



Bushfire Protection Assessment

Proposed Building Redevelopment: Hunter Sports High School, Gateshead

Prepared for
NSW Public Works

30 November 2015



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1 Property and proposal

Street / property name:	Hunter Sports High School		
Suburb / town:	Gateshead	Postcode:	2290
Lot/DP no:	Lot 1540 DP 755233		
Local Government Area:	Lake Macquarie City Council		
Type of area:	Urban		
Type of development:	High School redevelopment (infill SFPP development)		

1.1 Introduction

NSW Public Works commissioned Eco Logical Australia Pty Ltd (ELA) to prepare a bushfire protection assessment (BPA) for a proposed redevelopment of some of the existing school buildings at Hunter Sports High School.

This assessment has been prepared by the senior ELA Senior Bushfire Consultant, Mark Hawkins.

1.2 Location and description of proposal

The subject land is located in the centre of Gateshead adjacent the Pacific Highway and several playing fields as shown in **Figure 1**. The bushfire hazard consists of dry sclerophyll forest and coastal heath swamp within Johnsons Creek to the west and south.

The development consists of the demolition of antiquated buildings and the construction of new buildings within the existing developed area of the school. **Figure 2** shows the location of the buildings and **Figure 3** contains a development site plan. The buildings will be of various dimensions and locations and will be within the general footprint of the existing structures.

1.3 Assessment requirements

The subject land is identified as being bushfire prone land on the Lake Macquarie City Council Bush Fire Prone Land Map and the development is defined by the *Environmental Planning and Assessment Act 1979* as Special Fire Protection Purpose (SFPP) development. The development therefore has been assessed to comply with Section 100B of the *Rural Fires Act 1997*, which includes the consideration of the NSW Rural Fire Service (RFS) document *Planning for Bushfire Protection 2006* (NSWRFS 2006), referred to within this report as 'PBP'.

The following detailed assessment is strictly based on the methodology and requirements of PBP and supporting RFS policy.



Figure 1: Location of subject land



Figure 2: Bushfire hazard

The Development Plan



Figure 3: Development site plan

2 Bushfire hazard

In accordance with PBP the predominant vegetation class has been determined for a distance of at least 140 m out from the subject land. The vegetation consists predominantly of dry sclerophyll forest and coastal swamp forest. This forest is to the west and south within the adjoining Johnsons Creek riparian corridor (see **Figure 2**). The treed areas within the school grounds and along the southern school boundary is not considered bushfire prone vegetation as there is no understorey and is currently managed; however it is listed as an environmental constraint. In accordance with PBP, the subject land within the school can be classified as 'managed lands'.

In accordance with PBP the slope that would most significantly influence fire behaviour was determined over a distance of 100 m out from the proposed buildings towards where the bushfire hazard was found. To be conservative, the slope underneath the forest to the west and south has been assessed as within the PBP slope class of '0-5' degree downslope.

A summary of the bushfire hazard analysis is shown on **Figure 2** and listed in **Table 1**.

3 Asset Protection Zone & BAL

Table A2.6 of PBP has been used to determine the width of any required Asset Protection Zone (APZ) for the proposed future buildings using the vegetation and slope data identified in **Section 2**. The results of the APZ analysis are shown in **Table 1** below.

The acceptable solution APZ for a SFPP building is 70m to the west and south. The managed separation distances (APZ) provided within the school grounds exceeds 70m as shown in **Table 1**. Additional APZ establishment or vegetation removal is therefore not required. The basketball courts were assessed as part of the APZ rather than a formal building.

The building construction standard is based on the determination of the Bushfire Attack Level (BAL) in accordance with Method 1 of AS 3959-2009 *Construction of buildings in bushfire-prone areas* (AS 3959). The BAL is based on known vegetation type, effective slope and managed separation distance between the development and the bushfire hazard.

In accordance with the BAL assessment shown in **Table 1**, the proposed buildings are rated as BAL-12.5. It is important that the most recent and current version of AS 3959 is consulted. Additionally, the NSW variation to AS 3959 as outlined in PBP (within the 2010 Appendix 3 Addendum) is to be implemented as applicable to the proposed development.

Table 1: Determination of APZ and construction standards

Direction ¹	Slope ²	Vegetation ³	PBP required APZ ⁴	Proposed APZ ⁵	AS3959 Bushfire Attack Level (BAL) ⁶	Comment
West	0-5° downslope	Forest	70 m	>70m	BAL-12.5	Existing APZ exceeds requirement. Vegetation removal not required.
South	0-5° downslope	Forest	70 m	>70m	BAL-12.5	Existing APZ exceeds requirement. Vegetation removal not required.
All other directions	Managed lands					

¹ Direction of assessment from proposed development.

² Effective slope assessed over 100 m from proposed development where the bushfire hazard occurs.

³ Predominant vegetation classification over 140 m from proposed development.

⁴ Minimum APZ required by PBP acceptable solution for residential development.

⁵ APZ proposed to be established and/or provided by existing management arrangements.

⁶ Bushfire Attack Level (BAL) corresponding to construction requirements under AS 3959-2009 'Construction of Buildings in Bushfire Prone Areas'.

4 Access

The school and proposed development can be accessed directly from the Pacific Highway, driveways along the front of the school and from playing fields surrounding the rear of the school. Access to the development site however cannot be easily gained through the school grounds as the entire interior of the school is security fenced. These details should however have been already addressed with local emergency service authorities.

The state of the existing vehicle access complies with PBP however measures need to be installed to ensure that emergency services have adequate access to the buildings for firefighting operations. No additional provisions are required to support this proposal.

5 Water supply

The school is serviced by reticulated water and features hydrants for fire suppression. Hydrants are located within the school at the main entrance and are also located periodically throughout the school. These hydrants will be the closest to the development and the distance between the two (within 60 m) complies with PBP. Additional water supplies are not required for bushfire protection.

6 Gas and electrical supplies

The electrical supply to the subject land is overhead. Tree branches and leaves should not be closer to a powerline than the distance specified in '*ISSC 3 Guideline for Managing Vegetation Near Power Lines*' (Industry Safety Steering Committee, 2005).

Any gas service to be installed is to be in accordance with *AS/NZS 1596:2008 The storage and handling of LP gas* (Standards Australia, 2008).

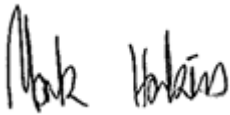
7 Recommendations and conclusion

The proposal consists of the redevelopment of existing school buildings on bushfire prone land and as such is defined as Special Fire Protection Purpose (SFPP) development. The building will have a managed separation distance to the bushfire hazard that exceeds the minimum requirements. With the application of BAL-12.5 construction standard, this assessment has found the development can achieve all the acceptable solutions of PBP required for SFPP development, hence achieving the aim and objectives of PBP.

The following recommendations have been made within this report:

1. The new development is to be constructed to BAL-12.5 under Australian Standard AS 3959-2009 *Construction of buildings in bushfire-prone areas* with consideration of the AS 3959 NSW variation as outlined in PBP (2010) Appendix 3 Addendum;
2. Tree branches and leaves should not be closer to a powerline than the distance specified in 'ISSC 3 *Guideline for Managing Vegetation Near Power Lines*' (Industry Safety Steering Committee, 2005).
3. Any gas service to be installed is to be in accordance with AS/NZS 1596:2008 *The storage and handling of LP gas* (Standards Australia, 2008).

In the author's professional opinion the proposed development can comply with 'Planning for Bush Fire Protection' (NSWRFS 2006).



Mark Hawkins
Senior Bushfire Consultant

8 References

Industry Safety Steering Committee. 2005. *ISSC 3 Guideline for Managing Vegetation Near Power Lines*. (updated from Energy Australia. 2002. *Network Standard NS 179 (Vegetation Safety Clearances)*).

NSW Rural Fire Service (RFS). 2006. *Planning for Bush Fire Protection: A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners*. Australian Government Publishing Service, Canberra.

Standards Australia. 2005. *The storage and handling of LP Gas*, AS/NZS 1596:2008, Fourth edition 2005, Standards Australia International Ltd, Sydney.

Standards Australia. 2005. *Fire hydrant installations - System design, installation and commissioning*, AS2419.1, Fourth edition 2005, Standards Australia International Ltd, Sydney.

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