

BUSHFIRE HAZARD ASSESSMENT

Bundagen Co-op

**Bundagen, Bundageree and
The Lakes**

**Lot 1 and Lot 334
401 McCabes Road
Repton**

Clients:

Bundagen Co-op

Dated:

March 2016

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1.0 INTRODUCTION

A Bushfire Hazard Assessment has been carried out for the Bundagen Co-op located at Lot 1 and Lot 334 DP 732149 No 401 McCabes Road, Repton.

This report is based on a site assessment carried out in November 2015.

The report is to demonstrate that the bushfire risk is manageable and this report is to accompany a Development Application which is to be submitted to Council.

The original Development Application for the multiple occupancy development was approved in 1984 with a modification for the Development Approval approved in January 1990.

The requirements with respect to Bushfire Planning were included in the conditions of the Development Approval.

NOTE

The report has been prepared with all reasonable skill, care and diligence.

The information contained in this report has been gathered from field survey, experience and has been completed in consideration of the following legislation.

1. Rural Fires Act 1997.
2. Environmental Planning and Assessment Act 1979.
3. Building Code of Australia.
4. Council Local Environment Plans and Development Control Plans where applicable.
5. NSW Rural Fire Services, Planning for Bushfire Protection, 2006. (PfBP, 2006)
6. AS 3959-2009 Construction of Buildings in Bushfire Prone Areas.

The report recognizes the fact that no property and lives can be guaranteed to survive a bushfire attack.

The report is confidential and the writer accepts no responsibility of whatsoever nature, to third parties who use this report or part thereof is made known. Any such party relies on this report at their own risk.

1.1 Objectives

The objectives of this report are to:

- Ensure that the Bundagen Co-op proposed use as nominated in this report meets the aims and objectives of NSW Rural Fire Services, *Planning for Bushfire Protection, 2006* and have measures sufficient to minimize the impact of bushfires; and
- Reduce the risk to property and the community from bushfire; and
- Comply where applicable with AS3959 – 2009.

1.2 Legislative Framework

In NSW, the bushfire protection provisions of the BCA are applied to Class 1, 2, 3, Class 4 parts of buildings, some Class 10 and Class 9 buildings that are Special Fire Protection Purposes (SFPPs).

1.4 History and Development Proposal

Bundagen, Lot 1 of 172.01ha was purchased in 1981 when a co-operative community was established, it contains ten (10) settlement areas in bundagen and two (2) in Bundagaree. There are six (7) dams, a central pumped water supply network from a water storage dam and a recently installed bore.

Soon afterwards in 1981, Bundagaree Lot 334 was purchased containing two settlement areas separated by Bundagaree Creek. In June 1999 "The Lakes" was purchased situated between Lot 1 and Lot 334 and has large bodies of water in artificial lakes and there is no settlement there at present.

See aerial in **Appendix 1 showing the whole site.**

As mentioned above the original Development Approval for the multiple occupancy, was issued in 1884, and a modification to the Development Application was approved in 1990.

This report considers the use of the common areas within the multiple occupancy for activities such as:

- a) Workshops (eg. yoga, dancing, singing, martial arts)
- b) Restaurant
- c) Markets
- d) Sporting Events

The above activities do not fall into the Special Fire Protection category however considering the assembly building characteristics consideration has to be given to bushfire attack.

With respect to ***Planning for Bushfire Protection, 2006*** the following is noted:

"Many Class 9 buildings under the BCA are considered "Assembly Areas" and may attract significant numbers of people for various purposes including entertainment, religious instruction, sport or education, prisons, churches, tertiary education institutions (eg Universities) and similar land uses also fall within this definition and all accommodate large numbers of persons of various physical capabilities. The major issue in these situations is to determine whether staff or the occupants have a capacity for firefighting response and/or adequate emergency and evacuation planning in place."

These types of development (ie Class 9 buildings) should be considered on their merits under Sections 79BA and 79C of the EP & A Act, with consideration of the specific objectives listed in Section 4.2.3 of this report.

Overall, those Class 9 buildings, not being SFPP, should be considered as if they were a SFPP.

These buildings will not have specific bushfire provisions applying under the BCA, but their location should be carefully considered.

In such cases the aim and objectives of PBfP 2006 should be used to assess the merits of the proposal.

The Development Approval (including the modification) included the following conditions related to Bushfire:

1. Works referred to in Conditions 3 of the Modification regarding upgrading of the buildings.

2. Fire Prevention measures being implemented according to a management plan submitted by Bundagen Co-operative Ltd, and approved by Councils Fire Control Officer.

The Bundagen Co-operative Fire Management plan was completed in 2002, revised in 2012 and 2015.

A copy of the 2015 version can be seen in **Appendix 2**.

The site plan showing the nominated buildings can be seen in Section 2.5 of this report.

2.0 BUSHFIRE HAZARD ASSESSMENT

2.1 Buildings to be used for proposed uses.

- a) Main Hall building – Restaurant , event centre, Food co-op, workshops
- b) Meeting Hall – In conjunction with workshops
- c) Meditation Building – In conjunction with activities
- d) Family Building – In conjunction with activities

2.2 Assessment Methodology

Several factors need to be considered in determining the bushfire hazard for the subject site.

These factors are slope, vegetation type, and distance from hazard, access/egress and fire weather.

Each of these factors has been reviewed in determining the bushfire protection measures which are applicable to the subject site.

The assessment of slope and vegetation being carried out in accordance with Appendix 2 and Appendix 3 of NSW Rural Fire Service, *Planning for Bushfire Protection*, 2006 and Section 2 of AS 3959 - 2009.

2.3 Slope Assessment

Slope is a major factor to consider when assessing the bushfire risk.

The slopes were measured using a Suunto PM-5/360 PC Clinometer.

The hazard vegetation on adjacent land was also identified and the slopes within the vegetation measured where applicable. The following table shows the results:

Table 1 – Slopes

Main Building

Aspect	Slope	Upslope/Downslope or Flat
North	0°	Flat/Upslope
East	0-5°	Downslope
West	5-10°	Downslope

3.1.3 Services - Water, Gas and Electricity

As set out in Section 4.1.3 of NSW Rural Fire Services, *Planning for Bushfire Protection, 2006*, developments in bushfire prone areas must maintain a water supply for firefighting purposes.

The Co-op has its own firefighting units, see photos in **Appendix 3**. There is a small tanker, a striker and a community fire trailer available to the Co-op. There is also 90,000litre water tank provided to the Main Building. It is recommended that a 20,000 litre tank is provided to the Assembly Building with this water supply complying with the requirements of *Planning for Bushfire Protection, 2006*.

With respect to any new work bottled gas supplies are to be installed and maintained in accordance AS 1596. Metal piping is to be used. All fixed gas cylinders are to be kept clear of all flammable materials to a distance of 10m and shielded on the hazard side of the installation.

If gas cylinders need to be located close to the building, the release valves are to be directed away from any of the buildings and at least 2 metres away from any combustible material so they do not act as a catalyst to combustion. Connections to and from gas cylinders must be metal.

It is considered that the relevant acceptable solutions as provided for by 4.1.3 of NSW Rural Fire Services, PfBP, 2006 are capable of being complied with and as such the intent for the provision of services to the can be achieved.

3.1.4 Landscaping

Landscaping is a major cause of fire spreading to buildings, and therefore any landscaping in conjunction with the Co-op will need consideration when planning, to produce gardens that do not contribute to the spread of a bushfire.

When planning any future landscaping, consideration should be given to the following:

- The choice of vegetation – consideration should be given to the flammability of the plant and the relation of their location to their flammability and on going maintenance to remove flammable fuels.
- Trees as windbreaks/firebreaks – Trees in the landscaping can be used as windbreaks and also firebreaks by trapping embers and flying debris.
- Vegetation management – Maintain a garden that does not contribute to the spread of bushfire.
- Maintenance of property – Maintenance of the property is an important factor in the prevention of losses from bushfire.

Appendix 5 of NSW Rural Fire Services, *Planning for Bushfire Protection, 2006*, contains standards that are applicable to the provision and maintenance of landscaping. Any landscaping to be undertaken in conjunction with the Co-op is to comply with the principles contained in Appendix 5 of NSW Rural Fire Services, PfBP, 2006.

Compliance with Appendix 5 of NSW Rural Fire Services, PfBP, 2006, will satisfy the intent of the bushfire protection measures that are applicable to the provision of landscaping.

3.2 Emergency Evacuation Planning

Special Fire Protection Purpose developments should have suitable management arrangements and structures capable of developing and implementing an Emergency Plan.

As can be seen from the photos in **Appendix 3**, the existing building has not been constructed to any Bushfire Attack level.

The Co-op is currently discussing the construction of a purpose built assembly area positioned centrally within the cleared area between McCabes Road and the subject buildings. This building should be able to achieve a separation distance of 100m from any hazard and should be built to meet the requirements of BAL 29.

The Co-op is looking at approval for one hundred people only. The Co-op advises that this is also the figure that has been considered for the effluent disposal for the site. It is therefore recommended that any proposed building has a floor area of a minimum of 100 square metres for the assembly of proposed guests. It is noted that the building may also be beneficial to the community in the higher risk fire days when there is no activities.

The Emergency Management Plan will include early evacuation to the assembly building. If evacuation of the Co-op is required it must be done early.

It is recommended that an Emergency Evacuation Plan incorporating bushfire evacuation be produced.

Compliance with the following acceptable solutions as provided for by 4.2.7 of NSW Rural Fire Services, *Planning for Bushfire Protection*, 2006 will ensure compliance with the intent for Emergency Evacuation Planning.

Acceptable Solutions for Emergency and Evacuation

<i>Intent of measures: to provide suitable emergency and evacuation (and relocation) arrangements for occupants of special fire protection purpose developments</i>		
Performance Criteria	Acceptable Solutions	
The intent may be achieved where:		
<ul style="list-style-type: none"> An Emergency and Evacuation Management Plan is approved by the relevant fire authority for the area. 	<ul style="list-style-type: none"> An emergency evacuation plan is prepared consistent with the RFS Guidelines for the preparation of <i>Emergency/Evacuation Plan</i>. Compliance with AS 3745-2002 'Emergency control organization and procedures for buildings, structures and workplaces for residential accommodation.' 	To be completed
<ul style="list-style-type: none"> Suitable management arrangements are established for consultation and implementation of the emergency and evacuation plan. 	<ul style="list-style-type: none"> An Emergency Planning Committee is established to consult with residents (and their families in the case of churches) and staff in developing and implementing an Emergency Procedures Manual. <p>Detailed plans of all Emergency Assembly Areas including "onsite" and "offsite" arrangements as stated in AS 3745-2002 are clearly displayed, and an annual (as a minimum) trial emergency evacuation is conducted.</p>	See Fire Management Plan

Any emergency plan must consider the requirements of AS 3745 (2010).

It should be considered that there are times where any proposed activity with reference to this report should not be undertaken. It is recommended that no activities should be undertaken on the higher risk fire days.

It is necessary to ensure evacuation to the Assembly building is completed as quickly as possible with regards to a response to a threat. It is also necessary to ensure that guests to the Co-op on the response to any threat are not permitted to leave the site until clearance has been received from the Rural Fire Service.

4.0 CONSTRUCTION

It is proposed to construct an Assembly Building as detailed above to the requirements of Bushfire Attack Level 29. It is not considered possible to upgrade the existing building due to their construction.

5.0 AIMS AND OBJECTIVES

As noted above Planning for Bushfire Protection 2006 that with respect to these types of development that the aims should be used to assess the merits of any proposal.

With regards to the aims and objectives the following should be noted:

Objectives	Comments
Afford occupants of any building adequate protection from exposure to a bushfire	The proposed Building will provide for an area for people to assemble for evacuation
Provide for a defendable space to be located around buildings	As can be seen in the above report there is a risk that the existing buildings will not survive a bushfire attack
Provide appropriate separation between a hazard and buildings which in combination with other measures prevent direct flame contact and material ignition	Their construction makes it very difficult for the buildings to be upgraded to resist bushfire attack
Ensure that safe operational access and egress for emergency service personnel and residents is available	Once within the property boundaries there is open areas and it possible to upgrade the access road to comply with Planning for Bushfire Protection, 2006
Provide for ongoing management and maintenance of bushfire protection measures including fuel loads in the asset protection zone (APZ)	A Vegetation Management Plan is to be implemented
Ensure that utility services are adequate to meet the needs of firefighters (and others assisting in bushfire fighting)	The Co-op has its own firefighting equipment as documented above. There has also been training take place for the residents of the CO-OP

6.0 RECOMMENDATIONS

The following recommendations are considered to be integral to this bushfire risk assessment:

1. Access and Egress is to be upgraded as detailed in Section 3.1.2 of this report is to be provided.
2. Adopt landscaping principals in accordance with Section 3.1.4 of the NSW Rural Fire Services, PFBP, 2006. Specific reference is made to the existing landscaping around the assembly/chapel building.
3. Services are provided as noted in the report.
4. A suitable assembly building is to be constructed in accordance with this report.
5. A Plan of Management for the vegetation as detailed in this report is to be developed.
6. An Emergency Evacuation Plan in accordance with the RFS guidelines and details noted in this report should be incorporated in the Fire Management Plan for the Co-op.

6.0 CLAUSE 44 CONSIDERATIONS

Environmental/Heritage Feature	Comment
Riparian Corridor	Not considered in this report
SEPP 14 – Coastal Wetland	Not considered in this report
SEPP 26 – Littoral	Not considered in this report
SEPP 44 – Koala Habitat	Not considered in this report
Areas of geological interest	Not considered in this report
Environment protection zones	Not considered in this report
Land slip	Not considered in this report
Flood prone land	Not considered in this report
National Park Estate or other reserves	Not considered in this report
Threatened Species, populations, endangered ecological communities and critical habitat	Not considered in this report
Aboriginal Heritage	Not considered in this report

7.0 CONCLUSION

It is suggested that with the implementation of this report, and its recommendations, that the bushfire risk for the Co-op is manageable and will be consistent with NSW Rural Fire Services, PfBP, 2006.

This report is however contingent upon the following assumptions and limitations:

Assumptions

1. For a satisfactory level of bushfire safety to be achieved, regular inspection and testing of proposed measures, building elements and methods of construction, specifically nominated in this report, is essential and is assumed in the conclusion of this assessment.
2. There are no re-vegetation plans in respect to hazard vegetation and therefore the assumed fuel loading will not alter.
3. It is assumed that the building works will comply with the DTS provisions of the BCA including the relevant requirements of Australian Standard 3959 – 2009.
4. The Co-op is maintained in accordance with the risk reduction strategy in this report.
5. The vegetation characteristics of the subject site and surrounding land remains unchanged from that observed at the time of inspection. It is noted that a Vegetation Management Plan is to be provided for the Facility.

Limitations

1. The data, methodologies, calculations and conclusions documented within this report specifically relate to the Co-op and must not be used for any other purpose.
2. A reassessment will be required to verify consistency with this assessment if there is any alterations and/or additions, or changes to the risk reduction strategy contained in this report.

Regards



Tim Mecham
Midcoast Building and Environmental

8.0 REFERENCES

- NSW Rural Fire Services, *Planning for Bushfire Protection*, 2001
NSW Rural Fire Services, *Planning for Bushfire Protection*, 2006
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