

AMENDED

BUSHFIRE PROTECTION ASSESSMENT

FOR THE PROPOSED MOSQUE

ON

LOT 7 in DP 249716

No. 1 LARAPINTA PLACE,

GLENHAVEN

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Bushfire Mitigation Consultants

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Assessment Number	Document	Preparation Date	Issue Date	Directors Approval
B183137 - 2	Final	13.04.2018	31.01.2019	G.L. Swain

EXECUTIVE SUMMARY

Australian Bushfire Protection Planners Pty Limited has been commissioned to prepare a report to provide advice on the bushfire protection measures for the construction of a proposed new Mosque on Lot 7 in DP 249716, No. 1 Larapinta Place, Glenhaven.

The development precinct occupies 2.026 hectares of land located on the north-eastern corner of the intersection between Larapinta Place and Glenhaven Road. An existing single storey dwelling is located in the southern portion of the site and is proposed to be demolished as part of the proposed development.

Existing vehicular and pedestrian access is provided off Larapinta Place.

The land to the north and east of the development site contains rural residential development. Similar landuse extends to the west, beyond Larapinta Place and to the south, beyond Glenhaven Road.

The northern portion of the development site and the adjoining land to the northwest of the site contains unmanaged vegetation which is mapped by The Hills Shire Council, under the provisions of Section 10.3 of the *Environmental Planning and Assessment Act*, as Bushfire Prone Category 1 vegetation. Therefore the proposed development is located within a Bushfire Prone Area.

The NSW Rural Fire Service Fast Fact 2/14 dated October 2014 states:

“Under the Rural Fires Act 1997 [RFA] buildings used as a place of worship and other assembly buildings are not identified as being a Special Fire Protection Purpose Development [SFPP]. A Bushfire Safety Authority [BFSA] is not required under s100B of the RFA for buildings to be used for this purpose.

However, they may be referred to the NSW Rural Fire Service under Section 79BA [now Section 4.14] or 79C [now Section 4.15] of the Environmental Planning & Assessment Act 1979.

Clause 4.2.6 of Planning for Bushfire Protection states that Class 9 assembly areas under the Building Code of Australia [BCA] that are not a SFPP should:

- *Be assessed under 79BA [4.14] of the EP&A Act; and*
- *Be considered as if they were an SFPP and be assessed against the SFPP objectives of PBP when assessing the merits of the proposal.*

In order to consider a Place of Public Worship or other assembly building under the provisions of 79BA [4.14] of the EP&A Act, the following matters should be addressed:

- *The aims and objectives of PFP;*
- *The specific objectives for SFPP Developments as set out in clause 4.2.3 of PBP;*
- *The capacity and training of staff and occupants to participate in a fire-fighting response;*
- *The performance criteria for asset protection zones for SFPP Developments [Table A2.6 of PBP];*
- *The capacity of the existing and proposed road network to facilitate emergency evacuation;*
- *Depending on the scale of the development, this may include consideration of the traffic impacts of emergency evacuation of the development.*

Of importance is that the bushfire protection measures, when applied in combination, ensure no increase to the level of residual risk currently being experienced by the community as a whole, in addition to providing safety to the occupants of the building”.

This report examines the bushfire risk to the proposed Mosque and provides recommendations on the provision of measures, which in combination, ensure that no increase to the level of residual risk currently being experienced by the community occurs and the occupants of the building are provided a level of safety commensurate with the risk.



Graham Swain
 Managing Director
Australian Bushfire Protection Planners Pty Limited.

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SECTION 1

INTRODUCTION

1.1 Aim of this Assessment.

The aim of this Bushfire Protection Assessment is to address the following matters:

- *The aims and objectives of PFP;*
- *The specific objectives for SFPP Developments as set out in clause 4.2.3 of PBP;*
- *The capacity and training of staff and occupants to participate in a fire-fighting response;*
- *The performance criteria for asset protection zones for SFPP Developments [Table A2.6 of PBP];*
- *The capacity of the existing and proposed road network to facilitate emergency evacuation;*
- *Depending on the scale of the development, this may include consideration of the traffic impacts of emergency evacuation of the development.*

1.2 Statutory Requirements.

This report 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, 2017* (EPA Act).

In relation to bushfire planning for the construction of Class 9 [Assembly] buildings in bushfire prone areas in NSW Section 4.14 of the *Environmental Planning & Assessment Act* requires that the consent authority satisfy itself that the development conforms to the specifications of Planning for Bushfire Protection 2006.

(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.

1.3 Planning Policies.

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

This document provides guidance on the planning and development control processes in relation to bushfire protection measures for the subdivision of land for the purpose of rural residential & residential development and the construction of ‘Special Protection Purpose’ Developments in bushfire prone areas and the construction of Class 5 – 8 and Class 10 buildings in bushfire prone areas.

1.4 Documentation reviewed in the preparation of this Assessment.

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

- Architectural Plans of the proposed Mosque prepared by IDRAFT Architects – Job No. 28569, dated 29.01.2019;

1.5 Development Proposal.

The development proposal includes the construction of a new Mosque on Lot 7 in DP 249716, No. 1 Larapinta Place, Glenhaven.

Vehicular and pedestrian access is provided off Larapinta Place via the proposed driveway to the carpark with alternate pedestrian access to Glenhaven Road.

Figure 1 – Site Plan of the proposed Mosque

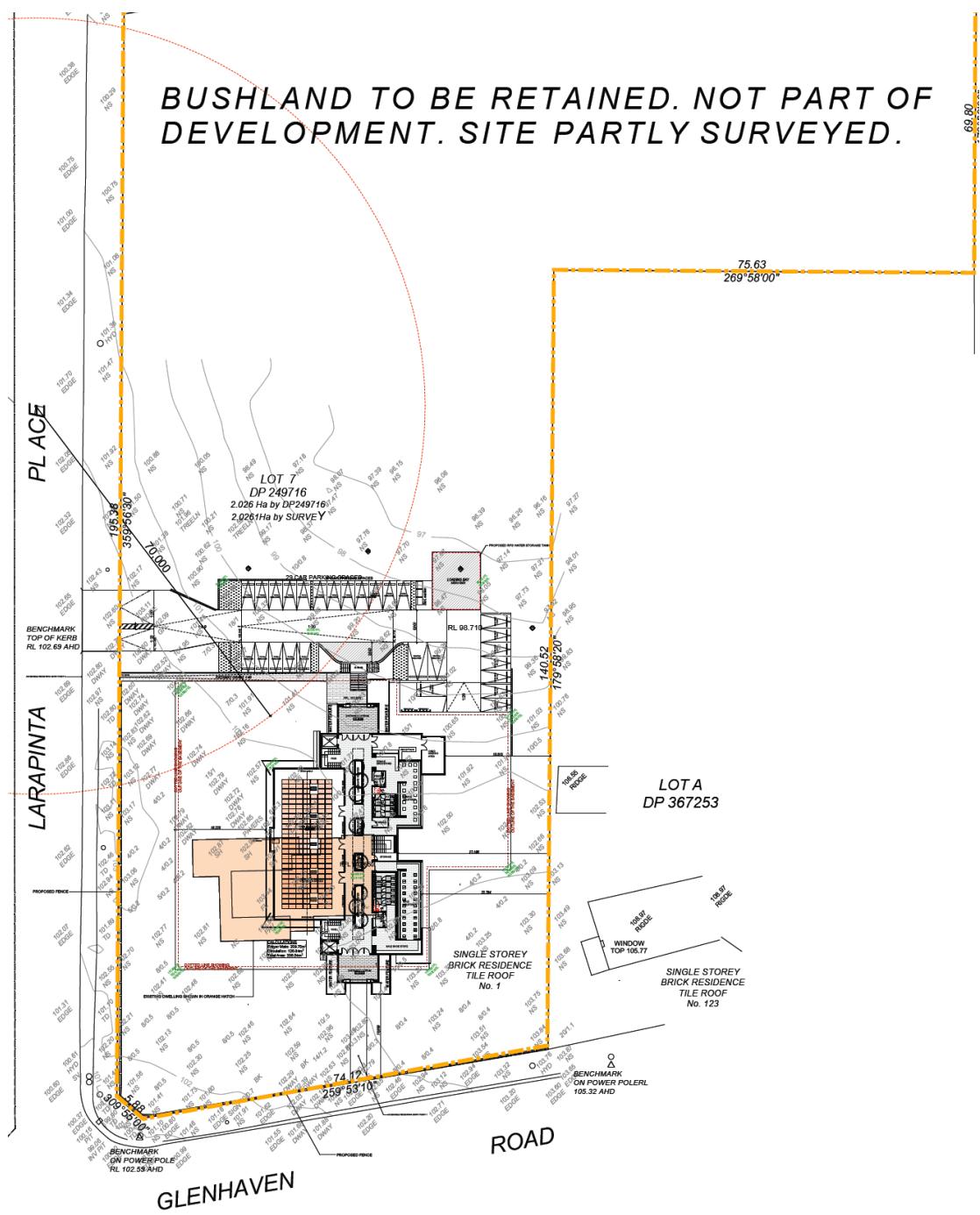


Figure 2 – Basement Floor Plan of the proposed Mosque

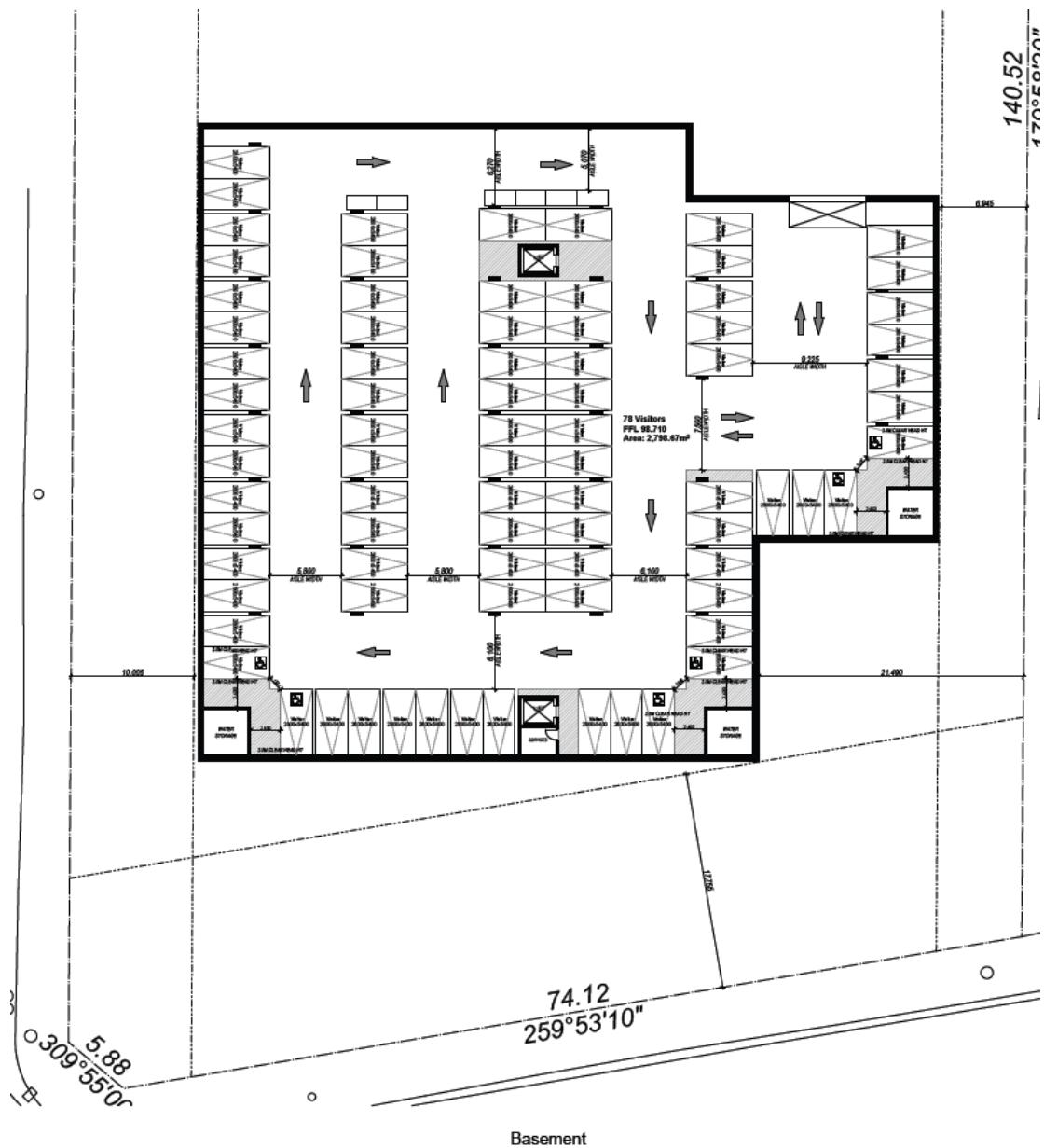


Figure 3 – Ground Floor Plan of the proposed Mosque

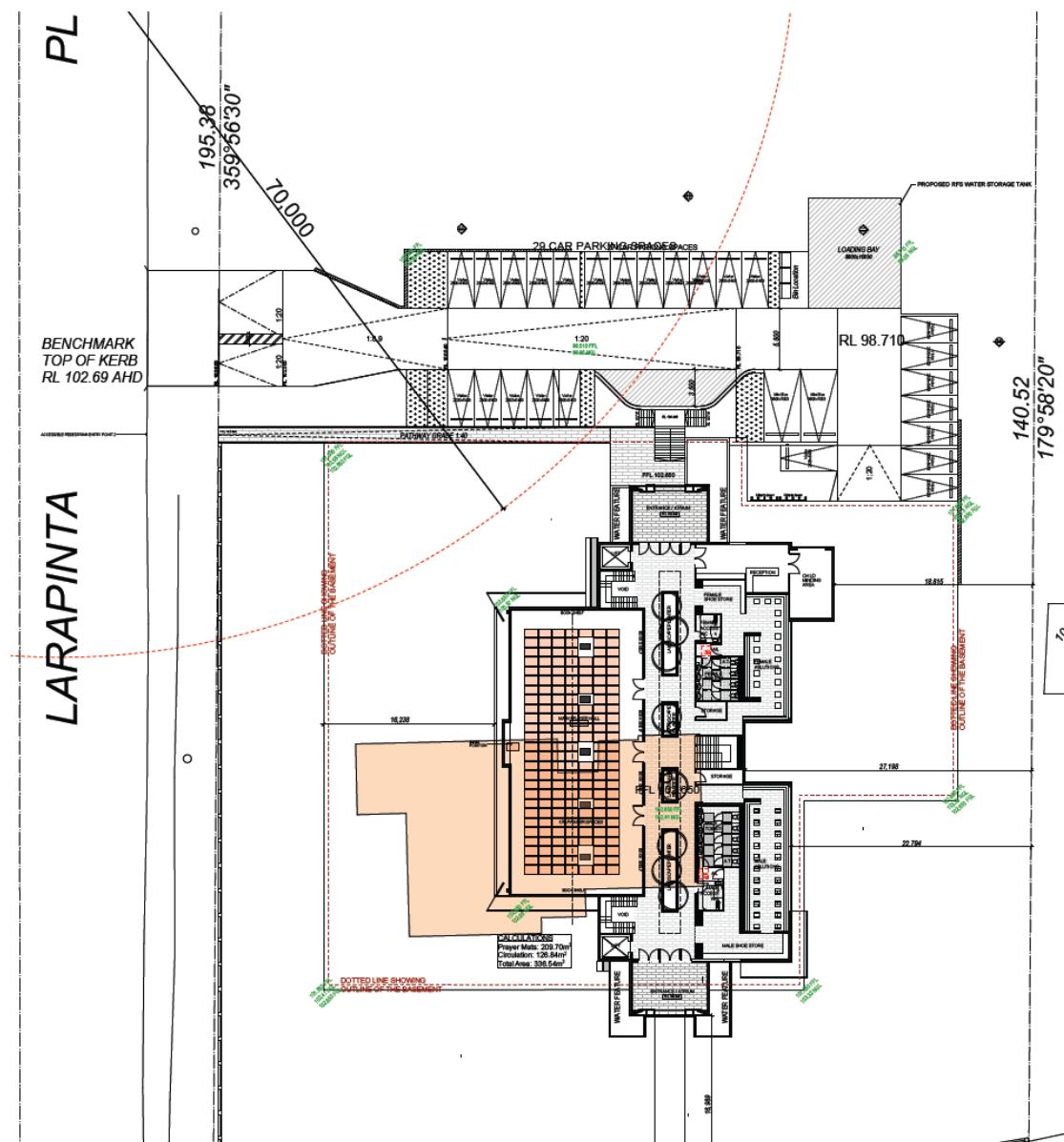
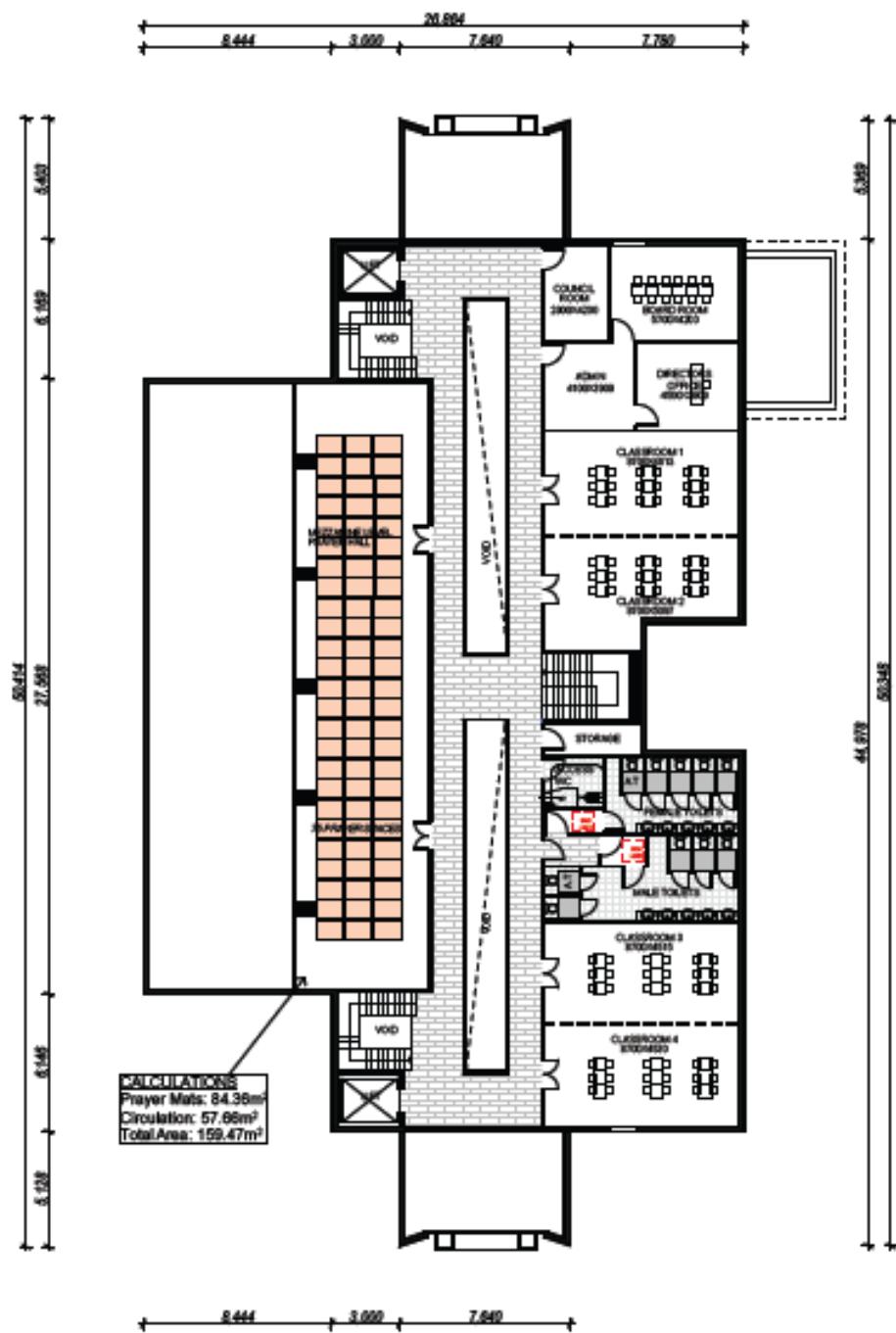


Figure 4 – First Floor Plan of the proposed Mosque



First Floor

1.6 Site Inspection.

A site inspection was undertaken by Graham Swain of *Australian Bushfire Protection Planners* on the 1st February 2018 to confirm the status of the development site and surrounding land in terms of landuse and vegetation characteristics.

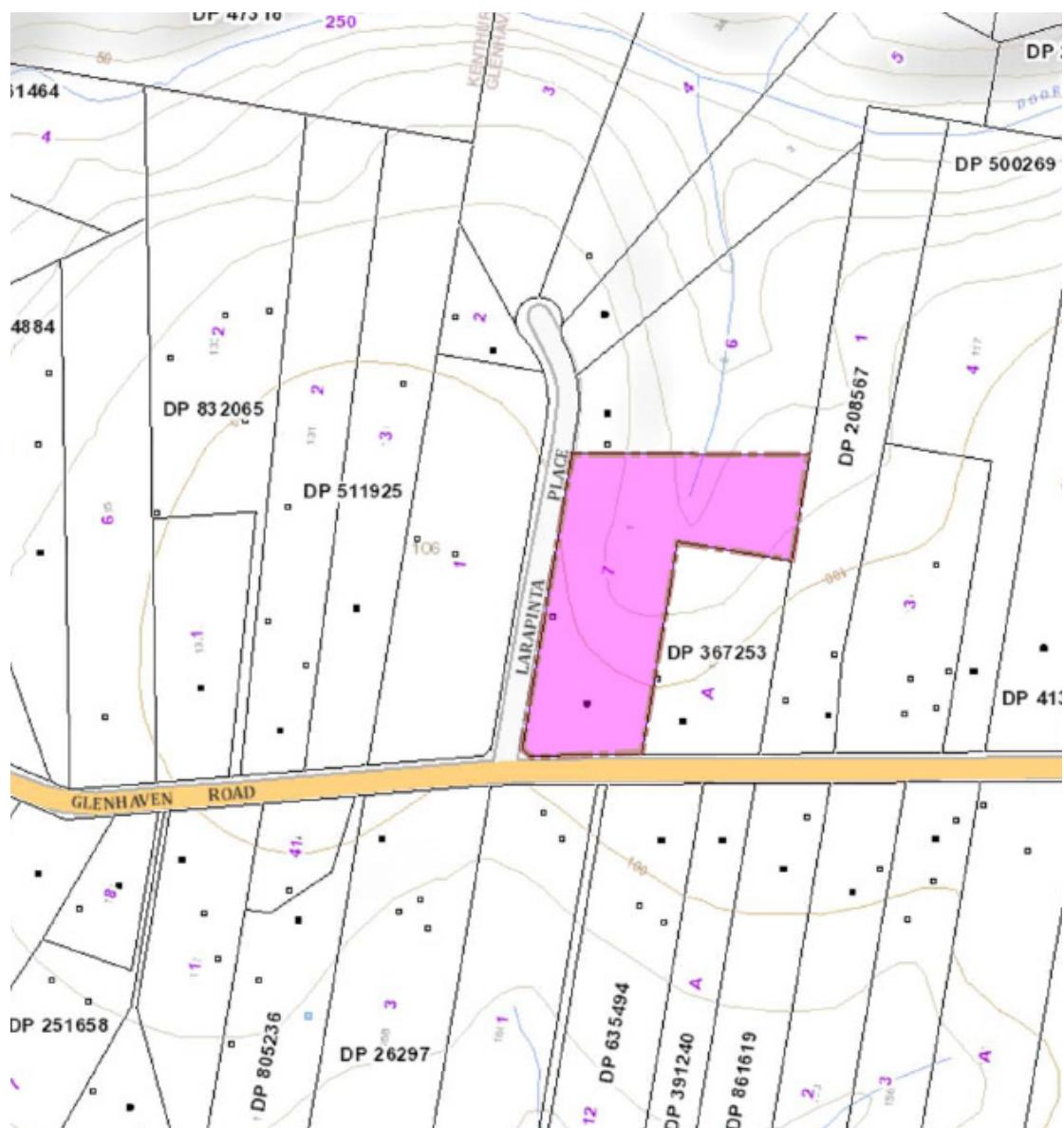
SECTION 2

PROPERTY DESCRIPTION

2.1 Location.

The development site is within Lot 7 in DP 249716, No. 1 Larapinta Place, Glenhaven which is a large parcel of land that is located to the northeast of the intersection between Larapinta Place and Glenhaven Road, Glenhaven.

Figure 5 – Site Location Plan – Lot 7 in DP 249716, No. 1 Larapinta Place, Glenhaven.



2.2 Existing Land Use.

The development site contains an existing dwelling and detached Garage.

Both structures will be demolished as part of the development proposal.

2.3 Surrounding Land Use.

a) West

The development site directly adjoins Larapinta Place beyond which is existing rural residential development.

b) North & East

The development site directly adjoins existing rural residential development.

c) South

The development site directly adjoins Glenhaven Road beyond which is existing rural residential development.

Figure 6 – Aerial Photograph of Development Site.



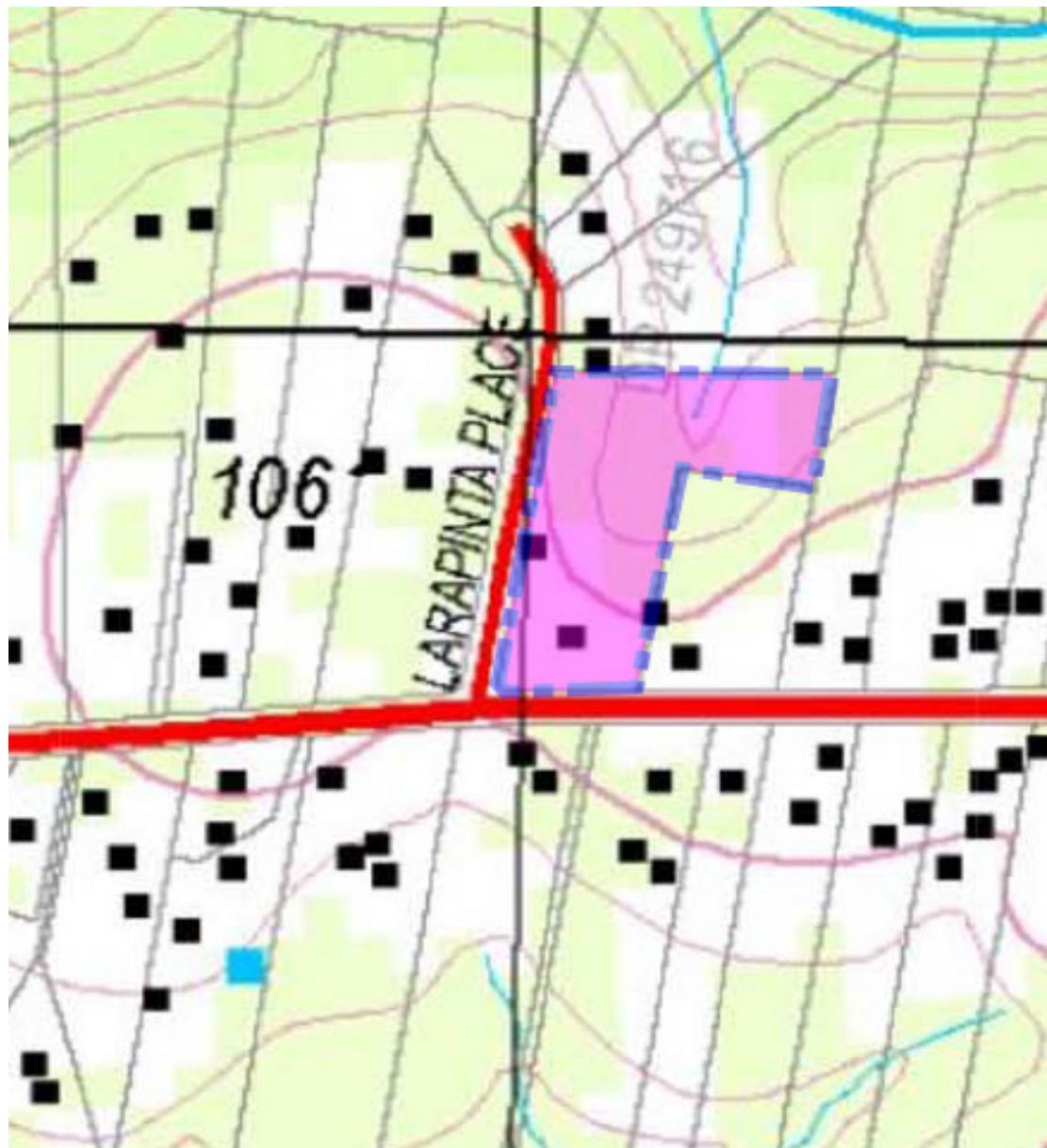
2.4 Topography.

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 to the site.

The development site is located on the northern side of a broad ridgeline with the land falling to the northeast from the intersection of Larapinta Place and Glenhaven Road.

The northern portion of the development site contains the head of a gully which falls to the north across the adjoining rural residential properties.

Figure 7 – Topographic Map of Development Site and adjoining Lands.

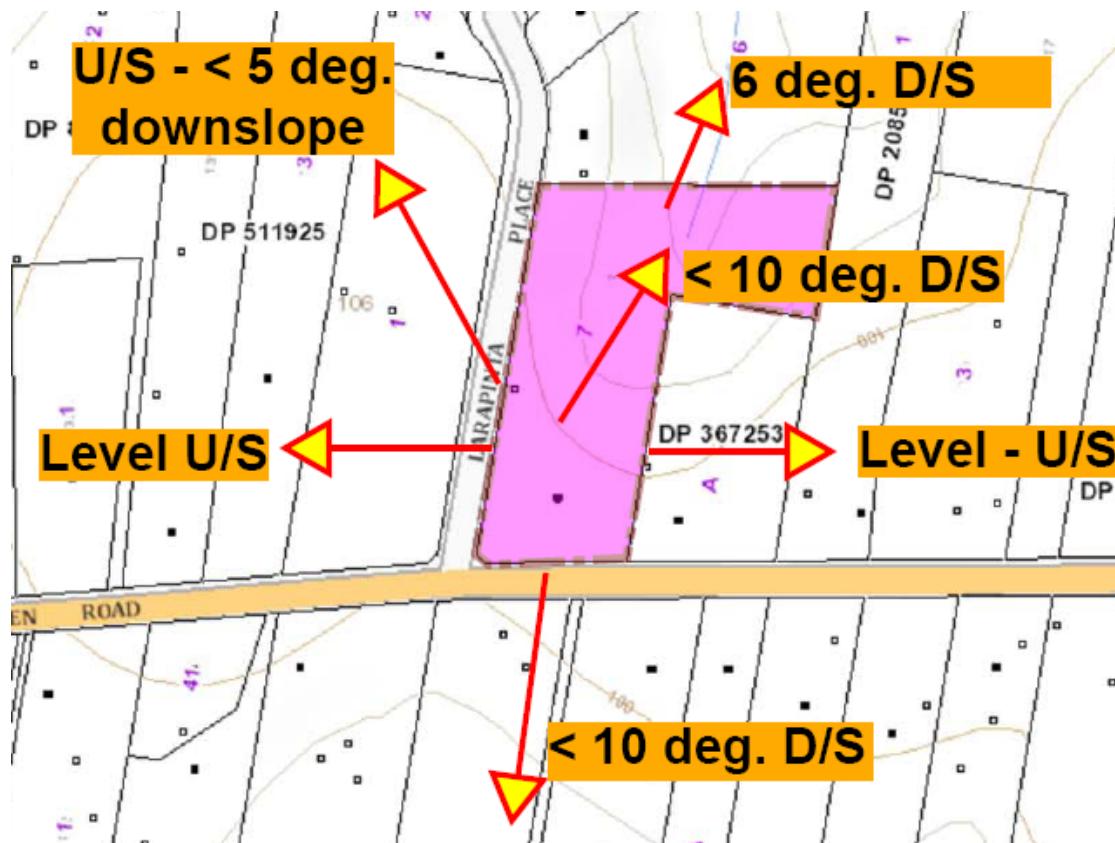


The land to the west of the development site rises slightly to the west whilst the land to the northwest also rises to the northwest before falling at less than 5 degrees to the northwest.

The land to the north of the development site falls to the north at 6 – 8 degrees whilst falling to the east into the watercourse. The land to the east of the development site follows the contours of the land to the northeast and falls to the north into the head of the watercourse which crosses the northern portion of the development site.

The land to the south of the development site, beyond Glenhaven Road, falls to the south at less than 5 degrees increasing further to the south close to the watercourse.

Figure 8 – Effective Slope Plan.



2.5 Vegetation 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 future development on the site.

Vegetation is classified using Table A2.1 of *Planning for Bushfire Protection 2006*.

The vegetation within the development site has been assessed by Cumberland Ecology and found to be '*Hornsby Enriched Sandstone Exposed Woodland*' containing a dense sclerophyllous shrub layer and moderate ground cover.

2.6 Vegetation within 140 metres of Development Site.

(a) North

The unmanaged vegetation within the rural residential development to the north of the development site consists of '*Hornsby Enriched Sandstone Exposed Woodland*'.

(b) East

The vegetation within the rural residential development to the east of the development site consists of managed landscaped gardens.

(b) South

The vegetation within the rural residential development to the south of the development site [beyond Glenhaven Road] consists of managed landscaped gardens for a distance of 100 metres. Beyond this the vegetation consists of remnant forest with a weedy understorey.

(c) West & Northwest

The vegetation within the rural residential development to the west of the development site [beyond Larapinta Place] consists of managed landscaped gardens. To the northwest, beyond the managed curtilage to the existing dwelling, the unmanaged vegetation consists of '*Hornsby Enriched Sandstone Exposed Woodland*'.

Refer to Figure 8 – Aerial photograph showing unmanaged bushfire prone vegetation within 140 metres of the proposed Mosque on Page 18.

2.7 Significant Environmental Features on the Development Site.

The development site does not contain significant environmental features such as SEPP 44 Habitat, SEPP 14 Wetlands; SEPP 26 Littoral Rainforests; areas of geological interest; steep lands [>18 degrees]; land slip areas or National Parks Estate. The site contains a First Order Stream.

2.8 Known Threatened Species, Population or Endangered Ecological Community within the Development Site.

There are no known threatened species, population or endangered ecological community within the development site.

2.9 Details and location of Aboriginal Relics or Aboriginal Place.

There are no known Aboriginal relics or Aboriginal places on the development site.

Figure 9 – Aerial Photograph showing the extent of unmanaged bushfire prone vegetation within 140 metres of the proposed Mosque.



SECTION 3

FIRE MANAGEMENT RESPONSIBILITIES

Fire management within the development site is the responsibility of:

3.1 The Hills Shire Council.

The Hills Shire 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 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 The Hills Shire Bush Fire Management Committee.

The Hills Shire Bushfire Management Committee has the responsibility for planning for co-ordinated fire fighting activities / hazard management activities on a local government level. It is not an operational organization, a fire fighting organization or a funding source for fire management activities.

The Bush Fire Management Committee is supported by the following provisions of the Rural Fires Act 1997:

- *Section 52 requires each Bush Fire Management Committee to prepare a draft bush fire management plan for their local areas which includes a plan of operations and a bush fire risk management plan.*
- *Section 54 of the Act specifies that a draft bush fire risk management plan is to 'set out schemes for the reduction of bush fire hazards in the rural fire district or other part of the State'.*

A draft bush fire risk management plan may also restrict or prohibit the use of fire or other fire hazard reduction activities in all or specified circumstances or places to which the plan applies.

3.5 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*).

3.6 Fuel Management within the Development Precinct.

The management of the landscaped gardens and retained vegetation within the development site will be undertaken by the Mosque in accordance with the prescriptions of a Fire Management Plan prepared for the site.

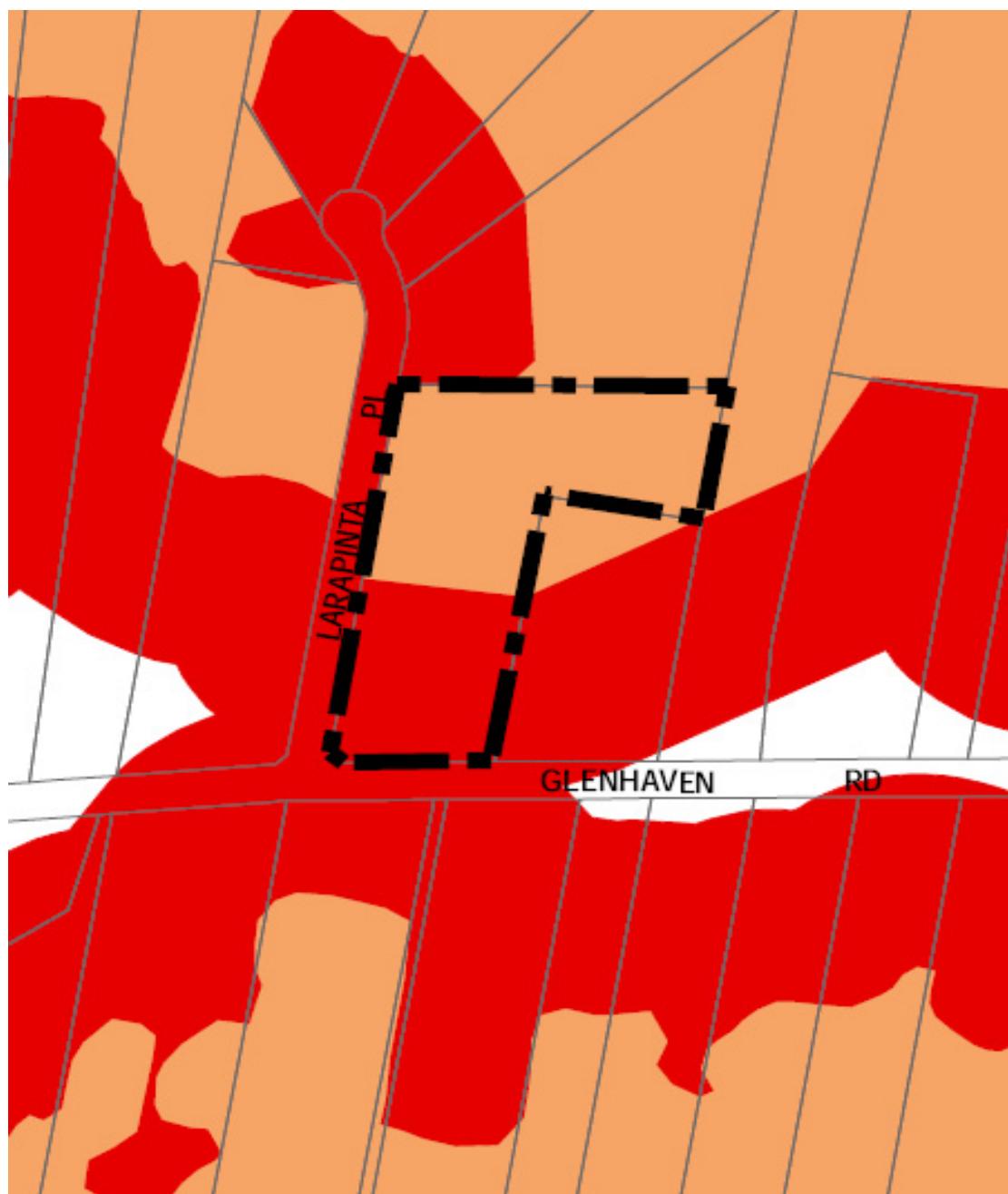
SECTION 4

PRECINCT LEVEL ASSESSMENT

4.1 Certified Bushfire Prone Land Map

Figure 10 is a copy of an extract of the Certified Baulkham Hills Council Bushfire Prone Land Map showing the extent of the mapped Category 1 Bushfire Prone Vegetation [orange] on the development site and adjoining properties. The red colour is the 100 metre wide buffer zone to the Category 1 Bushfire Prone Vegetation.

Figure 10 – Extract of the Baulkham Hills Bushfire Prone Land Map.



SECTION 5

BUSHFIRE PROTECTION ASSESSMENT

5.1 Introduction.

The development site is shown on The Hills Shire Bushfire Prone Land Map to contain Category 1 Bushfire Prone Vegetation and is therefore deemed to be Bushfire Prone.

The Building Code of Australia [BCA] defines the proposed Mosque as a Class 9b building.

The NSW Rural Fire Service's Places of Public Worship and other Public Assembly Buildings on Bushfire Prone Land Fact Sheet 2/14 – October 2014 states:

In order to consider a Place of Public Worship or other assembly building under the provisions of 79BA [now Section 4.14] of the EP&A Act, the following matters should be addressed:

- *The aims and objectives of Planning for Bushfire Protection;*
- *The specific objectives for Special Fire Protection Purpose Developments as set out in clause 4.2.3 of Planning for Bushfire Protection;*
- *The capacity and training of staff and occupants to participate in a fire-fighting response;*
- *The performance criteria for asset protection zones for Special Fire Protection Purpose Developments [Table A2.6 of PBP];*
- *The capacity of the existing and proposed road network to facilitate emergency evacuation;*
- *Depending on the scale of the development, this may include consideration of the traffic impacts of emergency evacuation of the development.*

Chapter 1 of *Planning for Bushfire Protection 2006* states that the 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:

- *Afford occupants of any building adequate protection from exposure to the impacts of 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 direct flame contact and material ignition;*
- *Ensure that safe operational access/egress for emergency service personnel and occupants relocating is provided and/or available;*
- *Provide for ongoing management and maintenance of bushfire protection measures, including fuel loads within the Asset Protection Zone/s;*
- *Ensure that utility services are adequate to meet the needs of fire-fighters [and others assisting in bushfire fighting operations].*

Section 4.2.3 of *Planning for Bushfire Protection 2006* identifies the following specific objections for 'Special Fire Protection Purpose' developments:

- *Provide for the special characteristics and needs of occupants;*
- *Provide for safe emergency evacuation procedures;*
- *A Bushfire Management Plan shall be prepared which minimises the risks to emergency services personnel and exits should be located away from the hazard side if the building;*
- *In all cases the intent and performance criteria of each Bushfire Protection Measure must be satisfied.*

Section 4.3.6 of *Planning for Bushfire Protection 2006* states:

'Application for developments that are not residential/rural residential subdivisions, Special Fire Protection Purpose or residential infill should:

- *Note the range of available bushfire protection measures [in Chapter 3];*
- *Satisfy the aim & objectives of Planning for Bushfire Protection 2006;*
- *Propose an appropriate combination of bushfire protection measures, with evidence that the intent of each measure [with reference to the relevant Tables in sections 4.1.3 & 4.2.7] is satisfied.*

Planning for Bushfire Protection 2006 provides a methodology to determine the Asset Protection Zones and Bushfire Attack / Construction Standards required for ‘special fire protection purpose’ developments [Places of Assembly] that are designated as bushfire prone.

Section 5.2 of this report utilises the methodology provided by *Planning for Bushfire Protection 2006* to examine the provision of Asset Protection Zones [Defendable Spaces] to the proposed Mosque in accordance with the provisions of deemed-to-comply prescriptions of *Planning for Bushfire Protection 2006*.

Sections 5.3 – 5.8 provide an examination of the adequacy of the provision of construction standards to the proposed building; access and water supplies for fire-fighting operations, landscape management and emergency management.

5.2 Examination of Asset Protection Zones to the proposed Mosque.

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 A2.4 and determine the appropriate setback [Asset Protection Zone] for the assessed land use, vegetation formation and slope range.*

Table 1 provides a summary of the examination of the matters listed above to determine the requisite width of Asset Protection Zone/Defendable Space to the proposed Mosque.

Table 1. Examination of Asset Protection Zones/Defendable Space to the proposed Mosque.
Fire Danger Index [FDI] for the site is 100.

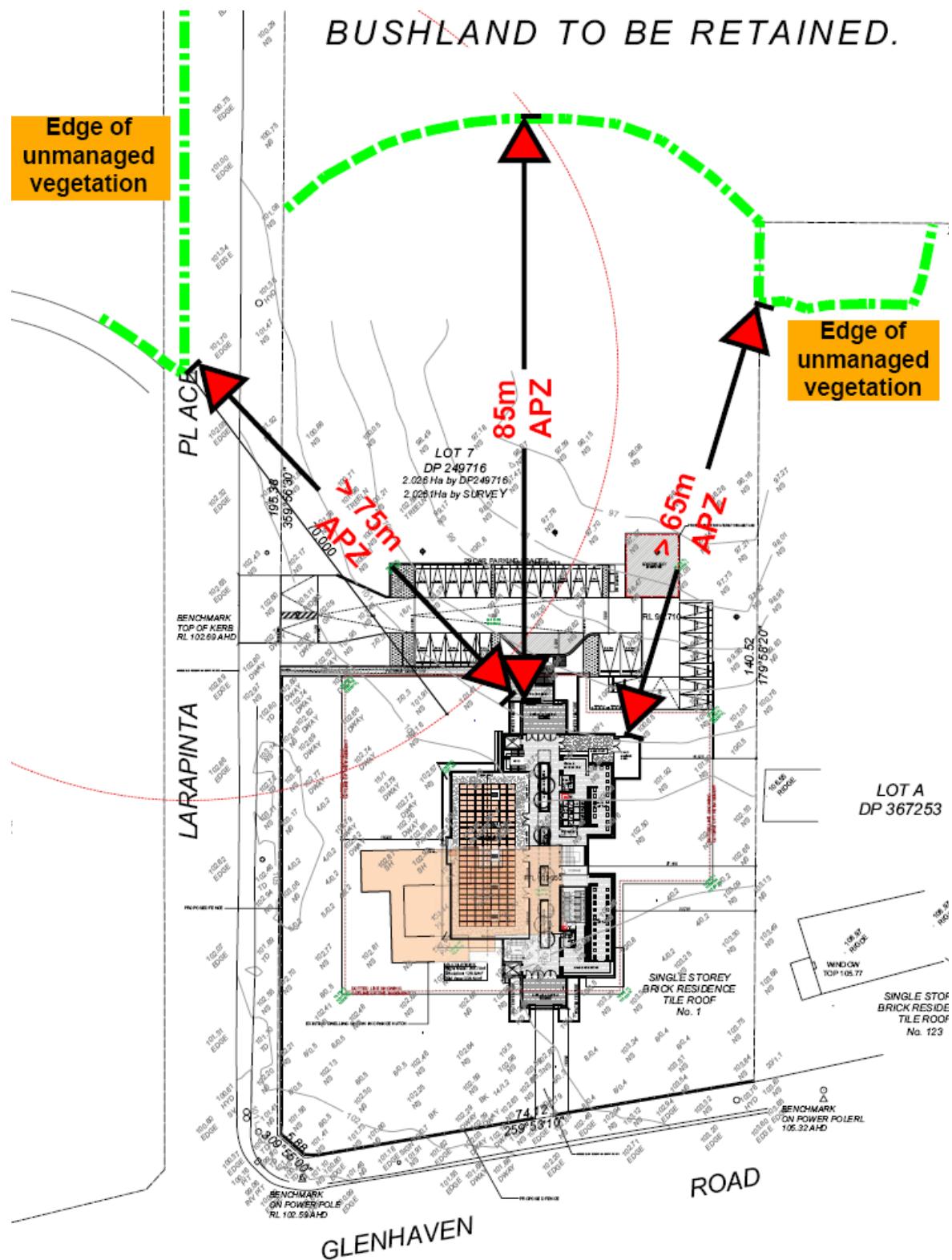
Aspect	Vegetation within 140m of development site	Predominant Vegetation Formation Class [Table A2.1 PfBFP]	Effective Slope of Land	Recommended Width of Asset Protection Zone [Table A2.6 PfBFP]	Available Defendable Space
<i>North of the proposed Mosque</i>	Rural Residential Development + Hornsby Enriched Sandstone Exposed Woodland	Managed Asset Protection Zone + Forest	6 degrees downslope	85 metres	> 85 metres
<i>North of the proposed Mosque – within the riparian corridor</i>	Rural Residential Development + Hornsby Enriched Sandstone Exposed Woodland	Managed APZ; Narrow corridor of low hazard vegetation in riparian corridor classified as 'woodland'	6 degrees downslope	60 metres	> 65 metres
<i>East of the proposed Mosque</i>	Rural Residential Development	Landscaped Gardens	Level	Nil – not bushfire prone vegetation	None required – managed land is not bushfire prone
<i>South of the proposed Mosque</i>	Rural Residential Development	Landscaped Gardens & unmanaged Forest	Downslope < 10 degrees	85 metres	> 106 metre separation to the south
<i>West of the proposed Mosque</i>	Rural Residential Development	Managed land	Level	Nil – not bushfire prone	None required – managed land is not bushfire prone
<i>Northwest fire path</i>	Rural Residential Development plus Hornsby Enriched Sandstone Exposed Woodland	Managed APZ & unmanaged Forest	Upslope + < 5 degrees downslope	70 metres	> 75 metre separation to the northwest corner of the building

Assessment Results:

The siting of the building has been determined to achieve 10kW/m² radiant heat exposure on the exterior of the northwest and northeast corner of the building – refer to Figure 11 on Page 28.

The vegetation within the riparian corridor will be retained with the vegetation to the east of the watercourse fuel reduced and managed in accordance with the maintenance requirements of a Fire Management Plan prepared for the site.

Figure 11 – Plan of Separation Widths to the proposed building.



5.3 Assessment of Bushfire Attack (Construction Standards).

The 2010 amendment of Appendix 3 of *Planning for Bushfire Protection 2006* provides the following procedure for determining bushfire attack on a building within a designated bushfire prone area:

- (a) Determine vegetation formation types and sub-formations around the building as follows:
 - (i) Identify all vegetation types within 140 metres of the site using Keith [2004];
 - (ii) Classify the vegetation formations as set out in Tables A2.1 in Appendix 2; and
 - (iii) Convert Keith to Specht classifications using Table A3.5 of Appendix 3 [2010].
- (b) Determine the separation distance between each vegetation formation and the structure;
- (c) Determine the effective slope of the ground for each vegetation group;
- (d) Determine the relevant Fire Danger Index [FDI] for the Council area from Table A2.3 in Appendix 2;
- (e) Match the relevant FDI, appropriate vegetation, distance and effective slope to determine the bushfire attack levels using the relevant tables of A.S.3959 – 2009 as indicated below:
 - (i) FDI 100 – Table A2.4.2;
 - (ii) FDI 80 – Table A2.4.3; and
 - (iii) FDI 50 – Table A2.4.4.

The Asset Protection Zone width to the southeast of the proposed Mosque building exceeds 100 metres and therefore there is a low level [$<10\text{kW/m}^2$] of radiant heat exposure on the eastern [entry] wall of the building.

The separation width of more than 75 metres to the northwest; more than 85 metres to the north and more than 65 metres to the northeast of the proposed building lowers the radiant heat exposure on the western, northern and eastern elevations to less than 10kW/m^2 .

It is recommended that the building be constructed to comply with Section 3 and Section 5 [BAL12.5] of A.S. 3959 – 2009 – ‘*Construction of Buildings in Bushfire Prone Areas*’.

5.4 Water Supplies for Firefighting Operations.

The proposed Mosque will be connected to the supply in Larapinta Place and comply with the specifications of Australian Standard A.S. 2419.1 - 2005 and the Building Code of Australia.

No additional on site water storage is required for bushfire fighting operations however static water supply tanks are provided in the basement carpark and it is recommended that an external tanker 65mm diameter fill point be provided at the entry driveway to the carpark and fire hose reels be installed to aid in the protection of the building from ember attack.

5.5 Access for Fire Fighting Operations.

5.5.1 Adequacy of Public Roads

The development plans provide for vehicular access to the site off Larapinta Place. This road is a local road which is designed and constructed to a standard which provides two-way access for heavy rigid and articulated vehicles, therefore providing adequate public road access to the proposed Mosque.

5.5.2 Emergency Response Access / Egress.

The primary emergency access and egress to the proposed Mosque is provided off Larapinta Place via a new dual driveway to the proposed carpark.

This entry is located more than 35 metres from the closest point of unmanaged vegetation on the property to the west of Larapinta Place. The gradient of the land containing the unmanaged vegetation is upslope therefore the separation distance reduces the radiant heat exposure at the entry to the carparking to less than 29 kW/m^2 which is considered a safe level of exposure for the occupants of vehicles exiting the site.

Pedestrian access is also available from the southern entry of the Mosque, directly onto Glenhaven Road. This access is located more than 100 metres from the closed unmanaged vegetation.

5.6 Adequacy of Bushfire Maintenance Plan and Fire Emergency Procedures.

The preparation of a Bushfire Management Plan and Fire Emergency Plan is not required.

5.7 Fuel Management.

The immediate curtilage [landscaped gardens] to the building and the Asset Protection Zone to the north of the building shall be maintained to the specifications of an Inner Protection Area [IPA], as defined by Appendix A5 of *Planning for Bushfire Protection 2006* and the NSW Rural Fire Service "Standards for Asset Protection Zones".

Management of the Inner Protection Area shall comply with the following:

- Minimal fine fuel loading at ground level;
- Fuels are discontinuous to avoid transfer of fire to the development from bushfires burning in the adjoining vegetation;
- Shrubs/landscaping shall occupy no more than 15 - 20% of the area of the Inner Protection Area and be discontinuous;
- Trees shall be spaced to provide a discontinuous canopy, (minimum crown separation of 2 metres);
- Tree canopies shall be located a minimum of five (5) metres from the roof of a building and located away from the building to minimise radiant heat and direct flame attack.

There shall be prepared a Fuel Management Plan for the site which includes the protocols for the maintenance of the landscaped gardens, Inner Protection Area and residual vegetation on the northern portion of the site.

5.8 Emergency Management for Fire Protection / Evacuation.

Whilst the fire protection measures recommended within this report, in combination, address the risk to the occupants of the Mosque, the likelihood remains that evacuation from the area maybe considered necessary by the Emergency Services.

Should this be the case, relocation of the Worshippers/visitors and Emergency Service personnel will occur, safely, to the south, via Larapinta Place and then east via Glenhaven Road.

In order to assist the evacuation process it is recommended that an Emergency Management Plan shall be prepared for the development.

This plan should include a requirement that the building not be occupied during extreme and catastrophic fire danger periods.

SECTION 6

RECOMMENDATIONS

Recommendation 1:

Asset Protection Zones:

The immediate curtilage [landscaped gardens] to the building and the Asset Protection Zone to the north of the building shall be maintained to the specifications of an Inner Protection Area [IPA], as defined by Appendix A5 of *Planning for Bushfire Protection 2006* and the NSW Rural Fire Service “Standards for Asset Protection Zones”.

Recommendation 2:

Construction Standards to Mosque:

Application of BAL12.5 construction standards, in accordance with the specifications of Australian Standard A.S 3959 - 2009, “*Construction of Buildings in Bushfire Prone Areas*”, shall apply to the proposed Mosque.

Recommendation 3:

Gutter Protection:

The building shall be fitted with a non-combustible protection device which minimises the accumulation of combustible material within the roof gutters and valleys.

Recommendation 4:

Water Supplies for Fire-fighting Operations:

The proposed building shall be connected to the existing main supply in Larapinta Place with the fire-fighting water supply installed to comply with the specifications of Australian Standard 2419.1 - 2005 and the Building Code of Australia.

The static water supply tanks shall be fitted with an external 65mm diameter tanker fill point located at the entry driveway to the carpark and fire hose reels shall be installed to aid in the protection of the building from ember attack

Water, electricity and gas services shall be installed underground.

Recommendation 5:

Access for fire-fighting operations:

Emergency fire appliance access shall be provided as shown on the Site Plan. Fire Appliance access shall also be provided off Larapinta Place via a locked access gate in the north-western corner of the site.

Recommendation 6:

Emergency Management Plan:

In order to assist the evacuation process it is recommended that an Emergency Management Plan shall be prepared for the Mosque.

The EMP shall recognise the bushfire hazard located to the northwest and north and provide protocols for the relocation of occupants of the Mosque via the main entry onto Glenhaven Road [away from the potential bushfire hazard].

The EMP shall include a requirement that the building not be occupied during extreme and catastrophic fire danger periods.

Recommendation 7:

Fuel Management Plan:

There shall be prepared a Fuel Management Plan for the site which includes the protocols for the maintenance of the landscaped gardens, Inner Protection Area and residual vegetation on the northern portion of the site.

SECTION 7

CONCLUSION

Australian Bushfire Protection Planners Pty Limited has undertaken an amended Bushfire Protection Assessment to provide advice on the bushfire protection measures required to be implemented in the construction of the proposed Mosque on Lot 7 in DP 249716, No. 1 Larapinta Place, Glenhaven.

The development site is located to the northeast of the intersection of Larapinta Place and Glenhaven Road with vehicular access onto Larapinta Place and pedestrian access onto Glenhaven Road.

The proposed Mosque is to be located in the south-eastern corner of the development site to maximise the separation to unmanaged vegetation on the land to the northwest of Larapinta Place and the vegetation on the land to the north.

This report has established that the site of the proposed Mosque provides a separation of more than 75 metres to the unmanaged forest vegetation on the land to the northwest, more than 85 metres to the north of the building and more than 65 metres to the riparian corridor to the northeast of the building.

These separation distances provide defendable spaces which:

1. Lowers the radiant heat on the exterior of the building to less than 10 kW/m^2 ;
2. Afford occupants of the Mosque adequate protection from exposure to the impacts of a bushfire;
3. Removes the ability for flame to contact the building;
4. Provides safe operational access/egress for emergency service personnel to operate around the building and occupants to exit the site to the south and not be exposed to radiant heat levels that exceed 10 kW/m^2 .

The following table summarises the extent to which the construction of the proposed Mosque building addresses the requirements of the deemed-to-satisfy specifications of Section 4.2.7 *Planning for Bushfire Protection 2006*.

Table 2. Summary of the deemed-to-satisfy provisions of *Planning for Bushfire Protection 2006*.

Performance Criteria	Acceptable Solution	Compliance
Radiant heat levels of greater than 10kW/m ² will not be experienced by occupants or emergency service workers entering or existing a building	<ul style="list-style-type: none"> An APZ is provided in accordance with the relevant tables and figures in Appendix 2. The southern exist is located away from the hazard side of the building; The APZ is wholly within the boundaries of the development site. 	<ul style="list-style-type: none"> Yes Yes Yes
Applicants demonstrate that issues relating to slope are addressed, maintenance is practicable, soil stability is not compromised and the potential for crown forest is negated	<ul style="list-style-type: none"> Mechanisms are in place to provide for the maintenance of the APZ over the life of the development; APZ is not located on lands with a slope exceeding 18 degrees. 	<ul style="list-style-type: none"> Yes APZ not located on land exceeding 18 degrees
APZs are managed and maintained to prevent the spread of a fire towards the building	<ul style="list-style-type: none"> In accordance with the requirements of 'Standards for Asset Protection Zones' [RFS 2005] 	<ul style="list-style-type: none"> Fuel Management Plan shall be prepared for the site
Vegetation is managed to prevent flame contact and reduce radiant heat to buildings, minimise the potential for wind driven embers to cause ignition and reduce the effect of smoke on occupants and fire-fighters	<ul style="list-style-type: none"> Compliance with Appendix 5 – Landscaping & Property Maintenance 	<ul style="list-style-type: none"> Yes



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REFERENCES:

- N.S.W Rural Fire Service – *Planning for Bushfire Protection 2006*;
- *Environmental Planning & Assessment Act – 1979*;
- *Rural Fires Act – 1997*;
- NSW RFS – *Guideline for Bushfire Prone Land Mapping 2015*;
- *Biodiversity Management Act - 2017*;
- *Bushfire Environmental Assessment Code 2006*;
- Building Code of Australia;
- Australian Standard A.S. 3959-2009 “*Construction of Buildings in Bushfire Prone Areas*”;
- *The Hills Shire Bushfire Prone Land Map*.