

**BUSHFIRE PROTECTION ASSESSMENT
FOR THE CONSTRUCTION OF THE
ALTERATIONS & ADDITIONS TO THE
EXISTING FORESTWAY SHOPPING CENTRE
ON LOT 20 in DP 1209801
FOREST WAY, FRENCHS FOREST**

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B183229 - 2	Final	2.8.2018	05.09.2018	<i>G.L.Swain</i>

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EXECUTIVE SUMMARY

Australian Bushfire Protection Planners Pty Limited has been commissioned by *Point Polaris*, on behalf of INVESCO, to prepare a Bushfire Protection Assessment to provide advice on the bushfire protection measures required for the construction of alterations and additions to the existing Forestway Shopping Centre on Lot 20 in DP 1209801 Forest Way, Frenchs Forest.

The existing shopping centre occupies a large parcel of land which is bound to the east by Forest Way, to the north by Russell Avenue and to the west by Grace Avenue. Frenchs Forest Public School occupies the land to the south of the Shopping Centre.

The proposed development includes demolition of the existing carpark and shops [excluding the exiting ALDI Store and part of the existing Woolworths Store and construction of a two level basement Carpark, a new Ground Floor, above the Carpark, containing retail stores and a new extension to the Woolworths Store. The Ground Floor entry off Sorlie Place will also be upgraded.

A new First Floor Level will contain a Restaurant, Retail Stores, Pharmacy, Childcare Centre, Office, Allied Health Centre and Gym. The roof to the new complex will contain the Second Level Carpark.

The site is adjoined to the west by residential development beyond which is a large area of unmanaged vegetation which connects to Garigal National Park further to the west.

This vegetation is shown on the Northern Beaches Bushfire Prone Land Map to be Category 1 Bushfire Prone Vegetation with the 100 metre wide buffer zone to the vegetation extending across the development site.

Therefore, the construction of the proposed extensions to the Shopping Centre is required to comply with the provisions of Section 4.14 of the *Environmental Planning & Assessment Act 1979*.

Section 4.14 of the *Environmental Planning and Assessment Act 2017* requires that the proposed development comply with the requirements of *Planning for Bushfire Protection 2006* with respect to the protection of persons, property and the environment from the danger that may arise from a bushfire.

Whilst the Shopping Centre is classified as a Class 6 building under the Building Code of Australia [BCA], the development also includes a Childcare Centre on the new First Floor Level. This type of use is defined as a “*Special Fire Protection Purpose Development*” under Section 4.46 & 4.47 of the *Environmental Planning and Assessment Act 2017* with the requirement that a Bushfire Safety Authority is issued by the Commissioner of the NSW Rural Fire Service pursuant to Section 100B of the *Rural Fires Act 1997*.

Planning for Bushfire Protection 2006 provides specific deemed-to-satisfy provisions on the bushfire protection measures necessary for rural & residential subdivisions, the construction of “*Special Fire Protection Purpose Developments*” and the construction of Class 1, 2 and 3 buildings in Bushfire Prone areas.

The document does not specify specific deemed-to-satisfy protection measures for Class 5 to 8 and 10 buildings as defined by the Building Code of Australia.

The document does provide the following advice for these classes of buildings:

“The Building Code of Australia does not provide for any bushfire specific performance requirements and as such AS 3959 -1999 does not apply as a set of “deemed-to-satisfy” provisions.

The general fire safety construction provisions [of the BCA] are taken as acceptable solutions, but the aim and objectives of Planning for Bushfire Protection 2006 apply in relation to other matters such as access, water and services, emergency planning and landscaping/vegetation management”.

“Where the aim and objectives of PfPFP [Section 1.1] are not met, then the construction requirements for bushfire protection will need to be considered on a case-by-case basis”.

“In many cases, these types of developments will require on-site parking and loading areas. In such cases, it is prudent to place these facilities in the most appropriate location in order to establish defensible space for firefighting purpose”.

The objectives of *Planning for Bushfire Protection 2006* are:

- (i) Afford occupants of any building adequate protection from exposure to a bushfire;
- (ii) Provide for a defensible space to be located around buildings;
- (iii) Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition;
- (iv) Ensure that safe operational access and egress for emergency service personnel and residents is available;
- (v) Provide for ongoing management and maintenance of bushfire protection measures, including fuel loads in the asset protection zones; and
- (vi) Ensure that utility services are adequate to meet the needs of firefighters and others assisting in bushfire fighting.

Northern Beaches Council will, upon receipt of an application for the proposed works, including the establishment of the Childcare Centre, refer the application to the Rural Fire Service for approval under Section 4.47 of the *Environmental Planning and Assessment Act*.

The Rural Fire Service will consider matters necessary to provide protection from the potential impacts that may arise from a bushfire occurrence within the bushfire prone vegetation nominated on the Bushfire Prone Land Map.

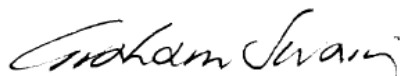
Matters considered necessary by the Rural Fire Service for the Class 6 component of the development will include the provision of a “defendable space” [Asset Protection Zone] to widths necessary to provide a safe working environment for firefighters and the protection of the building; fuel management of the vegetation within the defendable space; access provisions for emergency services; construction standards to the building; water supplies for firefighting operations and evacuation provisions.

Matters considered necessary by the Rural Fire Service for the Childcare Centre [Special Fire Protection Purpose Development] component of the development will be those measures included in Section 4.2.7 of *Planning for Bushfire Protection 2006* including the provision of a setback [Asset Protection Zone] from the bushfire hazard which limits the radiant heat levels on the exterior of the building to less than 10kW/m² and the provision of safe egress from the building.

This report undertakes an assessment of the bushfire protection measures required to address the objectives of *Planning for Bushfire Protection 2006*, and examines the standards regarding setbacks [Asset Protection Zones/Defendable space], provision of water supply, fuel management protocols and other matters considered necessary to mitigate any potential bushfire threat to persons, property and the environment from the danger that may arise from a bushfire within the vegetation on the land to the west of the adjacent residential development.

The characteristics of the proposed development, including provision of complying widths of Asset Protection Zones to the Childcare Centre and Defendable Space to the Class 6 component of the development and construction standards that address the likely levels of radiant heat on the building, provide that the site is suitable in terms of its intended use.

I also certify that the Development Proposal complies with the aim and objectives of *Planning for Bushfire Protection 2006*.



Graham Swain
Managing Director,
Australian Bushfire Protection Planners Pty Limited.

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SECTION 1

INTRODUCTION

1.1 Aims of this Assessment.

The aims of this Bushfire Protection Assessment are to:

- Review the Certified Northern Beaches Bushfire Prone Land Map;
- Undertake a Bushfire Hazard Assessment of the mapped Bushfire Prone Vegetation within the adjoining vacant land;
- Determine the classification of the vegetation on and surrounding the site in accordance with the vegetation classification system contained in *Planning for Bushfire Protection 2006*;
- Undertake an assessment to determine the slope of the land on and surrounding the development site;
- Undertake a Bushfire Protection Assessment to determine bushfire protection strategies for the proposed development that address the following matters:
 - (i) The provision of building setbacks (Asset Protection Zones) from vegetated areas and the siting of the Childcare Centre to reduce the level of radiant heat on the exterior of the building to less than 10kW/m²;
 - (ii) The provision of building setbacks (Defendable Space Zones) from vegetated areas and the Class 6 component of the development to remove the exposure of the building to direct flame contact;
 - (iii) Fire fighting water supplies;
 - (iv) Access requirements for emergency service vehicles;
 - (v) Construction standards to the new works which help to minimize the vulnerability of building to ignition from radiation and ember attack;
 - (vi) Land management responsibilities; and
 - (vii) Evacuation management.

1.2 Statutory Requirements.

This assessment has been prepared having regard to the following legislative and planning requirements:

1.2.1 Legislation.

(a) Environmental Planning and Assessment Act (EPA Act)

Planning and development within NSW is regulated by the *Environmental Planning & Assessment Act, 1979* (EPA Act).

In relation to bushfire planning for the construction of Class 6 developments in bushfire prone areas in NSW, Section 4.14 applies.

Section 4.14(1) states that development consent cannot be granted, other than for the subdivision of land that could lawfully be used for residential or rural residential purposes or development for special protection purposes, on bushfire prone land unless the consent authority is satisfied that the development conforms to the specifications and requirements of *Planning for Bushfire Protection 2006*.

In relation to the construction of the proposed Childcare Centre Section 4.46 identifies that the development is integrated and Section 4.47 identifies the need to obtain a Bushfire Safety Authority for the development under the provisions of Section 100B of the *Rural Fires Act 1997*.

(b) Rural Fires Act 1997

The objectives of the *Rural Fires Act* are to provide:

- The prevention, mitigation and suppression of fires;
- Coordination of bushfire fighting and prevention
- Protection of people and property from fires; and
- Protection of the environment.

In relation to the management of bushfire fuels on public and private lands within NSW Sections 63(1) and 63(2) require public authorities and owners / occupiers of land to take all practicable steps to prevent the occurrence of bushfires on, and to minimize the danger of the spread of bushfires.

(c) Rural Fires Regulation 2013.

Section 44 of the *Rural Fires Regulation* provides details of the matters that are required to be addressed for the issue of a *Bushfire Safety Authority* under Section 100B of the *Rural Fires Act*.

1.2.2 Planning Policies.

Planning for Bushfire Protection – 2006. (NSW Rural Fire Service)

This document provides guidance on the planning and development control processes in relation to bushfire protection measures for residential subdivision, “Special Fire Protection” and Industrial Developments in bushfire prone areas.

1.3 Documentation Reviewed.

The following documents were reviewed in the preparation of this assessment:

- Architectural Plans of the proposed alterations and additions to the Forestway Shopping Centre prepared by The Buchan Group – Architects;
- Aerial Photograph of the site;
- Northern Beaches Council Certified Bushfire Prone Land Map;
- *Planning for Bushfire Protection 2006* prepared by the NSW Rural Fire Service.

1.4 Development Proposal.

This Bushfire Protection Assessment has been prepared, at the request of INVESCO, for the construction of alterations and additions to the existing Forestway Shopping Centre on Lot 20 in DP 1209801 Forest Way, Forestway.

The proposed development includes demolition of the existing carpark and shops [excluding the exiting ALDI Store and part of the existing Woolworths Store and construction of a two level basement Carpark, a new Ground Floor, above the Carpark, containing retail stores and a new extension to the Woolworths Store. The Ground Floor entry off Sorlie Place will also be upgraded.

A new First Floor Level will contain a Restaurant, Retail Stores, Pharmacy, Childcare Centre, Office, Allied Health Centre and Gym. The roof to the new complex will contain the Second Level Carpark.

[Refer to plans of the proposed alterations & additions to the existing Shopping Centre on Pages 11 - 13].

Figure 1 – Site Plan of the proposed alterations & additions to the existing Shopping Centre.

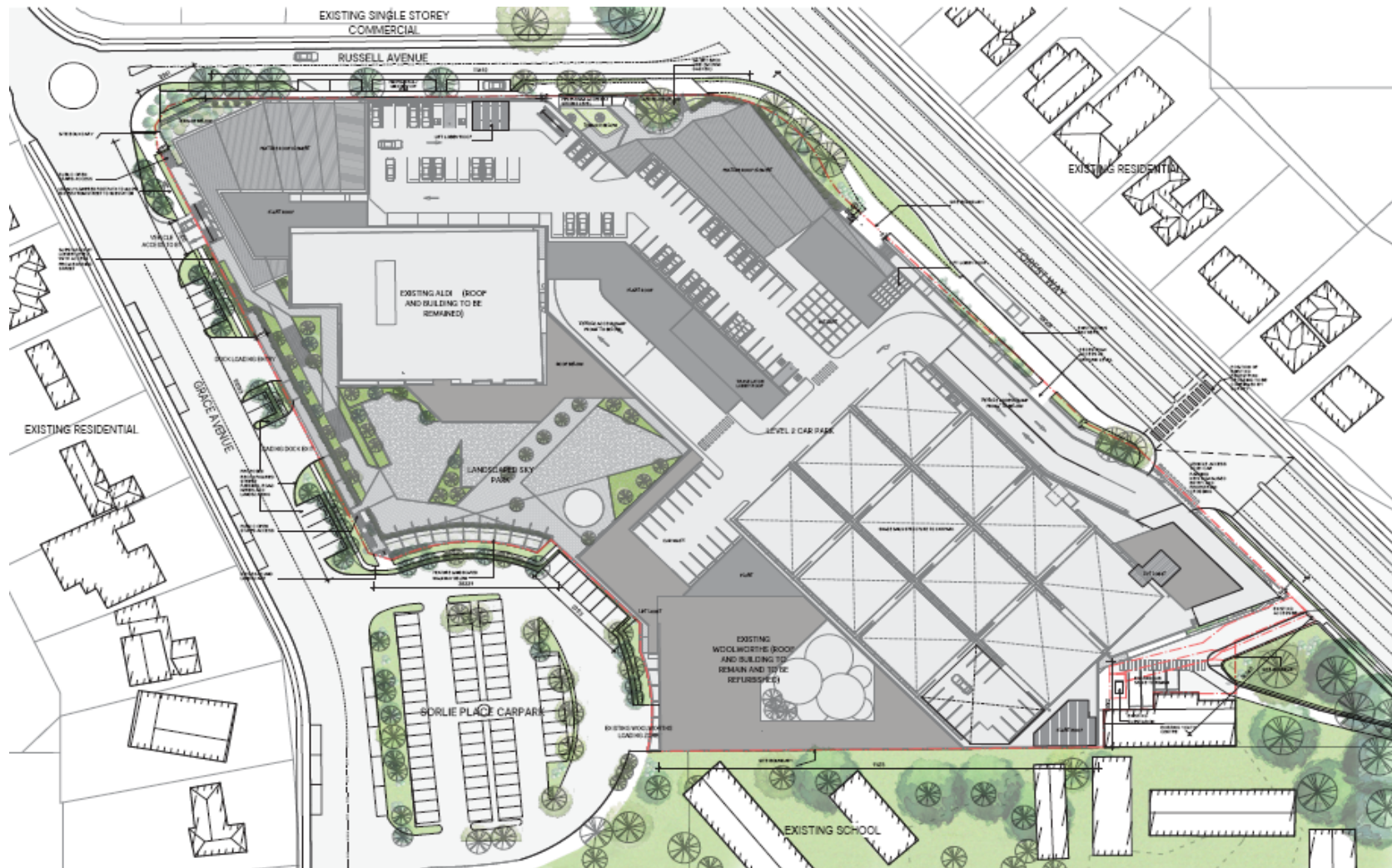


Figure 3 – First Floor Plan of the proposed alterations & additions to the existing Shopping Centre.



1.5 Site Inspection.

Graham Swain of *Australian Bushfire Protection Planners Pty. Limited* inspected the development property on the 28th July 2018 to assess the topography, slopes, vegetation classification and land use within and adjoining the development site.

Adjoining properties were also inspected to determine the surrounding land use / land management.

A desk-top assessment was undertaken to determine likely fire runs, influence of terrain on wind patterns within the bushfire prone vegetation and an assessment of access and egress to the development site.

SECTION 2

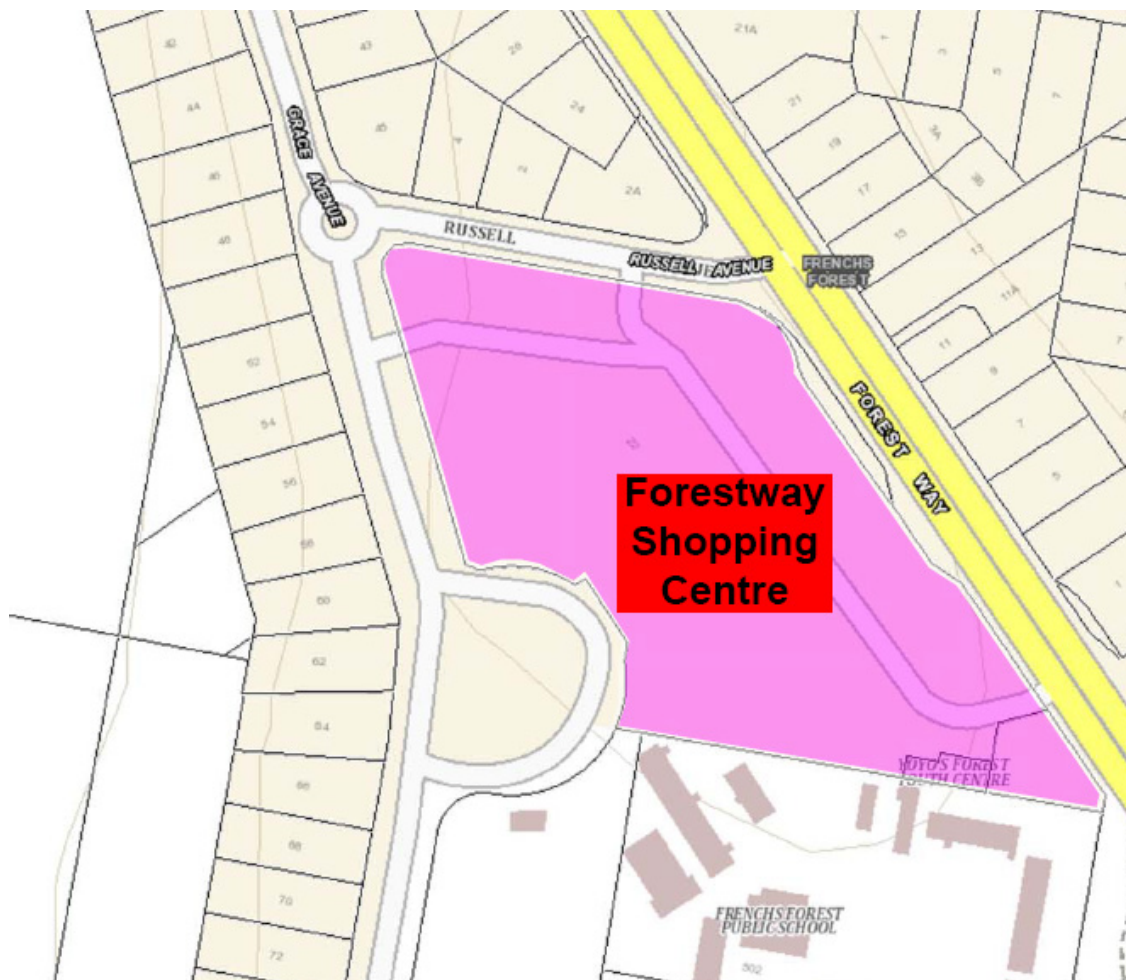
DESCRIPTION OF DEVELOPMENT SITE

2.1 Location & Description.

The development site consists of Lot 20 in DP 1209801 Forest Way, Frenchs Forest.

The site contains the Forestway Shopping Centre which contains a Woolworths and ALDI Supermarket Specialty Stores with a two storey above ground Carpark located adjacent to Forest Way.

Figure 4 – Location of Forestway Shopping Centre.



2.2 Existing Land Use.

The development site contains the Forestway Shopping Centre.

2.3 Adjoining Land Use.

The land to the north and east of the Forestway Shopping Centre contains residential development. The land to the south contains the Frenchs Forest Primary School.

The land to the west of the Forestway Shopping Centre, beyond Grace Avenue, contains residential development. Vacant council owned land extends to the west from the rear of the residential properties.

Figure 5 – Aerial Photograph of the Forestway Shopping Centre site and adjoining lands.



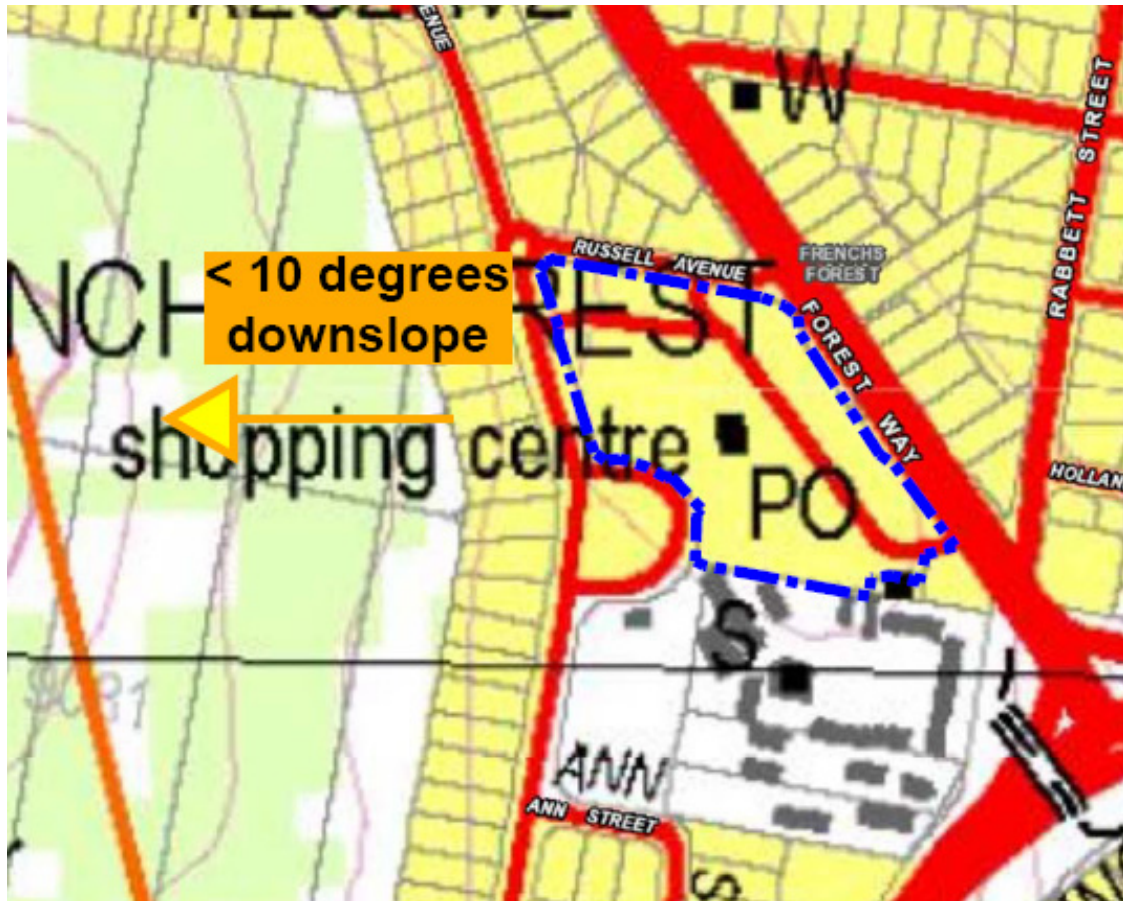
2.4 Topography.

Appendix 2 of *Planning for Bushfire Protection 2006* states that slopes should be assessed, over a distance of at least 100m from a development site and that the gradient of the land should be determined which will most significantly influence the fire behaviour on the site.

The topography of the land within the development site is level.

The land to the west of the residential properties, west of Grace Avenue, falls to the west at 9 – 10 degrees.

Figure 6 – Topographic Map.



2.5 Vegetation Communities on the land within the Development Site.

Appendix A2.3 of *Planning for Bushfire Protection 2006* provides a methodology for determining the predominant bushfire prone vegetation for at least 140 metres in all directions from the proposed building.

Vegetation is classified using Table A2.1 of *Planning for Bushfire Protection 2006*, which classifies vegetation types into the following groups:

- (a) *Forests [wet & dry sclerophyll forests];*
- (b) *Woodlands;*
- (c) *Plantations – being pine plantations not native plantations;*

- (d) *Forested Wetlands;*
- (e) *Tall Heaths;*
- (f) *Freshwater Heaths;*
- (g) *Short Heaths;*
- (h) *Alpine Complex;*
- (i) *Semi – arid Woodlands;*
- (j) *Arid Woodlands; and*
- (k) *Rainforests.*

The vegetation on the development site consists of landscaped gardens.

2.6 Vegetation Communities adjoining the Development Site.

The development site is adjoined to the north, east and west by the residential development that contains managed landscaped gardens. The Frenchs Forest Primary School located to the south of the development site also contains managed landscaped gardens and playing fields.

The vegetation on the vacant council land to the west of the residential development west of Grace Avenue consists of Dry Sclerophyll Low Open Forest [Sydney Coastal Dry Sclerophyll Forest].

2.7 Significant Environmental Features on the land within the Development Site.

The development site does not contain any significant environmental features such as SEPP 14 – Coastal Wetlands; SEPP 26 Littoral Rainforests; SEPP 44 – Koala Habitat; areas of geological interest; steep lands [>18 degrees]; land slip areas; National Parks Estate or riparian corridors.

2.8 Known Threatened Species, Populations, Endangered Ecological Communities or Critical Habitat on the land within the Development Site.

There are no known threatened species, populations, endangered ecological communities or critical habitat within the development site.

2.9 Details of Aboriginal/European Heritage within the Development Site.

There are no known Aboriginal sites, relics or European heritage within the development site.

SECTION 3

FIRE MANAGEMENT RESPONSIBILITIES

Fire management within the development site is the responsibility of:

3.1 Northern Beaches Council.

The Northern Beaches Council has responsibility, under Section 66 of the *Rural Fires Act*, to issue a notice in writing requiring an owner / occupier of any land within the Northern Beaches Local Government Area [LGA] to carry out bushfire hazard reduction works on that land. Section 100E of the *Rural Fires Act* requires Council to issue bushfire hazard reduction certificates for hazard reduction to be undertaken on private lands.

3.2 New South Wales Rural Fire Service.

The NSW Rural Fire Service (RFS) has the responsibility for undertaking fire suppression activities, hazard management activities and other functions relative to emergency management, within its areas of operation. *Section 73* of the *Rural Fires Act (1997)* enables the Commissioner to carry out bush fire hazard reduction works on any land as required by a bush fire risk management plan if the work has not been carried out satisfactorily. Incurred costs can be recovered as a debt owed to the Crown.

3.3 Fire & Rescue New South Wales.

Fire & Rescue NSW has the responsibility for undertaking fire suppression activities, and other functions relative to emergency management, within its area of operation and through Mutual Aid Agreements, provide assistance to the NSW Rural Fire Service, particularly for structural fire operations within the NSW Rural Fire Brigade Districts. Hazmat management within New South Wales is the responsibility of Fire & Rescue NSW.

3.4 Public Authorities & owners/occupiers of land.

The Rural Fires Act, 1997 provides several legislative opportunities to require Public Authorities, land owners and occupiers to manage hazardous fuels. These are listed below:

- **Section 63(1)** states that it is the duty of a public authority to take any practicable steps to prevent the occurrence of bushfires on, and to minimise the danger of the spread of a bushfire on or from:

(a) any land vested in or under its control or management, or

(b) any highway, road, street, land or thoroughfare, the maintenance of which is charged on the authority.

- **Section 63(2)** states that *'it is the duty of the owner or occupier of land to take the notified steps (if any) and any other practicable steps to prevent the occurrence of fires on, and to minimise the danger of the spread of fires on or from that land'*.
- **Section 65A** states that the *'Commissioner may nominate a member of the Service as a hazard management officer'*.
- **Section 65(2)** states that *'an authorised person may, with the permission of the fire fighting authority or other authority responsible for unoccupied Crown land or managed land or a person nominated by the authority to give such permission, enter the land and carry out bushfire hazard reduction work with the assistance of such other persons as the authorised person considers to be necessary for the purpose'*.
- **Section 65(3)** states that *'the authority responsible for unoccupied Crown land or managed land is to be taken to have given the permission under this section to the extent necessary to give effect to a bushfire risk management plan'*.
- **Section 65(4)** states that *'if permission under this section is given subject to conditions, the conditions must be complied with'*.
- **Section 66(1)** states that *'a hazard management officer may, by notice in writing, require the owner or occupier [not being a public authority] of any land to carry out bushfire hazard reduction work specified in the notice on the land'*.
- **Section 66(2)** states that *'a hazard management officer must serve a notice under this section if required to do so by a bushfire risk management plan applicable to the land that is in force'*.
- **Section 66(3)** states that *'a hazard management officer must issue a bushfire hazard reduction certificate in respect of any bushfire hazard reduction work required by a notice issued in accordance within section (2)'*.
- **Section 66(6)** states that *'the requirements and conditions so specified must include any requirements in a bushfire risk management plan that is applicable to the land and is in force and may include a requirement or condition that the burning of fire breaks or of combustible material:*

(a) must in fire district constituted under the Fire Brigades Act 1989 be carried out by or under the supervision of the fire brigade or an officer in charge of the fire brigade;

(b) must outside a fire district, be carried out by or under the supervision of the rural fire brigade specified in the notice or an appropriate officer of the rural fire brigade or any hazard management officer.

- **Section 66(7)** states that ‘a notice requiring the establishment of a firebreak cannot require an occupier or owner to kill or remove any trees that are reasonably necessary for shade, shelter, windbreak or fodder purposes or the protection of threatened species, populations, ecological communities or critical habitats within the meaning of the ‘Threatened Species Conservation Act 1995’.
- **Section 66(8)** states that ‘an occupier or owner to whom a bushfire hazard reduction notice is given must, despite the fact that a fire permit has not been granted under Division 5, comply with the requirements specified in the notice’.
- **Section 70(2)** states that ‘if within the time specified in the relevant notice the owner or occupier to whom it is given fails to comply with any requirement of the notice, the Commissioner may, without prejudice to liability of the owner or occupier, enter on the land and carry out the bushfire hazard reduction work the owner or occupier was required to do under the notice’.
- **Section 70(3)** states that ‘any costs incurred by the Commissioner in carrying out such work may be recovered from the owner or occupier of the land as a debt due to the Crown in a court of competent jurisdiction’.
- **Section 87** allows the removal of hazards in the bush fire danger period by the provision of a permit system. The permits are valid for 21 days, excluding TOBAN [Total Fire Ban] days.

Section 10 permits are not required to adhere to *Part V* provisions of the EPA Act 1979 in the assessment of impact, except for public authorities. An owner/occupier of private land must obtain from the NSW Rural Fire Service, a bushfire hazard reduction certificate before undertaking hazard reduction works on that land (Section 100E of the *Rural Fires Act 1997*).

3.5 Management of the Defendable Spaces [Asset Protection Zones] to the Development.

The management of the Asset Protection Zone/Defendable Space within the development site shall remain the responsibility of the owner of the land.

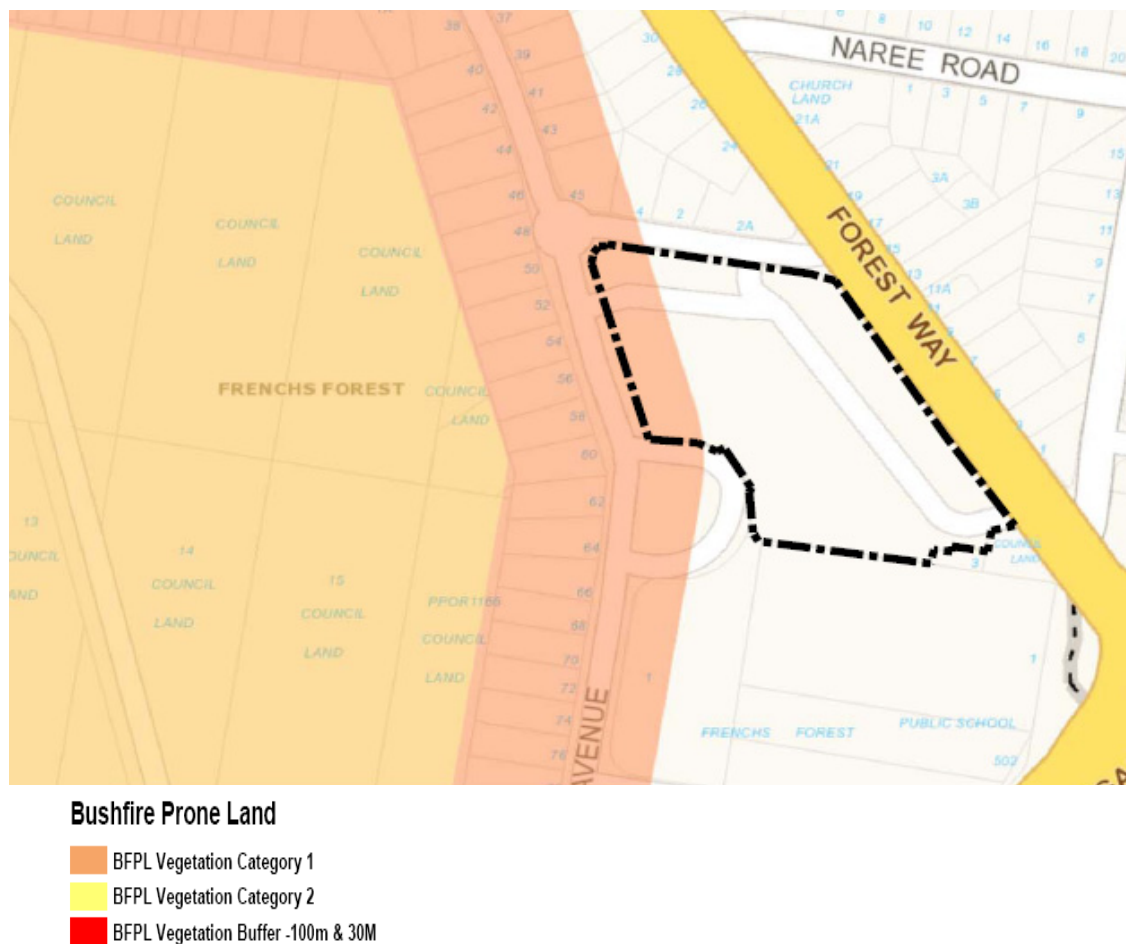
SECTION 4

BUSHFIRE HAZARD ASSESSMENT

4.1 Certified Bushfire Prone Land Map.

Section 10.3 of the *Environmental Planning & Assessment Act 2017* requires councils, where a Bushfire Risk Management Plan applies, to prepare a Bushfire Prone Land Map in consultation with the Commissioner of the NSW Rural Fire Service. The Commissioner will designate lands to be Bushfire Prone within an area and, when satisfied that the lands have been recorded on a map, will certify the map as a Bushfire Prone Land Map for the purposes of this or any other Act.

Figure 7 – Extract from the Northern Beaches Bushfire Prone Land Map.



The Northern Beaches BFPLM map shows that the site contains the buffer zone to Category 1 Bushfire Prone Vegetation [Orange colour] found on the land to the west of the residential development on the western side of Grace Avenue. The site inspection confirmed the accuracy of the Bushfire Prone Land Map.

SECTION 5

BUSHFIRE PROTECTION ASSESSMENT

5.1 Introduction.

The development proposal is for the construction of alterations and additions to the existing Forestway Shopping Centre. The Building Code of Australia defines a Shopping Centre as a Class 6 building.

Chapter 4, Section 4.3.6(f) of *Planning for Bushfire Protection 2006* discusses the bushfire protection to buildings of Class 5 to 8 and 10b of the Building Code of Australia and states:

“The BCA does not provide for any bushfire specific performance requirements and as such A.S.3959 – 1999 does not apply as a set of ‘deemed to satisfy provisions’.

The general fire safety construction provisions for this class of building are taken as acceptable solutions, but the aim and objective of Planning for Bushfire Protection 2006 apply in relation to access and water supply for fire-fighting operations, emergency planning [evacuation] and landscaping / vegetation management.

In circumstances where the aim and objectives of Planning for Bushfire Protection 2006 are not met, then the construction requirements for bushfire protection will need to be considered on a case-by-case basis”.

Chapter 1, Section 1.1 of *Planning for Bushfire Protection 2006* states that for the construction of Class 5 – 8 buildings on bushfire prone land, or land impacted by bushfire prone vegetation, the aim and objectives of the document apply.

The stated aim of the document is to use the NSW development assessment system to provide for protection of human life [including fire-fighters] and to minimize impacts on property from the threat of bushfire, while having due regard to development potential, on-site amenity and protection of the environment.

The objectives of the document are:

- (1) *Afford occupants of any building adequate protection from exposure to the impacts of a bushfire;*
- (2) *Provide for a defensible space to be located around buildings;*

- (3) *Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition;*
- (4) *Ensure that safe operational access/egress for emergency service personnel and occupants relocating is provided and/or available;*
- (5) *Provide for ongoing management and maintenance of bushfire protection measures, including fuel loads within the Asset Protection Zone/s;*
- (6) *Ensure that utility services are adequate to meet the needs of fire-fighters [and others assisting in bushfire fighting operations].*

Section 5.2 of this report examines the proposed alteration and additions to the Shopping Centre's compliance with the objectives of *Planning for Bushfire Protection 2006*.

The proposed development also includes the establishment of a Childcare Centre on the new First Floor Level of the building.

Section 100B of the *Rural Fires Act 1997* identifies that a Childcare Centre which is located in a bushfire prone area is deemed to be a '*Special Fire Protection Purpose Development*' for the purpose of determining bushfire protection measures and the development requires consent from the NSW Rural Fire Service and issue of a *Bushfire Safety Authority* pursuant to Section 100B of the *Rural Fires Act 1997*

Section 44 of the *Rural Fires Regulation 2013* requires that an application for a *Bushfire Safety Authority* must include a bushfire assessment for the proposed development (including the methodology used in the assessment) that addresses the extent to which the development provides:

- *Asset protection zones;*
- *The siting and adequacy of water supplies for fire-fighting operations;*
- *Capacity of public roads to handle increased volumes of traffic during a bushfire emergency;*
- *Whether or not public roads link with the fire trail network and have two way access;*

- *The adequacy of access and egress for the purposes of emergency response;*
- *The adequacy of bushfire maintenance plans and fire emergency procedures and;*
- *The construction standards to be used for building elements.*

Section 5.3 of this report uses the methodology provided by *Planning for Bushfire Protection 2006* to determine the Asset Protection Zones required for the Childcare Centre.

The remaining items identified by Section 44 of the *Rural Fires Regulation 2013* are examined in Sections 5.4 – 5.9 of this report.

5.2 Bushfire Protection Assessment for the proposed Alterations & Additions to the Shopping Centre building:

Objective (i):

Afford occupants of any building adequate protection from exposure to the impacts of a bushfire:

The bushfire hazard to the Shopping Centre is from the forest vegetation on the council land which extends to the west from the rear of the residential properties, west of Grace Avenue.

The forest vegetation is on land that falls to the west at less than ten [10] degrees. The separation distance to the closest point of the Shopping Centre complex is 74 metres. The resultant radiant heat on the western elevation of the Shopping Centre complex is therefore less than 12.5 kW/m². This ensures that the occupants of the complex are afforded adequate protection from the exposure to the impact of a fire burning upslope under westerly winds.

Objective (ii):

Provide for a defendable space located around the proposed building:

The siting of the proposed extension to the existing Shopping Centre building provides for a minimum defendable space width of 74.00 metres which includes Grace Avenue and the managed residential land.

Objective (iii):

Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition:

The available separation width to the bushfire hazard prevents direct flame contact on the building.

The northern portion of the Shopping Centre is located within 100 metres of the bushfire hazard and therefore exposed to a radiant heat level of 12.5kWm².

This requires that part of the building located within 100 metres of the hazard to be constructed to comply with Section 3 and Section 5 [BAL 12.5] of A.S 3959 – 2009 - ‘Construction of Buildings in Bushfire Prone Areas’.

Whilst the type of construction recommended addresses the potential radiant heat levels from a future bushfire in the vegetation on the land to the west of the development site, the following additional construction standards shall be implemented to safe guard the building against burning ember attack:

- External doors to the Goods Docks shall be protected against the entry of embers – threshold, stile and head seals shall be fitted to doors;
- Any external vents, ventilation louvres or grilles shall have stainless steel mesh with a maximum aperture of 2mm square fitted to prevent the entry of embers into the building or be fitted with a louvre system which can be closed to maintain a maximum aperture or gap of no more than 3mm;
- Roof gutters shall be provided with a protection device [corrosion resistant steel mesh or perforated metal with 2mm holes] which minimizes the accumulation of combustible litter. Such device shall be non combustible when measured in accordance with the testing procedures of A.S 1503.2;
- Access doors [PA/Fire Exit and Vehicle] to the building shall be fitted with seals that seal the bottom, stiles and head of the door against the opening/frame to prevent the entry of embers into the building;
- Fire Exit doors shall be fitted with non-hold opening door closers;
- Roof ventilators shall be fitted with stainless steel flymesh [2mm aperture] to prevent the entry of embers into the building or be fitted with a louvre system which can be closed in order to maintain a maximum aperture or gap of no more than 3mm;

Objective (iv):

Ensure that safe operational access/egress for emergency service personnel and occupants relocating is provided and/or available:

❖ **Public Roads:**

The development site has frontage to Forest Way and Grace Avenue which are local arterial roads that provide access for heavy rigid and articulated vehicles and therefore suitable for fire-fighting appliances.

❖ **Fire Trail Access.**

There are no Fire Trails provided or required within the development proposal.

❖ **Emergency Response Access / Egress.**

The Forest Road and Grace Avenue provide complying emergency response access/egress.

Objective (v):

Provide for ongoing management and maintenance of bushfire protection measures, including fuel loads within the Asset Protection Zones /

Defendable Space:

The design and maintenance of the landscaped gardens within the defendable space shall comply with the prescriptions of an Inner Protection Area [IPA] pursuant to the specifications of Appendix 5 of *Planning for Bushfire Protection 2006* and the NSW Rural Fire Services document '*Specifications for Asset Protection Zones*'.

The management of the landscaped gardens [defendable space] shall be maintained under the terms of a positive covenant, pursuant to Section 88B of the *Conveyancing Act of 1909*, on the title of the land.

Objective (vi):

Ensure that utility services are adequate to meet the needs of fire-fighters [and others] assisting in bushfire fighting operations]:

The existing Sydney Water reticulated service shall be extended to the proposed works with hydrants, fire hose reels installed in accordance with A.S. 2419.1 – 2005.

5.3 Determination of Asset Protection Zones to the proposed Childcare Centre.

Appendix 2 of *Planning for Bushfire Protection 2006* provides the following procedure for determining setback distances (Asset Protection Zones):

- (a) *Determine vegetation formations as follows:*
- Identify all vegetation in all directions from the site for a distance of 140 metres;
 - Consult Table A2.1 to determine the predominant vegetation type; and
 - Select the predominant vegetation formation as described in Table A2.1.
- (b) *Determine the effective slope of the land under the predominant vegetation Class;*
- (c) *Determine the appropriate fire [weather] area in Table A2.2;*
- (d) *Consult Table A2.6 and determine the appropriate setback [Asset Protection Zone] for the assessed land use, vegetation formation and slope range.*

Table 1 examines the defensible space provisions of the proposed development using the above assessment methodology.

**Table 1. Examination of Asset Protection Zone to the proposed Childcare Centre within the Commercial /Industrial complex.
Fire Danger Index [FDI] for the site = 100**

Aspect	Vegetation within 140m of development	Predominant Vegetation Formation Class [Table A2.1 PFBFP]	Effective Slope of Land	Asset Protection Zone width required by PFBFP	Available width of Asset Protection Zone
West	Managed vegetation + Sydney Coastal Dry Sclerophyll Forest	Forest	< 10 degrees downslope	85 metres	Asset Protection Zone exceeds 120 metres

Assessment Results:

A review of the location of the proposed Childcare Centre identifies that the separation width to the bushfire hazard on the land to the west of the proposed Childcare Centre exceeds 120 metres – therefore satisfying the NSW Rural Fire Service's requirements and ensuring that the radiant heat level on the western wall is less than 10kW/m².

5.3.1 Construction Measures to the Childcare Centre.

As the separation between the bushfire hazard and the Childcare Centre exceeds 100 metres there is no requirement to apply bushfire construction measures to this part of the building.

5.3.2 Access Standards for Firefighting Operations – Childcare Centre.

Chapter 4, Section 4.2 “Access” of *Planning for Bushfire Protection 2006* provides specifications on the access provisions for firefighting operations within developments which are subject to bushfire attack.

Access to the proposed Childcare Centre is to be provided from Forest Way via internal lift/stair to the interior carpark. Forest Way provides complying access for fire-fighting appliances therefore the access provisions are deemed to comply with the deemed-to-satisfy provisions of Section 4.1.3(2) [Access] of *Planning for Bushfire Protection 2006*.

5.4 Emergency Management for Fire Protection / Evacuation – Shopping Centre:

The management of evacuation of the staff and the public will be addressed in the preparation of an Evacuation Plan complying with AS 3745 -2002 “*Emergency Control Organisation and Procedures for Buildings, Structures and Workplaces*”.

A copy of the Evacuation Plan shall be provided to the Local Emergency Management Committee/Police, Fire & Rescue NSW and NSW Rural Fire Service.

An Emergency Procedures Manual shall be prepared for the Shopping Centre and shall include operational procedures required to address the potential impacts of bushfires on the site – including the closure of doors likely to be exposed to potential ember attack.

5.5 Emergency Management for Fire Protection / Evacuation – Childcare Centre:

The management of evacuation of the staff, children and visitors will be addressed in the preparation of an Evacuation Plan for the Childcare Centre, separate from the Evacuation Plan prepared by the Shopping Centre.

The Evacuation Plan for the Childcare Centre shall address the protocols for the timely relocation of the occupants in the event that an emergency occurs, both within the Shopping Centre or within the local area.

The protocols for a bushfire emergency shall include stay-in-place unless advised to relocate by the Emergency Services. Should relocation of the children be necessary, evacuation shall only take place via the Forest Way exit and NOT the Grace Avenue Exit as this exit is towards the hazard.

A copy of the Evacuation Plan shall be provided to the Local Emergency Management Committee/Police, Fire & Rescue NSW and NSW Rural Fire Service.

The Evacuation Plan shall comply with AS 3745 -2002 *“Emergency Control Organisation and Procedures for Buildings, Structures and Workplaces”*.

SECTION 6

BUSHFIRE MANAGEMENT STRATEGIES – SHOPPING CENTRE

Strategies to address the aim and objectives of *Planning for Bushfire Protection 2006* are as follows:

Strategy 1 – Landscape Management:

The design and maintenance of the landscaped gardens within the defensible space shall comply with the prescriptions of an Inner Protection Area [IPA] pursuant to the specifications of Appendix 5 of *Planning for Bushfire Protection 2006* and the NSW Rural Fire Services document '*Specifications for Asset Protection Zones*'.

The management of the landscaped gardens [defensible space] shall be maintained under the terms of a positive covenant, pursuant to Section 88B of the *Conveyancing Act of 1909*, on the title of the land.

Strategy 2 – Water Supplies for Firefighting Operations:

The existing Sydney Water reticulated service shall be extended to the proposed alterations and additions with hydrants, fire hose reels installed in accordance with A.S. 2419.1 – 2005.

Strategy 3 – Bushfire Construction Standards:

That part of the new works located within 100 metres of the bushfire hazard shall be constructed to comply with Section 3 and Section 5 [BAL 12.5] specifications pursuant to A.S. 3959 – 2009 – *Construction of Buildings in Bushfire Prone Areas* and Addendum Appendix 3 of *Planning for Bushfire Protection 2006*.

The following additional construction standards shall be implemented to safeguard the building against burning ember attack:

- External doors to the Goods Docks shall be protected against the entry of embers – threshold, stile and head seals shall be fitted to doors;
- Any external vents, ventilation louvres or grilles shall have stainless steel mesh [or perforated metal] with a maximum aperture of 2mm square fitted to prevent the entry of embers into the building or be fitted with a louver system which can be closed in order to maintain a maximum aperture or gap of no more than 3mm;

- Roof gutters shall be provided with a protection device [corrosion resistant steel mesh or perforated metal with 2mm holes] which minimizes the accumulation of combustible litter. Such device shall be non combustible when measured in accordance with the testing procedures of A.S 1503.2;
- Access doors [PA/Fire Exit] to the building shall be fitted with seals that seal the bottom, stiles and head of the door against the opening/frame to prevent the entry of embers into the building;
- Fire Exit doors shall be fitted with non-hold opening door closers;
- Roof ventilators shall be fitted with stainless steel flymesh [2mm aperture] to prevent the entry of embers into the building or be fitted with a louvre system which can be closed in order to maintain a maximum aperture or gap of no more than 3mm;

Strategy 4 – Evacuation Plan:

There shall be prepared an Evacuation Plan that addresses the protocols for the timely relocation of staff/shoppers in the event that an emergency occurs, both within the site or within the local area. A copy of the Evacuation Plan shall be provided to the Local Emergency Management Committee/Police, Fire & Rescue NSW and NSW Rural Fire Service.

The Evacuation Plan shall comply with AS 3745 -2002 *“Emergency Control Organisation and Procedures for Buildings, Structures and Workplaces”*.

An Emergency Procedures Manual shall be prepared for the Shopping Centre and shall include operational procedures required to address the potential impacts of bushfires on the site – including the closure of doors likely to be exposed to potential ember attack.

SECTION 7

BUSHFIRE MANAGEMENT STRATEGIES – CHILDCARE CENTRE

Strategy to address the aim and objectives of *Planning for Bushfire Protection 2006* is as follows:

Strategy 1 – Evacuation Plan:

The Evacuation Plan for the Childcare Centre shall address the protocols for the timely relocation of the occupants in the event that an emergency occurs, both within the Shopping Centre or within the local area.

The protocols for a bushfire emergency shall include stay-in-place unless advised to relocate by the Emergency Services.

Should relocation of the children be necessary, evacuation shall only take place via the Forest Way exit and NOT the Grace Avenue exit as this exit is towards the hazard.

A copy of the Evacuation Plan shall be provided to the Local Emergency Management Committee/Police, Fire & Rescue NSW and NSW Rural Fire Service.

The Evacuation Plan shall comply with AS 3745 -2002 “*Emergency Control Organisation and Procedures for Buildings, Structures and Workplaces*”.

SECTION 8

CONCLUSION

The development proposal is for the construction of alterations and additions to the Forestway Shopping Centre, Forest Way, Frenchs Forest.

The proposed development also includes the establishment of a Childcare Centre on the new first floor level.

An examination of the Northern Beaches Bushfire Prone Land Map has determined that the land to the west, beyond the residential development located to the west of Grace Avenue contains Category 1 Bushfire Prone Vegetation with the 100 metre wide buffer zone to this vegetation extending onto the development site.

This assessment has reviewed the bushfire threat to the proposed alterations and additions to the Shopping Centre and has found that the available defendable space to the closest part of the complex is more than 70 metres – therefore satisfying the requirement that Class 6 buildings are not located in the ‘flame zone’.

The report provides recommendations on the construction standards to the Shopping Centre required to address A.S. 3959 – 2009 – ‘*Construction in Bushfire Prone Areas*’ and the evacuation planning requirements.

The report also examines the establishment of a Childcare Centre on the new First Floor Level and has found that the separation to the bushfire hazard is more than 120 metres. This separation exceeds the maximum width of Asset Protection Zone required for ‘*Special Fire Protection Purpose Developments*’ located in a bushfire prone area.

The report provides a recommendation on the development of an Evacuation Plan for the Childcare Centre which, during bushfire emergencies, has a protocol of stay-in-place unless evacuation is advised by the Emergency Services in which case the evacuation route shall be onto Forest Way and NOT Grace Avenue.

The assessment of the bushfire protection requirements and potential levels of bushfire attack on the proposed extension indicates that the development of the site can be undertaken in a manner that balances development opportunities and the protection of life, property and the environment.

REFERENCES:

- N.S.W Rural Fire Service – *Planning for Bushfire Protection 2006*;
- *Environmental Planning & Assessment Act – 2017*;
- *Rural Fires Act – 1997*;
- *Rural Fires and Environmental Assessment Legislation Amendment Act 2002*;
- *Rural Fires Regulation 2008*;
- NSW Rural Fire Service – *Guideline for Bushfire Prone Land Mapping 2006*;
- *Bushfire Environmental Assessment Code 2006*;
- Building Code of Australia;
- Australian Standard A.S 3959-2009 “*Construction of Buildings in Bushfire Prone Areas*”;
- *Northern Beaches Bushfire Prone Land Map*.

SECTION 9 – Plan of Defendable Space/Asset Protection Zone to the proposed alterations and additions to the Forestway Shopping Centre.

