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BUSHFIRE CONSULTING

Part 5 Bushfire Hazard Assessment

New High School for Jordan Springs

Prepared for
NSW Department of Education

BPAD Bushfire Planning & Design Accredited Practitioner Level 3

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Document Tracking

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Contents

1. Executive Summary

1.1.Key Findings

This Bushfire Assessment Report has been prepared in accordance with the Guidelines for Division 5.1 assessments (the Guidelines) by the Department of Planning, Housing and Infrastructure (DPHI). The purpose of this report is to consider bushfire risk and assess the potential environmental impacts that could arise from the activity.

The activity is on designated Bushfire Prone Land (BFPL).

The significance of a Review of Environmental Factors (REF) in relation to bushfire lies in its role in evaluating potential fire hazards and ensuring that proposed activities align with fire safety standards and mitigation strategies. This assessment is essential to protect life, property, and environmental values, reducing the likelihood and impact of bushfires on the project area and surrounding communities.

From a bushfire risk and mitigation perspective:

1. The extent and nature of potential impacts are low and will not have significant impact on the locality, community and/or the environment.
2. Potential impacts can be appropriately mitigated or managed to ensure that there is minimal impact on the locality, community and/or the environment.
3. Bushfire risk can be adequately mitigated through recommended measures.
4. Bushfire risk is not considered to be a significant impact.

Mitigation measures are essential components of this Bushfire Assessment Report, aimed at assessing bushfire risk to the site and future occupants and reducing or eliminating potential environmental impacts associated with the proposed activity. These measures have been carefully developed based on rigorous bushfire assessments, applicable legislation, and the requirements of Planning for Bushfire Protection 2019 to ensure bushfire protection while balancing protection of the environment and risk mitigation. By implementing these mitigation measures, the project seeks to address identified risks, enhance bushfire and environmental outcomes, and promote sustainable development practices, ensuring compliance with bushfire regulatory requirements and alignment with broader environmental objectives.

Mitigation measures are provided in Table 10 to ensure the activity is compliant with the NSW and national framework for bushfire mitigation.

The school buildings are not within designated Bushfire Prone Land or is likely to be subject to bushfire attack (building are separated by 50m for grassland and 100m for woodland) and as such, Specification 43 is not applicable to the school buildings or within the site. There are no requirements for the provision of Specification 43.

1.1. Approvals and Licenses Required

Approvals and licenses for a Review of Environmental Factors (REF) ensure that proposed activities comply with relevant environmental legislation and regulatory requirements.

No approvals or licences are required for the activity in relation to bushfire.

2. Introduction

This Bushfire Assessment Report has been prepared to accompany a Review of Environmental Factors (REF) for the Department of Education (DoE) for the construction and operation of a New High School for Jordan Springs (the activity) under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and *State Environmental Planning Policy (Transport and Infrastructure) 2021* (SEPP TI).

This document has been prepared in accordance with the *Guidelines for Division 5.1 assessments – Consideration of environmental factors for health services facilities and schools, October 2024* (the Guidelines) by the Department of Planning, Housing and Infrastructure.

This report examines and takes into account the relevant environmental factors in the Guidelines and *Environmental Planning and Assessment Regulations 2021* under Section 170, Section 171 and Section 171A of the EP&A Regulation**.** The purpose of this report is to consider bushfire risk and assess the potential bushfire impacts that could arise from the activity. Mitigation measures are provided to meet the requirements of *Planning for Bushfire Protection 2019* (PBP) and the *National Construction Code* (NCC) as benchmarks for tolerable risk from bushfire, balancing potential harm and the benefits of the activity, while implementing reasonable measures to manage bushfire risk effectively.

The site and surrounding lands to the north, west and south been cleared as part of previous subdivision construction. The eastern boundary adjoins a future road to be known as Park Edge Road has not yet been established. Designated Regional Open Space, which supports bushland contiguous with Wianamatta Regional Park is to the east of the site.

3. Credentials and Approach to the Report.

This Bushfire Assessment Report has been prepared by Lew Short, Director at Blackash Bushfire Consulting (Level 3 FPAA BPAD-A Certified Practitioner No. BPD-PA-16373) who is recognised by the NSW Rural Fire Service (RFS) as qualified in bushfire risk assessment and has been accredited by the Fire Protection Association of Australia as a suitably qualified consultant to undertake alternative solution proposals (Curriculum Vitae at Attachment 1).

Lew Short (LS) is a Bushfire Expert and Director at Blackash Bushfire Consulting and has the qualifications and experience contained in his Curriculum Vitae (refer Annexure A). This report has been independently prepared by a qualified bushfire expert to assess the proposed activity against relevant bushfire provisions, ensuring unbiased compliance with safety and bushfire standards and requirements. The assessment identifies potential bushfire risks and outlines measures to mitigate these risks in line with current bushfire management practices and regulations.

A site inspection was completed on 1 October 2024.

4. Project Proponent and Stakeholders

The DoE is the proponent and determining authority pursuant to Section 5.1 of the EP&A Act.

Blackash has not undertaken any agency consultation in the preparation of this report. However, the DoE have held numerous meetings with the RFS in relation to bushfire considerations and requirements.

5. Legislative Framework and Planning Context

The site is on designated Bushfire Prone Land.

The proposal is categorised as a Special Fire Protection Purpose (SFPP) development in accordance with Section 100B of the *Rural Fires Act, 1997* (RF Act).

The DoE is the proponent and determining authority pursuant to Section 5.1 of the EP&A Act. The Part 5 assessment is exempt from requiring a Bushfire Safety Authority from the RFS.

Under Part 5 of the EPA Act, the consultation process requires public authorities to assess the environmental impact of activities and consider potential risks before proceeding.

6. Activity Site

The project site is located on the corner of Armoury Road and Infantry Street in Jordan Springs and is legally described as part of Lots 2 and 3 in DP 1248480 (Figure 1). The project site is within the Central Precinct of the St Mary's Release Area in the Penrith Local Government Area.

The Wianamatta Regional Park runs along the eastern boundary of the school site. The site is cleared land that has been prepared for development (see Figure 1) consists of managed grassland. Roads have been built within the site including the extension of Academy Street which runs roughly north south to link in with Lesetter Street. As a result of precinct wide rezonings, the surrounding locality to the north, west and south has transitioned to a residential area with low to medium density residential development with supporting services.
The surrounding locality of the site includes:

North – To the north of the site is a tributary of South Creek. Having regard to the Central Precinct's Framework Plan, land directly to the north of the site is planned to be a riparian corridor & drainage reserve.

East – To the east of the site is an area of regional open space, with the land remaining

densely vegetated. It is noted that much of the established vegetation in the St Mary's Release Area is Cumberland Plain Woodlands.

South – To the south of the site is residential land that has recently been developed, forming part of Stage 3 of the Central Precinct. The Wianamatta Parkway is located further to the south, which will connect with the East-West Connector Road once construction is finished.

West – To the west of the site is Armoury Road. On the western side of Armoury Road are predominantly low-density residential developments that have recently been developed (Stage The site is largely developed for the purposes of a seniors housing development including ancillary uses such as a café, and office spaces that support the staff and operation of the existing use. 4 of the Central Precinct). Approximately 200m to the west of the site is a 70m wide easement, known as the Eraring-Kemps transmission line easement.

The site is zoned UR – Urban Zone (UR Zone) under *State Environmental Planning Policy (Precincts – Western Parkland City) 2021* (SEPP PWPC). Educational establishments are permissible with development consent in the UR Zone under SEPP PWPC.

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7. Proposed Activity Description

The proposed activity for the construction and operation of a New High School for Jordan Springs is proposed to have a capacity of 1,000 students and 80 staff to meet forecast enrolment demand associated with population growth in Jordan Springs and Ropes Crossing. The school will provide permanent General Learning Spaces (GLS), Support Learning Spaces (SLS), staff facilities and a library across three (3), three storey buildings, a single storey hall, sports field, three (3) outdoor sport courts, 72 operational at grade parking spaces (including two (2) accessible spaces), 100 bicycle spaces and landscaping.

Public domain works and the permanent off-site OSD Basin are to be constructed by others under separate planning pathways.

7.1.Proposed Activity Scenarios

The project scope of works includes two (2) Scenarios, to allow construction and operation of the school, with (Scenario 1 – preferred option at Figure 2) or without (Scenario 2 – Interim Solution) the public domain works and permanent off-site basin being constructed by others under a separate planning pathway.

Scenario 1 – Preferred Option - Road Network completed and permanent OSD Basin Constructed

- **External works undertaken by others to facilitate Scenario 1**
  - Construction of Park Edge Road;
  - Any adjustments to Infantry Street;
  - Kiss and drop zone along Park Edge Road;
  - Support kiss and drop zone located along Infantry Street; and
  - Construction and operation of permanent OSD Basin off site.

Note – Scenario 1 is not to proceed if external works undertaken by others is not completed.

- **Scenario 1**
  - Construction and Operation of the New High School for Jordan Springs, including:
    - Decommissioning of existing on-site OSD basin;
    - Demolition of roads and associated services within the site boundary;
    - Tree removal within the site boundary
    - Earthworks;

- Three (3) multi-storey classroom buildings;
- One (1) school hall;
- Three (3) outdoor sport's courts;
- One (1) sport's field;
- 72 at grade car parking spaces, including two (2) accessible parking spaces, and waste services, accessed via Park Edge Road;
- 100 bicycle parking spaces across the site; and
- Landscaping.

Scenario 2 - Interim Solution – Road network not completed, Permanent OSD Basin not constructed (see Appendix 3).

- **Scenario 2 - Stage 1**
  - Construction and operation of a temporary on-site OSD Basin;
  - Construction and operation of the New High School for Jordan Springs, including;
    - Demolition of roads and associated services within the site boundary;
    - Tree removal within the site boundary
    - Earthworks;
    - Three (3) multi-storey classroom buildings;
    - One (1) sport's field;
    - Temporary carpark - 72 at grade car parking spaces, including two (2) accessible parking spaces and waste services, located on the northwest corner of the site, accessed off Armoury Road;
    - 100 bicycle parking spaces across;
    - Temporary Kiss and drop facilities on Armoury Road; and
    - Associated landscaping.

- **Scenario 2 - Stage 2**

  Stage 2 is not to be undertaken until the temporary on-site OSD basin under stage 1 works is completed and operational.
  - Decommissioning of existing on-site OSD basin, prior to the following works being undertaken:
    - 72 at grade car parking spaces, including two (2) accessible parking spaces, and waste services, located on the southeast corner of the site. This car park cannot be constructed until the decommissioning of the existing OSD basin is completed and will be non-operational with no road connection until completion of Scenario 2 – Stage 3;

- One (1) school hall;
- Three (3) outdoor sport's courts; and
- Associated landscaping.

External works undertaken by others to facilitate Stage 3

- Construction of Park Edge Road;
- Any adjustments to Infantry Street;
- Kiss and drop zone along Park Edge Road;
- Support kiss and drop zone located along Infantry Street; and
- Construction and operation of OSD Basin off site.

Note – Scenario 2 - Stage 3 is not to proceed until the external works undertaken by others have been completed.

- **Scenario 2 - Stage 3**
  - Connection of the southeast carpark to Park Edge Road;
  - Rectification works along Armoury Road to remove temporary kiss and drop facilities and cross over for temporary carpark;
  - Demolition of temporary carpark, once permanent car park is operational; and
  - Decommissioning of temporary OSD basin.

Note about the scenarios: The above scenarios do not alter the activity and compliance with PBP or the Specification 43 requirements. While Scenario 1 is the most likely, it also is the most dependent on external perimeter road (Park Edge Road) being provided to the east of the site by others. Each of the scenarios still pursues the perimeter road to the east of the site but the timing and availability of the eastern road extension is unclear. The proposal fundamentally provides for the location of the buildings are far as practicable from the retained bushland to the east of the site. Access is provided within the site for fire fighters to the buildings with staging areas and water supplies for fire fighting provided at the buildings. The APZ remains available under all scenarios and the buildings exceed the requirements within PBP for the provision of APZ and the building do not trigger Specification 43 in any way.

Figure 1 Site Location

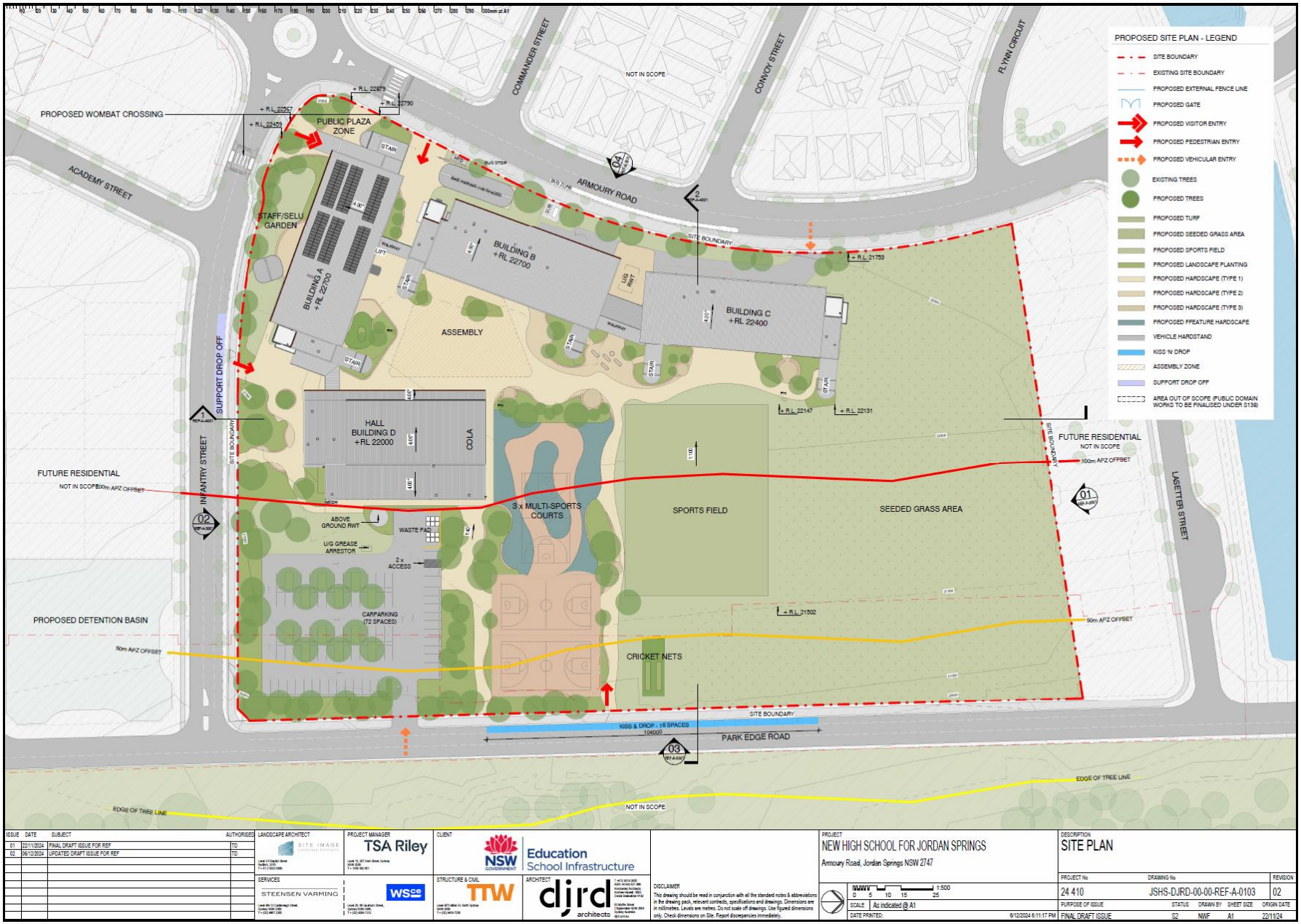


Figure 2 Site plan

8. Bushfire Assessment Framework

8.1.Planning for Bushfire Protection 2019

PBP 2019 is the formal NSW guideline which provides development standards for planning, designing and building on bushfire prone lands in NSW. PBP 2019 details specific provisions for SFPP development considering site specific risk, occupant vulnerability and the appropriate suite of bushfire protection measures (BPMs).

PBP 2019 sets out an overall framework consisting of an aim and objectives, specific objectives for defined development types, types of BPMs which may be employed in a development or risk assessment, and performance criteria for each BPM.

8.2. General Objectives of Planning for Bushfire Protection

All development on BFPL must satisfy the aim and objectives of PBP 2019. The aim of PBP 2019 is to *provide for the protection of human life and minimise impacts on property from the threat of bushfire, while having due regard to development potential, site characteristics and protection of the environment*. The objectives are to:

I. *afford buildings and their occupants protection from exposure to a bush fire;*
II. *provide for a defendable space to be located around buildings;*
III. *provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings;*
IV. *ensure that appropriate operational access and egress for emergency service personnel and occupants is available;*
V. *provide for ongoing management and maintenance of BPMs; and*
VI. *ensure that utility services are adequate to meet the needs of firefighters.*

See Table 10.

8.3. Specific Objectives for SFPP Development

The proposed school is a designated SFPP, defined in Section 100B(6) of the *Rural Fires Act* 1997. PBP 2019 states that:

> *"An SFPP development is one which is occupied by people who are identified as at-risk members of the community. In a bushfire event, these occupants may be more susceptible to the impacts of radiant heat and other bushfire effects. Evacuating at-risk members of the community is more challenging because they may be physically or psychologically less able to*

relocate themselves or are unfamiliar with their surroundings. Examples of SFPP developments are schools, hospitals, nursing homes and tourist accommodation."

The specific objectives within PBP 2019 for SFPP developments are to:

I. *minimise levels of radiant heat, localised smoke and ember attack through increased APZ, building design and siting;*
II. *provide an appropriate operational environment for emergency service personnel during firefighting and emergency management;*
III. *ensure the capacity of existing infrastructure (such as roads and utilities) can accommodate the increase in demand during emergencies as a result of the development; and*
IV. *ensure emergency evacuation procedures and management which provides for the special characteristics and needs of occupants.*

See Table 12.

By demonstrating compliance with PBP 2019, the Objectives and Specific Objectives are met.

8.4.Specification 43 Building Code of Australia

Specification 43 Bushfire protection for certain Class 9 buildings (Spec 43) is the acceptable solution within the National Construction Code 2022 (NCC) for certain Class 9 buildings including schools on designated bushfire prone areas. The 2022 edition of the NCC contains amendments to its bushfire protection provisions. This includes a suite of new provisions for Class 9 buildings on designated bushfire prone areas that accommodate. The Building Code of Australia component of NCC is given legal effect through the *EPA Act*.

In NSW, all new buildings and new building work must comply with the NCC. NCC contains bushfire protection requirements that operate in conjunction with the bushfire protection measures (BPMs) in PBP 2019. Accordingly, buildings on bushfire prone areas must comply with both the requirements of PBP 2019 and the NCC.

The RFS *Planning for Bushfire Protection – Addendum 2022* states (p. 5) that:

NCC 2022 identifies additional bush fire provisions for the construction, separation and access requirements for certain Class 9 buildings accommodating vulnerable occupants on bush fire prone land.

Class 9 buildings include some Special Fire Protection Purpose (SFPP) developments under section 100B of the Rural Fires Act 1997, such as Class 9a hospitals, Class 9b schools and child care centres and Class 9c residential care buildings.

Additional Performance Criteria and Acceptable Solutions relevant to BPMs within PBP for SFPP Class 9 buildings are identified in Appendix B of this Addendum. These Acceptable Solutions are consistent with the relevant provisions of NCC 2022.

Consistent with section 100B of the Rural Fires Act 1997, proposed SFPP ' s that are Class 9 Buildings in bush fire prone areas may be required to have bush fire protection measures additional to those specified in NCC 2022.

The NSW specific Performance Criteria and Acceptable Solutions are at Appendix 2. The DoE will provide 100m separation in the form of an asset protection zone from the site boundary that will be enforceable by an easement with the adjoining landholder.

The 100m APZ removes bushfire considerations as land that is greater than 100m from Category 1 vegetation or 50m from Category 2 and Category 3 Bushfire Prone Land is low hazard and no bushfire specifications or requirements apply to the buildings. The school buildings are not subject to Specification 43. As such, assessment is only against PBP 2019.

9. Significant Environmental Issues

The subject site (Figure 1) is cleared and managed.

An assessment of significant environmental features, threatened species, population or ecological communities under the *Biodiversity Conservation Act 2016* that may potentially be affected by the proposed bushfire protection measures has not been undertaken in this report as it is covered by other technical deliverables prepared to support the REF.

The Asset Protection Zone (APZ) is identified within this report and should be considered by a suitably qualified ecologist for environmental impact. The APZ is consistent with existing land management practices. DoE as the determining authority for this development will assess any potential environmental issues.

10. Bushfire Prone Land Mapping

The site is identified as 'bush fire prone land' (see Figure 3) for the purposes of Section 10.3 of the EPA Act and the legislative requirements for PBP 2019 are applicable.

Bush fire prone land maps provide a trigger for the development assessment provisions and consideration of sites that are bushfire prone. Bush Fire prone land (BFPL) is land that has been identified by council, which can support a bushfire or is subject to bushfire attack. Bush fire prone land maps are prepared by local council and certified by the Commissioner of the NSW RFS.

The Penrith Bushfire Prone Land Map was last updated and certified by the RFS Commission on 10 November 2014.

The RFS *Guide for Bushfire Prone Land Mapping* (version 5b November 2015) provides requirements for regular monitoring and review of the Bushfire Prone Land Map (p. 7) stating that:

> *Council, having had its Bush Fire Prone Land certified by the Commissioner of the NSW RFS, should regularly monitor and review the information to ensure currency and reliability of data depicted.*
>
> *Monitoring and review of the bush fire prone land should reflect required certification and approval standards within legislative timeframes (i.e. before the end of the period of every five years after the certification date of the map as outlined in section 146 of the EP&A Act).*
>
> *Notwithstanding, bush fire prone land maps may need to be reviewed and prepared on a more frequent basis depending on the extent of vegetation changes within the LGA (e.g. annually). In its review, council should consider any areas of expanding residential development leading to vegetation loss or areas of vegetation regrowth. Factors to consider in mapping vegetation change include data currency, resolution and availability of air photography/satellite imagery and vegetation maps plus mapping accuracy.*

It is clear from recent aerial photography (Figure 1) and the background to the current Bushfire Prone Land Map that significant development has occurred which has removed significant areas of Category 1 vegetation with developed and managed housing and areas that area ready for development. The *Guide for Bushfire Prone Land Mapping* provides a process for updating a Bushfire Prone Land Map at Section 6.1 and a streamlined process (Section 6.2) for updating maps on a site by site basis. The certified map is the in force map. However, it is clear that significant change has occurred that requires either the map to be updated and recertified for the site and surrounds or a pragmatic approach to be taken by the RFS in the consideration and determination of bushfire risk afforded to the site.

Blackash have completed a revised Bushfire Prone Land map for the site and surrounds (Figure 4) which has been verified by site inspection. The updated mapping has been completed in accordance with

the *Guide for Bushfire Prone Land Mapping*. The revised Bushfire Prone Land Map (Figure 4) recognises the removal of Category 1 vegetation within the site as it has been cleared for development and the removal of Category 1 vegetation to the north, west and south of the site as this has been cleared for development or has been developed and as such is managed land which does not constitute a bushfire hazard. As the site is developed, the Category 2 land has pushed to the east and has replaced areas that were previously Category 1 vegetation to the north, west and south of the site. These broader areas do not have any bearing on the bushfire risk for the site, however, a broader assessment has been completed to ensure consistent application of the *Guide for Bushfire Prone Land Mapping* to the site and surrounds.

For the purposes of this Bushfire Hazard Assessment, the revised Bushfire Prone Land Map has been used as a base for assessment, although the vegetation assessment has been completed independent of the Bushfire Prone Land map as is required by PBP 2019.

For the purposes of the consideration of Specification 43, it is recommended that a pragmatic approach be taken to use the revised Bushfire Prone Land Map (Figure 4) as the consideration of what constitutes Designated Bushfire Prone Land in NSW. NCC 2022 provides a NSW Variation for **Designated Bushfire Prone Area** which is:

> *Land that:*
>
> 1. *has been designated under legislation;* ***or***
> 2. *has been identified under an environmental planning instrument, development control plan or in the course of processing and determining a development application,* ***as land that can support a bushfire or is likely to be subject to bushfire attack.***

Figure 4 shows the extent of land that is subject to bushfire attack within the site which is bound to the 100m buffer from the Category 1 Bushfire Prone Land or 30m from Category 2 land. The school buildings are not within land affected by *land that can support a bushfire or is likely to be subject to bushfire attack* and as such, Specification 43 is not applicable to the school buildings.

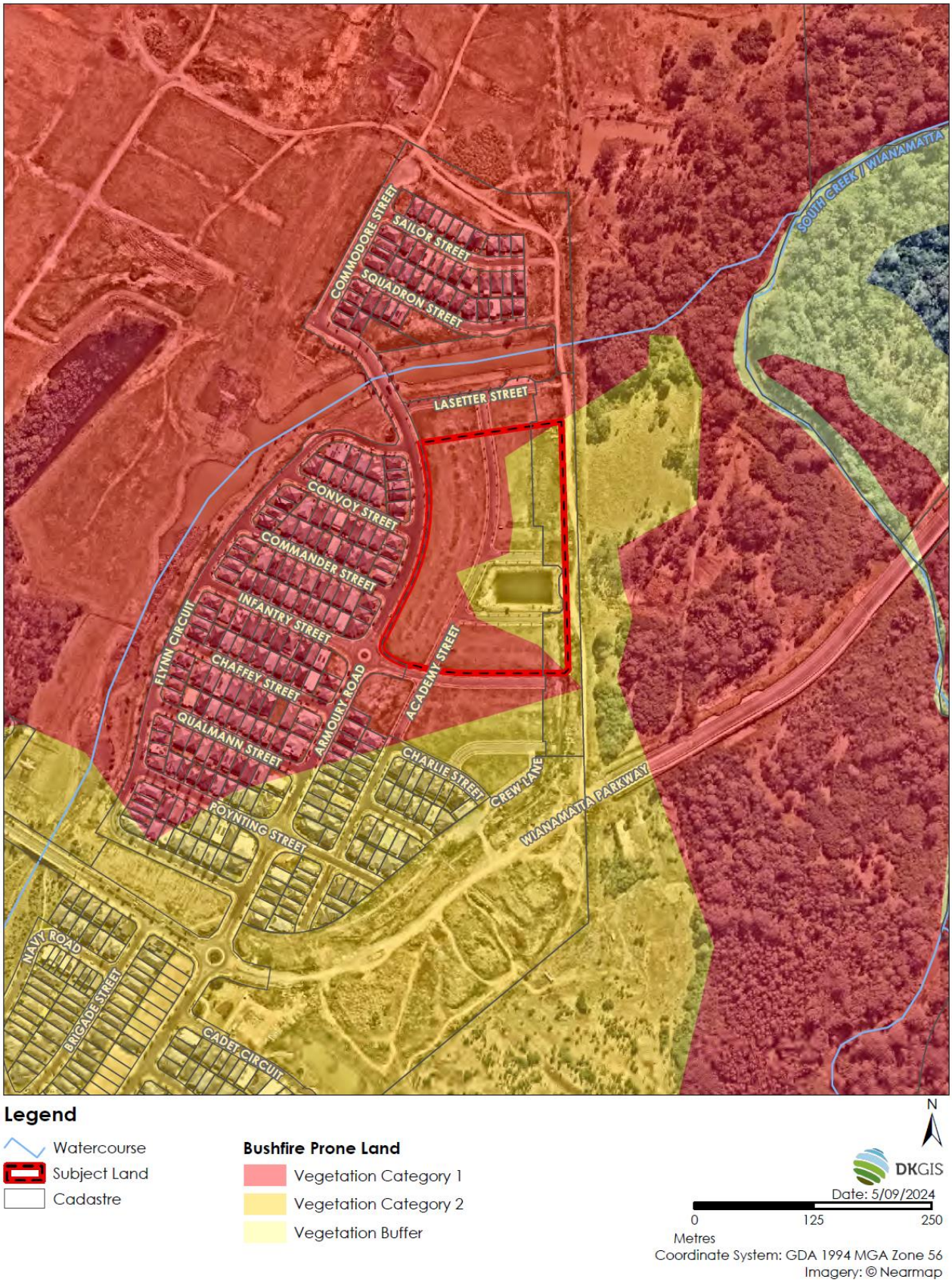


Figure 3 Certified Bush Fire Prone Land Map

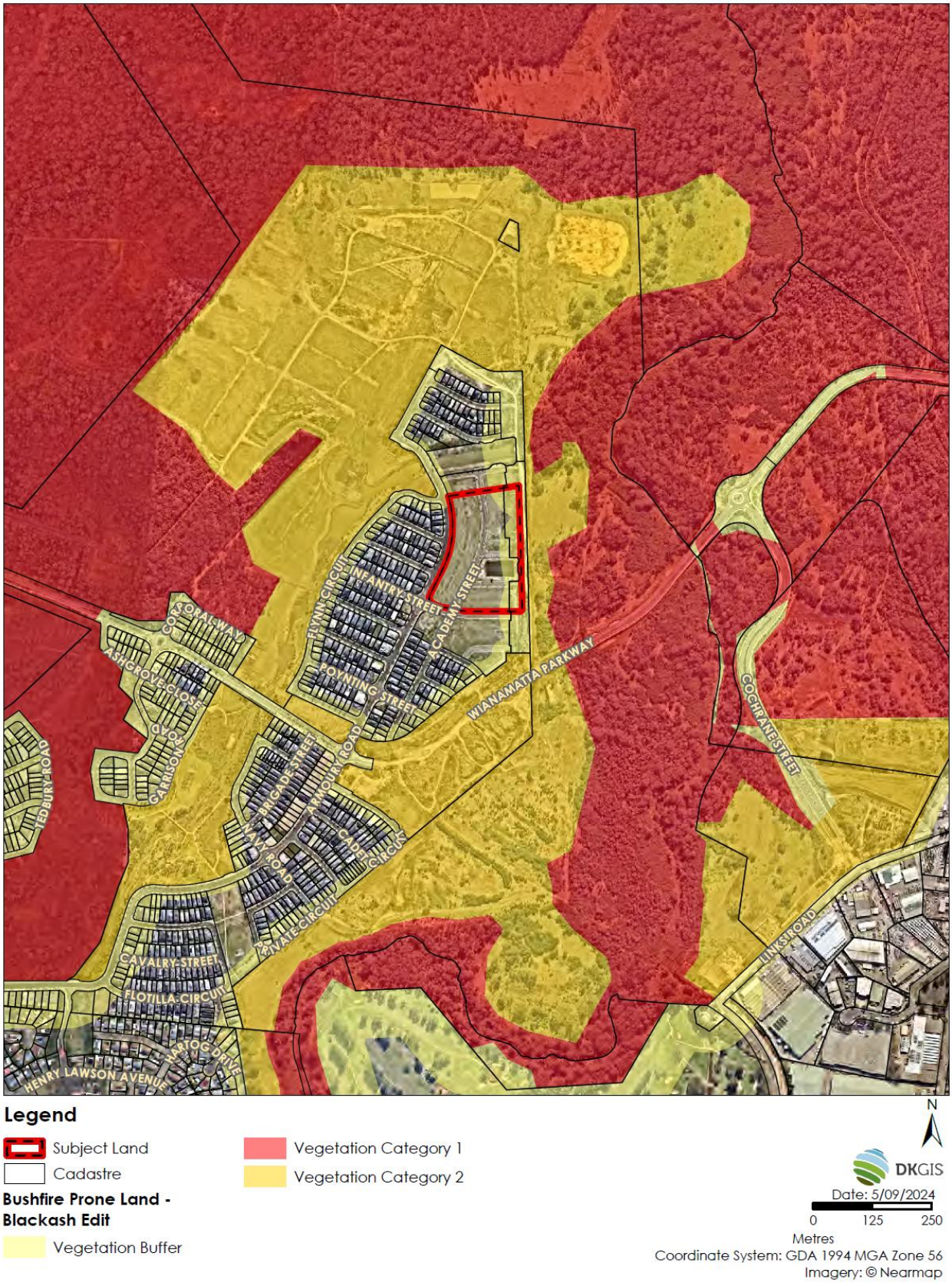


Figure 4 Revised Blackash Bushfire Prone Land Map

11. Landscape Scale Assessment

A bushfire landscape assessment considers the likelihood of a bushfire, its potential severity and intensity and the potential impact on life and property in the context of the broader surrounding landscape.

The site does not have record of wildfire or hazard reduction burn since records have been kept in 1902. A small (4.46ha) wildfire was recorded to the north of the site in December 2023.

The area has a minimal documented history of bushfire activity within the vicinity of the site. Bushfires in western Sydney are primarily driven by prevailing westerly to north westerly winds and fuelled by dense vegetation. Potential fire runs into the site could occur from the northwest or the south. However, land to the northwest has been developed and remnant vegetation is fragmented or has been cleared and managed for agricultural purposes making the potential for high intensity fire at the site remote.

In the area within vicinity of the proposed Activity, the remnant vegetation to the east has been impacted by development with some areas cleared of native bushland. The management of remnant vegetation located to the east of the site is currently under review, with its future classification yet to be determined. Stakeholders are deliberating whether the area will remain as bushland, or be incorporated into a regional open space parkland, potentially allowing for increased recreational use and public accessibility.

The site has direct access to existing developed areas to the west, north and south of the site. These areas offer refuge potential with multiple access and emergency egress routes out of the area available to the south on Armoury Rd and Leichardt Ave. The scenarios for development (Section 7.1) do not alter or change the landscape scale assessment.

11.1. Blackash Landscape Scale Assessment Tool

The bushfire landscape assessment considers the likelihood of a bushfire, its potential severity and intensity and the potential impact on life and property in the context of the broader surrounding landscape. The likelihood of a bushfire, its severity and intensity, and the potential impact on life and property varies depending on where a site is located in the landscape. Two types of considerations are relevant in terms of assessing the bushfire hazard including:

- landscape scale hazard – where large expanses of vegetation over tens to hundreds of hectares are located in immediate proximity to, and may traverse, urban periphery suburbs/townships

- localised hazard – which is most commonly presented by fragmented areas of vegetation larger than 1 hectare in size

The Blackash Landscape Scale Assessment Tool (LSAT) combines quantitative and qualitative techniques which are scaffolded by the Landscape Scale Threat Assessment and associated documentation. The LSAT is shown in Table 2 and uses elements of the Bayesian decision making model and Expert Judgment techniques backed by data. Bayesian decision making has been used where there is both objective and subjective data to analyse, and decisions need to be made on the probability of successful outcomes where there are high levels of uncertainty. Expert Judgement has been used in the assessment and determination of the landscape scale risk.

- Key considerations in our assessment have included:
- extent and continuity of vegetation
- topography
- prevailing winds
- the potential fire run and area that is likely to be impacted by the fire
- the impact on evacuation routes to safer places considering road networks, distances, and landscape factors
- the location and exposure of the development to bushfire
- the ability to seek bushfire shelter on site or at alternative locations
- the extent of neighbourhood-scale damage the bushfire may produce.

Landscape scale fires are those that can span many kilometres or tens of kilometres, and that burn for days or weeks at a time. Typically, these fires can be many thousands of hectares in size with fire fronts many kilometres in length. On the east coast of Australia this scale of fire is only possible where there are very large areas of forested vegetation, typically National Parks and State Forests that also adjoin substantial areas of private bushland.

There is no potential for a landscape scale fire to affect the site.

Land to the north, west and south adjoining the site has been developed and is not a risk. Land to the east contains remnant forest vegetation which provides potential for fire to develop and impact the site from the east. However, prevailing weather associated with bad fire weather would push fire away

from the site (ie fires driven by westerly or north-westerly winds or past the site driven by a southerly wind).

The LSAT is heavily weighted to life safety and places significant emphasis on the ability for the future community to be able to shelter in place or evacuate safely, whilst emergency services can access the site at the same time.

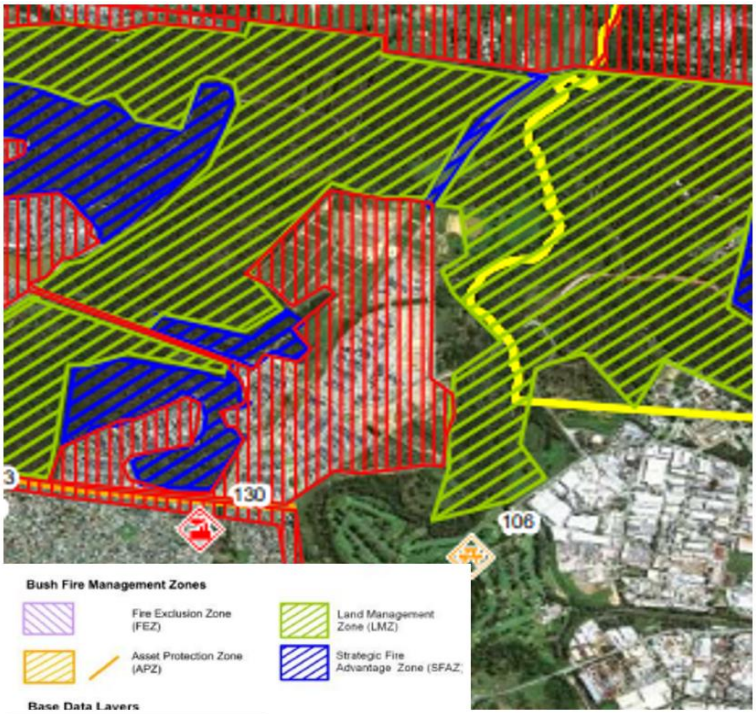
When the individual factors are scored, after consideration of the landscape context, the site design complying with PBP, and the large urban area, the overall Landscape Scale Threat for the site is assessed as Moderate Risk. The summary and weighted scores are presented in Table 2 below.

Table 1 Landscape Scale Risk Assessment

Landscape Scale Assessment Tool					
Parameter	Low landscape scale threat	Moderate landscape scale threat	High landscape scale threat	Extreme landscape scape threat	Rating
1. Surrounding Vegetation	Bushfire cannot directly approach the site as it is surrounded by urban development and non-mapped vegetation or managed land.	Bushfire can only approach from one aspect and the site is within a suburban, township or urban area considered managed land. Typically an island of bushfire vegetation within a wider urban development area or interface site impacted only by linear vegetation corridors of 100m width or less.	Bushfire can approach from more than one aspect and site is on the bushland-urban interface with the developed area considered as managed land. Typically contigous bushfire vegetation with a typical fire run in any direction of 0.1-2.0 km distance.	Bushfire can approach from more than one aspect and/or fires have many hours or days to grow and develop before impacting and/or site is surrounded by significant unmanaged vegetation. Typically large areas of contigous bushland with fire runs of more than 2 km possible.	Moderate
2. Bushfire Behaviour	Extreme bushfire behaviour at the site is not possible given the broader landscape.	Extreme bushfire behaviour at the site is unlikely in this broader landscape due to combination of factors of vegetation type, vegetation fragmentation, aspect and topography.	Extreme bushfire behaviour at the site is likely in this broader landscape due to combination of factors of vegetation type, vegetation fragmentation, aspect and topography.	Extreme bushfire behaviour is very likely in this broader landscape due to combination of factors of vegetation type, vegetation fragmentation, aspect and topography.	High
3. Impact of severe fire behaviour (FFDI 80 or 100 as relevant) coming onto site from wider fire catchment	There is little vegetation beyond 150 metres of the site (except grasslands and low-threat vegetation) and will not result in neighbourhood scale destruction of the site.	The type and extent of vegetation beyond 150m from the site may result in neighbourhood-scale destruction as it interacts with the bushfire hazard on and close to the site.	The type and extent of vegetation beyond 150m is likely to result in neighbourhood-scale destruction as it interacts with the bushfire hazard on and close to the site.	The type and extent of vegetation beyond 150m will result in neighbourhood-scale destruction as it interacts with the bushfire hazard on and close to the site.	Moderate
4. Vegetation Corridors	Vegetation within the site cannot enable fire to enter and move through the site by a continuous fire path from the primary fire source.	Vegetation within the site is unlikely to enable fire to enter and move through the site by a continuous fire path from the primary fire source.	Vegetation within the site may enable fire to enter and move through the site by a continuous fire path from the primary fire source.	Vegetation corridors on site provide for passage of fire to enter and move through the site from the primary fire source.	Low
5. Separation	Hazard separation between extreme bushfire hazard and buildings of greater than 100m. Extreme bushfire hazard does not include vegetated corridors of less than 100m width or grasslands.	Hazard separation between extreme bushfire hazard and buildings of 50-100m. Extreme bushfire hazard does not include vegetated corridors of less than 100m width or grasslands.	Hazard separation between extreme bushfire hazard and buildings of 20-50m. Extreme bushfire hazard does not include vegetated corridors of less than 100m width or grasslands.	Hazard separation between extreme bushfire hazard and buildings of <20m. Extreme bushfire hazard does not include vegetated corridors of less than 100m width or grasslands.	Low
6. Shelter	Immediate access is available to a place that provides shelter from bushfire. This includes existing or proposed buildings on site constructed in accordance with PBP.	Access is readily available to a place that provides shelter from bushfire. This will often be the surrounding developed area. In the case of an eco-tourist facility it will be the designated bushfire refuge built in accordance with PBP requirements.	Access to a place that provides shelter from bushfire is not certain during a wildfire and existing buildings are not built to PBP standards.	Access to a place that provides shelter from bushfire is not possible during a wildfire.	Low
7. Evacuation	Multiple evacuation routes are available and unlikely to be impacted by fire.	Evacuation to alternate location that provides life safety refuge is <1km and can be completed by foot or vehicle.	Evacuation to alternate location that provides life safety refuge is 1km-10km.	Evacuation to alternate location that provides life safety refuge is > 10km.	Moderate
8. Isolation and emergency services	Seamless integration with existing settlement - no impact on evacuation or access for emergency services.	Short bushland pinch points that may carry fire across roads and restrict access briefly during passage of fire. Unlikely impact on evacuation or access for emergency services.	Short bushland pinch points that are likely to carry fire across roads and restrict access temporarily. Likely impact on evacuation or access for emergency services.	Large areas of bushland or multiple pinch points that are likely to carry fire across roads in forest areas and will block evacuation or emergency service access routes for extended time.	High
9. Firefighting water supplies	Site is within urban area and has access to reticulated water supply OR site has dedicated firefighting water supply in accordance with PBP requirements.	Site is on the periphery of urban area and has access to reticulated water supply that may be more susceptible to interuption.	Site is outside urban area and relies on an on site water supply not in accordance with PBP.	Site is in an isolated area and relies on an on site water supply not in accordance with PBP.	Low
		Overall Threat Rating	Moderate Risk	Total	160

11.2.Cumberland Bush Fire Risk Management Plan

The *Cumberland Bush Fire Management Committee Bush Fire Risk Management Plan 2021* (Risk Plan) does not identify the site or any surrounding areas at being of bushfire risk sufficient to warrant inclusion and consideration in the Risk Plan (Figure 5). This supports the site as being Low bushfire risk. Specifically, the Risk Plan does not identify any Asset Protection Zone (APZ) or Strategic Fire Advantage Zone (SFAZ), or Fire Exclusion Zone (FEZ) within proximity to the site. Vegetation to the east of the site is identified Land Management Zone (LMZ). The risk plan does not flag risk concern at the site.



Assets

Map Ref	Asset name	Asset type	Subtype	Risk level	Priority	Treatment
130	John Batman Reserve 514 NSP	Human	Other	Low	NA	T20

T20	Hazard Reduction	Inspect NSP and maintain as required	LGA, RFS

Figure 5 Extract from Cumberland Bush Fire Management Committee Bush Fire Risk Management Plan 2021 (p. 33)

12. Site Specific Assessment

12.1. Methodology

PBP 2019 provides a methodology to determine the bushfire threat and commensurate size of any asset protection zone (APZ) that may be required to offset possible bushfire attack. These elements include the potential hazardous landscape that may affect the site and the effective slope within that hazardous vegetation.

The following assessment is prepared in accordance with Section 100B of the RF Act, Clause 44 of the RF Reg and PBP 2019. This assessment is based on the following resources:

- Planning for Bush Fire Protection (NSW RFS, 2019);
- Council Bushfire Prone Land Map;
- Aerial mapping; and
- Detailed GIS and Site analysis.
- Site inspection

The methodology used in this assessment is in accordance with PBP 2019 and is outlined in the following sections.

The scenarios for development (Section 7.1) do not alter or change the site specific assessment for the determination of asset protection zones and bushfire attack within the site. The development scenarios provide variation for the building of the Parkview Edge perimeter road. Additional commentary will be provided ion Section 12.11 regarding consideration of access issues.

12.2. Bushfire Hazard

An assessment of the Bushfire Prone Land is necessary to determine the application of bushfire protection measures such as APZ locations and future building construction levels. The vegetation formations (bushfire fuels) and the topography (effective slope) combine to create the bushfire threat that may affect bushfire behavior at the site, and which determine the planning and building response of PBP 2019.

12.3. Fire Weather

The fire weather is dictated by PBP 2019 and assumes a credible worst-case scenario and an absence of any other mitigating factors relating to aspect or prevailing winds. The site has a Fire Danger Index (FDI) of 100 as per PBP 2019.

12.4. Vegetation Assessment

The RF Regulation requires a classification of the vegetation on and surrounding the property (out to 140 metres from the boundaries of the property) in accordance with the system for classification of vegetation contained in PBP 2019.

Predominant vegetation is classified by structure or formation using the system adopted by Keith (2004) and by the general description using PBP 2019. Vegetation types give rise to radiant heat and fire behaviour characteristics. There are 7 vegetation formations (with sub-formations) identified in PBP 2019.

The predominant vegetation has been determined over a distance of at least 140 metres in all directions from the property boundary on the site. Where a mix of vegetation types exist, the type providing the greater hazard is said to predominate.

The site has been cleared and developed with roads and infrastructure for residential development. It is vacant managed land (Figure 6). No bushfire hazard exists on the site or on developed land to the north, west or south of the site. A small park is to the north east of the site between Flynn Circuit and Armoury Road. It is cleared and managed land as an ornamental garden with mown grassland. The external vegetation does not change for any of the scenarios as outlined within Section 7.1.

Figure 7 shows the base GIS data assessment of the predominant vegetation formation as Forested wetland, grassland and woodland.

Figure 8 shows the vegetation formation and PCT:

- (Forested Wetlands) Coastal Valleys Riparian Forest
- (Forested Wetlands) Cumberland Red Gum Riverflat Forest
- (Grassy Woodlands) Cumberland Shale Plains Woodland

Vegetation within the site should be managed to asset protection zone (APZ) standards

Figure 6 Nearmap Aerial Photograph of the site and surrounds showing cleared land within the site

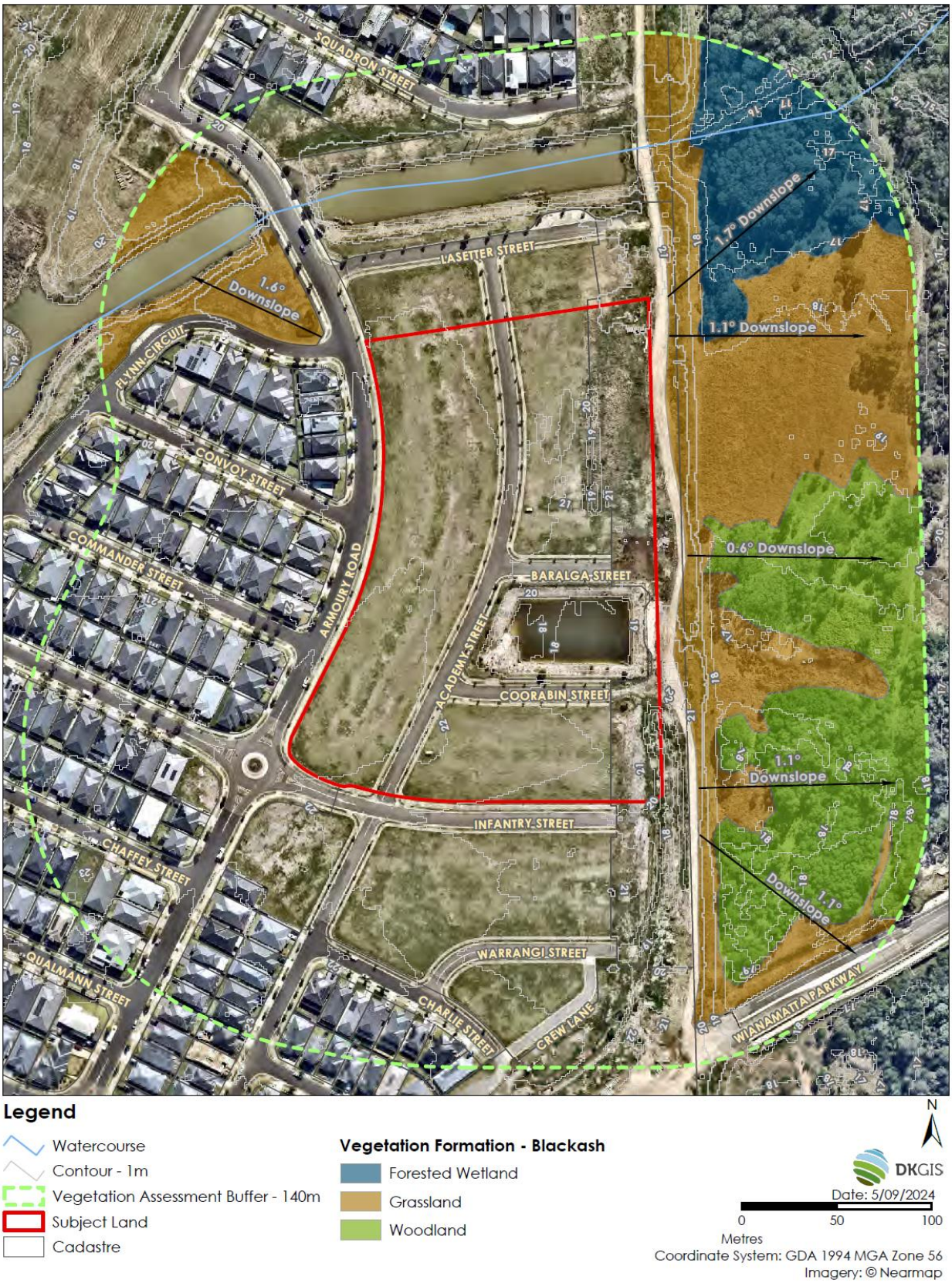


Figure 7 Vegetation Formation

Figure 8 PCT Vegetation

12.5.Ecological Issues

The site is cleared and managed. There are no known ecological issues on site.

12.6. Slopes Influencing Bushfire Behaviour

The RF Reg requires an assessment of the slope of the land on and surrounding the property (out to 100 metres from the boundaries of the property or from the proposed development footprint).

The effective slope' influencing fire behavior approaching the sites has been assessed in accordance with the methodology specified within PBP 2019. The effective slope is the slope of the ground under the hazard (vegetation). It is not the slope between the vegetation and the building (slope located between the asset and vegetation is the site slope). The external slope does not change for any of the scenarios as outlined within Section 7.1.

The effective slope for the site is shown in Figure 9. The slopes are generally flat to the east including:

- 1.7° downslope in the northeast
- 1.1° downslope to the east
- 0.6° downslope to the east
- 1.7° downslope in the southeast

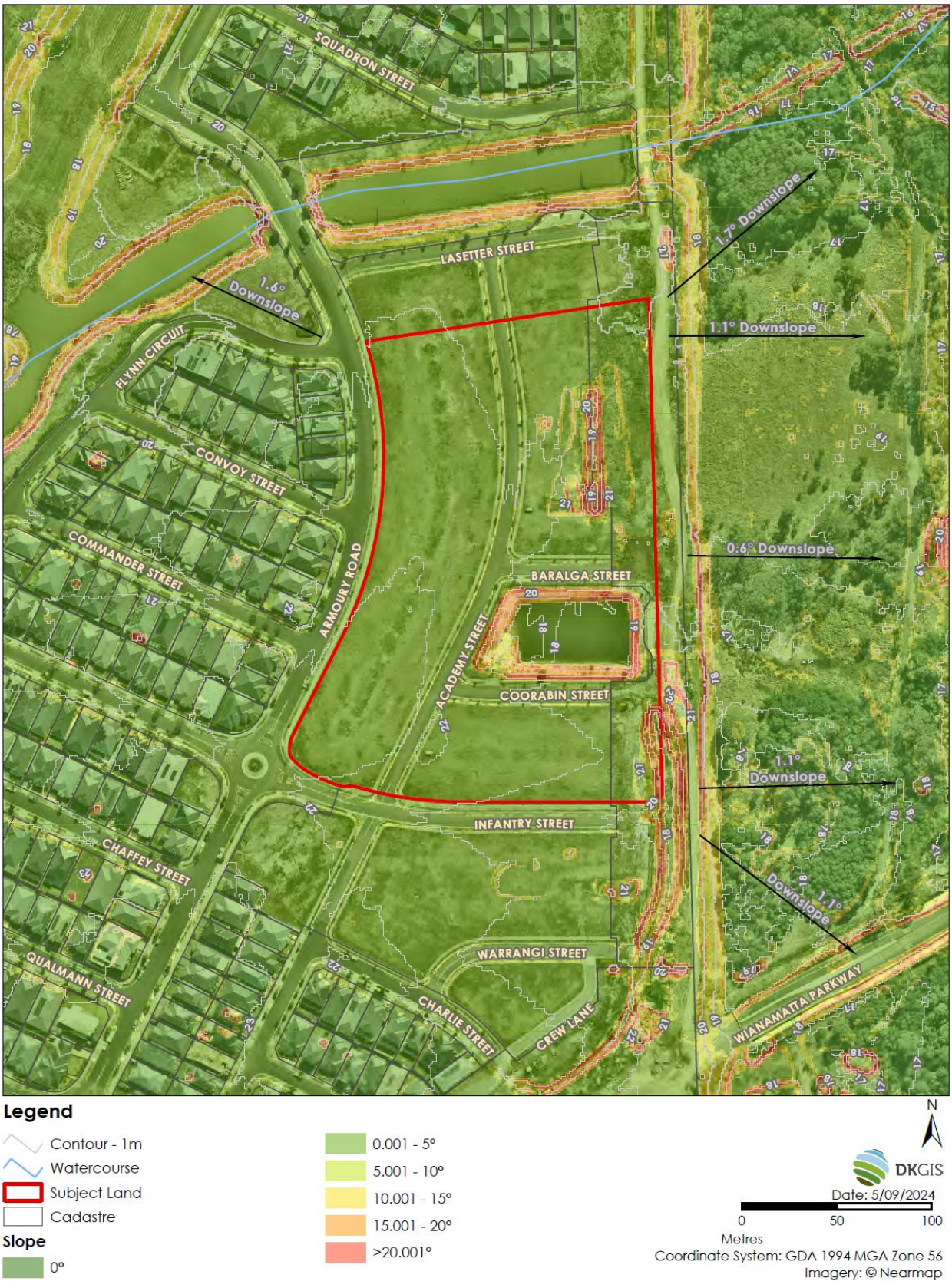


Figure 9 Slope Assessment

12.7.Asset Protection Zones

An APZ is a fuel-reduced area surrounding a built asset or structure which provides a buffer zone between a bushfire hazard and an asset. The APZ includes a defendable space within which firefighting operations can be carried out. An APZ is land that has vegetation removed or maintained to a level that limits the spread and impact of bushfire. This may include:

- developed land (residential, commercial, or industrial),
- permanent roads, bike paths, parking areas,
- golf course fairways, playgrounds, sports fields,
- vineyards, orchards, cultivated ornamental gardens and commercial nurseries,
- most common will be gardens and lawns within curtilage of buildings.

For new SFPP developments, the APZ requirements must result in radiant heat levels at new buildings being below 10kW/m². The acceptable solution APZs are:

Vegetation Type to the east	**Slope**	**Acceptable Solution APZ from site boundary**
Grassland	0° - 5° downslope	40m
Forested wetland	0° - 5° downslope	42m
Woodland	0° - 5° downslope	50m

The APZs can be contained wholly within the site and do not affect any of the proposed buildings as per Figure 10. The APZ extent does not for any of the scenarios as outlined within Section 7.1.

The compliance of the proposed APZ in accordance with Section 6.8.1 of PBP is in Table 2.

Table 2 APZ Compliance

Intent of Measures **PBP Table 6.8a** **APZ**	*to provide suitable building design, construction and sufficient space to ensure that radiant heat levels do not exceed critical limits for firefighters and other emergency services personnel undertaking operations, including supporting or evacuating occupants.*	
Performance Criteria	**Acceptable Solution as per PBP**	**Compliance**

Radiant heat levels of greater than 10kW/m² (calculated at 1200K) will not be experienced on any part of the building.	*the building is provided with an APZ in accordance with Table A1.12.1 in Appendix 1.*	**Complies** APZ provided in accordance with Table A1.12.1 of PBP The extent of the APZ is as per Figure 10.
APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	*APZs are located on lands with a slope less than 18 degrees.*	**Complies** APZ is not located on slopes greater than 18°.
APZs are managed and maintained to prevent the spread of fire to the building. *the APZ is provided in perpetuity.*	*the APZ is managed in accordance with the requirements of Appendix 4 of this document, and is wholly within the boundaries of the development site;* *APZ are wholly within the boundaries of the development site; and* *other structures located within the APZ need to be located further than 6m from the refuge building.*	**Complies** APZ provided in accordance with Table A1.12.1 of PBP The extent of the APZ is as per Figure 10.

12.8.Bushfire Attack Levels

The Bushfire Attack Level or BAL is a means of measuring the severity of a building's potential exposure to ember attack, from ember attack, radiant heat and direct flame contact. In the NCC, the BAL is used as the basis for establishing the requirements for construction to improve protection of building elements. The BAL levels are shown in Table 1.

Table 3 Bushfire Attack Levels and Bushfire Attack

BAL	1Heat flux threshold (kW/m^2)	Predicted bushfire attack and level of exposure
BAL-12.5	≤ 12.5	Significant ember attack, burning debris and radiant heat up to a level of 12.5 kW/m2.
BAL-19	12.5 – 19	Increasing levels of ember attack, burning debris and radiant heat up to a level of 19 kW/m2.
BAL-29	19 – 29	Increasing levels of ember attack, burning debris and radiant heat up to a level of 29 kW/m2.
BAL-40	29 – 40	Increasing levels of ember attack, burning debris and radiant heat up to a level of 40 kW/m2. Flames from the bushfire front may intermittently contact the building.
BAL-FZ	≥ 40	Increasing levels of ember attack, burning debris and radiant heat in excess of 40 kW/m2. Flames from the bushfire front are likely to engulf part or all of the building.

The BAL is determined in accordance with Appendix 1 of PBP 2019 or the site assessment methodology within AS3959. Both approaches are the same and rely on an assessment of vegetation and slope with the separation of ab building to determine the BAL. The BAL for the site is shown in Figure 11.

Specification 43 of the NCC provides as an acceptable solution. The NCC S43C10 Building envelope provides an acceptable solution that:

> *The building envelope must be constructed in accordance with AS 3959 – BAL 19 or greater, except that where the use of combustible materials is permitted by AS 3959.*

And the RFS have provided an Addendum to PBP 2019:

As such, the acceptable solution for a new building within 100m of Category 1 or Category 3 vegetation is BAL 19 and for a new building within 50m of Category 3 is BAL 19. The proposed buildings are greater than 100m from the classified vegetation and do not require any level of BAL. However, the Department of Education has indicated that it is content to comply with BAL 19 as a redundancy. As such, the buildings are able to meet the acceptable solution and performance criteria for Specification 43 in regard to construction (see Appendix B). Construction compliance is at Table 4.

Table 4 Compliance Construction

Intent of Measures **PBP Table 6.8a** **Construction**	*to provide suitable building design, construction and sufficient space to ensure that radiant heat levels do not exceed critical limits for firefighters and other emergency services personnel undertaking operations, including supporting or evacuating occupants.*	
Performance Criteria	**Acceptable Solution**	**Compliance**
the proposed building can withstand bush fire attack in the form of wind, embers, radiant heat and flame contact.	*landscaping is in accordance with Appendix 4; and fencing is constructed in accordance with section 7.6.*	**Complies** APZ provided in accordance with Table A1.12.1 of PBP The extent of the APZ is as per Figure 10. This will determine BAL. Indicative BAL has been provided at Figure 11 with the entire site managed as an APZ.

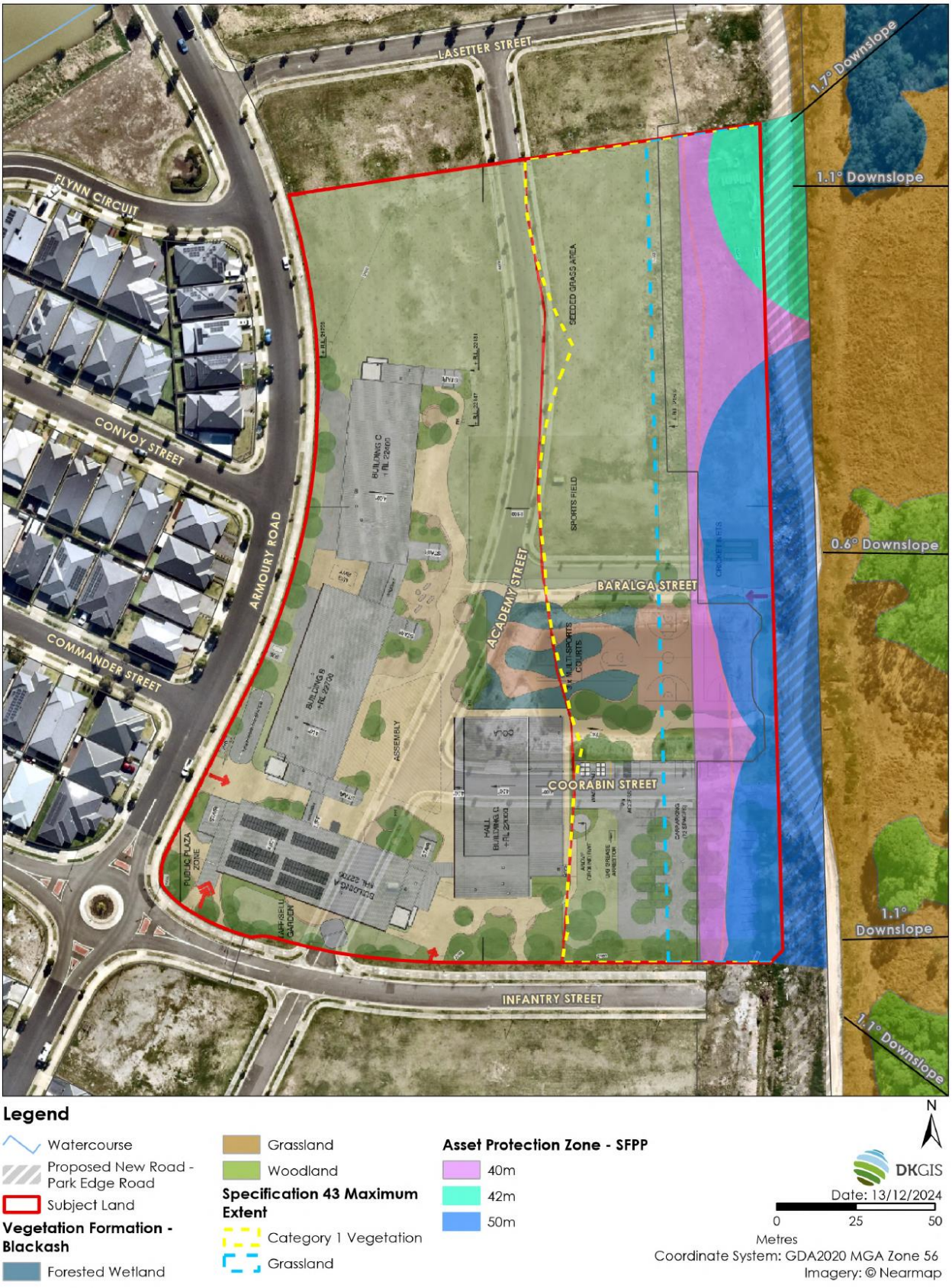


Figure 10 APZ and Bushfire Attack Level out to 100m

Figure 11 Bushfire Attack Level from site boundary

12.9.Water Supplies

The Site is adequately supplied by installed water services associated with the existing developed areas. The site is serviced by reticulated water supply, with hydrants located at regular intervals can comply with AS2419 and PBP 2019. All buildings are connected to the reticulated town's water main. No changes to the water supply are proposed. This complies with PBP 2019. Water compliance is at Table 5.

Table 5 Water Compliance

Intent of Measures **PBP Table 6.8c** **Water Supply**	*To provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building.*	
Performance Criteria	**Acceptable Solution**	**Compliance**
An adequate water supply for firefighting purposes is installed and maintained	*reticulated water is to be provided to the development, where available*	**Complies** Activity serviced by reticulated water supply.
water supplies are located at regular intervals. the water supply is accessible and reliable for firefighting operations.	*fire hydrant spacing, design and sizing comply with the relevant clauses of AS 2419.1:2005; hydrants are not located within any road carriageway; and reticulated water supply to SFPPs uses a ring main system for areas with perimeter roads.*	**To Comply** Fire hydrants will be designed and installed in accordance with AS2419:2021.
flows and pressure are appropriate	*fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2005*	**To Comply** Fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2005

the integrity of the water supply is maintained.	*all above-ground water service pipes external to the building are metal, including and up to any taps.*	**To Comply** All above-ground water service pipes external to the building are metal, including and up to any taps.
water supplies are adequate in areas where reticulated water is not available	NA	**To Comply** Mains water available

12.10.Gas and electrical supplies

The site is adequately supplied by services. Any gas services installed should be maintained in accordance with *Australian Standard AS/NZS 1596 'The storage and handling of LP Gas'* (Standards Australia 2008) and Table 6.

Table 6 Gas & Electricity Compliance

Intent of Measures **PBP Table 6.8c** **Gas and Electrical Supply**	*To provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building.*	
Performance Criteria	**Acceptable Solution**	**Compliance**
location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings.	*where practicable, electrical transmission lines are underground*	**To Comply**
location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.	• *reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 and the requirements of relevant*	**To Comply**

	authorities, and metal piping is used; • *all fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side;* • *connections to and from gas cylinders are metal; if gas cylinders need to be kept close to the building, safety valves are directed away from the building and at least 2m away from any combustible material, so they do not act as a catalyst to combustion;* • *polymer-sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used; and* • *above-ground gas service pipes external to the building are metal, including and up to any outlets*	

12.11.Access

The site and surrounding lands to the north, west and south been cleared as part of previous subdivision construction. The site has direct access to Armoury Road which is 10m kerb to kerb to the west

The scenarios (Section 7.1) provide variation as to the implementation of the extension of Infantry Street and the provision of the eastern perimeter road known as Park Edge Road. The preferred option (Figure 2) would see the extension of Infantry Street and the provision of the eastern perimeter road known as Park Edge Road. Infantry Street which is 8m kerb to kerb to the south provides access to the car park and future Park Edge Road. Rd. The eastern boundary adjoins a future road to be known as Park Edge Road has not yet been established, which will provide perimeter access to the east. Laseter Street which is 8m kerb to kerb is to the north that provides perimeter access. No access changes are proposed to the existing road infrastructure.

Scenario 2 (see Section 7.1) provides an interim solution where the road network is not completed for occupation of the school (Appendix 3). An existing access trail/ fire trail is within the road reserve nominated for Park Edge Road. While this is off site, it is available for emergency services if required.

The school buildings are greater than 100m from unmanaged vegetation and as such, there is minimal bushfire attack at the buildings and on the frontage of the site along Armoury Road. The school buildings will be built to BAL 19 as a redundancy and a Bushfire Emergency Management and Evacuation Plan will be completed prior to occupation (see Section 12.13).

The scenarios for development do not alter the activity and compliance with *Planning for Bushfire Protection 2019* or the Specification 43 requirements. While Scenario 1 is the most likely it also is the most dependent on external perimeter road (Park Edge Road) being provided to the east of the site by others. Each of the scenarios still pursues the perimeter road to the east of the site but the timing and availability of the eastern road extension is unclear. The proposal fundamentally provides for the location of the buildings are far as practicable from the retained bushland to the east of the site. Access is provided within the site for fire fighters to the buildings with staging areas and water supplies for fire fighting provided at the buildings. The APZ remains available under all scenarios and the buildings exceed the requirements within PBP for the provision of APZ and the building do not trigger Specification 43 in any way.

As the site meets the access requirements of PBP 2019 and the buildings are beyond the distance required for any Bushfire Attack Level considerations, it is not deemed necessary to comply with the access provision of a perimeter road around each building in accordance with the acceptable solutions of Specification 43. Assessment of the design is documented in Table 7 as a performance solution.

Table 7 Access Compliance

Intent of Measures **PBP Table 6.8.2** **Gas and Electrical Supply**	*To provide safe operational access for emergency services personnel in suppressing a bush fire, while residents are accessing or egressing an area.*
Performance Criteria	**Compliance**
firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.	**Complies** The site has direct access to Armoury Road which is 10m kerb to kerb to the west with kiss and drop access provided within the site. Infantry Street which is 8m kerb to kerb to the south provides access to the car park and future Park Edge Road. Rd. The eastern boundary adjoins a future road to be known as Park Edge Road has not yet been established, which will provide perimeter access to the east. Laseter Street which is 8m kerb to kerb is to the north that provides perimeter access. No access changes are proposed to the existing road infrastructure. All buildings can be accessed via the existing external and internal road infrastructure and managed areas within the site. Additional internal vehicular access is not necessary. To ensure a safe operational environment for firefighting personnel, the landscaping within the site will be designed and managed in accordance with acceptable solutions of PBP as identified in Table 10. The external (within the site) and internal (within the buildings) fire hydrants will be designed and installed in accordance with AS2419:2021 requirements.

12.12. Landscaping

The site is to be managed to Inner Protection Area Standards. This complies with PBP 2019. Landscaping compliance is at Table 8.

Table 8 Landscaping Compliance

Intent of Measures **PBP Table 6.8a** **Landscaping**	*landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions.*	
Performance Criteria	**Acceptable Solution**	**Compliance**
landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions.	*landscaping is in accordance with Appendix 4; and* *fencing is constructed in accordance with section 7.6.*	**To Comply** landscaping is to be in accordance with Appendix 4 Landscaping will be designed and managed in accordance with Appendix 4 of PBP (Appendix A).

12.13.Emergency Management Arrangements

PBP 2019 and the RFS require the preparation of a '*Bushfire Emergency Management and Evacuation Plan*' prior to occupation of new schools. Prior to occupation, a Plan is to be prepared in accordance with the NSW Rural Fire Service document '*A Guide to Developing a Bushfire Emergency Management and Evacuation Plan*' (RFS 2014).

The *Bushfire Emergency Management and Evacuation Plan* will provide for the following:

- At declared Catastrophic Fire Danger Level, the site will be closed to staff and students for the day.
- If a uncontrolled bushfire is burning and it is likely to burn within 500m of the school, the school will be closed.
- If the school cannot be closed and evacuated safely, refuge will be sought in buildings A, B and C along Armoury Road.

The Emergency management compliance is at Table 9.

Table 9 Emergency Management Compliance

Intent of Measures **PBP Table 6.8d** **Emergency Management Planning**	*To provide suitable emergency and evacuation arrangements for occupants of SFPP developments.*	
Performance Criteria	**Acceptable Solution**	**Compliance**
Bush Fire Emergency Management and Evacuation Plan is prepared	*Bush Fire Emergency Management and Evacuation Plan is prepared consistent with the: The NSW RFS document: A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan;* *NSW RFS Schools Program Guide;* *Australian Standard AS 3745:2010 Planning for emergencies in facilities; and Australian Standard AS 4083:2010 Planning for emergencies – Health care facilities (where applicable).*	**To Comply**
	the Bush Fire Emergency Management and Evacuation Plan should include planning for the early relocation of occupants.	**To Comply**
	A copy of the Bush Fire Emergency Management and Evacuation Plan should be	**To Comply**

	provided to the Local Emergency Management Committee for its information prior to occupation of the development.	

13. Specification 43 requirements

The school buildings are not within land affected by land that can support a bushfire or is likely to be subject to bushfire attack and as such, Specification 43 is not applicable to the school buildings. There are no requirements for the provision of Specification 43.

14. Risk Based Approach

Considering the site's low bushfire risk (see Section 11), requiring full compliance with Specification 43 may be seen as unnecessarily cautious, leading to additional costs that could outweigh the actual benefits in risk reduction. By tailoring compliance requirements more closely to the specific risk level of the site, resources could be better allocated, potentially reducing project expenses while still maintaining adequate safety standards. Adjusting the approach to performance based assessment and compliance in light of the low-risk context allows for a balanced response that upholds both safety and cost-efficiency. This would need to be tested within DoE for risk tolerance and cost benefit.

Such an approach would be based on the provision of compliance APZs and solid bushfire emergency management arrangements through a binding Bushfire Management and Evacuation Plan that would close the site on Catastrophic Fire Danger days or if fires are in the vicinity of the site.

15. Mitigation Measures

Mitigation measures are essential components of this Bushfire Assessment Report, aimed at assessing bushfire risk to the site and future occupants and reducing or eliminating potential environmental impacts associated with the proposed activity. These measures have been carefully developed based on rigorous bushfire assessments, applicable legislation, and the requirements of PBP 2019 to ensure bushfire protection while balancing protection of the environment and risk mitigation. By implementing these mitigation measures, the project seeks to address identified risks, enhance bushfire and environmental outcomes, and promote sustainable development practices, ensuring compliance with bushfire regulatory requirements and alignment with broader environmental objectives.

The following mitigation measures in Table 10 have been made within this report to ensure the activity is compliant with the NSW and national framework for bushfire mitigation.

The school buildings are not within designated Bushfire Prone Land or is likely to be subject to bushfire attack as shown at Figure 11 as the buildings are separated by 50m for grassland and 100m for woodland/ forest and as such, Specification 43 is not applicable to the school buildings or within the site. There are no requirements for the provision of Specification 43. Mitigation measures are shown in Table 10.

Table 10 Mitigation Measures

Project No.	Project Stage Design Construction Operation	Mitigation Name	Mitigation Measure	Reason for Mitigation Measure
1.	Design Construction Operation	**Asset Protection Zone**	• Table 4 and extent of the APZ is as per Figure 10. • Identified APZ to be maintained in perpetuity or until surrounding land is developed to the specifications detailed in Appendix 4 of PBP. • This will determine BAL. Indicative BAL has been provided at Figure 11 with the entire site managed as an APZ. • The site is to be managed to Inner Protection Area Standards to the specifications detailed in Appendix 4 of PBP. • See Table 4.	• Afford buildings and their occupants protection from exposure to a bushfire. • Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings.
2.	Design Construction Operation	**Construction**	• Prior to occupation, DoE are to ensure the buildings are designed and constructed to the relevant NCC requirements including BAL-19 in accordance with AS 3959-2018 and additional ember provisions detailed in section 7.5 of PBP as required. See Table 4.	• The proposed building can withstand bushfire attack in the form of wind, embers, radiant heat and flame contact.
3.	Design Construction Operation	**Landscaping**	• Landscaping will be designed and managed in accordance with Appendix 4 of PBP (Appendix 2). • See Table 8.	• Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings.
4.	Design Construction Operation	**Access**	• Performance solution addresses PBP requirements. • The proposed internal roads (i.e. 'kiss and drop' and carpark and services access) are to comply with the Acceptable Solutions listed within Table 6.4b of Planning for Bush Fire Protection 2019. • See Table 7.	• To ensure that appropriate operational access and egress for emergency service personnel and occupants is available.
5.	Design Construction Operation	**Services Water, Gas, Electricity**	• Fire hydrants are provided in accordance with AS2419:2021 • See Table 5. • No response required as electricity supply located underground. See Table 8.	• To ensure that utility services are adequate to meet the needs of firefighters.

Project No.	Project Stage Design Construction Operation	Mitigation Name	Mitigation Measure	Reason for Mitigation Measure
			• Gas services (if installed) are installed and maintained in accordance with AS/NZS 1596:2014. See Table 6.	
6.	Operation	**Emergency Management Arrangements**	• Prior to occupation, a Bushfire Emergency Management and Evacuation Plan is to be prepared in accordance with the NSW Rural Fire Service document 'A Guide to Developing a Bushfire Emergency Management and Evacuation Plan' (RFS 2014). See Table 9.	• To ensure emergency evacuation procedures and management which provides for the special characteristics and needs of occupants

16. Evaluation of Environmental Impacts

The environmental impacts of the proposed activity have been systematically evaluated in this Bushfire Assessment Report to identify potential bushfire risks and ensure compliance with applicable bushfire legislation and standards. This assessment considers the site specific conditions that relate to the provision of bushfire requirements to comply with *Planning for Bushfire Protection 2019* such as the provision of asset protection zones, access, provision of services including water and emergency management arrangements.

The scenarios for development (Section 7.1) do not alter the activity and compliance with *Planning for Bushfire Protection 2019* or the Specification 43 requirements. While Scenario 1 is the most likely, it also is the most dependent on external perimeter road (Park Edge Road) being provided to the east of the site by others. Each of the scenarios still pursues the perimeter road to the east of the site but the timing and availability of the eastern road extension is unclear. The proposal fundamentally provides for the location of the buildings are far as practicable from the retained bushland to the east of the site. Access is provided within the site for fire fighters to the buildings with staging areas and water supplies for fire fighting provided at the buildings. The APZ remains available under all scenarios and the buildings exceed the requirements within PBP for the provision of APZ and the building do not trigger Specification 43 in any way.
This evaluation supports informed decision-making and demonstrates a commitment to environmentally responsible practices throughout the project's lifecycle.

From a bushfire risk and mitigation perspective:

1. The extent and nature of potential impacts are low and will not have significant impact on the locality, community and/or the environment.
2. Potential impacts can be appropriately mitigated or managed to ensure that there is minimal impact on the locality, community and/or the environment.
3. Bushfire risk can be adequately mitigated through recommended measures.
4. Bushfire risk is not considered to be a significant impact.

17. Conclusion

This assessment has demonstrated that the proposed new school is able to meet the requirements of *Planning for Bushfire Protection 2019*. Recommendations have been provided that are required to mitigate bushfire to tolerable levels in accordance with *Planning for Bushfire Protection 2019*.

Lew Short | Director
B.A., Grad. Dip. (Design for Bushfires), Grad. Cert. of Management (Macq), Grad. Cert. (Applied Management)

Appendix 1: References

Councils of Standards Australia AS3959 (2009) – *Australian Standard Construction of buildings in bushfire-prone areas*

Councils of Standards Australia AS2419 (200) – *Fire Hydrant Installations*

Keith, David (2004) – *Ocean Shores to Desert Dunes – The Native Vegetation of New South Wales and the ACT*. The Department of Environment and Climate Change

NSW Rural Fire Service (2015) *Guide for Bushfire Prone Land Mapping*

NSW Rural Fire Service (2019). *Planning for Bushfire Protection: A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners.* Draft for Public Exhibition

NSW Government (1979) *Environmental Planning and Assessment Act 1979*. NSW Government Printer.

Appendix 2 Planning for Bushfire Protection – Addendum 2022

APPENDIX B

Performance Criteria and Acceptable Solutions for hospitals, schools, child care centres and residential care buildings

PBP 2019 identifies a suite of BPMs for SFPP's within tables 6.8a, 6.8b and 6.8c. Hospitals, schools, child care centres and residential care buildings have modified requirements in NCC 2022. These specific Performance Criteria and Acceptable Solutions are identified in Table 2, Table 3 and Table 4 below.

These requirements are to be used in conjunction with the existing BPMs in PBP 2019.

Table 2: SFPP Development Construction Standards – Specific requirements for hospitals, schools, child care centres and residential care buildings

	PERFORMANCE CRITERIA	ACCEPTABLE SOLUTIONS
CONSTRUCTION STANDARDS	› The proposed building can withstand bush fire attack in the form of wind, embers, radiant heat and flame contact.	› A construction level of BAL-19 or greater under AS 3959 and section 7.5 of PBP is applied.

Table 3: SFPP Development Access – Specific requirements for hospitals, schools, child care centres and residential care buildings

	PERFORMANCE CRITERIA	ACCEPTABLE SOLUTIONS
ACCESS	› Firefighting vehicles are provided with safe, all-weather access to structures and hazardous vegetation.	› Vehicular access must be capable of providing continuous access for emergency vehicles to enable travel in a forward direction from a public road around the entire building; and › Must have a minimum unobstructed width of 6m with no part of its furthest boundary more than 18m from the building and in no part of the 6m width be built upon or used for any purpose other than vehicular or pedestrian movement; and › Must provide reasonable pedestrian access from the vehicular access to the building; and › Must have a load bearing capacity and unobstructed height to permit the operation and passage of fire fighting vehicles; and › Must be wholly within the allotment except that a public road complying with above may serve as the vehicular access or part thereof.

Table 4: SFPP Development Water Supply – Specific requirements for hospitals, schools, child care centres and residential care buildings

	PERFORMANCE CRITERIA	ACCEPTABLE SOLUTIONS

WATER SUPPLY	➢ An adequate water supply for firefighting purposes is installed and maintained.	➢ Reticulated water is to be provided to the development, where available; and
		➢ Water for firefighting purposes must be made available and consist of –
		  ➢ A fire hydrant system installed in accordance with AS2419.1; or
		  ➢ Where no reticulated water is available, a static water supply consisting of tanks, swimming pools, dams or the like, or a combination of these, together with suitable pumps, hoses and fittings, determined in consultation with NSW RFS that –
		  ➢ is capable of providing the required flow rate for a period of not less than 4 hours or
		  ➢ has a volume of 10,000 litres for each occupied building.

Appendix 3 Scenario 2 Stage 1 & 2 Operational

ISSUE	DATE	SUBJECT	AUTHORISED
P01	05/12/2024	REVISED STAGING FOR INFORMATION	TD
P02	05/12/2024	REVISED STAGING FOR INFORMATION	TD
P03	05/12/2024	REVISED STAGING FOR INFORMATION	TD

LANDSCAPE ARCHITECT: SITE IMAGE
PROJECT MANAGER: TSA Riley
CLIENT: NSW GOVERNMENT Education School Infrastructure
SERVICES: STEENSEN VARMING; WSCE
STRUCTURE & CIVIL: TTW
ARCHITECT: djrd architects

DISCLAIMER
This drawing should be read in conjunction with all the standard notes & abbreviations in the drawing pack, relevant controls, specifications and drawings. Dimensions are in millimetres. Levels are metres. Do not scale off drawings. Use figured dimensions only. Check dimensions on Site. Report discrepancies immediately.

PROJECT: NEW HIGH SCHOOL FOR JORDAN SPRINGS
Armoury Road, Jordan Springs NSW 2747

DESCRIPTION: SCENARIO 2 STAGE 1 & 2 OPERATIONAL

PROJECT No	DRAWING No	REVISION
24 410	JSHS-DJRD-00-00-DR-A-0506	P03

SCALE	PURPOSE OF ISSUE	STATUS	DRAWN BY	SHEET SIZE	ORIGIN DATE
As indicated @ A1	FOR INFORMATION	S2	AL		10/02/24

DATE PRINTED: 5/12/2024 5:02:16 PM