



**HOLIDAY COAST
BUSHFIRE SOLUTIONS**

PTY LTD

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BUSHFIRE ASSESSMENT REPORT

REPORT PREPARED IN RELATION TO:	GROUP HOME
PROPERTY DESCRIPTION:	LOT 67 in UNREGISTERED DP, GADUYING COURT, NAMBUCCA HEADS, NSW.
REPORT COMMISSIONED BY: (my Client)	Mr R. Lentell, ProjX Development & Project Management.

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1	Original Report.

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IMPORTANT NOTICE

Site inspections, and the results found herein, are carried out in accordance with the methodology as set out in the documents Planning for Bushfire Protection 2019.

The results of the site inspections and their correlation with PBP-2019 are based on information provided by the "Reference Documents" and information provided by the Client (or his/her agents).

HCBS Pty Ltd will not be held liable for the omission to provide, or restrict access to, critical information (such as restrictions on property Title, easements, relevant consultant reports, etc) relevant to this development proposal.

The author of this Report, S. Ellis, possesses qualifications which include Graduate Diploma in Design for Bushfire Prone Areas (UWS) and Certificate 2 & 3 in Firefighting Operations and Certificate 4 in Firefighting Supervision.

This Report is not an application for a Bushfire Safety Authority, but rather forms part of such application. It is the proponent's responsibility to provide the Consent Authority with an assessment of the matters set out in Clause 45 of the Rural Fires Regulation 2022. It is the Consent Authority's responsibility to provide the application for a Bushfire Safety Authority to the NSW Rural Fire Service, in its entirety.

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GLOSSARY

Acceptable solution	Measures which have been deemed to meet the specified performance criteria.
Assembly point	An area or building/structure that is used to assemble people for evacuation or that have evacuated from a site in an emergency situation.
Asset protection zone (APZ)	A fuel-reduced area surrounding a built asset or structure which provides a buffer zone between a bushfire hazard and an asset. The APZ includes a defensible space within which firefighting operations can be carried out. The size of the required asset protection zone varies with slope, vegetation and Fire Danger Index (FDI).
Australian Standard AS 3959 (AS 3959)	AS 3959:2009 <i>Construction of buildings in bushfire-prone areas</i> , Standards Australia, 2009.
BAL certificate	A certificate issued to identify the bushfire attack level (BAL) of a proposed development in the Complying Development process under State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
BFCC	Bush Fire Coordinating Committee
BFMC	Bush Fire Management Committee
Bushfire assessment report	A report submitted with the development application (DA) which establishes compliance with PBP. The report determines the extent of bushfire attack and the proposed mitigation measures. Appendix 1 sets out the information requirements for a bushfire assessment. See also clause 44 of the <i>Rural Fires Regulation 2013</i> .



Bushfire attack level (BAL)	A means of measuring the severity of a building's potential exposure to ember attack, radiant heat and direct flame contact. In the Building Code of Australia, the BAL is used as the basis for establishing the requirements for construction to improve protection of building elements.
Bushfire	An unplanned fire burning in vegetation; also referred to as wildfire.
Bushfire attack	Attack by burning embers, radiant heat or flame generated by a bushfire.
Bushfire hazard	Any vegetation that has the potential to threaten lives, property or the environment.
Bushfire prone land (BPL)	An area of land that can support a bushfire or is likely to be subject to bushfire attack, as designated on a bushfire prone land map.
Bushfire prone land map (BPLM)	A map prepared in accordance with NSW RFS requirements and certified by the Commissioner of the NSW RFS under section 10.3(2) of the <i>Environmental Planning and Assessment Act 1979</i> .
Bushfire protection measures (BPMs)	A range of measures (controls) used to minimise the risk arising from a bushfire. BPMs include asset protection zones (APZs), construction standards, suitable access, water and utility services, emergency management and landscaping.
Bushfire risk	Is the likelihood and consequence of a bushfire igniting, spreading and causing damage to assets of value to the community. Risk may be rated as being extreme, major, moderate, minor or insignificant and is related to the vulnerability of the asset.
BRMP	Bushfire Risk Management Plan
Bushfire safety authority (BSA)	An approval by the Commissioner of the NSW RFS that is required for a subdivision for residential or rural residential purpose or for a SFPP development listed under section 100B (6) of the <i>Rural Fires Act 1997</i> .
Certifying authority	As defined in the <i>Environmental Planning and Assessment Act 1979</i> , those with authority to issue Part 6 certificates and Complying Development Certificates (CDCs).
Complying development	Complying development is a combined planning and construction approval for straightforward development that can be determined through a fast track assessment by a council or private accredited certifier.
Consent authority	As defined in the <i>Environmental Planning and Assessment Act 1979</i> , in relation to development consents, usually the local council.
Defendable space	An area adjoining an asset that is managed to reduce combustible elements and is free from constructed impediments. It is a safe working environment in which active firefighting can be undertaken to defend the structure, before and after the passage of a bushfire.
Development	As defined in the <i>Environmental Planning and Assessment Act 1979</i> .
Development application (DA)	An application for consent to carry out development such as building, subdivision, or the use of a building or land. Applications are normally made to the local council.
Development footprint	The building envelope or area shown on a plan over which any buildings and associated asset protection zones may be constructed.
Ecologically sustainable development	As defined in section 6 of the <i>Protection of the Environment Administration Act (NSW) 1991</i> .
Effective slope	The land beneath the vegetation which most significantly affects fire behaviour, having regard to the vegetation present.
Exit	A doorway opening to a road or open space, as defined in the National Construction Code (NCC).



(Forest) Fire Danger Index (FDI or FFDI)	The chance of a fire starting, its rate of spread, its intensity and the difficulty of its suppression, according to various combinations of air temperature, relative humidity, wind speed and both the long- and short-term drought effects. Note: FDI in PBP refers to the Forest Fire Danger Index calculated by the McArthur Mk 5 Forest Fire Danger Meter using the equations published by Noble, I.R., Bary, G.A.V., and Gill, A.M., 1980. Grassland Fire Danger Index (GFDI) values are calculated by the McArthur Mk 4 Grassland Fire Danger Meter using the equations published by Purton, C.M., 1982.
Flame zone	The distance from a bushfire at which there is deemed to be significant potential for sustained flame contact to a building. The flame zone is determined by the calculated distance at which the radiant heat from the design fire exceeds 40kW/m ² .
Grasslands	Grassed areas capable of sustaining a fire. Under Australian Standard 3959, this is identified as low open shrubland, hummock grassland, closed tussock grassland, tussock grassland, open tussock, sparse open tussock, dense sown pasture, sown pasture, open herbfield, and sparse open herb field. Grass, whether exotic or native, which is regularly maintained at or below 10cm in height (including maintained lawns, golf courses, maintained public reserves, parklands, nature strips and commercial nurseries) is regarded as managed land.
Grassland deeming provision	An acceptable solution applying to properties in grassland hazard areas which replaces the site assessment procedure in AS 3959.
Infill development	Refers to the development of land by the erection of or addition to, a building (or buildings), which is within an existing allotment and does not require the spatial extension of services. Existing services may include public roads, electricity, water or sewerage.
Inner protection area (IPA)	The component of an asset protection zone which is closest to the asset (measured from drip line). It consists of an area maintained to minimal fuel loads so that a fire path is not created between the hazard and the building.
Integrated development	As referred to under s4.46 (formerly S91) of the <i>Environmental Planning and Assessment Act 1979</i> , an integrated development is one that requires development consent and approval from one or more government agencies, and is not a state significant development (SSD) or complying development.
Isolated development	Development which is located predominantly in native bushland or is considered to be within a remote area. Access and evacuation may be challenging due to distances that are required to be travelled through bushfire prone areas.
Local Environmental Plan (LEP)	An environmental planning instrument prepared under Part 3 of the <i>Environmental Planning and Assessment Act 1979</i> . Local environmental plans guide planning decisions and the ways in which land is used through zoning and development controls.
Managed land	Land that has vegetation removed or maintained to a level that limits the spread and impact of bushfire. It may include existing developed land (residential, commercial or industrial), roads, golf course fairways, playgrounds, sports fields, vineyards, orchards, cultivated ornamental gardens and commercial nurseries. Most common will be gardens and lawns within curtilage of buildings. These areas will be managed to meet the requirements of an asset protection zone.
National Construction Code (NCC)	The National Construction Code, published by the Australian Building Codes Board, comprising the Building Code of Australia as Volumes One and Two, and the Plumbing Code of Australia as Volume Three.
Outer protection area (OPA)	The outer component of an asset protection zone, where fuel loads are maintained at a level where the intensity of an approaching bushfire would be significantly reduced. Applies to forest vegetation only.



Performance-based solution	A method of complying with the Performance Criteria other than by an acceptable solution.
Primitive camping	A predetermined site which is part of a commercially operated venture where there may already be a site for a tent and a fire pit.
Setback	The distance required through planning provisions to separate a building from the bushfire hazard, street frontage or from adjacent buildings or property boundary.
Short fire run	A fire run which has a single point of ignition and a short distance to travel, where the calculated resultant head width is less than 100 metres.
Special fire protection purpose (SFPP) developments	Developments where the vulnerable nature of the occupants means a lower radiant heat threshold is required in order to allow the evacuation of occupants, and emergency services to operate in support of those occupants.
State Environmental Planning Policy (SEPP)	An environmental planning instrument prepared under Part 3 of the <i>Environmental Planning and Assessment Act 1979</i> .
Subdivision	As defined in the <i>Environmental Planning and Assessment Act 1979</i> .
Tourist accommodation	A building or place that provides temporary or short-term accommodation on a commercial basis including backpackers accommodation, bed and breakfast accommodation, farm stay accommodation, hotel or motel accommodation and serviced apartments.
Vegetation classification	Vegetation type identified using the formations and classifications within <i>Ocean Shores to Desert Dunes: The Native Vegetation of New South Wales and the ACT</i> (Keith, 2004).



1 FRAMEWORK

Below are relevant extracts of the document “*Planning for Bushfire Protection 2019*” (PBP-2019). Sections have been suitably modified to reflect the scope of this proposed development and its relationship with the relevant legislation.

1.1 Legal Framework

The Environmental Planning and Assessment Act 1979 (EP&A Act) and the Rural Fires Act 1997 (RF Act) were amended on 1 August 2002 to enhance bushfire protection in the development assessment process.

The NSW land use planning framework provides, in broad terms, two main phases: strategic planning and development assessment.

PBP-2019 provides the foundation for the application of bushfire protection during both of these phases of development. Appropriate consideration of bushfire hazards at the strategic planning phase is required by the EP&A Act s.9.1(2) and PBP-2019 should be considered in applying the Section 9.1 Direction.

At the development assessment phase, development on land that is identified as being bushfire-prone must comply with PBP-2019. Some types of development on BPL can be undertaken as Complying Development and must also comply with PBP-2019.

A bushfire safety authority (BSA) is required from the NSW RFS for residential and rural residential subdivision and SFPP developments on BPL. An application for a BSA must address the extent to which the development complies with PBP-2019.

Building work on BPL must also comply with the requirements of the National Construction Code (NCC). The NCC contains the technical provisions for the design and construction of buildings. Under the Deemed to Satisfy provisions of the NCC, building work on BPL must comply with Australian Standard 3959:2018 Construction of buildings in bushfire-prone areas (AS 3959) or the National Association of Steel Framed Housing (2014) Steel Framed Construction in Bushfire Areas (NASH Standard). This does not apply however in Bushfire Attack Level - Flame Zone (BAL-FZ), or where modified by the specific conditions of the relevant development consent.

1.2 Bushfire Prone Land Mapping

The identification of Bushfire Prone Land in NSW is required under the EP&A Act s.10.3. BPL Maps provide the trigger for the various development assessment provisions.

The Commissioner of the NSW RFS designates what constitutes BPL and how it is to be mapped. Each council prepares a map in accordance with the guidelines and submits the map to the NSW RFS for certification by the Commissioner. These maps are required to be recertified at least every five years and the Commissioner may make direct changes to a BPL Map at any time.



Guidelines for the mapping of BPL can be found on the NSW RFS website at www.rfs.nsw.gov.au.

You can determine whether a site is mapped as being bushfire prone by referring to the BPL Map which is held by the local council, or on the NSW RFS website.

The BPL Map is a trigger for the consideration of BPL Maps for new development. It is not intended as a detailed measure of risk. The map does not form part of the site assessment process, which must be carried out in accordance with Appendix 1 of PBP-2019. A consent authority can refer a development application (DA) to the NSW RFS under the provisions of EP&A Act s.4.15, even where it is not mapped as BPL.

The subject property has been identified as BPL by the Nambucca Valley Council's BPL map, an extract of which is provided below. It should be noted that although the current BPL Map identifies the site as bushfire-prone land, the current approvals for the estate result in much of the identified hazard areas being managed in a non-hazard state. Ground-truthing of the area confirms that the subject property is not bushfire-prone land.

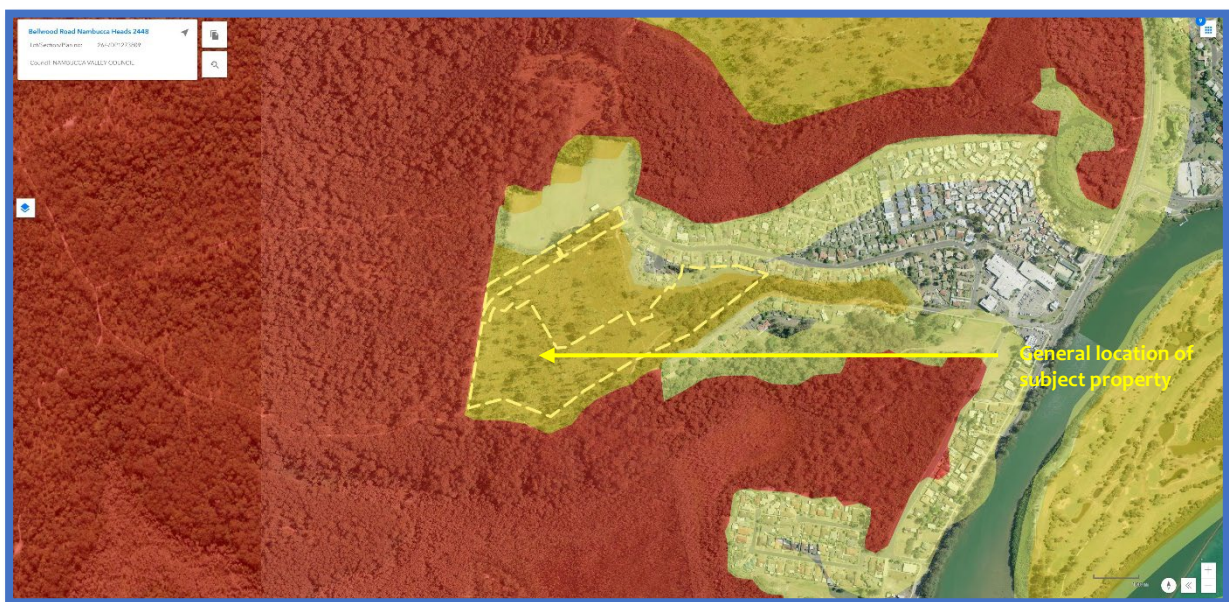


Figure 1: extract of NVC's BPLM

1.3 Strategic planning

Strategic planning is the preparation of planning instruments and policies and includes the making of Local Environmental Plans (LEPs), Development Control Plans (DCPs), housing strategies and other planning instruments that identify proposed uses and land zonings. This also includes any associated strategic proposals and studies.

The strategic planning phase of development is particularly important in contributing to the creation of safer and sustainable communities (COAG 2011). It is an effective way of achieving bushfire protection objectives in new developments.



Strategic bushfire planning and studies are needed to avoid high risk areas, ensure that zoning is appropriate to allow for adequate emergency access, egress, and water supplies, and to ensure that future compliance with *PBP-2019* is achievable.

The most important objective for strategic planning is to identify whether new development is appropriate subject to the identified bushfire risk on a landscape scale. An assessment of proposed land uses and potential for development to impact on existing infrastructure is also a key element of the strategic planning process in bushfire-prone areas. Land use planning policies can be introduced to limit the number of people exposed to unacceptable risk.

Planning instruments and policies can ensure bushfire management principles are given appropriate consideration at all stages of the planning and development process.

Once development has been assessed as being appropriate in its bushfire-prone context, it will need to be capable of complying with *PBP-2019*. The ability of proposed land uses and associated future developments to comply with *PBP-2019* will be assessed at the strategic planning stage. The expectation will be that the development will be able to comply with *PBP-2019* at the DA stage.

1.4 Development assessment

The provisions of *PBP-2019* apply to all development on land which is bushfire-prone (see section 1.2 of this document). *PBP-2019* may also apply where proposals are referred to the NSW RFS under other referral instruments such as EP&A Act s.4.15.

If a development of a type not specifically addressed in *PBP-2019* is proposed on BPL, the development must meet the Aim and Objectives of *PBP-2019* and the consent authority can refer the proposal to the NSW RFS for advice. The NSW RFS will advise which specific standards apply to that development. In these circumstances, the development proposal will be a performance-based solution and in more complex cases, this may be achieved collaboratively through the Bushfire Design Brief (BDB) process.

The vast majority of DAs in NSW are assessed by local councils. Councils may assess DAs for certain developments on BPL that are compliant with this document without the need to refer the proposal to the NSW RFS.

In certain cases building work may not require development consent and can proceed through the Exempt or Complying Development process if the development type is covered by a State Environmental Planning Policy (SEPP) or the relevant LEP.

For further information on development types, please contact the local council or the NSW Department of Planning, Industry and Environment (DPIE).

1.4.1 Development requiring a BSA

Proposals for subdivision and SFPP development on BPL require an approval from the NSW RFS in the form of a BSA under RF Act s.100B.



Development requiring a BSA is considered Integrated Development under EP&A Act s.4.46.

The BSA is critical in ensuring these key developments are designed and located in a manner that is suitable to protect human life and facilitate appropriate operational firefighting arrangements. This is a means by which the NSW RFS Commissioner fulfills their statutory obligation to ensure the protection of the community, including firefighters from the impacts of bushfire.

1.4.2 State significant development and infrastructure

In September 2011, EP&A Act pt. 3A was repealed, leading to the creation of two new major project development categories: state significant infrastructure (SSI) and state significant development (SSD).

Because of their size, complexity, importance and/or potential impact, DPIE is predominantly responsible for assessing these DAs. The Minister for Planning and Public Spaces is the consent authority for SSI and SSD applications.

Applications under the now-repealed Part 3A of the EP&A Act and state significant projects are exempt from requiring a BSA and are not required to be assessed under EP&A Act s4.14.

Given the scale of SSI and SSD projects, the requirements of PBP-2019 should still be applied, and seeking advice from the NSW RFS is encouraged. Even where comments have been provided by the NSW RFS at the strategic planning stage, future DAs may benefit from further advice from the NSW RFS.

1.4.3 Streamlining development assessment

The NSW Government has provided a pathway for streamlined assessment to occur under the Environmental Planning and Assessment Regulation 2000 (EP&A Regulation) cl.273 for new lots in Urban Release Areas (URAs) that are located on BPL.

The streamlining process allows the assessment of bushfire provisions at subdivision stage within URAs and may exempt the lots from reassessment of bushfire issues when land owners are ready to develop their lots. Post-Subdivision Bushfire Attack Level (BAL) Certificates may be issued assigning BALs to all individual lots within the subdivision. An applicant can rely on this Post-Subdivision BAL Certificate for Complying Development up to and including BAL-29.

The option to use Complying Development also allows for a streamlined process for developing on BPL.



1.4.4 Infill and other development

The EP&A Act s.4.14 requires that the consent authority be satisfied that the relevant specifications and requirements of PBP-2019 are complied with for development on BPL. This applies to any development other than subdivision of land that could lawfully be used for residential purposes or development for a SFPP. This can be achieved by the following means:

- a. the consent authority is satisfied that the development conforms to the specifications and requirements of PBP-2019; or
- b. the consent authority has been provided with a certificate by a person who is recognised by the NSW RFS as a qualified consultant in bushfire risk assessment stating that the development conforms to the relevant specifications and requirements; or
- c. If the consent authority is satisfied that the development does not conform to the relevant requirements of PBP-2019, it may still grant consent to the development but only after it has consulted with the Commissioner of the NSW RFS concerning measures to be taken with respect to the development to protect persons, property and the environment from danger that may arise from a bushfire.

1.4.5 Exempt and Complying Development

Some straightforward residential, commercial and industrial development can be undertaken as Exempt or Complying Development under various SEPPs and LEPs.

Exempt Development is minor building works that can be carried out without development approval, such as decks, garden sheds, carports and fences.

Complying Development can be undertaken on lower risk BPL up to and including BAL-29 where the appropriate construction requirements and all other relevant development standards have been met. Complying Development is not permitted on higher risk BPL (BAL-40 or BAL-FZ) and a DA is required in these circumstances.

Specified development requirements and standards apply to new development, including alterations and additions, to ensure the relevant provisions of PBP-2019 are met. This allows for Complying Development on BPL, while maintaining an appropriate assessment regime for managing bushfire risk.

In certain circumstances, a BAL Certificate must be obtained from the local council or a person recognised by the NSW RFS as a suitably qualified consultant in bushfire assessment, stating that the development is not located in BAL-40 or BAL-FZ.

The development must also meet the identified development standards within the relevant SEPP or LEPs.



1.5 Construction provisions: the National Construction Code (NCC) and bushfire standards

The NCC is a performance based code which comprises the Building Code of Australia (BCA) as Volumes 1 and 2 and the Plumbing Code of Australia as Volume 3.

The NCC contains Performance Requirements and Deemed-to-Satisfy provisions relating to the construction of buildings in bushfire-prone areas. In NSW, these provisions apply to Class 1, 2 and 3 buildings, Class 4 parts of a building, Class 9 buildings that are SFPPs, and associated class 10a buildings and decks.

The construction requirements of AS 3959 and the National Association of Steel-framed Housing (NASH) Standard are a Deemed-to-Satisfy solutions in the NCC, as varied in NSW, for buildings in designated bushfire-prone areas.

1.6 Planning for Bushfire Protection

1.6.1 Aim and objectives

All development on BPL must satisfy the aim and objectives of Planning for Bushfire Protection (PBP-2019).

The aim of PBP-2019 is to provide for the protection of human life and minimise impacts on property from the threat of bushfire, while having due regard to development potential, site characteristics and protection of the environment.

The objectives are to:

- afford buildings and their occupants protection from exposure to a bushfire;
- provide for a defensible 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 appropriate 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.

1.6.2 Bushfire protection principles

Bushfire protection can be achieved through a combination of strategies which are based on the following principles:

- control the types of development permissible in bushfire-prone areas;
- minimise the impact of radiant heat and direct flame contact by separating development from bushfire hazards;
- minimise the vulnerability of buildings to ignition and fire spread from flames, radiation and embers;



- enable appropriate access and egress for the public and firefighters;
- provide adequate water supplies for bushfire suppression operations;
- focus on property preparedness, including emergency planning and property maintenance requirements; and
- facilitate the maintenance of Asset Protection Zones (APZs), fire trails, access for firefighting and on site equipment for fire suppression.

1.6.3 How to use PBP

Applications for development on BPL should include a bushfire assessment report. This report must demonstrate that the proposal satisfies the requirements of PBP-2019. All applications must meet the Aim and Objectives of PBP-2019.

PBP-2019 uses a performance-based approach, and identifies objectives and detailed performance criteria to satisfy desired outcomes and meet the Aim and Objectives. Ultimately, any performance-based approach must demonstrate that bushfire protection is afforded to a proposed development commensurate with the assessed level of bushfire risk and the characteristics of the occupants.

This can be achieved by either applying the identified acceptable solutions, or by preparing a performance-based solution.

A performance-based solution must be designed to achieve the appropriate level of protection by tailoring a package of measures which meet the intent and performance criteria relevant to the proposed development.

Bushfire Protection Measures are set out in Chapter 3 of PBP-2019. Performance criteria and acceptable solutions are shown for each specified development type in Chapters 5 – 8 of PBP-2019.

1.6.3.1 Bushfire protection measures

Bushfire Protection Measures are the relevant specifications and requirements that need to be satisfied to improve life safety, property protection and community resilience to bushfire attack. They include:

- APZs;
- Access;
- Construction, siting and design;
- Landscaping;
- Services; and
- Emergency and evacuation planning.

1.6.3.2 Intent

For each BPM, a broad intent is outlined. The ensuing performance criteria and acceptable solutions are designed to ensure that the general intent for each BPM is met.



1.6.3.3 Performance criteria

Performance criteria are the outcomes that need to be achieved to satisfy the intent. The performance criteria can be satisfied in one of the following ways:

- acceptable solutions; or
- performance-based solution; or
- the combination of the above.

1.6.3.4 Acceptable solutions

Chapters 5 - 8 of *PBP-2019* identify acceptable solutions which are considered by the NSW RFS as meeting the performance criteria.

1.6.3.5 Performance based solutions

Performance-based solutions allow flexibility and innovation in responding to site-specific opportunities and constraints while still meeting the identified performance criteria. They also allow the consideration of a broad range of issues and information, including bushfire risk, community expectations, environmental protection and the application of new science, processes and technologies.

Performance-based solutions must provide substantiated evidence and clearly demonstrate how the specific objectives and performance criteria are to be satisfied.

When performance-based solutions are proposed, they will be assessed on their merits and individual circumstances. In these circumstances, a Bushfire Design Brief (BDB) process can be undertaken which would involve early agreement on the key elements and acceptance criteria from all stakeholders including the NSW RFS.

Performance-based solutions may be undertaken for any of the BPMs detailed in Chapter 3 of *PBP-2019* and supported in accordance with the submission requirements in Appendix 2 of *PBP-2019*.



2 GENERAL DESCRIPTION OF THE LAND AND PROPOSAL

2.1 Property Description

A site assessment was carried out by me on Monday 30th January 2023 for the purpose of preparing a Bushfire Risk Report as required by clause 45 of the *Rural Fires Regulation 2022*.

The site is currently vacant land and is part of a recent urban subdivision known as *Bellbird Estate*. The property is located near the south-western interface of Nambucca Heads. The Nambucca State Forest is located to the west, and new residential development adjoins the site on all exposures.



Figure 2: aerial image of new residential estate
(© Google, 2022)

Existing access to and from the site is via Gaduying Court, then north along Birraw Street onto Janggal Janggal Road, then east towards Marshall Way. Eventually dial access onto Janggal Janggal Road will be achieved from within the residential estate.



Figure 3: looking east across site

2.2 Development Proposal

The proposed development involves constructing a detached dual-dwelling development that will be utilised as a Group Home. This office has been provided with limited details of the proposal, however a roof plan (site plan) and elevations are provided below.





Figure 5: elevations (Aaron Stevens Architects, 13/12/2022)



3 SITE ASSESSMENT

3.1 Vegetation Assessment

The procedure adopted for the site inspection followed the site assessment methodology of PBP-2019. The methodology is outlined below.

A1.1 - Site assessment methodology for determining APZs and BALs	
Identify APZs	
Step 1:	Determine vegetation formation in all directions around the building to a distance of 140 metres (refer to A1.2);
Step 2:	Determine the effective slope of the land from the building for a distance of 100 metres (refer to A1.4 and A1.5);
Step 3:	Determine the relevant FFDI for the council area in which the development is to be undertaken (refer to A1.6); and
Step 4:	Match the relevant FFDI, vegetation formation and effective slope to determine the APZ required from the appropriate table of this Appendix (refer to A1.7).
Identify construction requirements	
Step 1:	Follow steps 1 - 3 above;
Step 2:	Determine the separation distance by measuring from the edge of the unmanaged vegetation to the closest external wall;
Step 3:	Match the relevant FFDI, appropriate vegetation, distance and effective slope to determine the appropriate BAL using the relevant tables at the end of this section (A1.12.5, A1.12.6 and A1.12.7); and
Step 4:	Refer to Section 3 in AS 3959 and NASH Standard to identify appropriate construction requirements for the calculated BAL.

A vegetation assessment was carried out to include a distance of 140 metres from the proposed building envelope, in all directions. It is determined that the general vegetation description is summarised as follows:

Table 1: vegetation description

ASPECT	VEGETATION DESCRIPTION
North	All of the land within the assessment area to the north of the site is managed land as part of the Bellbird Estate residential area.
East	All of the land within the assessment area to the east of the site is managed land as part of the Bellbird Estate residential area.
South	All of the land within 100 m to the south of the site is managed land as part of the Bellbird Estate residential area.
West	All of the land within the assessment area to the west of the site is managed land as part of the Bellbird Estate residential area.



3.2 Vegetation Classification

The vegetation found has been classified into the classes described in Table A2.1 of PBP-2019, and summarised in the following Table. If multiple vegetation forms constrain the sites, the vegetation Class imposing the greater constraint has been listed.

Table 2: vegetation class summary

ASPECT	VEGETATION CLASSIFICATION
North	Managed land
East	Managed land
South	Managed land
West	Managed land

3.3 Slope Assessment

A slope assessment was carried out to include a distance of 100 metres from the proposed building envelope, in all directions, in accordance with A3.4 of the document PBP-2019. Slope was determined using a clinometer.

The gradient that would most significantly influence wildfire behaviour varied and is summarised as follows:

Table 3: effective slope summary

ASPECT	VEGETATION CLASSIFICATION	EFFECTIVE SLOPE
North	Managed land	Not applicable
East	Managed land	Not applicable
South	Managed land	Not applicable
West	Managed land	Not applicable

The result of the site assessment is that the subject site is not located on bushfire-prone land. The rest of this Report will be an abridged version of my usual Bushfire Assessment Report due to the fact that PBP-2019 no longer applies to the site.



4 CLAUSE 45 OF THE RURAL FIRES REGULATION 2022

4.1 A bushfire assessment for the proposed development (including the methodology used in the assessment) that addresses the following matters:

4.2 The extent to which the development is to provide for setbacks, including asset protection zones

The separation distances between the site and the nearest unmanaged bushfire hazard vegetation is in excess of 100 m in all directions.

4.3 The siting and adequacy of water supplies for fire fighting

The site is serviced by Council's reticulated water supply. A fire hydrant (HP) is located in the nature strip on the opposite side of the cul-de-sac.

4.4 The capacity of public roads in the vicinity to handle increased volumes of traffic in the event of a bush fire emergency

No new public roads are proposed as part of this development. The residential estate has been designed and constructed to meet the relevant PBP provisions for access.

4.5 Whether or not public roads in the vicinity that link with the fire trail network have two-way access

Yes. Janggal Janggal Road provides access to the nearby fire trail network.

4.6 The adequacy of arrangements for access to and egress from the development site for the purposes of an emergency response

Yes. The residential estate has been designed and constructed to meet the relevant PBP provisions for access.



The property access road provisions do not apply to the proposed development due to the distance from the street frontage to the most distant external part of a building not exceeding 70 m.

Unrestricted firefighter access should be provided around the curtilage of the buildings in the event of a (bush or house) fire.

4.7 The adequacy of bush fire maintenance plans and fire emergency procedures for the development site

The property is not located on bushfire-prone land. Notwithstanding, the landscaping of the site should comply with the NSW Rural Fire Service principles for design and maintaining APZs.

4.8 The construction standards to be used for building elements in the development

The property is not located on bushfire-prone land, therefore the construction requirements of PBP-2019 and AS 3959 *Construction of buildings in bushfire-prone areas* do not apply to the site.

4.9 The adequacy of sprinkler systems and other fire protection measures to be incorporated into the development

Not required.

4.10 Any registered fire trails on the property

There are not known to be any fire trails on the property.

4.11 An assessment of the extent to which the proposed development conforms with or deviates from the standards, specific objectives and performance criteria set out in Planning for Bushfire Protection.

In each of the following subsections below are the *Performance Criteria* contained within the *Special Fire Protection Purpose* provisions of PBP-2019. The Table at each subsection will



list the *Performance Criteria*, and a statement will be provided as to whether the *Performance Criteria* has been complied with, or is able to be met.

4.11.1 Asset Protection Zones and Landscaping

Below are the *Performance Criteria* listed in Table 6.8a of *PBP-2019*, for APZs and landscaping, and a statement as to whether the proposed development complies with the *Performance Criteria*.

	Performance Criteria	Acceptable Solution	Complies / Does not comply
Asset Protection Zones	[1] Radiant heat levels of greater than 10kW/m ² (calculated at 1200K) will not be experienced on any part of the building.	[1.1] The building is provided with an APZ in accordance with Table A1.12.1 in Appendix 1.	Not applicable
	[2] APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	[2.1] APZs are located on lands with a slope less than 18 degrees.	Not applicable
	[3a] APZs are managed and maintained to prevent the spread of fire to the building. [3b] The APZ is provided in perpetuity	[3.1] 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; [3.2] APZ are wholly within the boundaries of the development site; and [3.3] Other structures located within the APZ need to be located further than 6m from the refuge building.	Not applicable Not applicable Not applicable
	Variations		
	Camping and primitive camping: no performance criteria applicable.	N/A.	Not applicable
	Bed and breakfast and farmstay: the building will not be exposed to radiant heat levels exceeding 29kW/m ² (1090K).	An APZ is provided in accordance with Tables A1.12.2 or A1.12.3 in Appendix 1 of this document around the entire building or structure.	Not applicable
	Ecotourism: radiant heat levels of greater than 10kW/m ² (1200K) are not experienced by emergency service personnel and occupants during firefighting and emergency management around a building on site that can be used as a refuge.	An APZ is provided in accordance with Table A1.12.1 in Appendix 1 of this document around the entire refuge building or structure.	Not applicable



	Manufactured home estates: APZs achieve radiant heat levels that are commensurate with the construction standard for the proposed dwellings.	An APZ in accordance with Table A1.12.1 in Appendix 1 of this document is provided to all new dwellings; or An APZ in accordance with Table A1.12.2 or A1.12.3 in Appendix 1 of this document is provided where it is demonstrated that all new dwellings will be constructed in accordance with BAL-29.	Not applicable Not applicable
	Landscaping [4] Landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions.	[4.1] Landscaping is in accordance with Appendix 4; and [4.2] Fencing is constructed in accordance with section 7.6.	Not applicable Not applicable

Designing and maintaining landscaped areas to meet the principles of APZs is good practice, even for properties located beyond 100 m from bushfire hazard vegetation.

4.11.2 Building Construction Standards

Below are the *Performance Criteria* listed in Table 6.8a of PBP-2019 for construction, and a statement as to whether the proposed development complies with the *Performance Criteria*.

	Performance Criteria	Acceptable Solution	Complies / Does not comply
Construction Standards	[5] The proposed building can withstand bush fire attack in the form of wind, embers, radiant heat and flame contact.	[5.1] A construction level of BAL-12.5 under AS 3959 or NASH Standard and section 7.5 of PBP is applied.	Not applicable
	Variations		
	Camping and primitive camping: no performance criteria applicable.	N/A.	Not applicable
	Bed and breakfast and farmstay: the proposed building can withstand bush fire attack in the form of wind, embers, radiant heat and flame contact.	Construction is applied in accordance with Appendix 1 of PBP.	Not applicable
	Ecotourism: the proposed refuge building can withstand bush fire attack in the form of wind, embers, radiant heat and flame contact.	A construction level of BAL-12.5 or greater is applied to the refuge building in accordance with AS 3959 or NASH Standard and 7.5 of PBP.	Not applicable
	Manufactured home estates: the proposed manufactured home can withstand bush fire attack in the	Where an APZ is provided in accordance with Table A1.12.1 in Appendix 1 of this document the	Not applicable



	form of wind, embers, radiant heat and flame contact.	construction standards for BAL-12.5 shall apply; or Where an APZ is provided in accordance with Table A1.12.2 or A1.12.3 in Appendix 1 of this document the construction standards for BAL-29 shall apply.	Not applicable
	Ecotourism: occupants of the ecotourism facility are provided with appropriate shelter in the event of a bush fire.	A refuge building is provided; The refuge building must have sufficient space for all occupants and comply with the occupancy levels permissible for that structure; and	Not applicable
		The refuge building must be constructed to BAL-12.5 or greater in accordance with AS 3959 or NASH Standard and 7.5 of PBP.	Not applicable

Even though the provisions of *PBP-2019* and *AS 3959 Construction of buildings in bushfire-prone areas* do not apply to buildings located more than 100 m from unmanaged bushfire hazard vegetation, the adverse effects of ember attack can affect buildings beyond these distances. It is good building design to provide ember-protection for buildings beyond these distances.

4.11.3 Access Provisions

Below are the *Performance Criteria* listed in Table 6.8b of *PBP-2019* for access, and a statement as to whether the proposed development complies with the *Performance Criteria*.

	Performance Criteria	Acceptable Solution	Complies / Does not comply
General Access	[6] Firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.	[6.1] SFPP access roads are two-wheel drive, all-weather roads;	Not applicable
		[6.2] Access is provided to all structures;	Not applicable
		[6.3] Traffic management devices are constructed to not prohibit access by emergency services vehicles;	Not applicable
		[6.4] Access roads must provide suitable turning areas in accordance with Appendix 3; and	Not applicable



		[6.5] 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.	Not applicable
	Variations		
	Primitive camping: Firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.	Access is provided in accordance with the property access requirements of Table 5.3b.	Not applicable
	Bed and breakfast and farmstay: Firefighting vehicles are provided with safe, all-weather access to structures.	Access is provided in accordance with the property access requirements of Table 5.3b.	Not applicable
	Ecotourism: fire fighting vehicles are provided with safe, all-weather access to the proposed refuge building.	Vehicular access is provided to the refuge building from a public road in accordance with property access requirements of Table 5.3b; Accommodation is within 100m of the refuge building; and Pedestrian paths from accommodation to the refuge building/s are provided and clearly signposted.	Not applicable
	[7] The capacity of access roads is adequate for firefighting vehicles.	[7.1] 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.	Not applicable
	[8] There is appropriate access to water supply.	[8.1] Hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression; [8.2] Hydrants are provided in accordance with the relevant clauses of AS 2419.1:2005; and [8.3] There is suitable access for a Category 1 fire appliances to within 4m of the static water supply where no reticulated supply is available.	Not applicable Not applicable Not applicable



Perimeter Roads	<p>[9] 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.</p>	<p>[9.1] There are two-way sealed roads;</p> <p>[9.2] Minimum 8m carriageway width kerb to kerb;</p> <p>[9.3] Parking is provided outside of the carriageway width;</p> <p>[9.4] Hydrants are to be located clear of parking areas;</p> <p>[9.5] There are through roads, and these are linked to the internal road system at an interval of no greater than 500m;</p> <p>[9.6] Curves of roads have a minimum inner radius of 6m;</p> <p>[9.7] The maximum grade road is 15 degrees and average grade of not more than 10 degrees;</p> <p>[9.8] The road crossfall does not exceed 3 degrees; and</p> <p>[9.9] A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.</p>	<p>Not applicable</p> <p>Not applicable</p> <p>Not applicable</p> <p>Not applicable</p> <p>Not applicable</p> <p>Not applicable</p> <p>Not applicable</p> <p>Not applicable</p>
Non-perimeter Roads	<p>[10] Non-perimeter access roads are designed to allow safe access and egress for firefighting vehicles while occupants are evacuating.</p>	<p>[10.1] Minimum 5.5m carriageway width kerb to kerb;</p> <p>[10.2] Parking is provided outside of the carriageway width;</p> <p>[10.3] Hydrants are located clear of parking areas;</p> <p>[10.4] There are through roads, and these are linked to the internal road system at an interval of no greater than 500m;</p> <p>[10.5] Curves of roads have a minimum inner radius of 6m;</p> <p>[10.6] The maximum grade road is 15 degrees and average grade of not more than 10 degrees;</p> <p>[10.7] The road crossfall does not exceed 3 degrees; and</p> <p>[10.8] A minimum vertical clearance of 4m to any overhanging</p>	<p>Not applicable</p> <p>Not applicable</p> <p>Not applicable</p> <p>Not applicable</p> <p>Not applicable</p> <p>Not applicable</p> <p>Not applicable</p> <p>Not applicable</p>



		obstructions, including tree branches, is provided.	
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None of the PBP-2019 access provisions apply to the site due to the concession provided in PBP-2019:

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.

4.11.4 Water Supply and Utilities

Below are the *Performance Criteria* listed in Table 6.8c of PBP-2019 for utility services, and a statement as to whether the proposed development complies with the *Performance Criteria*.

	Performance Criteria	Acceptable Solution	Complies / Does not comply
Water Supply	[11] An adequate water supply for firefighting purposes is installed and maintained.	<p>[11.1] Reticulated water is to be provided to the development, where available; or</p> <p>[11.2] A 10,000 litres minimum static water supply for firefighting purposes is provided for each occupied building where no reticulated water is available.</p>	<p>Not applicable</p> <p>Not applicable</p>
	Variations		
	<p>Caravan and camping grounds: an adequate water supply for firefighting purposes is installed and maintained.</p> <p>Primitive camping: an adequate water supply for firefighting purposes is installed and maintained.</p>	Either a reticulated water supply is provided or a 10,000 litres minimum water supply on site.	Not applicable
	[12a] Water supplies are located at regular intervals.	[12.1] Fire hydrant spacing, design and sizing comply with the relevant clauses of AS 2419.1:2005;	Not applicable
	[12b] The water supply is accessible and reliable for firefighting operations.	<p>[12.2] Hydrants are not located within any road carriageway; and</p> <p>[12.3] Reticulated water supply to SFPPs uses a ring main system for areas with perimeter roads.</p>	<p>Not applicable</p> <p>Not applicable</p>



	[13] Flows and pressure are appropriate.	[13.1] Fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2005.	Not applicable
	[14] The integrity of the water supply is maintained.	[14.1] All above-ground water service pipes external to the building are metal, including and up to any taps.	Not applicable
	[15] Water supplies are adequate in areas where reticulated water is not available	[15.1] A connection for firefighting purposes is located within the IPA or non hazard side and away from the structure; a 65mm Storz outlet with a ball valve is fitted to the outlet;	Not applicable
		[15.2] Ball valve and pipes are adequate for water flow and are metal;	Not applicable
		[15.3] Supply pipes from tank to ball valve have the same bore size to ensure flow volume;	Not applicable
		[15.4] Underground tanks have an access hole of 200mm to allow tankers to refill direct from the tank;	Not applicable
		[15.5] A hardened ground surface for truck access is supplied within 4m of the access hole;	Not applicable
		[15.6] Above-ground tanks are manufactured from concrete or metal;	Not applicable
		[15.7] Raised tanks have their stands constructed from non-combustible material or bush fire-resisting timber (see Appendix F AS 3959);	Not applicable
		[15.8] Unobstructed access is provided at all times;	Not applicable
		[15.9] Tanks on the hazard side of a building are provided with adequate shielding for the protection of firefighters; and	Not applicable
		[15.10] Underground tanks are clearly marked;	Not applicable
		[15.11] All exposed water pipes external to the building are metal, including any fittings;	Not applicable
		[15.12] Where pumps are provided, they are a minimum 5hp or 3kW petrol or diesel-powered	Not applicable



		<p>pump, and are shielded against bush fire attack; Any hose and reel for firefighting connected to the pump shall be 19mm internal diameter; and</p> <p>[15.13] Fire hose reels are constructed in accordance with AS/NZS 1221:1997 <i>Fire hose reels</i>, and installed in accordance with the relevant clauses of AS 2441:2005 <i>Installation of fire hose reels</i>.</p>	Not applicable
Electricity Service	[16] Location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings.	<p>[16.1] Where practicable, electrical transmission lines are underground;</p> <p>[16.2] Where overhead, electrical transmission lines are proposed as follow:</p> <ul style="list-style-type: none"> * 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 <i>Guideline for Managing Vegetation Near Power Lines</i>. 	<p>Not applicable</p> <p>Not applicable</p>
Gas Service	[17] Location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.	<p>[17.1] 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;</p> <p>[17.2] All fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side;</p> <p>[17.3] Connections to and from gas cylinders are metal;</p> <p>[17.4] 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;</p>	<p>Not applicable</p> <p>Not applicable</p> <p>Not applicable</p> <p>Not applicable</p>



		<p>[17.5] Polymer-sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used; and</p> <p>[17.6] Above-ground gas service pipes external to the building are metal, including and up to any outlets.</p>	<p>Not applicable</p> <p>Not applicable</p>
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None of the utility services provisions of PBP-2019 apply to buildings located more than 100 m from unmanaged bushfire hazard vegetation.

4.11.5 Emergency Management

Below are the *Performance Criteria* listed in Table 6.8d of PBP-2019 for emergency management, and a statement as to whether the proposed development complies with the *Performance Criteria*.

	Performance Criteria	Acceptable Solution	Complies / Does not comply
Emergency Management	[18] A Bush Fire Emergency Management and Evacuation Plan is prepared.	<p>[18.1] Bush Fire Emergency Management and Evacuation Plan is prepared consistent with the:</p> <ul style="list-style-type: none"> * The NSW RFS document: <i>A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan</i>; * NSW RFS Schools Program Guide; Australian Standard AS 3745:2010 <i>Planning for emergencies in facilities</i>; and * Australian Standard AS 4083:2010 <i>Planning for emergencies – Health care facilities</i> (where applicable). <p>[18.2] The Bush Fire Emergency Management and Evacuation Plan should include planning for the early relocation of occupants.</p> <p>Note: A copy of the Bush Fire Emergency Management and Evacuation Plan should be provided to the Local Emergency Management</p>	<p>Complies</p> <p>Complies</p>



		Committee for its information prior to occupation of the development.	
	Variations		
	<p>Caravan and camping grounds: a Bush Fire Emergency Management and Evacuation Plan is prepared.</p> <p>Primitive camping: a Bush Fire Emergency Management and Evacuation Plan is prepared.</p> <p>Ecotourism: a Bush Fire Emergency Management and Evacuation Plan is prepared.</p>	<p>A Bush Fire Emergency Management and Evacuation Plan is prepared consistent with the NSW RFS document: <i>A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan</i>, and AS 3745:2010;</p> <p>For proposals in isolated or remote areas which involve large travel distances through bush fire prone vegetation, the following issues should be determined and addressed:</p> <ul style="list-style-type: none"> * the amount of travel likely to be generated during an emergency evacuation; * the capacity of the broader road network to facilitate safe emergency evacuation; * limitations/constraints inherent in the road system; and * management of potential traffic conflicts (such as emergency vehicles versus evacuating members of the public). <p>The Bush Fire Emergency Management and Evacuation Plan must consider a mechanism for the early relocation of occupants on days when adverse fire weather is notified or adverse fire activity occurs in the local government area in which the development operates.</p> <p>Note: A copy of the Bush Fire Emergency Management and Evacuation Plan shall be provided to the Local Emergency Management Committee for its information prior to occupation of the development.</p>	Complies
	[19] Appropriate and adequate management arrangements are established for consultation and implementation of the Bush Fire	[19.1] An Emergency Planning Committee is established to consult with residents (and their families in the case of aged care accommodation	Complies



	Emergency Management and Evacuation Plan.	and schools) and staff in developing and implementing an Emergency Procedures Manual; and [19.2] Detailed plans of all emergency assembly areas including on-site and off-site arrangements as stated in AS 3745:2010 are clearly displayed, and an annually emergency evacuation is conducted.	Complies
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None of the emergency management provisions of *PBP-2019* apply to buildings located more than 100 m from unmanaged bushfire hazard vegetation.



5 SUMMARY / CONCLUSION

This Report assesses the construction of a dual-dwelling group home. The subject property is not bushfire-prone land, even though the current BPL map for the area identifies that it is. Ground-truthing of the site and surrounds, and reviewing currently approved subdivision plans, confirms that the property should no longer be considered bushfire-prone land.

Even though the provisions of *PBP-2019* should not apply to the property, some basic *Bushfire Protection Measures* are beneficial beyond the bushfire-prone land limits. For this reason, this Report cites the *PBP-2019* requirements and makes some recommendations for *Bushfire Protection Measures*. Those *Bushfire Protection Measures* though, should not be imposed on a development consent. In this case, it is a matter for the owner of the site to determine what *Bushfire Protection Measures* are provided.

Holiday Coast Bushfire Solutions Pty Ltd
Grad. Dip. Design in Bushfire Prone Areas (UWS)



6 REFERENCES

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7 APPENDICES