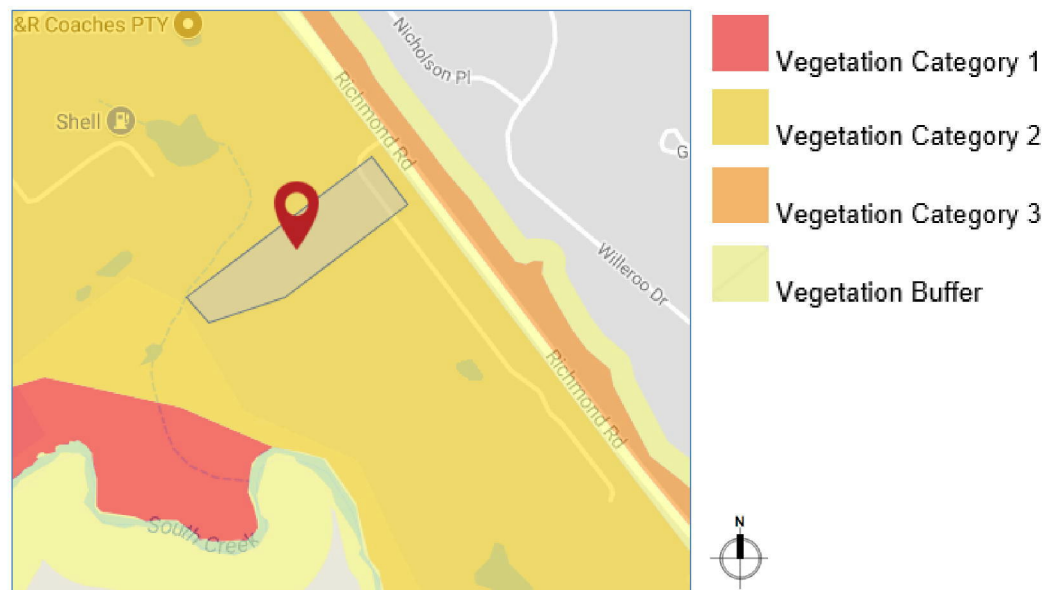
Site location outlined in red

Figure 2: Aerial Map: Source: LPMA SIX Viewer



Site location outlined in red

Figure 3: Bushfire Prone Land Map: Source: NSW Government Planning Viewer

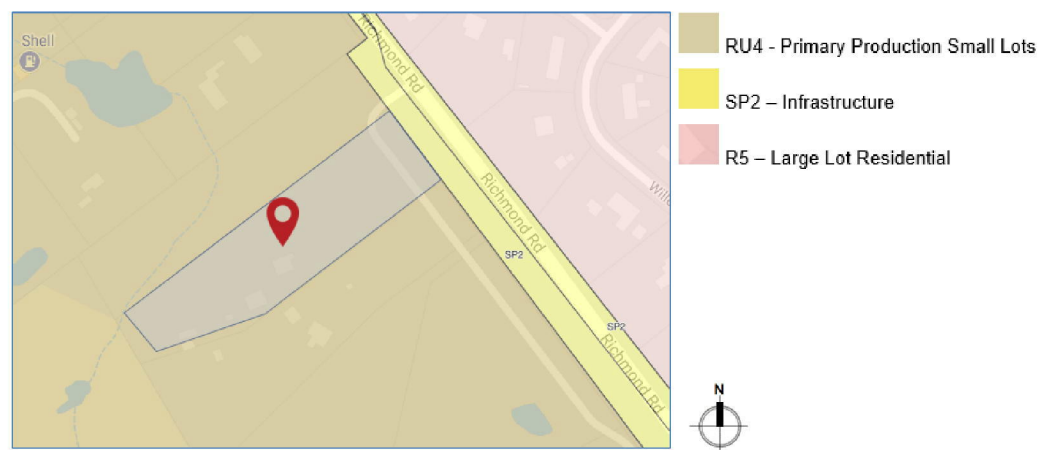


Site location outlined in blue

Zoning

The land is zoned RU4 - Primary Production Small Lots under Penrith Council LEP 2010. Adjacent lands to the north, east, south and west are similarly zoned. Lands to the northeast are zoned SP2 – Infrastructure.

Figure 4: Zone Map; Source NSW Government Planning Viewer



Site location outlined in blue

The Proposal

The development is for a new single storey dwelling, porch, alfresco, garage and rainwater tank to the northeast of the existing dwelling. The existing dwelling is being retained, thereby forming a dual occupancy. The building classification is Class 1a, 10a and 10b.

Vegetation Classification for the Site and Surrounds

The bushfire threat emanates from classified vegetation located to the northeast, southeast and northwest of the lot. Based on a site inspection and determination of vegetation formation using the Keith 2004 Identification Key, the primary bushland vegetation having the potential to affect the subject development is a small area of Forest located to the northeast, which is modelled as though it were Rainforest. By modelling as Rainforest, the lesser fuel loads associated with small areas of vegetation are more accurately reflected.

According to PBP section A2.3, p.52, *“Remnant vegetation is a parcel of vegetation with a size of less than 1 ha or a shape that provides a potential fire run towards buildings not exceeding 50m. These remnants are considered a low hazard and APZ setbacks and building construction standards for these will be the same as for rainforests”*.

The vegetation threats to the southeast and northwest are most representative of grassland.

Direction	Vegetation Classification
Northeast	Managed Land for 44m then Forest modelled as Rainforest
Southeast	Managed Land for 34m then Grassland
Southwest	Managed Land for >100m
Northwest	Managed Land for 56m then Grassland

Figure 5: Site Photos: Source: BFCS P/L dated 3/05/2018



Subject site from the Right of Carriageway to the northeast of the dwelling location



Proposed dwelling location



Small area of Forest vegetation to the northeast of the proposed dwelling and Right of Carriageway



The adjoining lot to the southeast, which is grazed, but treated as Grassland

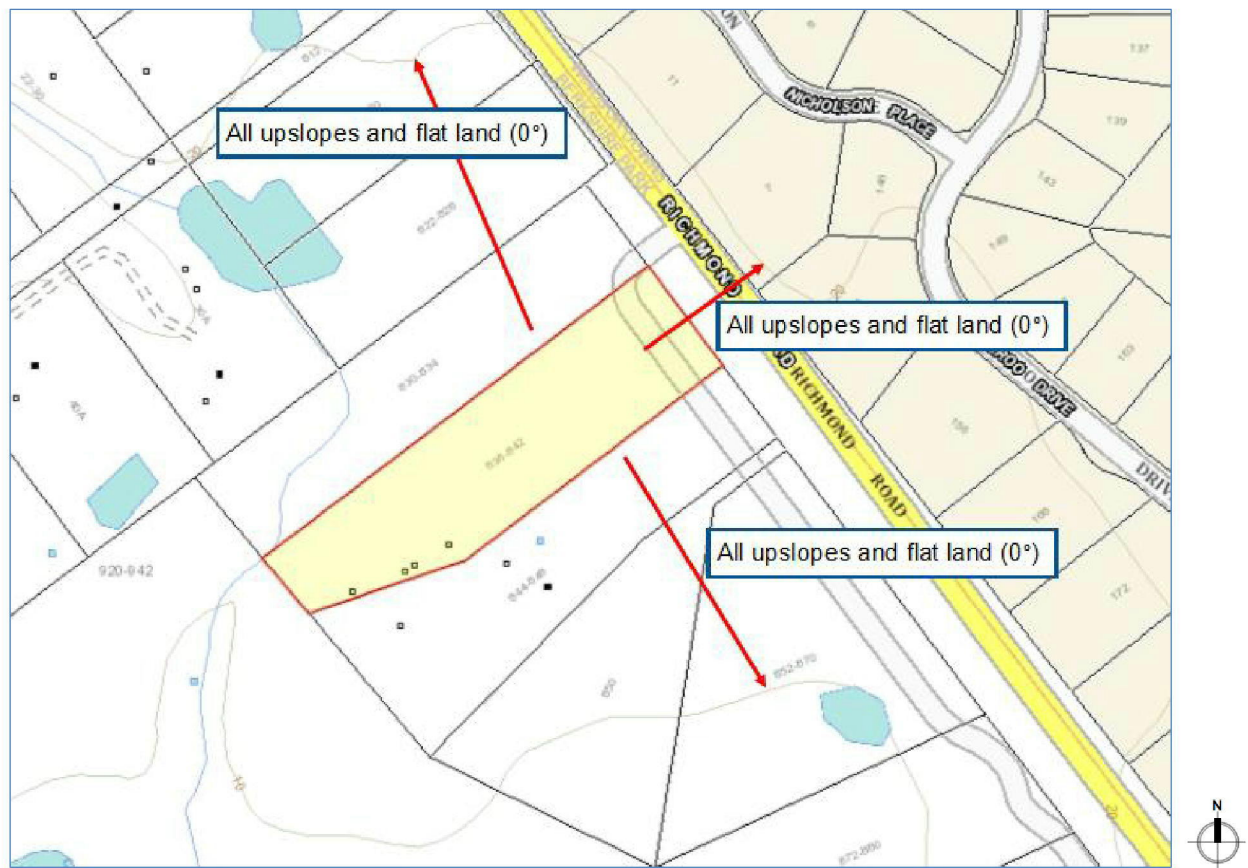


View to adjoining land to the northwest which is being prepared for agricultural purposes

Slope

The slope is measured over a distance of 100m from the proposed building footprint on the site, under the classified vegetation community constituting the hazard. The slope was found to be consistent with the topographical data from SIX Maps.

Figure 6: Slope Diagram: Source: LPMA SIX Viewer



Site location outlined in red

Direction from Building Footprint	Slope Description
Northeast	All upslopes and flat land (0 degrees)
Southeast	All upslopes and flat land (0 degrees)
Southwest	N/A
Northwest	All upslopes and flat land (0 degrees)

Note: Effective 'slope' refers to the slope under the classified vegetation in relation to the building, not the slope between the building and the classified vegetation.

Fire Weather

The development is located in the Penrith Council area which is part of the Greater Sydney Region, which has a Fire Danger Index of 100.

Identification of Significant Environment Features

The focus of this report has not been to research any significant environmental features on the land. As the land has been developed and maintained, it is considered unlikely that any significant environmental features are contained on the land.

Threatened Species Identification

The focus of this report has not been to research any threatened species which may exist on the land. As the land has been developed and maintained, it is considered unlikely that any significant environmental features are contained on the land.

Aboriginal Relic or Place Detail and Location Known to Exist on the Property

The site is a fully developed residential site and there are no Aboriginal Places or Items of significance thought to exist on the site. A search has been carried out on the Aboriginal Heritage Information Management System which is attached as an Annex.

Water Supply

The area has a reticulated water supply and hydrants are spaced at regular intervals along Richmond Road and the Right of Carriageway. The nearest street hydrant is located approximately 52m to the northeast of the lot. This is within the minimum required distance from the most distant point of the development in accordance with the requirements of PBP and AS2419.1 2005.

Access and Egress

The public roads in the vicinity of the Subject Site are all two way, with no restrictions to impede the flow of traffic and appear to be adequate to handle increased traffic in an emergency.

The Subject Site has access to adjoining public roads via a Right of Carriageway and the new dwelling is located approximately 90m from the public roadway Richmond Road. Access and egress for emergency vehicles and evacuation appears adequate.

Bush Fire Assessment Report

The following is derived from AS 3959-2009 and the simplified method for determining the Bushfire Attack Level – Method 1, as outlined in AS 3959-2009. The BAL is determined for each vegetation type, and the worst case utilised to determine the appropriate BAL.

Table 1: Reference AS3959-2009 Table 2.4.2

Direction	Distance of APZ	Vegetation Type	Assessment of Effective Slope	Anticipated Radiant Heat	Bushfire Attack Level
Northeast	44m	Forest modelled as Rainforest	All upslopes and flat land (0 degrees)	<12.5	BAL 12.5
Southeast	34m	Grassland	All upslopes and flat land (0 degrees)	<12.5	BAL 12.5
Southwest	>100m	N/A	N/A	N/A	BAL 12.5
Northwest	56m	Grassland	All upslopes and flat land (0 degrees)	<12.5	BAL 12.5

The Adequacy of Bushfire Maintenance Plans and Fire Emergency Procedures for the Development Site

Bushfire maintenance plans

The Subject Site shall be landscaped and managed in accordance with the Appendix 5 of PBP.

Fire emergency procedures for the site

These consist of passive fire protection measures that provide a safe refuge, defensible space, asset protection zones and adequate access and egress paths for occupants and firefighting authorities. The need to formulate an emergency evacuation is suggested. To do so, occupants can complete a Bush Fire Safety Plan on the NSW RFS Website <http://www.rfs.nsw.gov.au/> under publications / bushfire safety.

The Construction Standards to be Used for Building Elements in the Development

Construction standards have been determined in accordance with the requirements of AS3959-2009 Table 2.4.2.

The Adequacy of Sprinkler Systems and Other Fire Protection Measures to be Incorporated into the Development

Sprinkler systems are neither recommended, nor required.

The fire protection measures that have been addressed include:

- Asset protection zones which satisfy the requirements of Chapter 4 of PBP and provide appropriate defensible space for fire fighting authorities.
- Construction standards that do not deviate from the requirement of PBP.
- Access and egress paths designed, established and maintained that are adequate to provide safe and effective evacuation from the site.
- Water supplies that comply with the requirements of 4.1.3 of PBP.

Assessment of Compliance with PBP

The proposed development conforms to PBP as follows:

Performance Criteria	Meets Performance Criteria?	Comments
Asset Protection Zones	Yes	According to AS3959 Table 2.4, the minimum APZ required to achieve BAL 12.5 is 23m. The APZ is achievable wholly within the subject site. The land is already suitably managed in all directions and does not contain vegetation that requires modification
Defendable Space	Yes	Defendable space is available to each side of the proposed dwelling

Performance Criteria	Meets Performance Criteria?	Comments
Siting and design	Yes	The siting of the building is determined in accordance with Local Council requirements
Landscaping	Yes	Any new landscaping shall be implemented and managed in accordance with the principles of Appendix 5 of PBP
Construction standards	Yes	Construction standards have been recommended in accordance with the requirements of PBP
Access and egress	Yes	The access and egress requirements have been designed to provide safe and effective evacuation from the Subject Site and appear to be adequate for fire brigade personnel and fire fighting equipment
Water supplies	Yes	The area has reticulated water supply and the nearest street hydrant is within the minimum required distance from the most distant point of the new lot in accordance with the requirements of PBP and AS2419.1 2005
Emergency and evacuation planning	Yes	The need to formulate an emergency evacuation is suggested. To do so, occupants can complete a Bush Fire Safety Plan on the NSW RFS Website http://www.rfs.nsw.gov.au/ under publications / bushfire safety

Recommendations

The following recommendations are made for the bushfire protection measures for the proposed development of a new dwelling forming a dual occupancy at Lot 2 DP 1097876, 836 – 842 Richmond Road Berkshire Park and are based upon the relevant provisions of the NSW Rural Fire Service Guideline entitled *Planning for Bush Fire Protection 2006*.

1. Construction Standard

The new dwelling shall be constructed to sections 3 and 5 of AS3959-2009 (BAL 12.5), with the exception that the construction requirements shall be varied to comply with the requirements of Section A3.7 of the NSW Rural Fire Service Addendum to Appendix 3 of Planning for Bushfire Protection 2006.

2. Asset Protection Zones

At the commencement of building works and in perpetuity, the lot shall continue to be managed as an APZ for a distance of 23m to the northeast and 19m to the southeast, southwest and northwest, as outlined in AS3959 Table 2.4.2 and the NSW RFS document 'Standards for Asset Protection Zones'.

The following points are a guide to Asset Protection Zone Area requirements. The Asset Protection Zone Area should comprise the following:

- Minimal fine fuel on the ground.
- Vegetation that does not provide a continuous path to the building for the transfer of fire.
- Shrubs and trees that do not form a continuous canopy and vegetation is planted in clumps, rather than continuous rows.
- Species that retain dead material or deposit excessive quantities of ground fuel are avoided.
- Shrubs and trees are pruned so that they do not touch or overhang the building.
- Vegetation is located far enough away from the building so that plants will not ignite the building by direct flame contact or radiant heat emission.

3. Emergency and Evacuation Planning

The need to formulate an emergency evacuation is suggested. To do so, occupants can complete a Bush Fire Safety Plan on the NSW RFS Website <http://www.rfs.nsw.gov.au/> under publications / bushfire safety.

Summary

This report consists of a Bush Fire Assessment Report for the proposed development of a new dwelling forming a dual occupancy at Lot 2 DP 1097876, 836 – 842 Richmond

Road Berkshire Park. The report concludes that the proposed development is on bushfire prone land and the legislative requirements for development in bushfire prone areas are applicable.

The proposed development will be constructed to the minimum standards required in accordance with the guidelines of PBP. The development satisfies the objective and performance requirements of *Planning for Bushfire Protection 2006* and *Australian Standard AS3959- 2009*.

Notwithstanding the precautions adopted, it should always be remembered that bushfires burn under a wide range of conditions and an element of risk, no matter how small, always remains. Although the standard is designed to improve the performance of such buildings there can be no guarantee, because of the variable nature of bushfires, that any one building will withstand bushfire attack on every occasion.



Catherine Gorrie

Accredited Bushfire Consultant

Fire Protection Association Australia BPAD- LEVEL 3 Accredited Practitioner
(BPAD20751)

Grad Dip Bushfire Protection (UWS 2010)

Diploma Environmental Health & Building Surveying (TAFE 2005)

Corporate Bronze Member Fire Protection Association Australia

Bushfire Consulting Services Pty Ltd

Mob: 0425 833 893

References

Environmental Planning & Assessment Act 1979

Planning for Bush Fire Protection 2006 (Rural Fire Service)

Addendum: Appendix 3, Planning for Bush Fire Protection 2010 (Rural Fire Service)

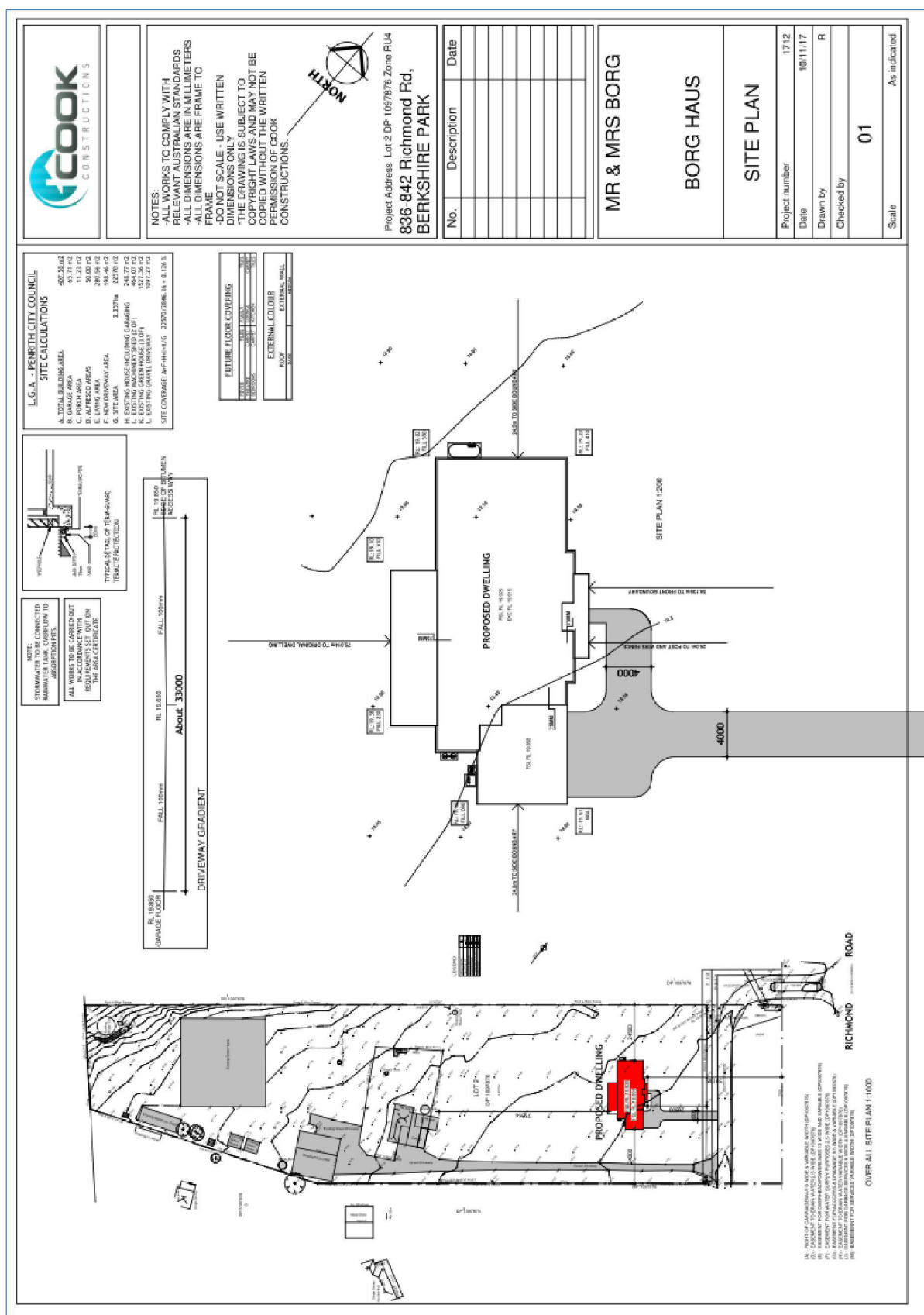
Australian Standard 3959-2009 'Construction of Buildings in Bushfire Prone Areas'

NSW Department of Planning Spatial Information Exchange mapping website

Building Code of Australia (Building Codes Board)

Keith, D., Ocean Shores to Desert Dunes, the Native Vegetation of NSW and the ACT
Department of Environment and Conservation, NSW 2006.

Bushfire Consulting Services Pty Ltd Report No. 18/0262



Appendix 2 - AHIMS Search Result



Office of
Environment
& Heritage

AHIMS Web Services (AWS) Search Result

Purchase Order/Reference : 18-0262

Client Service ID : 342834

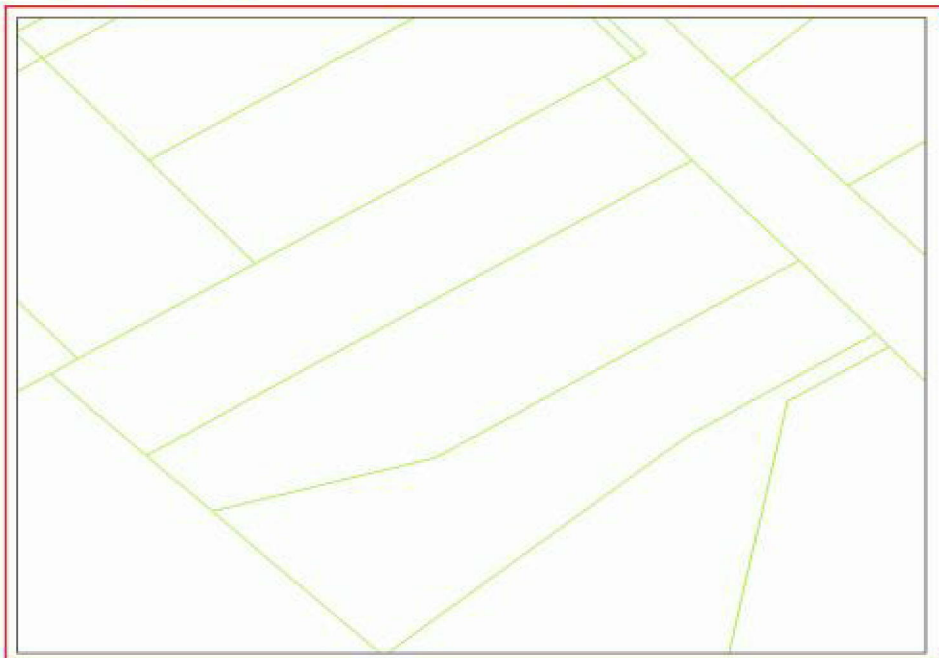
Bushfire Consulting Services Pty Ltd
PO Box 8468
Parramatta Westfield New South Wales 2150
Attention: Catherine Gorrie
Email: catherine@bfcs.com.au

Date: 04 May 2018

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 2, DP:DP1097876 with a Buffer of 50 meters, conducted by Catherine Gorrie on 04 May 2018.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the [NSW Government Gazette](http://www.nsw.gov.au/gazette) (<http://www.nsw.gov.au/gazette>) website. Gazettal notices published prior to 2001 can be obtained from Office of Environment and Heritage's Aboriginal Heritage Information Unit upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not to be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Office of Environment and Heritage and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings.
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

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