



Attachment 4 to Item 2.1.1

Bushfire Assessment

Date of meeting: 19 December 2024
Location: Audio Visual
Time: 10am



Bush Fire Assessment Report

Proposed aviary enclosure

Lot 11 DP 1138749

10 Mulgrave Road Mulgrave

REF: W23036

Date: 22 August 2023



WARATAH BUSHFIRE

PLANNING | GIS | ASSESSMENT

Bush Fire Assessment Report

Proposed aviary enclosure

Lot 11 DP 1138749

10 Mulgrave Road Mulgrave

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Mapping by:	Peter Tolley (B. Biotech., M. SciTech (Env. Sci), Grad. Dip. (Spatial Info.))	
File:	W23036	Version 1 Final
BAL rating	N/A – however non-combustible materials will be used for the aviary structure.	
Performance-based assessment	No	

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EXECUTIVE SUMMARY

This bush fire assessment report has been undertaken for the proposed construction of an aviary enclosure at 10 Mulgrave Road, Mulgrave.

The development is mapped by Hawkesbury Council as bush fire prone which triggers a formal assessment in respect of the NSW Rural Fire Service (RFS) guideline *Planning for Bush Fire Protection (PBP) 2019*.

The proposal is categorised by the NSW Rural Fire Service (NSW RFS) as other development and has specific requirements under Section 4.14 of the *Environmental Planning and Assessment Act 1979 (EPA Act)*. The enclosure is a Class 10a structure under the National Construction Code (NCC) and therefore in accordance with Section 8.3.2 of *PBP*, there are no bush fire protection requirements for Class 10a buildings located more than 6m from a dwelling in bushfire-prone areas.

This assessment has found that the aviary is located over 50m from grassland hazard and therefore the bush fire risk is considered to be low.

Waratah Bushfire Planning proposes the following combination of bushfire measures to maintain the low level of bushfire risk and to satisfy the aims and objectives of *PBP*;

- Continued maintenance of asset protection zones and landscaping in accordance with Appendix 4 of *PBP*: and
- Use of non-combustible materials in the construction of the aviary enclosure.

GLOSSARY

AHIMS	Aboriginal Heritage Information System
APZ	asset protection zone
AS1596	Australian Standard – The storage and handling of LP Gas
AS2419	Australian Standard – Fire hydrant installations
AS3745	Australian Standard – Planning for emergencies in facilities
AS3959	Australian Standard – Construction of buildings in bushfire-prone areas 2018
BAL	bushfire attack level
BCA	Building Code of Australia
BSA	bushfire safety authority
DSF	dry sclerophyll forest
DA	development application
DLUP	Development Land Use Plan
EEC	Endangered ecological community
EP&A Act	Environmental Planning & Assessment Act 1979
EP&A Regulation	Environmental Planning and Assessment Regulation 2000
FFDI	forest fire danger index
IPA	inner protection area
LEP	Local Environmental Plan
LGA	local government area
m	metres
NCC	National Construction Code
OPA	outer protection area
PBP 2019	Planning for Bush Fire Protection 2019
RF Act	Rural Fires Act 1997
RFS	NSW Rural Fire Service

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1. INTRODUCTION

Waratah Bushfire Planning has been commissioned by NSW Wires Inc. to undertake a bush fire assessment report for the proposed construction of an aviary enclosure at 10 Mulgrave Road, Mulgrave. The proposed development is identified as bushfire prone on the Hawkesbury Council bushfire prone land map. This triggers a formal assessment of the NSW Rural Fire Service (RFS) policy against the Planning for Bush Fire Protection (PBP) 2019 provisions.

1.1 Site details and planning controls summary

Proposed development type for the purposes of PBP	Other development – Class 10a structure under the NCC.
Existing land use and approvals	The property is on Council land and supports the existing Hawkesbury Companion Animal Shelter, Hawkesbury Community Nursery and Sewerage Treatment Plant.
Zoning under the Hawkesbury Local Environmental Plan (2012)	SP2 – Infrastructure
Significant environmental features	The proposed development will not involve the removal or additional management of vegetation.
Details of any Aboriginal heritage or cultural constraints	A basic AHIMS web service search shows that there are no Aboriginal sites recorded in or within 50m of the site.
Does the DA need to be referred to the NSW RFS for comment under Section 4.14 of the EP&A Act.	No

1.2 Aims of the assessment

The aims of the bush fire assessment report are to:

- undertake a site bush fire attack assessment in accordance with PBP.
- provide advice on bush fire protection measures, including the provision of asset protection zones (APZs), landscaping, building construction standards, access design, water supply and utilities.

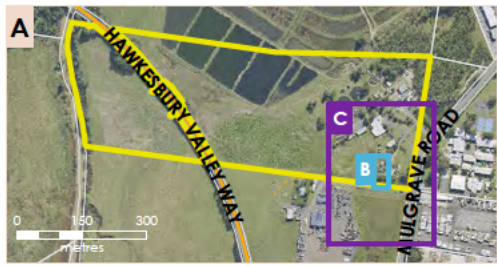
- review the potential to provide for ongoing management and maintenance of bushfire protection measures.

1.3 Proposal

The proposal involves the construction of an aviary enclosure on a concrete slab, small storage shed and concrete pathway. The aviary will be constructed using insulated colourbond walls and metal mesh.

The proposed aviary is located adjacent to the community nursery and is not within 6m of a habitable building.

The Bush Fire Management Plan (Figure 2.1) shows the proposed development and bushfire protection measures.



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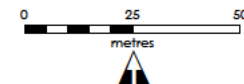
- Project boundary
- Proposed aviary
- Proposed storage shed
- Proposed concrete slab and footpath
- Local road
- Vehicular track
- Watercourse/drainage line
- Topographic contour (1 m)
- Topographic contour (10 m)
- Lot boundary
- Bush fire prone land (RFS, 2022)**
- Vegetation Buffer
- Vegetation Category 3

Figure 1.2 – Bush fire prone land map

10 Mulgrave Road, Mulgrave

09/08/2023 (v1) A: 1:17,500 @A4
 B: 1:500 @A4
 C: 1:1,750 @A4

GDA2020 MGA Zone 56



Disclaimer: mapping is indicative only and the data shown has an inherent level of inaccuracy that is dependent on the data source. The location of all mapped features and boundaries should be confirmed by a registered surveyor.



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Path: C:\GIS\Workshop\WV\202308\GIS\B_Maps\BAR001_BushFireProneLand_20230809_01\BAR001_BushFireProneLand_20230809_01.cmx

Data source: WBP (2023); DCSSS (2023); MetroMap (2023); RFS (2022); ICSM (2019)

1.4 Referenced documents & information collation

Documents reviewed for the preparation of this report include the following:

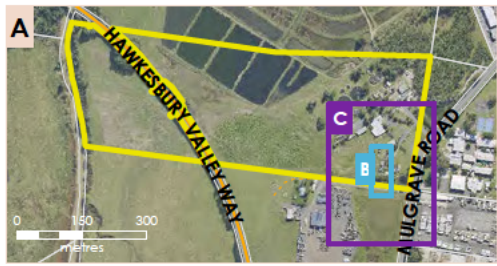
- Site and elevation plans prepared by mdp Architecture, Project no. 3279, Revision P2 dated 26/05/2023
- Vegetation mapping by Department of Planning and Environment (STVM_NSW_1750_PCT)
- *Metro Map* aerial photography
- Australian Standard 3959 Construction of buildings in bushfire-prone areas (2018)
- Planning for Bush Fire Protection 2019 (PBP)

An inspection of the proposed development site and surrounds was undertaken by Nicole van Dorst to assess the bushfire risk and adjoining land use.

1.5 Site description

The proposed aviary enclosure is located adjacent to the Hawkesbury Council Community Nursery. The aviary is adjoined to the east by an open storage structure and to the north by a green house. A row of windbreak trees adjoins the proposed aviary to the south and west.

The access road and its managed verge to Plant Haul Heavy Haulage adjoins the site to the south providing an additional 30m separation between the aviary and grassland vegetation to the south.



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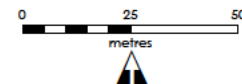
- Project boundary
- Proposed aviary
- Proposed storage shed
- Proposed concrete slab and footpath
- Local road
- Vehicular track
- Watercourse/drainage line
- Lot boundary

Figure 1.3 – Aerial appraisal

10 Mulgrave Road, Mulgrave

09/08/2023 (v1) A: 1:17,500 @A4
 B: 1:750 @A4
 C: 1:1,750 @A4

GDA2020 MGA Zone 56



Disclaimer: mapping is indicative only and the data shown has an inherent level of inaccuracy that is dependent on the data source. The location of all mapped features and boundaries should be confirmed by a registered surveyor.



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2. BUSHFIRE THREAT ASSESSMENT

To assess the bushfire threat, an assessment of the potential hazardous vegetation and the effective slope within the vegetation is required.

2.1 Predominate vegetation

PBP guidelines require the identification of the predominant vegetation formation in accordance with David Keith (2004) if using the simplified acceptable solutions in PBP 2019. The hazardous vegetation is calculated for a distance of at least 140m from a proposed building envelope.

The vegetation posing a bushfire threat to the proposed development includes:

Table 2-1 – Vegetation

<i>Aspect</i>	<i>Predominant Vegetation formation</i>	<i>Acceptable solution fuel loads (t/ha) (PBP 2019)</i>
South & west	Grassland*	6/6
North and east	Managed land	N/A

* The row of trees to the south and west of the aviary is considered a windbreak. In accordance with Section A1.10 of PBP this vegetation is considered a low threat exclusion and is not required to be considered for the purposes of PBP.



Windbreak trees to the south and west



Managed land and access road to the south



Proposed location for aviary

2.2 Effective slope

The effective slope has been assessed for up to 100m from the development site and is described in detail within Table 2-2 and Figure 2-1 below.

2.3 Bushfire attack assessment

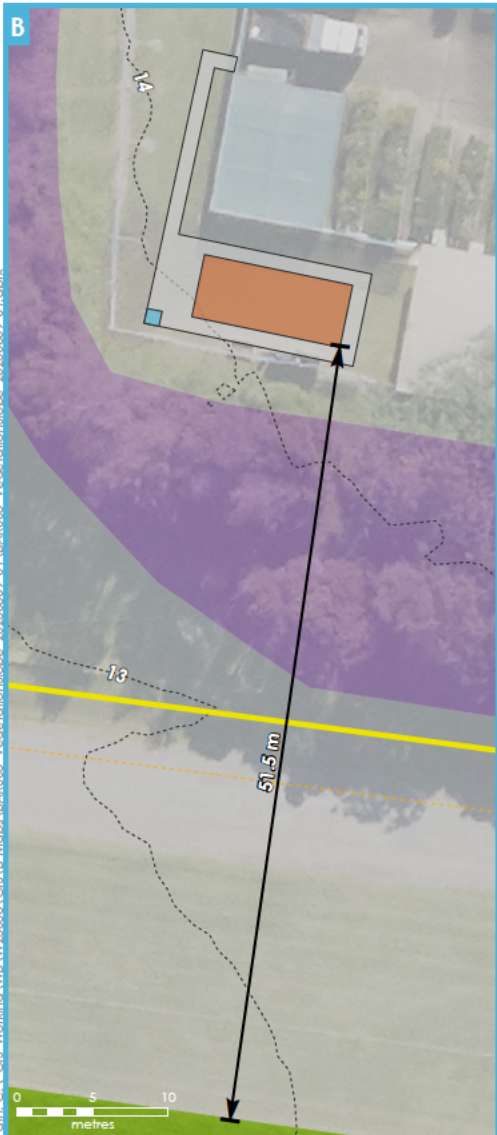
The following assessment has determined the APZ and BAL levels in accordance with Table A1.12.5 of PBP 2019 (deemed to satisfy).

A fire danger index (FDI) of 100 has been used to calculate bushfire behaviour on the site based on its location within the Greater Sydney region.

Table 2-2 – Bushfire attack assessment

Aspect	Vegetation Formation	Effective Slope	APZ provided	BAL Rating
South	Grassland	0-5° downslope	>50m	N/A*
North, west and east	Managed land & low threat vegetation exclusion	N/A	>50m	

*The aviary enclosure is a Class 10a structure located in an existing nursery and is not adjoined by any residential development. As a result, AS3959 does not apply.



LEGEND

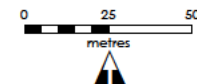
- Project boundary
- Proposed avary
- Proposed storage shed
- Proposed concrete slab and footpath
- Local road
- Vehicular track
- Watercourse/drainage line
- Topographic contour (1 m)
- Topographic contour (10 m)
- Lot boundary
- Slope buffer (100 m)
- Vegetation buffer (140 m)
- Bush fire land category**
- Managed land
- Grassland
- Low threat vegetation exclusion

Figure 2.1 – Vegetation and slope assessment

10 Mulgrave Road, Mulgrave

09/08/2023 (v1) A: 1:17,500 @A4
 B: 1:500 @A4
 C: 1:2,250 @A4

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Disclaimer: mapping is indicative only and the data shown has an inherent level of inaccuracy that is dependent on the data source. The location of all mapped features and boundaries should be confirmed by a registered surveyor.



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Data source: W&P (2023); DCSSS (2023); MetroMap (2023); DPE (2022); ICSM (2019)

3. BUSHFIRE PROTECTION MEASURES

3.1 Asset protection zones (APZs) & landscaping

Table 3.1 outlines the proposal's compliance with the performance criteria for APZs and landscaping.

Table 3-1 – Performance criteria for asset protection zones (PBP 2019)

Performance criteria	Acceptable solutions	Acceptable solution	Comment
APZs are provided commensurate with the construction of the building; and A defensible space is provided.	APZs are provided in accordance with Tables A1.12.2 and A1.12.4 based on the FFDI	<input checked="" type="checkbox"/>	Complies. The aviary will be constructed using non-combustible materials and is located over 50m from grassland hazards.
APZs are managed and maintained to prevent the spread of a fire towards the building	APZs are managed in accordance with the requirements of Appendix 4	<input checked="" type="checkbox"/>	Complies
The APZ is provided in perpetuity	APZs are wholly within the boundaries of the development site	<input checked="" type="checkbox"/>	Complies. The APZ includes existing areas of managed / developed land (in accordance with Section A1.10 of PBP)
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 of less than 18°	<input checked="" type="checkbox"/>	Complies
Landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-	A clear area of low-cut lawn or pavement is maintained adjacent to the house	<input checked="" type="checkbox"/>	Complies. Landscaping surrounding the proposed aviary does not contribute to the bush fire risk. All fencing is non-combustible.
	Fencing is constructed in accordance with section 7.6 (refer Note 1)	<input checked="" type="checkbox"/>	

Performance criteria	Acceptable solutions	Acceptable solution	Comment
driven embers to cause ignitions	Trees and shrubs are located so that: The branches will not overhang the roof: Any proposed windbreak is located on the elevation from which fires are likely to approach	<input checked="" type="checkbox"/>	Complies
Note 1: All fences in bush fire prone areas should be made of either hardwood or non-combustible material. In circumstances where a fence is within 6m of a building or in areas of BAL 29 or greater, they should be made of non-combustible material only.			

3.2 Building construction

Table 3.2 outlines the proposal's compliance with the performance criteria for building construction.

Table 3-2 – Performance criteria for building construction (PBP 2019)

Performance criteria	Acceptable solutions	Acceptable solution	Comment
The proposed building can withstand bush fire attack in the form of embers, radiant heat and flame contact	BAL is determined in accordance with Tables A1.12.5 to A1.12.7	<input type="checkbox"/>	The proposed aviary is a Class 10 building. It is not located within 6m of a habitable building and therefore AS3959 does not apply. The aviary will be constructed using insulated colourbond walls and metal mesh and will therefore be non-combustible.
	Construction is provided in accordance with the NCC and as modified by section 7.5 (refer Appendix 2 & 3)	<input checked="" type="checkbox"/>	
Proposed Class 10a buildings are designed to minimise the spread of bush fire	Class 10a buildings are constructed in accordance with section 8.3.2 as provided in Note 1 below	<input type="checkbox"/>	
Note 1: There is no bush fire protection requirements for Class 10a buildings located more than 6m from a dwelling in bush fire prone areas. Where a Class 10a building is located within 6m of a dwelling it must be constructed in accordance with the NCC			

3.3 Access for firefighting operations

Access to the nursery is provided via an existing access road from Mulgrave Road. This road is at least 4m wide and provides adequate firefighting access to the site.

3.4 Water supply

Hydrants are located on Mulgrave Road and the nursery is provided with a number of water tanks. Given the low bushfire risk and adequate access within the site no additional water supply has been recommended.

3.5 Gas & electricity supply

There is no gas or electricity supply associated with the proposal.

4. CONCLUSION & RECOMMENDATIONS

This bush fire assessment report has been undertaken for the proposed construction of an aviary enclosure at 10 Mulgrave Road, Mulgrave.

This assessment has found that the aviary is located over 50m from grassland hazard and therefore the bush fire risk is considered to be low.

The following recommendations are provided to ensure that the development is in accordance with the requirements of *PBP*.

4.1 Recommended conditions

The following recommended conditions are based on following documents/plans supplied by the client.

- Site and elevation plans prepared by mdp Architecture, Project no. 3279, Revision P2 dated 26/05/2023

Recommendation 1 – Landscaping and maintenance within the site must comply with Appendix 4 of Planning for Bush Fire Protection 2019 as depicted in the Bush Fire Management Plan (Appendix 1). In this regard, the following principles are to be incorporated:

- 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 regularly.
- A minimum 1 metre wide area (or to the property boundary where the setbacks are less than 1 metre), suitable for pedestrian traffic, must be provided around the immediate curtilage of the structure;
- Planting is limited in the immediate vicinity of the structure;
- Planting does not provide a continuous canopy to the building (i.e. trees or shrubs are isolated or located in small clusters);
- Landscape species are chosen to ensure tree canopy cover is less than 15% (IPA);

- Avoid species with rough fibrous bark, or which retain/shed bark in long strips or retain dead material in their canopies;
- Use smooth bark species of trees species which generally do not carry a fire up the bark into the crown;
- Avoid planting of deciduous species that may increase fuel at surface/ ground level (i.e. leaf litter);
- Locate combustible materials such as woodchips/mulch, flammable fuel stores away from the structure; and
- Low flammability vegetation species are used.

Recommendation 2 - Use of non-combustible materials in the construction of the aviary enclosure.

5. REFERENCES

Councils of Standards Australia AS3959 (2018) – *Australian Standard Construction of buildings in bush fire-prone areas.*

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.

Rural Fire Service (2019) - *Planning for bushfire protection – a guide for councils, planners, fire authorities and developers.* NSW Rural Fire Service.

Appendix 1. Bush Fire Management Plan

Landscaping guidelines

- Grass should be kept mown (as a guide, grass should be kept to no more than 100mm in height), leaves and debris should be removed regularly;
- A minimum 1 metre wide area (or to the property boundary where the setbacks are less than 1 metre), suitable for pedestrian traffic, must be provided around the immediate curtilage of the structure;
- Planting is limited in the immediate vicinity of the structure;
- Planting does not provide a continuous canopy to the building (i.e. trees or shrubs are isolated or located in small clusters);
- Landscape species are chosen to ensure tree canopy cover is less than 15% (IPA) at maturity;
- Avoid species with rough fibrous bark, or which retain/shed bark in long strips or retain dead material in their canopies;
- Use smooth bark species of trees species which generally do not carry a fire up the bark into the crown;
- Avoid planting of deciduous species that may increase fuel at surface/ ground level (i.e. leaf litter);
- Locate combustible materials such as woodchips/mulch, flammable fuel stores away from the structure;
- Low flammability vegetation species are used.



Data source: WBP (2023); DCSSS (2023); MetroMap (2023); DPE (2022); ICSM (2019)

LEGEND

- | | | |
|---|---------------------------|---|
| Project boundary | Watercourse/drainage line | Maintain landscaping in accordance with PBP |
| Proposed aviary – to be constructed using non combustible materials | Topographic contour (1 m) | Topographic contour (10 m) |
| Proposed storage shed | Lot boundary | Bush fire land category |
| Proposed concrete slab and footpath | Grassland | Low threat vegetation exclusion |
| Local road | | |
| Vehicular track | | |

Appendix 2. Bushfire Risk Assessment Certificate

This certificate is completed by an accredited and recognized BPAD practitioner in accordance with section s4.14 of the *Environmental Planning and Assessment Act 1979 No 203*.

Applicants name	NSW Wires Inc.
Property address	10 Mulgrave Road, Mulgrave (11//1138749)
Main NCC class of building	Class 10a
Description of building works:	Aviary enclosure
Plan Reference:	Site and elevation plans prepared by mdp Architecture, Project no. 3279, Revision P2 dated 26/05/2023
Does the proposal rely on an alternate solution:	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> (Alternate solutions are to be referred to NSW RFS for assessment)
Determined BAL Rating	BAL FZ <input type="checkbox"/> BAL 19 <input type="checkbox"/> BAL 40 <input type="checkbox"/> BAL 12.5 <input type="checkbox"/> BAL 29 <input type="checkbox"/> BAL Low <input checked="" type="checkbox"/> (BAL FZ is to be referred to NSW RFS for assessment)

Reliance on the assessment and determination of the Bushfire Attack Level contained in this report should not extend beyond a period of 12 months from the date of issue of the report. If this report was issued more than 12 months ago, it is recommended that the validity of the determination be confirmed with the Accredited Practitioner and where required an updated report issued.

I, Nicole van Dorst, of Waratah Bushfire Planning, have carried out a bushfire risk assessment on the above-mentioned property. A Bushfire Assessment Report has been prepared and includes the submission requirements set out in Appendix 2 of *Planning for Bushfire Protection 2019*.

Bush Fire Assessment Report Reference:	W23036
Report Date:	22/08/2023
Certification No/Accredited Scheme:	BPAD-Level 3 Accredited Practitioner FPAA Cert No: BPAD23610

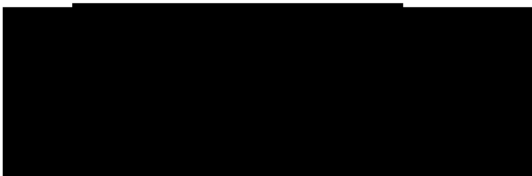
Note: this certificate must be completed and signed by a person recognised by the NSW Rural Fire Service as a qualified consultant in bush fire risk assessment in accordance with s4.14 of the EP&A Act 1979 No 203.

I hereby certify, in accordance with Section 4.14 of the Environmental Planning and Assessment Act 1979 No 203:

- That I am a person recognised by the NSW Rural Fire Service as a qualified consultant in bushfire risk assessment; and
- That subject to the recommendations contained in the attached Bushfire Risk Assessment Report the proposed development conforms to the relevant specifications and requirements*.

* The relevant specifications and requirements being; specifications and requirements of the document entitled Planning for Bush Fire Protection prepared by the NSW Rural Fire Service in co-operation with the Department of Planning and any other document as prescribed by Section s4.14 of the *Environmental Planning and Assessment Act 1979 No 203*.

I am aware that the bush fire assessment report, prepared for the above-mentioned site is to be submitted in support of a development application for this site and will be relied upon by Council as the basis for ensuring that the bushfire risk management aspects of the proposed development have been addressed in accordance with *Planning for Bush Fire Protection 2019*.



SIGNATURE:

DATE: 22/08/2023

