Bushfire Protection Assessment

New High School for Medowie

School Infrastructure NSW (SINSW) on behalf of the NSW Department of Education (DoE)

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DOCUMENT TRACKING

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LIMITATIONS

The bushfire protection measures recommended in this report do not completely remove the risk to life and property, and they do not guarantee that a activity will not be impacted by a bushfire event. This is substantially due to the degree of vegetation management, the unpredictable nature and behaviour of fire, and extreme weather conditions.

Acknowledgements

This document has been prepared by Eco Logical Australia Pty Ltd with assistance from Colliers.

Template 2.8.1

Contents

List of Figures

List of Tables

Abbreviations

Abbreviation	Description
APZ	Asset protection zone
BA	Bushfire Assessment
BAL	Bushfire Attack Level
BFPL	Bush fire prone land
BFSA	Bush Fire Safety Authority
COLA	Covered Outdoor Learning Areas
DoE	NSW Department of Education
EFSG	Educational Facilities Standards and Guidelines
ELA	Eco Logical Australia Pty Ltd
EP&A Act	*Environmental Planning and Assessment Act 1979*
FDI	Fire Danger Index
GIS	Geographic information system
ha	Hectares
IPA	Inner Protection Area
LGA	Local Government Area
m	Metres
NCC	National Construction Code 2022
PBP	*Planning for Bush Fire Protection 2019* and *Appendix B of Addendum to Planning for Bush Fire Protection 2022*
PDHPE	Personal Development, Health and Physical Education
REF	Review of Environmental Factors
RFS	NSW Rural Fire Service
SFPP	Special fire protection purpose
SINSW	School Infrastructure NSW
T&I SEPP	*State Environmental Planning Policy (Transport and Infrastructure) 2021*

1. Introduction

This Bushfire Protection Assessment has been prepared to support a Review of Environmental Factors (REF) for the proposed New High School for Medowie (the activity). The purpose of the REF is to assess the potential environmental impacts of the activity prescribed by State Environmental Planning Policy (Transport and Infrastructure) 2021 (T&I SEPP) as "development permitted without consent" on land carried out by or on behalf of a public authority under Part 5 of the Environmental Planning and Assessment Act 1979 (EP&A Act).

The activity is to be undertaken purulent to Chapter 3, Part 3.4, Section 3.37 of the T&I SEPP.

The activity will be carried out at 6 Abundance Street, Medowie (the site). The purpose of this report is to assess the proposed activity against *Planning for Bush Fire Protection* (RFS 2019), specifically Chapter 6 and *Appendix B of Addendum to Planning for Bush Fire Protection* (RFS 2022), collectively referred herein to as 'PBP'.

1.1 Site Description

The site has a street address of 6 Abundance Road, Medowie. It is 6.51ha in area, and comprises 1 allotment, legally described as Lot 3 in DP788451.

A large proportion of the site is currently unused and vacant. A small shed structure and caravan are located adjacent to the northern boundary. A cluster of buildings including a single storey dwelling, an outhouse/shed structure and temporary greenhouse are located within the south-eastern corner.

The site contains a largely vegetated area to the south-west corner. The site is relatively flat with a gradual fall from west to east toward Abundance Road.

The site has a primary frontage to Abundance Road to the east and Ferodale Road to the north. Abundance Road and Ferodale Road are both classified Local Roads. Medowie Road, approximately 1km east of the site, is a classified Regional Road.

The area surrounding the site mostly consists of industrial, rural residential, educational, and agricultural lands. Adjacent to the north-western boundary is a Shell petrol station and mechanic garage. Adjacent to the north-eastern boundary is a medical health clinic. Across Abundance Road along the eastern boundary are a number of warehouse and light industrial developments. Directly north of the site across Ferodale Road are large lots used for agricultural purposes. Medowie Public School is located on Ferodale Road, to the north-west of the site, opposite the Shell petrol station.

Figure 1: Aerial Image of the site (Source: Nearmap 2024)

2. Review of Environmental Factors (REF) Checklist

Table 1 below details the bushfire REF deliverable requirements (SINSW identified) and the relevant section of the report it is addressed.

Table 1: Review of Environmental Factors (REF) Checklist

Bushfire	Y	N	N/A	Comments
Does the REF include either: • information that demonstrates that the site is not mapped as bushfire prone and is not adjacent to a potential bushfire hazard; or • a Bushfire Assessment (BA)?	☒	☐	☐	Addressed in Section 3.1 of the BA.
If a BA has been prepared, does it: • assess the immediately adjoining bushfire hazard in accordance with Planning for Bush Fire Protection (PBP)?	☒	☐	☐	Addressed in Section 4 of the BA.
• consider bushfire in the wider landscape context and potential impacts to key access routes or surrounding communities that may impact the activity?	☐	☐	☒	BA addresses access requirements as required under PBP specific to schools.
• identify bushfire protection measures required under PBP?	☒	☐	☐	Addressed in Section 5 of the BA.
• confirm if the activity can comply with the required bushfire protection measures, including:	☒	☐	☐	Addressed in Section 5 and Section 6 of the BA.
○ provision of minimum asset protection zones (APZs) with all buildings outside of the APZs?	☒	☐	☐	Addressed in Section 5.1 of the BA.
○ minimum construction requirements for buildings? Note: - Table 2, Appendix B of the Addendum November 2022 to PBP requires school buildings on bushfire prone land to be built to a minimum of BAL-19. - The NSW RFS has advised that BAL-Low does not apply to school and similar developments under PBP. If the consultant considers that no construction standard applies, the report should state 'no requirements' in order to avoid further information requests from the NSW RFS.	☒	☐	☐	Addressed in Section 5.3 of the BA.
○ access roads?	☐	☒	☐	Performance solution addressed in Section 5.4 of the BA.
○ provision of a perimeter road between the buildings and the bush fire hazard?	☐	☐	☒	Performance solution addressed in Section 5.4 of the BA.
○ water provision?	☒	☐	☐	Addressed in Section 5.5 of the BA.
○ design of utilities?	☒	☐	☐	Addressed in Section 5.6 and 5.7 of the BA.
○ emergency management arrangements?	☒	☐	☐	Addressed in Section 5.8 of the BA.
○ landscaping?	☒	☐	☐	Addressed in Section 5.2 of the BA.
Conclusion	☒	☐	☐	Addressed in Section 6.1 of the BA.

Bushfire	Y	N	N/A	Comments
Does the BA: • conclude that the proposal would not be likely to result in significant environmental effects?				
• list any mitigation measures identified in the assessment?	☒	☐	☐	Addressed in Section 7 of the BA.
• Does the REF list any mitigation measures identified in the assessment and incorporate them into the design where applicable (i.e. APZs, BAL-19 construction?)	☒	☐	☐	Project team to incorporate bushfire mitigation measures identified in Section 7 of the BA into design.

3. Property and Proposal

Table 2 identifies the site and outlines the type of activity proposed.

Table 2: Site and activity proposal summary

Street address:	6 Abundance Road, Medowie
Postcode:	2318
Lot/DP no:	Lot 3 DP 788451
Local Government Area:	Port Stephens Council
Fire Danger Index (FDI)	100
Current land zoning:	RU2 Rural Landscape
Type of development proposed:	Educational establishment, which is special fire protection purpose (SFPP)

3.1 Project Description

The proposed activity involves the construction of school facilities on the site for the purpose of the New High School for Medowie. The site contains a densely vegetated area to the southwest corner which is identified as land with high biodiversity values corresponding to the areas of remnant native vegetation (PCT 3995 – Hunter Coast Paperbark-Swamp Mahogany Forest). The existing dwelling house and other structures on the site will be demolished as part of the works. No other works are proposed within this area.

The proposed new school will accommodate 640 students in 29 permanent teaching spaces including 3 support teaching spaces across 3-storeys of buildings on the site. The proposed activity be delivered across 1 stage, and will consist of the following:

- 29 permanent teaching spaces including 3 support teaching spaces, to accommodate 640 students, and school hall to accommodate 1,000 students. Approximately 10,500 sqm of GFA is proposed.
- Main vehicular ingress and egress to Ferodale Road to the north, with a new pedestrian and vehicle crossing proposed.
- Main pedestrian access to Abundance Road.
- Kiss and ride, and bus drop and pick up areas to Abundance Road (6 x parallel spaces).
- New pedestrian wombat crossing to Abundance Road
- Approximately 55 x car parking spaces and 3 x accessible car parking spaces.
- Approximately 70 x bicycle parking spaces.
- Block A (Admin) consisting of administration and learning spaces.
- Block B (Foodtech/Workshop) consisting of food technology rooms and workshops.
- Block C (Hall) consisting of school hall to accommodate 1,000 students.
- Central quad, 1 playing field, and 1 sports courtyard.

The proposed school development will include the following spaces; general learning spaces, General support learning spaces, administrative services, staff areas, gym and canteen, library areas for science,

wood and metal, food and textiles, health PE, performing arts, additional learning spaces, student amenities, storage, movement (stairs and covered walkways).

The proposal does not include construction of any public road infrastructure (aside from minor works to Abundance Road including kiss and ride, bus drop and pick up areas and pedestrian crossing) with access to the site via Ferodale Road (north) and Abundance Road (east) as shown in Figure 2 and Figure 4.

The proposed development is located on land mapped as bush fire prone land (BFPL) as shown in Figure 3.

3.2 Assessment Process

Being a special fire protection purpose (SFPP) development on BFPL, the proposal was assessed in accordance with PBP. This report demonstrates that the proposal, together with the recommendations within this report address the relevant specifications and requirements under PBP.

This assessment is based on the following information sources:

- Background documentation provided by School Infrastructure NSW (SINSW);
- Information contained within the site plan from NBRS (Project No. 24135, Rev. 3 dated 15 November 2024 [Figure 2]);
- Geographic information system (GIS) analysis including online spatial resources (i.e. Google Earth, SIX Maps, Nearmap and the NSW Government Planning Portal); and
- Site inspection undertaken 18 July 2024.

Table 3 identifies the bushfire protection measures assessed and whether an acceptable or performance solution is being proposed.

Table 3: Summary of Bush Fire Protection Measures Assessed

Bushfire Protection Measure	Acceptable Solution	Performance Solution	Report Section
Asset Protection Zones	☑	☑	5.1
Landscaping	☑	☐	5.2
Construction	☑	☐	5.3
Access	☑	☑	5.4
Water supply	☑	☐	5.5
Electricity services	☑	☐	5.6
Gas services	☑	☐	5.7
Emergency management	☑	☐	5.8

3.3 Stakeholder Consultation

Informal consultation with RFS North Coast office was undertaken 19 November 2024 to discuss the proposed bushfire protection measures and performance solution for vehicle access around the

buildings meeting the requirements of Table 3 from Appendix B of Addendum to PBP (refer Section 5.4.1). RFS informally agreed in principle to the proposed measures subject to reviewing in full detail.

3.4 Significant Environmental Features

An assessment of significant environmental features, threatened species, populations 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 parts of the development approval process.

The impact footprint of the bushfire protection measures (e.g. Asset Protection Zone [APZ]) is identified within this report and therefore capable of being assessed by a suitably qualified person. DoE is the determining authority for this development; they will assess more thoroughly any potential environmental issues.

3.5 Aboriginal Cultural Heritage

An assessment of any Aboriginal cultural heritage objects (within the meaning of the *National Parks and Wildlife Act 1974*) that may potentially be affected by the proposed bushfire protection measures has not been undertaken in this report as it is covered by other parts of the development approval process.

The impact footprint of the bushfire protection measures (e.g. APZ) is identified within this report and therefore capable of being assessed by a suitably qualified person. DoE is the determining authority for this development; they will assess more thoroughly any potential environmental issues.

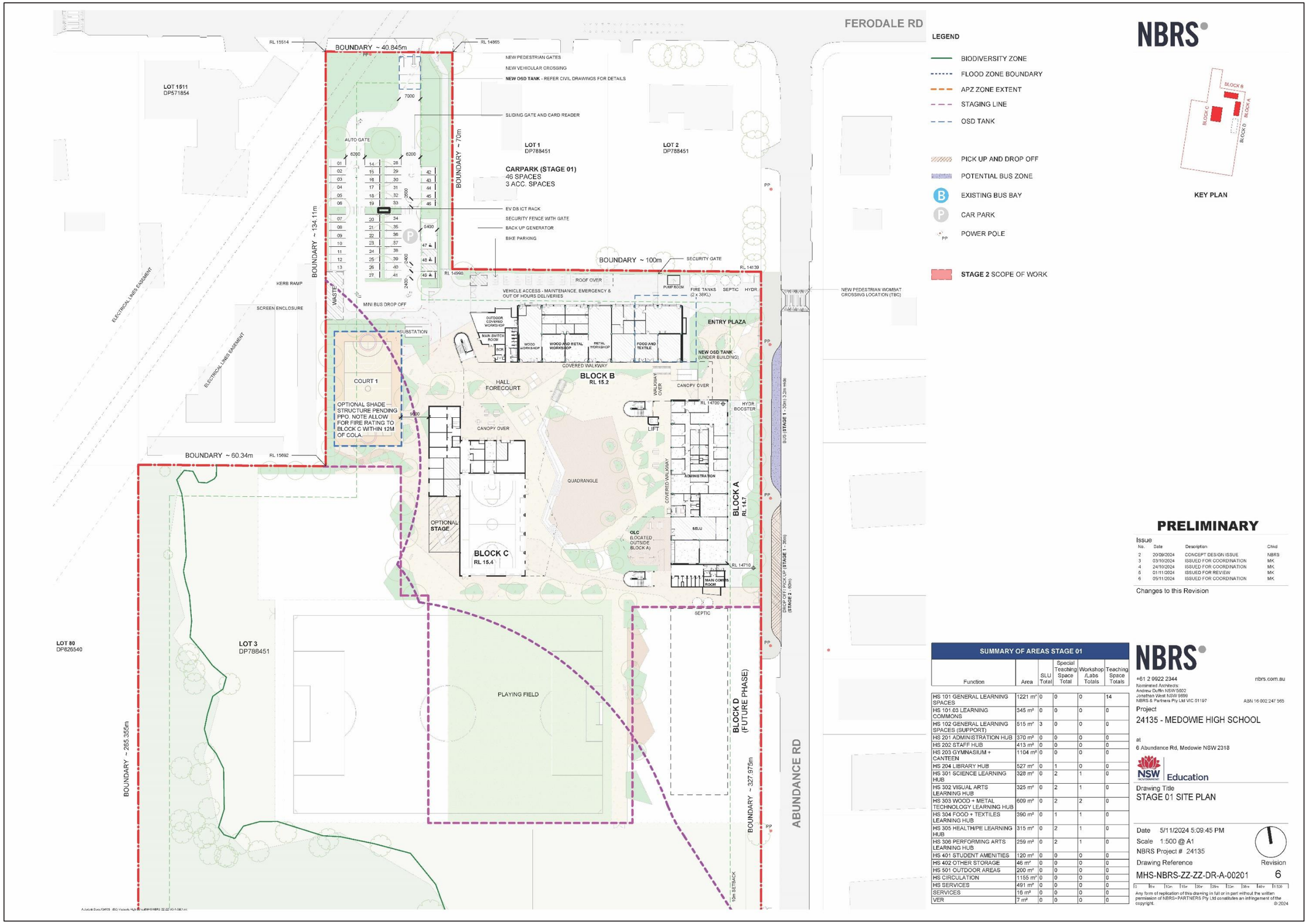

Figure 2: Site Plan (Source: NBRS)

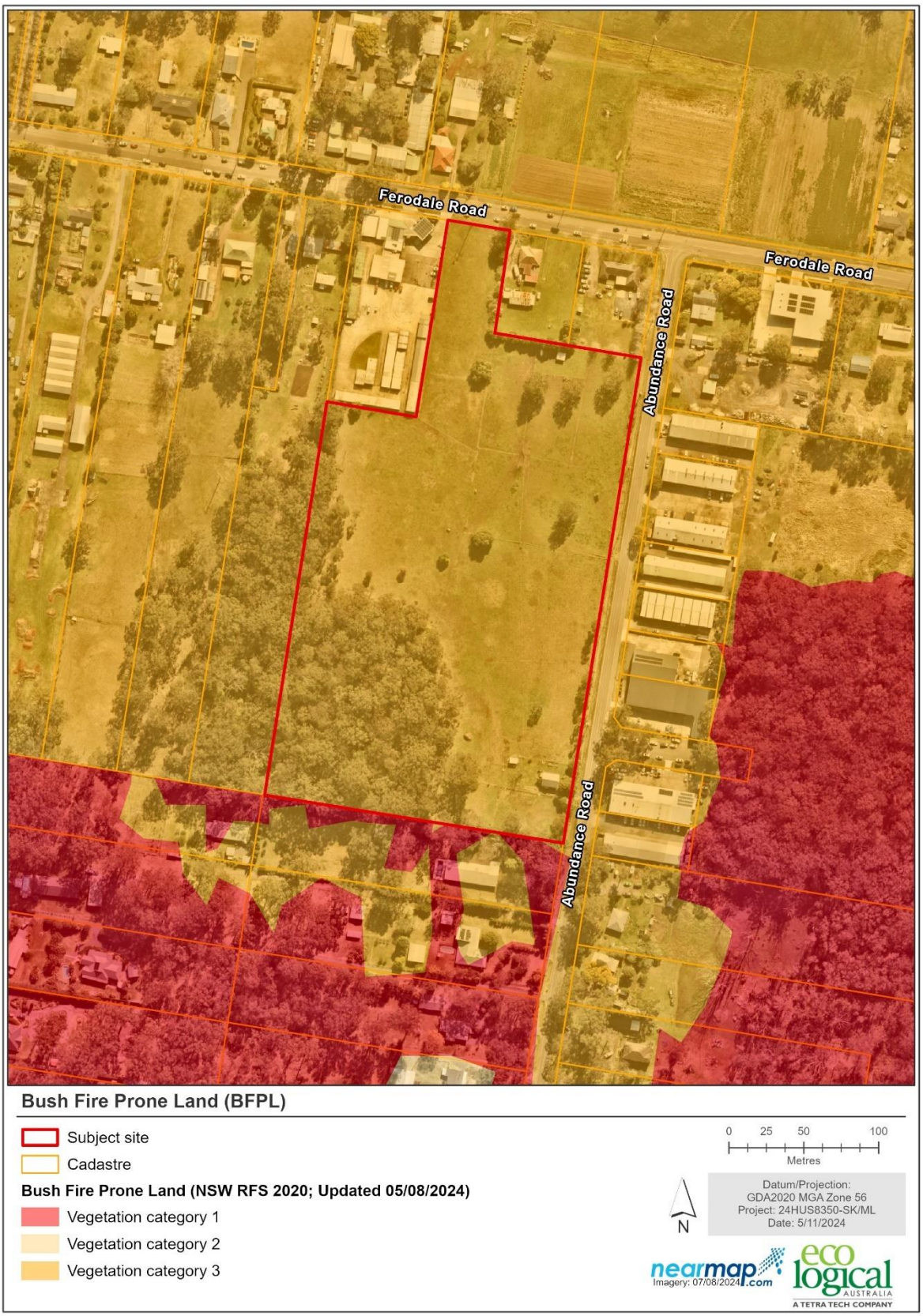

Figure 3: Bush Fire Prone Land (BFPL) (Source: RFS 2024)

4. Bushfire Hazard Assessment

4.1 Process

The site assessment methodology from Appendix 1 of PBP has been used in this assessment to determine the required APZ and construction requirements.

Figure 4 and Table 4 show the effective slope and predominant vegetation representing the highest bushfire threat potentially posed to the activity from various directions.

4.2 Vegetation Assessment

In accordance with PBP, the predominant vegetation has been assessed for a distance of at least 140m from the site in all directions.

The predominant vegetation has been determined by vegetation mapping (DCCEEW 2022), the Biodiversity Preliminary Review (WT 2024) and verified from site inspection.

4.3 Slope Assessment

In accordance with PBP, the slope that would most significantly influence fire behaviour is determined over a distance of 100m from the boundary of the proposed activity under the classified vegetation.

The effective slope has been determined from 2 m contour data.

4.4 Summary of Assessment

As shown in Figure 4 and summarised in Table 4, the bushfire prone vegetation within 140 m of the site is located in all directions aside from the north-east and north-west and is classified as a combination of 'forest' and 'grassland'.

Forest

Vegetation to the east and within the site to the west and south is identified as *Hunter Coast Paperbark-Swamp Mahogany Forest* (DCCEEW 2022, WT 2024) which falls within the 'Coastal Swamp Forests' vegetation class (Keith 2004) and classified as 'forest' under PBP. The effective slope under this hazard falls within the PBP slope category of '>0-5 degrees downslope' (east), and 'all upslopes and flat land' (west and south).

Grassland

The bushfire hazard to the north consists of land previously used for market gardens/non-curing crops however, appeared disused/unmanaged at the date of inspection therefore, was conservatively assessed as unmanaged grassland which is classified as a 'grassland' hazard under PBP. The grassland to the east, beyond the industrial development along Abundance Road, also was not accessible at the date of inspection and assessed the same. The effective slope under both hazards falls within the PBP slope category of '>0-5 degrees downslope'.

In all other directions there are managed lands consisting of existing residential development and public road infrastructure.

Table 4: Bushfire hazard assessment and APZ requirements

Transect # (Fig. 4)	Slope	Vegetation	SFPP APZ	Comment
1 (North)	>0°-5° downslope	Grassland	40 m	APZ accommodated within existing public road infrastructure (Ferodale Road) and the development site.
2 (East)	>0°-5° downslope	Grassland	40 m	APZ provided by existing Industrial development.
3 (East)	>0°-5° downslope	Forest	79 m	APZ provided by existing Industrial development and public road infrastructure (Abundance Road).
4 (South)	All upslopes and flat land	Forest	67 m	APZ accommodated within development site.
5 (West)	All upslopes and flat land	Forest	67 m	As above.
All other directions	Managed land for greater than 140 m			

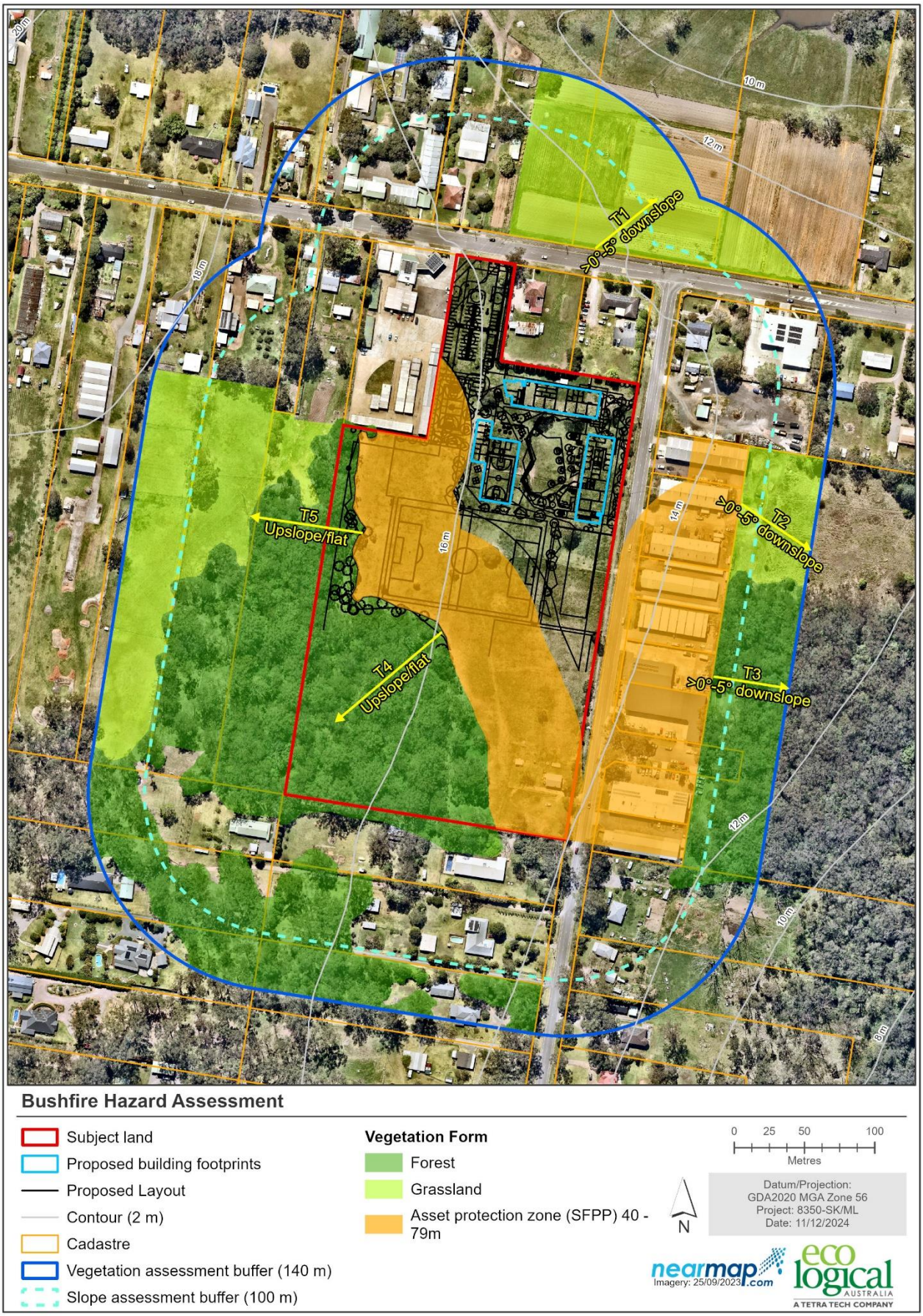

Figure 4: Bushfire hazard assessment (Source: ELA)

5. Bushfire Protection Measures

5.1 Asset Protection Zones

Table 4 shows the dimensions of the required APZ and where relevant, information on how the APZ is to be provided is included. The footprint of the APZ is also shown on Figure 4.

The compliance of the proposed APZ with Section 6.8.1 of PBP is documented in Table 5.

Table 5: APZ requirements and compliance (adapted from Table 6.8a of PBP)

Performance Criteria	Acceptable Solutions	Compliance Notes
The intent may be achieved where:		
Radiant heat levels of greater than 10kW/m² (calculated at 1200K) will not experienced on any part of the building	The building is provided with an APZ in accordance with Table A1.12.1 in Appendix 1 of PBP.	**Complies** APZ provided in accordance with Table A1.12.1 of PBP as detailed in Table 4 and shown in Figure 4.
APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	The APZ is 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 managed in accordance with the requirements of Appendix 4 of PBP;	**Capable of Complying** APZ to be managed in accordance with PBP. Fuel management specifications provided in Appendix A.
	APZs are wholly within the boundaries of the development site; and	**Satisfies Performance Criteria** APZ located within development site, public road infrastructure and existing managed/developed lands as detailed in Table 4 and shown in Figure 4.
The APZ is provided in perpetuity.	Other structures located within the APZ need to be located further than 6 m from the refuge building.	**Not Applicable** No refuge buildings proposed.

5.2 Landscaping

The compliance of the proposed landscaping with Section 6.8.1 of PBP is documented in Table 6.

Table 6: Landscaping requirements and compliance (adopted from Table 6.8a of PBP)

Performance Criteria	Acceptable Solutions	Compliance Notes
The intent may be achieved where:		
Landscaping is managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven	Landscaping is in accordance with Appendix 4 of PBP; and	**Capable of Complying** Landscaping will be designed and managed in accordance with Appendix 4 of PBP (Appendix A). landscaping is to allow for vehicular movement through the site (i.e. does not obstruct potential emergency access routes).

Performance Criteria	Acceptable Solutions	Compliance Notes
embers to cause ignitions.	Fencing is constructed in accordance with Section 7.6 of PBP.	**Capable of Complying** Fencing to be constructed in accordance with Section 7.6 of PBP (see Section 5.3.1 for further details).

5.3 Construction Standards

The compliance of construction with Table 2 of Appendix B of Addendum to PBP (Appendix B) is documented in Table 7.

Table 7: Construction requirements and compliance (adopted from Table 2 of PBP Addendum)

Performance Criteria	Acceptable Solutions	Compliance Notes
The intent may be achieved where:		
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.	**Capable of Complying**

5.3.1 Fences and Gates

To comply with Section 7.6 of PBP, all fencing and gates are to be constructed of hardwood or non-combustible material. Where fencing is within 6 m of a building, they should be made of non-combustible material only.

5.4 Access

The proposal does not include construction of any public road infrastructure, aside from minor works to Abundance Road including kiss and ride, bus drop and pick up areas and pedestrian crossing, with vehicular access provided by the existing road network being Ferodale Road (north) and Abundance Road (east), as shown in Figure 2. Vehicular access to the school carparking will be via Ferodale Road, with pedestrian access provided from Ferodale Road and Abundance Road.

There is limited developable area within the site to accommodate a road design meeting all the acceptable solutions from Table 3 from Appendix B of Addendum to PBP within its boundary due to the sensitive vegetation on site and required APZ. To avoid biodiversity impacts to the internal vegetation, the proposal has been designed to utilise APZ areas for sporting fields and paved sport courts maximising the remaining developable area of the site for school buildings.

The assessment of the design is documented in Table 8 and the performance solution is detailed in Section 5.4.1.

Table 8: SFPP Class 9 access requirements (adapted from Table 3 of Addendum to PBP)

Performance Criteria	Acceptable Solutions	Compliance notes
The intent may be achieved where:		
Firefighting vehicles are provided with safe, all-weather access to structures and hazard 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	**Satisfies Performance Criteria.** Refer performance solution in Section 5.4.1 below.
	Must have a minimum unobstructed width of 6 m with no part of its furthest boundary more than 18 m from the building and in no part of the 6 m width be built upon or used for any purpose other than vehicular or pedestrian movement; and	**Satisfies Performance Criteria.** Refer performance solution in Section 5.4.1 below.
	Must provide reasonable pedestrian access from the vehicular access to the building; and	**Complies** Extensive paved areas to/around buildings and throughout the site connecting to internal carparking and public road infrastructure (refer Figure 5).
	Must have a load bearing capacity and unobstructed height to permit the operation and passage of fire fighting vehicles; and	**Capable of Complying** Carparking to provide minimum 15t capacity which is suitable for Cat 1 tanker.
	Must be wholly within the allotment except that a public road complying with above may serve as the vehicular access or part thereof.	**Satisfies Performance Criteria.** Refer performance solution in Section 5.4.1 below.

5.4.1 Access Performance Solution

The PBP performance criteria for SFPP Class 9 access requirements is:

> *Firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.*

The following attributes of the proposed activity are considered adequate to meet this performance criteria:

Firefighting vehicles are provided with safe, all-weather access to structures:
Established public road infrastructure:

- Buildings A, B and C along the eastern boundary are accessible by firefighting vehicles from Abundance Road which is a two-lane 6 m wide road with a designated parking area outside the carriageway on the eastern side. Buildings are setback from the property boundary 10-25 m (Figure 2) with the bus bay proposed along the eastern boundary of the site suitable as a hardstand area.

Internal access:

- In addition to the external access, Buildings B and C are accessible from the internal carparking off Ferodale Road (north). These buildings are setback 28-30 m from the carpark and surrounded by extensive paved areas (Figure 5). As noted in Table 8 above, the carparking should have minimum 15t capacity and has been designed to provide for a Cat 1 tanker (i.e. swept paths).
- Additionally, safe pedestrian access/egress for firefighting and emergency personnel during operations is provided by the pathway network and extensive paved areas around each building and throughout the site (Figure 5) which connects all buildings to each other, the internal carparking and the public road network to the north (Ferodale Road) and east (Abundance Road).
- All buildings can be accessed via the existing external public road infrastructure and extensive paved areas as described above thus, further internal vehicular access is not considered necessary.

Other site attributes:

- To ensure a safe operational environment for firefighting personnel, the landscaping within the site has been designed and managed in accordance with acceptable solutions of PBP as identified in Table 6.
- The external (within the site) and internal (within the buildings) fire hydrants will be designed and installed in accordance with AS2419:2021 (SA 2021) requirements. The hydrant booster is located on Abundance Drive near the main site entry (Figure 6) with the bus bay used as hardstand when firefighting vehicles connect to the fire hydrant booster assembly.

Firefighting vehicles are provided with safe, all-weather access to hazard vegetation:

- The bushfire hazards to the north and east are accessible by firefighting vehicles from the existing public road infrastructure. The northern grassland hazard via Ferodale Road and the eastern grassland and forest hazard via Abundance Road, Industrial Road and road infrastructure within the existing industrial developments abutting these areas.
- A mineral earth maintenance track is proposed along the perimeter of the internal bushfire hazard to the south-west, connecting with Abundance Road in the east (Figure 5). The track is multi-purpose:
    i. Access for maintenance of the biodiversity area;
    ii. It ensures the vegetation does not further encroach towards the school (i.e. reducing the APZ size); and
    iii. Provides operational access for firefighters in the event a fire was in this area. The track will not encroach into the biodiversity area and will run along the bushfire hazard interface as shown in Figure 5, connecting with Abundance Road in the east.

FUTURE DEVELOPMENT

NBRS

NSW GOVERNMENT

LEGEND

- SITE BOUNDARY
- ROOF OVERHANG
- ASSET PROTECTION ZONE (APZ)
- SCOPE OF WORKS
- BIODIVERSITY ZONE
- EXISTING TREE TO BE RETAINED
- PROPOSED TREE

- Trafficable routes
- Mineral earth track
- Turning area

SCHEMATIC WIP

Issue

No.	Date	Description	Chkd
T1	15.11.2024	ISSUE FOR TENDER	MF

Changes to this Revision

ALL SHEETS MUST BE PRINTED IN COLOUR

NBRS

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Project
24135 - Medowie High School

at
6 Abundance Rd, Medowie NSW 2318

for
SINSW

Drawing Title
SITE PLAN

Date 15/11/2024 4:07:31 PM
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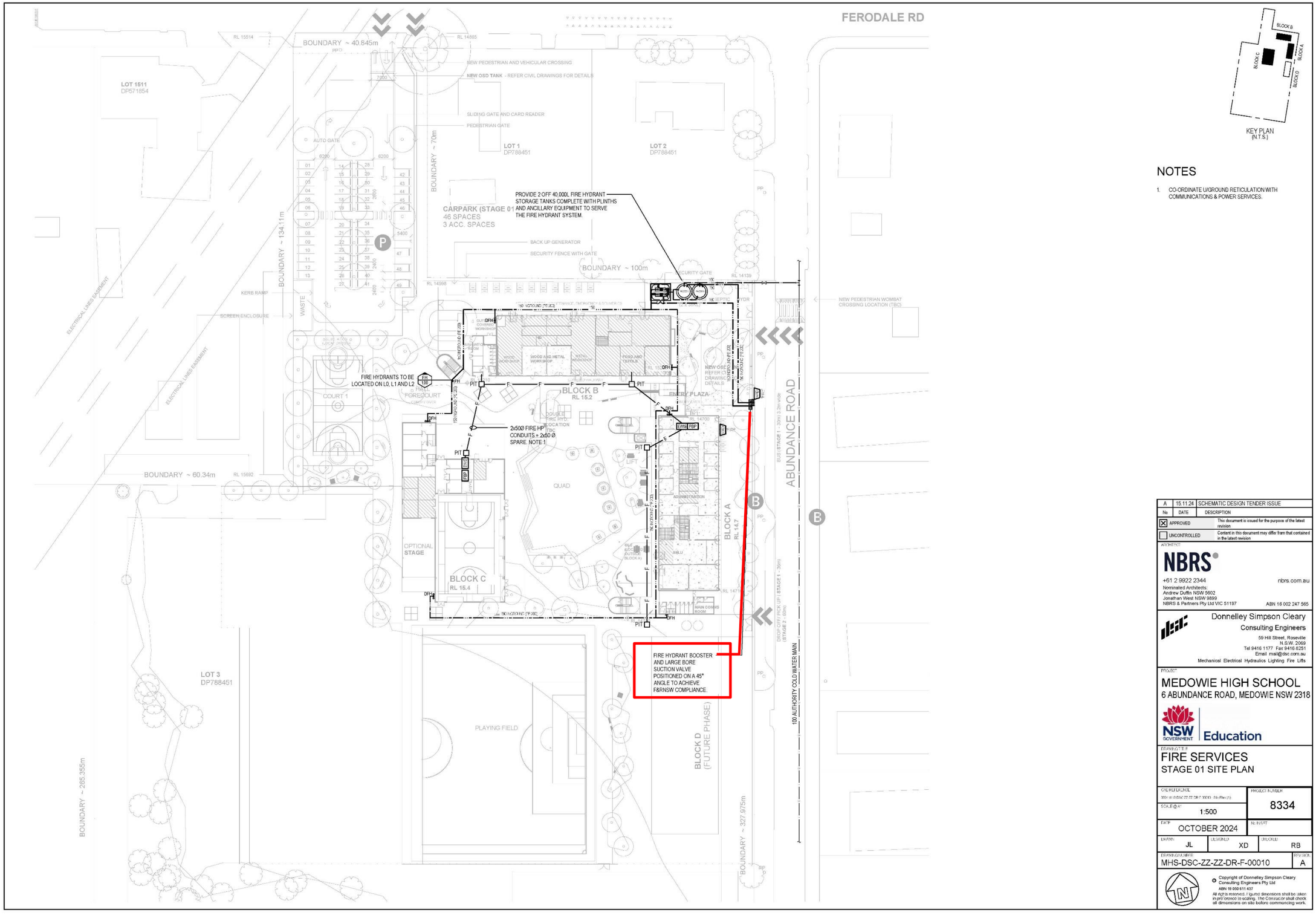
Drawing Reference
MHS-NBRS-00-XX-DR-L-0200

Revision
T1

Figure 5: Pedestrian and Vehicular Access (Source: NBRS)



NOTES

1. CO-ORDINATE U/GROUND RETICULATION WITH COMMUNICATIONS & POWER SERVICES.

No	DATE	DESCRIPTION
A	15.11.24	SCHEMATIC DESIGN TENDER ISSUE

APPROVED — This document is issued for the purpose of the latest revision
UNCONTROLLED — Content in this document may differ from that contained in the latest revision

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PROJECT
MEDOWIE HIGH SCHOOL
6 ABUNDANCE ROAD, MEDOWIE NSW 2318

NSW GOVERNMENT Education

DRAWING TITLE
FIRE SERVICES
STAGE 01 SITE PLAN

SCALE@A1	1:500
PROJECT NUMBER	8334
DATE	OCTOBER 2024
NO INSET	
DRAWN	JL
DESIGNED	XD
CHECKED	RB
DRAWING NUMBER	MHS-DSC-ZZ-ZZ-DR-F-00010
REVISION	A

Figure 6: Fire Hydrant – Schematic (Source: NBRS)

5.5 Water Supplies

The compliance of the proposed water supply with Table 4 of Appendix B of Addendum to PBP is documented in Table 9.

Table 9: Water supply requirements (adapted from Table 4 of Addendum to PBP)

Performance Criteria	Acceptable Solution	Compliance Notes
An adequate water supply for firefighting purposes is installed and maintained.	Reticulated water is to be provided to the development, where available; and	**Complies** Proposal serviced by a reticulated water supply.
	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.	**Complies** Fire hydrants will be designed and installed in accordance with AS2419:2021 (Figure 6).

5.6 Electricity Services

The compliance of the proposed supply of electricity services with Section 6.8.3 of PBP is documented in Table 10. There is an existing overhead High Voltage transmission line that traverses the north-western part of the site and is not impacted by the activity.

Table 10: Assessment of requirements for the supply of electricity services (adapted from Table 6.8c of PBP)

Performance Criteria	Acceptable Solution	Compliance Notes
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; Where overhead, electrical transmission lines are proposed as follows: • Lines are installed with short pole spacing (30 m), unless crossing gullies, gorges or riparian areas; and • No part of a tree is closer to a power line than the distance set out in ISSC3 Guide for the Management of Vegetation in the Vicinity of Electricity Assets (ISSC3 2016).	**Complies** New electricity services to the site are located underground. **Not applicable**

5.7 Gas Services

The compliance of the proposed supply of gas services (reticulated or bottle gas) with Section 6.8.3 of PBP is shown in Table 11.

Table 11: Assessment of requirements for the supply of gas services (adapted from Table 6.8c of PBP)

Performance Criteria	Acceptable Solution	Compliance Notes
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 – The Storage and handling of LP gas, the requirements of relevant authorities, and metal piping is used; • All fixed gas cylinders are kept clear of all flammable materials to a distance of 10 m and shielded on the hazard side; • Connections to and from gas cylinders are metal; • Polymer-sheathed flexible gas supply lines are not used; and • Above-ground gas service pipes are metal, including and up to any outlets.	**Capable of Complying (if installed)** The advice of a relevant authority or suitably qualified professional should be sought, for certification of design and installation in accordance with relevant legislation, Australian Standards and Table 6.8c of PBP.

5.8 Emergency and Evacuation Planning

Assessment of compliance of the proposed emergency and evacuation planning with Section 6.8.4 of PBP is shown in Table 12.

Table 12: Assessment of emergency requirements (adopted from Table 6.8d of PBP)

Performance Criteria	Acceptable Solutions	Compliance Notes
The intent may be achieved where:		
A bushfire emergency and evacuation management plan is prepared	Bush fire emergency management and evacuation plan is prepared consistent with the:	**Capable of Complying**
	The NSW RFS document: A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan (RFS 2014);	
	NSW RFS Schools Program guide (RF n.d);	
	Australian Standard AS 3745:2010 Planning for emergencies in facilities (SA 2020); and	
	Australian Standard AS 4083:2010 Planning for emergencies – Health care facilities.	**Not Applicable**
	The bushfire emergency and evacuation management plan should include a mechanism for the early relocation of occupants. Note: A copy of the bush fire emergency management plan should be provided to the Local Emergency Management Committee for its information prior to occupation of the development.	**Capable of Complying**
Appropriate and adequate management arrangements are established for consultation and	An Emergency Planning Committee is established to consult with residents (and their families in the case of aged care accommodation and schools)	**Capable of Complying**

Performance Criteria	Acceptable Solutions	Compliance Notes
implementation of the bush fire emergency and evacuation management plan.	and staff in developing and implementing an Emergency Procedures Manual; and	
	Detailed plans of all emergency assembly areas including 'on-site' and 'off-site' arrangements as stated in AS 3745:2010 are clearly displayed, and an annual (as a minimum) trial emergency evacuation is conducted.	**Capable of Complying**

6. Conclusion

The proposed activity has been assessed against the specifications and requirements within PBP, as outlined in Table 13 below.

Table 13: Activity Bushfire Protection Solutions and Recommendations

Bushfire Protection Measures	Recommendations	Acceptable Solution	Performance Solution	Report Section
Asset Protection Zones	APZ dimensions are detailed in Table 4 and shown in Figure 4. Identified APZ to be maintained in perpetuity to the specifications detailed in Appendix A.	☑	☑	5.1
Landscaping	Landscaping will be designed and managed in accordance with Appendix 4 of PBP (Appendix A) and allow for vehicular movement through the site (i.e. does not obstruct potential emergency access routes).	☑	☐	5.2
Construction	The proposed activity is to be constructed to **BAL-19** based on the construction specifications detailed in AS 3959-2018, including additional ember provisions detailed in section 7.5 of PBP as required.	☑	☐	5.3
Access	No new public roads proposed. Performance solution addresses PBP requirements.	☑	☑	5.4
Water supply	Reticulated water supply to meet PBP acceptable solution specifications for a SFPP Class 9 development.	☑	☐	5.5
Electricity service	No requirements as new electricity supply located underground.	☑	☐	5.6
Gas service	Gas services (if installed) are to be installed and maintained in accordance with AS/NZS 1596:2014 (SA 2014).	☑	☐	5.7
Emergency Management	Bushfire Emergency Management and Evacuation Plan to be completed prior to occupation of the building.	☑	☐	5.8

6.1 Evaluation of Environmental Impacts

Based on the identification of potential issues, and an assessment of the nature and extent of the impacts of the proposed activity, it is determined that:

- *The extent and nature of potential impacts are low, and will not have significant adverse effects on the locality, community and the environment;*
- *Potential impacts can be appropriately mitigated or managed to ensure that there is minimal effect on the locality, community.*

7. Mitigation Measures

Table 14 below details the proposed bushfire mitigation measures required at design, construction and operation stages.

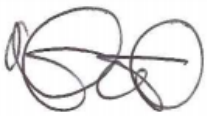
Table 14: Proposed Bushfire Mitigation Measures

Bushfire Protection Measure/ Mitigation Name	**Aspect**/Section	Mitigation Measure	Reason for Mitigation Measure
APZ	Prior to construction	DoE must ensure the identified APZ (Table 4 and shown in Figure 3) is maintained to the specifications detailed in Appendix A. During operation, DoE must ensure APZ are managed in perpetuity or until such time as the land is developed and bushfire hazard removed.	1. To meet the specifications for APZ (10kW/m^2) under PBP. 2. To ensure 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.
Landscaping	Prior to occupation	DoE to ensure landscaping within the site is designed to achieve PBP acceptable solutions and allows for vehicular movement through the site (i.e. does not obstruct potential emergency access routes).	1. To meet the specifications for construction under PBP. 2. To ensure 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.
Construction Standards	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. At commencement of construction and during operation, DoE to ensure fences within 6 m of a building shall be made of non-combustible material only.	1. To meet the specifications for construction under PBP. 2. The proposed buildings can withstand bush fire attack in the form of wind, embers, radiant heat and flame contact.
Access	Prior to occupation	DoE to ensure a mineral earth maintenance track is constructed along the perimeter of the internal bushfire hazard to the south-west, connecting with Abundance Road in the east.	1. To meet the performance criteria for access under PBP. 2. Firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.
Water Supplies	Prior to construction	DoE to ensure fire hydrants are provided in accordance with AS2419:2021.	1. To meet the specifications for water supply under PBP 2. An adequate water supply for firefighting purposes is installed and maintained.
Electricity Services	N/A	No response required as new electricity supply located underground.	N/A

Bushfire Protection Measure/ Mitigation Name	**Aspect**/Section	**Mitigation Measure**	**Reason for Mitigation Measure**
Gas Services	Prior to construction	DoE to ensure gas services (if installed) are installed and maintained in accordance with AS/NZS 1596:2014.	1. To meet the specifications for gas services under PBP. 2. Location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.
Emergency Management	Prior to operation	DoE to prepare an emergency management plan meeting DoE emergency management policy and requirements.	1. To meet the specifications for emergency management under PBP 2. To provide suitable emergency and evacuation arrangements for occupants.
National Construction Code Bushfire Requirements for Class 9 buildings (i.e. NCC 2022 Vol 1 Part G5 and associated Specification 43)	During design and construction	DoE and project team to ensure the proposed design and construction meets the bushfire specific requirements of the NCC applicable at the time, as modified by any approved consent conditions. The BCA report should reflect the relevant NCC requirements with consideration to any consent modifications i.e. as per NCC 2022 Vol 1 G5D4(c) NSW state variation.	To comply with NCC requirements triggered by BFPL mapping.

8. Recommendations

It is recommended that the proposed activity be approved with mitigation measures based on the findings in Table 13.



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Appendix A - Asset Protection Zone Standards

The following management specifications apply to the identified APZ in Figure 4 which is to be maintained in perpetuity. The maintenance requirements must be undertaken on an annual basis (as a minimum) and prior to the commencement of the bushfire season.

Further details on APZ implementation and management can be found on the NSW RFS website (https://www.rfs.nsw.gov.au/resources/publications).

Table 15: APZ management specifications

Vegetation Strata	Inner Protection Area (IPA)
Trees	• Tree canopy cover should be less than 15% at maturity; • Trees (at maturity) should not touch or overhang the building; • Lower limbs should be removed up to a height of 2m above ground; • Canopies should be separated by 2 to 5m; and • Preference should be given to smooth barked and evergreen trees.
Shrubs	• Create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings should be provided; • Shrubs should not be located under trees; • Shrubs should not form more than 10% ground cover; and • Clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.
Grass	• Should be kept mown (as a guide grass should be kept to no more than 100mm in height); and • Leaves and vegetation debris should be removed.

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