



BUSHFIRE  
PLANNING  
AUSTRALIA



# BUSHFIRE THREAT ASSESSMENT

Western Sydney University, Hawkesbury Campus

Hurlestone Agricultural High School

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**Bushfire Planning Australia**

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Ref: 1748  
Version: FINAL – December 2017

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## **DISCLAIMER AND LIMITATION**

This report is prepared solely for Conrad Gargett Ancher Mortlock Woolley (the '**Client**') for the specific purposes of only for which it is supplied (the '**Purpose**'). This report is not for the benefit of any other person; either directly or indirectly, and is strictly limited to the purpose and the facts and matters stated in it and will not be used for any other application.

This report is based on the site conditions surveyed at the time the document was prepared. The assessment of the bushfire threat made in this report is made in good faith based on the information available to Bushfire Planning Australia at the time.

The recommendations contained in this report are considered to be minimum standards and they do not guarantee that a building or assets will not be damaged in a bushfire. In the making of these comments and recommendations it should be understood that the focus of this document is to minimise the threat and impact of a bushfire.

Finally, the implementation of the adopted measures and recommendations within this report will contribute to the amelioration of the potential impact of any bushfire upon the development, but they do not and **cannot** guarantee that the area will **not** be affected by bushfire at some time.

## **DOCUMENT STATUS: 1715 – Community Centre**

VERSION	PURPOSE	AUTHOR	REVIEW DATE
1. Draft	Draft for Review	Stuart Greville	16 <sup>th</sup> October 2017
2. Draft	Draft for Client Review	Stuart Greville	23 <sup>rd</sup> October 2017
3. Final	Final for Submission	Stuart Greville	23 <sup>rd</sup> October 2017
4. Update	Amended Bushfire Prone Land Map	Stuart Greville	20 <sup>th</sup> December 2017

## **CERTIFICATION**

As the author of this Bushfire Threat Assessment (BTA), I certify this BTA provides the detailed information required by the NSW Rural Fire Service under Clause 44 of the Rural Fires Regulation 2013 and Appendix 4 of Planning for Bushfire Protection 2006 for the purposes of an application for a bush fire safety authority under section 100B(4) of the Rural Fires Act 1997.



**Stuart Greville**  
Accredited Bushfire Practitioner  
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Date: 20<sup>th</sup> December 2017

In signing the above, I declare the report is true and accurate to the best of my knowledge at the time of issue.

## Executive Summary

Bushfire Planning Australia (BPA) has been engaged by Conrad Gargett Ancher Mortlock Woolley (the 'Client') to undertake a Bushfire Threat Assessment (BTA) to accompany a State Significant Development (SSD) Application (SSD 8614) for the proposed development of the new Hurlstone Agricultural High School to be constructed on a portion of Lot 2 DP1051798; being the Hawkesbury Campus of the Western Sydney University.

The Secretary's Environmental Assessment Requirements issued by the Department of Planning and Environment (DPE) on 8<sup>th</sup> August 2017 (**Appendix A**) required the completion of a bushfire assessment. The bushfire assessment is to address the bushfire hazard and demonstrate the development satisfies the requirements for Special Fire Protection Purposes (SFPP) as detailed in the NSW Rural Fire Service (RFS) document Planning for Bushfire Protection 2006 (PBP 2006).

This BTA found the site of the proposed development was not identified as designated bushfire prone land. Notwithstanding, for the purpose of demonstrating the suitability of the site for the proposed use, this bushfire assessment considered the possibility of the site being exposed to a measurable bushfire hazard.

The BTA concluded that the site was exposed to low bushfire threat primarily due to the landscape, dominance of low-threat vegetation and existing management practices in place throughout the campus and surrounding managed properties.

Notwithstanding, whilst the proposed development is considered to provide appropriate separation between the nearest hazard to the south-west and the proposed building/s, the following precautionary measures are provided for consideration. These recommendations will further minimise the impact of a bushfire on the property.

1. The entire development site and surrounding land out to 100m from all proposed buildings shall be managed as an inner protection area (IPA) as outlined within section 4.1.3 of PBP 2006 and the RFS publication Standards for asset protection zones;
2. Public road access; including all new internal roads, are to be constructed in accordance with section 4.1.3 (2) of PBP;
3. All new buildings are to be linked to the mains pressure water supply network and that suitable fire hydrants are clearly marked and provided for the purposes of bushfire protection. Fire hydrant spacing, sizing and pressure shall comply with AS2419.1 2005 and section 4.1.3 of PBP 2006; and
4. Consideration should be given to landscaping and fuel loads on site to decrease potential fire hazards on site.

This assessment has been made based on the bushfire hazards observed in and around the site at the time of inspection and production (October 2017).

Should the above recommendations be implemented, the existing bushfire risk should be suitably mitigated to offer an acceptable level of protection to life and property for those persons and assets occupying the site but they do not and cannot guarantee that the area will not be affected by bushfire at some time.

## Contents

Executive Summary .....	3
1. Introduction .....	6
2. Site Description .....	6
2.1 Bushfire Prone Land .....	8
2.1.1 Bushfire Mitigation Strategy .....	9
2.2 Proposed Development .....	9
2.3 Aims and Objectives .....	9
2.4 Specific Objectives for Special Fire Protection Purposes .....	10
3. Bushfire Hazard Assessment .....	11
3.1 Vegetation Assessment .....	11
3.2 Slope Assessment .....	15
3.3 Significant Environmental Features .....	17
3.4 Threatened Species, populations or ecological communities .....	17
3.5 Aboriginal Objects .....	17
4. Bushfire Protection Measures .....	18
4.1 Asset Protection Zones .....	18
4.2 Access .....	18
4.3 Services – water electricity and gas .....	19
4.3.1 Water .....	19
4.3.2 Electricity .....	19
4.3.3 Gas .....	19
4.4 Bushfire Emergency Procedures .....	19
4.5 Construction Standards – Bushfire Attack Level .....	19
4.6 Sprinkler Systems and Other Fire Protection Measure .....	20
4.7 Landscaping and Vegetation Management .....	20
5. Conclusion and Recommendations .....	22
6. References .....	23

## Figures

Figure 1: Site Locality Plan .....	7
Figure 2: Bushfire Prone Land Map (NSW Planning Portal 2017) .....	8
Figure 3: Slope and Vegetation Assessment .....	16



## Appendices

Appendix A: Secretary's Environmental Assessment Requirements (SSD 8614)

Appendix B: Western Sydney University – Bushfire Mitigation Strategy

Appendix C: Plan of Proposed Development

Appendix D: Landscape Plans

Appendix E: AHIMS Search Results

## 1. Introduction

Bushfire Planning Australia (BPA) has been engaged by Conrad Gargett Ancher Mortlock Woolley (the 'Client') on behalf of NSW Department of Education (DoE) to undertake a Bushfire Threat Assessment (BTA) for the new Hurlstone Agricultural High School (Hawkesbury) located on the Western Sydney University Hawkesbury Campus hereafter referred to as the 'site' (**Figure 1**). The site is located at 2 College Road, Richmond and is legally known as Lot 2 DP1051798.

The assessment aims to consider and assess the bushfire hazard and associated potential bushfire threat relevant to the proposed development, and to outline the minimum mitigative measures which would be required in accordance with the provisions of the New South Wales Rural Fire Service (RFS) publication *Planning for Bushfire Protection 2006* (PBP 2006) that has been released and adopted through the *Environmental Planning and Assessment Amendment* (Planning for Bushfire Protection ) *Regulation 2007* and the *Rural Fires Regulation 2013*.

## 2. Site Description

<b>Address</b>	2 College Street, Richmond
<b>Title</b>	Lot 2 DP1051798
<b>LGA</b>	Hawkesbury Shire Council
<b>Site Area</b>	~ 12.2 hectares
<b>Land Use Zone</b>	SP1 – Special Activities (Education Agriculture) Hawkesbury Local Environmental Plan 2012
<b>Boundaries</b>	The site is wholly within the Hawkesbury campus of the Western Sydney University; located on a vacant parcel of land towards the southern boundary.
<b>Topography</b>	The site is currently occupied by large expanses of cleared land surrounded by the education facilities and infrastructure. There is very little change in grade across the site, with the exception of a narrow drainage corridor defining the southern boundary of the site.
<b>Fire History</b>	The site lies within a local government area with a Fire Danger Index (FDI) rating of 100. Records detailed in the Western Sydney University Bushfire Mitigation Strategy reveal that the site has been affected by 3 bushfire events since 1977, and a hazard reduction burn. The latest bushfire was ignited from a tree branch hitting an overhead electricity line in 2017.





HAHS

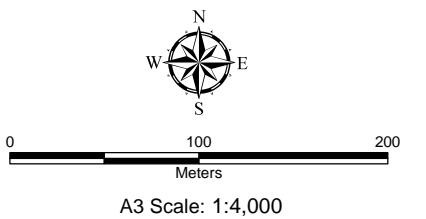
Hawkesbury

# Figure 1 Site Location



 The Subject Site

SOURCE:  
Cadastral Boundary: NSW Department of Finance,  
Services and Innovation 2017  
Watercourse: GeoScience Australia 2015  
Aerial Photo: NearMap July 5th 2017



File:UWSHawkesburyFig01\_SiteLocation\_171022 Date: 22/10/2017

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## 2.1 Bushfire Prone Land

Bushfire activity is prevalent in landscapes that carry fuel and the two predominant bushfire types are grassland and forest fires. Factors such as topographic characteristics and quantity of fuel loads influence the intensity and spread of fire. The scale of a bushfire hazard is tailored to the characteristics of the hazard, the size and characteristics of the affected population, types of land use exposed to bushfire, predicted development growth pressures and other factors affecting bushfire risk.

**Figure 2** demonstrates a portion of the development site is identified as Vegetation Category 3. Category 3 vegetation is considered a medium threat and in this instance comprises the grassland to the south and south-west of the site.

Whilst the site the entire site is not designated bushfire prone land, a portion of the proposed development is within the 30m vegetation buffer.

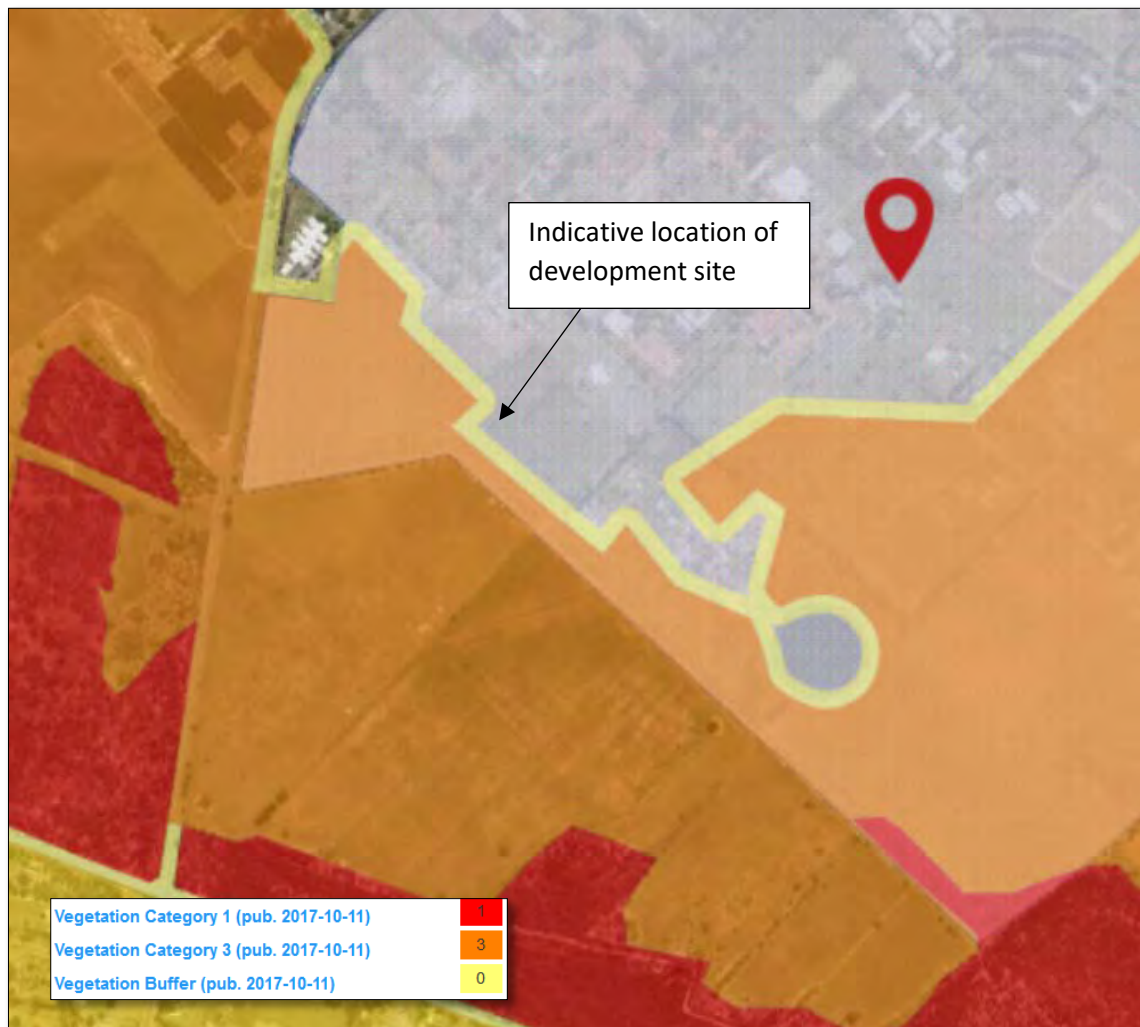


Figure 2: Bushfire Prone Land Map (NSW Planning Portal 2017)

### 2.1.1 Bushfire Mitigation Strategy

Western Sydney University implemented a Bushfire Mitigation Strategy (BMS) in 2015 and is contained in **Appendix B**. The BMS outlines:

- ☐ The known fire history of the Campus;
- ☐ Key assets requiring bushfire protection;
- ☐ Strategies relating to Bushfire Protection Measures; and
- ☐ Statutory requirements for bushfire protection in NSW.

The BMS was based on the information and requirements outlined in several RFS documents including PBP 2006. The Bushfire Protection Measures contained in the BMS are a combination of the bushfire protection measures offered by PBP 2006 and aim to protect the identified key assets from wildfire, grassfire and ember attack.

Asset Protection Zones (APZs) are a key mitigation strategy required by the BMS, the strategy for APZs and defensible space includes the following aspects:

- ☐ Agricultural and paddock areas are clearly identified as APZs with land management practices to maintain reduced fuel load (eg. slashing, grazing);
- ☐ Areas bordering key research and teaching assets, SFPP and neighbouring residential areas are identified as Strategic Fire Zones. These will be a focus of fuel load reduction through mechanical means and hazard reduction burns; and
- ☐ Identification of a mosaic of remnant vegetation areas which can potentially have hazard reduction burns, with the timing and intensity guided by management requirements as priority conservation lands as well as asset protection.

In addition to vegetation hazard management throughout the Campus, the BMS also details requirements for access, emergency management arrangements, landscaping and construction standards.

## 2.2 Proposed Development

The Department of Education (DoE) proposes to construct a new agricultural high school for up to 1,500 students on a cleared portion of the Hawkesbury campus of the Western Sydney University. The development includes several detached buildings; up to 3 storeys high, including a new assembly court. Associated landscaping and infrastructure; including a new service access road along the southern boundary are also included in the proposed development.

A plan of the proposed development is contained in **Appendix B**.

## 2.3 Aims and Objectives

Whilst the proposed development is not located on designated bushfire prone land, this assessment has been undertaken in accordance with clause 44 of the Rural Fires Regulation 2013. This BTA also addresses the aims and objectives of PBP 2006, being:

- ☐ Afford occupants of any buildings adequate protection from exposure to a bushfire;
- ☐ Provide a defensible space to be located around buildings;
- ☐ Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition;

- ☐ Ensure that safe operational access and egress for emergency service personnel and residents is available;
- ☐ Provide for ongoing management and maintenance of bushfire protection measures, including fuel loads in the asset protection zone (APZ); and
- ☐ Ensure that utility services are adequate to meet the needs of firefighters (and others assisting in bushfire fighting).

## 2.4 Specific Objectives for Special Fire Protection Purposes

The aims and objectives listed in section 1.2.1 of PBP 2006 remain applicable to SFPP developments, however further consideration has been given to SFPP developments due to the nature of these environments and the occupants they accommodate. Occupants of SFPP developments are generally more vulnerable to bushfire attack therefore specific considerations have been put in place to ensure greater protection is provided (section 4.2.3 PBP 2006). Specific objectives include:

- ☐ To provide for the special characteristics and needs of occupants; and
- ☐ Provide for safe emergency evacuation procedures.

As the proposed development is classified as a SFPP development; as an educational facility, the specific objectives and acceptable solutions for a SFPP development have been considered.

### 3. Bushfire Hazard Assessment

#### 3.1 Vegetation Assessment

Vegetation classification over the site and surrounding area has been carried out as follows:

- ❑ Aerial Photograph Interpretation to map the vegetation classification and extent (NSW LPI 2015);
- ❑ Western Sydney University Bushfire Mitigation Strategy (2015);
- ❑ Review of LiDAR point cloud data (NSW LPI); and
- ❑ Site inspection (21<sup>st</sup> September 2017).

In accordance with PBP 2006, an assessment of the vegetation over a distance of 140m in all directions from the site was undertaken. Vegetation that may be considered a bushfire hazard was identified in all directions from the development footprint. The vegetation classification is based on the revised Table 2.3 in AS3959-2009.



Plate 1: Location of proposed development looking north-west



Plate 2: Location of proposed development looking east from Londonderry Road





**Plate 3: Location of proposed development looking south-east from internal carpark**



**Plate 4: Nearest bushfire hazard >140m to the south-west looking south along Londonderry Road. Subject site left of image**





**Plate 5: Narrow engineered drainage corridor located to the south of the proposed development looking west. Vegetation to be retained**



**Plate 6: Drainage corridor looking east from Londonderry Road. Vegetation to be retained**





**Plate 7: Aged care facility adjoins the north-west boundary of the development site**



**Plate 8: Campus accommodation located to the north of the development site**





**Plate 9: Paddocks to the south of the site are used for agricultural education – also managed as APZ**



**Plate 10: Looking east along southern boundary. Drainage corridor to the left and managed paddock to the right**

The vegetation and landform observed during the site inspection confirmed the development site and the balance of the Campus is suitably managed as either an APZ or is cleared/managed land; including the grazing paddock to the south of the development site. As such, there is no existing vegetation on the site that is classified as a hazard as shown in **Figure 3**.

### 3.2 Slope Assessment

The slope assessment was undertaken as follows:

- ☐ Architectural plans prepared by Conrad Gargett Ancher Mortlock Woolley (September 2017); and
- ☐ Site inspection (26<sup>th</sup> September 2017).

The effective slope was found to be *level*.



# Slope and Vegetation Assessment



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- Subject Site
- Contour (1m)
- Cleared/ Managed land
- Drainage Corridor/ Watercourse
- 100m Buffer
- 140m Buffer

SOURCE:  
Cadastral Boundary: NSW Department of Finance,  
Services and Innovation 2017  
Aerial Photo: NSW Land & Property Information  
2015  
Contours and hydrological analysis derived from  
5m LiDAR DTM: NSW Land & Property Information  
2011



0 25 50 75 100 125 150  
Meters

A3 Scale: 1:3,000

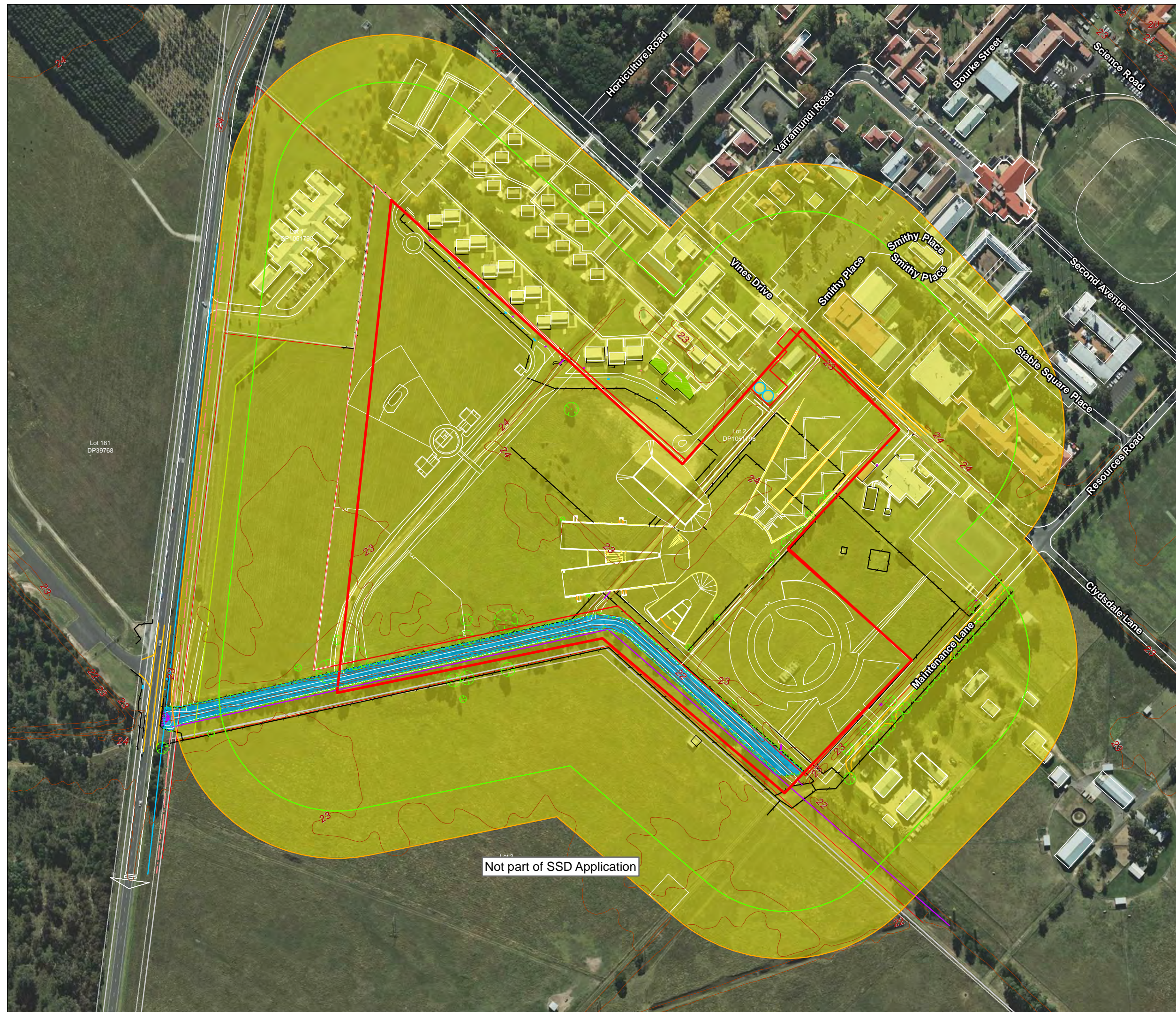
File:UWSHawkesburyFig03\_SlopeVegAssessment\_171022Date: 22/10/2017

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### 3.3 Significant Environmental Features

There are no known environmental features of significance within the development footprint or the balance of the site. The development footprint is wholly located within that part of the site that is predominantly cleared.

### 3.4 Threatened Species, populations or ecological communities

A search of the Atlas of NSW Wildlife Database was conducted on 23<sup>rd</sup> October 2017. The Atlas includes records of threatened species listed under both the NSW *Threatened Species Act 1995* and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. No threatened species have been recorded on the site that have the potential to be impacted upon as a result of the bushfire mitigation measures.

### 3.5 Aboriginal Objects

A search of the AHIMS database (results contained in **Appendix C**) revealed there are no Aboriginal sites or places recorded in or near the subject site.

## 4. Bushfire Protection Measures

### 4.1 Asset Protection Zones

An APZ is an area surrounding a development that is managed to reduce the bushfire hazard to an acceptable level to mitigate the risk to life and property (refer to **Figure 10**). The required width of the APZ varies with slope and the type of hazard. An APZ can consist of both an inner protection area (IPA) and an outer protection area (OPA). In this instance the entire APZ and the balance of the development site shall be managed as an IPA.

An APZ can include the following:

- ☐ lawns;
- ☐ discontinuous gardens;
- ☐ swimming pools;
- ☐ roads, driveways and managed verges;
- ☐ unattached non-combustible garages with suitable separation from the dwelling;
- ☐ open space / parkland; and
- ☐ car parking.

The presence of a few shrubs or trees in the APZ is acceptable provided that they:

- ☐ do not touch or overhang any buildings;
- ☐ are well spread out and do not form a continuous canopy;
- ☐ are not species that retain dead material or deposit excessive quantities of ground fuel in a short period or in a danger period; and
- ☐ are located far enough away from any dwelling so that they will not ignite the dwelling by direct flame contact or radiant heat emission.

Woodpiles, wooden sheds, combustible material storage areas, large areas / quantities of garden mulch, stacked flammable building materials etc. are not be recommended in the APZ.

The Western Sydney University Bushfire Mitigation Strategy requires the entire site to be managed as an APZ. This includes all land within 100m of the development site. Accordingly, this BTA supports the requirements of the BMS and recommends the BMS to continue to be implemented.

### 4.2 Access

In the unlikely event of a serious bushfire, it will be essential to ensure that adequate ingress / egress and the provision of defensible space are afforded in the subdivision layout. The following design specifications detailed in PBP 2006 are relevant to the proposed development:

- ☐ be two-wheel drive all weather roads;
- ☐ be through roads, but if unavoidable then dead ends should be not more than 200 metres in length, incorporate a minimum 12 metres turning circle (either in cul-de-sac or T-head formation) and should be clearly sign posted as dead ends;
- ☐ the capacity of road surfaces is sufficient to carry fully loaded fire fighting vehicles (approximately 15 tonnes for areas with reticulated water, 28 tonnes for all other areas);
- ☐ non perimeter roads comply with table – Road widths for Category 1 Tanker;

- ☐ curves of roads (other than perimeter roads) are a minimum inner radius of 6 metres and minimal in number, to allow for rapid access and egress;
- ☐ maximum grade for sealed roads do not exceed 12.5°;
- ☐ have a minimum vertical clearance to a height of four metres at all times;
- ☐ parking bays are a minimum of 2.6 metres wide from kerb edge to road pavement. No services or hydrants are located within the parking bays.

The proposed service road satisfies the acceptable solutions under PBP 2006.

Refer to **Appendix B** showing access to the proposed development.

## 4.3 Services – water electricity and gas

### 4.3.1 Water

Fire hydrant spacing, sizing and pressure should comply with AS 2419.1 – 2005. Hydrants are not to be located within any road carriageway.

The proposed development will be connected to the reticulated water supply.

### 4.3.2 Electricity

All electricity services are located underground.

### 4.3.3 Gas

Any reticulated or bottled gas should be installed and maintained according to the requirements of the relevant authorities and AS 159-2002. It is expected that the location of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.

## 4.4 Bushfire Emergency Procedures

The Western Sydney University Bushfire Mitigation Strategy contained emergency management arrangements that build upon the established University procedures for critical incident management; including bushfires.

## 4.5 Construction Standards – Bushfire Attack Level

In NSW all buildings including Class 9 buildings associated with a SFPP must satisfy the Performance Requirements NSWGP5.1 of the National Construction Code: Building Code of Australia (BCA). Part NSW GP5.1 Volume 1 of the BCA applies to Class 9 buildings that is a SFPP located within designated bushfire areas, which are defined as:

*Land which has been designated under a power in legislation as being subject, or likely to be subject to, bushfires.*

As the development is not located on designated bushfire prone land, the requirements of AS3959-2009 do not apply.

## 4.6 Sprinkler Systems and Other Fire Protection Measure

There are no other fire protection measures such as external sprinkler systems that would provide additional protection to the proposed development.

## 4.7 Landscaping and Vegetation Management

In APZs and IPAs, the design and management of the landscaped areas in the vicinity of buildings have the potential to improve the chances of survival of people and buildings. Reduction of fuel does not require the removal of all vegetation. Trees and plants can provide some bushfire protection from strong winds, intense heat and flying embers (by filtering embers) and changing wind patterns.

Generally landscaping in and around a bushfire hazard should consider the following:

- ☐ priority given to retaining species that have a low flammability;
- ☐ priority given to retaining species which do not drop much litter in the bushfire season and which do not drop litter that persists as ground fuel in the bush fire season;
- ☐ priority given to retaining smooth barked species over stringy bark; and
- ☐ create discontinuous or gaps in the vegetation to slow down or break the progress of fire towards the dwellings.

Landscaping within APZs and IPAs should give due regard to fire retardant plants and ensure that fuel loads do not accumulate as a result of the selected plant varieties.

The principles of landscaping for bushfire protection aim to:

- ☐ prevent flame impingement on dwellings;
- ☐ provide a defendable space for property protection;
- ☐ reduce fire spread;
- ☐ deflect and filter embers;
- ☐ provide shelter from radiant heat; and
- ☐ reduce wind speed.

Plants that are less flammable have the following features;

- ☐ high moisture content;
- ☐ high levels of salt;
- ☐ low volatile oil content of leaves;
- ☐ smooth barks without 'ribbons' hanging from branches or trunks; and
- ☐ dense crown and elevated branches.

Avoiding understorey planting and regular trimming of the lower limbs of trees also assists in reducing fire penetration into the canopy. Rainforests species such as *Syzygium* and figs are preferred to species with high fine fuel and/or oil content.

Trees with loose, fibrous or stringy bark should be avoided. These trees can easily ignite and encourage ground fire to spread up to, and then through the crown of trees.

Consideration should be given to vegetation fuel loads present on site with particular attention to APZs.



Careful thought must be given to the type and physical location of any proposed site landscaping. Inappropriately selected and positioned vegetation has the potential to 'replace' any previously removed fuel load.

Bearing in mind the desired aesthetic and environment sought by site landscaping, some basic principles have been recommended to help minimise the chance of such works contributing to the potential hazard on site.

Whilst it is recognised that fire-retardant plant species are not always the most aesthetically pleasing choice for site landscaping, the need for adequate protection of life and property requires that a suitable balance between visual and safety concerns be considered.

It is reiterated again that it is essential that any landscaped areas and surrounds are subject to ongoing fuel management and reduction to ensure that fine fuels do not build up.

## 5. Conclusion and Recommendations

The proposed development seeks consent for the construction of a new education facility; being the Hurlestone Agricultural High School. As a Special Fire Protection Purpose, the Proponent would normally be required to obtain a Bush fire safety authority from the NSW Rural Fire Service under s100b of the *Rural Fires Act 1997*. However as the development site is not identified as designated bushfire prone land, there is no statutory requirement for the Proponent to obtain a bushfire safety authority. Nonetheless, as required by the Secretary's Environmental Assessment Requirements issued on 8<sup>th</sup> August 2017, this BTA has been prepared to address the requirements for a Special Fire Protection Purpose as detailed in Planning for Bushfire Protection 2006.

This BTA was carried out in accordance with methodology outlined in PBP 2006 and AS3959-2009 and provides the information required by cl.44 of the Rural Fires Regulation 2013; being the requirements to address a SFPP development.

This bushfire hazard assessment confirmed the site is not located in a bushfire prone area and that the site is not exposed to a measurable bushfire hazard.

Notwithstanding, whilst the proposed development is considered to provide appropriate separation between the nearest hazard to the south-west and the proposed building/s, the following precautionary measures are provided for consideration. These recommendations will further minimise the impact of a bushfire on the property.

1. The entire development site and surrounding land out to at least 100m from all proposed buildings shall be managed as an inner protection area (IPA) as outlined within section 4.1.3 of PBP 2006 and the RFS publication Standards for asset protection zones;
2. Public road access; including all new internal roads, are to be constructed in accordance with section 4.1.3 (2) of PBP;
3. All new buildings are to be linked to the mains pressure water supply network and that suitable fire hydrants are clearly marked and provided for the purposes of bushfire protection. Fire hydrant spacing, sizing and pressure shall comply with AS2419.1 2005 and section 4.1.3 of PBP 2006; and
4. Consideration should be given to landscaping and fuel loads on site to decrease potential fire hazards on site.

These recommendations are based on a thorough assessment of the bushfire threat under Planning for Bushfire Protection 2006.

In conclusion, in combination with the requirements if the Western Sydney University Bushfire Mitigation Strategy and the recommendations above be duly considered, the potential risk from bushfire attack should be further reduced to provide an improved level of protection to life and property of the site, however they do not and cannot guarantee that the area will not be affected by a bushfire at any time.

## 6. References

- ❑ NSW Rural Fire Service (2005). *Standards for Asset Protection Zones*. NSW Rural Fire Service.
- ❑ NSW Rural Fire Service (2006). *Planning for Bushfire Protection – A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners*.
- ❑ Ramsay, GC and Dawkins, D (1993). *Building in Bushfire-prone Areas – Information and Advice*. CSIRO and Standards Australia.
- ❑ Rural Fires and Environmental Assessment Legislation Amendment Act 2002.
- ❑ Standards Australia (2009). *AS 3959 – 2009: Construction of Buildings in Bushfire-prone Areas*.

## **Appendix A: Secretary's Environmental Assessment Requirements (SSD 8614)**

## Secretary's Environmental Assessment Requirements

Section 78A(8A) of the *Environmental Planning and Assessment Act*  
Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*

<b>Application Number</b>	SSD 8614
<b>Proposal Name</b>	Hurlstone Agricultural High School (Hawkesbury)
<b>Location</b>	Western Sydney University (2 College Street, Richmond)
<b>Applicant</b>	Department of Education
<b>Date of Issue</b>	8 August 2017
<b>General Requirements</b>	<p>The Environmental Impact Statement (EIS) must be prepared in accordance with, and meet the minimum requirements of clauses 6 and 7 of Schedule 2 the <i>Environmental Planning and Assessment Regulation 2000</i> (the Regulation).</p> <p>Notwithstanding the key issues specified below, the EIS must include an environmental risk assessment to identify the potential environmental impacts associated with the development.</p> <p>Where relevant, the assessment of the key issues below, and any other significant issues identified in the risk assessment, must include:</p> <ul style="list-style-type: none"> <li>• adequate baseline data;</li> <li>• consideration of potential cumulative impacts due to other development in the vicinity (completed, underway or proposed); and</li> <li>• measures to avoid, minimise and if necessary, offset the predicted impacts, including detailed contingency plans for managing any significant risks to the environment.</li> </ul> <p>The EIS must be accompanied by a report from a qualified quantity surveyor providing:</p> <ul style="list-style-type: none"> <li>• a detailed calculation of the capital investment value (CIV) (as defined in clause 3 of the <i>Environmental Planning and Assessment Regulation 2000</i>) of the proposal, including details of all assumptions and components from which the CIV calculation is derived;</li> <li>• an estimate of the jobs that will be created by the future development during the construction and operational phases of the development; and</li> <li>• certification that the information provided is accurate at the date of preparation.</li> </ul>
<b>Key Issues</b>	<p>The EIS must address the following specific matters:</p> <p><b>1. Statutory and Strategic Context</b> – including: Address the statutory provisions contained in all relevant environmental planning instruments, including:</p> <ul style="list-style-type: none"> <li>• <i>State Environmental Planning Policy (State &amp; Regional Development) 2011</i>;</li> <li>• <i>State Environmental Planning Policy (Infrastructure) 2007</i>;</li> <li>• <i>State Environmental Planning Policy No.55 – Remediation of Land</i>;</li> <li>• <i>State Environmental Planning Policy No. 64 – Advertising and Signage</i>;</li> <li>• <i>Draft State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017</i>; and</li> <li>• <i>Hawkesbury Local Environmental Plan 2012</i>.</li> </ul>

	<p><i>Permissibility</i> Detail the nature and extent of any prohibitions that apply to the development.</p> <p><i>Development Standards</i> Identify compliance with the development standards applying to the site and provide justification for any contravention of the development standards.</p> <p><b>2. Policies</b> Address the relevant planning provisions, goals and strategic planning objectives in the following:</p> <ul style="list-style-type: none"> <li>• NSW State Priorities;</li> <li>• A Plan for Growing Sydney;</li> <li>• NSW Long Term Transport Master Plan 2012;</li> <li>• Sydney's Cycling Future 2013;</li> <li>• Sydney's Walking Future 2013;</li> <li>• Sydney's Bus Future 2013;</li> <li>• Crime Prevention Through Environmental Design (CPTED) Principles;</li> <li>• Healthy Urban Development Checklist, NSW Health; and</li> <li>• Greater Sydney Commission's Draft West District Plan.</li> </ul> <p><b>3. Built Form and Urban Design</b></p> <ul style="list-style-type: none"> <li>• Address the height, density, bulk and scale, setbacks of the proposal in relation to the surrounding development, topography, streetscape and any public open spaces.</li> <li>• Address design quality, with specific consideration of the overall site layout, streetscape, open spaces, façade, rooftop, massing, setbacks, building articulation, materials, colours and Crime Prevention Through Environmental Design Principles.</li> <li>• Detail how services, including but not limited to waste management, loading zones, and mechanical plant are integrated into the design of the development.</li> </ul> <p><b>4. Environmental Amenity</b></p> <ul style="list-style-type: none"> <li>• Detail amenity impacts including solar access, acoustic impacts, visual privacy, view loss, overshadowing and wind impacts. A high level of environmental amenity for any surrounding residential land uses must be demonstrated.</li> <li>• Detail any proposed use of the school grounds out of school hours (including weekends) and any resultant amenity impacts on the immediate locality and proposed mitigation measures.</li> </ul> <p><b>5. Transport and Accessibility</b> Include a transport and accessibility impact assessment, which details, but not limited to the following:</p> <ul style="list-style-type: none"> <li>• accurate details of the current daily and peak hour vehicle, public transport, pedestrian and cycle movement and existing traffic and transport facilities provided on the road network located adjacent to the proposed development;</li> <li>• an assessment of the operation of existing and future transport networks including the bus network and their ability to accommodate the forecast number of trips to and from the development;</li> <li>• details of estimated total daily and peak hour trips generated by the proposal, including vehicle, public transport, pedestrian and bicycle trips based on surveys of the existing and similar schools within the local area;</li> <li>• the adequacy of public transport, pedestrian and bicycle networks and infrastructure to meet the likely future demand of the proposed development;</li> </ul>
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	<ul style="list-style-type: none"> <li>• the impact of the proposed development on existing and future public transport infrastructure within the vicinity of the site in consultation with Roads and Maritime Services and Transport for NSW and identify measures to integrate the development with the transport network;</li> <li>• details of any upgrading or road improvement works required to accommodate the proposed development;</li> <li>• details of travel demand management measures to minimise the impact on general traffic and bus operations and to encourage sustainable travel choices and details programs for implementation;</li> <li>• the impact of trips generated by the development on nearby intersections, with consideration of the cumulative impacts from other approved developments in the vicinity, and the need/associated funding for upgrading or road improvement works, if required. Traffic modelling, using, but not limited to, SIDRA network modelling for current and future years, is to be undertaken of the following signalised intersections: <ul style="list-style-type: none"> <li>○ Londonderry Road at Vines Drive and Southee Road;</li> <li>○ Lennox Street/Paget Street;</li> <li>○ Blacktown Road/Bourke Street;</li> </ul> </li> <li>• the proposed active transport access arrangements and connections to public transport services;</li> <li>• details of any proposed school bus routes along bus capable roads (i.e. travel lanes of 3.5 m minimum) and infrastructure (bus stops, bus layovers etc.);</li> <li>• the proposed access arrangements, including car and bus pick-up/drop-off facilities, and measures to mitigate any associated traffic impacts and impacts on public transport, pedestrian and bicycle networks, including pedestrian crossings and refuges and speed control devices and zones;</li> <li>• measures to maintain road and personal safety in line with CPTED principles;</li> <li>• proposed bicycle parking provision, including end of trip facilities, in secure, convenient, accessible areas close to main entries incorporating lighting and passive surveillance;</li> <li>• proposed number of on-site car parking spaces and corresponding compliance with existing parking codes and justification for the level of car parking provided on-site;</li> <li>• details of emergency vehicle access arrangements;</li> <li>• an assessment of road and pedestrian safety adjacent to the proposed development and the details of required road safety measures;</li> <li>• service vehicle access, delivery and loading arrangements and estimated service vehicle movements (including vehicle type and the likely arrival and departure times);</li> <li>• in relation to construction traffic: <ul style="list-style-type: none"> <li>○ assessment of cumulative impacts associated with other construction activities (if any);</li> <li>○ an assessment of road safety at key intersection and locations subject to heavy vehicle construction traffic movements and high pedestrian activity;</li> <li>○ details of construction program detailing the anticipated construction duration and highlighting significant and milestone stages and events during the construction process;</li> <li>○ details of anticipated peak hour and daily construction vehicle movements to and from the site;</li> <li>○ details of access arrangements of construction vehicles, construction workers to and from the site, emergency vehicles and service vehicle;</li> <li>○ details of temporary cycling and pedestrian access during construction;</li> </ul> </li> </ul>
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	<ul style="list-style-type: none"> <li>○ details of proposed construction vehicle access arrangements at all stages of construction; and</li> <li>○ traffic and transport impacts during construction, including cumulative impacts associated with other construction activities, and how these impacts will be mitigated for any associated traffic, pedestrian, cyclists, parking and public transport, including the preparation of a draft Construction Traffic Management Plan to demonstrate the proposed management of the impact.</li> </ul> <p>→ Relevant Policies and Guidelines:</p> <ul style="list-style-type: none"> <li>• <i>Guide to Traffic Generating Developments (Roads and Maritime Services)</i></li> <li>• <i>EIS Guidelines – Road and Related Facilities (DoPI)</i></li> <li>• <i>Cycling Aspects of Austroads Guides</i></li> <li>• <i>NSW Planning Guidelines for Walking and Cycling</i></li> <li>• <i>Austroads Guide to Traffic Management Part 12: Traffic Impacts of Development</i></li> <li>• <i>Standards Australia AS2890.3 (Bicycle Parking Facilities)</i></li> </ul> <p><b>6. Ecologically Sustainable Development (ESD)</b></p> <ul style="list-style-type: none"> <li>• Detail how ESD principles (as defined in clause 7(4) of Schedule 2 of the Environmental Planning and Assessment Regulation 2000) will be incorporated in the design and ongoing operation phases of the development.</li> <li>• Demonstrate that the development has been assessed against a suitably accredited rating scheme to meet industry best practice.</li> <li>• Include a description of the measures that would be implemented to minimise consumption of resources, water (including water sensitive urban design) and energy.</li> </ul> <p><b>7. Social Impacts</b></p> <p>Include an assessment of the social consequences of the schools' relative location.</p> <p><b>8. Biodiversity</b></p> <p>Biodiversity impacts related to the proposed development are to be assessed and documented in accordance with the Framework for Biodiversity Assessment, unless where otherwise agreed by the OEH, by a person accredited in accordance with s142B(1)(c) of the <i>Threatened Species Conservation Act 1995</i>.</p> <p><b>9. Heritage</b></p> <p>Include a Heritage Impact Statement that addresses the significance of, and provides an assessment of the impact on the heritage significance of any heritage items on the site and in the vicinity, and/or conservation areas and/or potentially archaeologically significant areas, in accordance with the guidelines in the NSW Heritage Manual.</p> <p><b>10. Aboriginal Heritage</b></p> <p>Address Aboriginal Cultural Heritage in accordance with the <i>Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW (DECCW, 2011)</i> and <i>Aboriginal cultural heritage consultation requirements for proponents 2010 (DECCW)</i>.</p> <p><b>11. Noise and Vibration</b></p> <p>Identify and provide a quantitative assessment of the main noise and vibration generating sources during construction and operation, including consideration of any public address system, school bell and use of any school hall for concerts etc. (both during and outside school hours), and outline measures to minimise and mitigate the potential noise impacts on surrounding occupiers of land.</p>
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- Relevant Policies and Guidelines:
- *NSW Industrial Noise Policy (EPA)*
  - *Interim Construction Noise Guideline (DECC)*
  - *Assessing Vibration: A Technical Guideline 2006*
  - *Development Near Rail Corridors and Busy Roads – Interim Guideline (Department of Planning 2008)*

## **12. Sediment, Erosion and Dust Controls**

Detail measures and procedures to minimise and manage the generation and off-site transmission of sediment, dust and fine particles.

- *Relevant Policies and Guidelines:*
- *Managing Urban Stormwater – Soils & Construction Volume 1 2004 (Landcom)*
  - *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA)*
  - *Guidelines for development adjoining land and water managed by DECCW (OEH, 2013)*

## **13. Contamination**

Assess and quantify any soil and groundwater contamination and demonstrate that the site is suitable for the proposed use in accordance with SEPP 55.

- Relevant Policies and Guidelines:
- *Managing Land Contamination: Planning Guidelines - SEPP 55 Remediation of Land (DUAP)*

## **14. Utilities**

- Prepare an Infrastructure Management Plan in consultation with relevant agencies, detailing information on the existing capacity and any augmentation requirements of the development for the provision of utilities including staging of infrastructure.
- Prepare an Integrated Water Management Plan detailing any proposed alternative water supplies, proposed end uses of potable and non-potable water, and water sensitive urban design.

## **15. Contributions**

Address Council's Section 94A Contribution Plan and/or details of any Voluntary Planning Agreement, which may be required to be amended because of the proposed development.

## **16. Drainage**

Detail drainage associated with the proposal, including stormwater and drainage infrastructure.

- *Relevant Policies and Guidelines:*
- *Guidelines for development adjoining land and water managed by DECCW (OEH, 2013)*

## **17. Flooding**

Assess any flood risk on site (detailing the most recent flood studies for the project area) and consideration of any relevant provisions of the NSW Floodplain Development Manual (2005), including the potential effects of climate change, sea level rise and an increase in rainfall intensity.

## **18. Waste**

Identify, quantify and classify the likely waste streams to be generated during construction and operation and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste. Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site.

	<p><b>19. Construction Hours</b> Identify proposed construction hours and provide details of the instances where it is expected that works will be required to be carried out outside the standard construction hours.</p> <p><b>20. Bushfire</b> Address bushfire hazard and if required, prepare a report that addresses the requirements for Special Fire Protection Purpose Development as detailed in Planning for Bush Fire Protection 2006 guidelines.</p>
<b>Plans and Documents</b>	<p>The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the <i>Environmental Planning and Assessment Regulation 2000</i>. Provide these as part of the EIS rather than as separate documents.</p> <p>In addition, the EIS must include the following:</p> <ul style="list-style-type: none"> <li>• Architectural drawings (dimensioned and including RLs);</li> <li>• Site Survey Plan, showing existing levels, location and height of existing and adjacent structures / buildings and boundaries;</li> <li>• Site Analysis Plan;</li> <li>• Stormwater Concept Plan;</li> <li>• Sediment and Erosion Control Plan;</li> <li>• Shadow Diagrams;</li> <li>• View Analysis / Photomontages;</li> <li>• Landscape Plan (identifying any trees to be removed and trees to be retained or transplanted);</li> <li>• Preliminary Construction Management Plan, inclusive of a Preliminary Construction Traffic Management Plan detailing vehicle routes, number of trucks, hours of operation, access arrangements and traffic control measures;</li> <li>• Geotechnical and Structural Report;</li> <li>• Accessibility Report;</li> <li>• Arborist Report;</li> <li>• Salinity Investigation Report (if required);</li> <li>• Acid Sulphate Soils Management Plan (if required); and</li> <li>• Schedule of materials and finishes.</li> </ul>
<b>Consultation</b>	<p>During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners. In particular, you must consult with:</p> <ul style="list-style-type: none"> <li>• Hawkesbury City Council;</li> <li>• Transport for NSW; and</li> <li>• Roads and Maritime Services.</li> </ul> <p>Consultation with TfNSW and RMS should commence as soon as practicable to agree the scope of investigation.</p> <p>The EIS must describe the consultation process and the issues raised, and identify where the design of the development has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided.</p>
<b>Further consultation after 2 years</b>	<p>If you do not lodge a development application and EIS for the development within two years of the issue date of these SEARs, you must consult further with the Secretary in relation to the preparation of the EIS.</p>
<b>References</b>	<p>The assessment of the key issues listed above must consider relevant guidelines, policies, and plans as identified.</p>

## **Appendix B: Western Sydney University – Bushfire Mitigation Strategy**

**WESTERN SYDNEY**  
UNIVERSITY



Bushfire Mitigation Strategy

Environmental Sustainability  
Office of Estate and Commercial

## ***Overview***

This draft Bushfire Mitigation Strategy for WSU Hawkesbury Campus outlines:

- the known fire history of the Campus;
- key assets requiring bush fire protection;
- strategies relating to Bush Fire Protection Measures;
- Statutory requirements for bush fire protection in NSW.

## ***Site analysis and bushfire history***

The Hawkesbury Campus covers an area of approximately 1500 ha, of which approx. 500 ha is of remnant vegetation identified as 'priority conservation lands', approx. 500 ha of agricultural and horticultural land uses, and approx. 500 ha of the built environment of the Campus. The Campus adjoins suburban housing along its north western boundaries, along with surrounding peri-urban housing and land uses to the south and east. The campus supports a broad range of teaching and research, along with hosting a range of tenant organisations.

The known bushfire history is as follows:

- 1977 "The entire area north of The Driftway was treated by Wild Fire. When the wildfire came through, the Northern side of The Driftway was lit up as a back burn, which would have been High intensity for the majority of the bushland area" (Ellempers.comm.).
- 1996 Fire begun in a campsite on the northern edge of bush just east of Londonderry Rd creating grassfires which moved north-easterly across Yarramundi Paddocks destroying a PhD research area.
- 2013 Fire Hazard Reduction burn was undertaken by RFS in the area around the EucFACE site on Londonderry Rd and the Driftway.
- 2017 September 13 a fire started by a branch hitting electricity lines was started on the corner of the Driftway and Castlereagh Rd. This was attended by local RFS and the University's fire team. The area up to the small wetland on the Driftway was burnt, however, all research in the area was protected.

This fire history reinforced the critical risk of bushfires driven by south and south-westerly winds from the vegetation and open areas along the Driftway, and also vegetation along Rickabys Creek threatening adjoining property near the Hawkesbury Racecourse. There is also a risk from north-westerly winds and fire spreading east along Southee Rd, and associated threats from changes in wind direction and subsequent fire path through a sector driven by northwest, southwest, southerly and south-easterly winds.

The following sections outline the statutory requirements for bushfire mitigation, and preliminary bushfire protection measures underway or to be developed.

### ***Bush fire planning and management***

The following strategies are based upon strategies outlined in the following documents and associated NSW statutory requirements:

- NSW Rural Fire Service (2006) Planning for Bushfire Protection.
- NSW Rural Fire Service (2004) A guide to developing a bushfire evacuation plan.
- NSW Rural Fire Service (2006) Bushfire Environmental assessment code.

The following Bush Fire Protection Measures (RFS 2006) are used in combination and build upon a detailed site analysis:

- Asset protection zones and defendable space;
- Access standards (public roads, private access and fire trails);
- Water supply and utility services;
- Emergency management arrangements; and
- Landscaping;
- Construction standards and design.

Key aspects of the developing strategies relating to these Bush Fire Protection Measures for Hawkesbury Campus are outlined below and are mapped on Figure 1. Key legislation relating to bush fire prone lands and planning consent is outlined in Appendix 1.

#### **Key assets**

Key assets on or near Hawkesbury Campus requiring protection from wildfire, grassfire, and ember attack include the following:

- Research and teaching assets, including the Hawkesbury Institute for the Environment (HIE), including Hawkesbury Forest Experiment, and EucFACE sites;
- Residential and Special Fire Protection Purposes such as Anglicare aged home, student residences and the future Hurlstone High School;
- The built assets of the central campus, including heritage buildings and landscapes;
- Extensive research and teaching areas, including Local Land Services and Greening Australia;
- Neighbouring residential areas, including that north of Southey Rd, and north of Rickaby St adjoining Hawkesbury Racecourse.

### **Asset protection zones and defensible space**

The draft strategy for asset protection zones and defensible space include the following aspects:

- **Agricultural and paddock areas are clearly identified as Asset Protection Zones with land management practices to maintain reduced fuel load (e.g. slashing, grazing.);**
- **Areas bordering key research and teaching assets, Special Fire Management Purposes, and neighbouring residential areas, are identified as Strategic Fire Zones. These will be a focus of fuel load reduction through mechanical means and hazard reduction burns.**
- **Identification of a mosaic of remnant vegetation areas which can potentially have hazard reduction burns, with the timing and intensity guided by management requirements as priority conservation lands as well as asset protection.**

**Access standards (public roads, private access and fire trails)** Based upon a field visits by both University and RFS representatives, the following have been implemented:

- **The creation and maintenance of access routes for fire trucks in strategic locations for quick and safe access into all areas of bushland and paddocks;**
- **Mowing/slashing fire breaks along strategic fence lines.**

### **Water supply and utility services**

Supplementary water supplies have been identified for RFS tankers, along with the firefighting equipment which can be mobilised as necessary. Key aspects of this strategy include identification of locations where:

- **RFS tankers can draught or refill from dams of recycled water or stormwater (e.g. Yarramundi Dam for recycled water, Stormwater Detention Basin for stormwater);**
- **RFS helicopters can access water supplies without hazards associated with overhead power lines (e.g. Horticulture Dam for recycled water, Lindsay Dam for stormwater).**
- **Sprinkler systems and associated pump arrangements which have independent power supply for areas where this strategy may reduce ember attack (EucFACE site).**
- **Supporting firefighting equipment including the University Fire Truck, trailer, etc. along with associated PPE.**

### **Emergency management arrangements**

**Building upon established University procedures for critical incident management, emergency management arrangements will be developed for:**

- **Strategic actions such as hazard reduction burns;**
- **Coordinated responses with RFS to bush fire incidents and associated communication strategies to staff and students;**
- **Response protocols for Special Fire Protection Purposes, such as the Anglicare aged care facility, the student residential and the future Hurlstone High School areas.**
- **Clear identification of hazards associated with firefighting, such as chemical or fuel storages, electrical services, etc.**

**Hawkesbury Bushfire Unit has been established with RFS training for volunteers from OEC, HIE and Campus Safety and Security. Operational escalation responses and SOPs are attached in Appendix 2**

### **Landscaping**

**Landscaping and property maintenance will be undertaken in a manner consistent with the need to protect buildings and critical assets from ember attack, flames and radiant heat, smoke and winds. Strategies include:**

- **Provision of drenching system around the EucFACE site**
- **Choice of landscaping species and materials which contribute to reduced bush fire risks, consistent with Landscape Masterplan;**
- **Maintenance of grounds, paddocks, drainage lines and riparian zones to reduce risks of bush fire and ensure ease of access;**
- **Maintenance of built assets to reduce risks associated with ember attack and smoke prior to bush fire season;**
- **Maintenance schedules relating to bush fire protection for sprinkler systems and associated infrastructure.**

### **Construction standards and design**

**Application of appropriate standards to building and refurbishment, including those relating to heritage items. Refer to NSW RFS website and guidelines.**



## APPENDIX 1

### ***Legislation relating to bush fire and development***

Key legislation relating to bushfire planning outlined in Appendix 1 by RFS (2006) includes:

#### *Environmental Planning and Assessment Act 1979*

- *Section 79BA Consultation and development consent – certain bush fire prone land:* **development must conform with NSW RFS (2001) Planning for Bushfire Protection, or consent authority must consult Commissioner of NSW RFS;**
- *Section 146 Bushfire prone land:* **have areas designated in bush fire risk management plan, mapped by Council and available for public.**

#### *Rural Fires Act 1997*

- *Section 100B – Bush Fire Safety Authority:* **issued for bush fire prone land for residential, rural residential uses, or special fire protection purposes authorising development in relation to compliance with standards.**
- **“Special fire protection purpose” includes schools and housing for older people.**

#### *EP&A Regulation 11*

- *Schedule 4 - Bush Fire Prone Land:* **requires statement regarding bush fire prone lands in a planning certificate.**

#### *Rural Fires Regulation 2002*

- *Clause 46 – Application for bush fire safety authority:* **Under section 100B of Rural Fires Act, application must include:**
  - **Description and address of property;**
  - **Classification of vegetation on and around property;**
  - **Assessment of slope;**
  - **Identification of significant environmental features;**

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## APPENDIX 2

### Hawkesbury Bushfire Unit – Bushfire Risk and Escalation (SOP 1)

Bush Fire Risk	Conditions	Response	Call out / communication
Low to High	General fire season	<i>Readiness</i> <ul style="list-style-type: none"><li>• Test and check pumps</li><li>• BFU weekly training / readiness</li></ul>	<ul style="list-style-type: none"><li>• Establish call out procedures</li><li>• Communicate with lessees</li><li>• Remote access for staff / students</li></ul>
V. high - Severe	High temperatures, low humidity, strong winds Total Fire ban	<i>Alert</i> <ul style="list-style-type: none"><li>• Trailer at EucFACE site</li><li>• Security scans</li><li>• BFU availability and roster</li></ul>	<ul style="list-style-type: none"><li>• Email / text alert to BFU members</li><li>• Restricted access to bushlands</li></ul>
Fires in area	Fires in area Fires upwind	<i>Standby</i> <ul style="list-style-type: none"><li>• Security scans increase</li><li>• Security open key accessways</li><li>• BFU on roster at EucFACE</li><li>• Perimeter drench</li><li>• Farm animals in safe refuges</li></ul>	<ul style="list-style-type: none"><li>• Email / text alert to BFU members</li><li>• Comms to RFS</li></ul>
Fire on ground	Ember attack Fire on ground (roadside) Grass fire Bush fire	<i>1<sup>st</sup> response</i> <ul style="list-style-type: none"><li>• BFU response</li><li>• Hand reels at rings</li><li>• Drench perimeter / rings</li><li>• Handover to RFS/F&amp;R</li></ul>	<ul style="list-style-type: none"><li>• BFU on site with radios / buddy system</li><li>• Comms and logistics support</li><li>• Escalation for drenching rings</li></ul>
Emergency	Campus wide response	<i>Critical incident response</i> <ul style="list-style-type: none"><li>• Roles for BFU</li></ul>	<ul style="list-style-type: none"><li>• Follow security protocols</li></ul>

# HWK Bushfire Unit

## Standard Operating Procedure

**SOP No:** 2

**PURPOSE:** Communication protocols

**SCOPE:** Bushfire risk and readiness, use of radios, operation of drenching system

**EQUIPMENT:** Mobile phones, Motorola DP4801 radios

**PERSONNEL AND CONTACTS:**

- BFU membership, and senior staff (HIE, CW&F, Security)

**PROCEDURES:**

### **Readiness / escalation and fire risk**

- Text to BFU and senior staff as fire risk escalates (as per SOP 1)
- Messaging and BFU access through WhatsApp

### **Incident Control and Escalation**

- 1st on site is incident controller (IC), passes to senior staff thence RFS
- Perimeter drenching system run by IC or designated personnel

### **First response and radios**

- Radios from Security Office, HFE and EucFACE brought by first responders
- All BFU members and vehicles to have radios, using Fire Channel
- BFU members at ring sites and remote areas to confirm actions with IC by radio

### **Drenching system operation**

- Manual run and stop by control panel in Y8
  - Buttons for Perimeter Pump Ready
  - Toggle “Perimeter North” / “Perimeter South” for start at north/south
  - Press MAN to run (runs 20 minute 2 cycles); OFF to stop
- Run from mobile phone (AUTO on control panel)
  - Text to 0419241581
  - “Perimeter north start” / “Perimeter south start” (case sensitive)
  - Response “Perimeter pump run” to Security/CB/VK/SNS/MM/Neverstop
    - (Security/CB/VK/SNS/MM/Neverstop can respond “OK”)
- Ring drenching system operation restricted (SOP 4)

**DATE OF RELEASE:** Updated 7<sup>th</sup> December 2015

**REVIEW AND DISTRIBUTION:**

TRIM Record Number: TBA

**AUTHORS AND AUTHORISATION:**

- Written by Roger Attwater

# HWK Bushfire Unit

## Standard Operating Procedure

**SOP No:** 3

**PURPOSE:** Procedure for 1<sup>st</sup> response to ember attack in EucFACE site

**SCOPE:** Order of general responses by HWK Bushfire Unit (BFU)

**EQUIPMENT:** Full general BFU PPE

**PERSONNEL AND CONTACTS:**

- BFU membership as established

**PROCEDURES:**

### Readiness

- Escalation of readiness and gate access (SOP 1)

### First on site and Incident Control escalation

- 1<sup>st</sup> on site is incident controller (IC), passes to senior staff thence RFS
- Perimeter drenching system run by IC or designated personnel
- Monitoring ring drenching approval only as designated (SOP 4)
- Handover to RFS or further actions as per IC directions

### Communications

- All personnel to use radios from EucFACE or Security (SOP 2)
- IC oversees from pump control site and patrols with vehicle & trailer
- Logistics / comms support at EucFACE to liaise with Security

### Personnel in EucFACE site

- Buddy system for personnel in monitoring rings
- Personnel at rings
  - Maintain buddy system in adjacent rings
  - Maintain radio comms. (SOP 2)
  - Utilise hand reels to respond to ember attack
- Personnel at gates and control lines as per IC directions

### Evacuation or refuge response

- Evacuation or refuge if escalation as per IC directions

**DATE OF RELEASE:** 1<sup>st</sup> December 2014

**REVIEW AND DISTRIBUTION:**

TRIM Record Number: TBA

**AUTHORS AND AUTHORISATION:**

Written by Roger Attwater

# HWK Bushfire Unit

## Standard Operating Procedure

**SOP No:** 4

**PURPOSE:** Operation drenching system for EucFACE research rings

**SCOPE:** Operation of drenching system

**EQUIPMENT:** Mobile phones, control panel in shed Y8, EucFACE site

**PERSONNEL AND CONTACTS:**

- Operation restricted to senior EucFACE staff: Craig Barton, Vinod Kumar, David Ellsworth), Steve Norris-Smith, Security Operations Manager: Glenn Cooper (or as instructed by Director OEC/Security)

**PROCEDURES:**

**Drenching system operation**

- Manual run and stop by control panel in Y8
  - Buttons for Perimeter Pump Ready
  - Toggle “Perimeter North” / “Perimeter South” for start at north/south
  - Press MAN to run (runs 20 minute 2 cycles); OFF to stop
- Run from mobile phone (AUTO on control panel)
  - Text to 0419241581
  - “Perimeter north start” / “Perimeter south start” (case sensitive)
  - Response “Perimeter pump run” to Security/CB/VK/SNS/MM/Neverstop
    - (Security/CB/VK/SNS/MM/Neverstop can respond “OK”)
- Ring drenching system operation restricted (SOP 4)

**DATE OF RELEASE:** 10<sup>th</sup> February 2015

**REVIEW AND DISTRIBUTION:**

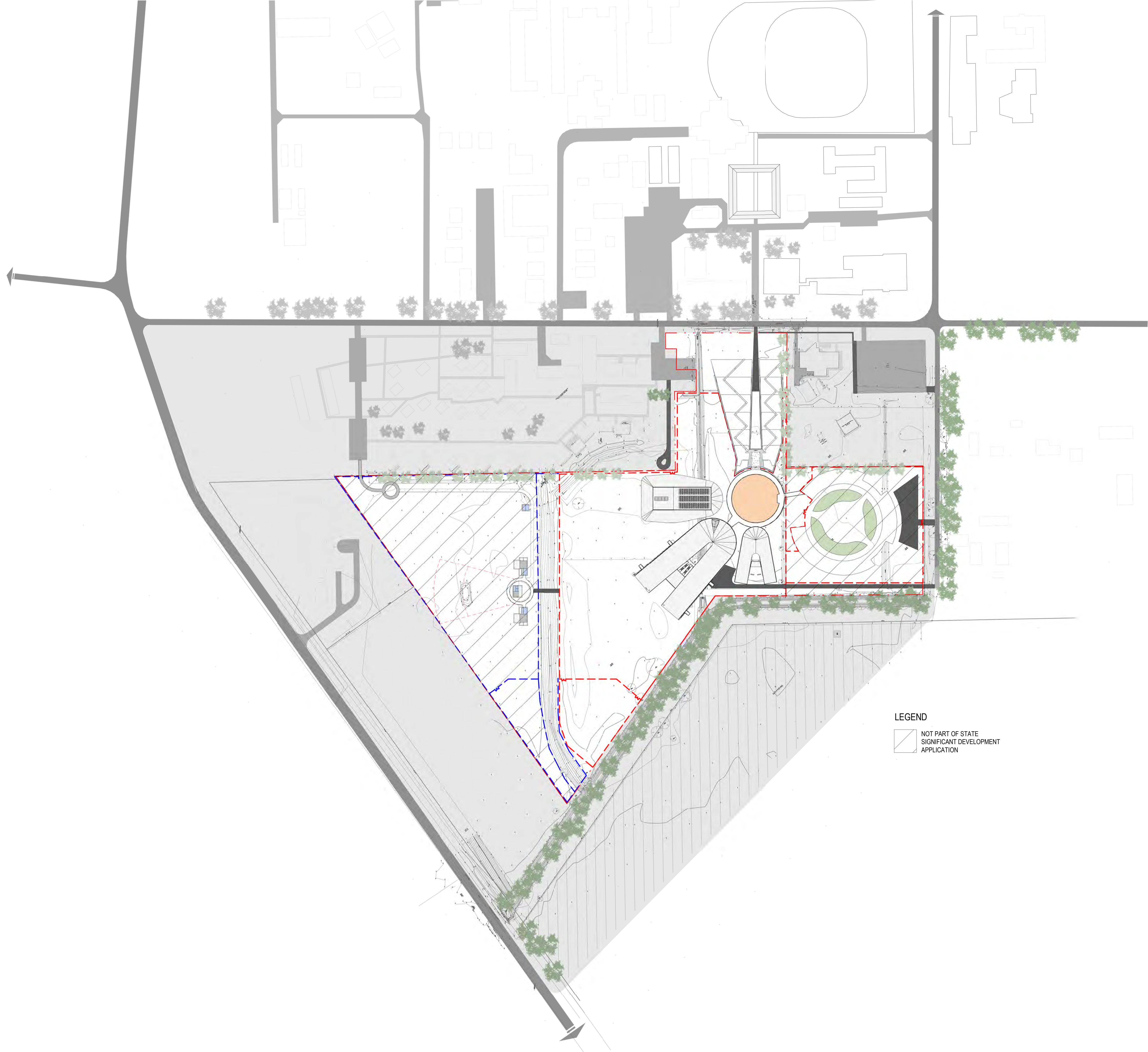
TRIM Record Number: TBA

**AUTHORS AND AUTHORISATION:**

Written by Roger Attwater

## Appendix C: Plan of Proposed Development





LEGEND

NOT PART OF STATE  
SIGNIFICANT DEVELOPMENT  
APPLICATION

20 0 20 40 60 80 100  
SCALE @ A1 m  
1: 2000  
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DO NOT SCALE DRAWING & VERIFY ALL DIMENSIONS AND LEVELS ON SITE  
NOMINATED ARCHITECT: BRUCE WOLFE NSW Reg. 6969

REV	DESCRIPTION	DATE	APPD
A	INTERIM SD	31.07.2017	SM
B	SD ENDORSEMENT	09.08.2017	SM
C	FINAL SD ENDORSEMENT	22.08.2017	PB
D	DRAFT DEVELOPMENT APPLICATION	12.09.2017	PB

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PROJECT  
HURLSTONE AGRICULTURAL  
HIGH SCHOOL  
(HAWKESBURY)

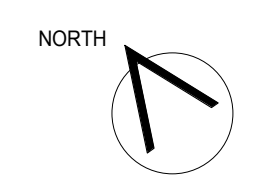
CLIENT  
Department of Education NSW

DRAWING  
Locality Plan

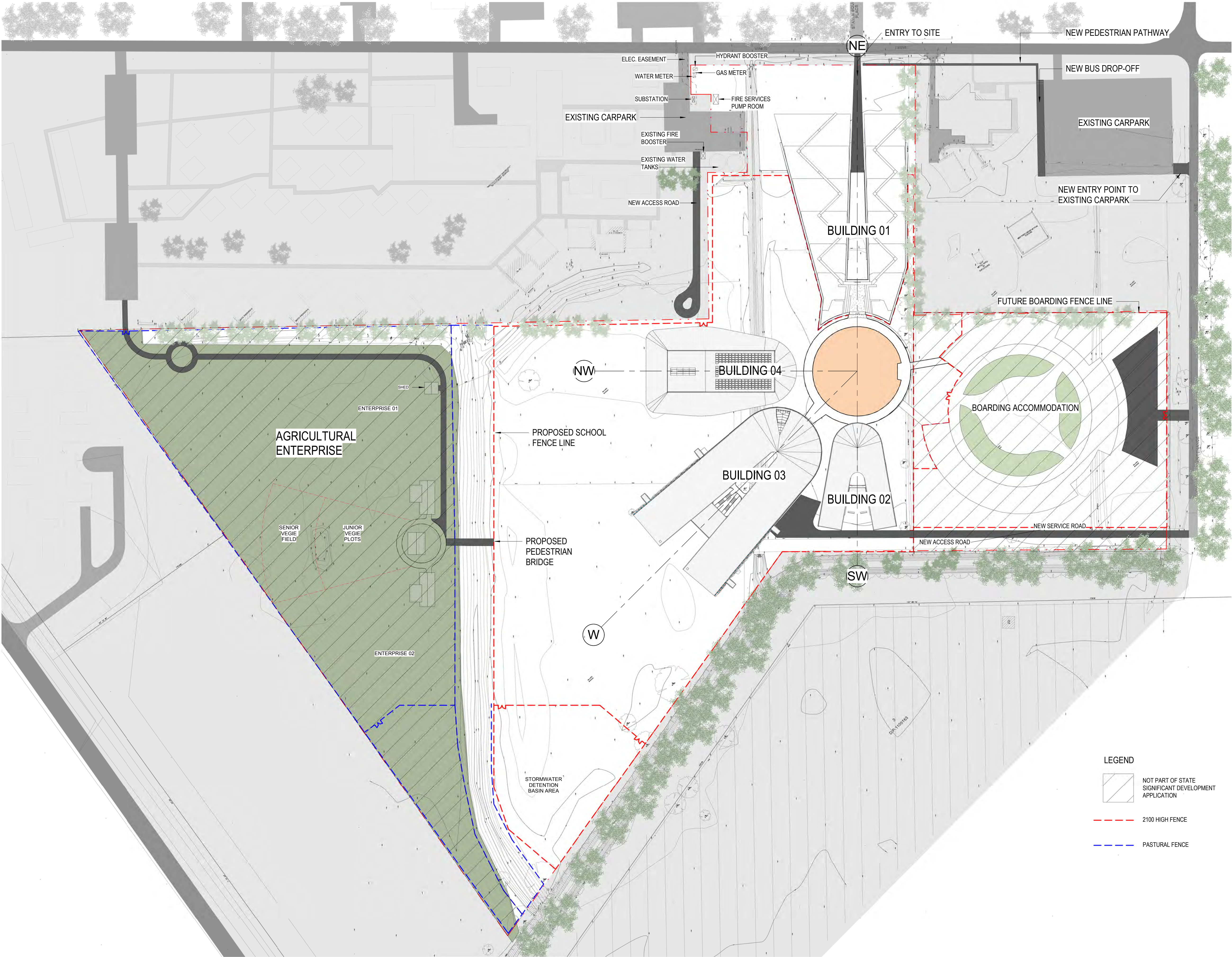
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16 052

SCHOOL ID	PAC ID	STAGE	DISCIPLINE	DOC TYPE	DRAWING No:	REV:
HASH -00 -DD -AR - DR -1000 - D						

PRELIMINARY







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SCALE @ A1 m  
1: 1000  
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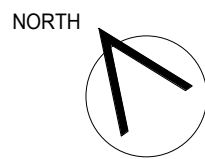
PROJECT  
HURLSTONE AGRICULTURAL  
HIGH SCHOOL  
(HAWKESBURY)

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Department of Education NSW

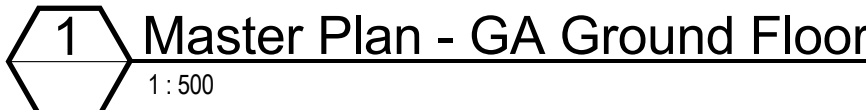
DRAWING  
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PROJECT No:  
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PRELIMINARY







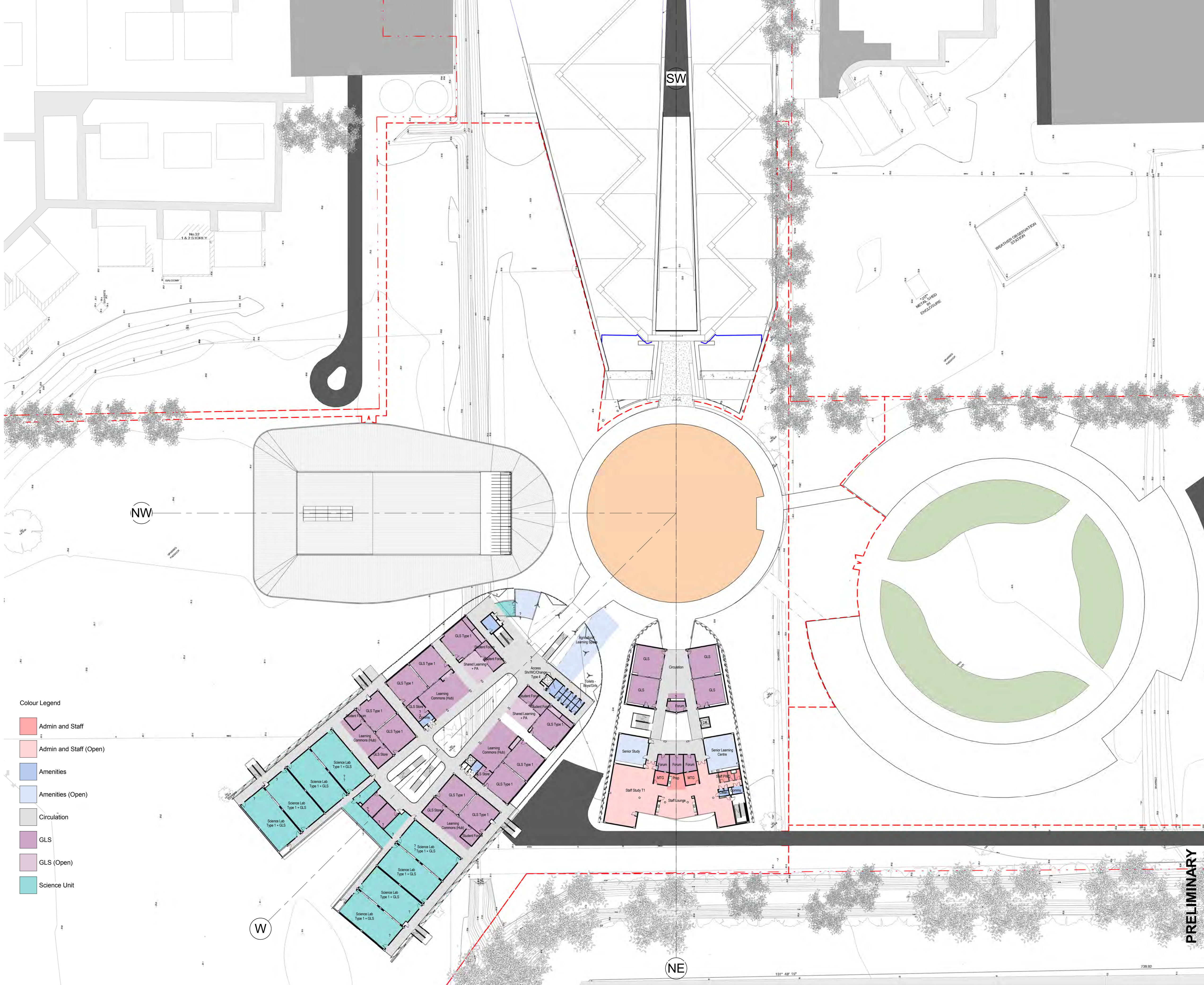
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SCHOOL ID	PAC ID	STAGE	DISCIPLINE	DOC TYPE	DRAWING No:	REV
HASH -00	-DD	-AR	- DR	-1010	- D	

**PRELIMINARY**







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SCALE @ A1 mm  
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REV	DESCRIPTION	DATE	APPD
A	INTERIM SD	31.07.2017	SM
B	SD ENDORSEMENT	09.08.2017	SM
C	FINAL SD ENDORSEMENT	22.08.2017	PB
D	DRAFT DEVELOPMENT APPLICATION	12.09.2017	PB

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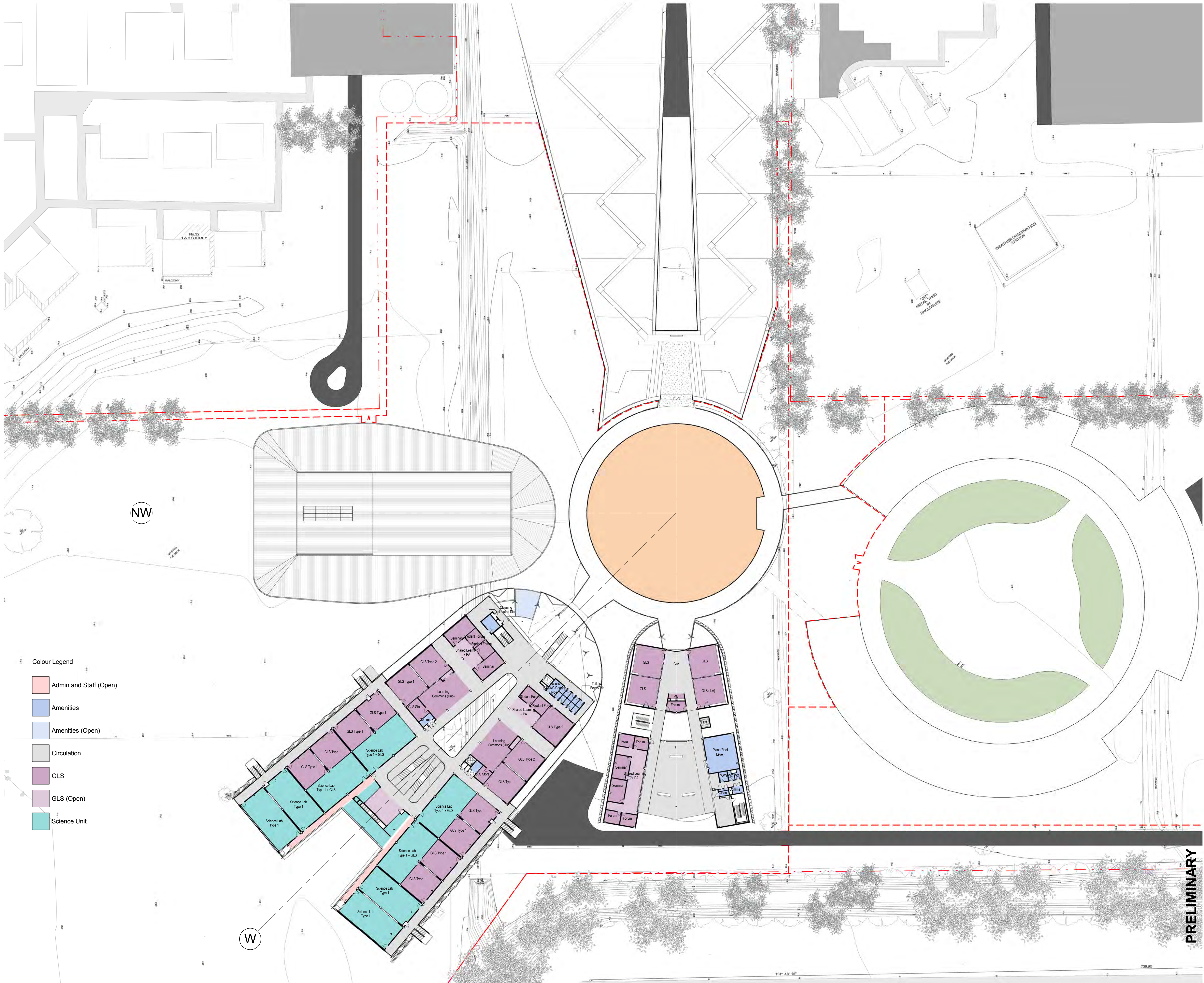
CLIENT  
Department of Education NSW

DRAWING  
Master Plan - GA  
Level 1

PROJECT No:  
16 052  
SCHOOL ID PAC ID STAGE DISCIPLINE DOC TYPE DRAWING No: REV:  
HASH -00 -DD -AR -DR -1011 - D

- Colour Legend
- Admin and Staff
  - Admin and Staff (Open)
  - Amenities
  - Amenities (Open)
  - Circulation
  - GLS
  - GLS (Open)
  - Science Unit





- Colour Legend
- Admin and Staff (Open)
  - Amenities
  - Amenities (Open)
  - Circulation
  - GLS
  - GLS (Open)
  - Science Unit

10

0

10

20

30

40

50

SCALE

@ A1

mm

1: 1

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ABN 49 325 121 350

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A	INTERIM SD	31.07.2017	SM
B	SD ENDORSEMENT	09.08.2017	SM
C	FINAL SD ENDORSEMENT	22.08.2017	PB
D	DRAFT DEVELOPMENT APPLICATION	12.09.2017	PB

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PROJECT  
HURLSTONE AGRICULTURAL  
HIGH SCHOOL  
(HAWKESBURY)

CLIENT  
Department of Education NSW

DRAWING  
Master Plan - GA  
Level 2

PROJECT No:  
16 052  
SCHOOL ID PAC ID STAGE DISCIPLINE DOC TYPE DRAWING No: REV:  
HASH -00 -DD -AR -DR -1012 - D



## Appendix D: Landscape Plans





SCALE @ A1  
1:1000  
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NOMINATED ARCHITECT: BRUCE WOLFE NSW Reg 6969  
REV DESCRIPTION DATE APPD  
A DRAFT DEVELOPMENT APPLICATION 12.09.2017 KNW

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NSW GOVERNMENT Education

PROJECT  
HURLSTONE AGRICULTURAL HIGH SCHOOL (HAWKESBURY)

CLIENT  
Department of Education NSW

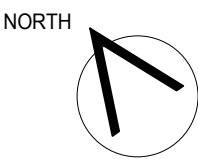
DRAWING  
Landscape Master Plan

PROJECT No:  
16 052  
SCHOOL ID PAC ID STAGE DISC TYPE DRAWING No. REV:  
HASH-00-SD-LA-DR-0004-A

LEGEND

- 1 Agricultural Narrative
- 2 Dry Creek Bed
- 3 Wetland
- 4 Food Forest / Bush Tucker
- 5 Seating Steps
- 6 Primary Entry
- 7 Great Lawn
- 8 Greenhouse
- 9 Outdoor Learning with Seating
- 10 Gravel Lanes
- 11 Detention Basin with Native Trees
- 12 Lawn
- 13 Swales and WSUD
- 14 Water tank Above Ground
- 15 Ball Games

PRELIMINARY





## Appendix E: AHIMS Search Results

Stuart Greville  
21 Costata Crescent  
Adamstown New South Wales 2289  
Attention: Stuart Greville  
Email: sgreville@bigpond.com

Date: 23 October 2017

Dear Sir or Madam:

**AHIMS Web Service search for the following area at Lot : 2, DP:DP1051798 with a Buffer of 50 meters,  
conducted by Stuart Greville on 23 October 2017.**

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



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

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

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

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

**Important information about your AHIMS search**

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