

ANNEXURE 5

Bushfire Hazard Assessment Report

Proposed Commercial / Residential Development

Location:
1112 - 1118 Barrenjoey Road,
Palm Beach

Prepared For:
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29th June 2009

Reference Number: 90489



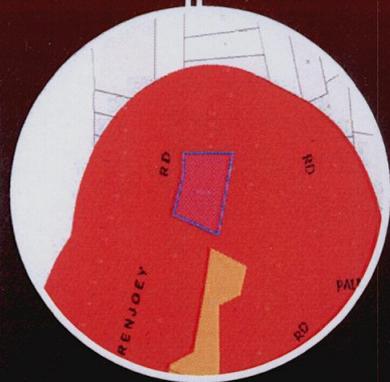
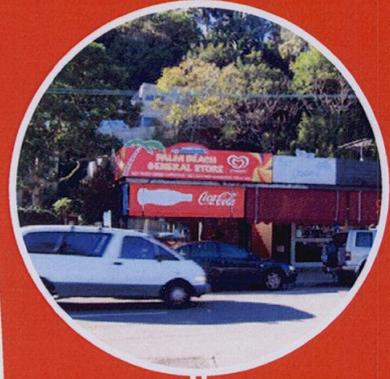
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List of Abbreviations:

APZ	Asset Protection Zone
BCA	Building Code of Australia
BEP	Bushfire Evacuation Plan
BPMs	Bushfire Protection Measures
BPLM	Bushfire Prone Land Map
Council	Pittwater Council
DA	Development Application
EP&A Act	Environmental Planning and Assessment Act 1979
ESD	Ecologically Sustainable Development
IPA	Inner Protection Area
NP	National Park
NPWS	National Parks and Wildlife Service
NSWFB	NSW Fire Brigades
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
SFPP	Special Fire Protection Purpose
SWS	Static Water Supply

1.0 Introduction

The development proposal relates to the demolition of an existing commercial building and the construction of a new, 5 level commercial building having residential units on levels 3-5 on the same allotment located at Lot 21, DP 571298 being numbers 1112 – 1118 Barrenjoey Road, Palm Beach. The Building Code of Australia requires Type A construction, essentially being solid walled and non combustible.

Pittwater Council's Bushfire Prone Land Map depicts the subject property as being within a 100 metre buffer zone from designated Category 1 Vegetation.

There is limited bushfire threat to the subject site. Possible minor bushfire impact is across slope from vegetation being approximately 79m from the site in a southerly direction located on private property. It is of note that the current Bushfire Prone Land Map may not be completely accurate in this particular location.

As the property is identified as bushfire prone the application of Planning for Bushfire Protection - 2006 (PBP) must apply in this instance.

2.0 Purpose of Report

The purpose of this Bushfire Hazard Assessment Report is to provide the owners, The Rural Fire Service and Council with an independent bushfire hazard determination together with appropriate recommendations for both 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 Rural Fire Service may elect to place within any consent conditions issued for the subject Development Application.

3.0 Scope of this Report

The scope of this report is limited to providing a bushfire hazard 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.

Where Council considers a bushfire risk is associated with surrounding private lands or lands owned by an authority, Council could seek to issue notice under Section 66 of the Rural Fires Act on any or all surrounding properties for the purposes of reducing and maintaining safe levels of vegetation and thus reducing the possibility of bushfire impact to the subject property and any adjoining properties.

4.0 Referenced Documents and Persons

Comments provided are based on the requirements of the NSW Environmental Planning and Assessment Act 1979 (EP&A Act), the Rural Fires Act 1997, the Rural Fires Regulation - 2008, the RFS document known as 'Planning for Bushfire Protection – 2006' for the purposes of bushfire hazard determination and Australian Standard AS3959 – 1999 titled 'Construction of buildings in bushfire-prone areas' as amended for building/structural provisions.

A company representative has made a single site inspection of the subject property and the surrounding area.

5.0 Compliance Tables & Notes

The following table sets out the projects compliance with *Planning for Bushfire Protection – 2006*.

	South	West	North	East
Vegetation Structure	Remnant	Nil	Nil	Nil
Slope	0 degrees across slope	0-5 degrees downl	0-5 degrees up slope	25 degrees up slope
Required Asset Protection Zone	10 Metres	Nil	Nil	Nil
Proposed Asset Protection Zone	79 Metres	0 Meters	0 Meters	0 Metres
Significant environmental features	Neighbouring well maintained allotment	Barrenjoey Road & Car Park	Neighbouring well maintained Units	Neighbouring well maintained dwelling
Threatened species	APZ Existing	N/A	N/A	N/A
Aboriginal Relics	APZ Existing			
Category of bushfire attack	Low			
Required construction Level	Nil			
Proposed construction Level	Nil *			

* Special note: screening has been recommended

Asset Protection Zones Compliance

The closest point of the proposed building is 79 metres from the hazard to the south. The existing Asset Protection Zone consists of very well maintained grounds wholly within the adjoining southern property.

As the proposed building is a commercial property of Type A construction it will encompass the whole of the allotment up to all boundaries. In this case no recommendations for APZ's will be included due to the limited bushfire impact from the remnant hazard. Reference is made to Appendix 2 of PFBP -2006 Clause A2.3(a) for the definition of remnant hazard where: "or a shape that provides for a potential fire run directly toward the buildings not exceeding 50m". In this case the worst case area was measured at 42m in width at approximately 79m separation.

Construction Level Compliance

The highest Bushfire Attack Category to the proposed building within the subject allotment was determined to be 'Low' therefore no formal construction level under AS3959 – 1999 is required under PFBP -2006.

It is noted however that the construction requirements under the Building Code of Australia are 'Type A' construction which requires significant fire resistance levels on all external walls. As a consequence we would recommend ONLY the screening of selected openings to accord with Level 1 Construction under AS3959-1999 to prevent possible internal ember impact. (refer to later detail)

Access and Services

Access and services are considered to be acceptable for the subject building.

Guideline Ref.	Proposed Development Determinations	Compliance
Property Access (Driveway)	The proposed building abuts Barrenjoey Road and includes a basement car park entry. Access for fire services is the existing parallel car parking bays on Barrenjoey Road.	Yes
Water Supply	The most distant external point of the subject building is located < 90 metres from a street hydrant and therefore no static water supply is required.	Yes
Evacuation	Occupant evacuation is possible by utilising existing road infrastructure or adjacent reserve / beach.	Yes
Electrical Supply	Overhead electrical pole is present with U/G service	N/A
Bushfire Evacuation Plan	Not special protection, not required	N/A
Other	N/A	N/A

6.0 Aerial view of the subject allotment



Image 01: Aerial view of the subject area



Image 02: Cadastral view of the subject area

7.0 Bushfire Hazard Assessment

7.01 Preface

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 Bushfire Protection - 2006' (PBP). Set back distances for the purpose of creating Asset Protection Zones (APZ's) must be applied and any buildings must then conform to corresponding constructional regulations detailed in Australian Standard 3959 – 1999 'Construction of buildings in bushfire prone areas'.

Planning for Bushfire Protection – 2006, (PBP) formally adopted on the 1st March 2007 provides for the protection of property and life (including fire-fighters and emergency service personnel) from bushfire impact.

The thrust of the document is to ensure that developers of new properties or sub-divisions include the constraints associated with the construction of buildings in bushfire prone areas within their proposed development sites. PBP is applicable to proposed development inside a determined Category 1 or 2 areas and also inside a buffer zone radius of 100m from a Category 1 bushfire area or 30m from a Category 2 bushfire area.

The document also acknowledges 'infill' developments associated with re-development of existing properties and allows some higher levels of building safety where the increased 'set backs' (APZ's) may not be achievable.

The subject development relates to the demolition of an existing commercial building to allow for the construction of a new commercial premises complete with three levels of residential unit accommodation within the existing allotment. The project should be assessed as 'infill' development under section 79BA of the Environmental Planning and Assessment Act 1979, however we have treated it in the same manner as a residential sub-division to pre-empt future strata subdivision.

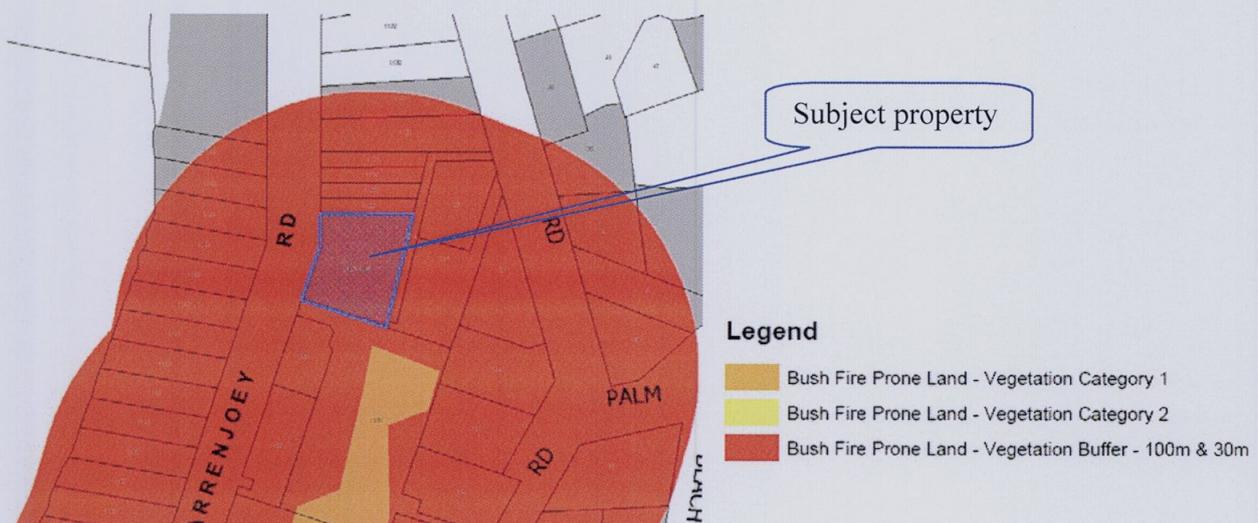


Image 03: Extract from Pittwater Council's Bushfire Prone Land Map

7.02 Location

The subject property is known as 1112 – 1118 Barrenjoey Road, Palm Beach (Lot 21 in DP 571298) and is a commercial allotment located within Pittwater Councils Local Government Area. The subject property has full street access to Barrenjoey Road to the west and abuts neighbouring private residential and commercial allotments to the north, east and south.

The vegetation identified as posing a bushfire threat to the subject site is from possible bushfires burning within the vegetation to the south within neighbouring vegetated allotments.



Photograph 01: View of subject property

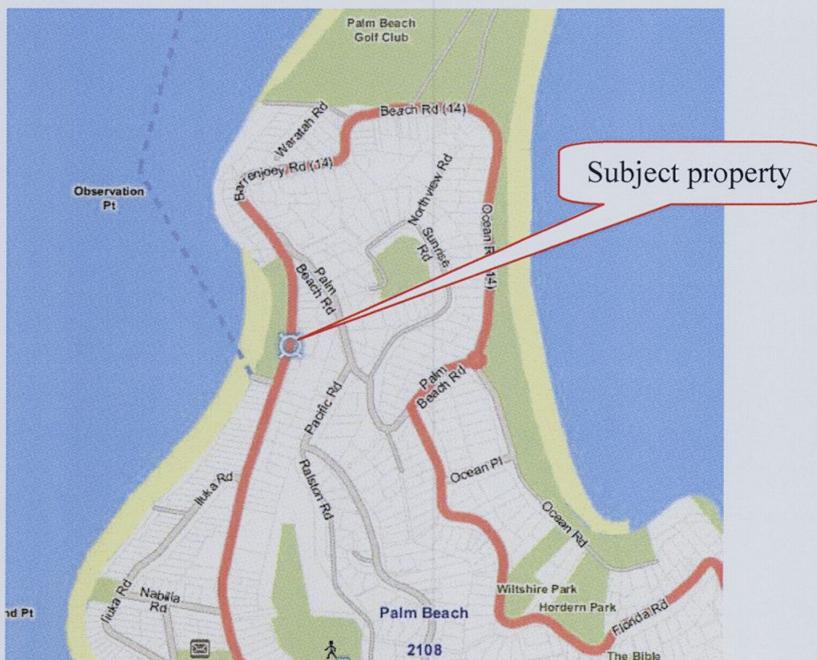


Image 04: Extract from 'street-directory.com.au'

7.03 Slope and Topography

The slope that would most significantly affect fire behaviour must be assessed for at least 100 metres from the proposed commercial building and its residential floors.

The slope that would **most significantly** influence bushfire impact from within the vegetation to the south would be from a fire burning across slope toward the subject property. Any fire impacting from the south is expected to be traveling across and down slope toward the site from remnant forest. The slope that was used to determine the Bushfire Attack Category was determined onsite using an inclinometer and verified from topographic imagery of the area to be;

- 0 degrees across slope within the hazard to the south



Photograph 02: View southeast from Barrenjoey Road Parking Area to the southern adjacent property noting very well maintained grounds with grassed under storey.

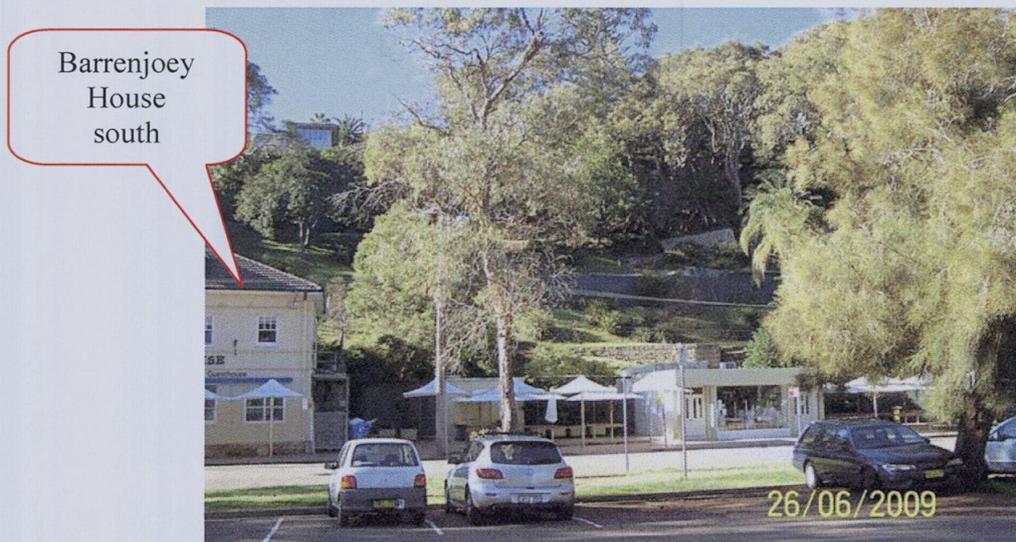
7.04 Vegetation

The predominant vegetation within the subject property was found to be weeds and vines. The predominant vegetation on the neighbouring private allotment to the south was found to consist of maintained gardens and mown lawns through to the remnant forest. The vegetation posing a hazard to the south of the subject property within the neighbouring vegetated allotment was found to consist of trees 10 – 30 metres in height with a 30-70% foliage cover and a mowed grass under storey and small shrubs.

In accordance with PBP 2006 the vegetation to the south has been assessed as remnant Forest and treated as Rainforest to accord with PFBP -2006, Appendix 2, A2.3 (a).



Photograph 03: View southeast from Barrenjoey Road Parking Area to the southern adjacent property noting very well maintained grounds with grassed under storey.



Photograph 04: View east from car park into well maintained southern property above Barrenjoey House

7.05 Asset Protection Zones

The proposed commercial / residential building is located 79 metres from the remnant hazard to the south. The APZ was found to consist of very well maintained grounds wholly within the abutting southern property.

We recommend that the areas noted to be landscaped on the plans for the subject building are to be created and maintained in accordance with Appendix 5 'Landscaping and Property Maintenance' of Planning for Bushfire Protection 2006.

7.06 Fire Fighting Water Supply

The proposed building will be connected to the existing reticulated town's water main in Barrenjoey Road its domestic and internal fire service needs. Existing in ground hydrants are available along Barrenjoey Road for the replenishment of attending fire service appliances.

The proposed water supply will be considered adequate for the replenishment of attending fire services.

7.07 Property Access – Fire Services & Evacuation

The proposed building will abut Barrenjoey Road and have vehicular access to an underground basement via a street entrance. Conventional parallel parking is available on either side of Barrenjoey Road together with a car park opposite. This will not be altered as part of this development. Occupants seeking to exit the building can do so freely via exit stairs to open space then via the existing road infrastructure.

Fire Services have free access to the property. More importantly attending fire crews can access the remnant hazard via a concrete access drive beside Barrenjoey House for fire suppressions activities.

Access for Fire Services and opportunities for occupant evacuation are considered adequate for this property.

7.07 Fire Services Response

The NSW Fire Brigades is the agency responsible for property protection in this region and they will be assisted by NSW Rural Fire Service as needs be. The closest NSW Fire Brigades station is located at Avalon followed by Mona Vale and Narrabeen.

The availability of Fire Service's is considered satisfactory for the area.

8.0 Site & Bushfire Hazard Determination

8.01 Planning for Bushfire Protection - 2006

'Planning for Bushfire Protection – 2006' (PBP) is applicable to those lands determined as being within a 'bushfire prone area' in accordance with a local Bushfire Prone Land Map as provided by the Rural Fire Service and Council.

The most appropriate method of determining site bushfire hazard under the terms of PBP is to consider the site in a singular form.

Bushfire prone areas are defined as those areas;

- *within or within 100m of high or medium bushfire hazards; or*
- *within or within 30m of low bushfire hazards.*

In this instance the subject property has been identified as being within a 100m bushfire buffer zone therefore it is appropriate to apply PBP as follows:

Southern Aspect:

- ❖ Vegetation – remnant Forest (rainforest)
- ❖ Slope 0 degrees across slope
- ❖ A 79 metre APZ is available
- ❖ The Bushfire Attack Category was determined to be 'Low'
- ❖ No constructional level is applicable under AS3959 – 1999

8.02 Australian Standard AS 3959 – 1999 'Construction of buildings in bushfire –prone areas'

AS 3959 - 1999 (as amended) provides for three (3) levels of building construction these being Levels 1 – 3 with Level 1 being for medium bushfire attack, Level 2 for high bushfire attack and Level 3 for extreme bushfire attack. The Australian Standard 3959 specifies construction standards for buildings within various fire attack categories as determined by the Planning for Bushfire Protection – 2006 document.

8.03 Correlation between AS3959 and Planning for Bushfire Protection

Bushfire Category	Maximum radiant heat impact (kW/m ²)	Level of construction under AS3959-1999
Low		No special construction requirements
Medium	≤12.5	Level 1
High	12.6 to 19.0	Level 2
Extreme	19.1 to 29.0	Level 3
Flame Zone	>29.0	Outside scope of code

8.04 Viable Construction Method

The objectives of Planning for Bushfire Protection – 2006 are for the protection of life including fire fighters. Provided these objectives can be met the construction of buildings is feasible and both the Rural Fire Service and Council should be in a position to consider such applications.

The highest Bushfire Attack Category to the proposed building was determined to be 'Low' and therefore there is no requirement under AS3959 – 1999 'Construction of buildings in bushfire-prone areas' for any particular constructional level to be achieved.

The subject building will however be constructed to 'Type A' construction in accordance with the Building Code of Australia for this type of building classification. Part of such a requirement is that all external walls abutting boundaries are to have a deemed Fire Rating Level (FRL).

Whilst it is not the role of this report to determine the requirements of the Building Code of Australia it can be noted that a typical 'Type A' construction wall for this building classification will have an FRL of at least 180/180/180 (3 hours). This well exceeds the Level 1 construction requirements of AS3959-1999 in terms of fire resistive ratings.

Given that possible bushfire attack can include wind driven embers it is considered that the provision of metal mesh screens to all openings excluding shop fronts, the basement driveway and lift lobby area is appropriate together with leaf protection to all gutters and roof valleys.

Shops fronts are likely to be closed where bushfire smoke or embers are present and certainly closed outside business hours.

9.0 Recommendations

The following recommendations are provided as the minimum necessary for compliance with Planning for Bushfire Protection – 2006 and AS3959 - 1999. Additional recommendations are provided to supplement these minimum requirements where considered necessary.

9.01 Asset Protection Zones

1. That all grounds within the property not built upon (landscaped areas) be created and maintained in accordance with Appendix 5 'Landscaping and Property Maintenance' of Planning for Bushfire Protection 2006.

9.02 Construction

2. That all openings (excluding the front doors of commercial shops, the driveway entry and lift lobby) be protected by metal mesh screens to prevent ember entry.
3. That all gutters and roof valleys are protected from the accumulation of leaves and other debris

9.04 Fencing

4. That no brushwood style fencing be provided to any boundary.

10.0 Conclusion

Given that the property is deemed to be bushfire prone under Pittwater Council's Bushfire Prone Land Map any development would need to meet the requirements of Planning for Bushfire Protection – 2006 and of the construction requirements of AS3959 – 1999. 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 commercial allotment within an area of similar properties. The vegetation posing a possible bushfire threat to the proposed commercial / residential building is located to the south within a neighbouring allotment.

The proposed building was found to be located 79 metres from the remnant hazard to the south. The existing APZ was found to consist of very well maintained grounds wholly within the adjoining property.

The Bushfire Attack Category was determined to be 'Low' for the proposed building. It is my opinion that this is a true reflection of the bushfire threat to the subject property. However given the requirements under the Building Code of Australia for this type of building it will be constructed to better than Level 1 construction under A3959-1999 in any case.

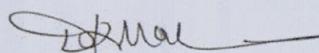
Notwithstanding the above we have recommended that metal mesh screens be placed on all openings (excluding those opening noted elsewhere in this report) and that all gutters and roof valleys are to be treated to prevent the accumulation of leaf litter.

All proposed landscaping should be constructed and maintained to the requirements of Appendix 5 'Landscaping and Property Maintenance' of Planning for Bushfire Protection 2006.

In accordance with the bushfire safety measures contained in this report, and in consideration of the site specific bushfire risk assessment it is my opinion that when combined, they will provide a reasonable and satisfactory level of bushfire protection to the subject development and also satisfy both the Rural Fire Service's concerns and those of Council in this area.

Should you have any enquiries regarding this project please contact me directly.

Yours Faithfully
Building Code & Bushfire Hazard Solutions P/L



David McMonnies, AFSM; M I Fire E
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Fire Protection Association of Australia BPAD – A Certified Practitioner
Certification number – BPD – PA-02354

C: 90489 – Commercial Property, 1112 – 1118 Barrenjoey Road, Palm Beach - June 2009

Disclaimer:

Quote from Planning for Bushfire Protection 2006, "Any representation, statement opinion, or advice expressed or implied in this publication is made in good faith on the basis that the State of New South Wales, the NSW Rural Fire Service, its agents and employees are not liable (whether by reason of negligence, lack of care or otherwise) to any person for any damage or loss whatsoever which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in respect of any representation, statement or advice referred to above..'

Similarly the interpretations and opinions provided by Building Code and Bushfire Hazard Solutions Pty Ltd in regard to bushfire protection, suppression or mitigation and /or our associated opinions are also given in the same good faith.

11.0 Annexure 01

List of Referenced Documents

- | | | |
|----|---|---|
| a) | Environmental Planning and Assessment Act 1979 | |
| b) | Rural Fires Act 1997 as amended | |
| c) | 'Planning for Bushfire Protection'- 2006 | - NSW Rural Fire Services & Planning NSW |
| d) | 'Construction of buildings in bushfire prone areas' | - A.S. 3959 – 1999 (as - amended) – Standards Australia |
| e) | 'Pittwater Council's Bushfire Prone Land Map' | |
| f) | Acknowledgements to: | |
| | UBD Directories | |
| | NSW Department of Lands – SixViewer | |
| | Street-directory.com.au | |

Attachments

Attachment 01: Nil