

**BUSHFIRE PROTECTION ASSESSMENT FOR THE  
CONSTRUCTION OF THE PROPOSED  
SAINTS PETER & PAUL ASSYRIAN PRIMARY SCHOOL,  
LOTS 2320 & 2321 in DP 1223137,  
No. 17 – 19 KOSOVICH PLACE,  
CECIL HILLS**

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# **BUSHFIRE PROTECTION ASSESSMENT**

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**LOTS 2320 & 2321 in DP 1223137  
NO. 17 - 19 KOSOVICH PLACE,  
CECIL HILLS**

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B183165 - 2	Final	26.06.2018	05.09.2018	<i>G.L.Swain</i>

## EXECUTIVE SUMMARY

*Australian Bushfire Protection Planners Pty Limited* has been commissioned to undertake the Bushfire Consultancy for the proposed construction of the Saints Peter & Paul Assyrian Primary School on Lots 2320 & 2321 in DP 1223137, No. 17 - 19 Kosovich Place, Cecil Hills.

The proposed works include the construction of a new two storey L shaped building for K – Y6 students and a detached Hall.

Vehicular access to the complex is from Kosovich Place via along the eastern boundary of the site leading to a carpark located in the south-eastern corner of the site.

The school site and adjoining land to the west, east and south contains grassland vegetation which is recorded on the Fairfield Bushfire Prone Land Map as Category 3 Bushfire Prone Vegetation.

Category 3 Bushfire Prone Vegetation is defined in the NSW Rural Fire Services '*Guideline for Bushfire Prone Land Mapping – Version 5b – November 2015* to be medium bushfire risk vegetation and consists of grasslands, freshwater wetlands, semi-arid woodlands, alpine complex and arid shrublands.

The proposed school is deemed to be a '*Special Fire Protection Purpose Development*' pursuant to the provisions of Section 100B of the *Rural Fires Act 1997* and requires the issue of a Bushfire Safety Authority from the Commissioner of the NSW Rural Fire Service.

Clause 44 of the Rural Fires Regulation 2013 requires that, for the issue of a Bushfire Safety Authority pursuant to Section 100B of the *Rural Fires Act 1997*, the following matters shall be addressed:

- (a) A description (including the address) of the property on which the development the subject of the application is proposed to be carried out;
- (b) A classification of the vegetation on and surrounding the property (out to a distance of 140 metres from the boundaries of the property) in accordance with the system for classification of vegetation contained in *Planning for Bush Fire Protection*;
- (c) An assessment of the slope of the land on and surrounding the property (out to a distance of 100 metres from the boundaries of the property);
- (d) Identification of any significant environmental features on the property;
- (e) The details of any threatened species, population or ecological community identified under the *Threatened Species Conservation Act 1995* that is known to the applicant to exist on the property;

- (f) The details and location of any Aboriginal object (within the meaning of the *National Parks and Wildlife Act 1974*) or Aboriginal place (within the meaning of that Act) that is known to the applicant to be situated on the property;
- (g) A bush fire assessment for the proposed development (including the methodology used in the assessment) that addresses the following matters:
  - (i) the extent to which the development is to provide for setbacks, including asset protection zones;
  - (ii) the siting and adequacy of water supplies for fire fighting;
  - (iii) the capacity of public roads in the vicinity to handle increased volumes of traffic in the event of a bush fire emergency;
  - (iv) whether or not public roads in the vicinity that link with the fire trail network have two-way access;
  - (v) the adequacy of arrangements for access to and egress from the development site for the purposes of an emergency response;
  - (vi) the adequacy of bush fire maintenance plans and fire emergency procedures for the development site;
  - (vii) the construction standards to be used for building elements in the development;
  - (viii) the adequacy of sprinkler systems and other fire protection measures to be incorporated into the development.
- (h) An assessment of the extent to which the proposed development conforms with or deviates from the standards, specific objectives and performance criteria set out in Chapter 4 (Performance Based Controls) of *Planning for Bush Fire Protection*.

This report undertakes an assessment to review compliance with those matters identified by Clause 44 of the *Rural Fires Regulation 2013* and determines the deemed-to-satisfy bushfire protection requirements for the proposed development, in accordance with *Planning for Bushfire Protection 2006*.



Graham Swain  
Managing Director,  
***Australian Bushfire Protection Planners Pty Limited.***

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## SECTION 1

### INTRODUCTION

#### 1.1 Aim of this Assessment.

The aim of this report is to prepare a bushfire protection assessment report that addresses the requirements of Clause 44 of the NSW Rural Fires Regulation 2013 and the requirements for ‘*Special Fire Protection Purpose Development*’ as detailed in Section 4.2 of *Planning for Bushfire Protection 2006*.

#### 1.2 Statutory Requirements.

This report has been prepared having regard to the following legislative and planning requirements:

##### 1.2.1 Legislation.

###### ***Environmental Planning and Assessment Act - 2017 (EPA Act)***

Planning and development within NSW is regulated by the *Environmental Planning & Assessment Act, 2017* (EPA Act). Section 4.46 identifies certain development which is deemed to be ‘*Integrated Development*’ requiring the issue of a Bushfire Safety Authority pursuant to Section 100B of the *Rural Fires Act 1997*.

Section 4.47 of the Act states that before granting development consent to carry out the development, the consent authority must obtain from each relevant approval body the general terms of any approval proposed to be granted by the approval body in relation to the development.

##### 1.2.2 Planning Policies.

###### ***Planning for Bushfire Protection – 2006. [Rural Fire Service]***

This document provides guidance on the planning and development control processes in relation to bushfire protection measures for rural residential and residential subdivision, “*Special Fire Protection Purpose Developments*” and Class 5 – 8 and 10 buildings in bushfire prone areas.

The document provides deemed-to-satisfy specifications on the provision of Asset Protection Zones to residential and “*Special Fire Protection Purpose Developments*”; defensible space requirements to other developments and access/water supply provisions for developments in bushfire prone areas.

Provision for the assessment of construction standards to buildings and management / maintenance of the Asset Protection Zones/defensible space to buildings is also provided.

### **1.3 Documentation reviewed in this Assessment.**

- Architectural Plans and Elevations showing the proposed development prepared by PMDL;
- *Planning for Bushfire Protection 2006* prepared by the NSW Rural Fire Service/Planning N.S.W;
- Australian Standard AS3959 - 2009 *Construction of Buildings in Bushfire Prone Areas*;
- *Rural Fires Regulation 2013*.

### **1.4 Site Inspection.**

Graham Swain of Australian Bushfire Protection Planners Pty Limited inspected the Saints Peter & Paul Assyrian Primary School on the 25<sup>th</sup> April 2018 to assess the topography, slopes and vegetation classification within and adjoining the school site.

### **1.5 Development Proposal.**

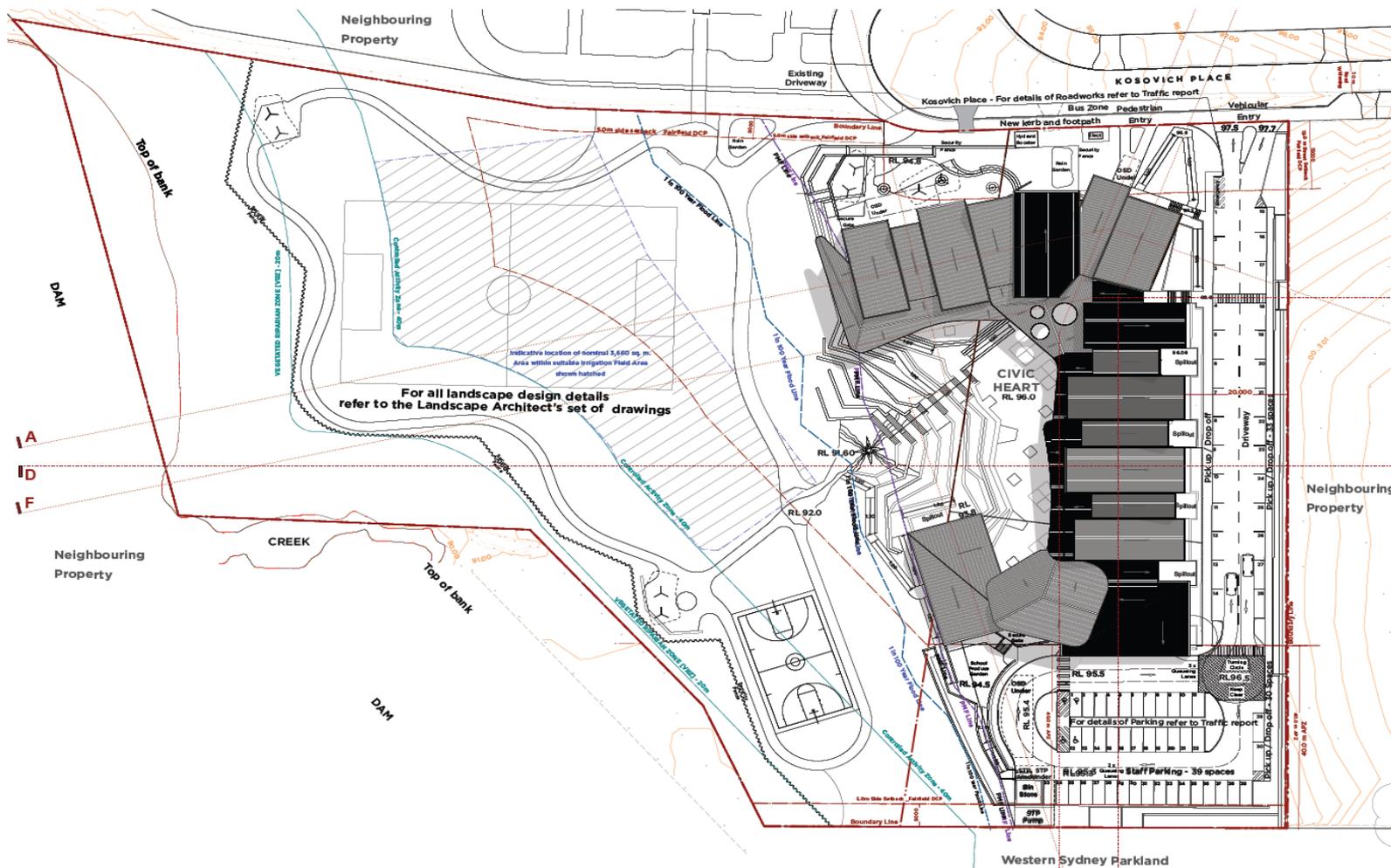
The proposed development includes the construction of the Saints Peter & Paul Assyrian Primary School on Lots 2320 & 2321 in DP 1223137, No. 17 - 19 Kosovich Place, Cecil Hills.

The proposed works include the construction of a new two storey L shaped building for K – Y6 students and a detached Hall.

Vehicular access to the complex is from Kosovich Place via along the eastern boundary of the site leading to a carpark located in the south-eastern corner of the site.

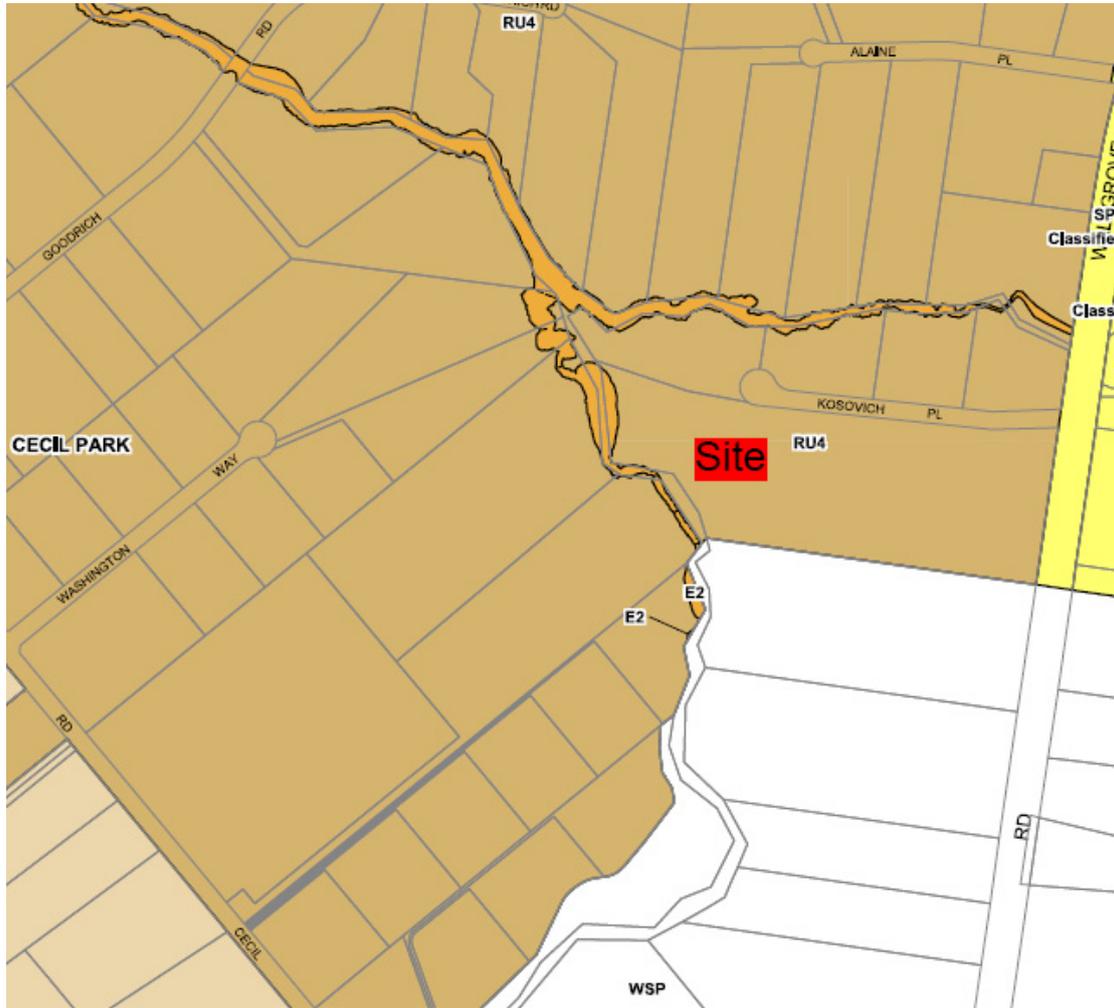
Refer to Figure 1 on Page 8 provides a copy of the Master Plan for the proposed Primary School.

**Figure 1 – Master Plan of the proposed Primary School.**





**Figure 3 – Fairfield Land Zoning Map.**



**Legend**

<b>RU4</b>	Primary Production Small Lots
<b>RU5</b>	Village
<b>SP1</b>	Special Activities
<b>SP2</b>	Infrastructure
<b>SP3</b>	Tourist
<b>W2</b>	Recreational Waterways
<b>MD</b>	SEPP (Major Development) 2005
<b>WSP</b>	SEPP (Western Sydney Parklands) 2009
<b>WSE</b>	SEPP (Western Sydney Employment Area) 2009

**Figure 4 – Aerial Photograph of the proposed Saints Peter & Paul Assyrian Primary School site and adjoining landuses.**



### **2.3 Topography.**

Appendix 2 of *Planning for Bushfire Protection 2006* states that slopes should be assessed, over a distance of at least 100m from a development site and that the gradient of the land should be determined which will most significantly influence the fire behaviour to the site.

The land within the school site rises gently to the east from the flood plain to the Ropes Creek tributary which forms the western boundary of the site. The land to the west of the creek rises to the west whilst the vacant land within the Western Sydney Parkland rises gently to the south along the creek with a slight fall to the west, into the creek.

Refer to Figure 5 – Topographic Map on Page 12.

**Figure 5 – Topographic Map.**



## **2.4 Vegetation.**

Appendix A2.3 of *Planning for Bushfire Protection 2006* provides a methodology for determining the predominant bushfire prone vegetation for at least 140 metres in all directions from the future development on the site. Vegetation is classified using Table A2.1 of *Planning for Bushfire Protection 2006*, which classifies vegetation types into the following groups:

- (a) Forests [wet & dry sclerophyll forests];
- (b) Woodlands;
- (c) Plantations – being pine plantations not native plantations;
- (d) Forested Wetlands;
- (e) Tall Heaths;
- (f) Freshwater Heaths;
- (g) Short Heaths;
- (h) Alpine Complex;
- (i) Semi – arid Woodlands;
- (j) Arid Woodlands; and
- (k) Rainforests.

#### **2.4.1 Vegetation within the School Site.**

The vegetation within the school site consists of grassland which will be removed as part of the development and replaced with landscaped gardens.

The riparian corridor along the western boundary will be rehabilitated to a width of 20 metres, within the school site. This corridor of vegetation will present a low level of hazard to the proposed development and classified as 'rainforest' for the purposes of determining bushfire protection measures.

#### **2.4.2 Vegetation within 140 metres of the School Site.**

The predominant vegetation on the land to the west, north and east of the school site is managed grassland and landscaped gardens.

The Western Sydney Parklands, to the south of the school site, contains grassland vegetation to a width of approximately 125 metres with Cumberland Plain Woodland extending beyond the grassland.

Advice from Western Sydney Parkland indicates that this vegetation will ultimately spread across the vacant grassland. Therefore, for the purposes of determining the bushfire protection measures the vegetation on the land to the south of the school site will be eventually return to Cumberland Plain Woodland.

#### **2.5 Significant Environmental Features on the School Site.**

The land within the School Site does not contain significant environmental features such as SEPP 44 Koala Habitat; SEPP 14 Wetlands; SEPP 26 Littoral Rainforests; Land slip areas or National Parks Estate; Areas of Geological interest or Steep Lands [>18 degrees]. The site contains the 20 metre wide riparian corridor to the Ropes Creek tributary.

#### **2.6 Known Threatened Species, Population or Ecological Community within the School Site.**

There are no-known threatened species, populations or ecological communities within the school site.

#### **2.7 Details and location of Aboriginal Relics or Aboriginal Place.**

No Aboriginal relics or Aboriginal places are located within the school site, as far as the Applicant is currently aware.

## SECTION 3

### PRECINCT LEVEL ASSESSMENT

#### 3.1 Certified Bushfire Prone Land Map.

Figure 6 is a copy of an extract of the Certified Fairfield City Council Bushfire Prone Land Map showing the extent of the mapped Category 3 Bushfire Prone Vegetation on the school site and adjoining land.

*Figure 6 – Plan of Bushfire Prone Land.*



#### Legend Category

- Vegetation Category 1
- Vegetation Category 2
- Vegetation Category 3
- Vegetation Buffer

The site inspection confirmed that the mapped Category 3 Bushfire Prone Vegetation within the school site consists of grassland which will be removed as part of the proposed development.

The inspection also confirmed that the RU4 zoned land to the west of the Ropes Creek tributary is farming land which has managed grassland. This vegetation is NOT Category 3 Bushfire Prone Vegetation. Similarly, the vegetation on the land to the east of the school site is managed grassland which is NOT Category 3 Bushfire Prone Vegetation.

In this respect, the Fairfield City Bushfire Prone Land Map is incorrect.

The inspection confirmed that the Western Sydney Parkland to the south of the school site contains unmanaged Category 3 [Grassland] Vegetation however, over time this vegetation will be replaced by an extension of the Cumberland Plain Woodland further to the south, eventually returning the vegetation to Category 1 Bushfire Prone Vegetation.

## **SECTION 4**

### **BUSHFIRE PROTECTION ASSESSMENT**

#### **4.1 Introduction.**

Clause 44(h) of the *Rural Fires Regulation 2013* requires that for the purposes of Section 100B of the *Rural Fires Act 1997* a bushfire assessment is to be prepared for the proposed development that addresses the following matters:

- i. The extent to which the development is to provide for setbacks, including asset protection zones;
- ii. The siting and adequacy of water supplies for fire fighting;
- iii. The capacity of public roads in the vicinity to handle increased volumes of traffic in the event of a bush fire emergency;
- iv. Whether or not public roads in the vicinity that link with the fire trail network have two-way access;
- v. The adequacy of arrangements for access to and egress from the development site for the purposes of an emergency response;
- vi. The adequacy of bush fire maintenance plans and fire emergency procedures for the development site;
- vii. The construction standards to be used for building elements in the development;
- viii. The adequacy of sprinkler systems and other fire protection measures to be incorporated into the development.

The following sections of this report examine these matters.

#### **4.2 Asset Protection Zones.**

The bushfire prone vegetation which creates the hazard to the proposed Saints Peter & Paul Assyrian Primary School consists of the rehabilitated vegetation in the narrow riparian corridor to the Ropes Creek tributary and the future Cumberland Plain Woodland within the Western Sydney Parklands to the south of the school site.

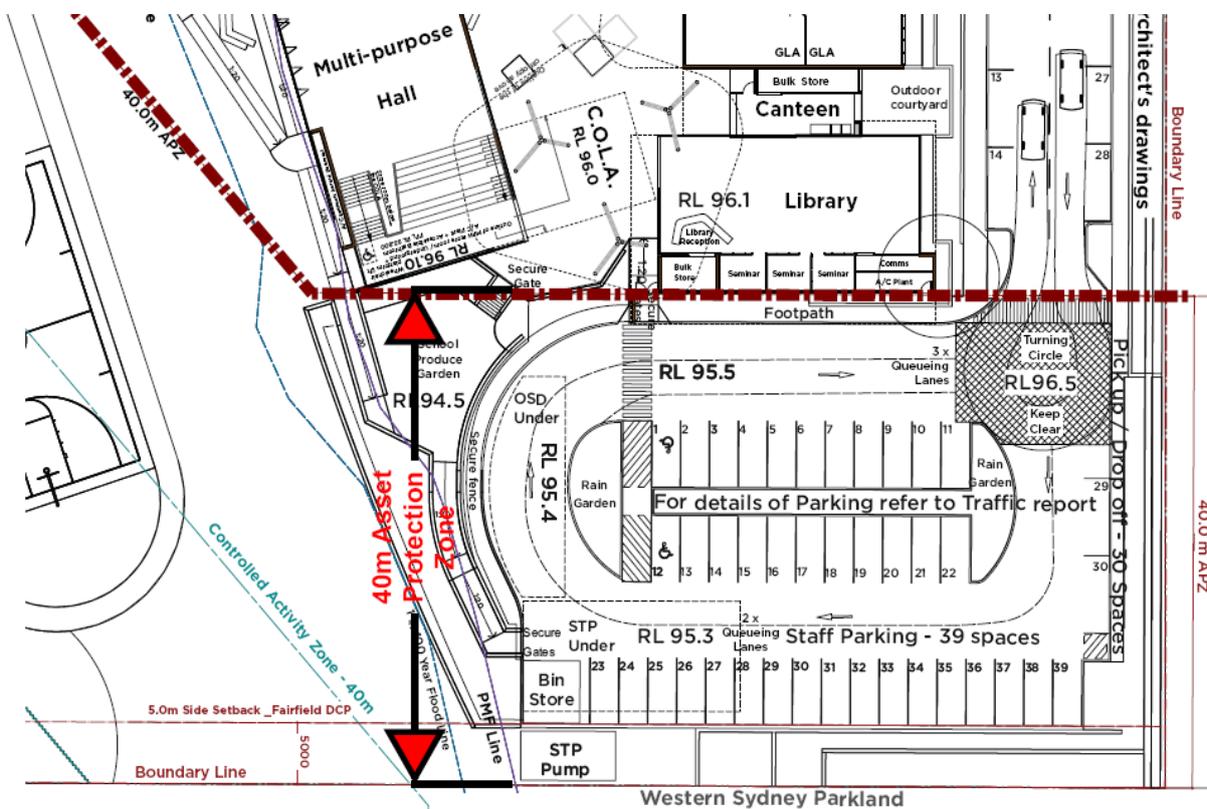
The rehabilitated riparian corridor will have a width of less than 50 metres and therefore classified as 'rainforest' vegetation. The required width of Asset Protection Zone from the 'rainforest' vegetation on land with a gradient of 0 – 5 degrees is 40 metres. The proposed Hall and School buildings are located more than 40 metres from the rehabilitated riparian zone.

The future Cumberland Plain Woodland within the Western Sydney Parkland is on land which rises gradually to the south, along the Ropes Creek tributary.

The required width of Asset Protection Zone to the south of the proposed school buildings is therefore 40 metres. This is achieved and provided by the location of the Carpark and driveway which occupy the south-eastern corner of the school site.

The development complies with the Asset Protection Zones as required by Table A2.6 of *Planning for Bushfire Protection 2006*.

**Figure 7 – Asset Protection Zone Plan.**



**4.3 Buildings are sited and designed to minimise the risk of bushfire attack:**

The proposed school buildings are sited to provide complying Asset Protection Zones and therefore satisfy the NSW Rural Fire Services’ requirement that the radiant heat exposure on the exterior of the buildings not exceed 10kW/m<sup>2</sup>.

**4.4 Construction Standard of Buildings:**

Part 2.3.4 of the Building Code of Australia [BCA] states that buildings that are constructed in a *designated bushfire prone area* must be designed and constructed to reduce the risk of ignition from a bushfire while the fire front passes.

Australian Standard A.S. 3959 - 2009 is the enabling standard that addresses the performance requirements of the Building Code of Australia. The proposed school buildings are defined as Class 9 buildings, pursuant to the Building Code of Australia and therefore fall outside the requirements of the Code.

However, Section 4.2.7 of *Planning for Bushfire Protection 2006* requires that for a new school located within a bushfire prone area, the maximum level of radiant heat on any part of the exterior of the building/s shall not exceed 10kW/m<sup>2</sup>.

The proposed school buildings are located more than the prescribed 40 metre width from the unmanaged vegetation within the Ropes Creek riparian corridor and the future Cumberland Plain Woodland within the Western Sydney Parklands to the south. This separation reduces the radiant heat rating on the exposed elevations of the school buildings to less than 10kW/m<sup>2</sup> – therefore complying with the maximum levels of radiant heat permitted for a ‘*Special Fire Protection Purpose Development*’ under Section 4.2.7 of *Planning for Bushfire Protection 2006*.

The proposed school buildings shall however be constructed to comply with Section 3 and Section 5 [BAL 12.5] of A.S. 3959 – 2009 – ‘*Construction of Buildings in Bushfire Prone Area*’ and Addendum Appendix 3 of *Planning for Bushfire Protection 2006*.

#### **4.5 Access:**

Vehicular & pedestrian access to the proposed Saints Peter & Paul Assyrian Primary School is provided directly off Kosovich Place via the proposed driveway and main entrance pathway.

Due to the negligible level of bushfire risk to the site there is no further access requirements.

#### **4.6 Water & Electricity Services:**

The proposed construction of the proposed school will require connection to the Sydney Water main supply with internal hydrants and fire hose reels installed in accordance with the provisions of A.S. 2419.1 – 2005 to address the structural fire-fighting provisions of the Building Code of Australia.

#### **4.7 Landscape Management - in particular the management of the Asset Protection Zones.**

The intention of landscape management is to prevent flame contact with a structure, reduce radiant heat to below the ignition thresholds for various elements of a building, to minimize the potential for wind driven embers to cause ignition and to reduce the effects of smoke on students / staff / visitors and fire-fighters.

Careful attention shall be given to species selection of landscaping, their location relative to their flammability, avoidance of continuity of vegetation [separation horizontally and vertically] and ongoing maintenance to remove flammable fuels.

Methods of bushfire hazard management include mowing of lawns and manual removal of combustible material, particularly within the landscaped areas.

The landscaped gardens and open lawn areas shall be maintained to comply with the prescriptions of an Inner Asset Protection Zone as defined by Appendix 5 of *Planning for Bushfire Protection 2006* and the NSW Rural Fire Service's '*Standards for Asset Protection Zones*'.

#### **4.8 Adequacy of bush fire maintenance plans and fire emergency procedures for the development site:**

The bushfire hazard to the proposed Saints Peter & Paul Assyrian Primary School is potentially from the future Cumberland Plain Woodland within the Western Sydney Parklands.

The risk to the school is low. Therefore, there is no requirement for the provision of a bushfire maintenance plan or emergency procedures plan.

#### **4.9 Emergency Planning.**

There shall be prepared an Evacuation Plan for the Saints Peter & Paul Assyrian Primary School, incorporating protocols for defined emergencies, including bushfire occurrences within the adjoining Western Sydney Parklands.

The Evacuation Plan shall be prepared in accordance with Australian Standard A.S. 3745-2002 "*Emergency Control Organisation and Procedures for dwellings, structures and workplaces*" and the Rural Fire Service's "*Bushfire Evacuation Plan Guideline*" and will remain in draft format until completed by the School Management Committee.

## SECTION 5

### RECOMMENDATIONS

#### **Recommendation 1:**

##### ***Asset Protection Zone:***

The minimum separation between the vegetation within the Ropes Creek tributary and within the Western Sydney Parklands and the school buildings shall be 40 metres.

#### **Recommendation 2:**

##### ***Asset Protection Zone Management:***

Except for the vegetation in the riparian, the whole of the school site shall be maintained to comply with the prescriptions of an Inner Asset Protection Zone as defined by Appendix 5 of *Planning for Bushfire Protection 2006* and the NSW Rural Fire Service's '*Standards for Asset Protection Zones*'.

It is recommended that the consent authority consider the requirement for the creation of a Positive Covenant, under the provisions of the *Conveyancing Act – 1919*, over the land to ensure the maintenance of the land in accordance with the requirements of the NSW Rural Fire Service.

#### **Recommendation 3:**

##### ***Bushfire Construction Standards to the School Buildings:***

The school buildings shall be constructed to comply with Section 3 and Section 5 [BAL 12.5] of A.S. 3959 – 2009 – '*Construction of Buildings in Bushfire Prone Area*' and Addendum Appendix 3 of *Planning for Bushfire Protection 2006*.

#### **Recommendation 4:**

##### ***Access for Fire Fighting Appliances:***

The two-way access driveway shall have a minimum trafficable width of 6.5 metres. The one-way loop to the Carpark shall have a minimum trafficable width of 3.5 metres and designed to accommodate a medium rigid vehicle [Category 1 Rural Fire Service Tanker or Fire & Rescue NSW Pumper/Composite Appliance].

#### **Recommendation 5:**

##### ***Water Supplies for Fire-fighting Operations:***

The proposed school shall be connected to the Sydney Water supply main with hydrants/hose reels installed in accordance with A.S. 2419.1 – 2005 and the Building Code of Australia.

**Recommendation 6:**

***Emergency Management:***

There shall be prepared an Evacuation Plan which incorporates protocols for defined emergencies, including a bushfire event that may occur within the Western Sydney Parkland.

The Evacuation Plan shall be prepared in accordance with Australian Standard A.S. 3745-2002 *“Emergency Control Organisation and Procedures for dwellings, structures and workplaces”* and the Rural Fire Service’s *“Bushfire Evacuation Plan Guideline”* and will remain in draft format until completed by the School Management Committee.

## SECTION 6

### CONCLUSION

Approval is being sought for the construction of the proposed Saints Peter and Paul Assyrian Primary School on Lots 2320 & 2321 in DP 1223137 No. 17 - 19 Kosovich Place, Cecil Hills.

This report has examined the accuracy of the Fairfield City Council Bushfire Prone Land Map and found that the map incorrectly records the extent of the Category 3 Vegetation located within on the RU4 zoned land to the west and east of the school site.

The development of the school will remove the mapped Category 3 from within the school site. The mapped Category 3 Vegetation on the land to the south, within the Western Sydney Parklands, is correct however, the revegetation of this land with Cumberland Plain Woodland will increase the hazard to the proposed school.

This report reviews the proposed development against the deemed-to-satisfy provisions of *Planning for Bushfire Protection 2006* and has found that the buildings are separated from the vegetation within the narrow riparian corridor to the Ropes Creek tributary and the future Cumberland Plain Woodland within the Western Sydney Parklands by widths that comply with or exceed those required to address Table A2.6 in *Planning for Bushfire Protection 2006*.

The report also examines the requirements for the provision of access and water supplies for fire-fighting operations and construction standards to the school buildings and confirms that the Asset Protection Zone widths satisfy the prerequisite that the maximum radiant heat exposure on the exterior of the buildings is 10kW/m<sup>2</sup>.

Table 1 summarises the extent to which the proposed development conforms to the deemed-to-satisfy specifications of *Planning for Bushfire Protection 2006*.

**Table 1. Compliance with the deemed-to-satisfy provisions of *Planning for Bushfire Protection 2006*.**

<b>Bushfire Protection Measure</b>	<b>Compliance with deemed-to-satisfy provisions of <i>Planning for Bushfire Protection 2006</i>.</b>
Asset Protection Zone setbacks	YES – Location of the school buildings provide Asset Protection Zone widths of more than 40m to the bushfire prone vegetation within the Riparian Corridor and within the Western Sydney Parklands, exceeding the minimum widths required by Table A2.6 of <i>Planning for Bushfire Protection 2006</i> .
The siting and adequacy of water supplies for fire fighting	YES – Hydrant supply to be installed in accordance with AS 2419.1 – 2005 & the Building Code of Australia.
Design of Public Roads	YES – Kosovich Place complies with the specifications of Section 4.1.3(1) of <i>Planning for Bushfire Protection 2006</i> and provides satisfactory emergency access for fire-fighting appliances.
Design of Fire Trail network	No Fire network required.
Adequacy of emergency response access and egress	YES – Proposed internal driveway access complies with the access provisions of Section 4.1 and Section 4.2.7 of <i>Planning for Bushfire Protection 2006</i> .
Adequacy of bushfire maintenance plans and fire emergency procedures	Bushfire emergency procedures are not required for the development due to the low bushfire risk and the location of the Asset Protection Zones contained wholly within the site.
Building construction standards	BAL 12.5 Bushfire construction standards recommended to the school buildings.
Adequacy of sprinkler systems and other fire protection measures to be incorporated into the development	Bushfire Sprinkler Systems not applicable. BCA fire protection measures to be implemented including hydrant supply and fire hose reels.
Emergency Management	Evacuation Plan to be prepared incorporating protocols for defined emergencies, including bushfire occurrences in the Western Sydney Parklands.



Graham Swain,  
 Managing Director,  
***Australian Bushfire Protection Planners Pty Limited.***

## REFERENCES:

- N.S.W Rural Fire Service – Planning for Bushfire Protection 2006;
- *Environmental Planning & Assessment Act – 2017*;
- *Rural Fires Act – 1997*;
- *Rural Fires Regulation 2013*;
- NSW Rural Fire Service – *Guideline for Bushfire Prone Land Mapping 2015*;
- *Biodiversity Management Act 2017*;
- *Bushfire Environmental Assessment Code 2006*;
- Building Code of Australia;
- Australian Standard A.S 3959-2009 “*Construction of Buildings in Bushfire Prone Areas*”;
- Fairfield City Council Bushfire Prone Land Map.