



AEP

ECOLOGY | OFFSETS | BUSHFIRE | ARBORICULTURE

Bushfire Threat Assessment

Proposed Newcastle Golf Course Retirement Village
4A Vardon Road, Fern Bay, NSW



Prepared for: Principle Living

Date: 12 March 2025

AEP Ref: 2313.04

Revision: 02

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Document Control

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Client Name	Principle Living
AEP Project Team	Natalie Black Chris Wark Brendon Young

Revision

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01	12/12/2023	Chris Wark	Natalie Black	Craig Anderson
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1.0 Introduction

At the request of Chris Old C/- Principle Living (the Client), Anderson Environment & Planning (AEP) have undertaken the necessary investigations to inform the production of a Bushfire Threat Assessment (BTA) report addressing the proposed development of construction of Retirement Village and associated civil infrastructure (the Proposal) at 4A Vardon Road, Fern Bay NSW (the Subject Site).

This BTA is specifically intended to assess the bushfire protection measures required by the NSW Rural Fire Service's "Planning for Bushfire Protection 2019" (PBP) and the construction requirements of the proposed development in accordance with the provisions of the Building Code of Australia – Volume 1 & 2, Edition 2022 and Australian Standard 3959-2018 (AS 3959) – "Construction of buildings in bushfire-prone areas".

The proposal is a Seniors Living Development and includes the following key components:

- Site preparation & establishment activities – clearing existing vegetation, demolition of existing golf course via earthworks, bulk earthworks;
- Establishment of vehicular access from Vardon Road with Emergency Access onto Nelson Bay Road;
- Construction and occupancy of a seniors living development comprising:
 - Three (3) apartment buildings containing 125 serviced self-care dwellings; and
 - Forty seven (47) single storey (villas) serviced self-care dwellings;
- Carparking - 295 spaces across the site with each villa being provided with a double garage (94 spaces) and 201 basement carparking spaces within the three apartment buildings;
- Provision of pedestrian and vehicular access to and from the site;
- Establishment of a Community centre & administration building;
- Pickle ball courts, lawn bowls facility, open space, landscaping, picnic shelter, public art, open lawn area for passive recreational activities and formal striking planting;
- Civil works including internal access roads, pedestrian linkages to Nelson Bay Road and the golf club; and
- Connection to Country 'Keeping Place'.

In accordance with the PBP 2019, as the development is for Seniors Living it falls under the Special Fire Protection Purpose (SFPP).

The development is assessed under 100B of the Rural Fires Act as Integrated development under Section 4.46 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). In combination with Section 100B of the *Rural Fires Act 1997* (RF Act), a Bushfire Safety Authority (BSA) is required from the Rural Fire Service (RFS) to enable the development to proceed. This BTA addresses the required heads of consideration relevant to obtaining approval.

For the purposes of referencing, this document should be referred to as:

Anderson Environment & Planning (March, 2025). *Bushfire Threat Assessment for proposed construction of Retirement Village and associated civil infrastructure at 4A Vardon Road, Fern Bay NSW*. Revision 2. Unpublished report for Principle Living.

2.0 Site Particulars

Table 1 – Site Particulars

Detail	Comments
Client	Principle Living
Address	4A Vardon Road, Fern Bay, NSW 2295
Title(s)	Lot 105 DP 614883 and Lot 4 DP 823114
Study Area	Area of land out to 140m from the edge of the Subject Site to assess off site vegetation.
Subject Site	The subject site comprises of approximately 7.4ha, requiring the clearing of approx. 1.7ha (Figure 1).
LGA	Port Stephens
Zoning	Under the <i>Port Stephens Local Environmental Plan 2013</i> (the LEP), the Subject Site is zoned RE2 – Private Recreation.
Current Land Use	The Subject Site exists as a functioning Golf Club. The site encompasses large areas of managed turf and remnant canopy vegetation.
Surrounding Land Use	The Subject Site is bounded to the west by Nelson Bay Road, an area of residential development and beyond that the Hunter Wetlands National Park, a Ramsar listed wetland and the Hunter River Channel. Land to the south contains the residential suburb of Fern Bay, land to the east and north of the Subject Site is the existing operational golf course. Beyond the golf course to the southeast and east comprises Worimi Regional Park with large areas of continuous native vegetation. To the north of the Subject Area is Bayway Village, an over 50s lifestyle development.

Figure 1 depicts the extent of the Study Area overlain on an aerial photograph of the locality.






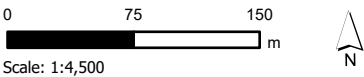
-  Lot Boundary
-  Development Footprint
-  Cadastre

Figure 1 - Site Location

Address: 4 Vardon Road, Fern Bay
Client: Principle Living
AEP Ref: 2313.04 | Date: March 2025

Imagery: Nearmap 2024
Spatial Reference: GDA2020 MGA Zone 56



Disclaimer: While reasonable care has been taken to ensure the information on this map is accurate and up-to-date, errors or omissions may still occur. Please verify the accuracy of all information before use. Note that boundaries are not survey accurate and do not scale off this plan.

3.0 Proposed Development

It is proposed to construct a Retirement Village covering an area of approximately 7.41ha at 4A Vardon Road, Fern Bay NSW. The proposal is a Seniors Living Development and includes the following key components:

- Site preparation & establishment activities – clearing existing vegetation, demolition of existing golf course via earthworks, bulk earthworks;
- Establishment of vehicular access from Vardon Road with Emergency Access onto Nelson Bay Road;
- Construction and occupancy of a seniors living development comprising:
 - Three (3) apartment buildings containing 125 serviced self-care dwellings; and
 - Forty seven (47) single storey (villas) serviced self-care dwellings;
- Carparking - 295 spaces across the site with each villa being provided with a double garage (94 spaces) and 201 basement carparking spaces within the three apartment buildings;
- Provision of pedestrian and vehicular access to and from the site;
- Establishment of a Community centre & administration building;
- Pickle ball courts, lawn bowls facility, open space, landscaping, picnic shelter, public art, open lawn area for passive recreational activities and formal striking planting;
- Civil works including internal access roads, pedestrian linkages to Nelson Bay Road and the golf club; and
- Connection to Country 'Keeping Place'.

As the proposal is designated as a Seniors Living, Special Fire Protection Purpose (SFPP) provisions apply with regard to APZs and other design constraints.

Figure 2 depicts the proposed development plan within the Site.



AC	AIR CONDITIONING - REFER TO MECHANICAL DOCUMENTATION
ACP	ALUMINIUM COMPOSITE PANEL
AFL	ABOVE FLOOR LEVEL
AHD	AUSTRALIAN HEIGHT DATUM
AL	ALUMINIUM LOUVER
ALS	ALUMINIUM BATTEN
ALB	VERTICAL ALUMINIUM SCREEN
AS	AUSTRALIAN STANDARD
BAL	BALLUSTRADE
BF	BI-FOLD DOOR
BG	BOX GUTTER
BIN	GARBAGE BIN
BLK	CONCRETE BLOCKWORK
BRK	BRICKWORK
BOL	BOLLARD
CBG	COLOUR-BACKED GLASS
CEC	COMPRESSED FIBRE CEMENT

CLD CLADDING
CLS CLOTHESLINE
COL COLUMN - REFER TO STRUCTURAL DOCUMENTATION
CONC CONCRETE
COS CONFIRM ON SITE
CPC COLORBOND PARAPET CAPPING
CR CEMENT RENDER
CW COLD WATER
DP DOWNPIPE - REFER TO HYDRAULIC DOCUMENTATION
EDS ELECTRICAL DISTRIBUTION BOARD - REFER TO ELECTRICAL DOCUMENTATION
EG EAVES GUTTER - REFER TO HYDRAULIC DOCUMENTATION
EJ EXPANSION JOINT
EQ EQUAL SPACING
FAN CEILING FAN
FB FACE BRICK
FCL FIBRE CEMENT SHEETING
FFL FINISHED FLOOR LEVEL


FG	FIXED GLASS
FH	FIRE HYDRANT - REFER TO HYDRAULIC DOCUMENTATION
FHR	FIRE HOSE REEL - REFER TO HYDRAULIC DOCUMENTATION
FI	FIRE INDICATOR PANEL TO CONSULTANTS REQUIREMENTS
FR	FIRE RESISTANCE
FT	FLOOR TILES
FW	FLOOR WASTE
G	GLASS
GD	GRATED DRAIN
GL	GLASS LOUVRES
GRD	GARAGE DOOR
GP	GRATED PIT - REFER TO HYDRAULIC DOCUMENTATION
GW	GLASS WINDOW
HB	HAND BASIN
HD	HINGED DOOR
HR	HANDRAIL
HYD	HYDRAULIC

HYD	HYDRAULIC
LB	LINING BOARDS
LDL	DOWNLIGHT
LTB	LETTERBOX
LVR	LOUVRE
LWL	WALL LIGHT
MC	METAL CLADDING
MECH	MECHANICAL
Mi	MIRROR
MRS	METAL ROOF SHEETING
MW	MATWELL
MWS	METAL WALL SHEETING
OG	OPAQUE GLASS
OPW	OPERABLE WALL
PAV	EXTERNAL PAVING
PC	POLYCARBONATE SHEETING
PCT	POWDERCOAT

PD	PIVOT DOOR
PS	POST - TIMBER
PT	PAINT FINISH
PTD	PAPER TOWEL DISPENSER
RC	REINFORCED CONCRETE
RL	REDUCED LEVEL
RS	ROLLER SHUTTER
RWT	RAINWATER TANK
SC	STONE CLADDING
SD	SLIDING DOORT
SKL	SKYLIGHT
SMP	RAIN WATER SUMP
SP	SPANDREL PANEL
SS	STAINLESS STEEL
SSL	STRUCTURAL STEEL LEVEL
ST	STONE
SV	STACK VENT - REF TO HYDRAULIC DOCUMENTATION

SWR	SEWER PIPE - REFER TO HYDRAULIC DOCUMENTATION
TB	TIMBER BEAM
TBR	TIMBER
TC	TIMBER CLADDING
TGSI	TACTILE GROUND SURFACE INDICATORS
TL	TILE
TS	TIMBER SOFFIT
TSC	TIMBER SCREEN
TV	TIMBER VENEER
TYP	TYPICAL
UIS	UNDERSIDE
WB	WEATHERBOARDS
WC	WATER CLOSET
WIR	WALK IN ROBE
WS	WHEEL STOP
#	No. DENOTES TYPE AS SCHEDULED






Certificate No. 0009131130

Scan QR code or follow website link for rating details.

Assessor name Joseph Lorrیمان

Accreditation No. DMN/16/1742

Property Address 4 Vardon Road, Fern Bay NSW, 2295



hstar.com.au/QR/Generate?p=ceEtdxTeo

REV	DATE	COMMENTS
D	30/10/2023	Preliminary DA Issue
E	24/11/2023	Development Application Issue
F	10/12/2023	Development Application Issue
G	16/05/2024	Planning Adjustments
H	19/06/2024	Re-issue to BASIX Consultant
I	1/07/2024	Re-issue to client
J	5/07/2024	Re-issue to client
K	19/07/2024	Development Application Re-issue
L	26/11/2024	Consultant Issue

[illegible]

PROJECT : APPERLY VILLAGE

CLIENT : PRINCIPLE LIVING
SUITE 3, 317 HUNTER ST,
NEWCASTLE, NSW, 2300

SITE : 4 VARDON ROAD,
FERN BAY, NSW 2259

DRAWING : **OVERALL PLAN - GROUND LEVEL**

WORK IN FIGURED DIMENSIONS IN PREFERENCE TO SCALE. CHECK DIMENSIONS AND LEVELS ON SITE PRIOR TO THE ORDERING OF MATERIALS OR THE COMPLETION OF WORKSHOP DRAWINGS. IF IN DOUBT, CALL, REPORT ALL ERRORS AND OMISSIONS.

FILENAME : 11586 - Newcastle Golf AMENDED MASTERPLAN_2023

DRAWN : DATE : SCALES @A3 :

JY/RE 26/10/2024 1:2000

PROJECT No : PHASE : DRAWING No : REV :

11586 DA A15 L

EJE

4.0 Bushfire Hazard Assessment

4.1 Bushfire Prone Land Mapping

Examination of NSW Planning Portal, Bushfire Prone Land (BPL) Mapping (2023) confirmed that the Subject Site is mapped as “Bushfire Prone Land – Vegetation Buffer”. This designation has triggered the need for the assessment (**Figure 3**).

Appendix 1 of the PBP provides the steps required to determine the level of bushfire hazard that applies to the site. Factors influencing the hazard level include:

- The formation of vegetation surrounding the site (as defined by Keith 2004);
- The distance between vegetation and the site (or proposed buildings therein);
- The effective slope for each patch of vegetation; and
- The Fire Danger Index (FDI) of the council area within which the development occurs.

These factors together provide an indication of the level of threat posed to the development from any vegetation retained within the site and surrounding vegetation in the event of a bushfire, and the required mitigation measures to be taken in the form of defensible space. These measures are detailed further in **Section 5** below.










- | | |
|---|---|
|  Lot Boundary | NSW Bush Fire Prone Lands |
|  Development Footprint |  Category Buffer |
|  Cadastre |  Category 1 |
| |  Category 2 |
| |  Category 3 |

Figure 3 - Bushfire Prone Land

Address: 4 Vardon Road, Fern Bay
Client: Principle Living
AEP Ref: 2313.04 | Date: March 2025

Imagery: Nearmap 2024
Spatial Reference: GDA2020 MGA Zone 56

0 75 150
m
Scale: 1:4,500



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4.2 Vegetation and Slope Analysis

The Subject Site and surrounds occur within the Port Stephens LGA, with existing vegetation subsequently classified with a Fire Danger Index (FDI) of 100 as NSW Rural Fire Service (2017) NSW Local Government Areas FDI.

Vegetation communities present within the 140m surrounding the development and slope assessment within 100m from hazard vegetation are shown in **Table 2** and **Figure 4**.

Table 2 – Hazard Vegetation and Slope Assessment

Aspect	Hazard Vegetation (140m)	Slope (100m)	SFPP APZs (140m)
North	Managed Vegetation	Upslope/Flat	N/A
North East	Rainforest (Simplified Approach)	Upslope/Flat	38m
East	Rainforest (Simplified Approach)	Upslope/Flat	38m
South East	Managed Vegetation	Upslope/Flat	N/A
South	Managed Vegetation	Upslope/Flat	N/A
South West	Managed Vegetation	Upslope/Flat	N/A
West	Managed Vegetation	Upslope/Flat	N/A
North West	Managed Vegetation	Upslope/Flat	N/A

Appendix A contains photos showing the vegetation types within the 140m vegetation assessment buffer around the Subject Site.

Managed areas of the Golf Course and residential areas have been considered managed vegetation, as such no APZ applies.



Lot Boundary

Contour - 2m

Short Fire Run (Rainforest)

Development Footprint

Low Threat Vegetation (Mangroves)

Cadastre

Managed Forest

Figure 4 - Slope and Hazard Assessment

Address: 4 Vardon Road, Fern Bay
Client: Principle Living
AEP Ref: 2313.04 | Date: March 2025

Imagery: Nearmap 2024
Spatial Reference: GDA2020 MGA Zone 56

0 75 150
m
Scale: 1:4,500



Disclaimer: While reasonable care has been taken to ensure the information on this map is accurate and up-to-date, errors or omissions may still occur. Please verify the accuracy of all information before use. Note that boundaries are not survey accurate and do not scale off this plan.

4.3 PBP Performance Criteria Assessment

Tables 3 assesses the proposed development against the Objectives, demonstrating compliance against the Special Fire Protection Purpose Development guidelines.

Table 3 – Performance Criteria Measures for SFPP development

Performance Criteria	Acceptable Solutions	Comments
Asset Protection Zones		
Radiant heat levels of greater than 10kW/ m ² (calculated at 1200K) will not be experienced on any part of the refuge building	The refuge building is provided with an APZ in accordance with Table A1.12.1 in Appendix 1.	All required SFPP APZs are provided within the managed areas of the golf course and all proposed dwellings are located outside of the required SFPP APZs. While APZs are located outside of the proposed development, these are located within the Golf Course which manages the land already and will continue to do so as part of the maintenance of the Golf Course grounds.
APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised	APZs are located on lands with a slope less than 18 degrees.	
APZs are managed and maintained to prevent the spread of fire to the building.	The APZ is managed in accordance with the requirements of Appendix 4 of this document, and is wholly within the boundaries of the development site.	
The APZ is provided in perpetuity.	APZ are wholly within the boundaries of the development site; and other structures located within the APZ need to be located further than 6m from the refuge building.	
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;	N/A
	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.	N/A
Landscaping		
Landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions.	Landscaping is in accordance with Appendix 4;	Landscaping is to be designed to meet the requirements of Appendix 4 in PBP 2019. It is recommended that landscaping is not placed directly adjacent to buildings and that an area of low-cut lawn or pavement is maintained in this area.

Performance Criteria	Acceptable Solutions	Comments
		Shrubs should not be planted under or near windows.
	Fencing is constructed in accordance with Section 7.6.	Fencing is to be constructed in accordance with Section 7.6 of PBP 2019.
The proposed refuge buildings can withstand bush fire attack in the form of wind, embers, radiant heat and flame contact.	A construction level of BAL-19 or greater under AS 3959 or NASH Standard and section 7.5 of PBP is applied.	All dwellings within the retirement village are to be built to a minimum BAL-19 Standard.
Construction Standards		
The proposed refuge buildings can withstand bush fire attack in the form of wind, embers, radiant heat and flame contact.	A construction level of BAL-19 or greater under AS 3959 or NASH Standard and section 7.5 of PBP is applied.	All dwellings within the retirement village are to be built to a minimum BAL-19 Standard.
Manufactured home estates: the proposed manufactured home can withstand bush fire attack in the form of wind, embers, radiant heat and flame contact.	Where an APZ is provided in accordance with Table A1.12.1 in Appendix 1 of this document the construction standards for BAL-19 shall apply.	N/A
	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.	N/A
Access		
Firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation	SFPP access roads are two-wheel drive, all-weather roads.	Access roads are all two-wheel drive and accessible in all weather.
	Access is provided to all refuge buildings.	No refuge buildings proposed, access is provided to all dwellings.
	Traffic management devices are constructed to not prohibit access by emergency services vehicles.	Traffic management devices are not to prohibit access by emergency service vehicles. The emergency access onto Nelson Bay Road is to be gated and a key given to the RFS to ensure access. The village gate off Vardon road is to be designed in such a way as to not impeded emergency access to the RFS with RFS given an override code or key to allow entry at all times.

Performance Criteria	Acceptable Solutions	Comments
	Access roads must provide suitable turning areas in accordance with Appendix 3.	<p>Two internal dead ends are proposed at the north and east off the main entry road that comes in from Vardon Road.</p> <p>The northern road has a dead end which approx. 100m in length. The dead-end road is to be clearly signposted and is to have an appropriately sized turn around area (min 12m radius).</p> <p>A second dead end road is located off the main entry road. The entry to this area is to be clearly marked as a dead-end road and is to be designed to meet or better minimum requirements for turning so that it can be used as per a Type B turning head in PBP 2019.</p> <p>The closed eastern emergency exit onto Nelson Bay Road is to be clearly sign posted and a key provided to the RFS to allow them access through this road in the case of an emergency.</p>
	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.	There are no one-way public access roads proposed.
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.	The capacity of road surfaces is to be constructed to carry a fully loaded firefighting vehicle.
There is appropriate access to water supply.	Hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression	Hydrants are to be located outside of parking reserved and road carriageways while still ensuring access for fire suppression.
	Hydrants are provided in accordance with the relevant clauses of AS 2419.1:2021	Hydrants are to be provided in accordance with relevant clauses in AS 2419.1:2021.

Performance Criteria	Acceptable Solutions	Comments
	There is suitable access for a Category 1 fire appliances to within 4m of the static water supply where no reticulated supply is available	N/A – Proposed development will have a reticulated water supply.
Perimeter Roads		
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.	There are two-way sealed roads;	The proposed development does not have perimeter roads. As the development is surrounded by managed lands to the north, east and south (which is managed as a Golf Course) as well as a major road to the west it is considered that the development is suitably separated from the hazard vegetation and vegetation in a currently managed state will remain so in perpetuity due to the presence of Newcastle Golf Course. As mentioned previously an emergency access point is proposed onto Nelson Bay Road. This will be locked to normal traffic but RFS are to be given a key so that they can access this road in the case of an emergency.
	Minimum 8m carriageway width kerb to kerb	
	Parking is provided outside of the carriageway width	
	Hydrants are to be located clear of parking areas	
	There are through roads, and these are linked to the internal road system at an interval of no greater than 500m	
	Curves of roads have a minimum inner radius of 6m	
	The maximum grade road is 15 degrees and average grade of not more than 10 degrees	
	The road crossfall does not exceed 3 degrees	
	A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.	
Non- Perimeter Roads		
Non-perimeter access roads are designed to allow safe access and egress for firefighting vehicles while occupants are evacuating.	Minimum 5.5m carriageway width kerb to kerb.	Non-perimeter access roads are to be greater than 5.5m in width.
	Parking is provided outside of the carriageway width.	Parking is to be provided outside of the 5.5m carriageway width.
	Hydrants are located clear of parking areas.	Hydrants are to be located clear of parking areas.
	There are through roads, and these are linked to the internal road system at an interval of no greater than 500m.	Two internal dead ends are proposed at the north and east off the main entry road that comes in from Vardon Road. The northern road has a dead end which approx. 100m in length. The dead-end road is to be clearly

Performance Criteria	Acceptable Solutions	Comments
		<p>signposted and is to have an appropriately sized turn around area (min 12m radius).</p> <p>A second dead end road is located off the main entry road. The entry to this area is to be clearly marked as a dead-end road and is to be designed to meet or better minimum requirements for turning so that it can be used as per a Type B turning head in PBP 2019.</p> <p>The closed eastern emergency exit onto Nelson Bay Road is to be clearly sign posted and a key provided to the RFS to allow them access through this road in the case of an emergency.</p>
	Curves of roads have a minimum inner radius of 6m.	Curves of roads are to have a minimum inner radius of 6m
	The maximum grade road is 15 degrees and average grade of not more than 10 degrees.	The development is located on a flat area of land and so road grades are not more than 10 degrees.
	The road crossfall does not exceed 3 degrees.	Road crossfall is not to exceed 3 degrees.
	A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.	There is to be a minimum 4m vertical clearance provided at all times
Water Supply		
An adequate water supply for firefighting purposes is installed and maintained.	reticulated water is to be provided to the development, where available.	The development is serviced by reticulated water.
	A 10,000 litres minimum static water supply for firefighting purposes is provided for each occupied building where no reticulated water is available.	N/A – proposal is connected to reticulated water.
Water supplies are adequate in areas where reticulated water is not available	A 10,000 litres minimum static water supply for firefighting purposes is provided for each occupied building where no reticulated water is available.	N/A
	A connection for fire-fighting purposes is located within the Inner Protection Area or non-hazard side	N/A

Performance Criteria	Acceptable Solutions	Comments
	and away from the structure; a 65mm Storz outlet with ball valve is fitted to the outlet.	
	Ball valve and pipes are adequate for water flow and are metal.	Ball valve and pipes are adequate for water flow and are metal.
	Supply pipes from tank to ball valve have the same bore size to ensure flow volume.	Supply pipes from tank to ball valve have the same bore size to ensure flow volume.
	Underground tanks have an access hole of 200mm to allow tankers to refill direct from the tank	Underground tanks have an access hole of 200mm to allow tankers to refill direct from the tank.
	A hardened ground surface for truck access is supplied within 4m of the access hole	A hardened ground surface for truck access is supplied within 4m of the access hole.
	Above-ground tanks are manufactured from concrete or metal	Above-ground tanks must be manufactured from concrete or metal.
	Tanks on the hazard side of a building are provided with adequate shielding for the protection of firefighters	Tanks on the hazard side of a building are provided with adequate shielding for the protection of firefighters.
	Underground tanks are clearly marked	Underground tanks must be clearly marked.
	All exposed water pipes external to the building are metal, including fittings	All exposed water pipes external to the building should be metal, including fittings.
	Where pumps are provided, they have a minimum 5hp or 3kw petrol or diesel-powered pump, and are shielded against bush fire attack; Any hose and reel for firefighting connected to the pump shall be 19mm internal diameter	Where pumps are provided, they will have a minimum 5hp or 3kw petrol or diesel-powered pump, and are shielded against bush fire attack; Any hose and reel for firefighting connected to the pump shall be 19mm internal diameter.
	Fire hose reels are constructed in accordance with AS/NZS 1221:1997 Fire hose reels, and installed in accordance with the relevant clauses of AS 2441:2005 installation of fire hose reels.	Fire hose reels must be constructed in accordance with AS/NZS 1221:1997 Fire hose reels, and installed in accordance with the relevant clauses of AS 2441:2005 installation of fire hose reels.
Water supplies are located at regular intervals. the water supply is accessible and reliable for firefighting operations.	Fire hydrant spacing, design and sizing comply with the relevant clauses of AS 2419.1:2021	Hydrant spacing, design and sizing is to comply with relevant clauses of AS 2419.1:2021.
	Hydrants are not located within any road carriageway	Hydrants are not to be located within the road carriageway

Performance Criteria	Acceptable Solutions	Comments
	Reticulated water supply to SFPPs uses a ring main system for areas with perimeter roads	A ring main system is to be provided within the development.
Flows and pressure are appropriate	Fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2021.	Fire hydrant flows and pressure are to comply with the relevant clauses of AS 2419.1:2021
	The integrity of the water supply is maintained.	The integrity of the water supply is maintained.
Electricity Services		
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	Electrical transmission lines are underground.
	Where overhead, electrical transmission lines are proposed as follows: lines are installed with short pole spacing of 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 ISSC3 Guideline for Managing Vegetation Near Power Lines.	Where overhead, electrical transmission lines are proposed as follows: <ul style="list-style-type: none"> lines are installed with short pole spacing of 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 ISSC3 Guideline for Managing Vegetation Near Power Lines.
Gas Services		
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;	Reticulated or bottled gas is to be installed and maintained in accordance with AS/NZS 1596:2014 and the requirements of relevant authorities and metal piping is to be used.
	All fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side;	All fixed gas cylinders are to be kept clear of flammable materials to a distance of 10m and shielded on the eastern and northeastern side.
	Connections to and from gas cylinders are metal;	Connections to and from gas cylinders are to be metal
	If gas cylinders need to be kept close to the building, safety valves are directed away from the building and at least 2m away from any combustible material, so they do not act as a catalyst to combustion	Gas cylinders close to the building are to have safety valves directed away from the building and 2m from any combustible material

Performance Criteria	Acceptable Solutions	Comments
	Polymer-sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used	Supply lines are to be metal.
	Above-ground gas service pipes external to the building are metal, including and up to any outlets	Supply lines are to be metal.
Emergency Management		
Bush Fire Emergency Management and Evacuation Plan is prepared.	<p>Bush Fire Emergency Management and Evacuation Plan is prepared consistent with the:</p> <p>The NSW RFS document: A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan;</p> <p>NSW RFS Schools Program Guide;</p> <p>Australian Standard AS 3745:2010 Planning for emergencies in facilities; and</p> <p>Australian Standard AS 4083:2010 Planning for emergencies – Health care facilities (where applicable).</p>	Before occupation a Bushfire Emergency Management and Evacuation Plan is to be prepared. It is not considered that there would be any issues associated with meeting this requirement.
	The Bush Fire Emergency Management and Evacuation Plan should include planning for the early relocation of occupants.	The Bushfire Emergency Management and Evacuation Plan is to include the planning for early evacuation and relocation of occupants of the proposed development.
Appropriate and adequate management arrangements are established for consultation and implementation of the Bush Fire Emergency Management and Evacuation Plan.	An Emergency Planning Committee is established to consult with residents (and their families in the case of aged care accommodation and schools) and staff in developing and implementing an Emergency Procedures Manual;	An Emergency Planning Committee is to be established and is to consult with residents in the development of the Emergency Procedures Manual.
	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.	Detailed Plans of all emergency assembly areas are to be clearly displayed and an annual emergency evacuation test is to be conducted.

5.0 Bushfire Hazard Assessment

5.1 Construction Standards – AS 3959-2018

The identification of proximate hazards post development has resulted in the need for APZs, because of the Retirement Village designation SFPP APZs apply. No refuge buildings are proposed but any dwellings will need to be built to a minimum of BAL 19 standards.

The Australian Standard 3959-2021 Construction of buildings in bushfire prone areas, details six (6) levels of construction standards that are required for buildings, depending upon the expected impact of a bushfire from adjacent areas. These Bushfire Attack Levels (BALs) are measured from the edge of the hazard and incorporate vegetation type and slopes (see above) to determine the relevant distance for each BAL rating (and associated construction standard).

The relationship between the expected impact of a bushfire and the BAL rating is provided in **Table 4** below.

Table 4 – BAL Construction Standard levels

Bushfire Attack Level	Maximum radiant heat impact (kW/m ²)	Level of construction standard under AS 3959-2018
Low		No special construction requirements
12.5	≤12.5	BAL – 12.5
19	12.6 to 19.0	BAL – 19
29	19.1 to 29	BAL - 29
40	29 to 40	BAL – 40
Flame Zone	≥40	BAL – FZ (Not deemed to satisfy provisions)

The BAL construction standards that apply to the Subject Site are presented in **Table 5** noting that this is an SFPP development and that all buildings are to be built to a minimum **BAL 19**. These are not shown on any figure as the structures are all located in BAL – 12.5 or lower and are provided for additional information only.

Table 5 – Hazard Vegetation and Slope Assessment

Aspect	≤12.5	19	29	40	Flame Zone
North	N/A	N/A	N/A	N/A	N/A
North East	23-100	16-23	11-16	8-11	<8
East	23-100	16-23	11-16	8-11	<8
South East	N/A	N/A	N/A	N/A	N/A
South	N/A	N/A	N/A	N/A	N/A
South West	N/A	N/A	N/A	N/A	N/A
West	N/A	N/A	N/A	N/A	N/A
North West	N/A	N/A	N/A	N/A	N/A

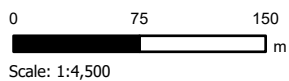


- Lot Boundary
- Development Footprint
- Cadastre
- Contour - 2m
- Asset Protection Zone
- Short Fire Run (Rainforest)
- Low Threat Vegetation (Mangroves)
- Managed Forest

Figure 5 - APZs

Address: 4 Vardon Road, Fern Bay
 Client: Principle Living
 AEP Ref: 2313.04 | Date: March 2025

Imagery: Nearmap 2024
 Spatial Reference: GDA2020 MGA Zone 56



Disclaimer: While reasonable care has been taken to ensure the information on this map is accurate and up-to-date, errors or omissions may still occur. Please verify the accuracy of all information before use. Note that boundaries are not survey accurate and do not scale off this plan.

6.0 Other Considerations

The following analysis applied to the Subject Site in reference to environmental features present.

Table 6 – Other Considerations

Considerations	Assessment
Riparian Corridors	The Subject Site does not contain riparian corridors running through it.
State Environmental Planning Policy (Resilience and Hazards) 2021	Part of the Subject Site is located within the Coastal Use area, with a small portion of the site (southwest) located within Coastal Wetland Proximity.
State Environmental Planning Policy (Biodiversity Conservation) 2021	Consideration of the Biodiversity and Conservation SEPP 2021 has been applied within the BDAR associated with this development.
Areas of geological interest	A RAMSAR wetland is located to the east of the Subject Site.
Environmental protection zones or steep lands (>18°)	The Subject Site is located on flat lands
Land slip or flood prone areas	The Subject Site is located in a Flood Prone area
National Parks estate or various other reserves	A reserve is located to the east of the Subject Site, beyond currently managed Golf Course lands.
Threatened species matters	Threatened species matters are considered as part of the BDAR assessment for this development.
Aboriginal Heritage	Aboriginal Heritage is present throughout the Subject Site refer Heritage report associated with the development.

7.0 Conclusion

Investigations undertaken for this Bushfire Threat Assessment have revealed that the proposed development will be affected by hazardous vegetation.

The development is considered Special Fire Protection Purpose (SFPP) and appropriate SFPP APZs have been applied. No refuge buildings are proposed but all dwellings are to be built to a minimum of BAL - 19.

It is considered that the distance between the hazard vegetation and the proposed development construction standards will provide adequate defendable space to comply with the requirements of PBP.

Services are to be supplied in accordance with that required in Planning for Bushfire Protection 2019 and the development will be serviced by reticulated water.

Access and egress will be provided by all-weather paved road from Vardon Road with an emergency access road from Nelson Bay Road. No perimeter roads are proposed as the site is surrounded by areas that will be managed in perpetuity. The entire length of the internal road running north to south is approx. 550m in length and has turning points throughout at intervals less than 200m in length.

All dead-ends will be appropriately signposted and have appropriately sized turning heads in accordance with PBP 2019. An emergency access road will connect the development to Nelson Bay Road. This access is to be locked and a key given to RFS for use in the case of an emergency event.

A Bush Fire Emergency Management and Evacuation Plan is to be conditioned on Approval of the development and will contain provisions as set out in the PBP 2019.

When applied, these measures should provide adequate protection to life and property within the proposed development in the event of a bushfire occurring in the immediate locality. However, it can never be guaranteed that the site and property therein will not at some stage be affected by a bushfire event.

8.0 References

Keith, D (2004) Ocean Shores to Desert Dunes. OEH, Sydney.

NSW Rural Fire Service (2019). Planning for Bushfire Protection: A guide for councils, planners, fire authorities and developers. November 2019.

NSW Government (1979) Environment and Planning & Assessment Act 1979. NSW Government, Sydney.

NSW Government (2021) Rural Fires Act 1997. NSW Government, Sydney.

NSW Government (2021). Planning Portal website. Accessed 11/12/2023.

Standards Australia (2018) AS-3959 Construction of Buildings in Bushfire-Prone Areas. Standards Australia, Sydney. November 2018.

Standards Australia (2010) AS-3745 Planning for Emergencies in Facilities. Standards Australia, Sydney. November 2010.

Standards Australia (2021), AS-2419.1:2021 Fire Hydrant Installations – Part 1: System Design, Installation and Commissioning. Standards Australia, September 2021.

Appendix A – Site Photos



Plate 1: The southern extent of the development looking south towards residential and cleared lands. Note vegetation shown will be removed.



Plate 2: Vegetation looking north east



Plate 3: Managed gardens to the south of the current clubhouse to be retained.



Plate 4: Managed vegetation line along eastern edge of the development to be retained.



Plate 5: Managed vegetation to be retained to the northwest of the development.



Plate 6: Managed vegetation to be retained to the northeast of the development.



Plate 7: Remnant vegetation strip retained in the northeast of the development looking north.



Plate 8: Remnant vegetation to be retained in the middle northeast of the development looking south



Plate 9: Remnant vegetation strip looking through to cleared lands, middle northeast section.



Plate 10: Managed vegetation indicative of managed vegetation areas throughout the Golf course.