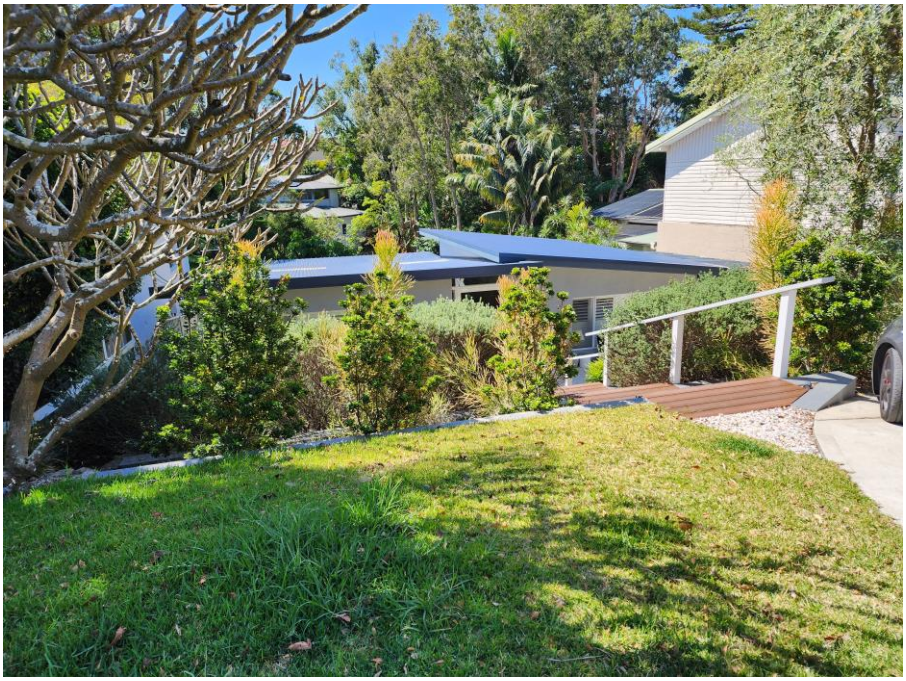
Bushfire Assessment Report
Proposed Residential Building Development
Lot 18 DP 30588
14 Sherwood Crescent
Narraweena NSW 2099

30 November 2024



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Reviewed by:		

Executive Summary – Achievable (Recommended) AS 3959:2018 Level of Compliance

Construction Standard	**Building Elevations**
Flame Zone	
BAL 40	**New Works – All Elevations ('Alterations & Additions')** **Upgrade Existing Doors & Windows – All Elevations**
BAL 29	
BAL 19	
BAL 12.5	**Upgrade remaining Existing/ Retained Elements – All Elevations**
NCC Provisions Only	

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General Introduction

The following report outlines an assessment for the statutory compliance of the proposed residential building development to occur within 14 Sherwood Crescent Narraweena NSW 2099 – Lot 18 DP 30588 (herewith 'the subject property'), and at least 140m beyond (herewith 'the study area'). Appendix 1 / Map 1 denote the subject property and study area.

Methodology for this site assessment for bushfire attack is based on the planning guideline '*Planning for Bush Fire Protection 2019* (*PBP 2019*)', produced by the NSW Rural Fire Service.

'Australian Standard 3959:2018 – Construction of buildings in bush fire prone areas', or alternately *'NASH Steel Framed Construction in Bush Fire Areas (NASH 2021)',* pursuant to the *'National Construction Code/Building Code of Australia 2022 (NCC/BCA 2022)'*, are the primary building compliance documents considered for this assessment.

Terrain (slope) considered by this assessment is based on the Department of Lands Online Six Viewer contours and a site inspection (1/10/2023) of the subject property.

Vegetation extent within the subject area has been derived from available online public vegetation mapping studies, aerial photo interpretation and a site inspection (1/10/2023) conducted prior to finalising this report.

For the purposes of this 'Pre DA Process', the extent and location of the proposed 'Alterations & Additions' to an existing residential building are based on a review of plans that have been prepared in support of this Pre DA process. These plans will be used as a guide only for this current Pre DA Process and will be updated accordingly in due course prior to the lodgement of a future DA, pending the integration of Pre DA advise etc.

The extent and location of the proposed 'Alterations & Additions' to an existing residential building are based on DA drawings by Hot House Architects, Newport (Project No. 1099HHA, Drawing Nos. DA001 – DA600, Issue 01, Dated 29/11/24).

Photographic evidence of the subject property and surrounds is appended to this report (Appendix 2 – Site Photos, Dated 1/10/2023).

Note: The proponent is requesting a dispensation to effectively downgrade the bushfire construction standards by a single BAL rating, i.e. from 'BAL FZ' down to 'BAL 40'.

See Section 4.1 of this report for further details.

This dispensation is recommended due to the minor nature of the proposed works (i.e. very minor increase to the internal building footprint) and significant benefits related to the proposed additional upgrades to the existing building elements, which well achieves the 'specific objectives' of *PBP 2019 Chapter 7.3*) specifically by the provision of *'better bush fire outcomes on a redevelopment site than currently exists'*.

The parameters of this performance based approach have been confirmed through the PRE DA processes directly with the NSW Rural Fire Service (pursuant to PBP 2019) as appended to this report (Pre DA Advice Reference No. PRE-DA20241016000249, Dated 29 November 2024).

1.0 Property Details

Applicants Name: Hot House Architects (herewith, 'the proponent')

Council: Northern Beaches Council (Northern Beaches LGA)

Council Reference: N/A

Lot: 18 **DP:** 30588 **Area:** 556.4m^2

Address/Location: 14 Sherwood Crescent, Narraweena NSW 2099.

Zoning: 'R2 – Low Density Residential'
Warringah LEP 2011

Bushfire Prone Land: YES

The subject property is mapped as being bushfire prone as currently shown by the Northern Beaches Council LGA Bushfire Prone Land Map (*s10.3 EP&A Act 1979*). The site is constrained by vegetation classified as 'Category 2 Bushfire Vegetation'. In this regard, any new building development should conform to the specifications and requirements of the document *'Planning for Bush Fire Protection 2019'*, produced by the NSW Rural Fire Service, that are relevant to the development; as otherwise required under *Section 4.14 Environmental Planning & Assessment Act 1979 (EP&A Act 1979).*

Other Known Constraints:

A desktop assessment of the publicly available council mapping and planning enquiry system has found no other constraints to be considered in regard to development upon the subject property.

No other known significant environmental features have been noted, recorded or advised of as part of this assessment.

It is not a recommendation of this report to remove any significant vegetation as part of the bushfire protection measures.

Extract Northern Beaches Council LGA Bushfire Prone Land Map

2.0 Description of Proposal

☐ New Building	☑ **Urban**	☐ Dual Occupancy
☐ Rural Residential	☑ **Alterations/Additions**	☐ Isolated Rural

Proposal Description

The proposed building development is to construct 'Alterations & Additions' to an existing residential building/dwelling structure (Class 1 (a) – as defined by NCC – BCA).

The proposed works relate to some internal renovations and limited external works; these include external landscaping elements (covered and exposed decks etc.).

The extent and location of the proposed 'Alterations & Additions' to an existing residential building are based on DA drawings by Hot House Architects, Newport (Project No. 1099HHA, Drawing Nos. DA001 – DA600, Issue 01, Dated 29/11/24).

The only increase in internal floor area relates to a small rear extension to the living areas (1.3m x 7m approx. 10m^2).The existing inground pool will also be retained.

The works provide for only a very modest increase in internal floor space area, and extend into an area already utilised for outdoor living.

So as to achieve a ***'better bushfire outcome'*** additional works are proposed around improving/upgrading the existing bushfire protection measures, including upgrading some major parts of the existing / retained structure to an overall rating of BAL 40, wherever practicable (e.g. replacement of all existing standard / original doors and windows).

The approximate location/site of the proposed building (herewith 'the subject development') is as denoted in Appendix 1 – Map 1.

3.0 Bushfire Assessment

3.1 Vegetation (bushfire hazard) within 100m of the proposed building

The subject property has been mapped as bush fire prone land within the Northern Beaches Bush Fire Prone Land Map. The property is constrained by bush fire vegetation, within the study area, classified as 'Vegetation Category 2'.

The primary bushfire vegetation constraining the subject site is located within the adjacent bushland reserve, known as 'Pukara Place Reserve', extending along a small degraded drainage line in the North West through to Sherwood Crescent to the South East, across the rear of the subject site.

This vegetation is initially mapped in local studies as a 'Sydney Coastal Dry Sclerophyll Forest', transitioning to 'North Coast Wet Sclerophyll Forest' further North West of the subject site.

Based on a determination of vegetation formation using the Keith 2004 Identification Key, the bushfire vegetation having the potential to affect the subject development, based on a site visit, is most representative of 'Forest'.

The subject development would potentially (currently) be prone to bushfire attack primarily from the North West & South East directions. The extent of the current bushfire vegetation (hazard) is clearly denoted in Appendix 1 – Map 1.

PBP 2019 (*Appendix 1 Section A1.10*) states, *'The following exclusions of AS3959 apply, and are not required to be considered for the purposes of PBP, as detailed below:*

- *Single areas of vegetation less than 1 hectare in area and greater than 100metres separation from other areas of Category 1 and 2 vegetation.*
- *Multiple areas of vegetation less than 0.25 hectares in area and not within 20m of the site, or each other or of other areas of vegetation being classified vegetation.*
- *Strips of vegetation less than 20m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20m of the site or other areas of vegetation being Category 1, 2 or 3 vegetation.*

- *Vegetation regarded as low threat due to factors such as flammability, moisture content or fuel load, including grassland managed in a minimal fuel condition, mangroves and other saline wetlands, maintained lawns, golf courses such as playing areas and fairways, maintained public reserves and parklands, sporting fields, vineyards, orchards, banana plantations, market gardens and other non-curing crops, cultivated gardens, arboretums, commercial nurseries, nature strips and windbreaks.*
- *Existing areas of managed gardens and lawns within curtilage of buildings.*
- *Non-vegetated areas including waterways, roads, footpaths, buildings and rocky outcrops.*

Although assessed as 'Forest' vegetation, the reserve to the North (NW – SE) is also quite degraded and consists of only a thin strip of vegetation within the study area.

This vegetation does not technically meet the descriptive requirements to be assessed as 'Remnant' vegetation (pursuant to A1.11.1 PBP 2019), due to linkages through to a larger area of vegetation further North West, however this specific area of degraded vegetation close to the development site is also unlikely to support a persistent bushfire event or a canopy fire.

The proposed development is located within a well-established residential subdivision.

All adjoining residential sites are clear of all persistent vegetation and could be considered 'cleared and managed lands'.

The approximate / estimated extent of these managed lands is clearly denoted in Appendix 1 – Map 1.

Relevant photos attached (Appendix 2 Site Photos).

3.2 Distance/Separation between building line and bushfire hazard

For the purposes of bushfire safety compliance, this assessment notes that the subject property is clear of all persistent bushfire vegetation.

Considering the location of the proposed development and the extent of the bushfire vegetation on adjoining lands, the achievable separation distance has been assessed as:

Direction	North to Decking Elements	North to Residence
Distance	>3m	>12m

3.3 Effective slope that will influence bushfire behaviour

The effective slope within approximately 100m of the subject development site, which would influence bushfire behaviour, has been assessed as predominately;

Direction	North West	South East
Slope	>0 – 5 Degrees Downslope	Upslope / Flat

3.4 Fire Danger Index (FDI) for Local Government Area (LGA)

☑ **100** ☐ 80 ☐ 50

Northern Beaches Council – Greater Sydney Region

(*NSW Local Government Areas Community Resilience May 2017 – NSW RFS*)

3.5 Determination of Bushfire Attack Level (*PBP 2019 – Table A1.12.5*)

Direction	Vegetation	Slope	Minimum Distance	BAL Exposure Level
North West	Forest	>0 – 5 Degrees Downslope	>3m – >12m	BAL – FZ
South East	Forest	Upslope / Flat	>3m – >12m	BAL – FZ

4.0 AS 3959:2018 Construction Standard for Bushfire Attack Level (*NCC – BCA DtS*)

Elevations	Vegetation	Slope	Minimum Distance	BAL Exposure Level
N, E & W	Forest	>0 – 5 Degrees Downslope	>3m – >12m	BAL – FZ
S	N/A	N/A	N/A	BAL – 40

Note: Some areas of the existing residence would be exposed to a lesser rating of BAL 40 under this assessment method (see Appendix 1 for indicative BAL areas).

Considering the subject developments location and the calculated extent of the APZ area recommended by this report, the subject development is technically capable of complying with *AS 3959:2018 / NASH 2021*.

4.1 Recommended Dispensation relating to Construction Standards

The bushfire hazard assessment has determined that some areas of the development will be located within the 'Flame Zone'. The radiant heat flux affecting these elevations has been calculated as greater than 40kW/m^2

A performance based solution would normally be recommended by this report that would be to utilise forms of construction that will withstand the expected radiant heat flux / potential flame contact. This would generally be necessary because the hazard cannot be mitigated or reduced further than has been calculated within the assessment.

However, based on a qualitative assessment of the bushfire risk, the reserve contains a limited amount of degraded native vegetation (with significant exotic/weed influences etc.), supporting only limited fire runs toward the subject site etc.

The NSW Rural Fire Service (RFS) released a new guideline: '*Application of Shielding Provision'* (October 2022), that essentially provides a pathway whereas flame length may be disregarded as a general indicator of persistent flame immersion, which would have previously indicated that a rating of 'BAL Flame Zone' was an appropriate bushfire protection measure on a given envelope or elevation rather than just intermittent flame contact, under certain circumstances.

The relevant section within the document is located on page 3:

'Based on a substantial and comprehensive amount of technical work previously undertaken on this issue, DPAP have concluded unequivocally that unless buildings in question are in immediate proximity to bush fire hazards and/or are on top of extremely steep slopes (in the order of being vertical in nature), prolonged flame contact is not expected to occur. This is based on the laws of physics, fire/flame behaviour, and fire dynamics'.

'Previous references to the 20 degree criteria for needing to address flame lengths are now considered irrelevant and therefore will be removed'.

Given the above, persistent flame immersion is not expected to occur, and the bushfire construction rating of BAL 40 provides protection from '*some likelihood of direct exposure to flames from a fire front (Appendix G (e) AS 3959:2018)', t*he following performance approach could be supported.

The proponent is requesting a dispensation to effectively downgrade the bushfire construction standards by a single BAL rating, i.e. from 'BAL FZ' down to 'BAL 40' for all proposed new external works.

This is a dispensation that has previously been applied to other development, when it has been noted that the development is minor in nature, and it can be demonstrated a ***'better bushfire outcome'*** could be achieved for the development.

The proposed building development is to construct 'Alterations & Additions' to an existing residential building/dwelling structure (Class 1 (a) – as defined by NCC – BCA). The proposed works relate to some internal renovations and limited external works; these include external landscaping elements (covered and exposed decks etc.).

The only increase in internal floor area relates to a small rear extension to the living areas (1.3m x 7m approx. $10m^2$).The existing inground pool will also be retained.

The works provide for only a very modest increase in internal floor space area, and extend into an area already utilised for outdoor living.

So as to achieve a ***'better bushfire outcome'*** additional works are proposed around improving/upgrading the existing bushfire protection measures, including upgrading some major parts of the existing / retained structure to an overall rating of BAL 40, wherever practicable (e.g. replacement of all existing standard / original doors and windows, cladding (where not complaint) some roofing elements and facias etc.).

The residence does not benefit from any formal bushfire protection measures installed at any time and is in need of some repairs / updates to satisfy the ongoing requirements of the occupants, which would be constrained severely by excessive cost if all new works were required to comply with the Flame Zone provisions.

The upgrading of some of the existing residence to achieve a BAL – 40 construction standards would significantly increase the overall level of bushfire protection to the building and its occupants, including a major upgrade to the standard glazing elements and the removal of other minor exposed/external timber elements.

The application of this dispensation can still achieve compliance with the 'Specific Objectives' for infill development (*PBP 2019 Chapter 7.3*) specifically by the provision of *'better bush fire outcomes on a redevelopment site than currently exists'* and to *'increase the level of bush fire protection to the existing dwelling based on the scale of the proposed works and level of bush fire risk'.*

5.0 Bushfire Protection Measures

Pursuant to '*PBP 2019 – Section 7 Residential Infill Development'*, there is a requirement to address certain 'Bushfire Protection Measures' (BPM) under the *Section 4.14 EP&A Act 1979* for new residential 'infill' development in bushfire prone areas.

The intent of the BPM's *'is to minimise the risk of bushfire attack and provide protection for emergency services personnel, residents and others assisting firefighting activities'*.

It is also *noted 'where a development expectation arises from the zoning of the land to build, rebuild, alter or add to a dwelling in pre-existing subdivisions, attempts should be made to find a solution taking into account the risk present. The expectation of building or altering a house is recognised even though the ability to provide for APZs or access requirements now required for residential development may not be possible'*.

Proposals for 'infill development' are to:

- Provide a defendable space to enable unimpeded access for firefighting around the building.
- Provide better bushfire outcomes on a redevelopment site than currently exists, commensurate to the level of development.
- Provide access, services and landscaping to aid firefighting operations.
- Not impose an increased bushfire management and maintenance responsibility on adjoining land owners.
- Increase the level of bushfire protection to existing dwellings based on the scale of the proposed work and level of bushfire risk.

5.1 Asset Protection Zones

PBP 2019 acceptable solutions for Asset Protection Zones (for this specific development location) state that;

- An APZ is provided in accordance with Table A1.12 in Appendix 1.
- APZs are managed in accordance with the requirements of Appendix 4 of PBP.
- APZs are wholly within the boundaries of the development site.
- APZs are located on lands with a slope less than 18 degrees.

The subject site benefits from managed lands within the site, and external to the site (being a managed road reserve).

All adjacent residential lands are also free from any bushfire risk.

Asset Protection Zone recommendations are as listed in Section 6.1 (Bushfire Safety & Compliance Recommendations).

5.2 Access (Property Access)

PBP 2019 acceptable solutions for access (for this specific development location) state that;

'There are no specific access requirements apply 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'.

Vehicular access to the subject property will continue to be by way of a sealed all-weather driveway, directly off Sherwood Crescent to the South of the subject site.

Firefighting operations would be initiated from outside of the site, within the public road system (i.e. from Sherwood Crescent). Sherwood Crescent is a sealed all weather road 7m in width within a road reserve of 15m.

All local roads are supported by a reticulated water supply, and the local speed limit is 50 kph & 60 kph.

The public road system servicing the proposed development is able to provide safe operational access for emergency services and egress in varying directions for evacuating residents.

5.3 Water Supplies (Reticulated / Non Reticulated)

☑ **Yes** ☐ No ☑ **Proposed**

PBP 2019 acceptable solutions for a reticulated water supply area (relevant to the subject development) state that:

- Reticulated water is to be provided to the development, where available.
- Fire hydrant spacing, design and sizing comply with the relevant clauses of AS 2419.1:2005.
- Hydrants are not located within any road carriageways.
- Reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads.
- Fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2005.
- All above-ground water service pipes external to the building are metal, including and up to any taps.

The subject development/building is currently connected to a reticulated water supply which services the existing residential area within Sherwood Crescent. Apart from the above, the proponent has not provided any specific advice (at the time of this assessment) regarding the reticulated water infrastructure and mains size, supply pressure or guarantee of delivery.

Considering the building site denoted by this report (and corresponding access / driveways), the subject building would be <90m from the nearest and reasonably available fire hydrant connection point.

The proposed development also includes the retention of an inground pool. This static water supply would be readily available for firefighting operations.

Firefighting water supply recommendations are as listed in Section 6.4 (Bushfire Safety & Compliance Recommendations).

5.4 Electricity Services

PBP 2019 acceptable solutions for electrical services (relevant to the subject development) state that:

- *Where practicable, electrical transmission lines are located underground; and*
- *Where overhead electrical transmission lines are proposed, as follows:*
  - *Lines are installed with short pole spacings (30m), unless crossing gullies, gorges or riparian areas; and*
  - *No part of a tree is closer to a power line than the distance set out in accordance with the specifications in 'ISSC3 Guideline for Managing Vegetation Near Power Lines'.*

The subject development site is currently serviced by an aboveground electrical supply grid which services the residential subdivision within Sherwood Crescent.

The connection to the existing residence is also located above ground.

It is not proposed as part of this development, to alter the existing arrangements.

Electrical service recommendations are as listed in Section 6.5 (Bushfire Safety & Compliance Recommendations).

5.5 Gas Services

Reticulated Gas: ☐ Yes ☑ **No**

Bottled Gas: ☑ **Yes** ☐ No

PBP 2019 acceptable solutions for gas services (relevant to the subject development) state that:

- Reticulated or bottled gas is installed and maintained with AS/NZ 1596:2014 and the requirements of relevant authorities, and metal piping is used.
- Polymer-sheathed flexible gas supply lines are not used.
- Above-ground gas service pipes are metal, including up to any outlets.

Gas service recommendations are as listed in Section 6.6 (Bushfire Safety & Compliance Recommendations).

6.0 Bushfire Safety & Compliance Recommendations

6.1 Defendable Space / Asset Protection Zone (APZ) Recommendations

Recommendation 1.

Inner Protection Area

As denoted in Appendix 1 – Map 1, the area identified as **'Inner Protection Area' (IPA)'** is to be managed / maintained as an APZ for the life of the development.

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

In practical terms the IPA is typically the curtilage around the building, consisting of a mown lawn and well maintained gardens. When establishing and maintaining an IPA the following requirements apply.

Trees

- Tree canopy cover should be less than 15% at maturity;
- Trees at maturity should not touch or overhang the building;
- Lower limbs should be removed up to a height of 2m above the ground;
- Tree canopies should be separated by 2m to 5m; and
- Preference should be given to smooth barked and evergreen trees.

Shrubs

- Create large discontinuities or gaps in the vegetation, to slow down or break the progress of fire towards buildings;
- Shrubs should not be located under trees
- Shrubs should not form more than 10% ground cover; and
- Clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.

Grass

- Grass should be kept mown (as a guide grass should be kept to no more than 100mm in height); and
- Leaves and vegetation debris should be removed.

6.2 Construction Standard Recommendations

Construction standards have been determined from the following sections of the planning guidelines and are based on the relevant bushfire assessment as discussed above.

AS 3959:2018 Section 3 Construction General
(See Recommendation 2)

AS 3959:2018 Section 5 Construction for Bushfire Attack Level 12.5 (BAL – 12.5)
(See Recommendation 3)

AS 3959:2018 Section 8 Construction for Bushfire Attack Level 40 (BAL – 40)
(See Recommendation 3)

Steel Framed Construction in Bushfire Areas (NASH 2021)

Recommendation 2.

Where any part of a garage, carport, veranda or similar roofed structure is attached to, or shares a common roof space with, or is within 6m of, a building required to comply with the standard, the entire structure shall comply with the construction requirements of the standard (as per Recommendation 3), as applicable to the subject building.

Alternatively, the structure may be separated from the subject building by a wall complying with *AS 3959:2018 Section 3.2.1 a) or b)* i.e. fire rated construction as specified.

Recommendation 3.

Predicated upon the maintenance of the APZ area as per Recommendation No. 1 of this report, it is recommended the proposed development incorporate, as a minimum, the following levels of construction as per *AS 3959:2018 Construction of buildings in bushfire prone areas;*

All Elevations ('Alterations & Additions' Only)

Construction for Bushfire Attack Level 40 (BAL – 40) – Section 8 (AS 3959:2018)

Alternately, the relevant sections of '*NASH Standard – Steel Framed Construction in Bushfire Areas (NASH 2021)*' may be applied.

Existing / Retained Building Elements

The following existing primary external building elements are proposed to be upgraded to achieve compliance with BAL – 40 (i.e. Bushfire Attack Level 40 – Section 8 (AS 3959:2018)).

- Windows
- Doors

The remainder of the residence/elements are required to be upgraded to improve ember protection, as per the *Building Best Practice Guide – Upgrading of Existing Buildings (Development Assessment & Planning, NSW Rural Fire Service, Reference 0914*).

This is to be achieved by enclosing all openings (excluding roof tile spaces) or covering openings with a non-corrosive metal screen mesh with a maximum aperture of 2mm. Where applicable, this includes any sub floor areas, open able windows, vents, weepholes and eaves. External doors are to be fitted with draft excluders.

Recommendation 4.

Sarking

All sarking used shall be:

- Non-combustible, **or**
- Breather type sarking complying with AS/NZS 4200.1 and with a flammability index of not more than 5 (see AS 1530.2) and sarked on the outside of the frame, **or**
- An insulation material conforming to the appropriate Australian Standard for that material.

Fences & Gates

All new fences and gates should be constructed of a non-combustible material

Retaining Walls

All new retaining walls should be constructed of a non-combustible material.

6.3 Vehicle Access / Egress Recommendations

Recommendation 5.

The proposed building development will continue to incorporate an all-weather driveway area for vehicle access and parking within the subject property. The access road / driveway will continue to provide direct access from Sherwood Crescent. No additional vehicle access requirements are recommended.

Unimpeded pedestrian access to the reserve to the rear is also to be maintained.

6.4 Water Supplies Recommendations

Recommendation 6.

- Reticulated water is to be provided to the development.
- All exposed water pipes external to the building are metal, including any fittings.
- Hydrants are not located within any road carriageways.

Additional Static Water Supply requirements:

- An additional Static Water Supply is made available for firefighting purposes (**10,000 L**). **Note:** The existing pool may be suitably utilised for these purposes.
- A connection for firefighting purposes is located within the IPA or non-hazard side and away from the structure; 65mm Stortz outlet with a ball valve is fitted to the outlet.
- Ball valve and pipes are adequate for water flow and are metal.
- Supply pipes from any tank to ball valve have the same bore size to ensure flow volume.
- If utilised, above-ground tanks are manufactured from concrete or metal.
- Raised tanks have their stands constructed from non-combustible material or bush fire-resisting timber (Appendix F of AS 3959).
- Unobstructed access can be provided at all times.
- A portable pump be provided, which is a minimum 5hp or 3kW petrol or diesel powered pump, and is shielded against bushfire attack; any hose and reel for firefighting connected to the pump shall be 19mm internal diameter.

6.5 Electricity Services Recommendations

Recommendation 7.

As the electricity supply is located aboveground ensure that any vegetation is managed in accordance with the specifications in *'ISSC 3 Guide for the Management of Vegetation in the Vicinity of Electrical Assets (November 2016).*

6.6 Gas Services Recommendations

Recommendation 8.

- Any future / new reticulated gas connection is installed and maintained with AS/NZ 1596:2014 and the requirements of relevant authorities.
- Metal piping should be used.
- Polymer sheathed flexible gas supply lines to gas meters adjacent to the building are not used.

6.7 Bush Fire Survival Plan Recommendations

Recommendation 9.

Discuss and prepare a simple 'Bush Fire Survival Plan' pursuant to the NSW Rural Fire Service's advice (https://www.rfs.nsw.gov.au/plan-and-prepare/bush-fire-survival-plan).

7.0 Compliance or non-compliance with PBP 2019 Specific Objectives for Infill Development (as per *PBP 2019 Section7.3*)

Specific Objective	**Comment**
Provide a defendable space to enable unimpeded access for firefighting around the building	A complying APZ (defendable space) has been recommended. This space consists of an area maintained as an IPA.
Provide better bushfire outcomes on a redevelopment site than currently exists, commensurate with the scale of works proposed.	Bushfire fuel management, and other bushfire protection measures, contained within the subject property will effectively reduce the risk to both the subject property and adjoining premises.
Design and construct buildings commensurate with the bushfire risk.	Recommendations, relating to the construction of the residence include BAL 40 building construction standards.

Provide access, services and landscaping to aid firefighting operations.	The recommendations (above) relating to the design and construction of the development include a range of 'bushfire protection measures' that will enhance the chances of occupant and building survival.
Not impose an increased bushfire management and maintenance responsibility on adjoining landowners.	The subdivision is pre-existing. The construction of this development will not increase the bushfire risk to adjoining land, nor increase bushfire management and maintenance responsibility on adjoining landowners.
Increase the level of bushfire protection to existing dwellings based on the scale of the proposed work and level of bushfire risk.	The site is located within a well-established residential subdivision, and the existing/retained building will be subject to a number of upgrades.

8.0 Compliance or non-compliance with PBP 2019 Performance Criteria and intent for bushfire safety protection measures for infill development.

Performance Criteria	**Comment**
APZ APZs are provided commensurate with the construction of the building. A defendable space is provided. APZs are managed and maintained to prevent the spread of fire to the building. The APZ is provided into perpetuity. APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	**Can Comply** – Recommendation No. 1 A defendable space will be provided within the site boundaries with the entire site being maintained as an IPA. This is complimented by 'cleared and managed lands' on adjoining properties.
Access Firefighting vehicles are provided with safe all-weather access to structures and hazard vegetation. The capacity of access roads is adequate for firefighting vehicles. There is appropriate access to water supply. Firefighting vehicles can access the dwelling and exit the property safely.	**Can Comply** – Recommendation No. 5 Access/Egress is provided from Sherwood Crescent. The access arrangements are sufficient for operational firefighting and emergency egress.

Water Supplies An adequate water supply is provided for firefighting purposes. Water supplies are located at regular intervals. The water supply is accessible and reliable for firefighting operations. Flows and pressures are appropriate. The integrity of the water supply is maintained. A static supply is provided for firefighting purposes in areas where reticulated water is not available.	**Can Comply** – Recommendation No. 6
Electrical Services Location of the electrical services limits the possibility of ignition of surrounding bushland or the fabric of the buildings.	**Can Comply** – Recommendation No. 7
Gas Services Location and design of the gas services will not lead to of ignition of surrounding bushland or the fabric of the buildings.	**Can Comply** – Recommendation No. 8
Construction Standards The proposed building can withstand bushfire attack in the form of embers, radiant heat and flame contact. Proposed fences and gates are designed to minimise the spread of bushfire. Proposed Class 10a buildings are designed to minimise the spread of bushfire.	**Can Comply** – Recommendation Nos. 2 – 4 Predicated upon the recommended APZ areas and siting requirements, BAL 40 building construction standards can achieve a better bushfire outcome for the proposed development.
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.	**Can Comply** – Recommendation No. 1

9.0 Statement assessing the environmental impact of any proposed bushfire protection measures.

Bushfire Protection Measure	Likely Environmental Impact	Comment
APZ (Rec. No. 1)	Insignificant	The subject property is clear of persistent vegetation.
Construction Standard (Rec. Nos. 2 - 4)	Insignificant	Building to be constructed within approved / current building envelope.
Water Supply for fire fighting (Rec. No. 6)	Insignificant	A reticulated water supply currently services the existing development.
Utility service protection (Rec. Nos. 6 - 8)	Insignificant	Utilities are currently located within the APZ, or underground.
Vehicle Access (Rec. No. 5)	Insignificant	Direct access to public road system is by way of short, cleared driveway.

10.0 Conclusion/Summary

Based on the above assessment and the 9 recommendations to protect persons and property from danger that may arise from a bushfire, the Consent Authority should determine that this development proposal can comply with *Planning for Bush Fire Protection 2019* as required under *Section 4.14 of the Environmental Planning and Assessment Act 1979.*

As a considered opinion, the recommended mitigation measures and construction requirements as stated in this report would reasonably address the aims and objectives of *PBP 2019*, consistent within the relative and current bushfire risk to the subject development site.

As infill development, the residence will be able to fully comply with the Acceptable Solutions provided within *PBP 2019*.

In this regard, the subject development can reasonably facilitate *PBP 2019* objectives in as far as;

- Afford buildings and their occupants protection from exposure to a bushfire;
- Provide for a defendable space to be located around buildings;
- Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely spread to buildings;
- Ensure the appropriate operational access and egress for emergency service personnel and residents 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.

Should any of the above information require clarification or further discussion, please contact the author.

Scott Jarvis

Graduate Diploma Design for Bushfire Prone Areas
Diploma of Building Surveying
Diploma of Public Safety (Fire Fighting Management) (Dip PSFM)
Cert. IV Residential Building Studies
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(Note: Scott Jarvis is a recognised / suitably qualified consultant pursuant to Rural Fire Service of NSW requirements - Community Resilience Fact Sheet - Requirements for Suitably Qualified Consultants 8/15, Fast Fact 5/10 Version 3 Dated 7 March 2011 & Development Control Practice Note 1/10 Version 2 Dated 4 February 2011).

References/Further Reading

Australian Standard 3959:2018, Construction of buildings in bushfire prone areas – Standards Australia.

Building Best Practice Guide – Upgrading of Existing Buildings (Development Assessment & Planning, NSW Rural Fire Service, Reference 0914).

NASH Standard – Steel Framed Construction in Bushfire Areas (2021) – National Association of Steel-Framed Housing Inc.

National Construction Code/Building Code of Australia (2022) – Australian Building Codes Board, Canprint.

Environmental Planning and Assessment Act (1979) – NSW Government Printer.

- Section 4.14 Consultation and Development Consent Certain Bushfire Prone Land
- Section 10.3 Bushfire Prone Land

Rural Fires Act (1997) – NSW Government Printer

Landscape and building design for bushfire areas (2003) – Ramsay G C & Rudolf L, CSIRO Publishing, Collingwood Victoria.

Ocean shores to desert dunes: the native vegetation of NSW and the ACT (2004) – Keith D, NSW Dept of Environment and Conservation, Hurstville NSW.

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

Appendix 1 - Bushfire Constraints

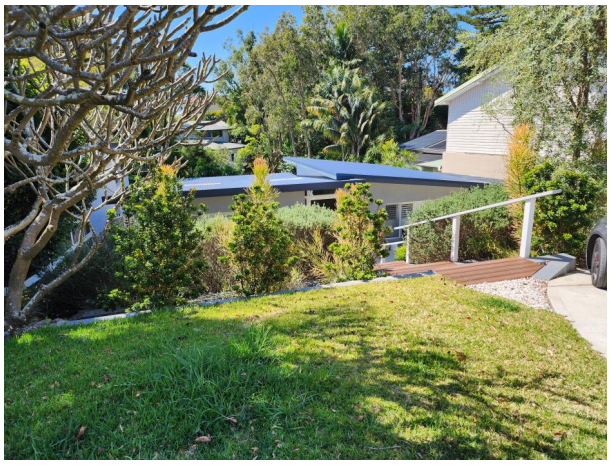
Subject development (approximate)

'Alterations & Additions'

Subject Property
Lot 18 DP 30588

Inner Protection Area

Appendix 2 – Site Photos (1/10/2024)



Existing residence, looking North

Existing residence, looking South (Rear)

Sherwood Crescent, looking West

Sherwood Crescent, looking East

Existing reticulated water supply

Existing electrical supply

Entrance to reserve, looking North west from Sherwood crescent

Vegetation within access handle, looking North west

Typical vegetation within Reserve, looking North West

Adjacent residential, looking across the reserve to the North

Appendix 3 NSW RFS Pre DA Advice

NSW GOVERNMENT

NSW RURAL FIRE SERVICE

PRE-DA ADVICE SUMMARY

Applicant: Hot House Architects, C/- Scott Jarvis – Sydney Bushfire Consultants

Subject: 14 Sherwood Crescent Narraweena
RFS Ref. PRE-DA20241016000249

Details of the Proposal

☐ SFPP

☐ Residential subdivision

☑ Other Alterations and additions to the existing dwelling

Bush Fire Protection Issues Discussed

☐ Application and/or Interpretation of sections of *Planning for Bush Fire Protection*

☑ Performance Based Solutions

The infill development relies on better bush fire outcome approach to reduce construction requirements.

☑ Qualitative Analysis — *The primary bushfire vegetation constraining the subject site is located within the adjacent bushland reserve, known as 'Pukara Place Reserve', extending along a small degraded drainage line in the North West through to Sherwood Crescent to the South East, across the rear of the subject site. Although assessed as 'Forest' vegetation, the reserve to the North (NW – SE) is also quite degraded and consists of only a thin strip of vegetation within the study area.*

☐ Quantitative Analysis

☑ Proposed Redundancies — *Additional works are proposed around improving/upgrading the existing bushfire protection measures, including upgrading some major parts of the existing / retained structure to an overall rating of BAL 40 (e.g. replacement of all existing standard / original doors and windows, cladding (where not complaint) some roofing elements and facias etc.).*

☐ Strategic Bush Fire Study

☐ Non compliances in relation to Bush Fire Protection Measures

☐ Hazard Assessment

☐ Asset Protection Zones

☐ Access

NSW RURAL FIRE SERVICE – PRE-DA ADVICE MEETING SUMMARY 1 of 3

Template Version 1.0 23/10/2014

☐ Construction Standards

☐ Services

☐ Emergency and Evacuation Planning

Documentation

☑ Preliminary Bush Fire Risk Assessment	Bush fire report prepared by Sydney Bushfire Consultants dated 08 October 2024
☑ Concept/Detailed Drawings	Drawings prepared by Hot House Architects dated 18 September 2024
☐ Other Documents	

Pre DA Advice

- The Rural Fire Service supports, in principle, the better bush fire outcome approach for the proposed development, in accordance with section 7.8 of *Planning for Bush Fire Protection 2019*, with due regard to the nature and location of the hazard, the scope of works mostly limited to the existing footprint and the proposed upgrades to the existing dwelling.
  - The potential bush fire behaviour that can be expected from the bush fire prone vegetation to the north and north west, to support lack of sustained flame contact, must be detailed in the final bush fire report.
  - The proposed upgrades must include, as a minimum, ember proofing of the existing dwelling and upgrade of the existing doors and windows to bush fire attack level (BAL) 40 construction requirements. Other measures are not deemed necessary in this instance based on the low bush fire risk.
- Please note that the pre DA advice is not intended to provide pre approval of bush fire risk assessment to support a development application. The aim of the service is to identify any potential issues in relation to bush fire risk assessment before a formal development application is lodged. The advice issued is preliminary in nature and no detailed assessment of the site or development is undertaken at this stage. The service is not to be used for the purpose of submitting revised information/bush fire engineering brief for further review of the original advice.

Disclaimer

RFS advice is based on information provided and policy and legislative requirements applicable at the time. The advice should be copied into, or referenced in, any subsequent development application.

All efforts are made to identify issues of relevance and likely concern with the preliminary proposal. However, the comments and views in this document are based only on the plans and information submitted for preliminary assessment and discussion at the pre-DA meeting. You are advised that: -

- The views expressed may vary once detailed plans and information are submitted and formally assessed in the development application process, or as a result of issues contained in submissions by interested parties;
- Given the complexity of issues often involved and the limited time for full assessment, no guarantee is given that every issue of relevance will be identified;
- Amending any aspect of the proposal could result in changes which would create a different set of impacts from the original plans and therefore make this advice invalid; and,
- The Pre-DA advice given does not bind Council officers, the elected Council members, or other parties to the DA process.

Submitted by:	Approved by:
Kalpana Varghese Supervisor, Development Assessment and Planning Planning and Environment Services (East) Built and Natural Environment	Adam Small A/Manager Planning and Environment Services (East) Built and Natural Environment

Date: 29 November 2024