LandUse

BUSHFIRE ASSESSMENT REPORT

FOR RETROSPECTIVE APPROVAL OF ALTERATIONS AND ADDITIONS TO AN EXISTING HOUSE

Lot 1 in DP 261129.
1696 Hinterland Way McLeods Shoot.

PREPARED BY: LANDUSE

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PREPARED FOR: Valentina Dimevska.

INSPECTION DATE: April, 4, 2023.
REPORT DATE: April 12, 2023.
REPORT ID: Dimevska_230404.

SUMMARY

- Retrospective approval is sought for alterations and additions to an existing approved expanded dwelling (Class 1a building).

- There is an associated approved "Studio" on the property which is >6m from the expanded dwelling and therefore not included in the Bushfire Attack Level (BAL) assessment.

- The subject allotment is 1.9ha in size and land on which the development is located is zoned DM – Deferred Matter. The subject allotment is mapped as having bushfire prone vegetation.

- Bushfire Attack Level (BAL) assessment detailed in Section 2 of this report indicates the proposed house will be subject to a radiant heat exposure of ≤12.5kW/m^2 and is required to meet BAL-12.5 standard.

- The development can meet bushfire planning and approval requirements if Bushfire Protection Measures detailed in Appendix 1 and Section 3 of this report are implemented, with conditional approval of the following:
    - Pine framing of unapproved veranda and unenclosed subfloor bearers of unapproved extension that are <400m above ground level, are to be painted with intumescent paint with BAL-29 rating and this paint is required to be maintained in perpetuity in accordance with manufacturers specifications.
    - One of the existing Poly tanks is to be converted into a designated firefighting reserve by retrofitting with a 50mm outlet and 50mm underground supply line to a firefighting outlet located within 4m of the truck turning head.

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LIST OF ACCRONYMS

AS	Australian Standard
APZ	Asset Protection Zone
BAL	Bushfire Attack Level
BCA	Building Code of Australia
BPM	Bushfire Protection measure
IPA	Inner Protection Area
NCC	National Construction Code
NSW	New South Wales
PBP	Planning for Bushfire Protection

1 INTRODUCTION

Valentina Dimevska has commissioned LandUse to prepared this Bushfire Assessment Report for the subject development, to satisfy bushfire planning requirements in accordance with Div4.3 S4.14 of the EP&A Act (EP&A, 2010).

Site assessment has been conducted and Bushfire Protection Measures have been determined in accordance with Planning for Bushfire Protection (PBP, 2019) the Building code of Australia (ABCB, 2019) and Australian Standard 3959 (AS3959, 2018). Council's Local Environment Plan has also been taken into consideration.

1.1 AIMS AND OBJECTIVES

The Aim of this Bushfire Assessment Report is to address planning controls for this development, to provide for the protection of human life and to minimise impacts on property from the threat of bushfire, while having due regard to development potential, on-site amenity and protection of the environment.

General objectives are to:

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

2 BUSHFIRE ASSESSMENT

2.1 DEVELOPMENT AND SITE DESCRIPTION

There is an existing approved expanded dwelling (Class 1a building) and approved "Studio" on the subject allotment (Pers comm V Dimevska 4/4/23). Retrospective approval is sought, for alterations and additions to the existing expanded dwelling. The studio is >6m from the expanded dwelling and therefore not included in the Bushfire Attack Level (BAL) assessment. There are also three carports (Class 10a buildings) on the subject allotment.

The subject allotment is a 1.9ha freehold allotment on Lot 5 in DP 701705, located at 1696 Hinterland Way, McLeods Shoot. The subject development is on land zoned DM – Deferred Matter (NSWPP, 2023).

The house is 50m via private driveway from Hinterland Way (a public through road). This driveway branches to service the expanded dwelling via a 80m private driveway, from Hinterland Way.

The subject development is mapped as being within Category 3 bushfire prone vegetation (NSWPP, 2023). Approximately half of the allotment is cleared and managed land, with mown curtilage on the downslope eastern exposure of the house and rainforest landscaped gardens surrounding the southern western and northern exposures. There is regenerating rainforest vegetation in the eastern and south

eastern portion of the property which is separated from the house by grassland managed as cattle grazing pasture.

Features of the site and surrounding land which are expected to mitigate the effect of high intensity bushfire on the development include:

- The predominantly clear and nature of land surrounding the property, with minimal and fragmented forest vegetation formations within the greater landscape.

2.1.1 Environmental Considerations

Desktop study has not identified any environmental considerations which are expected to be adversely influenced by the proposed bushfire protection measures (NSWBVM, 2022, NSWNVR, 2022, NSWPP, 2023).

It is outside the scope of this report to conduct detailed assessment of threatened species, populations, endangered ecological communities and critical habitat, or sites of cultural and or heritage significance, or to provide specialist geotechnical advice. Any vegetation removal associated with the formation or maintenance of the APZ is to be done with relevant approvals.

2.2 BUSHFIRE ATTACK LEVEL

Bushfire Attack Level (BAL) shown in Table 1 has been determined using the simplified procedure (method 1) in accordance with Section 2 of AS3959 (AS3959, 2018) and Appendix 1 of PBP (PBP, 2019), with information shown in Appendix 2-1(a).

2.2.1 Relevant Fire Danger Index (FDI):

The subject site has an assumed 1:50yr FFDI of 80 in accordance with Table 2.1 of AS3959.

2.2.2 Classification of bushfire prone vegetation:

Bushfire prone vegetation has been classified in accordance with Table 2.3 of AS3959 and A1.2 of PBP.

2.2.3 Distance from classified bushfire prone vegetation

Current and Proposed APZ distances from classified bushfire prone vegetation have been determined in accordance with 2.2.5 of AS3959.

2.2.4 Effective slope:

Effective slope has been determined in accordance with 2.2.5 of AS3959 and A1.4 & A1.5 of PBP.

2.2.5 Bushfire Attack Level (BAL)

The existing house is expected to be exposed to a heat flux of no greater than 12.5kW/m^2 Table 1 details proposed APZ and predicted BAL's for the development.

Table 1. BAL assessment

Direction (transect)	Veg. Class. (Current distance)	Effective Slope	Proposed APZ	Bushfire Attack Level (BAL)
N (0°)	Grassland (45m)	Downslope 10-15°	16m To boundary	BAL-12.5
NE (50°)	Grassland (80m)	Downslope 15-20°	40m To boundary	BAL-12.5
E (90°)	Grassland (30m)	Downslope 0-5°	30m	BAL-12.5
SE (120°)	Rainforest (50m)	Downslope 5-10°	35m	BAL-12.5
S (185°)	NA Reduced fuel Cattle pasture	NA	30m To boundary	BAL-Low
W (270°)	NA Reduced fuel Cattle pasture	NA	3.5m To boundary	BAL-Low

3 BUSHFIRE PROTECTION MEASURES

Bushfire Protection Measures (BPM) required with this development are addressed in this section of the report and detailed in Appendix 1, illustrated in Appendix 2-1(b).

3.1 ASSET PROTECTION ZONES (APZ) AND DEFENDABLE SPACE

Asset protection zone performance criteria are to be instated and maintained by implementing acceptable solutions shown in Appendix 1-1.

The APZ, determined in Table 1 and shown in Appendix 2-1(b), is to be maintained for the life of the development in accordance with Appendix 2.2 and the monitoring and fuel management program in Table 2.

3.1.1 APZ Monitoring and fuel management program

Table 2. Monitoring and fuel management program.

Area	*Management Method*	*Timing*
APZ	Minimise fine ground fuels. By mowing, slashing, brush cutting, raking and picking up sticks.	Monthly in spring and summer.
	Remove all branches within 2m of ground. And maintain 2-5m canopy separation	Annual inspection in August with work to be conducted by 1st October
	Selective thinning of vegetation to achieve overall canopy cover of 15% in IPA.	

3.2 CONSRUCTION

Construction performance criteria and acceptable solutions are shown in Appendix 1-2 and relate to the proposed development as follows.

3.2.1 Expanded dwelling - Unapproved alterations and additions

Unapproved alterations and additions to the expanded dwelling, are expected to be exposed to a radiant heat flux of <12.5kW/m² and therefore are required to comply with BAL-12.5 standard (AS3959, 2018) as amended by 7.5 of PBP (PBP, 2019).

Construction non-compliance

The following acceptable solution cannot be reasonably achieved for veranda construction "Construction provided in accordance with the NCC and as modified by section 7.5 or PBP" as follows:

- Pine framing (bearers and joists) of the unapproved veranda is non-compliant with 7.7of PBP and bearers of the unapproved extension that are <400mm above ground level are non-compliant with 7.2 of PBP. To achieve the performance criteria "The proposed building can withstand bush fire attack in the form of embers, radiant heat and flame contact" it is recommended that pine framing of veranda and unenclosed subfloor bearers that are <400m above ground level, are to be painted with intumescent paint with BAL-29 rating (product specification - Appendix 3) and this paint is required to be maintained in perpetuity in accordance with manufacturers specifications.
- Confirmation is required that windows and sidelights are constructed in accordance with 5.5.3(c)(iii), especially that where glazing is <400mm from ground or horizontal surface, glazing is grade A safety glass min. 4mm thickness.
- Existing screens on extension do not comply and are to be replaced with mesh made from aluminium, and all openable portions of windows are to be screened.

3.2.2 Expanded dwelling - Existing approved

The existing approved expanded dwelling bushfire construction requirements apply in accordance with conditions of consent; however, it is recommended that minimal protection measures be applied to existing construction to improve bushfire resilience in accordance with Appendix 2-3.

There is an existing carport attached to the north side of the house that is all steel construction.

There is an existing carport associated with the expanded dwelling, which has wooden post and frame clad with corrugated iron with a corrugated iron roof. This carport is <6m from the expanded dwelling and therefore it is recommended that minimal protection measures be applied to existing construction to improve bushfire resilience in accordance with Appendix 2-3.

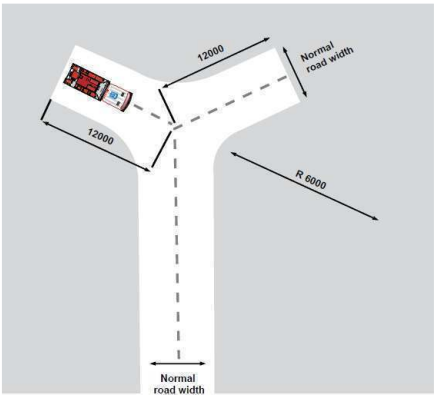
There is an existing carport on the driveway loop which is >6m from the house.

3.2.3 Studio – Existing approved.

The existing approved studio construction requirements apply in accordance with conditions of consent; however, it is recommended that minimal protection measures be applied to existing construction to improve bushfire resilience in accordance with Appendix 2-3.

3.3 ACCESS STANDARDS

Access performance criteria are to be achieved by implementing acceptable solutions shown in Appendix 1-3. A Type D Turning head (see insert) is to be instated in the location shown in Appendix 2-1(b).



3.4 WATER SUPPLY AND UTILITIES

3.4.1 Water supply

Water supply performance criteria are to be implemented in accordance with acceptable solutions shown in Appendix 1-4. The proposed firefighting reserve is and 65mm storz outlet is shown in Appendix 2-1(b), the Storz outlet is located within 4m of the turning head.

Water supply non-compliance

There is limited potential to instate a 20kL firefighting reserve that fits into the aesthetic of the property and there is a total of 4 × 22.7kL rainwater tanks servicing the development, of which 2 are fibreglass and 2 are poly construction. These existing tanks have 32mmØ outlets and corresponding 32mmØ delivery pipes which are pressurised by an electric household pressure pump.

It is proposed that one of the Poly tanks is converted into a designated firefighting reserve by retrofitting with a 50mm outlet and 50mm underground supply line to a firefighting outlet located 4m of the truck turning head as shown in Appendix 2-1(b).

This proposal does not provide the acceptable solution “Above-ground tanks are manufactured from concrete or metal”. However, in light of the existing tanks being shielded by the expanded dwelling, minimising the potential for failure from direct flame contact, and in consultation with the client who has expressed cost restrictions in instating a new non-combustible firefighting reserve tank, this

proposal seeks conditional approval for the proposed combustible firefighting reserve tank, shown in Appendix 2-1(b).

3.4.2 Electricity services

Electricity performance criteria are achieved by acceptable solutions shown in Appendix 1-4.

3.4.3 Gas services

Gas services performance criteria are achieved by acceptable solutions shown in Appendix 1-4.

3.5 LANDSCAPING

Landscaping performance criteria are to be instated and maintained by implementing acceptable solutions in accordance with Appendix 1-5. Refer to Table 1 and Appendix 2-2 for APZ landscaping requirements.

3.6 EMERGENCY MANAGEMENT / BUSHFIRE SURVIVAL PLAN

Occupants of this residence are to develop a bushfire survival plan in accordance with NSW RFS guidelines https://www.rfs.nsw.gov.au/resources/bush-fire-survival-plan. using the following four simple steps.

STEP 1: DISCUSS WHAT TO DO IF A BUSH FIRE THREATENS YOUR HOME.
Many households find that having a discussion over dinner works best as everybody is together and focussed.

STEP 2: PREPARE YOUR HOME AND GET IT READY FOR BUSH FIRE SEASON.
There are simple things you can do around your home to prepare it for a bush fire, like keeping the grass low and having a cleared area around your home.

STEP 3: KNOW THE BUSH FIRE ALERT LEVELS.
If there is a fire in your area you will find its alert level on the NSW RFS website and in the 'Fires Near Me' app. You need to keep track of the alert level so you know what you should do.

STEP 4: KEEP ALL THE BUSH FIRE INFORMATION NUMBERS, WEBSITES AND THE SMARTPHONE APP.
In a bush fire, it's important that you stay up to date on conditions in your area.

4 CONCLUSIONS

The proposed development is capable of complying with approval considerations under Div4.3 S4.14 of the EP&A Act, referring to PBP-2019, and the BCA, referring to AS3959-2018, in accordance with this report, with conditional approval of the following measures:

- Pine framing of unapproved veranda and also unenclosed subfloor bearers of unapproved extension that are <400m above ground level, are to be painted with intumescent paint with BAL-29 rating and this paint is required to be maintained in perpetuity in accordance with manufacturers specifications.
- One of the existing Poly tanks is to be converted into a designated firefighting reserve by retrofitting with a 50mm outlet and 50mm underground supply line to a firefighting outlet located within 4m of the truck turning head as shown in Appendix 2-1(b).

5 REFERENCES

ABCB. (2019) National Construction Code, Building Code Of Australia. Volume 2; Class 1 and 10 Buildings. Amendmemt 1. Australian Building Codes Board. Canberra, ACT.

AS3959. (2018) AS 3959:2018. Construction of buildings in bushfire-prone areas. Standards Australia International Ltd. Sydney. NSW.

EP&A. (2010) Environmental Protection and Assessment Act 1979 No 203. NSW Consolidated Acts. NSW.

NSWBVM. (2022) Biodiversity Values Map and Threshold Tool. NSW Government. https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BOSETMap.

NSWNVR. (2022) The Native Vegetation Regulatory (NVR) Map. NSW Government. https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=NVRMap.

NSWPP. (2023) New South Wales Government Planning Portal. https://www.planningportal.nsw.gov.au.

PBP. (2019) Planning for Bushfire Protection 2019. NSW Rural Fire Service.

APPENDIX 1-1. ASSET PROTECTION ZONES (APZ) PERFORMANCE CRITERIA AND ACCEPTABLE SOLUTIONS

APZ Performance Criteria (Table 7.4a – PBP 2019	**Acceptable solutions**	**Note** C = Compliance required. NC = Not compliant NA = Not applicable
APZs are provided commensurate with the construction of the building; and A defendable space is provided.	An APZ is provided in accordance with Table A1.12.2 or A1.12.3 in Appendix 1 of PBP.	C. See Table 1 and Appendix 2-1(b) of report.
APZs are managed and maintained to prevent the spread of a fire to the building.	APZs are managed in accordance with the requirements of Appendix 4 of PBP.	C. Appendix 4 of PBP is attached as Appendix 2-2 of this report.
The APZ is provided in perpetuity. APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	APZs are wholly within the boundaries of the development site.	C.
	APZ are located on lands with a slope less than 18 degrees.	C.

APPENDIX 1-2. CONSTRUCTION PERFORMANCE CRITERIA AND ACCEPTABLE SOLUTIONS

Buildings in bushfire prone areas Performance Criteria (P2.7.5 - NCC volume 2 2019)	**Acceptable solutions (P3.10.5 – NCC volume 2: 2019**	**Note** C = Compliance required. NC = Not compliant NA = Not applicable
A Class 1 building or a Class 10a building or deck associated with a Class 1 building that is constructed in a designated bushfire prone area must, to the degree necessary, be designed and constructed to reduce the risk of ignition from a bushfire, appropriate to the: (a) potential for ignition caused by burning embers, radiant heat or flame generated by a bushfire; and (b) intensity of the bushfire attack on the building.	Performance Requirement P2.7.5 is satisfied, for: (a) a Class 1 building; or (b) a Class 10a building or deck associated with a Class 1 building located in a designated bushfire prone area, if it is constructed in accordance with the following: (c) AS 3959 except: (i) as amended by Planning for Bush Fire Protection; and (ii) for Section 9 for Bushfire Attack Level FZ (BAL-FZ). (d) NASH Standard – Steel Framed Construction in Bushfire Areas except: (i) as amended by Planning for Bush Fire Protection; and (ii) for buildings subject to Bushfire Attack Level FZ (BAL-FZ). (e) the requirements of (c), or (d) above as modified by the development consent following consultation with the NSW Rural Fire Service under section 4.14 of the Environmental Planning and Assessment Act 1979 if required; or (f) the requirements of (c), or (d) above as modified by development consent with a bushfire safety authority issued under section 100B of the Rural Fires Act 1997 for the purposes of integrated development	NA. Approved expanded dwelling and studio C. Unapproved additions and alterations.
CONSTRUCTION Performance Criteria (Table 7.4a – PBP 2019)	**Acceptable solutions**	
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; and **- Construction provided in accordance with the NCC and as modified by section 7.5 or PBP (please see advice on construction in the flame zone).**	NA. Existing approved expanded dwelling and studio C. BAL-12.5 – Unapproved additions and alterations. **NC. Framing of unapproved veranda and subfloor framing of unapproved extension (where <400mm from ground level). See 3.2.1 & 3.4.1.**
Proposed fences and gates are designed to minimise the spread of bush fire.	Fencing and gates are constructed in accordance with section 7.6 of PBP.	C.
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 or PBP.	C. Expanded dwelling carport within 6m of expanded dwelling.

Appendix 1-3. ACCESS STANDARDS PERFORMANCE CRITERIA AND ACCEPTABLE SOLUTIONS

ACCESS Performance Criteria (Table 7.4a – PBP 2019)	**Acceptable Solutions**	**Note** C = Compliance required. NC = Not compliant NA = Not applicable
Firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.	Property access roads are two-wheel drive, all-weather roads.	C.
The capacity of access roads is adequate for firefighting vehicles.	The capacity of road surfaces and any bridges/causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes), bridges and causeways are to clearly indicate load rating..	C
There is appropriate access to water supply.	Hydrants are provided in accordance with the relevant clauses of AS 2419.1:2021.	NA
	There is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available.	C. Shown in Appendix 2-1(b) of report.
Firefighting vehicles can access the dwelling and exit the property safely.	At least one alternative property access road is provided for individual dwellings or groups of dwellings that are located more than 200 metres from a public through road.	NA.
	There are no specific access requirements in an urban area where an unobstructed path (no greater than 70m) is provided between the most distant external part of the proposed dwelling and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency firefighting vehicles. In circumstances where this cannot occur, the following requirements apply:	NA See below
	Minimum 4m carriageway width.	C.
	In forest, woodland and heath situations, rural property roads have passing bays every 200m that are 20m long by 2m wide, making a minimum trafficable width of 6m, at the passing bay.	NA.
	A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches.	C.
	Property access must provide a suitable turning area in accordance with Appendix 3 of PBP.	C. Instate in accordance with 3.3 & Appendix 2-1(b) of report.
	Curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress.	C.
	The minimum distance between inner and outer curves is 6m.	C.
	The crossfall is not more than 10 degrees.	C.
	Maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads.	C.
	A development comprising more than three dwellings has formalised access by dedication of a road and not by right of way.	NA
	Note: Some short constrictions in the access may be accepted where they are not less than 3.5m wide, extend for no more than 30m and where the obstruction cannot be reasonably avoided or removed. The gradients applicable to public roads also apply to community style development property access roads in addition to the above.	

Appendix 1-4. WATER AND UTILITIES PERFORMANCE CRITERIA AND ACCEPTABLE SOLUTIONS

WATER SUPPLIES Performance Criteria (Table 7.4a – PBP 2019)	**Acceptable Solutions**	**Note** C = Compliance required. NC = Not compliant NA = Not applicable
An adequate water supply is provided for firefighting purposes.	Reticulated water is to be provided to the development, where available; and	NA.
	A static water supply is provided where no reticulated water is available.	C. Shown in Append 2-1(b).
Water supplies are located at regular intervals; and The water supply is accessible and reliable for firefighting operations.	Fire hydrant spacing, design and sizing comply with the relevant clauses of AS 2419.1:2005;	NA.
	Hydrants are not located within any road carriageway; and	NA.
	Reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads.	NA.
Flows and pressure are appropriate	Fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2005.	NA.
The integrity of the water supply is maintained.	All above-ground water service pipes external to the building are metal, including and up to any taps.	C.
A static water supply is provided for firefighting purposes in areas where reticulated water is not available.	Where no reticulated water supply is available, water for firefighting purposes is provided in accordance with Table 5.3d of PBP.	20kl required.
	A connection for firefighting purposes is located within the IPA or non-hazard side and away from the structure; 65mm Storz outlet with a ball valve is fitted to the outlet.	C. Shown in Append 2-1(b).
	Ball valve and pipes are adequate for water flow and are metal.	C. Retrofit existing poly tank See 3.4.1.
	Supply pipes from tank to ball valve have the same bore size to ensure flow volume.	C. Retrofit existing poly tank See 3.4.1.
	Underground tanks have an access hole of 200mm to allow tankers to refill direct from the tank.	NA.
	A hardened ground surface for truck access is supplied within 4m.	C.
	Above-ground tanks are manufactured from concrete or metal.	**NC. See 3.4.1 poly tank.**
	Raised tanks have their stands constructed from non-combustible material or bush fire-resisting timber (see Appendix F of AS 3959).	NA.
	Unobstructed access can be provided at all times.	C. pipe to Storz outlet next to driveway shown Appendix 2-1(b).
	Underground tanks are clearly marked.	NA.
	Tanks on the hazard side of a building are provided with adequate shielding for the protection of firefighters.	NA.
	All exposed water pipes external to the building are metal, including any fittings.	C.
	Where pumps are provided, they are a minimum 5hp or 3kW petrol or diesel-powered pump, and are shielded against bush fire attack.	C.
	Any hose and reel for firefighting connected to the pump shall be 19mm internal diameter; and fire hose reels are constructed in accordance with AS/NZS 1221:1997, and installed in accordance with the relevant clauses of AS 2441:2005.	C.

Appendix 1-4 cont. WATER AND UTILITIES PERFORMANCE CRITERIA AND ACCEPTABLE SOLUTIONS

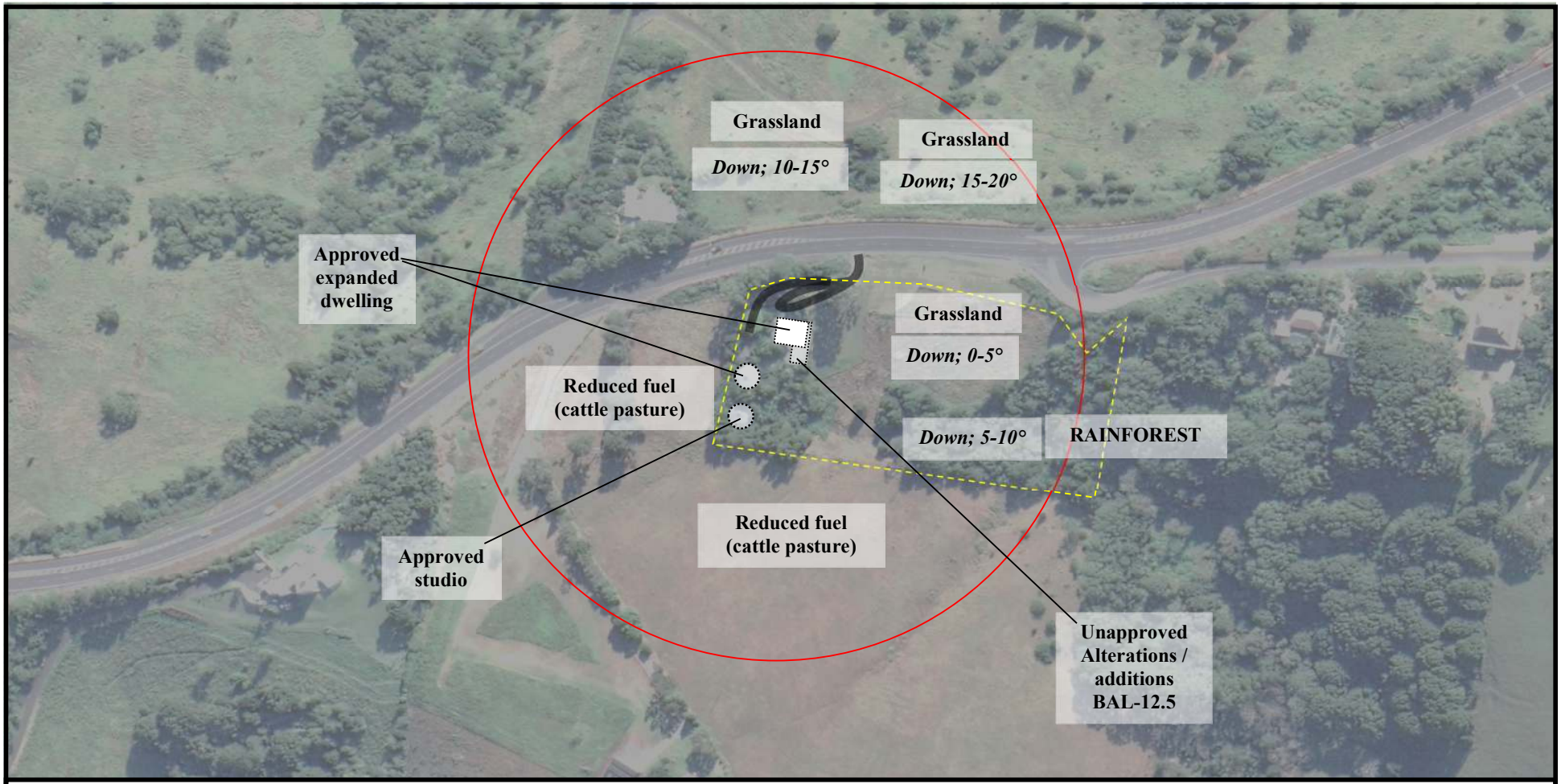
ELECTRICITY SERVICES Performance Criteria (Table 7.4a – PBP 2019)	Acceptable Solutions	Note C = Compliance required. NC = Not compliant NA = Not applicable
Location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings.	Where practicable, electrical transmission lines are underground.	NA. Existing infrastructure
	Where overhead, electrical transmission lines are proposed as follows:	
	Lines are installed with short pole spacing (30m), unless crossing gullies, gorges or riparian areas; and	NA. Existing infrastructure
	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.	C.

GAS SERVICES Performance Criteria (Table 7.4a – PBP 2019)	Acceptable Solutions	Note C = Compliance required. NC = Not compliant NA = Not applicable
Location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.	Reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 and the requirements of relevant authorities, and metal piping is used.	C.
	All fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side.	C.
	Connections to and from gas cylinders are metal.	C.
	Polymer-sheathed flexible gas supply lines are not used; and	C.
	Above-ground gas service pipes are metal, including and up to any outlets.	C.

Appendix 1-5. LANDSCAPING PERFORMANCE CRITERIA AND ACCEPTABLE SOLUTIONS

LANDSCAPING Performance Criteria (Table 7.4a – PBP 2019)	Acceptable Solutions	Note C = Compliance required. NC = Not compliant NA = Not applicable
Landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions.	Compliance with the NSW RFS 'Asset protection zone standards' (see Appendix 4 - PBP).	C. Appendix 4 of PBP is attached as Appendix 2-2 of this report.
	A clear area of low-cut lawn or pavement is maintained adjacent to the house.	C.
	Fencing is constructed in accordance with section 7.6.	C.
	Trees and shrubs are located so that:	
	The branches will not overhang the roof.	C.
	The tree canopy is not continuous.	C.
	Any proposed windbreak is located on the elevation from which fires are likely to approach	C.

APPENDIX 2-1(a). BAL ASSESSMENT MAP



LEGEND

Note: This map has been produced by LandUse using a GPS system with +/- 3m accuracy. and aerial base map (Maxar Technologies 2023)
Author: JJ Bruce 0419420362
Date: 10/4/23.

N

0 60m

Scale 1:3000

BAL Assessment boundary (140m)

Driveway

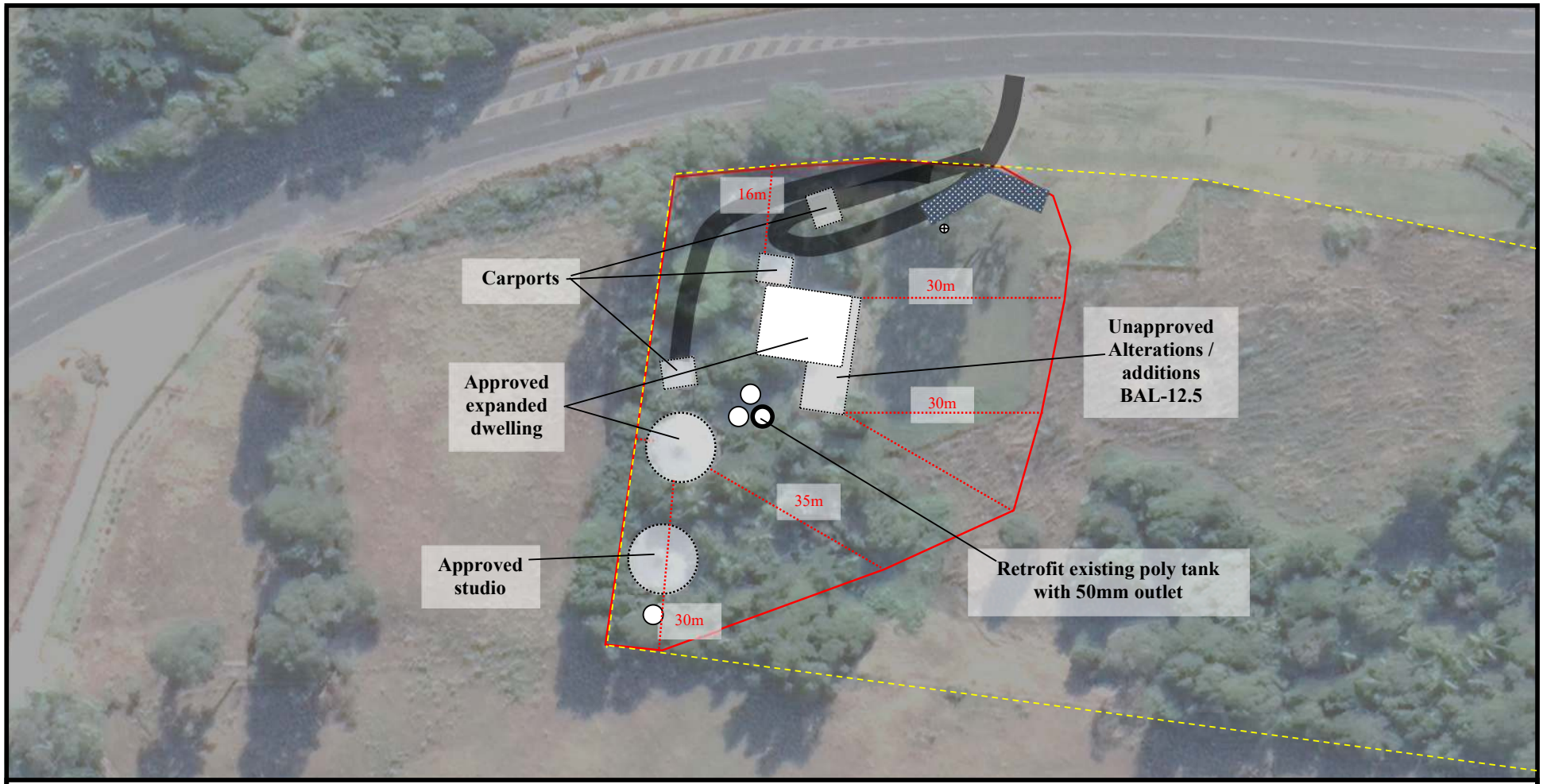
Property boundary

Bushfire vegetation class. **FOREST**

Effective slope ***Down; 5-10°***

BYRON SHIRE COUNCIL
Development Application
APPROVED PLAN
DA No. 10.2023.292.1
Date: 19 February 2024

APPENDIX 2-1(b). ASSET PROTECTION ZONE PLAN



LEGEND

Note: This map has been produced by LandUse using a GPS system with +/- 3m accuracy. and aerial base map (Maxar Technologies 2023)
Author: JJ Bruce 0419420362
Date: 12/4/23.

N

0 20m

Scale 1:1000

APZ; distance 25m

Building envelope

Driveway

Truck turning head

Firefighting: Reserve tank; Outlet

Property boundary

BYRON SHIRE COUNCIL
Development Application
APPROVED PLAN
DA No. 10.2023.292.1
Date: 19 February 2024

APPENDIX 2-2. ASSET PROTECTION ZONE REQUIREMNETS
(Source: Appendix 4 of PBP:2019)

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).

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.

APPENDIX 2-3. RECOMMENDED MEASURES TO UPGRADE EXISTING HOSUE CONSTRUCTION
Source (NSWRFS, 2014)

BUILDIGN ELEMENT	MINMAL PROTECTION MEASURES	ADDITIONAL PROTECTION MEASURES
GENERAL	Seal all gaps (>3mm) around the house (excluding subfloor) with: • appropriate joining strips; • flexible silicon based sealant; or • mesh with a maximum aperture of 2mm, made from corrosion resistant steel, bronze or aluminium.	Install a bush fire sprayer system. (Please contact a bush fire consultant or relevant industry expert to discuss options) Seal all gaps (>3mm) around the house (excluding subfloor) with: appropriate joining strips flexible silicon based sealant; or mesh with a maximum aperture of 2mm, made from corrosion resistant steel, bronze or aluminium.
WALLS	Install sarking with a flammability index of not more than 5 behind weatherboards or other external cladding when they are being replaced for maintenance or other reasons.	Replace wall materials with non-combustible materials Install sarking with a flammability index of not more than 5 behind weatherboards or other external cladding.
SUBFLOOR	Removal of combustible materials and keeping areas clear and accessible.	Enclose subfloor with non-combustible material.
DOORS	Install weather strips, draught excluders or draught seals at the base of side-hung doors.	Replace external doors with non-combustible or solid timber doors with minimum thickness of 35mm. Replace or over-clad parts of door frames less than 400mm above the ground, decks and similar elements or fittings with non-combustible material. Install weather strips, draught excluders or draught seals at the base of side-hung doors.
VENTS & WEEPHOLES	Seal vents and weepholes in external walls with mesh (with an aperture size of 2 mm) of corrosion resistant steel, bronze or aluminium.	Seal vents and weepholes in external walls with mesh (with an aperture size of 2 mm) of corrosion resistant steel, bronze or aluminium.
ROOFS	Seal around roofing and roof penetrations with a non-combustible material. Install sarking with a flammability index of not more than 5 beneath existing roofing when it is being replaced for maintenance or other reasons. If installed, gutter and valley leaf guards shall be non-combustible.	Replace fascia and roof materials with non-combustible materials. Seal around roofing and roof penetrations with a non-combustible material. Install sarking with a flammability index of not more than 5 beneath existing roofing. If installed, gutter and valley leaf guards shall be non-combustible.
WINDOWS	Install mesh with a maximum aperture of 2mm, made from corrosion resistant steel, bronze or aluminium to all external doors and openable windows	Installing appropriately tested shutters to doors and windows Install mesh with a maximum aperture of 2mm, made from corrosion resistant steel, bronze or aluminium to all external doors and windows Replacing glass with toughened or laminated safety glass Replace overhead glazing with ‘grade a’ safety glass
EXTERNAL STRUCTURES		External structures to be located >10 metres from the main dwelling.
DECKING		Replace decking with non-combustible material

APPENDIX 3. INTRUMESCENT PAINT SPECIFICATION

FIRESHELL F1E BUSHFIRE COATING

FIRESHELL F1E

EXTERIOR FIRE RATED COATING SYSTEM FOR TIMBER

A unique water based exterior intumescent coating that provides a compliant solution to re-classifying softwoods as bush fire resisting timber. Meets both the acclerated weathering and fire test requirements of AS3959.

BYRON SHIRE COUNCIL
Development Application
APPROVED PLAN
DA No. 10.2023.292.1
Date: 19 February 2024

Subfloors and decking posts

Weatherboards and facia

Simple application post or pre construction

Base boards, retaining walls, fences, exposed rafters

- TESTED TO AS3959 BAL12.5, BAL19 & BAL 29
- MEETS ACCELERATED WEATHERING REQUIREMENTS
- EXTREME EXTERIOR PERFROMANCE
- USED AND APPROVED NATIONWIDE
- SELF PRIMING
- SIMPLE APPLICATION
- WATER BASED LOW VOC
- NON HAZARDOUS MATERIAL
- PROTECTS TIMBER FROM BUSHFIRE ATTACK

EXFIRE
FIRE RATED COATING SOLUTIONS

Office: 1800 684 001 | Technical Rep Direct: 0406 529 920 | www.exfire.com.au

Exterior Grade | Simple Application | Test System: AS3959 | Low VOC

FIRESHELL F1E BUSHFIRE COATING

BAL 12.5 ✓
BAL 19 ✓
BAL 29 ✓

// PRODUCT DESCRIPTION

FIRESHELL® (F1E) is an exterior rated, 1-part, self-priming, flexible intumescent coating. It provides an ignition and flame spread barrier for external timber. FIRESHELL F1E meets the requirements for bushfire resisting timber specified in AS 3959:2009 Construction of Buildings in Bushfire Prone Areas Appendix F. This includes the accelerated weathering component.

// TECHNICAL DATA

WATER BASED LOW VOC COATING
NON HAZARDOUS
THINNER/ADDITIVES: Do not thin
COLOURS: Dark Brown, Light Grey
SHEEN: Flat with slight texture
DRUM SIZE: 5L and 15L plastic pails. Custom sizing available
STORAGE: Secure dry area, protect from freezing
SHELF LIFE: 12 Months

// APPLICATIONS

All external timber applications, subfloors and decking posts, pergolas, base boards, facia, weatherboards, retaining walls, fences, bridges, utility poles, timber structures, underfloor applications, roof cavity solutions and any timber application where a bushfire resisting timber and ignition barrier qualities are required.

// APPROVALS

AS3959 – Bush fire resisting timber classification. Testing on pine and cedar with assessments on a variety of other species. Contact EXFIRE for more information
Accelerated weathering ASTM D 2898
ASTM E 119, ASTM E 84, AC377, UL263,

Consult with your certifying body that the FIRESHELL F1E system meets your project requirements prior to application. Test Reports and Assessments available on request.

// COVERAGE

Bare Timber : 1.6m2/L @ 750microns Wet Film Thickness (WFT). Applied in 3 coats by brush or roll at 250microns WFT per coat, or 2 coats by airless spray at 350microns WFT per coat.
Spread rates are approximate and will vary for different timber surfaces.

// SURFACE PREPARATION

All surfaces must be clean, dry and sound. The substrate is to be free of any loose or flaking paint prior to the application of F1E. Do not apply to timber that is wet.

// APPLICATION

EQUIPMENT:
F1E can be applied by brush, roller or airless spray.

SPRAY

- For best results use a piston pump airless spray with a minimum 1GPM rating at 3000psi. (the Graco 795, 1095 or equivalent are ideal)
- Tip: 521 - 623 or similar.
- Filters: Internal Filters can be removed. Leave mesh on pick up. 30 mesh can be used as minimum.
- Pressure: 2100 PSI or higher.
- Hose: Use minimum size of 10mm (3/8") airless spray line for the first 15 metres from pump.
- Use of a dedicated spray line is required.

BRUSH

Use top quality polyester/nylon blend brush-ware or similar.

ROLLER

10mm - 20mm polyester blend nap roller or foam sleeves are recommended, subject to the type of substrate surface. Laying off a rolled surface immediately with a brush is recommended for finish purposes.

TEMPERATURE:

Temperature at time of application must be at least 12°C and rising, with a relative humidity no greater than 80%. Do not apply if temperature will fall below 12°C within two hours of application. Application should not proceed if surface or air temperatures exceed 34°C. Optimum application temperature is 24°C with a relative humidity of less than 50%. It is the sole responsibility of the applicator to ensure that F1E has been applied in accordance with the specification.

PRODUCT:

Prior to use, stir the contents of the pail thoroughly for at least 3 minutes using a power mixer, ensuring paint is mixed from bottom to top of the pail. Apply in 2-3 coats to achieve the total Dry Film Thickness required. See full Manufacturer's Specification for MSDS.

CLEAN UP

Thoroughly rinse application tools with water before paint is cured. Flush airless spray equipment out with water as soon as work ceases to ensure effective cleaning.

// RECOAT AND DRY TIMES

Recoat time is 4 hours in ideal drying conditions of 24°C with sufficient air flow and a relative humidity below 50%. Lower temperatures and/or higher humidity will increase dry time. Allow enough time between successive coats to permit proper drying. **Do not recoat surfaces until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure**, Failure to let the coating fully dry between coats may lead to cracking and peeling. Recoat times are quoted for 24°C and 50% relative humidity. These may vary under different conditions. Full hardness achieved after 2 weeks.

// LIMITATIONS

Surfaces to be coated must be inspected prior to application to ensure that they are clean, dry and sound condition. Any repair work of the structure or substrate should be attended to prior to application of the system. F1E should be applied within 12 months of purchase.

// MAINTENANCE

REPAIR OF INSTALLED F1E SYSTEM

- Damaged areas exposing the uncoated timber should be repaired immediately.
- Repair any damage to the substrate if required prior to re application of FIRESHELL F1E.
- Remove any loose material and sand any rough edges.
- Apply F1E to the damaged area at the originally specified thickness and as per the manufacturer's specification.

Disclaimer

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EXFIRE
FIRE RATED COATING SOLUTIONS