Bushfire Hazard Report

48 Derwent Ave

Margate

Performance Solution

Kingborough Interim Planning Scheme

Property ID 1860934 Title Reference 130032/1

A & D Braddock

January 2026

Roger Fenwick Bush Fire Consultant
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Accreditation No. BFP - 162

2511DAN.MAR.DER1.0

Table of Contents

Executive summary

I am an Accredited person permitted to assess bushfire hazards and to define Hazard Management Areas and to prepare appropriate plans for their ongoing management. A summary of my *curriculum vitae* is Annexure A.

This report concerns proposed construction of a single family residence in a bushfire-prone area within the Kingborough Interim Planning Scheme area, assessed under the provisions of the Director's Determination – Requirements for Building in Bushfire-Prone Areas (transitional) v2.3 (DDRBBPA).

The presence of unmanaged vegetation on adjacent land in close proximity necessitates a Performance Solution, in turn necessitating a Performance-Based Design Brief, for new work. The objective will be to show that siting and construction satisfy the Performance Requirements of DDRBBPA.

Roger Fenwick BFP 162 Scope 1, 2, 3A, 3B

Purpose

I have been engaged to undertake a Bushfire Hazard Report for proposed construction of a single-family Class 1a residence located at 48 Derwent Ave, Margate known as Property ID 1860934, Title Reference 130032/1.

The new works require separation from unmanaged vegetation growing on adjacent land greater than the minimum setback distance in Table 2.6 of AS 3959.

This report provides an assessment of the bushfire risk as required by the provisions of the *Director's Determination – Requirements for Building in Bushfire-prone Areas (transitional)* v2.3. (DDRBBPA).

Methodology

The assessment protocol relies on definitions and specifications in the Australian Standard *Construction of buildings in bushfire-prone area 2018* (AS 3959), *Nash Standard – Steel Framed Construction in Bushfire Areas*, vegetation classification by Specht 1970, and in particular, State variations defined in the DDRBBPA. Those variations specify additional requirements for access, water supply, and a Hazard Management Area (HMA) plan.

For defined vegetation classes, litter and other flammable vegetation component standard values have been determined. These, slope values and standard weather conditions are used to calculate bushfire behaviour, including rate of forward spread, radiant heat output and flame height. When considered in conjunction with the distance between the edge of the fire and the point of measurement (eg the wall of a house), they show the intensity of the fire exposure.

Those combined values are expressed as a Bushfire Attack Level (BAL) plus a number which expresses the radiant heat output in kilowatts per square metre (kWm^{-2}). The BAL rating determines the required construction standard. As the setback distance increases, the BAL rating decreases.

Vegetation on adjoining land beside the proposed building site is growing closer than the range within the Deemed to Satisfy tables in AS 3959. This requires a Method 2 assessment as outlined in the Standard. That in turn required a preliminary Performance-Based Design Brief, defining how compliance with specified fire safety outcomes will be achieved.

As part of the evaluation, fuel loads in the specific Forest vegetation type present (described in a paper by Marsden-Smedley *et al* [1]) have been used in lieu of standard Forest figures in the Method 2 calculations.

The work of Alexander[2] allows calculation of the width of fire relative to the length of fire run.

Proposal

Plans showing the site and proposed development are attached at Annexure E. The proposal is to build a Class 1a house.

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[1] Fuel in Tasmanian Dry Eucalypt Forests, Marsden-Smedley, Anderson & Pyrke 2022, mdpi.com/journal/fire, Fire, 5, 103. Table 4

[2] ME Alexander, Estimating the length-to-breadth ratio of elliptical forest fire patterns, Proc 8th Conf Fire & Forest Methodology, Soc American Foresters, 1985 Eqn 35

General site description

This 2940m^2 battle-axe lot is located on the SE side of a flat promontory into North West Bay. The zoning is Low Density Residential.

Topography

The gradient of the land supporting the unmanaged vegetation to the south & east is level for 11 & 17m resp, and then very steeply downslope over 6 & 4m resp to the water's edge.

Vegetation

The site itself is almost completely cleared, with residual *E ovata* (Black gum) specimens scattered on and around the lot. The adjoining Reserve land carries low, dry mixed coastal shrubs and native grass understory. There is a cleared walking track 2m in width beside the site boundary, within between 1 and 4m of the property edge. I have disregarded the possible effect of this track for the purpose of calculating the impact of adjacent fire.

The Forest type has been assessed by Marsden-Smedley *et al (ibid)* as having a surface and near-surface fuel load of about 13.5tha^{-1}, to which must be added 1tha^{-1} for bark and 10tha^{-1} for canopy. This provides w and W values of 14.5 & 24.5 for use in M2 calculations.

Per Alexander, fire commencing at the water's edge and travelling 17 & 21m resp towards the property boundary and spreading at a ratio of 5.4:1 would spread to widths of 3 & 4m.

View across and through adjacent Reserve vegetation showing sparsity of vegetation & litter, and effective level ground slope adjacent to the lot boundary.

Water

Reticulated water is connected, but there is no fire hydrant within 120m of the site. Water supply must meet the provisions of DDRBBPA Table 4.3B.

Access

Access must meet the provisions of DDRBBPA Table 4.2.

Fire history

The LIST records no fire on the property.

Environmental & other constraints

Coastal erosion and Waterway & coastal protection overlays cover the site.

Bushfire Context

A bushfire prone area is defined as land so mapped, or land within 100m of bushfire prone vegetation equal to or exceeding 1 hectare in area. Bushfire prone vegetation includes areas of grasses and shrubs other than defined exceptions such as maintained lawns, gardens, some horticultural land and the like.

The slope used in bushfire assessments is the gradient beneath unmanaged adjoining vegetation able to support fire movement towards structures. It varies from Upslope and Level (both defined as 0º) to groups of Downslope in 5º increments. Downslope means that fire is travelling uphill when moving towards the structure.

Setbacks are defined as the plan view (horizontal) distance between the edge of unmanaged vegetation and the nearest part of a structure subject to the assessment. This means to the nearest wall, or if there is no wall, to the nearest supporting post or column of a carport, deck, veranda, landing, stairs or ramps. Eaves and overhangs, tanks, chimneys, unroofed pergolas and sun blinds are excluded.

For planning purposes, it is assumed that the McArthur Forest Fire Danger Index (FDI) is 50. This defined FDI may not cover the worst case exposure at a site, and even strict adherence to the mandatory and other recommended specifications will not guarantee that structures will not be ignited by bushfire.

Performance-Based Design Brief (PBDB)

Objective

The intention is to ensure that adequate setback distances from fire in nearby unmanaged vegetation are provided for the construction of a Class 1a building.

Table 2.6 in AS 3959 provides specifications for recognised vegetation types and slope classes in 5º increments up to a value of 20º only, showing the combinations of setback distance and construction level generally regarded as providing acceptable levels of fire resistance. AS 3959 specifies (in Appendix B, Method 2) the methodology by which fire behaviour and resultant radiant heat output are calculated, and permits more refined calculations for precise slope values and for local, rather than generic, fuel load values.

In addition, the work of Alexander (*ibid*) allows calculation of the width of fires relative to the length of the fire run. In this setting, a fire approaching from the S would have a maximum run length of 17m. At a length:breadth ratio of 5.4:1, the width of the front of such a fire would be say 3m. From the east the run would be 21m long, becoming up to 4m wide.

A fire in a nominal Forest or similar fuel will take several minutes to reach its equilibrium spread rate and other characteristics such as flame height. An established fire would be expected to cover of the order of 800m per hour (13 metres per minute), or to take about 1.5 minutes to travel 20m. Such a fire would be involving the full surface and near-surface litter layer, the low shrubs and bark, and the canopy fuels. The most vigorous behaviour of an embryonic fire consuming only the surface litter and (after 20m) perhaps staring to involve the lowest component of the near-surface growth could best be quantified by assuming only the presence of the w value fuels from which to derive both flame length and intensity.

I have written an Excel spreadsheet which performs the calculations specified in the Standard.

The approved PBDB protocol requires that the relevant stakeholders agree on the required outcome and the means by which proposed solutions will be assessed.

Relevant stakeholders

The relevant stakeholders in this case include Tasmania Fire Service, the property owner, the designer (Daniel Bastin), the Building Surveyor (Trident), and the bushfire hazard practitioner. All have approved the proposed approach.

When applying a Method 2 analysis, the entire mathematical procedure is as specified in the Standard. Only if an acceptable outcome (a sufficiently low BAL rating) cannot be achieved is there any need or scope for subjective inputs.

The Building Surveyor has no role in carrying out the Method 2 analysis, but has responsibility for ensuring that the design and its processes properly reflect building regulations.

The building designer has no role in carrying out the Method 2 analysis, but is content to be given the design parameters (design to BAL-xx specifications in the Standard) resulting from the process. The property owner has no particular input in this case, being content to be guided on how to build to the acceptable standard.

Agreed input data

Nearby vegetation types are assessed by the application of the standard tables and methodology specified in AS 3959. In this case the initial rating is modified Forest, using the w and W values of 13.5 & 23.5 from Marsden-Smedley, however the inability of the fire achieve equilibrium behaviour in the first few minutes since ignition the more reasonable w & W values are both 12.5. The flame front widths are 3 & 4m, per Alexander. The applicable slopes are zero (being upslope only over the first 4-6m of each fire run), and setback distances between adjacent vegetation and the proposed works were assessed by direct measurement on site.

DTS departures and relevant Performance Requirements

The applicable requirements are provided in the *Director's Determination – Requirements for Building in Bushfire-prone Areas (transitional)* v2.3. (DDRBBPA).

DtS provision	DtS compliance	Relevant performance requirement
3(3) Design & Construction	4.1(1)(b) Design will comply with DtS	3(3) – construction, as this is relevant to separation 3(4)(c) – appropriate separation from the hazard
3(4)(a) Property Access	4.2 Will comply with DtS	-
3(4)(b) Water Supply	4.3 Will comply with DtS	-
3(4)(c) Hazard Management Area	HMA will comply with DtS Table 4.4 B but not with AS 3959 Table 2.6.	3(4)(c) – appropriate separation from the hazard. 3(3) – construction, as this is relevant to separation.

Assessment Methods

The Performance Solution will demonstrate equivalence to the already approved standards of siting and construction for the existing dwelling.

The proposed NCC Assessment Methods under A2G2(2) are:

- (b)(ii) - Other Verification Method, being AS 3959 Method 2 calculations to determine the minimum separation required to achieve no worse than a BAL-19 exposure.

Calculations as per Method 2 in AS 3959 have been made, and show that setbacks corresponding to a BAL not greater than 19 at the building site can be applied.

Acceptance Criteria

The proposed Acceptance Criteria are

- Construction to BAL-19 specifications,
- Separation sufficient to mitigate radiant heat flux to <=19kWm^2,
- Separation exceeding the 6.38m flame length calculated to arise solely from fire in surface litter

Documentation and evidence to be provided

The following documentation will be provided to the building surveyor:

- Bushfire hazard management plan
- Bushfire hazard report that complies with Bushfire Hazard Advisory Note 4 and A2G2(4)(d) and includes:
    - Method 1 assessment;
    - Method 2 assessment calculations.
- Detailed design documentation demonstrating compliance with the design BAL (to be provided by designer).

Assessment

Hazard Management Area

The radiant heat flux from fire at 6.4m in the longer run (east) is 15.02kWm^{-2}, within the BAL-19 range. The radiant heat flux value at 6.4m from the shorter run (from the south) is 11.73kWm^{-2}.

Comparative DtS Table 2.6 outputs using comparable fuel loads in Woodland (15, 25) or Shrubland / Low heath (15,15) give required BAL-19 setbacks of 15m & 13m, for exposure to flame front widths of 100m.

The HMA corresponding to a BAL-19 determination based on radiant heat flux is shown on the plan at Annexure B. For the protection of the house on site and adjacent dwellings, the HMA applies to the entire lot.

No trees or other vegetation on the site need to be removed or pruned in order to create/maintain an acceptable HMA. Grass on the site has to be kept mown up to the property boundary, but protection is not dependent on any vegetation management on Council land off-site.

BAL ratings

The exposure will be to BAL-19, and the proposal will comply with all construction and siting requirements.

Construction specification

All new works must be constructed in accordance with sections 3 and 6 of AS 3959. I recommend that non-combustible leaf guard be fitted to every roof gutter.

Water

As no suitably close fire hydrant exists, DDRBBPA Table 4.3B applies, and will be satisfied by installation of a metal tank with 10kl of capacity reserved for fire fighting. A remote outlet will be provided, with a suitably protected standpipe plus signage and fittings beside turning and hardstanding as detailed in Annexure C.

Access

The lot is in a reticulated area, and while there is direct access via a 4m wide carriageway to Derwent Ave, the closest hydrant is located over 150m away. The remote outlet from the reserved tank to be located within 3m of a tanker parked on hardstanding at the turnaround on site will comply with the requirements of Table 4.2 A.

Conclusion

The performance provisions of the relevant regulatory documents and instruments will be met by adherence to the points in this report. The hazard separation distances to be achieved **and maintained** in accordance with the plan for the Hazard Management Area, combined with construction to the recommended BAL-19 specifications, will provide what is regarded as an acceptable protection against the anticipated exposure to bushfire attack. Under bushfire weather conditions that exceed the design criteria, the probable survival of structures is less likely.

Summary of requirements

Initial checklist

1. Complete construction to the specifications in sections 3 and 6 of AS 3959-2018.
2. Create the Hazard Management Area as prescribed in Annexure C, to the dimensions shown in Annexure B. In particular, keep nearby lawn mown to less than 50mm, and to the extent possible, keep it green by regular watering.
3. Install a metal tank with 10kl capacity reserved for fire fighting, plus an outlet with the specified fittings and signage beside the hardstanding. Fill the tank with water.

Annual checklist

1. Maintain the Hazard Management Area as prescribed in Annexure C, to the dimensions shown in Annexure B. In particular, keep the nearby lawn mown to less than 50mm, and to the extent possible, keep it green by regular watering.
2. Ensure the tank is full and all fittings function correctly.

Annexure A Curriculum vitae

Qualifications

Graduate Certificate in Bushfire Protection, UWS, 2013

Bachelor of Science (Forestry), ANU, 1969

Work Experience

Self-employed consultant – 1988 to present

ACT Bush Fire Council

Chief Fire Control Officer – 1986 to 1987

Secretary – 1985

Chief Fire Control Officer -1976 to 1978

Deputy Chief Fire Control Officer – 1972 to 1975

Assistant to Chief Fire Control Officer - 1970 to 1971

CSIRO

Senior Research Officer, Project Aquarius 1982 to 1984

Chemonics Industries USA 1979 to 1981

Field Service Representative, chemical fire retardants

Project Experience

- Responsible for all aspects of staff administration, finance, bush fire safety planning, fire management, training, and fire control operations in the ACT.
- Attended approximately 2000 wildfires, experimental fires and controlled burns.
- Attended to an additional approximately 1000 wildfires.
- Personally prepared approximately 3000 compliance reports to accompany Development Applications for subdivisions, Special Purpose structures, houses, industrial buildings and Defence complexes.
- Prepared assessments for 31 schools in the Nation-Building Program for the Dept of Education, Employment & Workplace Relations.
- Gave evidence in the Land & Environment Court on contested DA matters.
- Prepared Vegetation Management Plans for large (primarily Defence) estates throughout Australia.
- Prepared training plans and the Bushfire Response Action Plan for Puckapunyal Base, Dept of Defence.
- Provided studies of bush fire behaviour to assist planning and risk management by plantation insurance companies, Councils and other land management agencies.
- As an Expert Witness, investigated, reported on and gave evidence in 47 matters involving fire causation and fire management activities, mainly in connection with civil litigation.
- As Senior Research Officer, assisted in the experiment design and data analysis and responsible for all field operations for Project Aquarius, the major study of large aircraft assisted bush fire control by CSIRO Division of Forestry Research.
- As a field representative for Chemonics Industries in the USA, maintained and oversaw the operation of all of the US Forest Service air tanker bases in Washington & Oregon, and introduced the use of fire retardants by ground application for fire management in the western states.
- Lectured in bush fire behaviour and control principles at the ANU and the Canberra College of Advanced Education (now University of Canberra).
- Wrote the bush fire training module for the ACT Fire Brigade.
- Prepared the first urban-rural interface bush fire protection planning guidelines in the ACT for the National Capital Development Commission.

Annexure B Bushfire Hazard Management Plan

Lawn or equivalent and isolated shrubs and trees over the entire site, as indicated in Annexure C.

BUSHFIRE HAZARD MANAGEMENT PLAN

48 Derwent Ave, Margate

Property ID 1860934 Title 130032/1

Report 2511DAN.MAR.DER1.0
Roger Fenwick BFP 162 Scope 1, 2, 3A, 3B

29 January 2026

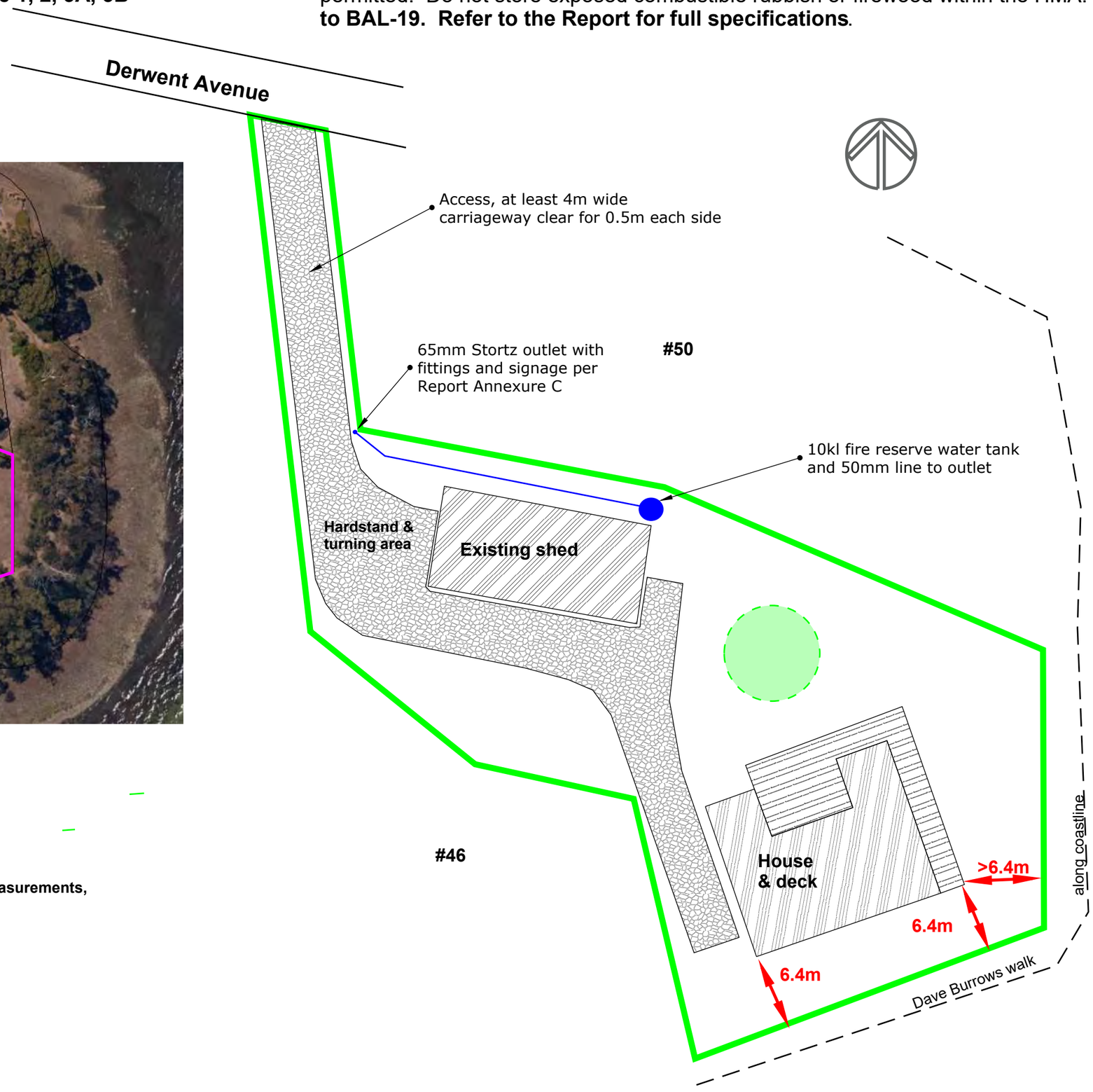
The Hazard Management Area covers the entire lot, outlined in solid green

Within the HMA maintain lawn to 50mm, kept green if possible, or garden with only isolated trees pruned to 2m. Scattered shrubs at least 2m from walls & 5m from windows, and not beneath trees, are permitted. Do not store exposed combustible rubbish or firewood within the HMA. **New construction to BAL-19. Refer to the Report for full specifications**.

Property boundary

0 5 10 15 20 25

The scale bar is inexact. Rely on indicated measurements, text in the report, and architectural plans only



Annexure C Management specifications

Hazard Management Areas

The intent is to maintain the Hazard Management Area in a condition that will not allow the development or passage of fire able to ignite structures through radiant heat or flame contact. In addition, providing protection against ember attack is highly desirable. Much of the aim is to limit the intensity of the approaching fire to a level which can be absorbed without damage by the passive protection measures included in the house construction. The materials used have been chosen to (probably) not be ignited (eg walls) or be sufficiently heat-affected to break (eg windows) during the passage of the fire. It is assumed that nobody will necessarily be present during the passage of the fire, so that the structure will hopefully survive by itself. Heat from the head of the approaching fire will probably be at its peak for around 5 minutes, but embers, smoke and uncomfortably high heat will continue for around an hour or so. Attendance by suitably clothed, trained, fit and able-bodied people with appropriate equipment immediately after passage of the fire increases the likelihood of the structure surviving, particularly if small local patches have ignited.

Fire must be kept far enough away to limit the radiant heat which will threaten both structures and anyone (homeowners, fire-fighters) in the path of the fire. Basically, fire spreads rapidly in surface litter and low grassy growth, and develops tall flames in the shrub layer. That makes things difficult for fire-fighters trying to work the fire edge. With enough heat generated by vigorous fire in the shrub and sapling (understorey) layers, the fire flame height will increase, and involve the crowns of the overstorey trees. Flames also run up the bark of many fibrous-barked eucalypt species, adding to the overall heat output but primarily creating showers of embers.

Limiting fire behaviour is achieved by separating the various vegetation components both vertically and horizontally. Less surface litter will result in a slightly slower-moving fire, putting out less heat and therefore slower to ignite the shrub layer. Partial removal of the shrub layer significantly reduces the low-level flame height, making it easier for fire-fighters to work near the fire edge, and becoming less likely to ignite the sapling layer. Keeping the shrub and sapling layer fire intensity low means that fire is unlikely to move into the canopy of the overstorey. That is a crown fire, and is completely uncontrollable by any means.

Limiting ember production is best achieved by not having rough-barked species nearby, or by removing the loose outer bark layer before fire gets near.

Protecting against ember attack relies largely on proper construction material selection, and good design that will not trap embers or the litter on which they may land and ignite. Properly screened openings are essential, but good plant selection and layout can create an ember shield, to deflect or trap embers approaching the house. Remember that embers will also accumulate in the sheltered side, in the eddy zone behind the house. Anywhere leaves accumulate, so will embers.

It is essential to keep even low creeping flames from contacting walls of the house. Maintain a path at least 30cm wide completely clear of all flammable material immediately between the garden/ lawn area – a concrete or gravel path, bare soil, whatever – and the house.

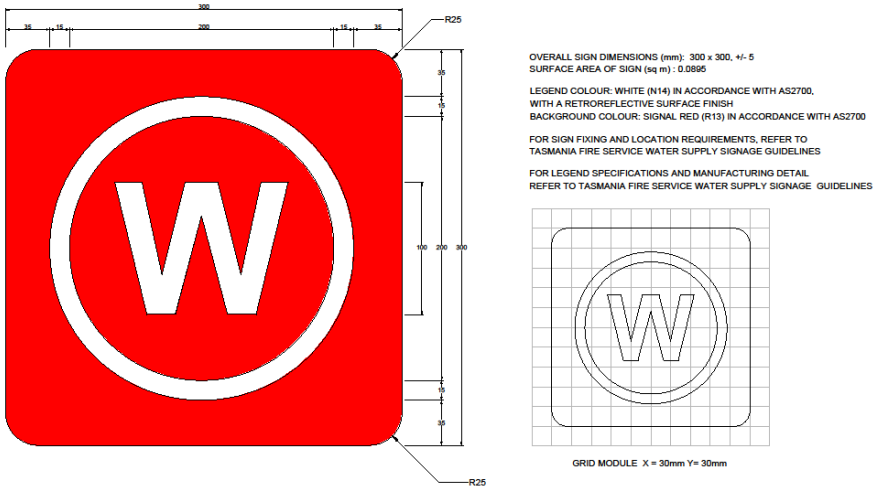
The HMA is to be kept in a substantially cleared condition, with mown lawn and only occasional scattered low-flammability ornamental shrubs, garden plants and the like.

- Immediately beside the house there must be a strip not less than 30cm wide which is kept bare of any combustible material.
- Grass must be kept mown to not more than 50mm in height, and should be kept watered and green within 5m of a wall.
- Shrubs should not be located within 2m of a wall, or within 5m of a window.
- Avoid using combustible mulch within 2m of a window and within 1m of a wall – use pebbles instead in these settings.
- Trees are to be kept well-spaced, with one crown diameter between canopy crowns,
- Shrubs to 1.5m height (or shrub clusters, to 2m diameter) should have 5m between them. (If trees have a 10m diameter canopy, there should be 10m between their canopies, ie 20m

between trunks. Similarly, a 2m diameter cluster of shrubs should not be within 5m of other shrubs.

- Favour smooth-barked over rough-barked trees, and low-flammability species.
- Prune all tree branches to a height of 2m.
- Shrubs should not be located directly under trees.
- Don't have open woodpiles or locate rubbish heaps within the HMA.

Water tank signage meeting the requirements of AS 2304-2011 or as per the design below, is required. The sign must be within 1m of the location of the outlet, at least 400mm above ground level, located to be visible from an approaching vehicle, and not obstruct access to the outlet.



All above-ground components must be metal, or lagged with non-combustible material. Buried components must be not less than 300mm deep.

An underground tank must have a removeable cover not less than 250mm diameter. The bottom of the tank must not be more than 2m below the level of the ground on which the drafting tanker is parked.

The (not less than 50mm bore) outlet and ball or gate valve must be

- on the water storage tank, or
- beside an approved remote takeoff point located in a protected position, 450-600mm above ground and supplied by a pipe not less than 50mm internal diameter,

so that all parts of the building are within 90m of the outlet.

Water takeoff points must be fitted with a Storz 65mm coupling and suction washer, plus a blank cap on a chain at least 220mm long. They must not be within a parking area, and must be accessible from a hardstanding area located within 3m of the take-off point and not closer than 6m to the building.

The hardstanding area must be at least 3m in width, and connected to the general access driveway, and be constructed so that when occupied by a tanker, the tanker will not obstruct the passage of other vehicles. A tanker must have direct access from the hardstanding to a turning T or Y with arms 4m in width and 8m in length.

Annexure D Form 55 Certificate

CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

To: A & D Braddock *Owner /Agent*
48 Derwent Ave *Address*
Blackmans Bay 7052 *Suburb/postcode*

Form **55**

Qualified person details:

Qualified person: Roger Fenwick
Address: PO Box 86B
Kettering 7155
Phone No: 0411 609 906
Fax No:
Licence No: BFP-162
Email address: roger@bushfire-consultant.com.au

Qualifications and Insurance details: Accredited No 162 under the Fire Service Act 1979
Professional Indemnity & Public Liability insurance by Lloyd's
(description from Column 3 of the Director's Determination - Certificates by Qualified Persons for Assessable Items

Speciality area of expertise: Analysis of hazards in bushfire-prone areas
(description from Column 4 of the Director's Determination - Certificates by Qualified Persons for Assessable Items)

Details of work:

Address: 48 Derwent Ave
Margate Tas 7054
Lot No: 1
Certificate of title No: 130032

The assessable item related to this certificate: Assessment of bushfire attack level for construction of a Class 1a

(description of the assessable item being certified)
Assessable item includes –
- *a material;*
- *a design*
- *a form of construction*
- *a document*
- *testing of a component, building system or plumbing system*
- *an inspection, or assessment, performed*

Certificate details:

Certificate type: Bushfire hazard assessment
(description from Column 1 of Schedule 1 of the Director's Determination - Certificates by Qualified Persons for Assessable Items n)

This certificate is in relation to the above assessable items, at any stage, as part of – *(tick one)*

☒ building work, plumbing work or plumbing installation or demolition work

OR

☐ a building, temporary structure or plumbing installation

In issuing this certificate the following matters are relevant –

Documents:	Bushfire Hazard Assessment Report dated January 2026 including Bushfire Hazard Management Plan dated January 2026 AS 3959-2018 *Construction of buildings in bushfire-prone areas* Plans by Daniel Bastin, Systembuilt
Relevant calculations:	Method 2 calculations, shown in above documents
References:	N/A

Substance of Certificate: *(what it is that is being certified)*

A bushfire assessment and management plan for proposed new construction, in accordance with BAL-29 construction standard of AS 3959-2018.

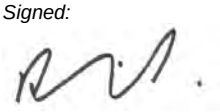
Scope and/or Limitations

A Bushfire Hazard Assessment was commissioned by D Bastin to identify the potential bushfire risk and BAL rating, and to recommend appropriate compliance and protection measures.

Limitations: The proposed measures comply with the guidelines. Full compliance with the requirements in this report and/or AS 3959-2018 does not guarantee survival of structures or persons.

Performance Solution elements must be certified by TFS via a Form 47.

I certify the matters described in this certificate.

Signed:	*Certificate No:*	*Date:*
	2511DAN.MAR.DER1.0	29 January 2026

Qualified person:

Annexure E Site plans

BASMAR 28 Derwent Ave, Margate listlocsite

Derwent Avenue

Pipe under

I.Bar 5.03

Star 5.05

Spike 5.04

Ridge 9.71

Gutter 7.90

Spike 4.38

Ridge 8.37

Gutter 8.67

Spike 4.56

4
2,919m²

Power pole not in use

Peg 4.51

Pipe

Site Datum
TBM Spike
RL @ 4.30

Spike 4.49

Nail in concrete 4.93

7.87
29.50
51.02
31.89
42.01
20.97
17.00
26.54
27.16
28.60
10.20

LEGEND

- Water Meter
- Communication Pit
- Power Pole
- Stake/Star
- Site Datum
- Boundary Peg/Mark
- Tree
- Property Boundary
- Fence
- Vegetation
- House
- Shed
- Concrete
- Bitumen
- Footpath
- Gravel
- Photo Location

PHOTO 1

PHOTO 2

NOTES:

This plan and associated digital model is prepared for Emac SystemBuilt from a combination of field survey and existing records for the purpose of designing new constructions on the land and should not be used for any other purpose.

The title boundaries as shown on this plan were not marked at the time of the survey and have been determined by plan dimensions only and not by field survey. No measurements or offsets are to be derived between the features on this plan and the boundary layer. The relationship between the features in this model and the boundary layers cannot be used for any set out purposes or to confirm the position of the title boundaries on site.

Due to the nature of the title boundary information, if any structures are designed on or near a boundary we would recommend a re-mark survey be completed and lodged with the Land Titles Office to support the boundary definition.

Services shown have been located where visible by field survey. Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

This note forms an integral part of the Plan/Data. Any reproduction of this plan/model without this note attached will render the information shown invalid.

0 10.0 20.0 30.0 40.0 50.0 metres

SCALE - 1 : 500

HORIZONTAL DATUM is MGA2020, Coordinates are Plane
Coordinate Origin: TBM Spike
E 522228.633 N 5234474.108 PER RTK GPS

REV	AMENDMENTS	DRAWN	DATE	APPR.
E				
D				
C				
B				
A				

ROGERSON & BIRCH SURVEYORS
UNIT 1, 2 KENNEDY DRIVE
CAMBRIDGE 7170
PHONE: (03)6248 5898
EMAIL: admin@rbsurveyors.com
WEB: www.rbsurveyors.com

Contour & Detail Plan

FOR: Emac System Built

LOCATION: 48 Derwent Avenue, **Margate.**

Date:	Contour interval:	Reference:
25/11/2025	0.100m	**EMAC181** 16585
Drawn:	**Scale:**	**Bearing Datum: MGA2020 per**
SM	1:500 (A3)	487/110
Approved:	**Title Reference:**	**Vertical Datum:**
SM	130032/1	AHD83 per SPM9812

Construction and materials in accordance with current NCC requirements and all relevant Australian Standards - See General Notes
Construction in accordance with AS3959 = BAL TBA

DRAFT

7.87 m
29.50 m
51.02 m
TFS REMOTE UPTAKE POINT
31.89 m
FIRE TANK
TFS TURNING AREA
EXISTING SHED
42.01 m
WASTEWATER AREA 300m² MINIMUM
TREE TO REMAIN
10742
14563
16144
COVERED DECK AREA
STORMWATER
27.16 m
20.97 m
17.00 m
6969
PROPOSED DWELLING
8714
11086
6400
26.54 m
SEPTIC TANK
8482
6458
6400
28.60 m
10.20 m

0 4 8 12 16 20 40
GRAPHIC SCALE: 1:400

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WARNING:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COMPLETE DBYD AND WORK WITH AUTHORITIES TO LOCATE ALL UNDERGROUND SERVICES.

General Notes
Do not scale plans, use written dimensions only. The owner/builder subcontractor shall verify all dimensions, levels, setbacks and specifications prior to commencing works or ordering materials and shall be responsible for ensuring that all building works conform to the current NCC and Australian standards, building regulations and town planning requirements.
Report any discrepancies to this office.

systembuilt designed for living
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Alan & Dinah Braddock
48 Derwent Ave, Margate
Braddock Residence

SITE PLAN

Project number	7014		2 A-01
Drawing Status	Site		
Current Revision	13/01/2025	R7	Scale on A3 1 : 400

13/01/2026 8:39:52 AM

AS 3959 Method 2 calculations								
Address	**48 Derwent Road, Margate**							
PID	**1860934**		**Title ref**	**130032/1**				
	Inputs	derived figures	outputs					
FDI	50	w	ros (kph)					
Vegetation	D	12.5	0.8					
Veg Slope				degrees	0	Forest	F	
HMA slope	0		F length	degrees	0	Dry Tasmanian Forest	D	
HMA width	6.4	R slope	6.4			Rainforest	R	
		0.8	6.4	Elevation receiver	2	Woodland	W	
Flame width	4	W	0.0			Low heath	L	Shrubland
		12.5	0.0			Heath	H	Scrub
			0.0			Grass	G	
			0.0			forest wetland	fw	
			0.0			tussock moorland	tm	
			0.0					
			0.0					
		R (slope)	F length	Intensity (kWm^{-1})		Radiation	15.02	kWm^{-2}
Forest & Woodland		0.75	6.38	4844				
Shrub, Heath, Scrub		0.75	3.8	4844		temp (1090, 1200)	1090	
Grass		0.75	2.6	4844				
flame angle	60							
The variable inputs to this spreadsheet appear in the yellow-highlighted boxes.								
The derived values w and W are as they appear in AS 3959, apart from individually allocated figures for D vegetation types,								
taken from Marsden-Smedley *et al* , Fuel in Tasmanian Dry Eucalypt Forests, Fire 2022, 5, 103. Table 4							litter only	
The usual output is Radiation in kWm^{-2} but the program can be forced to find input values matching a desired outcome.								
Simulations of the shielding effect of fences are made by manually adjusting the F length value								
If that has been done, the two F length columns will show mis-matching numbers for the vegetation type								