

Bush Fire Assessment Report

Proposed:
**Additions and
Alterations**

At:
St Ives North Public School
87 Memorial Avenue,
St Ives

Reference Number: 180474

Prepared For:
JDH Architects

5th October 2018

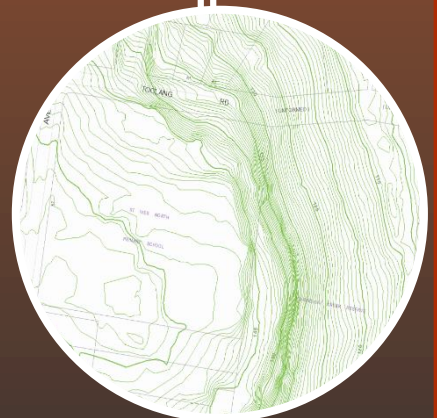
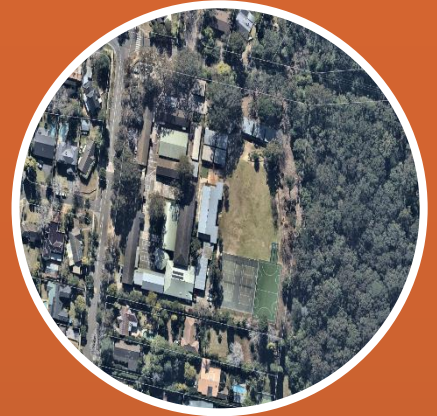


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Contents

	<u>Page No.</u>
List of Abbreviations	3
1.0 Introduction	4
2.0 Purpose of Report	5
3.0 Scope of Report	5
4.0 Referenced Documents and Persons	5
5.0 Compliance Table and Notes	6 - 7
6.0 Aerial view of the subject allotment	8
7.0 Bushfire Hazard Assessment	9 - 19
8.0 Site and Bushfire Hazard Determination	20 - 21
9.0 Recommendations	22
10.0 Conclusion	23 - 24
11.0 Annexure	24
- List of referenced documents and attachments	
- Attachments	

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List of Abbreviations:

APZ	Asset Protection Zone
AS3959	Australian Standard 3959 – 2009 as amended.
BAL	Bushfire Attack Level
BCA	Building Code of Australia
BPMS	Bushfire Protection Measures
BPLM	Bushfire Prone Land Map
Council	Ku-ring-gai Council
DA	Development Application
EP&A Act	Environmental Planning and Assessment Act - 1979
ESD	Ecologically Sustainable Development
FRNSW	Fire and Rescue NSW
IPA	Inner Protection Area
NCC	National Construction Code
NSP	Neighbourhood Safer Places
OPA	Outer Protection Area
PBP	Planning for Bush Fire Protection – 2006
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 to an existing Special Fire Protection Purpose (SFPP) development known as “St Ives North Public School” located 87 Memorial Avenue, St Ives (Lot 24 DP 30558).

The proposal involves:

Main works – DA:

- New 3 storey building
- New toilet block
- Removal of all installed demountables
- Tree removal

A concurrent application is also underway involving:

Early Works package – REF and exempt development:

- Installation of demountables
- Minor internal alterations to Block C & D
- Installation of 11 demountables
- Site preparation and earthworks

The subject site has street frontage to Memorial Avenue to the west and Toolang Road to the north and abuts neighbouring private residential allotments to the south and Ku-ring-gai Creek Reserve to the west.

The vegetation identified as being the hazard is located to the east of the proposed works within the subject site and Ku-ring-gai Creek Reserve and to the northeast within the unformed portion of Toolang Road.

Ku-ring-gai Council's Bushfire Prone Land Map identifies the subject property as partially containing Category 1 Vegetation and its associated 100 metre buffer zone, therefore the application of Planning for Bush Fire Protection - 2006 (PBP) must apply in this instance.

As the proposal relates to redevelopment of an existing SFPP development it has been assessed under the provisions of 'Special Fire Protection Purpose Development as infill' under section 4.2.5 of Planning for Bush Fire Protection 2006. In this regard the proposal seeks to provide a better overall bushfire safety outcome than if the development did not proceed.

A better overall bushfire safety outcome will be achieved by providing:

- New construction (new building) will be located in an area determined to be BAL 12.5;
- The new toilet block will be entirely non-combustible
- Formal Asset Protection Zones which will be subject to a Fuel Management Plan;
- Improved emergency planning;
- The existing and temporary demountable buildings which are located within the Flame Zone will be removed after completion of the new building works.

2.0 Purpose of Report

The purpose of this Bushfire Assessment Report is to provide Ku-ring-gai Council and the Rural Fire Service with an independent bushfire hazard determination 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 the Council and/or the NSW 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.

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 2013, the RFS document known as 'Planning for Bush Fire Protection – 2006' for the purposes of bushfire hazard determination and Australian Standard 3959 – 2009 titled 'Construction of buildings in bushfire-prone areas' as amended for building/structural provisions.

Company representatives have made two (2) site inspections of the subject property and the surrounding area. The Plans prepared by JDH Architects and RLB, project no 1029 – St Ives North Public School, Schematic Design S.1 Preliminary, dated 7/17/2018 and the Pre-DA Advice- RFS Ref. DOC18/17810 have been relied upon for this assessment.

5.0 Compliance Tables & Notes

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

<u>New building</u>	Northeast – Transect 1	East – Transect 2
Vegetation Structure	Forest	Forest
Hazard Slope	14 degrees down	16 degrees down
Minimum APZ for new SFPP (10 k/Wm²)	100 metres	100 metres
Available APZ (separation)	88 metres	110 metres
Significant Environmental Features	Existing classrooms/managed grounds	Existing classrooms/managed grounds
Threatened Species	APZ existing	APZ existing
Aboriginal Relics	APZ existing	APZ existing
Required Construction Level (BAL – AS3959)	BAL 12.5	BAL LOW

Asset Protection Zones Compliance

The minimum required APZ to achieve a radiant heat impact of 10 k/Wm² was determined from Table A2.6 of PBP to be 100 metres from the 'Forest' hazard.

The closest point of the proposed works was found to be located 88 metres from hazard to the northeast (T1) and >110 metres from the hazard to the east (T2).

Construction Level Compliance

The highest Bushfire Attack Level to the closest point of the proposed new works was determined from Table 2.4.2 of AS3959 – 2009 to be 'BAL 12.5'. The proposed new building is required to comply with section 3 and BAL 12.5 under section 5 of AS 3959 – 2009 and Appendix 3 under PBP 2006. Any external works to the refurbishment of building 'C' will also be constructed to BAL 12.5 and Appendix 3 under PBP 2006.

The proposed new amenities building will be constructed entirely from non-combustible materials.

It is noted that in a pre-DA meeting with NSW RFS (RFS Ref. DOC18/17810) that there is no objection to the proposed temporary demountable buildings being located within the APZ to the eastern portion of the site until such time as the proposed new building works has been completed.

Access and Services

Guideline Ref.	Proposed Development Determinations
Property Access	The existing will not be altered as part of the proposal and will maintain existing vehicle access to the site.
Water Supply	Existing fire hose reels and pillar hydrants are available throughout the subject property. Existing hydrants are also available along the surrounding streets for the replenishment of fire service vehicles.
Evacuation	A Bushfire Emergency Evacuation Plan should be prepared in accordance with the NSW Rural Fire Service guidelines for emergency management plans. In particular the Bushfire Emergency Evacuation Plan should address the relocation of persons/students in the temporary demountable buildings to permanent buildings in the advent of a bushfire.

6.0 Aerial view of the subject allotment

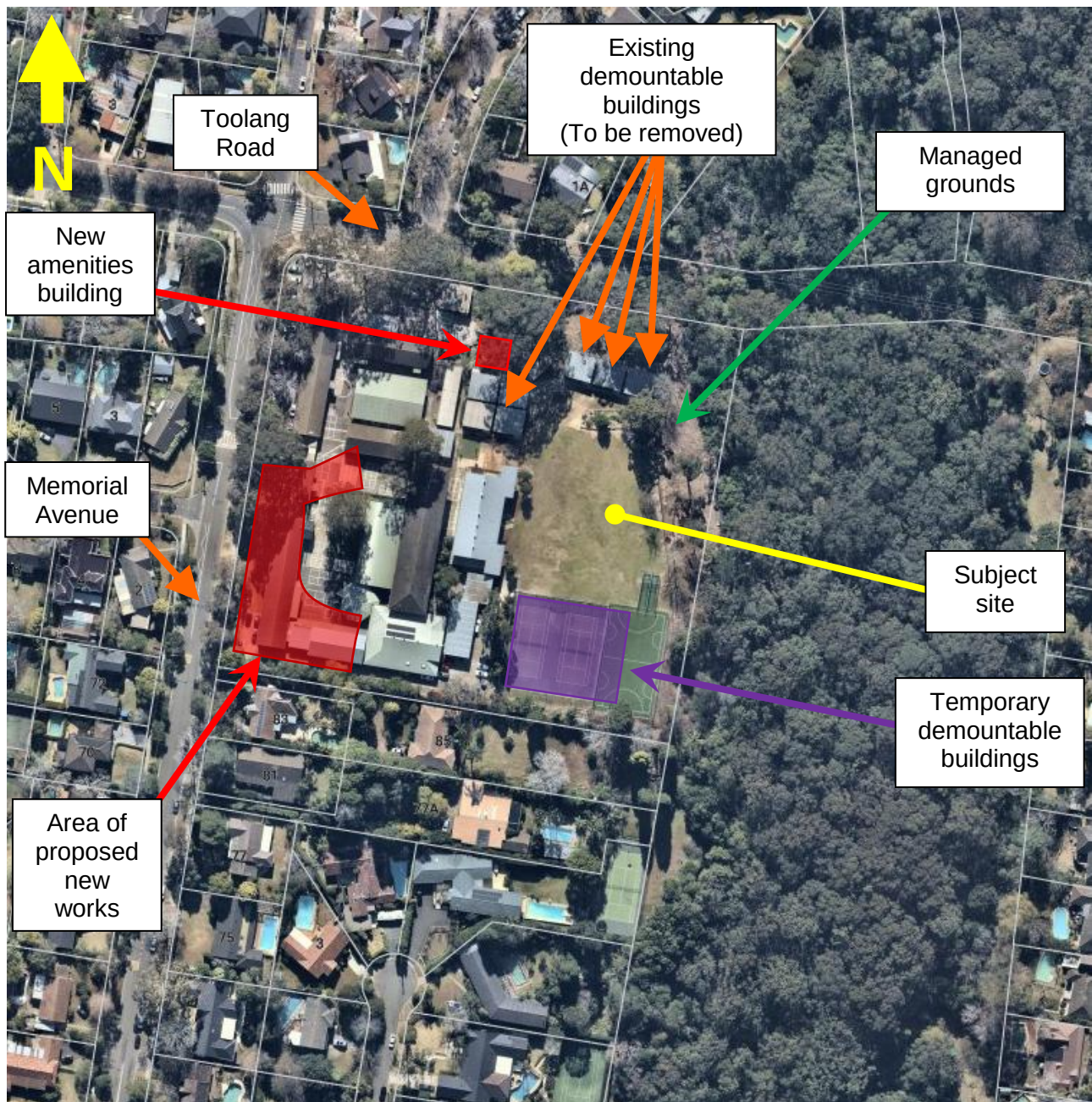


Image 01: Aerial view of the subject area c/- Nearmap – July 2018

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 Bush Fire 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 regulations detailed in Australian Standard 3959 – 2009 'Construction of buildings in bushfire prone areas'.

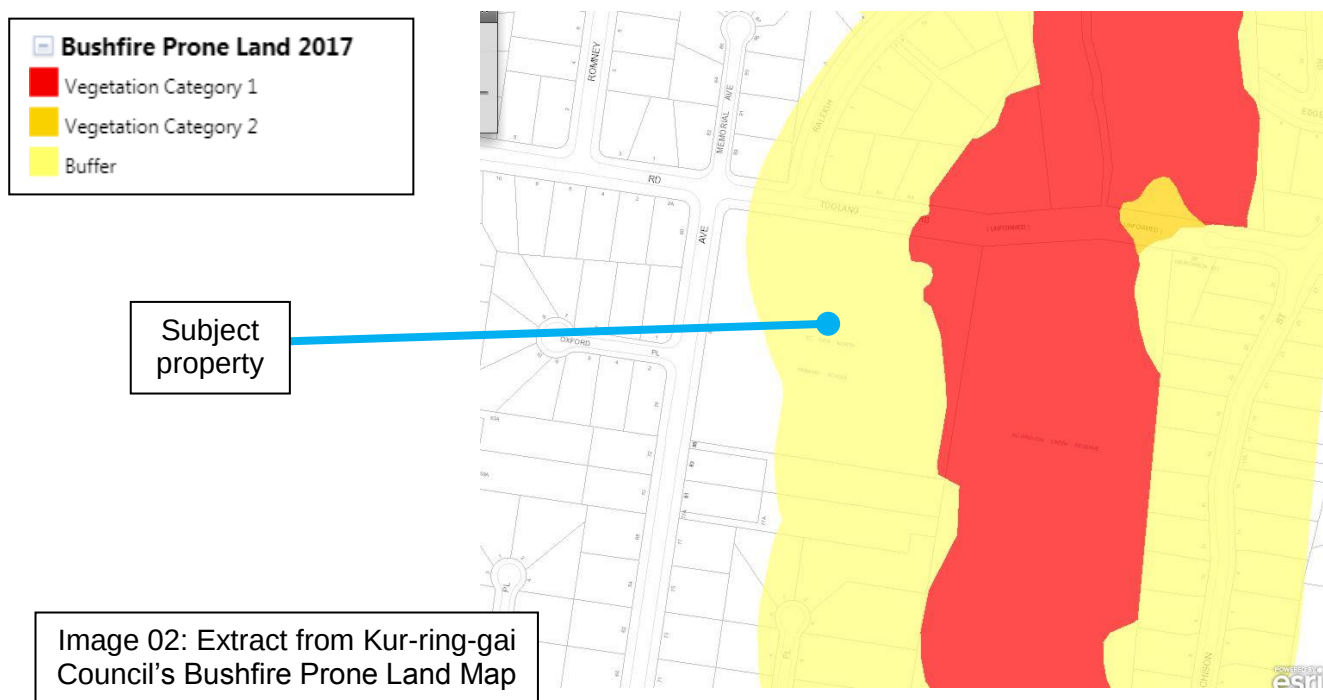
Planning for Bush Fire Protection – 2006, (PBP) formally adopted on the 1st March 2007 and amended May 2010 (Appendix 3) provides for the protection of property and life (including fire-fighters and emergency service personnel) from bushfire impact.

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, 2 or 3 areas and also inside a buffer zone radius of 100m from a Category 1 bushfire area or 30m from a Category 2 and Category 3 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 redevelopment within an existing Special Fire Protection Purpose (SFPP) site.

To accord with PBP the development is classified as Special Fire Protection Purpose development and assessed as a section 100b application under the Rural Fires Act 1997. The site contains a functional SFPP development and has therefore been assessed under the provisions of section 4.2.5 'SFPPs as infill' of Planning for Bush Fire Protection 2006.



7.02 Location

The subject property is known as “St Ives North Public School” and is located at 87 Memorial Avenue St Ives, NSW (Lot 24 DP 30558). The subject site has street frontage to Memorial Avenue to the west, Toolang Road to the north and abuts neighbouring private residential allotments to the south and Ku-ring-gai Creek Reserve to the east.

The vegetation identified as being the hazard is located to the northeast of the proposed works within the unformed portion of Toolang Road and to the east within Ku-ring-gai Creek Reserve.

Existing
demountables
to be
removed



Photograph 01: View northwest from within the subject site toward existing demountable buildings (To be demolished)

Location of
new works



Photograph 02: View south from within the subject site toward the proposed building site

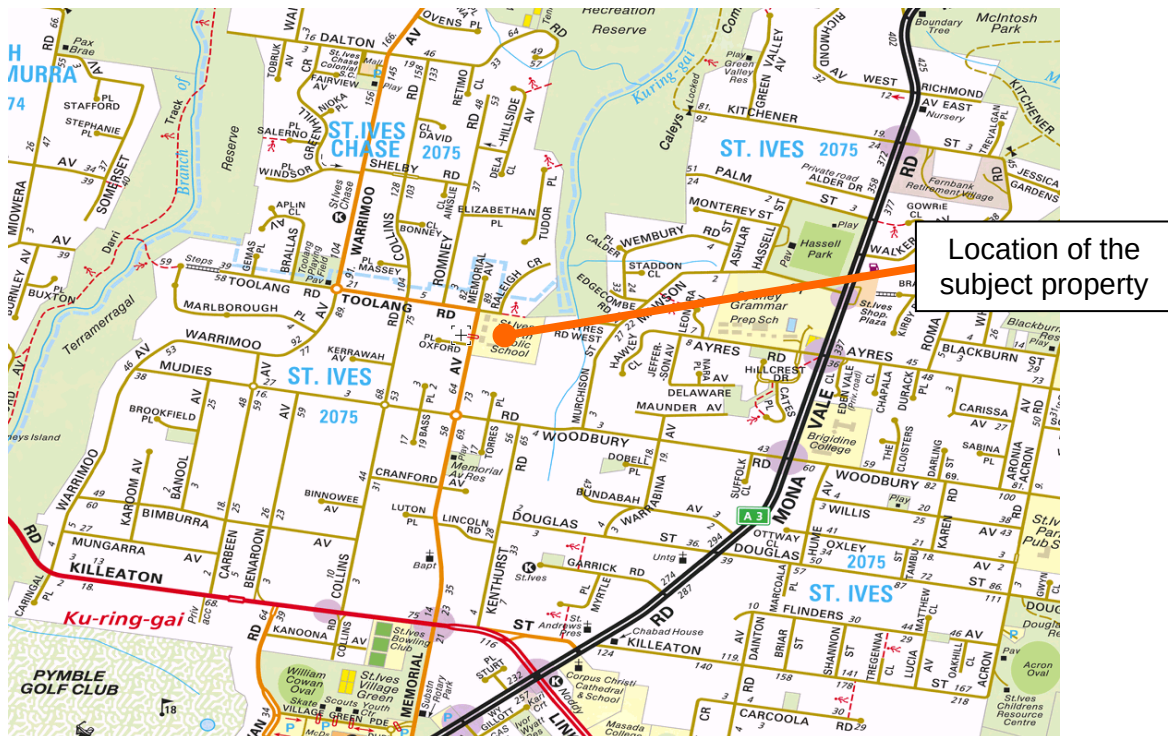


Image 03: Extract from street-directory.com

7.03 Vegetation

The predominate vegetation within the subject site was found to consist of mown lawns (play areas) and maintained gardens.

The vegetation identified as being the hazard to the proposed works is located to the northeast within the subject site itself and the unformed section of Toolang Road, and to the east within Ku-ring-gai Creek Reserve.

The vegetation to the east was found to consist of trees 10 – 20 metres in height with a canopy cover of 50-70% and an understorey consisting of shrubs, ferns and grasses.

The vegetation within the Toolang Road reserve was found to consist of a mix of weeds and exotic species transitioning to a full 'Forest' structure further to the north.

For the purpose of assessment under PBP, the vegetation to the northeast and east has been determined to be Forest.



Image 04: Vegetation mapping of the subject site



Photograph 02: View north from within the subject site of the existing APZ



Photograph 03: View east along Toolang Road of the weeds and exotics within the road reserve with forest beyond



Photograph 04: View east from within the subject site of the forest vegetation

7.04 Slope and Topography

The slope that would most significantly affect bushfire behaviour within the hazard must be assessed for at least 100 metres from the proposed development site. The slope was measured onsite using an inclinometer and verified from topographic imagery of the area. It is noted that there is an 8 metre high rock ledge present to the east of the site. The presence of this rock ledge has been noted in the slope assessment in consideration of the influence of this rock ledge in relation the affect on bushfire behaviour toward the subject site.

The results are as follows:

- 14 degrees down slope within the 'Forest' hazard (T1)
- 16 degrees down slope within the 'Forest' hazard (T2)

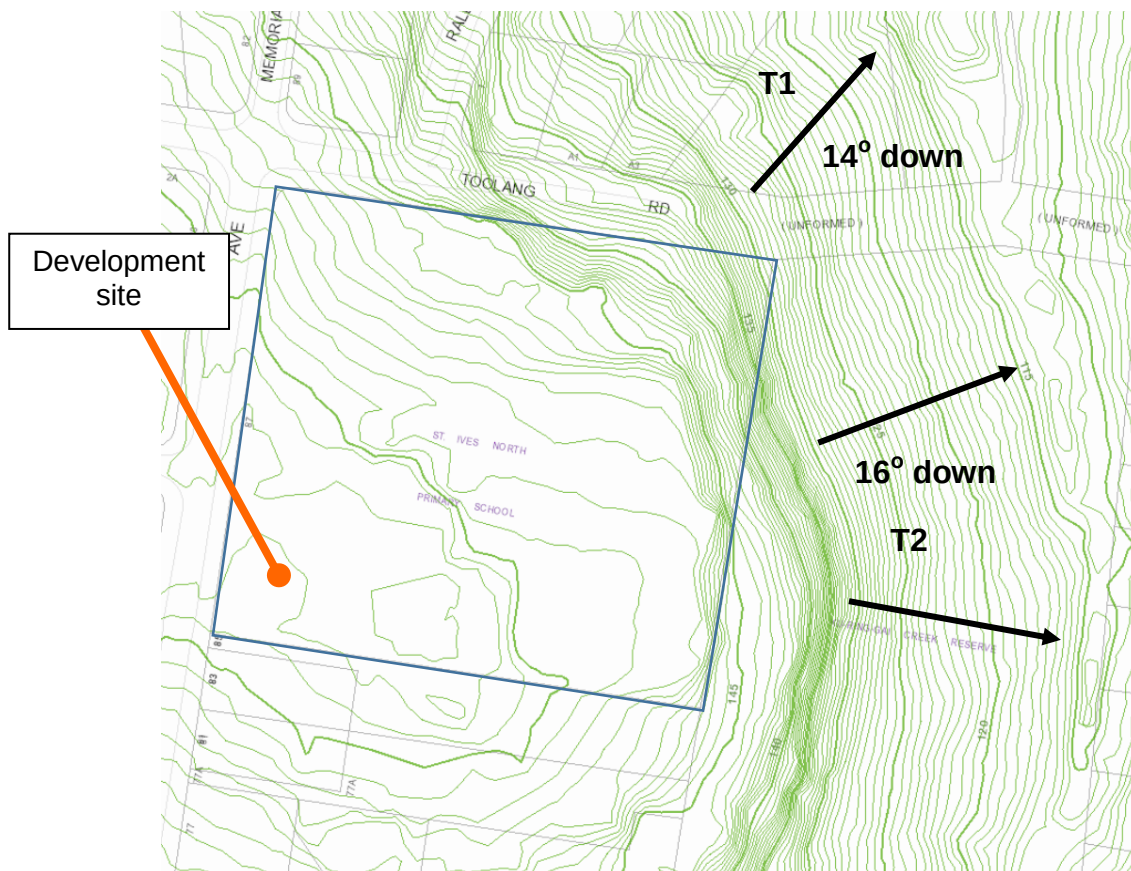


Image 05: Extract from Ku-ring-gai Council's Online Map Viewer 0.5m contours

7.05 Asset Protection Zones

The minimum required APZ to achieve a radiant heat impact of 10 kW/m^2 was determined from Table A2.6 of PBP to be 100 metres from the hazard (T1 & T2).

The closest point of the proposed works was found to be located 88 metres from the 'T1' hazard and >110 metres from the 'T2' hazard.

The Asset Protection Zones consist of maintained land entirely within the subject site. The Asset Protection Zones shall be managed as an Inner Protection Area and will be subject to a Fuel Management Plan to ensure the ongoing management.

It is noted that there has been BGHF identified onsite, the APZ's within the site does not require the removal of any Blue Gums.

Existing
classrooms
To be
removed

Existing
APZ

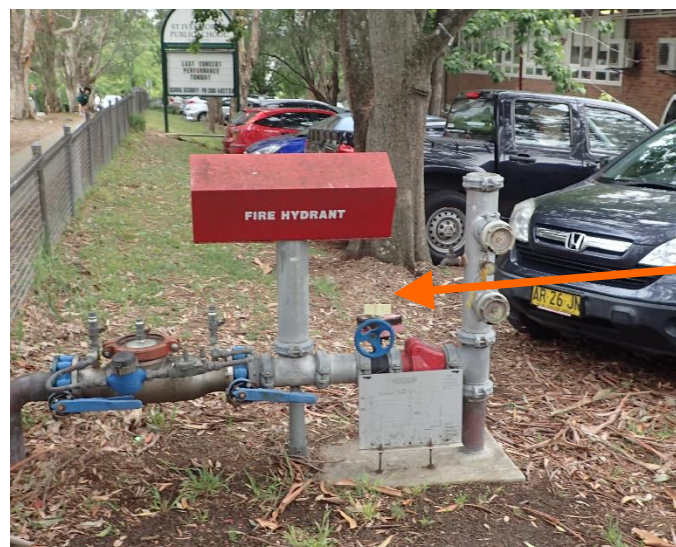


Photograph 05: View northeast of the existing APZ

7.06 Fire Fighting Water Supply

There are reticulated water mains available in this area. Existing pillar hydrants are available throughout the subject property. Existing hydrants are also available along the surrounding streets for the replenishment of fire service vehicles.

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



Hydrant &
Booster

Photograph 06: View north from an existing hydrant/Booster within the subject site

7.07 Property Access

The subject site has street frontage to Memorial Avenue to the west and Toolang Road to the north. The bulk of the existing access and parking roads will not be altered as part of this development and are considered adequate.

The existing access drive and car parking will be enhanced as part of the proposal, to accommodate the increased numbers onsite upon completion of the proposed works.

Fire services have free vehicle access and pedestrian access to the hazard via the existing internal road and trail network within the subject site.

The existing and proposed access provisions are considered adequate.

7.08 PBP 2006 s4.2.5 SFPPs as *infill* development

The proposal relates to an existing Special Fire Protection Purpose development (approved prior to August 2002) and the application can be assessed under the provisions of section 4.2.5 'SFPPs as infill' of PBP.

PBP states that:

In circumstances where alterations or additions to existing SFPP's facilities are proposed, appropriate bush fire protection measures and compliance with the intent and performance criteria of each measure within section 4.3.5.

However, it is also acknowledged that existing circumstances may make the preferred standards difficult to achieve. In such cases, the specific objectives in Section 4.2.3 are to be followed.

'Alterations and additions to existing SFPP's (i.e. approved prior to 1st August 2002), including their external appearance or finish, which may involve an increase in size and footprint of the building or redevelopment of an existing building are considered to be infill development'.

The new building work should comply with AS 3959 – 1999 (and Appendix 3 of PBP) or be no closer to the hazard than the existing building*

**As per Addendum Appendix 3 this should now read AS3959 - 2009*

The following table details the intent and performance criteria of section 4.3.5 and our comments on the proposals ability to satisfy them as required under section 4.2.5 of PBP.

Performance Criteria	Comment
in relation to Asset Protection Zones: - a defensible space is provided onsite. - an asset protection zone is provided and maintained for the life of the development.	There is a defensible space provided with the existing 88 & 110 metre Asset Protection Zone from the hazard. This APZ is also located entirely within the subject property. The proposed building is sited in the best possible location. Comprehensive access to the Forest interface is also available via the existing managed grounds and large grassed area within the subject site and Toolang Road to the north. A Fuel Management Plan will be recommended as part of this assessment to ensure the ongoing management of the APZ.
in relation to siting and design: buildings are sited and designed to minimise the risk of bush fire attack.	The building footprint will not extend closer to the bushfire hazard than other existing classroom buildings within the school. As the proposal includes the existing and proposed temporary demountable buildings that are located within the Flame Zone be removed after the completion of the new building, coupled with the new building being within a deemed BAL 12.5 area a significantly better bushfire outcome is achieved.
in relation to construction standards: it is demonstrated that the proposed building can withstand bush fire attack in the form of wind, smoke, embers, radiant heat and flame contact.	The highest Bushfire Attack Level to the proposed works was determined to be BAL 12.5 and therefore the new works will be constructed to section 5 (BAL 12.5) of AS3959 – 2009. Furthermore the existing demountable classroom buildings which are located within the APZ will be removed.
in relation to access requirements: safe, operational access is provided (and maintained) for emergency services personnel in suppressing a bush fire while residents are seeking to relocate, in advance of a bush fire, (satisfying the intent and performance criteria for access roads in sections 4.1.3 and 4.2.7).	The subject site has street frontage to Memorial Avenue to the west and Toolang Road to the north. The bulk of the existing internal roads will not be altered as part of this development and are considered adequate. Fire services have free vehicle access and pedestrian access to the hazard via the existing internal road and managed grounds within the subject site. The existing access provisions are considered adequate for fire service access and staff and student egress.

in relation to water and utility services: - adequate water and electricity services are provided for firefighting operations - gas and electricity services are located so as not to contribute to the risk of fire to a building.	There are reticulated water mains available in this area. Existing fire hose reels and pillar hydrants are available throughout the subject property. Existing hydrants are also available along the surrounding streets for the replenishment of fire service vehicles. The existing water supply is considered adequate for the replenishment of attending fire services.
in relation to landscaping: it is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind driven embers to cause ignitions.	With the exception of the northeastern corner of the site, all grounds around the existing school buildings were found to be well maintained. It will be recommended as part of this assessment that all grounds within the subject property, be maintained in accordance with an Inner Protection Area. In relation to the area of BGHF, no blue Gums are required to be removed.

PBP acknowledges that existing circumstances may make the preferred standards (i.e. minimum required APZs) difficult to achieve. In such cases, the specific objectives in Section 4.2.3 are to be followed. These being:

- provide for the special characteristics and needs of occupants. Unlike residential subdivisions, which can be built to a construction standard to withstand the fire event, enabling occupants and firefighters to provide property protection after the passage of fire, occupants of SFPP developments may not be able to assist in property protection. They are more likely to be adversely affected by smoke or heat while being evacuated.*
- provide for safe emergency evacuation procedures. SFPP Developments are highly dependent on suitable emergency evacuation arrangements, which require greater separation from bush fire threats.*

During emergencies, the risk to firefighters and other emergency services personnel can be high through prolonged exposure, where door-to-door warnings are being given and exposure to the bush fire is imminent.

A Bushfire Evacuation Plan has also been recommended as part of this assessment. The Bush Fire Evacuation Plan should include the new additions and the evacuation of students/persons from the temporary demountable buildings to a permanent building within the western portion of the site away from the hazard.

Furthermore PBP states:

Exceptional circumstances must be demonstrated for reductions in APZ (required by Appendix 2) or APZ on adjoining land (see section 3.3).

Consideration is on a case-by-case basis and the applicant should provide clear evidence that, because of the circumstances of the case e.g. location or type of use, strict prescriptive compliance is unreasonable and unnecessary.

The following table details the principles (section 3.3) that should be demonstrated to achieve exceptional circumstances and a comment as to the proposals ability to satisfy these principles.

Principle	Comment
The existing form of development will obtain a better bush fire risk outcome than if the development did not proceed (eg. Through increased construction standards);	The proposal will result in a better bushfire safety outcome with the enforcement of formal Asset Protection Zones (Fuel Management Plan), improved emergency planning and removal of existing demountable buildings located within the Flame Zone and the new works constructed to BAL 12.5.
the building line should be no closer to the hazard than neighbouring properties;	The building footprint will not extend closer to the bushfire hazard than other existing classroom buildings within the school.
the extensions should be no closer to the hazard than the existing building footprint;	Same as above.
an upgrade of existing facilities may be required;	It will be recommended as part of this assessment that the proposed temporary demountable buildings which are located within the APZ of the new works be upgraded for ember protection.
the proposal is an infill arrangement and site constraints do not allow APZ requirements to be met.	The development proposal relates to the additions and alterations to an existing school approved prior to 1st August 2002. The existing lot layout of the school precludes the minimum required APZs for new SFPP being achieved; while maintaining the functionality of the school.
provide for a defensible space;	There is a defensible space provided with the existing 88 metre Asset Protection Zone from the T1 hazard and 110 metre APZ from the T2 hazard. These APZ's are also located entirely within the subject property. Comprehensive access to the Forest interface is also available via the existing large grassed play area within the site and Toolang Road.
demonstrate that the intent and performance criteria for the APZ (for the type of development in Chapter 4) will be satisfied;	The Asset Protection Zones within the property will be maintained in accordance with an Inner Protection Area.
demonstrate that other measures, in combination, will meet the relevant radiant heat levels specified in the performance criteria for APZs and will achieve the aim and objectives of PBP (see s1.1).	The proposed works were found to only marginally not satisfy the minimum required APZs for new SFPP and are within a Bushfire Attack Level of BAL 12.5, The majority of the proposed building would be considered to be BAL LOW. It is our opinion that in consideration of the above the proposal will result in a better bushfire safety outcome with the enforcement of formal Asset Protection Zones (Fuel Management Plan), improved emergency planning and removal of the existing demountable buildings located within the 'Flame Zone'. This package is considered proportional to the proposed works.

8.0 Site & Bushfire Hazard Determination

8.01 Planning for Bush Fire Protection - 2006

Planning for Bush Fire 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 bushfire prone land therefore it is appropriate to apply PBP.

8.02 Australian Standard AS 3959 – 2009 ‘Construction of buildings in bushfire –prone areas’

Australian Standard 3959 – 2009 ‘Construction of buildings in bushfire-prone areas’ provides for six (6) levels of building construction these being BAL - Low, BAL - 12.5, BAL - 19, BAL - 29, BAL - 40 and BAL - FZ. The Australian Standard 3959 specifies construction standards for buildings within various Bushfire Attack Levels as determined by the Planning for Bush Fire Protection – 2006 document. The NSW Rural Fire Service will not accept deemed to satisfy provisions for BAL Flame Zone and therefore have a NSW variation to the listed standard provisions of BAL FZ under AS3959 - 2009.

8.03 Correlation between bushfire impact and AS3959

Bushfire Attack Level	Maximum radiant heat impact (kW/m ²)	Level of construction under AS3959-2009
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

8.04 Site Specific Bushfire Hazard Determination

All property development must be assessed on an individual basis as broad-brush approaches of documents such as PBP may not be applicable in every instance. The proposed development located at “*St Ives North Public School*” was assessed against the requirements of Planning for Bush Fire Protection 2006 noting the following:

- a) Water supplies for firefighting purposes are considered adequate.
- b) The existing and proposed access provisions are considered adequate.
- c) A Bush Fire Evacuation Plan in accordance with the NSW Rural Fire Service guidelines for emergency management plans will be recommended as part of this assessment.

8.05 Viable Construction Method

One of the objectives of Planning for Bush Fire 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 Level to the closest point of the proposed new works was determined from Table 2.4.2 of AS3959 – 2009 to be ‘BAL 12.5’. The proposed works are required to comply with section 3 and BAL 12.5 under section 5 of AS 3959 – 2009 and Appendix 3 under PBP 2006.

Furthermore it is recommended that the proposed temporary demountable buildings which are located within the APZ of the new works be upgraded for ember protection. This is to be achieved by enclosing all openings or covering openings with a non-corrosive metal screen mesh with a maximum aperture of 2mm. Where applicable, this includes any sub floor areas, openable windows, vents, weepholes and eaves. External doors are to be fitted with draft excluders.

9.0 Recommendations

The following recommendations are provided as the minimum necessary for compliance with Planning for Bush Fire Protection – 2006 and Australian Standard 3959 'Construction of buildings in bushfire-prone areas' - 2009. Additional recommendations are provided to supplement these minimum requirements where considered necessary.

General

1. That the proposed development complies with the Plans prepared by JDH Architects and RLB, project no 1029 – St Ives North Public School, Schematic Design S.1 Preliminary, dated 7/17/2018.

Asset Protection Zones

2. That all grounds within the subject site already managed are to continue to be maintained in accordance with an Inner Protection Area as detailed in Appendix 2 of Planning for Bush Fire Protection 2006 and the NSW Rural Fire Service document 'Standards for Asset Protection Zones'.
3. That a Fuel Management Plan be established to ensure the ongoing management of the APZs.

Landscaping

4. That any new landscaping is to comply with Appendix 5 'Landscaping and Property Maintenance' under Planning for Bush Fire Protection 2006.

Construction

5. New construction (Apart from the proposed amenities block) shall comply with section 5 (BAL 12.5) Australian Standard AS3959-2009 "Construction of buildings in bush fire-prone areas" and section A3.7 Addendum Appendix 3 of "Planning for Bush Fire Protection".
6. The proposed amenities block be constructed entirely from non-combustible materials.
7. The proposed temporary demountable buildings which are located within the APZ of the new works be upgraded for ember protection. This is to be achieved by enclosing all openings or covering openings with a non-corrosive metal screen mesh with a maximum aperture of 2mm. Where applicable, this includes any sub floor areas, openable windows, vents, weepholes and eaves. External doors are to be fitted with draft excluders.

Emergency Management

8. That a Bush Fire Evacuation Plan be prepared for the school and is in accordance with the NSW Rural Fire Service guidelines for emergency management plans stipulating that in the event of a bushfire burning within the immediate area, students/ persons located in the temporary demountable buildings be re-located to a safer area within a permanent building located close to the western boundary of the site away from the hazard.

10.0 Conclusion

Given that the property is deemed bushfire prone under Ku-ring-gai Council's Bushfire Prone Land Map any development would need to meet the requirements of Planning for Bush Fire Protection – 2006 and of the construction requirements of Australian Standard 3959 – 2009. 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 development application relates to the alterations and additions to an existing educational establishment approved prior to 1st August 2002.

The vegetation identified as being the hazard to the proposed works is located to the northeast and east of the subject site. The vegetation posing a hazard has been determined to be Forest.

The minimum required APZ to achieve a radiant heat impact of 10 kWm² was determined from Table A2.6 of PBP to be 100 metres from the 'forest' hazard.

The closest point of the proposed works was found to be located 88 metres from the 'T1' hazard and 110 metres from the 'T2' hazard.

The highest Bushfire Attack Level to the closest point of the proposed new works was determined from Table 2.4.2 of AS3959 – 2009 to be 'BAL 12.5'. The proposed works are required to comply with section 3 and BAL 12.5 under section 5 of AS 3959 – 2009 and Appendix 3 under PBP 2006. Furthermore it is recommended that the proposed temporary demountable buildings which are located within the APZ of the new works be upgraded for ember protection.

A Bush Fire Evacuation Plan in accordance with the NSW Rural Fire Service guidelines for emergency management plans has been recommended for the school as part of this assessment including the provision for the relocation of the students/persons located in the temporary demountable buildings be moved to a permanent building adjacent to the western boundary in the event of a bushfire burning in the immediate vicinity.

The existing and proposed access arrangements are considered adequate for occupant evacuation and fire service access. Hydrants are available throughout the subject site and along surrounding public roads for the replenishment of attending fire services. The existing water supply is 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 and also satisfy both the Rural Fire Service's concerns and those of Council in this area.

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



Ian Tyerman
Bushfire Consultant
Planning for Bushfire Prone Areas
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Reviewed and endorsed by
Building Code & Bushfire Hazard Solutions P/L



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G. D. Design in Bushfire Prone Areas.
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FPA Australia BPAD Level 3 Accredited Practitioner
BPAD Accreditation No. BPAD9400



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 Bush Fire Protection' - 2006 | - NSW Rural Fire Services & Planning NSW |
| d) | 'Construction of buildings in bushfire prone areas' | - AS 3959 – 2009 (as - amended) – Standards Australia |
| e) | 'Ocean Shores to Desert Dunes' David Keith | |
| f) | 'Ku-ring-gai Council's Bushfire Prone Land Map' | |
| g) | Pre-DA Advice- RFS Ref. DOC18/17810 | |
| h) | Acknowledgements to: | |
| | NSW Department of Lands – SIXMaps | |
| | Ku-ring-gai Council Online Mapping Viewer | |
| | Nearmap.com | |
| | QGIS | |
| | Elevation Information Systems (ELVIS) | |
| | Street-directory.com.au | |

Attachments

Attachment 01: Pre-DA Advice- RFS Ref. DOC18/17810



PRE-DA ADVICE SUMMARY

Applicant: Stuart McMonnies, Building Code & Bushfire Hazard Solutions
Subject: St Ives North Public School
RFS Ref. DOC18/17810

Details of the proposal

☒ SFPP

Redevelopment of existing school involving the demolition of existing buildings and construction of a replacement building in the south-western corner of the site.

Bush fire protection issues raised

☒ Asset Protection Zones

- New building able to be located to provide APZs to achieve 10kW/sqm.
- Construction works will require the location of temporary replacement demountable classrooms on the eastern side of the site where APZs cannot be provided to achieve 10kW/sqm.
- Three existing demountable classrooms located in the north-eastern corner of the site will be removed at the completion of the project along with the temporarily replacement classrooms.

Advice Provided

- No objection is held in principle to the proposal on the basis of the overall better outcome achieved upon completion of the works. This should be clearly set out in the bush fire report prepared in support of the proposal.
- Appropriate arrangements (i.e. emergency management evacuation) should be put in place for the site, particularly for the temporary classrooms, during the works. The new building should comply with all relevant bush fire requirements.
- Any development application should include full details of the proposal including its context in the long term plans for the site.

Disclaimer

RFS advice is based on information provided and policy and legislative requirements applicable at the time. The advice should be copied into, or referenced in, any subsequent development application.

All efforts are made to identify issues of relevance and likely concern with the preliminary proposal. However, the comments and views in this document are based only on the plans and information submitted for preliminary assessment and discussion at the pre-DA meeting. You are advised that: -

- The views expressed may vary once detailed plans and information are submitted and formally assessed in the development application process, or as a result of issues contained in submissions by interested parties;
- Given the complexity of issues often involved and the limited time for full assessment, no guarantee is given that every issue of relevance will be identified;
- Amending one aspect of the proposal could result in changes which would create a different set of impacts from the original plans and therefore require further assessment and advice; and,
- The Pre-DA advice given does not bind Council officers, the elected Council members, or other parties to the DA process.

Signed:

Jason Maslen
Team Leader, Development Assessment and Planning

Nika Fomin
Manager, Planning and Environment Services

Date: 9 February 2018