BUSHFIRE THREAT ASSESSMENT

FOR
PROPOSED CHILDCARE CENTRE
AT
LOTS 307-310
30 CHRISTOPHER ROAD,
LOCHINVAR NSW

Prepared by:

Firebird ecoSultants Pty Ltd
ABN – 16 105 985 993

PO Box 354
Newcastle NSW 2300

Mob: 0414 465 990
Ph: 02 4910 3939
Fax: 02 4929 2727
Email: sarah@firebirdeco.com.au

Site Details:	30 Christopher Road, Lochinvar NSW
Prepared by:	***Sarah Jones B.Env.Sc., G.Dip.DBPA (Design in Bushfire Prone Areas)*** ***Firebird ecoSultants Pty Ltd*** **A**BN – 16 105 985 993 PO Box 354, Newcastle NSW 2300 M: 0414 465 990 Email: sarah@firebirdeco.com.au T: 02 4910 3939 Fax: 02 4929 2727
Prepared for:	GWH
Reference No.	Lochinvar – GWH – March 2023
Document Status & Date:	15/03/2023

Disclaimer

Notwithstanding the precautions adopted within this report, it should always be remembered that bushfires burn under a wide range of conditions. An element of risk, no matter how small always remains, and although the standard is designed to improve the performance of such buildings, there can be no guarantee, because of the variable nature of bushfires, that any one building will withstand bushfire attack on every occasion.

Executive Summary

A Bushfire Threat Assessment Report (BTA) has been prepared by Firebird ecoSultants Pty Ltd at the request of GWH for a proposed Childcare Centre at 30 Christopher Road, Lochinvar NSW. The report forms part of the supporting documentation for a DA to be submitted to Maitland City Council (MCC).

The proposal is for a childcare centre and, as such, must meet the requirements of a Special Fire Protection Purposes (SFPP) development in accordance with Planning for Bushfire Protection 2019 (PBP 2019) (NSW RFS, 2019). Under RF Act s.100B, a BFSA from the NSW RFS is required for SFPP development. As such, an Integrated Development approval may be required under of the EP&A Act s.4.46. The report demonstrates compliance with PBP 2019 and AS3959-2018 Construction of Buildings in Bush Fire Prone Areas.

This assessment aims to consider and assess the bushfire hazard and associated potential threats relevant to the proposal. Recommendations are provided with regard to fuel management, access, provision of emergency services, building protection and construction standards to facilitate an acceptable level of bushfire protection.

In summary, the following is recommended to enable the proposal to meet the relevant legislative requirements for the proposed subdivision:

- The proposed childcare centre has been assessed as BAL-LOW. This is based on managed land for a distance of 100m from all elevations of the building.
- The site is connected to reticulated water; however, it is recommended that a fire hydrant is installed within 70m of the proposed childcare centre.
- An emergency evacuation plan is to be prepared in accordance with RFS, 2014, 'Development Planning – A Guide to developing a Bush Fire Emergency Management and Evacuation Plan

I certify the development conforms to the relevant specifications and requirements of Planning for Bushfire Protection 2019

Sarah Jones
B.Env.Sc., G.Dip.DBPA (Design for Bushfire Prone Areas)
FPA BPAD-A Certified Practitioner (Certification Number BPD-PA-26512)
Ecologist / Bushfire Planner

Terms & Abbreviations

Abbreviation	Meaning
APZ	Asset Protection Zone
AS2419 -2017	Australian Standard – Fire Hydrant Installations
AS3959-2018	Australian Standard – Construction of Buildings in Bush Fire Prone Areas
BCA	Building Code of Australia
BPA	Bush Fire Prone Area (Also Bushfire Prone Land)
BFPL Map	Bush Fire Prone Land Map
BPMs	Bush Fire Protection Measures
BFSA	Bush Fire Safety Authority
CC	Construction Certificate
EPA Act	*NSW Environmental Planning and Assessment Act 1979*
FFDI	Forest Fire Danger Index
FMP	Fuel Management Plan
ha	hectare
IPA	Inner Protection Area
LGA	Local Government Area
MCC	Maitland City Council
OPA	Outer Protection Area
PBP	Planning for Bushfire Protection 2019
PoM	Plan of Management
RF Act	Rural Fires Act 1997
RF Regulation	Rural Fires Regulation

CONTENTS

TABLES

FIGURES

1 INTRODUCTION

A Bushfire Threat Assessment Report (BTA) has been prepared by Firebird ecoSultants Pty Ltd at the request of GWH for a proposed childcare centre at 30 Christopher Road, Lochinvar, hereafter referred to as the "site" (refer to Figure 1-1 for site locality). Refer to Appendix A for Proposed Site Plans.

This BTA is suitable for submission with a Development Application (DA) and provides information on measures that will enable the development to comply with 'Planning for Bushfire Protection' (NSW RFS, 2019), hereafter referred to as PBP (RFS, 2019).

This assessment aims to consider and assess the bushfire hazard and associated potential threats relevant to such a proposal, and to outline the minimum mitigative measures which would be required in accordance with the provisions of the Environmental Planning and Assessment Amendment (Planning for Bushfire Protection) Regulation 2007 and the Rural Fires Amendment Regulation 2007 (RF Amendment Regulation 2007).

1.1 Site Particulars

Locality:	30 Christopher Road, Lochinvar NSW
LGA:	Maitland City Council
Current Land Use:	Vacant lot
Forest Danger Index:	100 FFDI

Note:
Boundaries are not survey accurate.
Although all reasonable care has been taken to ensure the information shown on this map is up to date and accurate, no guarantee is given that the information portrayed is free from error or omission. Please verify the accuracy of all information prior to use.

FIGURE 1-1: SITE LOCATION

Ref No 3209

CLIENT	GWH
SITE DETAILS	No.30 Christopher Road Lochinvar
DATE	9 March 2023

NORTH

0 10 20 30 40 50

SCALE 1000 @ A3

PIXELDRAFTING

Firebird ecoSultants Pty Ltd
ABN - 16 105 985 993
Level 1, 146 Hunter Street, Newcastle NSW 2300
P O Box 354 Newcastle NSW 2300

firebird

1.2 Description of the Proposal

This DA relates to the proposal for a childcare centre. Refer to Appendix A for proposed plans.

1.3 Legislative Requirements

The Site has been mapped as Bush Fire Prone Land Map (BFPLM) by MCC.

This report forms part of the supporting documentation for a Development Application (DA) to be submitted to MCC.

This BTA has been prepared using current legislative requirements and associated guidelines for assessment of bushfire protection, these being:

- PBP (RRS, 2019);
- AS3959-2018 Construction of Buildings in Bushfire Prone Area; and

1.4 Objectives of Assessment

This report has been prepared to address the requirements of Clause 44 of the Rural Fires Regulation. This BTA also addresses the six key Bush Fire Protection Measures (BFRMs) in a development assessment context being:

- The provision of clear separation of buildings and bush fire hazards, in the form of fuel-reduced APZ (and their components being Inner Protection Areas (IPA's) and Outer Protection Areas (OPA's);
- Sitting and design of the proposal;
- Construction standards;
- Appropriate access standards for residents, fire-fighters, emergency workers and those involved in evacuation;
- Adequate water supply and pressure, and utility services; and
- Suitable landscaping, to limit fire spreading to a building.

2 METHODOLOGY

2.1 Vegetation Assessment

Vegetation surveys and vegetation mapping carried out on the site has been undertaken as follows:

- Aerial Photograph Interpretation to map vegetation cover and extent
- Confirmation of the vegetation assemblage typology present.

2.2 Slope Assessment

Slope assessment has been undertaken as follows:

- Aerial Photograph Interpretation in conjunction with analysis of electronic contour maps with a contour interval of 2m.

3 SITE ASSESSMENT

The following assessment has been undertaken in accordance with the requirements of PBP (RFS, 2019).

3.1 Vegetation & Slope Assessment

In accordance with PBP (RFS 2019), an assessment of the vegetation over a distance of 140m in all directions from the site was undertaken. Vegetation that may be considered a bushfire hazard was identified in all directions from the site. This assessment is depicted in Table 3-1 and Figure 3-1 that shows the vegetation post development.

In accordance with PBP (RFS 2019), an assessment of the slope that the vegetation considered a bushfire hazard was undertaken and the results are presented in Table 3.1 below.

Table 3-1: Vegetation Classification

Proposed Childcare Centre		
Direction	**Vegetation Type**	**Slope**
North	Managed Land – Approved Subdivision	Flat
East	Managed Land – Approved Subdivision	Flat
South	Managed Land – Approved Subdivision	Flat
West	Managed Land – Approved Subdivision	Flat

4 BUSHFIRE ATTACK ASSESSMENT

Building design and the materials used for construction of future dwellings should be chosen based on the information contained within AS3959-2018, and accordingly the designer / architect should be made aware of this recommendation. It may be necessary to have dwelling plans checked by the architect involved to ensure that the proposed dwellings meet the relevant Bushfire Attack Level (BAL) as detailed in AS3959-2018.

The determinations of the appropriate BAL are based upon parameters such as weather modelling, fire-line intensity, flame length calculations, as well as vegetation and fuel load analysis. The determination of the construction level is derived by assessing the:

- Relevant FFDI = 100
- Flame temperature
- Slope
- Vegetation classification; and
- Building location.

The following BAL, based on heat flux exposure thresholds, are used in the standard:

(a) **BAL – LOW** The risk is considered to be **VERY LOW**

There is insufficient risk to warrant any specific construction requirements but there are still some risks.

(b) **BAL – 12.5** The risk is considered to be **LOW**

There is a risk of ember attack.

The construction elements are expected to be exposed to a heat flux not greater than 12.5 k/m2.

(c) **BAL – 19** The risk is considered to be **MODERATE**

There is a risk of ember attack and burning debris ignited by wind borne embers and a likelihood of exposure to radiant heat.

The construction elements are expected to be exposed to a heat flux not greater than 19 kW/m2.

(d) **BAL-29** The risk is considered to be **HIGH**

There is an increased risk of ember attack and burning debris ignited by windborne embers and a likelihood of exposure to an increased level of radiant heat.

The construction elements are expected to be exposed to a heat flux no greater than 29 kW/m2.

(e) **BAL-40** The risk is considered to be **VERY HIGH**

There is much increased risk of ember attack and burning debris ignited by windborne embers, a likelihood of exposure to a high level of radiant heat and some likelihood of direct exposure to flames from the fire front.

The construction elements are expected to be exposed to a heat flux no greater than 40 kW/m^2.

(f) **BAL-FZ** The risk is considered to be **EXTREME**

There is an extremely high risk of ember attack and burning debris ignited by windborne embers, a likelihood of exposure to an extreme level of radiant heat and direct exposure to flames from the fire front.

The construction elements are expected to be exposed to a heat flux greater than 40 kW/m^2.

4.1 Determination of Bushfire Attack Levels

Using a FFDI of 100, the information relating to vegetation, slope and according to Table A1.12.5 of PBP 2018 that determined the appropriate BAL. The results from this bush fire risk assessment are detailed below in Table 4-1–Bush Fire Attack Assessment and Figure 4-1 shows the vegetation.

Table 4-1: Determination of BALs for the proposed Childcare Centre.

Vegetation Type & Direction	Separation Distance from vegetation	Bushfire Attack Level (BAL)
Grassland to the North	>100m	BAL-LOW
Grassland to the East	>100m	BAL-LOW
Grassland to the South	>100m	BAL-LOW
Forest to the West	>100m	BAL-LOW

Given the information in Table 4-1, the proposed childcare centre has been assessed as **BAL-LOW.**

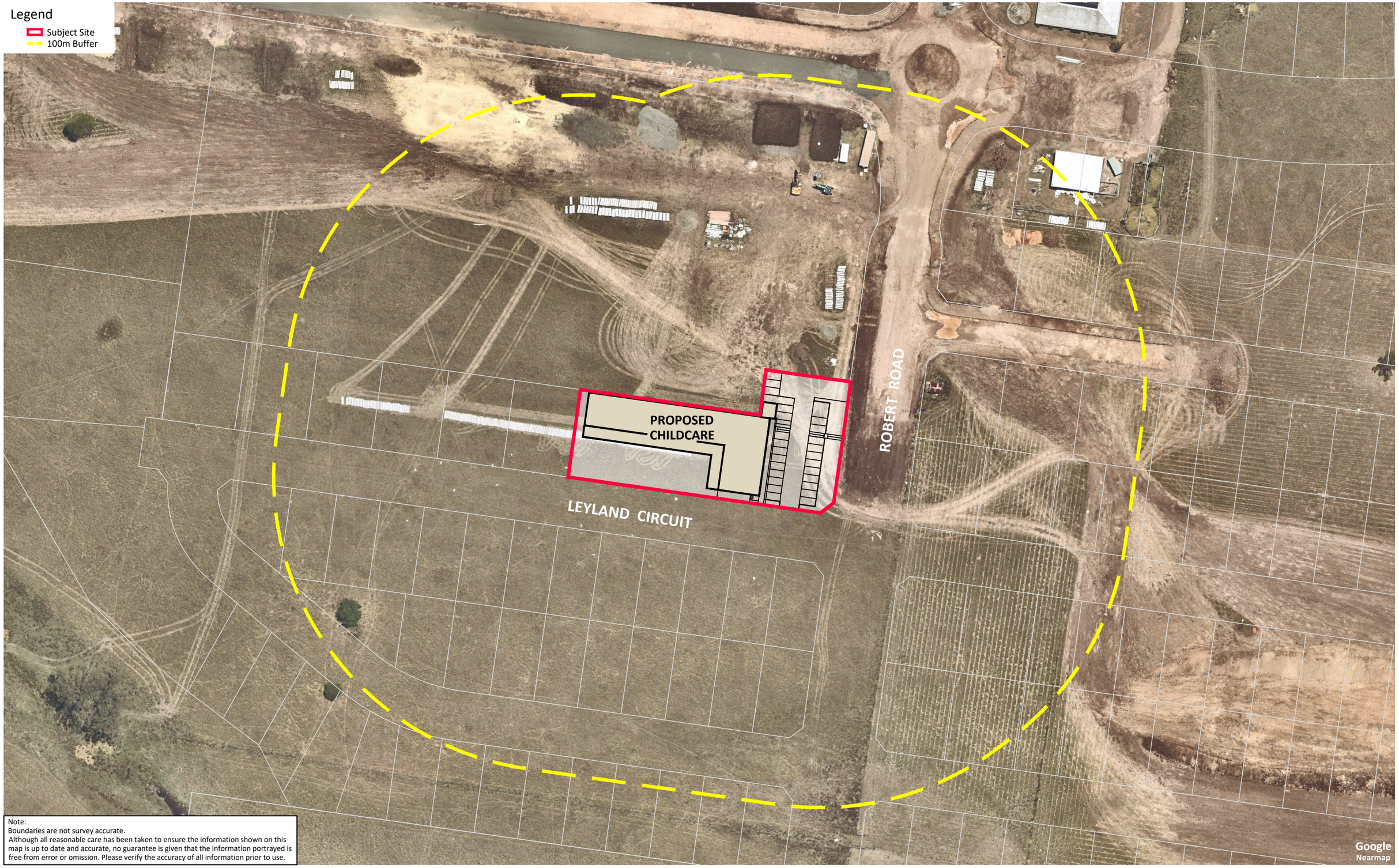


FIGURE 4-1: VEGETATION MAP

Ref No 3209

CLIENT	GWH
SITE DETAILS	No.30 Christopher Road Lochinvar
DATE	9 March 2023

NORTH

0 20 40 60

SCALE 1200 @ A3

PIXELDRAFTING

Firebird ecoSultants Pty Ltd
ABN - 16 105 985 993
Level 1, 146 Hunter Street, Newcastle NSW 2300
P O Box 354 Newcastle NSW 2300

firebird

5 COMPLIANCE

The proposal is for a Child Care Centre; therefore, development standards apply. Table 5-1 details the proposed dwelling compliance with Development Standards for Special Fire Protection Purpose Developments.

Table 5-1: Proposed Compliance with Special Fire Protection Purpose Development Standards

Acceptable Solutions	Performance Criteria	Compliance
ASSET PROTECTION ZONES		
〉 the building is provided with an APZ in accordance with PBP 2019 (Table A1.12.1 in Appendix 1).	〉 radiant heat levels of greater than 10kW/m² (calculated at 1200K) will not be experienced on any part of the building.	**Complies with Acceptable Solution –** The proposed childcare centre has been provided an APZ as per Table A1.12.1 of PBP 2019.
〉 APZs are located on lands with a slope less than 18 degrees.	〉 APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	**Complies with Acceptable Solution –** APZs do not occur on steep land.
〉 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.	〉 APZs are managed and maintained to prevent the spread of fire to the building. the APZ is provided in perpetuity	**Complies with Acceptable Solution –** APZs are wholly within the site and are to be managed to the requirements of Appendix 4 of PBP.
LANDSCAPING		
〉 landscaping is in accordance with Appendix 4; and	〉 landscaping is designed and managed to minimise flame contact and radiant heat to	**Complies with Acceptable Solution –** the site is to be managed to the requirements of

〉 fencing is constructed in accordance with section 7.6.	buildings, and the potential for wind-driven embers to cause ignitions	PBP Appendix 4 (summarised in Appendix B here).
CONSTRUCTION STANDARDS		
〉 a construction level of BAL-12.5 under AS 3959 or NASH Standard and section 7.5 of PBP is applied.	〉 the proposed building can withstand bush fire attack in the form of wind, embers, radiant heat and flame contact.	**Complies with Acceptable Solution –** The proposed childcare centre has been assessed as BAL-LOW in accordance with Table A1.12.1.
ACCESS		
〉 SFPP access roads are two-wheel drive, all-weather roads; 〉 access is provided to all structures; 〉 traffic management devices are constructed to not prohibit access by emergency services vehicles; 〉 access roads must provide suitable turning areas in accordance with Appendix 3; and 〉 one way only public access roads are no less than 3.5 metres wide and have designated parking bays with hydrants located outside of these areas to ensure accessibility to reticulated water for fire suppression.	〉 firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.	**Complies with Acceptable Solution –** The SFPP development is connected to Christopher Road via a private driveway <70m long. Christopher Road is a sealed, two-wheel drive, all-weather public road.
PERIMETER ROADS		
〉 there are two-way sealed roads; 〉 minimum 8m carriageway width kerb to kerb; 〉 parking is provided outside of the carriageway width; 〉 hydrants are to be located clear of parking areas;	〉 perimeter access roads are designed to allow safe access and egress for firefighting vehicles while occupants are evacuating as well as providing a safe operational environment for emergency service personnel during firefighting and emergency management on the interface.	**Complies with acceptable solution –** All perimeter roads are designed to meet the requirements of the performance criteria.

〉 there are through roads, and these are linked to the internal road system at an interval of no greater than 500m; 〉 curves of roads have a minimum inner radius of 6m; 〉 the maximum grade road is 15 degrees and average grade of not more than 10 degrees; 〉 the road crossfall does not exceed 3 degrees; and 〉 a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.		
NON-PERIMETER ROADS		
〉 minimum 5.5m carriageway width kerb to kerb; 〉 parking is provided outside of the carriageway width; 〉 hydrants are located clear of parking areas; 〉 there are through roads, and these are linked to the internal road system at an interval of no greater than 500m; 〉 curves of roads have a minimum inner radius of 6m; 〉 the maximum grade road is 15 degrees and average grade of not more than 10 degrees; 〉 the road crossfall does not exceed 3 degrees; and 〉 a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.	〉 non-perimeter access roads are designed to allow safe access and egress for firefighting vehicles while occupants are evacuating.	**Complies with Acceptable Solution –** All non-perimeter roads are designed to meet the requirements of the acceptable solution.

WATER SUPPLY		
〉 reticulated water is to be provided to the development, where available; or 〉 a 10,000 litres minimum static water supply for firefighting purposes is provided for each occupied building where no reticulated water is available.	〉 an adequate water supply for firefighting purposes is installed and maintained.	**Complies with Acceptable Solution –** The site is to be connected to reticulated water.
〉 fire hydrant spacing, design and sizing comply with the relevant clauses of AS 2419.1:2017; 〉 hydrants are not located within any road carriageway; and reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads.	〉 water supplies are located at regular intervals; and 〉 the water supply is accessible and reliable for firefighting operations.	**Complies with Acceptable Solution** – a hydrant is not located within 70m; therefore, it is recommended that a hydrant is installed.
fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2017.	flows and pressure are appropriate.	**Complies with Acceptable Solution –** Flow and pressure assumed compliant
all above-ground water service pipes external to the building are metal, including and up to any taps.	the integrity of the water supply is maintained.	**Complies with Acceptable Solution –** All above ground pipes will comply with requirements
〉 where no reticulated water supply is available, water for firefighting purposes is provided in accordance with Table 5.3d.	a static water supply is provided for firefighting purposes in areas where reticulated water is not available.	**Complies with Acceptable Solution** - the site is to be connected to reticulated water, and it is recommended that a hydrant is installed within 70m of the proposed building.
ELECTRICTY SERVICES		

〉 where practicable, electrical transmission lines are underground; 〉 where overhead, electrical transmission lines are proposed as follow: ○ lines are installed with short pole spacing (30m), 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 accordance with the specifications in ISSC3 Guideline for Managing Vegetation Near Power Lines.	〉 location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings.	**Complies with Acceptable Solution –** Electrical transmission lines are to comply with the acceptable solution.
GAS SERVICES		
〉 reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 and 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 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	〉 location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.	**Complies with Acceptable Solution –** Gas services are to comply with the acceptable solution.

〉 above-ground gas service pipes external to the building are metal, including and up to any outlets.		
EMERGENCY MANAGEMENT		
〉 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). ○ the Bush Fire Emergency Management and Evacuation Plan should include planning for the early relocation of occupants Note: A copy of the Bush Fire Emergency Management and Evacuation Plan should be provided to the Local Emergency Management Committee for its information prior to occupation of the development.	〉 a Bush Fire Emergency Management and Evacuation Plan is prepared.	**Complies with Acceptable Solution –** An emergency evacuation plan shall be prepared for the childcare centre.

6 CONCLUSION & RECOMMENDATIONS

In summary, a Bushfire Risk Assessment has been undertaken for a proposed childcare centre at 30 Christopher Road, Lochinvar. The report forms part of the supporting documentation for a Development Application (DA) to be submitted to MCC.

If the recommendations contained within this report are duly considered and incorporated, it is considered that the fire hazard present is containable to a level necessary to provide an adequate level of protection to life and property on the subdivision. In summary, the following is recommended to enable the proposal to meet the relevant legislative requirements for the proposed subdivision:

- The proposed child care centre has been assessed as BAL-LOW from all elevations.
- The site is to be connected to reticulated water. It is recommended that a fire hydrant is installed within 70m of the proposed childcare centre.
- An emergency evacuation plan is to be prepared in accordance with RFS, 2014, 'Development Planning – A Guide to developing a Bush Fire Emergency Management and Evacuation Plan'.

I certify the development conforms to the relevant specifications and requirements of Planning for Bushfire Protection 2019

7 BIBLIOGRAPHY

Department of Bush Fire Services (undated). *Bush Fire Readiness Checklist.*

NSWFB (1988). *Hazard Reduction for the Protection of Buildings in Bushland Areas.* New South Wales Fire Brigades.

NSW Rural Fire Service (1997). *Bush Fire Protection for New and Existing Rural Properties.* September 1997, NSW Government.

NSW Rural Fire Service (2006). *Planning for Bushfire Protection – A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners.*

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

NSW Rural Fire Service (2005). Standards for Asset Protection Zones. NSW Rural Fire Service.

NSW Rural Fire Service (2002). *Circular 16/2002: Amendments to the Rural Fires Act 1997 – hazard reduction and planning requirements.*

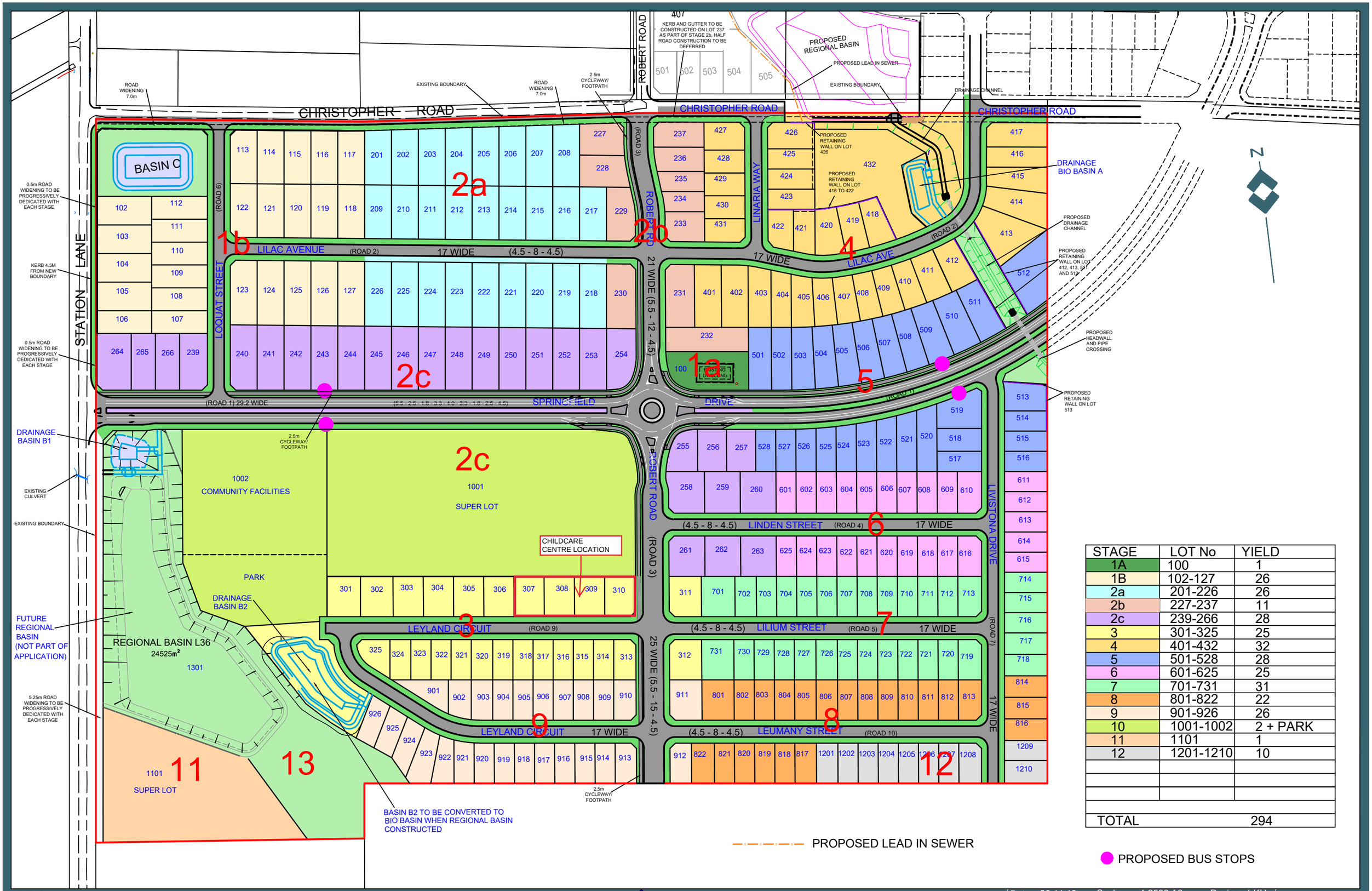
Planning NSW & NSW Rural Fire Service (2001). *Planning for Bushfire Protection – A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners.*

Ramsay, GC and Dawkins, D (1993). *Building in Bushfire-prone Areas – Information and Advice.* CSIRO and Standards Australia.

Rural Fires and Environmental Assessment Legislation Amendment Act 2002.

Standards Australia (2018). *AS 3959 – 2018: Construction of Buildings in Bushfire-prone Areas.*

APPENDIX A PROPOSED SITE PLANS



STAGE	LOT No	YIELD
1A	100	1
1B	102-127	26
2a	201-226	26
2b	227-237	11
2c	239-266	28
3	301-325	25
4	401-432	32
5	501-528	28
6	601-625	25
7	701-731	31
8	801-822	22
9	901-926	26
10	1001-1002	2 + PARK
11	1101	1
12	1201-1210	10
TOTAL		294

TITLE: PROPOSED SUBDIVISION
STATION LANE AND CHRISTOPHER ROAD
LOCHINVAR

LOCHINVAR RIDGE

STAGING PLAN

High Definition Design Pty Ltd
KEVIN URANE 0412009891

Date: 26.11.12 Scale: 1:2500 A3 Designed: KU
Cad Ref: HD176 r31

No	Amendment	Drawn	Date
29	AMEND BASIN B	KU	04.01.22
28	ADD LEAD IN SEWER	KU	27.10.21
30	AMEND LAYOUT	KU	07.07.22

Project No HD176
Drawing No HD02
Revision 30

Legend

- Subject Site
- 100m Buffer
- Grassland
- Managed Land
- BAL FZ
- BAL 40
- BAL 29
- BAL 19
- BAL 12.5

Disclaimer
The BALS as depicted on this map have been determined by vegetation within 100m of the site at the time of the assessment in August 2022. It should be noted that conditions may change over time, that may result in different BALs for the site.
Although every care has been taken in the preparation of this map the author accepts no responsibility for any misprints, errors, omissions, inaccuracies in these maps or damages resulting from the use of this information.

CHRISTOPHER ROAD

STATION LANE

BASIN C

1002
COMMUNITY FACILITIES

1001
SUPER LOT

PARK

REGIONAL BASIN L36
1301

DRAINAGE BASIN B

1101
SUPER LOT

Note:
Boundaries are not survey accurate.
Although all reasonable care has been taken to ensure the information shown on this map is up to date and accurate, no guarantee is given that the information portrayed is free from error or omission. Please verify the accuracy of all information prior to use.

Google
Nearmap

FIGURE 5-1: BUSHFIRE ATTACK LEVELS

CLIENT	Client
SITE DETAILS	Cnr Station Lane & Christopher Road Lochinvar
DATE	10 August 2022

NORTH

0 50 100 200

SCALE 4000 @ A3

PIXELDRAFTING

Firebird ecoSultants Pty Ltd
ABN - 16 105 985 993
Level 1, 146 Hunter Street, Newcastle NSW 2300
P O Box 354 Newcastle NSW 2300

firebird

Ref No 2895 C
Rev30

APPENDIX B

ASSET PROTECTION ZONES

APPENDIX 4

ASSET PROTECTION ZONE REQUIREMENTS

In combination with other BPMs, a bush fire hazard can be reduced by implementing simple steps to reduce vegetation levels. This can be done by designing and managing landscaping to implement an APZ around the property.

Careful attention should be paid to species selection, their location relative to their flammability, minimising continuity of vegetation (horizontally and vertically), and ongoing maintenance to remove flammable fuels (leaf litter, twigs and debris).

This Appendix sets the standards which need to be met within an APZ.

A4.1 Asset Protection Zones

An APZ is a fuel-reduced area surrounding a building or structure. It is located between the building or structure and the bush fire hazard.

For a complete guide to APZs and landscaping, download the NSW RFS document *Standards for Asset Protection Zones* at the NSW RFS Website www.rfs.nsw.gov.au.

An APZ provides:

- a buffer zone between a bush fire hazard and an asset;
- an area of reduced bush fire fuel that allows for suppression of fire;
- an area from which backburning or hazard reduction can be conducted; and
- an area which allows emergency services access and provides a relatively safe area for firefighters and home owners to defend their property.

Bush fire fuels should be minimised within an APZ. This is so that the vegetation within the zone does not provide a path for the spread of fire to the building, either from the ground level or through the tree canopy.

An APZ, if designed correctly and maintained regularly, will reduce the risk of:

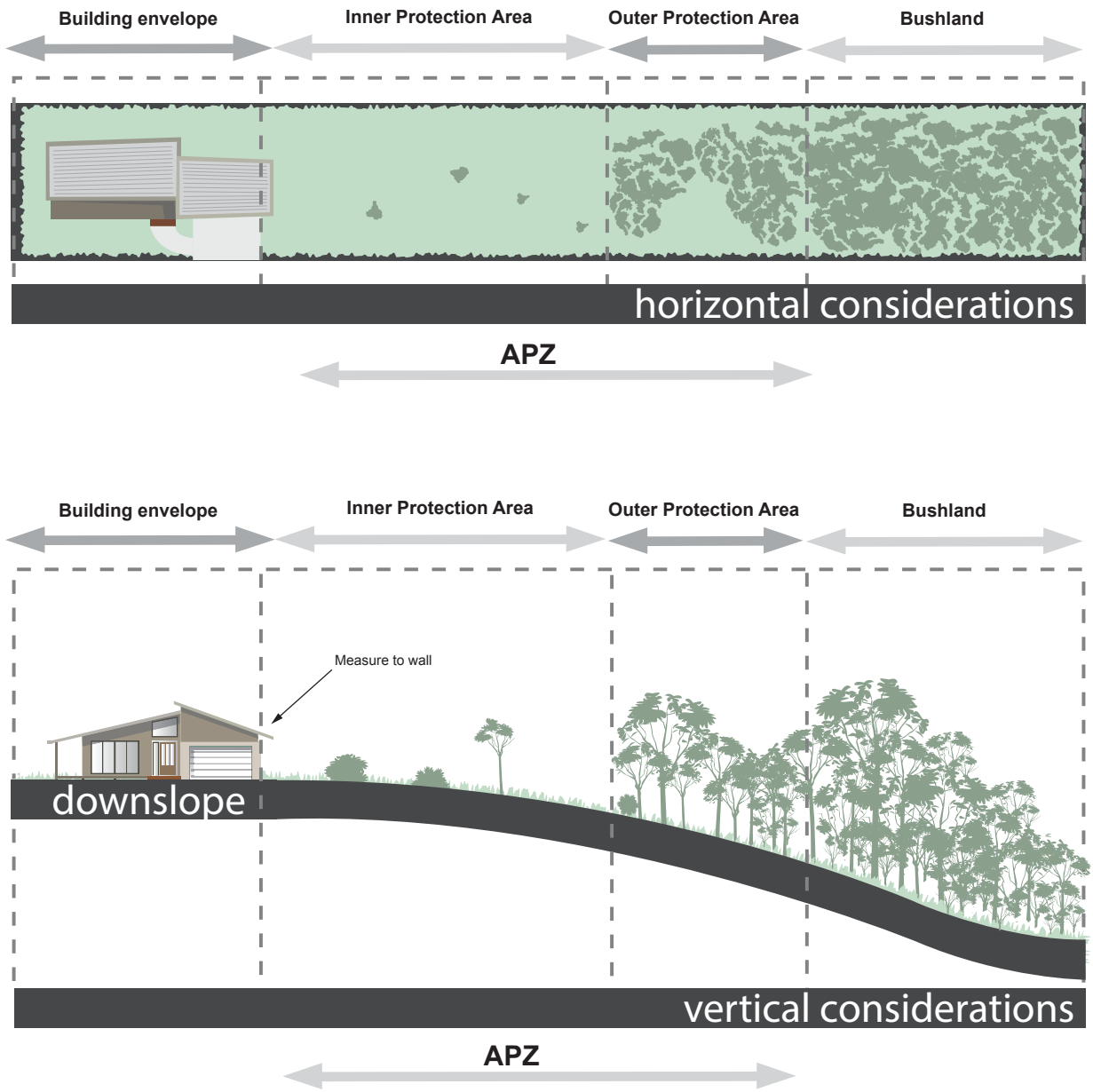
- direct flame contact on the building;
- damage to the building asset from intense radiant heat; and
- ember attack.

The methodology for calculating the required APZ distance is contained within Appendix 1. The width of the APZ required will depend upon the development type and bush fire threat. APZs for new development are set out within Chapters 5, 6 and 7 of this document.

In forest vegetation, the APZ can be made up of an Inner Protection Area (IPA) and an Outer Protection Area (OPA).

Figure A4.1

Typical Inner and Outer Protection Areas.



A4.1.1 Inner Protection Areas (IPAs)

The IPA is the area closest to the building and creates a fuel-managed area which can minimise the impact of direct flame contact and radiant heat on the development and act as a defendable space. Vegetation within the IPA should be kept to a minimum level. Litter fuels within the IPA should be kept below 1cm in height and be discontinuous.

In practical terms the IPA is typically the curtilage around the building, consisting of a mown lawn and well maintained gardens.

When establishing and maintaining an IPA the following requirements apply:

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 the ground;
- tree 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

- 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.

A4.1.2 Outer Protection Areas (OPAs)

An OPA is located between the IPA and the unmanaged vegetation. It is an area where there is maintenance of the understorey and some separation in the canopy. The reduction of fuel in this area aims to decrease the intensity of an approaching fire and restricts the potential for fire spread from crowns; reducing the level of direct flame, radiant heat and ember attack on the IPA.

Because of the nature of an OPA, they are only applicable in forest vegetation.

When establishing and maintaining an OPA the following requirements apply:

Trees

- tree canopy cover should be less than 30%; and
- canopies should be separated by 2 to 5m.

Shrubs

- shrubs should not form a continuous canopy; and
- shrubs should form no more than 20% of ground cover.

Grass

- grass should be kept mown to a height of less than 100mm; and
- leaf and other debris should be removed.

An APZ should be maintained in perpetuity to ensure ongoing protection from the impact of bush fires. Maintenance of the IPA and OPA as described above should be undertaken regularly, particularly in advance of the bush fire season.