

# **BUSHFIRE HAZARD ASSESSMENT**

**FOR**

**DETACHED INDEPENDENT LIVING UNITS**  
**Special Protection Development**

**AT**

**LOT 1 DP 377679 AND LOT 784 DP 533494**  
**MARMONG STREET**  
**MARMONG POINT NSW 2284**

**FOR**

**EMPOWERED LIVING SUPPORT SERVICES LTD**

**30 October 2012**  
**Version A**

**Prepared by:**

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## PREFACE

Readers of this report must be aware that the bushfire mitigation recommendations described in this report will not completely remove the risk of bushfire impacting the development site. Recommendations contained herein are designed to improve the bushfire related issues for the existing development. With regard to the application the implementation of recommendations in their entirety, together with the diligent maintenance of Asset Protection Zones, will provide for a reduction of the bushfire threat and the associated risk.

This report caters specifically for the requirements of this project and the Client. No warranty is intended or implied, or responsibility undertaken by Barry Eadie Consulting Pty Ltd for its use on any other project or by any third party.

This report does not include an environmental assessment, Aboriginal heritage assessment or identify endangered species in the area.

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# 1 INTRODUCTION

## 1.1 Report Purpose

This report assesses the capability of the subject site to be developed for a proposed Aged Care, detached independent living units. The report will form part of the supporting documentation for a Development Application to be submitted to Lake Macquarie City Council. A Bushfire Hazard Assessment has been undertaken to determine the necessary requirements for the development in accordance with:

- NSW Rural Fire Service, Planning NSW, '**Planning for Bushfire Protection**' (2006); and
- AS 3959-2009: **Construction of Buildings in Bush Fire Prone Areas**.

This report also addresses the issues raised by Council following information from the RFS as follows:

In response to the correspondence from the NSW RFS dated 24 February 2011 the following response is provided for your information. The RFS correspondence listed four items as follows:

1. *No bush fire protection measures have been provided for the non-residential buildings. An assessment of the risk is to be undertaken for further consideration.*

All non-residential buildings have been relocated so that none are within the required APZ and all comply with the APZ requirements (see Appendix A).

2. *There is a discrepancy between the APZs on the northeast aspect recommended in the Bushfire Hazard Assessment and that shown on the Site Plan. Further clarification on this issue is required.*

The APZ's have been amended to provide consistency between the report and the plan.

3. *The effective slope on the southwest aspect has been assessed as 5-10 degrees Downslope, which does not coincide with that, provided within the Bushfire Hazard Assessment. Further clarification on this issue is required.*

The slope from the proposed area to be developed is upslope to the South-west and then drops Downslope into a creek line (see Appendix A) any fire run from the West or South-west would tend to travel up the creek-line which is parallel to the development and not directly towards the proposed development.

4. *The single internal access road does not meet the acceptable solution of '**Planning for Bushfire Protection**' (2006). Advice is to be provided as to how the proposal satisfies the performance criteria.*

The Bushfire Hazard Assessment details the issues relative to the access for the site. On 30 April 2010 I met with Garth Bladwell and Corey Shackleton of the RFS in respect to this matter. Initially it was proposed to have a fire trail to the South-west which Council had concerns with, the next option was to consider an additional access from Marmong Road which was agreed at the meeting would not substantially improve the access / egress. The RFS were in agreement at the time that due to the proposed perimeter road and that the main access/egress road was away from the bushfire hazard and with the provision of hydrants throughout the proposed development that the proposed access / egress provisions would be satisfactory.

The performance Criteria of '**Planning for Bushfire Protection**' (2006) states that the intent may be achieved where; *internal road widths and design enable safe access for emergency services and allow crews to work with equipment about the vehicle.*

The location of the proposed access road is away from the main bushfire hazard and emergency services would most likely use this road to obtain access to the main areas of vegetation that would not be accessible otherwise. Additionally the proposed perimeter road around the facility will provide additional access to vegetation, which is not currently available and with the provisions of hydrants also around the perimeter road there will be firefighting water available again which is not currently available. As such the proposed access road which has a 20m width with an 8m carriageway and would provide safe access for emergency services and allow crews to work with equipment about the vehicle.

Barry Eadie Consulting Pty Ltd has been engaged by Empowered Living Support Services Ltd. to prepare the Bushfire Hazard Assessment report, to be used in support of the Development Application.

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## 2 BUSHFIRE LEGISLATION IN NSW

The *Environmental Planning and Assessment Act 1979* and the *Rural Fires Act 1997* were amended recently via the *Rural Fires and Environmental Assessment Legislation Amendment Act 2002*.

With regard to the *Environmental Planning and Assessment Act 1979*, the amendments:

- a) Require local government councils to record on maps land identified by the Commissioner of the NSW Rural Fire Service as bushfire prone land; and
- b) Prevent development consent being granted for the carrying out of development for certain purposes on bushfire prone land unless the consent authority is satisfied that the development conforms to certain documented bushfire protection specifications and requirements (*'Planning for Bushfire Protection' (2006)* and *AS 3959 – Construction of Buildings in Bushfire-Prone Areas*) or has consulted with the Commissioner;

*'Planning for Bushfire Protection' (2006)* defines bushfire prone areas as an area that can support a bushfire or is likely to be subject to bushfire attack. In general, a bushfire prone area is an area containing a high, medium or low bushfire hazard, or any area within 100 m of a high or medium bushfire hazard, or within 30 m of a low bushfire hazard. Bushfire hazard areas do not include existing urban areas or water bodies (other than wetland vegetation), and are identified by bushfire hazard mapping produced under an approved Bushfire Risk Management Plan, or other such map certified by the Commissioner of the NSW Rural Fire Service for this purpose.

### 3 SITE ASSESSMENT

**NAME:** Empowered Living Support Services Ltd

**ADDRESS:** c/o Empowered Living Support Services Ltd  
PO Box 3247  
Glendale NSW 2285

**SITE ADDRESS:** Proposed Aged Care Development  
Lot 1 DP 377679 & Lot 784 DP 533494 Marmong Street  
Marmong Point. NSW 2284

**COUNCIL:** Lake Macquarie City Council

**TYPE of AREA:** Residential

**TYPE of DEVELOPMENT:** Detached Independent Living Units.

Barry Eadie conducted inspections of the site at Marmong Street, Marmong Point and the surrounding area on 8 June 2007 and 9 July 2009. The following assessment has been undertaken in accordance with the requirements of '**Planning for Bushfire Protection**' (2006).

The site is approximately 31ha and is zoned 7(2) Conservation (Secondary), 7(1) Conservation (Primary) and 10 (Investigation – recreation / conservation) under the Lake Macquarie LEP 2004. The objectives of zone 7(2) are as follows:

- a) protect, conserve and enhance land that is environmentally important, and*
- (b) protect, manage and enhance corridors to facilitate species movement, dispersal and interchange of genetic material, and*
- (c) enable development where it can be demonstrated that the development will not compromise the ecological, hydrological, scenic or scientific attributes of the land or adjacent land in Zone 7 (1), and*
- (d) ensure that development proposals result in rehabilitation and conservation of environmentally important land, and*
- (e) provide for sustainable water cycle management.*

The site is classified as Category 1 on the Lake Macquarie Bush Fire Prone Land Map 2007. The centre of the site is generally cleared with a large dam / water retention area to the North. The site will be assessed as Special Fire Protection Purpose under '**Planning for Bushfire Protection**' (2006) and the vegetation surrounding the cleared as Forest.

### 3.1 Location

The site is located along the Western side of Marmong Street and to the North of Lake Macquarie. Generally the topography of the site consists of sloping ground towards Lake Macquarie. Residential development is located to the South and East. To the North is Lake Macquarie and West / Southwest is bushland.

### 3.2 Vegetation

The vegetation has been assessed over a distance of 140 m from the existing bush vegetation both on and off site in all directions in accordance with A2.3 (a) of *'Planning for Bushfire Protection' (2006)*.

To the North is the Pond with the access road between the pond and the proposed living unit.

South, South-west and West the Ecology Report classified the vegetation as Coastal Plains Smooth-barked Apple Woodland, although classified as Woodland for the purposes of Planning for bush Fire Protection 2006 the vegetation would be classified as Forest due to the ground fuel load.

East and Northeast consist of Swamp Sclerophyll Forest vegetation which, in terms of *'Planning for Bushfire Protection' (2006)*, complies with Forested Wetlands.

Marmong Creek runs across the Northeast area of the site with a large pond North of the proposed development some 50 metres from Lake Macquarie.

### 3.3 Slope

Based on the site inspection, the slope of the land over a distance of 100 m from the indicative building lines in all directions has been assessed. In accordance with *'Planning for Bushfire Protection' (2006)*, the slope has been assessed based on the gradient that will most significantly influence the fire behaviour of the site.

The site falls from South to North towards Lake Macquarie and also down towards the West. To the East is a slight down-slope to the adjoining existing residential dwellings. West the slope is down-slope from approximately half way along the southwestern proposed development area.

### 3.4 Asset Protection Zone

The Asset Protection Zone (APZ) acts as a buffer zone between the development and the hazard. The primary purpose of an APZ is to ensure that a progressive reduction of bushfire fuels occurs between the bushfire hazard and any habitable structures. The APZ consists of an Inner Protection Area (IPA) and an Outer Protection Area (OPA).



Development Aspect	Vegetation Type	Slope	APZ	Minimum IPA	Maximum OPA
North	Pond and Lake Macquarie	0-5 <sup>0</sup> Down-slope to dam and lake	Nil as pond achieves the APZ.	Pond	Pond
North-east	Forested Wetland	0-5 <sup>0</sup> Down-slope	60m	40m	20m
North-west	Forest	0-5 <sup>0</sup> Downslope	70m	50m	20m
South	Forest	0-5 <sup>0</sup> Up-slope	60m	40m	20m
South-west	Forest	0-5 <sup>0</sup> Up-slope	60m	40m	20m
West	Forest	0-5 <sup>0</sup> Down-slope	70m	50m	20m
East	Forested Wetland then existing residential dwellings	0-5 <sup>0</sup> Down-slope	60m	40m	20m

### 3.5 Level of Construction

BAL 12.5 construction will be recommended due to the nature of the development.

From Introduction of this report:

*All non-residential buildings have been relocated so that none are within the required APZ and all comply with the APZ requirements (see Appendix A).*

### 3.6 Fire Fighting Personnel Access

#### 3.6.1 Public Road Access

Access is provided to the Site via sealed public roads, Marmong Street to the East, which is capable of supporting fully loaded fire fighting vehicles.

#### 3.6.2 Property Access

Property Access will be from Marmong Street, which will comply with the requirements of Section 4.2.7 Internal Access Roads, Performance Criteria of ***‘Planning for Bushfire Protection’ (2006)*** with the exception of an alternative access.

The proposed development is in one distinct section served by the main access off Marmong Street, which is between existing residential developments. The proposal is designed with perimeter road access and all access and egress through the property access is away from the main bushfire risk into the residential area.

The proposed development area is basically through the centre of the site with Lake Macquarie to the North, Forest vegetation on-site to the South and West and existing residential to the East. The development area is surrounded by vegetation, which for environmental reasons cannot be managed with the exception of the required Asset Protection Zones.

The Council Bush Fire Prone Land Map shows the existing residential development to the East as within the bushfire buffer zone and as it is existing residential development, which does not constitute a bush fire risk. Due to the proposed location of the development on the site and the environmental constraints the safest and only practical means of access and egress from the site is to the East via Marmong Street which is away from the main bush fire hazard. There are no other means of achieving alternative access / egress due to the environmental constraints of the site. Any other means of access and / or egress from the proposed development area would require passing through unmanaged vegetation, which is currently classified as Category 1 vegetation.

Any bushfire which may develop in the vicinity would impact immediately upon the site which would not be assisted greatly by additional access / egress as a consequence an Emergency / Evacuation Plan and Vegetation Management Plan will be developed for the site which will incorporate measures to be followed in a bushfire emergency.

See also Introduction of this report and attached Alternate Solution Report. (Refer Appendix B).

### 3.7 Electricity Supply

It is preferable that transmission lines providing power to the proposed development should be installed underground. Satisfactory provisions are available, however, if this is not possible.

### 3.8 Gas

Reticulated or bottled gas shall be installed and maintained in accordance with AS/NZS 1596-2002: ***Storage and Handling of LP Gas*** and the requirements of the relevant authorities. If gas cylinders are to be kept close to buildings, the release valve must be directed away from the building and away from any hazardous materials such as firewood, so that it does not act as a catalyst to combustion.

### 3.9 Water Supply

Town reticulated water supply is available to the proposed development, therefore a supplementary form of water supply will not be necessary for fire fighting purposes. Hydrants will be provided on site in accordance with AS 2419.

## 4 RECOMMENDATIONS

Based on Barry Eadie's site inspection and assessment, the following recommendations would be required for future development of dwellings on the lots:

- (a) APZ's be maintained in accordance with Section 3.4 of this report:
- (b) If any trees are to be located within the envisaged APZs, this is considered acceptable, providing the following conditions are met:
  - (i) Vegetation is not to touch dwellings (canopy vegetation must not be within 2-5 metres of any building / dwelling);
  - (ii) Vegetation is not species that retain dead material or deposit excessive quantities of ground fuel in a short period or in a danger period; and
  - (iii) Vegetation is located far enough away from dwellings so that it will not ignite the dwelling by direct flame contact or radiant heat emission.
- (c) Woodpiles, combustible material storage sheds, large areas / quantities of garden mulch and stacked flammable building materials should not be located within IPA of dwellings;
- (d) All residential buildings to be built to **BAL 12.5** construction in accordance with AS 3959-2009.
- (e) Property Access shall comply with section 3.6.2 of this report.
- (f) An Emergency and Evacuation Plan and a Bushfire Management Plan will be developed in accordance with section 4.2.7 of **'Planning for Bushfire Protection' (2006)**.
- (g) Hydrants to be provided in accordance with AS 2419.
- (h) Reticulated or bottled gas shall be installed and maintained in accordance with AS/NZS 1596-2002: **Storage and Handling of LP Gas** and the requirements of the relevant authorities.

## 5 CONCLUSIONS

Barry Eadie has conducted a site inspection and assessment of the existing site. The assessment has been undertaken in accordance with **'Planning for Bushfire Protection' (2006)** and AS 3959-2009: **Construction of Buildings in Bush Fire Prone Areas**.

Provided the recommendations stated above are implemented in full, Barry Eadie Consulting is of the opinion that the proposed development achieves the intent of the relevant legislation and in particular the requirements as set out in **'Planning for Bushfire Protection' (2006)**.

## 6 REPORT BASIS INFORMATION

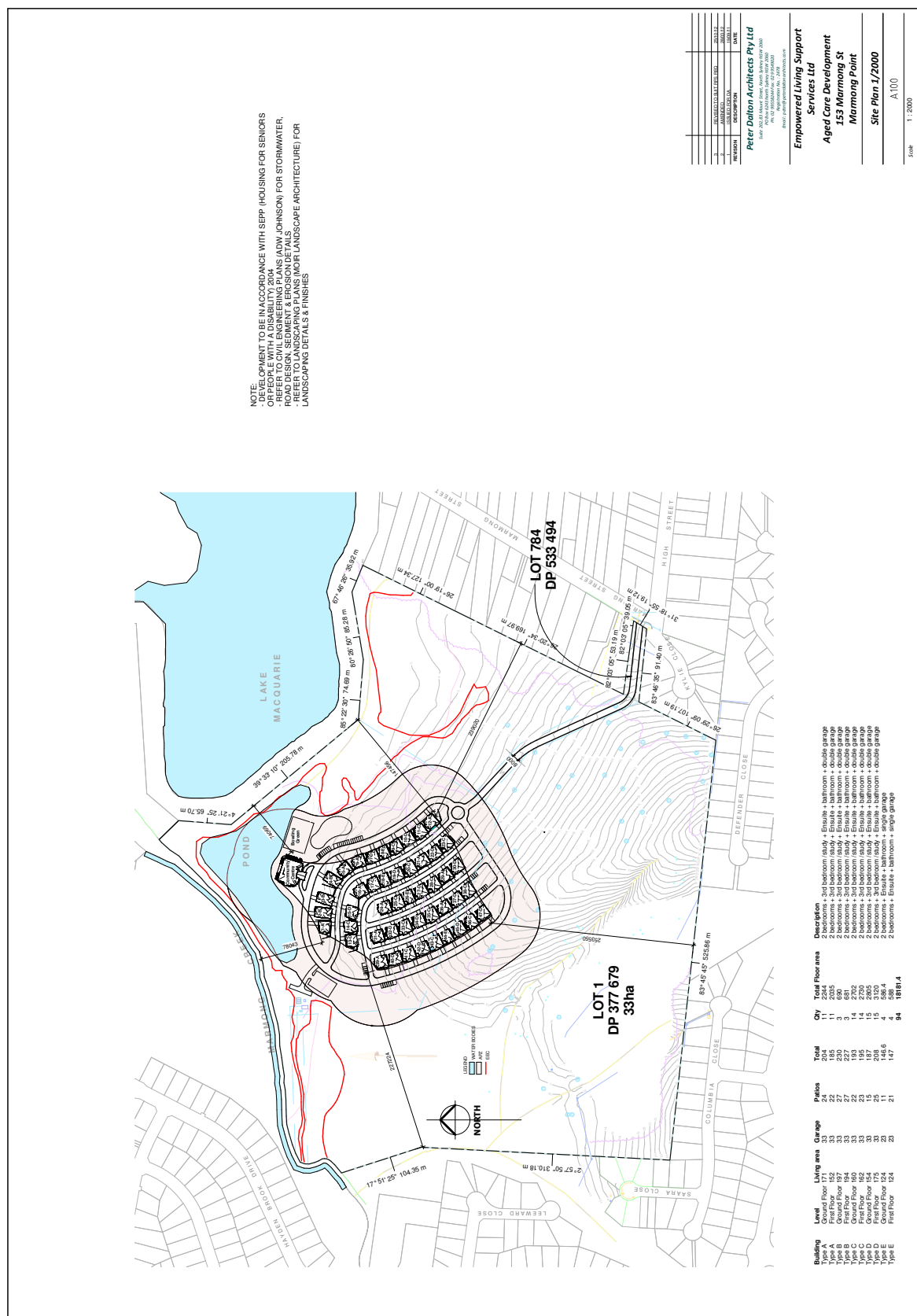
The report is based on the following:

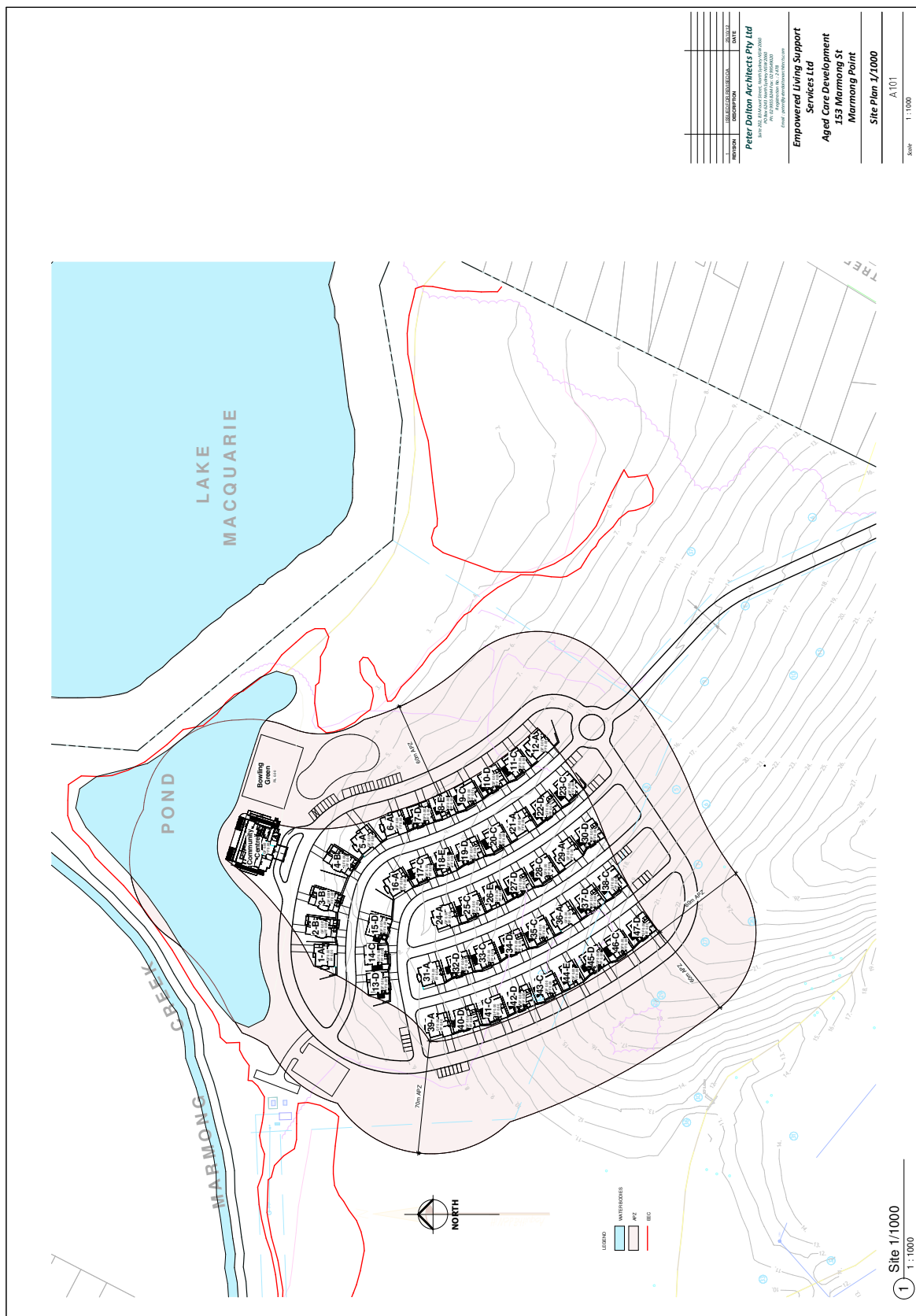
- (i) Site inspections carried out on 8 June 2007 and 9 July 2009 by Barry Eadie;
- (ii) Site Plan
- (iii) Ecological Report.

## 7 REFERENCES

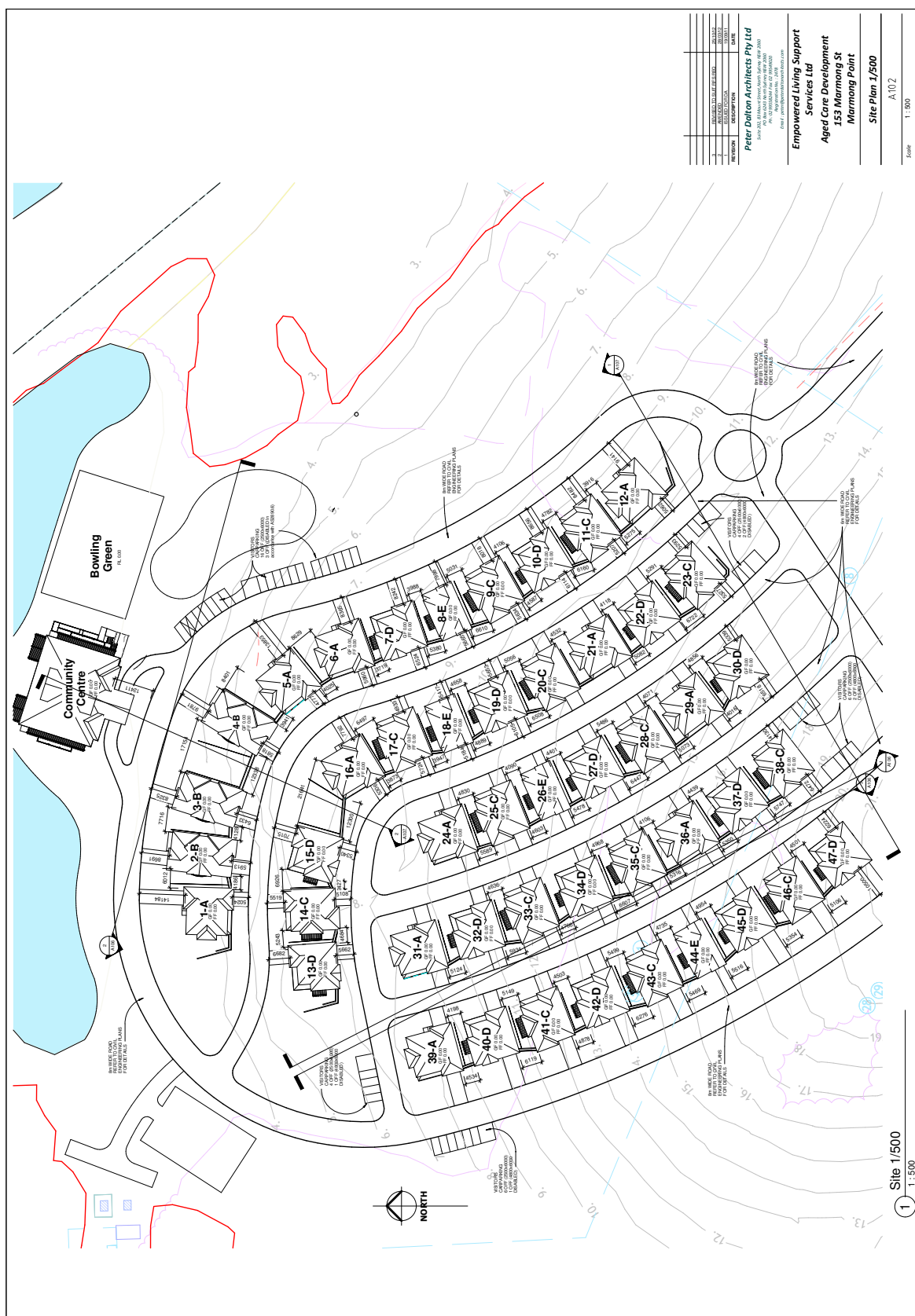
- NSW Rural Fire Service, Planning NSW, *'Planning for Bushfire Protection' (2006)*.
- AS 3959-2009: *Construction of Buildings in Bush Fire Prone Areas*.

## APPENDIX A – PROPOSED DEVELOPMENT PLAN









## APPENDIX B – ALTERNATE SOLUTION REPORT

Alternative Solution Report

Lot 1 in DP 377679, Lot 784 DP 533494 Marmong Street, Marmong Point, NSW 2284

Page 1

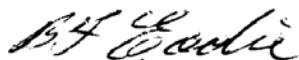
### Report Issue Authorisation

**Project: Lot 1 in DP 377679, Lot 784 DP 533494 Marmong Street, Marmong Point NSW 2284**

**Project Number: 2143.01**

Revision	Date	Issue	Author
A	26-9-12	Final Report	BFE

Signed: \_\_\_\_\_



**Barry Eadie**

This report has been completed in response to the specific instructions of our client and should not be relied upon by any other party.



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## Executive Summary

The proposed development has been assessed by Council and the NSW Rural Fire Service (RFS) under '**Planning for Bushfire Protection**' (2006) as Special Fire Protection Purposes and the proposal does not provide for compliance with the Acceptable solutions of section 4.2.7 of PBP and in particular:

*Roads are through roads. Dead end roads are not more than 100 metres in length from a through road, incorporating a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end.*

In correspondence from the RFS dated 25 July 2012 states:

*In this regard it is considered essential that the non residential buildings, such as the Community Centre, Activities Building and Indoor Pool / Gym that will be occupied by elderly residents, comply with the asset protection zones requirements set out in Table A2.6 of Appendix 2 of PBP. This is particular important as there is a single vehicular entry/exit to the village.*

The proposed development area is the only possible location on the subject site. The issue is the provision of a single access to the development area from Marmong Street. This departure has been addressed in terms of an alternative solution complying with the performance requirements of the BCA.

## 1.0 Introduction

This report presents the assessment of the access for compliance with the requirements of section 4.3.7 of *'Planning for Bushfire Protection' (2006)* (PBP).

This report has been prepared for Empowered Living Support Services.

## 2.0 Purpose

The purpose of this report is to make recommendations regarding the approval of an alternative solution for the access of the proposed Aged Care Development as detailed in the submitted plans. The departure has been identified as departing from the Acceptable solutions of PBP.

## 3.0 Building Description

The proposed Aged Care Development is located at Lot 1 DP 377679 and Lot 784 DP 533494 Marmong Street, Marmong Point. The proposal involves the construction of a new Aged Care Development on the subject site. The RFS have identified the non-compliance of a single access.

## 4.0 Referenced Documentation

This report has been prepared from an assessment of the documents as listed below:

Document Reference	Title
Bush Fire Assessment Report	Report by Barry Eadie Consulting
Australian Standard	AS 2419
NSW RFS	<i>'Planning for Bushfire Protection' (2006)</i> (PBP)

## 5.0 BCA Compliance

This design departs from the Acceptable solutions requirements of section 4.2.7 of PBP, Access – Internal Roads.

The departures can be summarised as follows:

No.	PBP Reference	Description
1	Section 4.2.7 PBP	<p>Performance Requirement s 4.2.7 The intent may be achieved where:</p> <p>* internal road widths and design enable safe access for emergency services and allow crews to work with equipment about the vehicle.</p>
		<p>Acceptable solutions:</p> <ul style="list-style-type: none"> <li>Roads are through roads. Dead end roads are not more than 100 metres in length from a through road, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as dead end.</li> </ul>

## 6.0 Alternative Solution

The NSW Rural Fire Service (RFS) Community Resilience Practice Notes 1/07 titled Alternate Solutions specifies that an alternative solution is required where a departure from the acceptable Solutions requirements is proposed. The proposed alternative solution must be proven as complying with the relevant performance criteria or an Acceptable Solution as described in PBP. The relevant performance criteria of PBP in relation to the access is section 4.2.7 of PBP.

### Assessment Method

The Assessment Methods used to determine compliance with the Performance Criteria are comparison with the deemed-to-satisfy and expert judgement.

### Discussion

As the site is surrounded by vegetation with a body of water to the North, Lake Macquarie to the North-east and existing residential dwellings outside the vegetated areas and due to the environmental constraints and the SEPP 14 Wetlands of the site access is only available from Marmong Street by means of an existing Hunter Water access.

The proposed development complies with the requirements of PBP for APZ. The area to the North of the proposed Community Centre, Activities Building and the Indoor Pool / Gym is nominated in the Flora report as Coastal Floodplain soil to the site boundary with the vegetation being classified in the Ecology Report as Swamp Sclerophyll Forest which is classified as EEC.

These building have been relocated so that they are not within the required APZ's and each will comply with the APZ requirements between the buildings and the EEC providing access for emergency services personnel.

In respect to the Community Centre, Activities Building and the Indoor Pool / Gym occupancy during a bushfire event will be specifically addressed in the Evacuation Management Plan for the site. As the proposed development is for independent living with no hostel or nursing home facilities each occupancy is an independent dwelling.

**'Planning for Bushfire Protection' (2006)** nominates specific Performance Criteria and Acceptable solutions and in particular for access, the subject of this report, as follows:

### Performance Criteria:

*The intent may be achieved where:*

- *internal road widths and design enable safe access for emergency services and allow crews to work with equipment about the vehicle.*

**Acceptable solutions:**

- *roads are through roads. Dead end roads are not more than 100 metres in length from a through road, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end.*

**In respect to the proposed development:**

- The existing Hunter Water access which comprises a 20 metre right of way will have an 8 metre sealed roadway with the remaining 20 metres managed providing suitable space for crews to work with equipment about the vehicle.
- The access road will be managed as an APZ.
- As the water supply to the development will be along this access road hydrants will be located along the access road in accordance with AS 2419.
- The proposed development will have a perimeter road providing access throughout the development site and easy access for emergency services to all the surrounding vegetation.
- The whole development site including the perimeter road will be provided with hydrants in accordance with AS 2419.
- The development will have an Emergency Evacuation Plan.
- If it were possible to provide an additional access to the development site such additional access would also need to go through an area of unmanaged vegetation,
- There is currently no development on the site.
- There are also no neighbouring buildings that impact upon the subject site.
- Will not result in an increase bush fire management or maintenance on adjoining landowners due to the location of the site.

The proposed development footprint has been carefully selected in consideration of the environmental, ecological and topography constraints of the site. The proposed access, which is also the existing access will be upgraded and is the only possible location on the site considering the site constraints.

The relevant performance criteria relating to the access provisions of section 4.2.7 of ***‘Planning for Bushfire Protection’ (2006)*** are considered as being achieved.

## **7.0 Conclusion**

The assessment of the proposed access for compliance with PBP has identified departures from the Acceptable solutions. The departure has been addressed in an alternative solution that demonstrates the design’s compliance with the performance criteria of ***‘Planning for Bushfire Protection’ (2006)***.

## 8.0 Recommendations

It is recommended that the design of the access be accepted as complying with the Performance criteria of PBP subject to compliance with the following:

1. The existing Hunter Water access which comprises a 20 metre right of way will have an 8 metre sealed roadway with the remaining 20 metres managed providing suitable space for crews to work with equipment about the vehicle.
2. The access road will be managed as an APZ.
3. As the water supply to the development will be along this access road hydrants will be located along the access road in accordance with AS 2419.
4. The proposed development will have a perimeter road providing access throughout the development site and easy access for emergency services to all the surrounding vegetation.
5. The whole development site including the perimeter road will be provided with hydrants in accordance with AS 2419.
6. The development will have an Emergency Evacuation Plan to specifically include the Community Centre, Activities Building and the Indoor Pool / Gym.