



# Bushfire Threat Assessment

For Proposed Dwellings  
Within Stage 38  
At  
Northlakes Drive  
Northlakes Estate

Prepared for  
North Lakes Pty Ltd

Job Reference 24248 - March 2007



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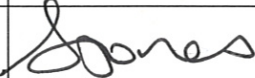



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PROJECT: BUSHFIRE THREAT ASSESSMENT - STAGE 38, NORTH LAKES ESTATE.	
CLIENT:	NORTH LAKES PTY LTD
OUR REF	24248
DATE:	MARCH 2007
APPROVED BY:	SARAH JONES
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# 1 INTRODUCTION

RPS Harper Somers O'Sullivan Pty Ltd (RPS HSO) has been engaged by North Lakes Pty Ltd to undertake an assessment to determine the required level of construction from section 3 of Australian Standard 3959 – 1999 (AS3959) that applies to future dwellings within Stage 38 of the Northlakes Estate, hereafter referred to as the 'site'.

This report is suitable for submission with a Development Application for a dwelling under Section 79BA of the *Environmental Planning and Assessment Act 1979* and provides information on measures that will enable the development to comply with 'Planning for Bushfire Protection' (NSW RFS, 2006) (hereafter referred to as 'PBP').

The required level of construction for future dwellings within the site has been based on two situations. These being;

1. If proposed dwellings are built straightaway and vegetation clearing for future stages has not yet occurred; and
2. If proposed dwellings are built in the future after vegetation clearing or development has occurred for further stages of Northlakes Estate.

To determine the required levels of construction, this assessment adheres to the methodology and procedures outlined in Appendix 3 – 'Site Bush Fire Attack Assessment ' in *Planning for Bushfire Protection* (RFS, 2006) (now referred to in this report as PBP 2006).

## 2 METHODOLOGY

To determine the required level of construction for future dwellings the following steps were undertaken:

- Identification of all vegetation types within 140m of the site using Keith (2004).
- The distance of each vegetation formation identified from the allotments.
- The effective slope for each vegetation group.
- The relevant Forest Danger Index (FDI) for Lake Macquarie Council.
- The relevant FDI, appropriate vegetation, distance and effective slope were used to determine the applicable bushfire attack to the site, that inturn determines the required level of construction.

## 3 VEGETATION AND SLOPE ASSESSMENT

To the north of the site Open Forest occurs downslope from the allotments on a slope of 0 – 5 degrees. To the east of the site Open Forest occurs downslope from the allotments on a slope of 0 – 5 degrees. To the south of the site Open Forest occurs upslope from the allotments and to the west of the site Open Forest occurs on flat land. A temporary Asset Protection Zone (APZ) of 40m has been established around the site with the exception of a 20m APZ that has been established from the western boundary of Lot 3801. The APZs will be maintained by North Lakes Pty Ltd until such time that development occurs on these lands.

## 4 DESIGN AND CONSTRUCTION STANDARDS

Using the information relating to vegetation, slope, FDI and then according to Table A3.3 PBP 2006 Table 1 and Figure 1 illustrates the required construction standards for future dwellings within Stage 38 based on the current situation and Table 2 and Figure 2 illustrates the required construction standards for future dwellings within Stage 38 after vegetation clearing or development has occurred for future stages.

**Table 1 – Recommended Construction Standards (Current Situation)**

Lot Number	Vegetation Type / direction from site	Average Slope of Land (degrees) where vegetation occurs	Separation Distance from any proposed dwelling and vegetation	Category of Bushfire Attack	Recommended Construction Standard for proposed dwelling
<b>Lot 3801</b>	Open Forest (to the north)	Downslope 0 – 5 degrees	40 – 49m 49 – 100m	High  Medium	That part of the proposed dwelling built within 9m of the western boundary of the Lot will need to be built to a <b>Level 3 AS3959</b> the remainder of the proposed dwelling can be built to a <b>Level 2 AS3959-1999</b> .
	Open Forest (to the west)	Flat Land	20 – 29m 29 – 40m	Extreme High	
<b>Lot 3802</b>	Open Forest (to the north)	Downslope 0 – 5 degrees	40 – 49m 49 – 100m	High  Medium	That part of the proposed dwelling built within 9m of the northern boundary of the Lot will need to be built to a <b>Level 2 AS3959</b> the remainder of the proposed dwelling can be built to a <b>Level 1 AS3959-1999</b> .
	Open Forest (to the west)	Flat Land	40 – 100m	Medium	
	Open Forest (to the south)	Upslope	40 – 100m	Medium	

Lot Number	Vegetation Type / direction from site	Average Slope of Land (degrees) where vegetation occurs	Separation Distance from any proposed dwelling and vegetation	Category of Bushfire Attack	Recommended Construction Standard for proposed dwelling
<b>Lot 3803</b>	Open Forest (to the north)	Downslope 0 – 5 degrees	40 – 49m 49 – 100m	High Medium	That part of the proposed dwelling built within 9m of the northern boundary of the Lot will need to be built to a <b>Level 2 AS3959</b> the remainder of the proposed dwelling can be built to a <b>Level 1 AS3959-1999</b> .
	Open Forest (to the west)	Flat Land	40 – 100m	Medium	
	Open Forest (to the south)	Upslope	40 – 100m	Medium	
<b>Lot 3804</b>	Open Forest (to the north)	Downslope 0 – 5 degrees	40 – 49m 49 – 100m	High Medium	That part of the proposed dwelling built within 9m of the northern boundary of the Lot will need to be built to a <b>Level 2 AS3959</b> the remainder of the proposed dwelling can be built to a <b>Level 1 AS3959-1999</b> .
	Open Forest (to the south)	Upslope	40 – 100m	Medium	
<b>Lot 3805</b>	Open Forest (to the north)	Downslope 0 – 5 degrees	40 – 49m 49 – 100m	High Medium	That part of the proposed dwelling built within 9m of the northern boundary of the Lot will need to be built to a <b>Level 2 AS3959</b> the remainder of the proposed dwelling can be built to a <b>Level 1 AS3959-1999</b> .
	Open Forest (to the south)	Upslope	40 – 100m	Medium	

Lot Number	Vegetation Type / direction from site	Average Slope of Land (degrees) where vegetation occurs	Separation Distance from any proposed dwelling and vegetation	Category of Bushfire Attack	Recommended Construction Standard for proposed dwelling
Lot 3806	Open Forest (to the north)	Downslope 0 – 5 degrees	40 – 49m 49 – 100m	High Medium	That part of the proposed dwelling built within 9m of the northern boundary of the Lot will need to be built to a <b>Level 2 AS3959</b> the remainder of the proposed dwelling can be built to a <b>Level 1 AS3959-1999</b> .
	Open Forest (to the south)	Upslope	40 – 100m	Medium	
Lot 3807	Open Forest (to the north)	Downslope 0 – 5 degrees	40 – 49m 49 – 100m	High Medium	That part of the proposed dwelling built within 9m of the northern boundary of the Lot will need to be built to a <b>Level 2 AS3959</b> the remainder of the proposed dwelling can be built to a <b>Level 1 AS3959-1999</b> .
	Open Forest (to the south)	Upslope	40 – 100m	Medium	
Lot 3808	Open Forest (to the north)	Downslope 0 – 5 degrees	40 – 49m 49 – 100m	High Medium	That part of the proposed dwelling built within 9m of the northern boundary of the Lot will need to be built to a <b>Level 2 AS3959</b> the remainder of the proposed dwelling can be built to a <b>Level 1 AS3959-1999</b> .
	Open Forest (to the south)	Upslope	40 – 100m	Medium	

Lot Number	Vegetation Type / direction from site	Average Slope of Land (degrees) where vegetation occurs	Separation Distance from any proposed dwelling and vegetation	Category of Bushfire Attack	Recommended Construction Standard for proposed dwelling
Lot 3809	Open Forest (to the north)	Upslope	40 – 100m	Medium	That part of the proposed dwelling built within 9m of the northern boundary of the Lot will need to be built to a <b>Level 2 AS3959</b> the remainder of the proposed dwelling can be built to a <b>Level 1 AS3959-1999</b> .
	Open Forest (to the south)	Upslope	40 – 100m	Medium	
Lot 3810	Open Forest (to the north)	Downslope 0 – 5 degrees	40 – 49m 49 – 100m	High Medium	That part of the proposed dwelling built within 9m of the northern boundary of the Lot will need to be built to a <b>Level 2 AS3959</b> the remainder of the proposed dwelling can be built to a <b>Level 1 AS3959-1999</b> .
	Open Forest (to the south)	Upslope	40 – 100m	Medium	
Lot 3811	Open Forest (to the north)	Downslope 0 – 5 degrees	40 – 49m 49 – 100m	High Medium	That part of the proposed dwelling built within 9m of the northern boundary of the Lot will need to be built to a <b>Level 2 AS3959</b> the remainder of the proposed dwelling can be built to a <b>Level 1 AS3959-1999</b> .
	Open Forest (to the south)	Upslope	40 – 100m	Medium	

Lot Number	Vegetation Type / direction from site	Average Slope of Land (degrees) where vegetation occurs	Separation Distance from any proposed dwelling and vegetation	Category of Bushfire Attack	Recommended Construction Standard for proposed dwelling
Lot 3812	Open Forest (to the north)	Downslope 0 – 5 degrees	40 – 49m 49 – 100m	High Medium	That part of the proposed dwelling built within 9m of the northern boundary of the Lot will need to be built to a <b>Level 2 AS3959</b> the remainder of the proposed dwelling can be built to a <b>Level 1 AS3959-1999</b> .
	Open Forest (to the south)	Upslope	40 – 100m	Medium	
	Open Forest (to the east)	Downslope 0 – 5 degrees	49 – 100m	Medium	
Lot 3813	Open Forest (to the north)	Downslope 0 – 5 degrees	40 – 49m 49 – 100m	High Medium	That part of the proposed dwelling built within 9m of the northern boundary of the Lot will need to be built to a <b>Level 2 AS3959</b> the remainder of the proposed dwelling can be built to a <b>Level 1 AS3959-1999</b> .
	Open Forest (to the south)	Upslope	40 – 100m	Medium	
	Open Forest (to the east)	Downslope 0 – 5 degrees	49 – 100m	Medium	
Lot 3814	Open Forest (to the north)	Downslope 0 – 5 degrees	40 – 49m 49 – 100m	High Medium	That part of the dwelling built within 9m from the northern and eastern boundary will need to be built to a <b>Level 2 AS3959-1999</b> the remainder of the dwelling can be built to a <b>Level 1 AS3959-1999</b> .
	Open Forest (to the south)	Upslope	40 – 100m	Medium	
	Open Forest (to the east)	Downslope 0 – 5 degrees	40 – 49m 49 – 100m	High Medium	

Lot Number	Vegetation Type / direction from site	Average Slope of Land (degrees) where vegetation occurs	Separation Distance from any proposed dwelling and vegetation	Category of Bushfire Attack	Recommended Construction Standard for proposed dwelling
<b>Lot 3815</b>	Open Forest (to the north)	Downslope 0 – 5 degrees	49 – 100m	Medium	<b>Level 1 AS3959-1999</b>
	Open Forest (to the south)	Upslope	40 – 100m	Medium	
	Open Forest (to the east)	Downslope 0 – 5 degrees	49 – 100m	Medium	
<b>Lot 3816</b>	Open Forest (to the north)	Downslope 0 – 5 degrees	49 – 100m	Medium	<b>Level 1 AS3959-1999</b>
	Open Forest (to the south)	Upslope	40 – 100m	Medium	
	Open Forest (to the east)	Downslope 0 – 5 degrees	49 – 100m	Medium	
<b>Lot 3817</b>	Open Forest (to the north)	Downslope 0 – 5 degrees	49 – 100m	Medium	<b>Level 1 AS3959-1999</b>
	Open Forest (to the south)	Upslope	40 – 100m	Medium	
	Open Forest (to the east)	Downslope 0 – 5 degrees	49 – 100m	Medium	
<b>Lot 3818</b>	Open Forest (to the north)	Downslope 0 – 5 degrees	49 – 100m	Medium	<b>Level 1 AS3959-1999</b>
	Open Forest (to the south)	Upslope	40 – 100m	Medium	
	Open Forest (to the east)	Downslope 0 – 5 degrees	49 – 100m	Medium	

<b>Lot Number</b>	<b>Vegetation Type / direction from site</b>	<b>Average Slope of Land (degrees) where vegetation occurs</b>	<b>Separation Distance from any proposed dwelling and vegetation</b>	<b>Category of Bushfire Attack</b>	<b>Recommended Construction Standard for proposed dwelling</b>
<b>Lot 3819</b>	Open Forest (to the north)	Downslope 0 – 5 degrees	49 – 100m	Medium	<b>Level 1 AS3959-1999</b>
	Open Forest (to the south)	Upslope	40 – 100m	Medium	
<b>Lot 3820</b>	Open Forest (to the north)	Downslope 0 – 5 degrees	49 – 100m	Medium	<b>Level 1 AS3959-1999</b>
	Open Forest (to the south)	Upslope	40 – 100m	Medium	
<b>Lot 3821</b>	Open Forest (to the north)	Downslope 0 – 5 degrees	49 – 100m	Medium	<b>Level 1 AS3959-1999</b>
	Open Forest (to the south)	Upslope	40 – 100m	Medium	
<b>Lot 3822</b>	Open Forest (to the north)	Downslope 0 – 5 degrees	49 – 100m	Medium	<b>Level 1 AS3959-1999</b>
	Open Forest (to the south)	Upslope	40 – 100m	Medium	
	Open Forest (to the west)	Flat Land	40 – 100m	Medium	
<b>Lot 3823</b>	Open Forest (to the north)	Downslope 0 – 5 degrees	49 – 100m	Medium	<b>Level 1 AS3959-1999</b>
	Open Forest (to the south)	Upslope	40 – 100m	Medium	
	Open Forest (to the west)	Flat Land	40 – 100m	Medium	

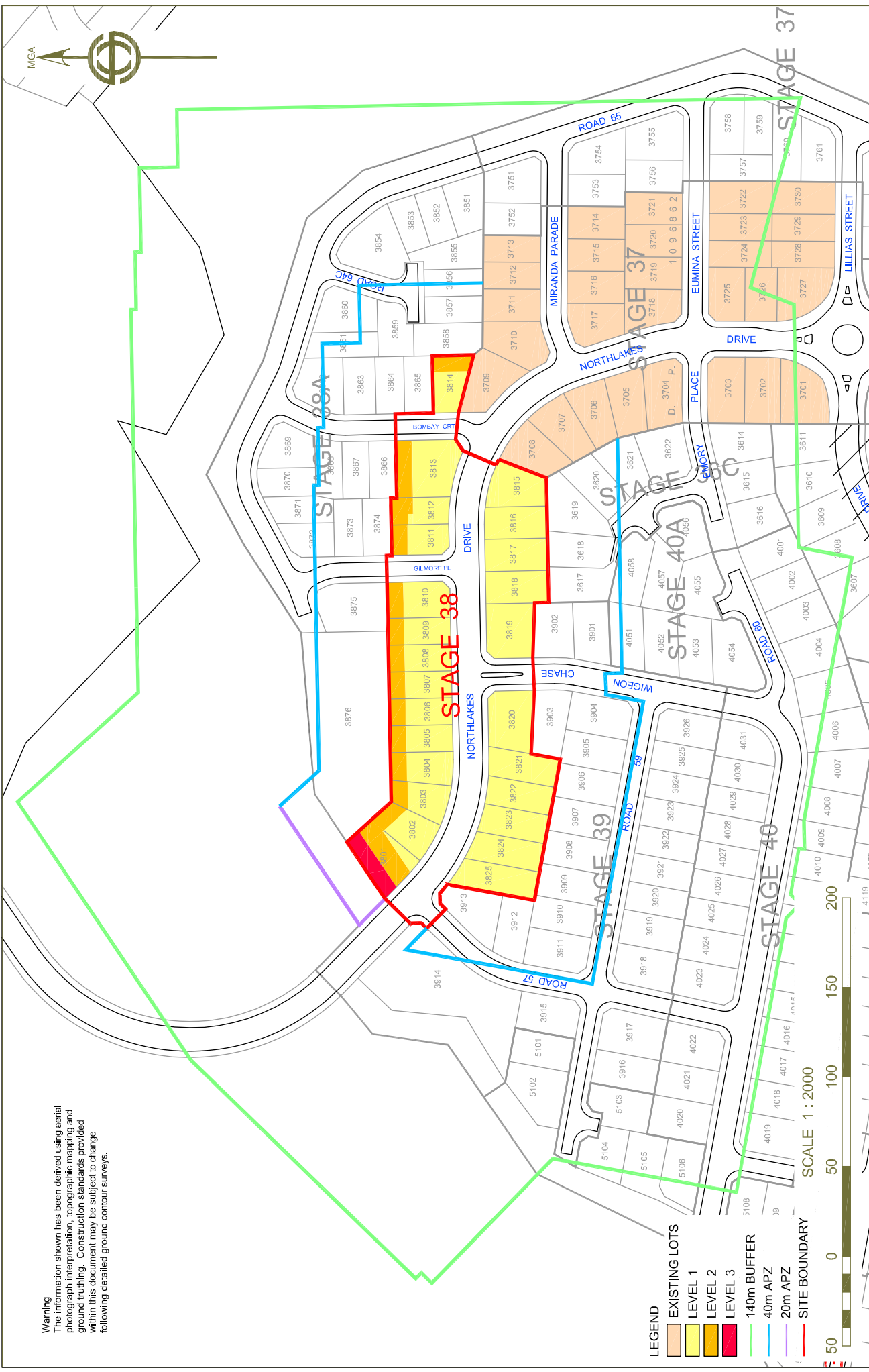
Lot Number	Vegetation Type / direction from site	Average Slope of Land (degrees) where vegetation occurs	Separation Distance from any proposed dwelling and vegetation	Category of Bushfire Attack	Recommended Construction Standard for proposed dwelling
<b>Lot 3824</b>	Open Forest (to the north)	Downslope 0 – 5 degrees	49 – 100m	Medium	<b>Level 1 AS3959-1999</b>
	Open Forest (to the south)	Upslope	40 – 100m	Medium	
	Open Forest (to the west)	Flat Land	40 – 100m	Medium	
<b>Lot 3825</b>	Open Forest (to the north)	Downslope 0 – 5 degrees	49 – 100m	Medium	<b>Level 1 AS3959-1999</b>
	Open Forest (to the south)	Upslope	40 – 100m	Medium	
	Open Forest (to the west)	Flat Land	40 – 100m	Medium	

Refer to Figure 1 for Construction Level Map. Refer to Appendix A for Building Requirements.

**To Note:** Where a building elevation (façade) is not facing any source of bush fire attack, that elevation can be classified to the next lower level of construction from that determined for the dwelling as a whole. The level cannot fall to less than Level 1 construction where any part of the building is closer than 100m of the source of bush fire attack (unless provided for). An elevation is exposed if there is a direct line of sight from any part of that elevation to the source of bush fire attack.

*The information contained in the above table has been derived using aerial photograph interpretation, topographic mapping and limited ground truthing.*

**Warning**  
 The information shown has been derived using aerial photograph interpretation, topographic mapping and ground truthing. Construction standards provided within this document may be subject to change following detailed ground contour surveys.



- LEGEND**
- EXISTING LOTS
  - LEVEL 1
  - LEVEL 2
  - LEVEL 3
  - 140m BUFFER
  - 40m APZ
  - 20m APZ
  - SITE BOUNDARY



**TITLE:** FIGURE 1: CONSTRUCTION LEVEL MAP  
 STAGE 38 CURRENT SITUATION  
 NORTHLAKES DRIVE, CAMERON PARK

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SCALE: 1 : 2000 (A3)  
 DATE: 29TH MARCH 2020  
 DRAWN: ECHESTERSON  
 SURVEYOR  
 CONTOUR INTERVAL: SHEET 1 OF 1  
 AUTOCAD REF: 24248A  
 LAYOUT REF: STAGE 38  
 JOB REF: 24248



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Table 2 – Recommended Construction Standards (Future Situation)

Lot Numbers	Vegetation Type / direction from site	Average Slope of Land (degrees) where vegetation occurs	Separation Distance from proposed dwelling from the vegetation	Category of Bushfire Attack	Recommended Construction Standard
Lot 3801	Open Forest (to the north)	Downslope (0 – 5 degrees)	40 – 49m 49 – 100m	High Medium	That part of the dwelling built within 9m from the western boundary will need to be built to a <b>Level 3 AS3959-1999</b> that part of the dwelling built from 9m to 20m from the western boundary will need to be built to a <b>Level 2 AS3959-1999</b> . That part of the dwelling built in the remainder of the Lot can be built to a <b>Level 1 AS3959-1999</b> .
	Open Forest (to the west)	Flat land	20 – 29m 29 – 40m	Extreme High	
Lot 3802	Open Forest (to the north)	Downslope (0 – 5 degrees)	40 – 49m 49 – 100m	High Medium	That part of the dwelling built within 40 – 49m from the Open Forest to the north will need to be built to a <b>Level 2 AS3959-1999</b> . That part of the dwelling built within the remainder of the Lot will need to be built to a <b>Level 1 AS3959-1999</b> .
Lots 3803 – 3812	Open Forest (to the north)	Downslope (0 – 5 degrees)	49 – 100m	Medium	Any proposed dwelling located within the Lot will need to be built to a <b>Level 1 AS3959-1999</b> .

Lot Numbers	Vegetation Type / direction from site	Average Slope of Land (degrees) where vegetation occurs	Separation Distance from proposed dwelling from the vegetation	Category of Bushfire Attack	Recommended Construction Standard
Lot 3813	Open Forest (to the north)	Downslope (0 – 5 degrees)	49 – 100m	Medium	Any proposed dwelling located within 40 – 100m of the Open Forest will need to be built to a <b>Level 1 AS3959-1999</b> . If the dwelling is built greater than 100m then <b>no level</b> applies.
Lots 3814 - 3824	Open Forest	Downslope (0 – 5 degrees)	>100m	Low	<b>No Level of Construction</b>
Lot 3825	Open Forest (to the north)	Downslope (0 – 5 degrees)	49 – 100m	Medium	Any dwelling located within the Lot will need to be built to a <b>Level 1 AS3959-1999</b> .

*Disclaimer: The above table is based on the land to the north and east of the site being rezoned.*

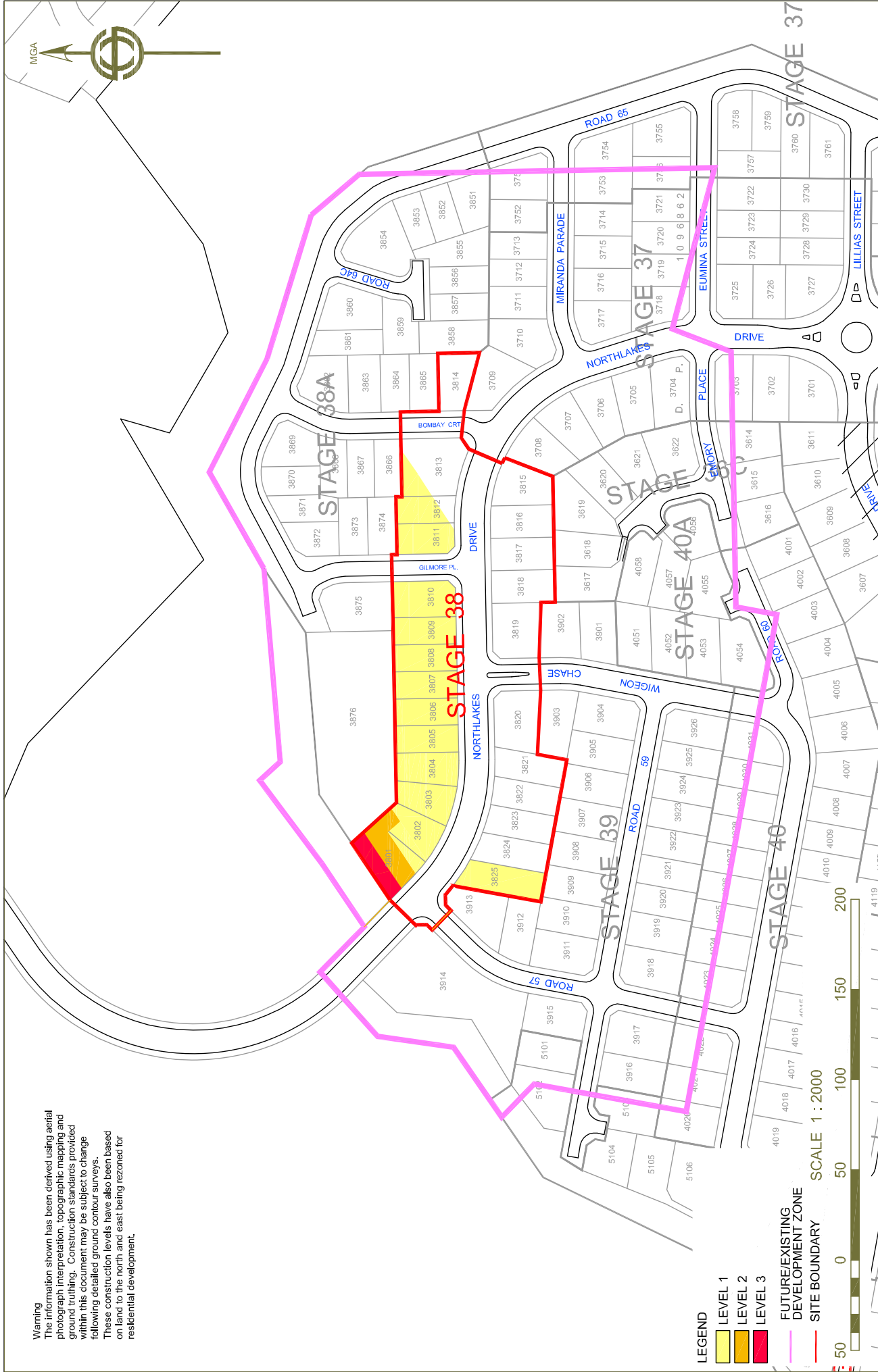
**To Note:** Where a dwelling elevation (façade) is not facing any source of bush fire attack, that elevation can be classified to the next lower level of construction from that determined for the dwelling as a whole. The level cannot fall to less than Level 1 construction where any part of the building is closer than 100m of the source of bush fire attack (unless provided for). An elevation is exposed if there is a direct line of sight from any part of that elevation to the source of bush fire attack.

*Disclaimer: The above table is based on the land to the north and east of the site being rezoned.*

Refer to Figure 2 for Construction Level Map based on future situation (rezoning of land to the north and east).

**Warning**

The information shown has been derived using aerial photograph interpretation, topographic mapping and ground truthing. Construction standards provided within this document may be subject to change following detailed ground contour surveys. These construction levels have also been based on land to the north and east being rezoned for residential development.



- LEGEND**
- LEVEL 1
  - LEVEL 2
  - LEVEL 3
  - FUTURE/EXISTING DEVELOPMENT ZONE
  - SITE BOUNDARY

SCALE 1 : 2000



TITLE: FIGURE 2 CONSTRUCTION LEVEL MAP  
 STAGE 38 FUTURE SITUATION  
 NORTH LAKES DRIVE, CAMERON PARK

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SCALE: 1 : 2000 (A3)  
 DATE: 29TH MARCH 2007  
 DRAWN: ECHESTERSON  
 SURVEYOR:  
 APPROVED: S.JONES

CONTAINER NUMBER: SHEET 1 OF 1  
 AUTOCAD REF: 24248A  
 LISTS REF: STAGE 38 DEBAT  
 JOB REF:



CLIENT:  
 NORTH LAKES PTY LTD

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24248  
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## 5 WATER SUPPLY

The site is connected to reticulated water supply therefore water supply is adequate.

## 6 INGRESS / EGRESS AND PROPERTY ACCESS ROADS

Ingress and egress routes for residents and fire fighting crews to the proposed allotments is available from Northlakes Drive. Northlakes Drive is a public road being 20m kerb to kerb therefore ingress and egress appears adequate.

## 7 LANDSCAPING AND MAINTENANCE

In terms of landscaping and maintenance within the lots, it is recommended that the following occur:

- Shrubs or ground covers not to be in contact with the dwelling.
- Fire retardant plants or plants of low flammability be used. Characteristics of these plants include high salt resistance and moisture content/low volatile oil content with the lowest branches being raised from the ground (such plants are commercially available).
- The owners are aware of the importance of an ongoing maintenance regime for bushfire protection.
- The remainder of the lot (outside of the building envelope) should be managed as an IPA.

*Finally, it is believed that the implementation of the measures and recommendations forwarded within this report would contribute to the amelioration of the potential impact of any bushfire upon this site, but they do not and cannot guarantee that the area will not be affected by bushfire at some time.*

## 8 REFERENCES

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Specht, R. L. (1981). *Major Vegetation Formations in Australia*. In: *Ecological Biogeography of Australia*, Dr W. Junk Publishers, The Hague.

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# APPENDIX A BUILDING REQUIREMENTS

# Appendix 4

## BUILDING REQUIREMENTS FOR BUSH FIRE PROTECTION

(Incorporating key components of AS3959 Construction of Buildings in Bushfire-prone Areas)

	LEVEL 1 CONSTRUCTION	LEVEL 2 CONSTRUCTION	LEVEL 3 CONSTRUCTION	FLAME ZONE <i>Note: Reference to additional site requirement will be necessary for this category. For example: water supply, access, shielded egress</i>
<b>Flooring systems</b>	<ul style="list-style-type: none"> <li>Concrete slab on ground</li> <li>Enclosed suspended floors - no requirements</li> <li>Open subfloors;</li> </ul> Bearer greater than 600mm above ground – no requirements Bearer less than 600mm above ground require either the floor frame to be protected by non-combustible sheets or timber floor frame to be fire retardant	As for level 1	As for level 2 except that for open subfloors timber floor framing is required to be fire retardant	All floors are to be fully enclosed with a non-combustible material
<b>Supporting posts, columns, stumps, piers and poles</b>	<ul style="list-style-type: none"> <li>Non-combustible</li> <li>Fire retardant treated timber treated up to 400mm above finished ground level</li> <li>Timber mounted on galvanised metal shoes that provide a clearance of 75mm above finished ground or paving</li> </ul>	As for level 1	As for level 2 except that timber in unenclosed floor spaces shall be fire retardant-treated to full height	All floors are to be fully enclosed with non-combustible material All other posts on attached or adjacent structures shall be non-combustible
<b>External Walls</b>	Must have an external leaf with either one or a combination of; <ul style="list-style-type: none"> <li>Masonry, concrete, pise, rammed earth or stabilised earth</li> <li>A frame wall that incorporates either a sarking or insulation material immediately behind the cladding</li> <li>A wall of timber logs gauge planed and the space between the logs sealed to prevent burning debris and to allow for building movement</li> </ul> Combustible leaf or cladding must be greater than 400mm above finished ground	As for level 1 except that; <ul style="list-style-type: none"> <li>PVC cladding is not permitted</li> <li>External timber wall cladding shall be of fire retardant-treated timber</li> </ul>	As for level 2	<ul style="list-style-type: none"> <li>External walls shall not include any combustible material</li> <li>Additional radiant heat protection such as non-combustible fencing or shielding and or a drenching water system</li> </ul>

<p><b>Windows</b>  Note: A vertical dormer window or clerestory is regarded as a normal window, not a rooflight</p>	<p>Openable windows shall be screened with mesh max. aperture 1.8mm that remains in place while the window is open;</p> <ul style="list-style-type: none"> <li>• Aluminium</li> <li>• Bronze</li> <li>• Corrosion resistant steel</li> </ul>	<p>As for level 1 except that aluminium shall not be used</p> <p>In addition, timber shall be fire retardant-treated timber except where protected by non-combustible shutters. Leadlight windows are to be protected by shutters</p>	<p>As for level 2 except that where windows are not protected by non-combustible shutters they shall be glazed with toughened glass</p>	<p>As for level 3 except that non-combustible shutters or windows constructed to withstand 40kw/m<sup>2</sup> radiant heat exposure for 3 minutes shall be provided on the elevation exposed directly to the hazardous vegetation</p>
<p><b>External Doors</b></p>	<p>External doors shall be fitted with;</p> <ul style="list-style-type: none"> <li>• Draught excluders; and</li> <li>• Tight fitting door screens fitted with; <ul style="list-style-type: none"> <li>- Aluminium</li> <li>- Bronze</li> <li>- Corrosion resistant steel</li> </ul> </li> </ul>	<p>As for level 1 except that aluminium shall not be used</p> <p>If leadlight glazing panels are incorporated in the doors, they shall be protected by shutters constructed of a non-combustible material or of toughened glass</p>	<p>As for level 2 except that;</p> <ul style="list-style-type: none"> <li>• Timber doors shall be fire retardant treated timber or covered in a non-combustible covering</li> </ul> <p><b>OR</b> protected with non-combustible shutters</p> <p><b>OR</b> shall be solid core having a thickness of not less than 35mm</p> <ul style="list-style-type: none"> <li>• Sliding glass doors may be treated as for windows</li> <li>• If glazing panels are incorporated they shall be of toughened glass</li> </ul>	<p>As for level 3 except that non-combustible shutters or glazing constructed to withstand 40kw/m<sup>2</sup> radiant heat exposure for 3 minutes shall be provided on the elevation exposed directly to the hazardous vegetation</p>

LEVEL 1 CONSTRUCTION		LEVEL 2 CONSTRUCTION	LEVEL 3 CONSTRUCTION	FLAME ZONE Note: Reference to additional site requirement will be necessary for this category. For example; water supply, access, shielded egress
<b>Vents and Weepholes</b>	Vents and weepholes shall be protected with spark guards made from 1.8mm mesh that is either; <ul style="list-style-type: none"> <li>• Aluminium</li> <li>• Bronze</li> <li>• Corrosion resistant steel</li> </ul>	As for level 1 except that aluminium shall not be used	As for level 1 except that aluminium shall not be used	As for level 3
<b>Roofs</b>	Sheeted roofs –Only metal or fibre-cement sheet shall be used. Gaps to be sealed or protected by; <ul style="list-style-type: none"> <li>• Fully sarking the roof with sarking with a flammability index of not more than 5 or</li> <li>• Providing corrosion resistant steel or bronze mesh, profiled metal sheet, neoprene seal, compressed mineral wool or similar material</li> <li>• Rib caps and ridge caps shall be sealed using methods outlined in the AS3959</li> <li>• Tiled roofs shall be provided with sarking</li> <li>• Shingles and shakes shall not be used</li> <li>• All roofing shall be non-combustible</li> </ul>	As for level 1 construction except that all roof sheeting shall be non-combustible and sarked	As for level 2 construction except that fibre-reinforced cement or aluminium shall not be used.	As for level 3
<b>Roof lights</b> Note: A vertical dormer window or clerestory window is regarded as a normal window, not a rooflight	All penetrations of the roof space for the installation of roof lights and associated shafts shall be sealed with a non-combustible sleeve or lining  Thermoplastic sheet in a metal frame may be used for a roof light, but in a diffuser installed at ceiling level shall be wired or toughened glass in a metal frame.  Vented rooflights shall be provided with corrosion resistant steel or bronze mesh.	As for level 1 except that rooflight glazing shall be of wired glass  Thermoplastic or toughened glazing shall not be used	As for level 2	As for level 2 except that glazing shall be required to withstand 40kw/m <sup>2</sup> radiant heat exposure for 3 minutes

<b>Ventilators</b>	All components must be non-combustible and shall be protected against the entry of sparks and embers with corrosion resistant steel or bronze mesh.	As for level 1	As for level 2	As for level 3 except that roof ventilators shall not be permitted on the plane of the roof nearest to the unmanaged vegetation
<b>Roof mounted evaporative cooling units</b>	Roof mounted evaporative cooling units shall only be used if openings to the cooling unit are encased in corrosion resistant steel or bronze mesh	As for level 1 except that the case of the evaporative cooler shall be of non-combustible material	As for level 2	As for level 3 except that roof mounted evaporative cooling units shall not be permitted on the plane of the roof nearest to hazardous vegetation
<b>Eaves</b>	Eaves shall be enclosed and the fascias or the gaps between the rafters shall be sealed	As for level 1 except that all timber eaves lining and joining strips shall be of fire-retardant treated timber	As for level 2 except that aluminium shall not be used	As for level 3 except that all materials shall be non-combustible
<b>Fascias</b>	No requirements	Fascias are to be either non-combustible or fire-retardant treated timber	As for level 2 except that no fibre-reinforced cement or aluminium sheet shall be used.	As for level 3 except that all materials shall be non-combustible
<b>Gutters and Downpipes</b>	Any materials or devices used to stop leaves collecting in the gutters shall have a flammability index of not greater than 5 when tested in accordance with AS1530.2	As for level 1	As for level 2	As for level 3
<b>Service Pipes (Water and Gas)</b>	All exposed piping, for water and gas supplies, shall be of metal. Pipes of other materials shall be buried to a depth of at least 300mm below finished ground level	As for level 1	As for level 2	As for level 3

	LEVEL 1 CONSTRUCTION	LEVEL 2 CONSTRUCTION	LEVEL 3 CONSTRUCTION	FLAME ZONE <i>Note: Reference to additional site requirement will be necessary for this category. For example: water supply, access, shielded egress</i>
Verandas and Decks	<p>No timbers shall be allowed to directly connect with the remainder of the dwelling</p> <p><b>Slab</b> SUSPENDED SLAB; supported by posts, columns, stumps, piers and poles that are protected by-</p> <ul style="list-style-type: none"> <li>• Non-combustible material</li> <li>• Fire retardant treated timber treated up to 400mm above finished ground level</li> <li>• Timber mounted on galvanised metal shoes that provide a clearance of 75mm above finished ground or paving</li> <li>• <b>OR</b> Enclosed against the entry of embers. The enclosure shall be non-combustible within 400mm of the finished ground level</li> </ul> <p>SHEET OR TONGUE AND GROOVE FLOOR; is acceptable where bearer is greater than 600mm above ground (see protection for supports above)</p> <p>A sheet or tongue and groove floor that is less than 600mm above finished ground at any point shall be enclosed. This enclosure shall be non-combustible where it is within 400mm of the finished ground level.</p> <p>SPACED DECKING; shall have a clearance of at least 5mm between adjacent timbers. The external perimeter of the decking shall not be enclosed nor shall access to the space beneath the decking be impeded. (see protection for supports above)</p>	<p>As for level 1, except that if spaced decking is used, it shall be non-combustible or fire-retardant-treated timber</p>	<p>As for level 2 except that all materials shall be non-combustible or where timber is used, it shall be fire-retardant-treated including any balustrades</p>	<p>As for level 3 except all materials shall be non-combustible including treads risers, balustrade and any other attachments on the side of the dwelling exposed to the unmanaged vegetation</p>
		<p>As for level 1, except that if spaced decking is used it shall be non-combustible or fire-retardant-treated timber.</p>	<p>As for level 2 except that all materials shall be non-combustible or where timber is used, it shall be fire-retardant-treated including any balustrades</p>	<p>As for level 3 except all materials shall be non-combustible including treads risers, balustrade and any other attachments on the side of the dwelling exposed to the unmanaged vegetation</p>

source: Infill Development in Bush Fire Prone Areas, Blue Mountains City Council