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Form 2

NOTICE OF AN APPLICATION FOR PLANNING PERMIT

The land affected by the application is located at:	**166 Great Alpine Road BRUTHEN 3885 Lot: 1 PS: 411137**
The application is for a permit to:	**Two Lot Subdivision and Creation of Access to a road in a Transport Zone 2**
The applicant for the permit is:	**Development Solutions Victoria Pty Ltd**
The application reference number is:	**5.2024.280.1**

You may look at the application and any documents that support the application free of charge at: https://www.eastgippsland.vic.gov.au/building-and-development/advertised-planning-permit-applications

You may also call 5153 9500 to arrange a time to look at the application and any documents that support the application at the office of the responsible authority, East Gippsland Shire. This can be done during office hours and is free of charge.

Any person who may be affected by the granting of the permit may object or make other submissions to the responsible authority.

An objection must

- **be made to the Responsible Authority in writing,**
- **include the reasons for the objection, and**
- **state how the objector would be affected.**

The responsible authority must make a copy of every objection available at its office for any person to inspect during office hours free of charge until the end of the period during which an application may be made for review of a decision on the application.

The Responsible Authority will not decide on the application before:	**Subject to the applicant giving notice**

If you object, the Responsible Authority will tell you its decision**.**

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DEVELOPMENT SOLUTIONS VICTORIA
PLAN | CONNECT | FACILITATE

Our Ref: 24045

23rd August 2024

Robert Pringle
East Gippsland Shire Council
Statutory Planning Coordinator
PO Box 1618
Bairnsdale Vic 3875

Dear Robert,

Re: Application for a Planning Permit
166 Great Alpine Road, Bruthen
2 Lot Subdivision and Creation of Access to a Transport Zone

Please find attached an application for planning permit with the following:

- Application for Planning Permit Form
- Planning Submission
- Proposed Development Plans
- Current Copy of Title
- Clause 56 Integrated Water Management
- Geotechnical Risk Assessment Waiver
- Land Capability Assessment
- Bushfire Management Plan

Should you require any further information, please do not hesitate to contact our office on 03 5152 4858.

Regards

Campbell

Courtney Campbell
Development Solutions Victoria

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REGISTER SEARCH STATEMENT (Title Search) Transfer of Land Act 1958

VOLUME 10394 FOLIO 828

Security no : 124117190733W
Produced 05/08/2024 04:22 PM

LAND DESCRIPTION

Lot 1 on Plan of Subdivision 411137F.
PARENT TITLE Volume 08440 Folio 339
Created by instrument PS411137F 29/07/1998

REGISTERED PROPRIETOR

Estate Fee Simple
Sole Proprietor
ROBYN KAY EDWARDS
W695432E 30/03/2000

ENCUMBRANCES, CAVEATS AND NOTICES

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988 and any other encumbrances shown or entered on the plan set out under DIAGRAM LOCATION below.

DIAGRAM LOCATION

SEE PS411137F FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NIL

----------END OF REGISTER SEARCH STATEMENT----------

Additional information: (not part of the Register Search Statement)

Street Address: 166 GREAT ALPINE ROAD BRUTHEN VIC 3885

ADMINISTRATIVE NOTICES

NIL

DOCUMENT END

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PLAN OF SUBDIVISION

STAGE No. /

LTO USE ONLY
EDITION 1

PLAN NUMBER
PS 411137F

LOCATION OF LAND

PARISH: TAMBO

TOWNSHIP: ——

SECTION: A

CROWN ALLOTMENT: 11 (PART)

CROWN PORTION: ——

LTO BASE RECORD: LITHO
TITLE REFERENCES: VOL 8440 FOL 339

LAST PLAN REFERENCE/S:

POSTAL ADDRESS: GREAT ALPINE ROAD
(At time of subdivision) BRUTHEN

AMG Co-ordinates
(of approx centre of land in plan) E 574400 N 5827800 ZONE: 55

COUNCIL CERTIFICATION AND ENDORSEMENT

COUNCIL NAME: EAST GIPPSLAND SHIRE REF: 97/000/40/PS

1. This plan is certified under Section 6 of the Subdivision Act 1988.
2. ~~This plan is certified under Section 11(7) of the Subdivision Act 1988. Date of original certification under Section 6. / /~~
3. This is a statement of compliance issued under Section 21 of the Subdivision Act 1988.

OPEN SPACE

(i) A requirement for public open space under Section 18 of the Subdivision Act 1988 ~~has~~/has not been made.

~~(ii) The requirement has been satisfied.~~

~~(iii) The requirement is to be satisfied in Stage ~~.....~~

Council Delegate
~~Council Seal~~
Date 9 / 6 / 98

Re-certified under Section 11(7) of the Subdivision Act 1988.
Council Delegate
Council Seal
Date / /

VESTING OF ROADS AND/OR RESERVES

IDENTIFIER	COUNCIL/BODY/PERSON
NIL	NIL

NOTATIONS

STAGING This ~~is~~/is not a staged subdivision.
Planning permit No.

DEPTH LIMITATION 15.24 METRES BELOW THE SURFACE.

LAND BEING SUBDIVIDED IS SHOWN ENLARGED WITHIN THICK CONTINUOUS LINES.

DIMENSIONS SHOWN UNDERLINED THUS 70.07 ARE THE RESULT OF SURVEY.
ALL OTHER DIMENSIONS ARE DEDUCED FROM TITLE.

THE AREA OF LOT 2 HAS BEEN OBTAINED BY DEDUCTION FROM TITLE.

SURVEY. THIS PLAN IS/~~IS NOT~~ BASED ON SURVEY

THIS SURVEY HAS BEEN CONNECTED TO PERMANENT MARKS No.(s) 28 & 74
IN PROCLAIMED SURVEY AREA No.

EASEMENT INFORMATION

LEGEND A - Appurtenant Easement E - Encumbering Easement R - Encumbering Easement (Road)

Easement Reference	Purpose	Width (Metres)	Origin	Land Benefited/In Favour Of
E-1	POWERLINE	SEE DIAG.	THIS PLAN - SECTION 44 OF THE ELECTRICITY INDUSTRY ACT 1993.	EASTERN ENERGY LTD A.C.N. 064 651 118

LTO USE ONLY

STATEMENT OF COMPLIANCE/
EXEMPTION STATEMENT

RECEIVED ✓

DATE 7 / 7 / 98

LTO USE ONLY

PLAN REGISTERED

TIME 11:45

DATE 29 / 7 / 98

Assistant Registrar of Titles

SHEET 1 OF 3 SHEETS

Fisher Stewart

FISHER STEWART PTY. LTD.
Engineers • Surveyors • Development Consultants
137A Main Street, Bairnsdale 3875
P.O. Box 480 Bairnsdale 3875
Tel: (03) 5152 1600 Fax: (03) 5152 1202
Ausdoc: DX 82210 A.C.N. 007 015 965

LICENSED SURVEYOR (PRINT) BRADLEY D. B. FREEMAN

SIGNATURE ..... DATE / /

REF 2370 VERSION A

DATE / /

COUNCIL DELEGATE SIGNATURE

ORIGINAL SHEET SIZE A3

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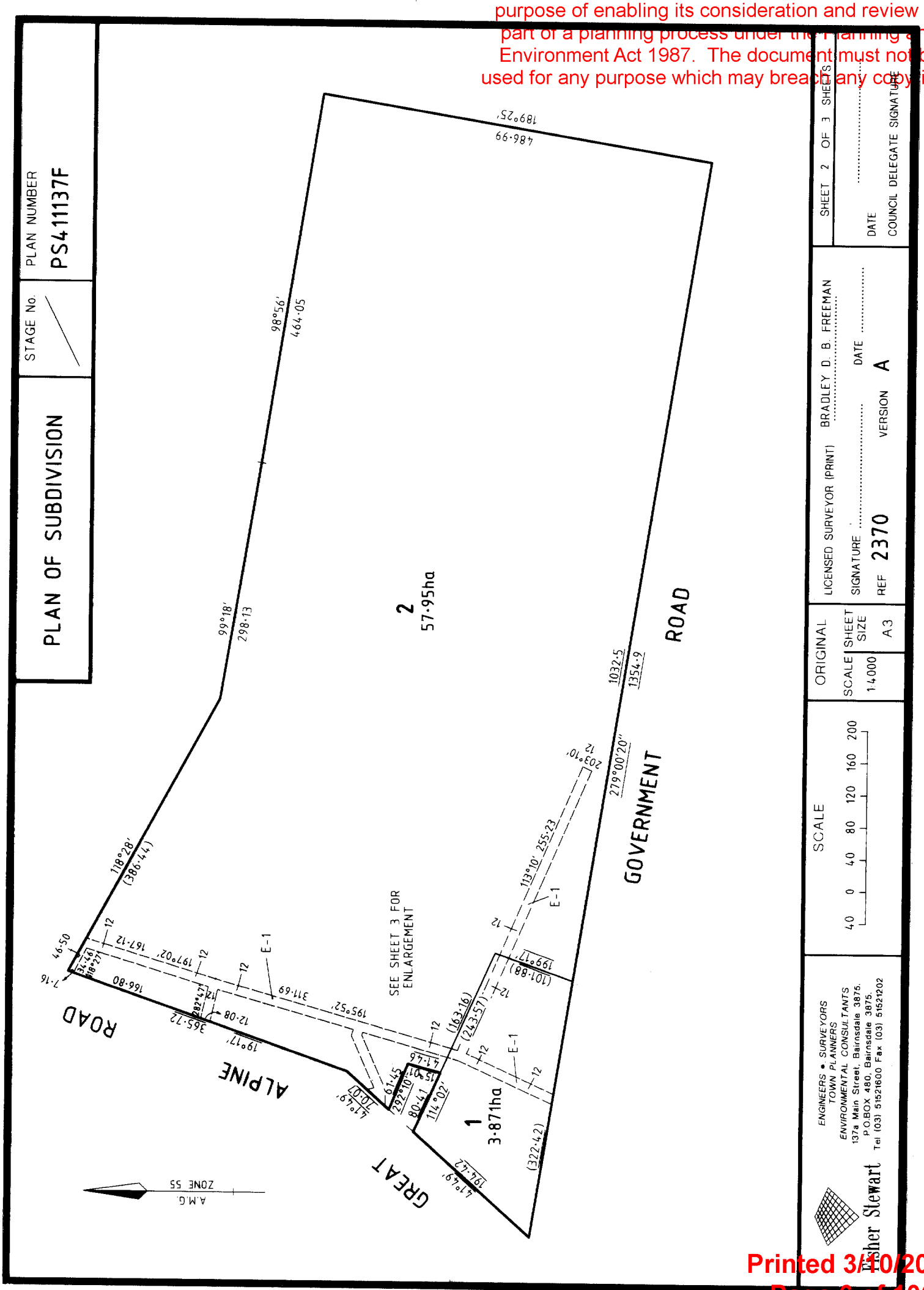

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PLAN OF SUBDIVISION

STAGE No.

PLAN NUMBER PS411137F

SHEET 3 OF SHEETS

DATE / /

COUNCIL DELEGATE SIGNATURE

LICENSED SURVEYOR (PRINT) BRADLEY D. B. FREEMAN

SIGNATURE DATE / /

REF 2370 VERSION A

ORIGINAL SHEET SIZE A3

SCALE 1:2000

SCALE 20 0 20 40 60 80 100

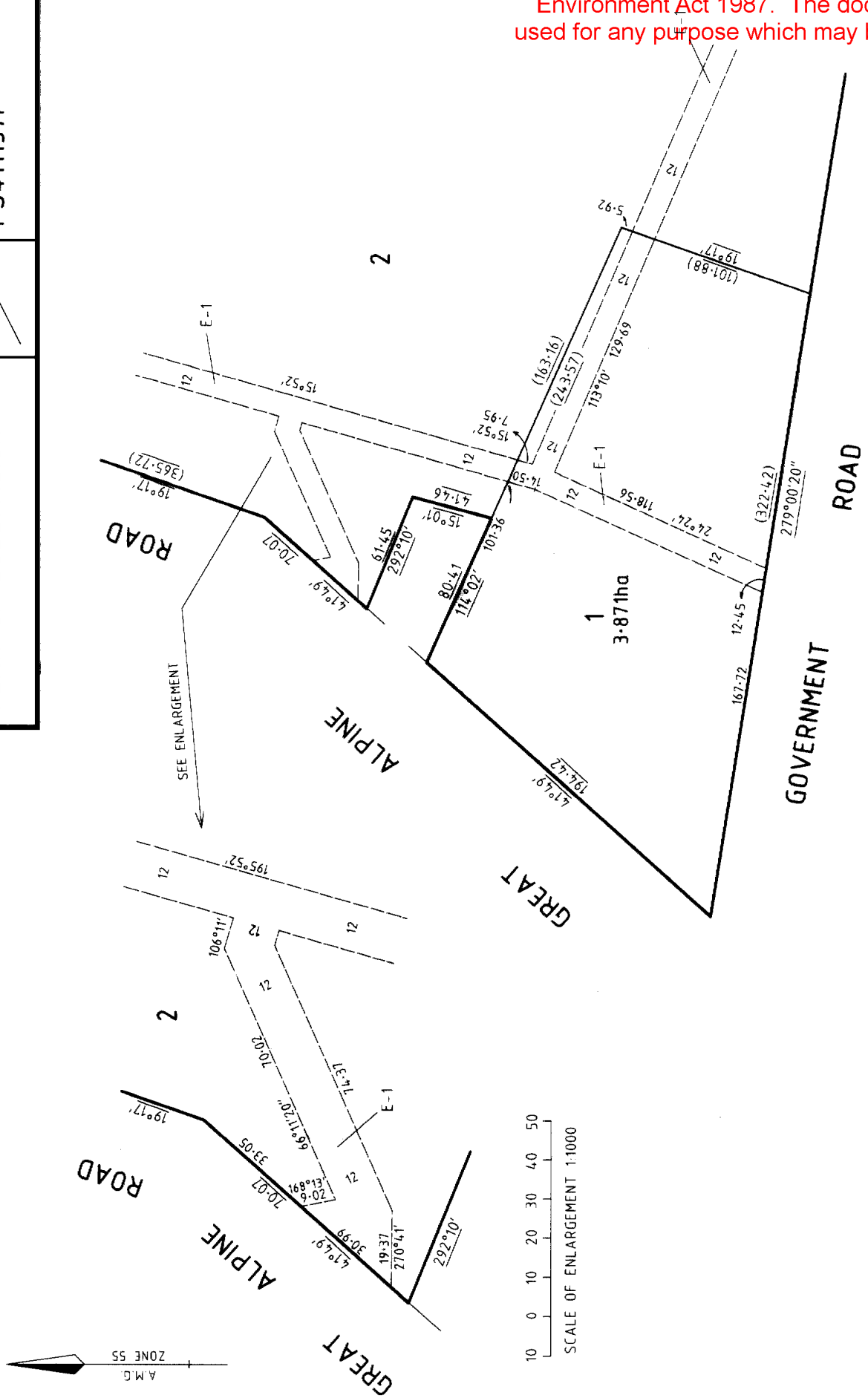
ENGINEERS • SURVEYORS
TOWN PLANNERS
ENVIRONMENTAL CONSULTANTS
137a Main Street, Bairnsdale 3875.
P.O.BOX 480, Bairnsdale 3875.
Tel (03) 5152 1600 Fax (03) 5152 1202

Fisher Stewart

SCALE OF ENLARGEMENT 1:1000

10 0 10 20 30 40 50

A.M.G. ZONE 55



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DEVELOPMENT SOLUTIONS
VICTORIA

APPLICATION FOR PLANNING PERMIT

TWO LOT SUBDIVISION AND CREATION OF ACCESS TO TRANSPORT ZONE

166 GREAT ALPINE ROAD, BRUTHEN
BRETT & ROBYN MILLS
REF: 24045

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CONTENTS

APPENDIX

DOCUMENT REVISION

1	Draft Report	DAC	13/08/2024
2	Final Report	CMC	18/08/2024

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1. INTRODUCTION

Development Solutions Victoria Pty Ltd act on behalf of Brett and Robyn Mills, the applicants for this planning permit application for a Two Lot Subdivision and creation of access to a Transport Zone at 166 Great Alpine Road, Bruthen.

This submission and supporting documentation provide details of the subject site, relevant planning controls and policies and provides an assessment against the provisions of the East Gippsland Planning Scheme.

The proposal is consistent with the objectives of the East Gippsland Planning Scheme, is an appropriate subdivision in this location and will result in positive planning outcome.

Address	166 Great Alpine Road, Bruthen
Site Description	Lot 1 on Plan of Subdivision 411137F
Title Particulars	Vol 10394 Fol 828
Site Area	3.871 hectares
Proposal	Two Lot Subdivision and Creation of Access to a Transport Zone
Planning Scheme	East Gippsland Planning Scheme
Zone	Low Density Residential Zone
Overlays	Bushfire Management Overlay Erosion Management Overlay Vegetation Protection Overlay – Schedule 1
Aboriginal Cultural Heritage	Not identified as an area of Cultural Heritage Sensitivity
Permit Triggers	Clause 32.03-3 Low Density Residential Zone – Subdivision Clause 44.06-2 Bushfire Management Overlay – Subdivision Clause 44.01-5 Erosion Management Overlay – Subdivision Clause 52.29-2 Land Adjacent to the Principal Road Network – Permit Requirement
Notice	Exemption available at 44.01-7, 44.06-7 and 52.29-5
Referrals	CFA, Department of Transport
Work Authority Licence	Not applicable
Planning Scheme requirements	Municipal Planning Strategy – Clause 02 Settlement – Rural settlements – Clause 02.03-1 Environmental and landscape values – Clause 02.03-2 Environmental risks and amenity – Clause 02.03-3 Built environment and heritage – Clause 02.03-5 Planning Policy Framework – Clause 10 Settlement – Clause 11 Environmental and landscape values – Clause 12 Environmental risks and amenity – Clause 13 Erosion and landslip – Clause 13.04-2S Built environment and heritage – Clause 15 Low Density Residential Zone – Clause 32.03 Bushfire Management Overlay – Clause 44.06 Erosion Management Overlay – Clause 44.01 Land Adjacent to the Principal Road Network – Clause 52.29 Decision guidelines – Clause 56.07 Decision guidelines – Clause 65.01 Decision guidelines – Clause 65.02

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2. SITE CONTEXT

Site

The subject site is located at 166 Great Alpine Road, Bruthen. A copy of the Title and Plan of Subdivision is contained in ***Appendix A.*** The title is not affected by any restrictive covenants or agreements. There is a 12-metre-wide powerline easement extending through the centre of the site and along the eastern potion of the northern boundary.

The site is an irregular shaped allotment with a total area of approximately 3.871 hectares and contains an existing dwelling and associated facilities.

The site is gently undulating in nature, contains scattered vegetation throughout and a dam in the southwestern corner. The site is used for residential purposes. Details of the site are depicted in the photographs provided below.

Access to the site is existing via a gravel crossover and driveway along the western boundary directly from Great Alpine Road. Great Alpine Road is a bitumen sealed Highway with grassed and gravel shoulders, traversing in a northeast to southwest direction.

The boundaries of the site are delineated with a combination of standard rural post and rail and post and wire fencing.

The subject site in relation to Bruthen as well as the surrounding land, is shown in the locality plans in ***Figure 1*** and ***Figure 2***.

Figure 1 *– Locality Plan – 166 Great Alpine Road, Bruthen (source: mapshare.vic.gov.au)*

Figure 2 *– Locality Plan – 166 Great Alpine Road, Bruthen (source: mapshare.vic.gov.au)*

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Surrounds

The land surrounding the site comprises predominantly low density residential development and public land.

Adjoining the northern boundary is land containing existing dwellings and associated facilities. Adjoining the eastern boundary is farming land also containing an existing dwelling and associated facilities. Adjoining the southern boundary is an unmade road reserve being McLeans Road and further land containing an existing dwelling and associated facilities. Adjoining the western boundary is Great Alpine Road, Bruthen State Forest and associated walking trails.

The subject site is located approximately 1.6 kilometres from the central business district of Bruthen.

Bruthen is a highway service centre located on the Great Alpine Road approximately 25 kilometres northeast of Bairnsdale and 30 kilometres northwest of Lakes Entrance.

Bruthen has a population of approximately 800 and has a basic level of community and commercial facilities.

The subject site in relation to Bruthen is shown in the aerial photograph below.

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Photograph 1 *– Aerial Photograph of the subject site and surrounding land – 166 Great Alpine Road, Bruthen (source: dpi.vic.gov.au)*

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Photograph 2 – *Subject site at 166 Great Alpine Road, Bruthen and existing access to proposed Lot 1.*

Photograph 4 – *Existing outbuilding on proposed Lot 1 facing southeast.*

Photograph 6 – *Proposed Lot 1 facing north.*

Photograph 3 – *Existing dwelling on proposed Lot 1.*

Photograph 5 – *Existing paddock shelter on proposed Lot 1 facing east.*

Photograph 7 – *Proposed Lot 1 facing east.*

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Photograph 8 – *Proposed Lot 1 facing southwest.*

Photograph 10 – *Proposed access to Lot 2 facing northeast.*

Photograph 12 – *Proposed Lot 2 facing east.*

Photograph 9 – *Proposed location for access to Lot 2 on Great Alpine Road.*

Photograph 11 – *Proposed Lot 2 facing northeast along the western boundary.*

Photograph 13 – *Proposed Lot 2 facing southeast.*

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Photograph 14 – *Neighbouring property adjoining the northern boundary at 190 Great Alpine Road, Bruthen.*

Photograph 16 – *Property directly opposite the subject site at 161 Great Alpine Road, Bruthen.*

Photograph 18 – *Great Alpine Road facing northeast*

Photograph 15 – *Neighbouring property adjoining the southern boundary at 144 Great Alpine Road, Bruthen*

Photograph 17 – *Unconstructed road reserve adjoining the southern boundary of the subject site*

Photograph 19 – *Great Alpine Road facing southwest.*

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3. THE PROPOSAL

This application seeks approval for the subdivision of the land into two lots and creation of access to transport zone. A proposed plan of subdivision is provided in ***Appendix B.***

Lot 1

The proposed Lot 1 will be irregular in shape and will be approximately 3.275 hectares in area. This lot comprises the northeastern portion of the site and will contain the existing dwelling and associated facilities. This lot will have a 129.73 metre frontage to the Great Alpine Road.

Access to this allotment is existing in the northern portion of the western boundary directly from Great Alpine Road and will remain unchanged.

Lot 2

The proposed Lot 2 will be irregular in shape and will be approximately 5,958m^2. This lot will be vacant land and comprise the southwestern portion of the site, containing the existing dam and proposed building envelope. This lot will have a 65.43 metre frontage to the Great Alpine Road.

Access to this allotment is proposed in the southern portion of the western boundary directly from Great Alpine Road, also identified as a Transport Zone 2.

Services

The subject site has access to an appropriate level of services including reticulated water, electricity, telecommunications and a good quality road network.

Wastewater will be treated and retained within the boundaries of proposed Lot 2.

A Land Capability Assessment is contained in ***Appendix E.*** Each of the proposed allotments will be connected to all available services.

It is requested that formal drainage plans be a requirement on any planning permit to be granted.

A copy of the proposed subdivision is provided below and in ***Appendix B.***

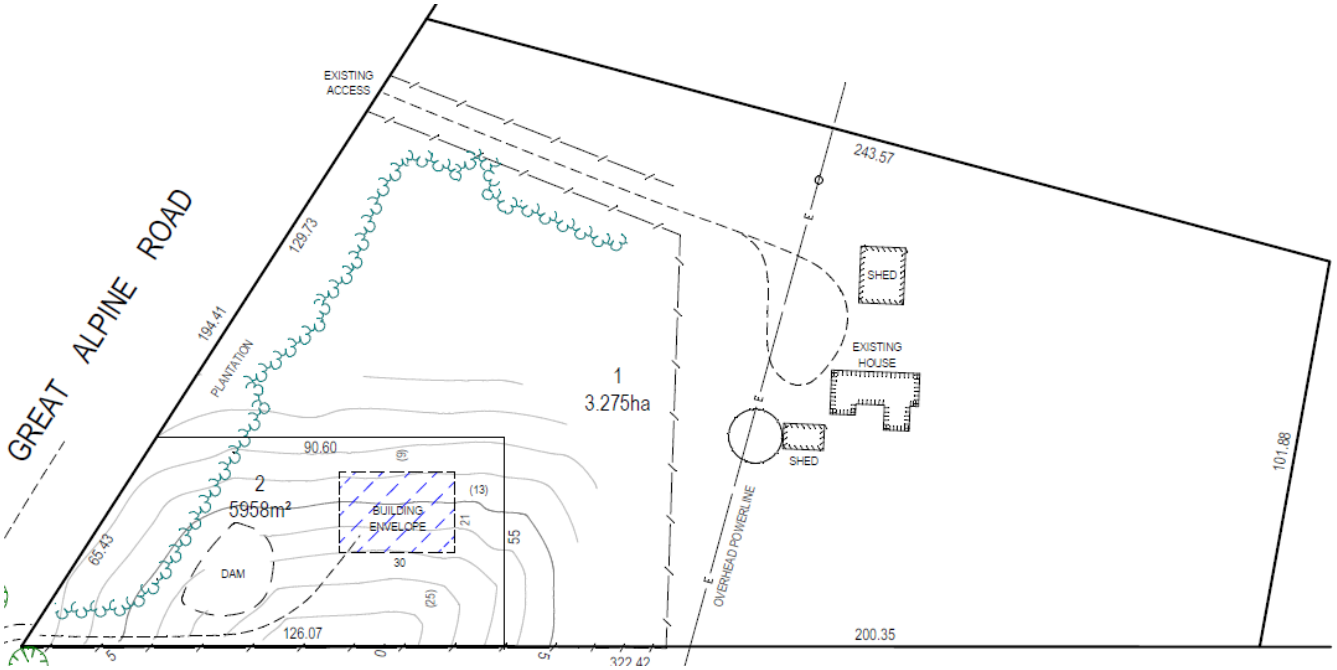

Figure 3 – *Proposed Plan of Subdivision – Austec Surveying*

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Access

The proposed subdivision requires creation of access to a Transport Zone being the Great Alpine Road.

In the south western portion of the site there is an existing cleared area providing the most appropriate location for access. The new access driveway will connect to an existing point of access to the Great Alpine Road as utilised by the adjoining 144 Great Alpine Road. This point of access is at the intersection of Great Alpine Road and McLeans Road.

The proposed construction standard of the driveway and point of access to the Great Alpine Road will be in accordance with the requirements of the responsible authority.

No vegetation removal is required to facilitate the proposed subdivision. It is not expected that any vegetation removal will be required for the boundary fencing, however as the vegetation within the boundary is planted, it would be exempt from the need to obtain a permit.

No earthworks are required beyond construction of a new access point for proposed Lot 2.

The proposed subdivision can achieve a BAL29 rating, a Bushfire Management Report and Bushfire Management Plan is contained in ***Appendix F***.

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4. ZONES AND OVERLAYS

Low Density Residential

The purpose of the Low Density residential is:

- *To implement the Municipal Planning Strategy and the Planning Policy Framework.*
- *To provide for low-density residential development on lots which, in the absence of reticulated sewerage, can treat and retain all wastewater.*

An extract of the Low Density Residential Map is provided in ***Figure 4.***

Clause 32.03-3 provides a permit is required to subdivide land. Each lot must be 0.4 hectare as there is no reticulated sewerage available. The proposed lots will be greater than 0.4 hectare.

The relevant decision guidelines of the Low-Density Residential Zone are addressed in Section 6 of this submission.

The relevant provisions of Clause 56.07-1 to 56.07-4 Integrated Water Management are addressed in ***Appendix C***.

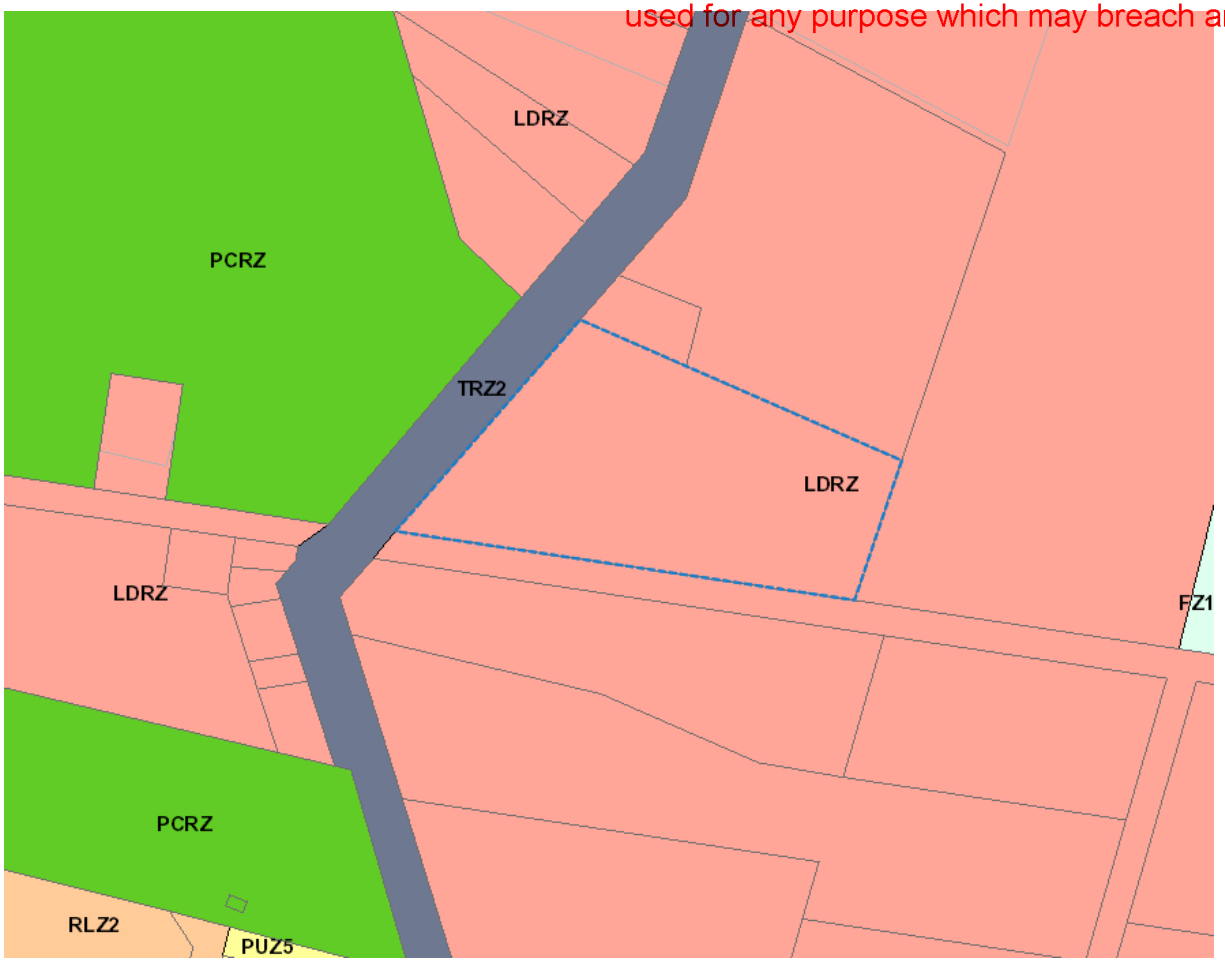

Figure 4 – *Zoning Map – (source - mapshare.vic.gov.au)*

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Bushfire Management Overlay

The purpose of the Design and Development Overlay is:

- *To implement the Municipal Planning Strategy and the Planning Policy Framework.*
- *To ensure that the development of land prioritises the protection of human life and strengthens community resilience to bushfire.*
- *To identify areas where the bushfire hazard warrants bushfire protection measures to be implemented.*
- *To ensure development is only permitted where the risk to life and property from bushfire can be reduced to an acceptable level.*

An extract of the Bushfire Management Overlay Map is provided in ***Figure 5.***

Clause 44.06-2 provides a permit is required to subdivide land.

Clause 44.06-4 provides an application must meet the requirements of Clause 53.02 unless the application meets all of the requirements specified in a schedule to this overlay.

A schedule to this overlay must specify substitute approved measures, additional alternative measures and additional or substitute decision guidelines for the purposes of Clause 53.02. There is no schedule applicable to the subject site.

The proposed subdivision will require planning approval under the provisions of the Bushfire Management Overlay and Clause 53.02 and as such the relevant decision guidelines are addressed below in Section 6. A Bushfire Management Report is contained in ***Appendix F.***

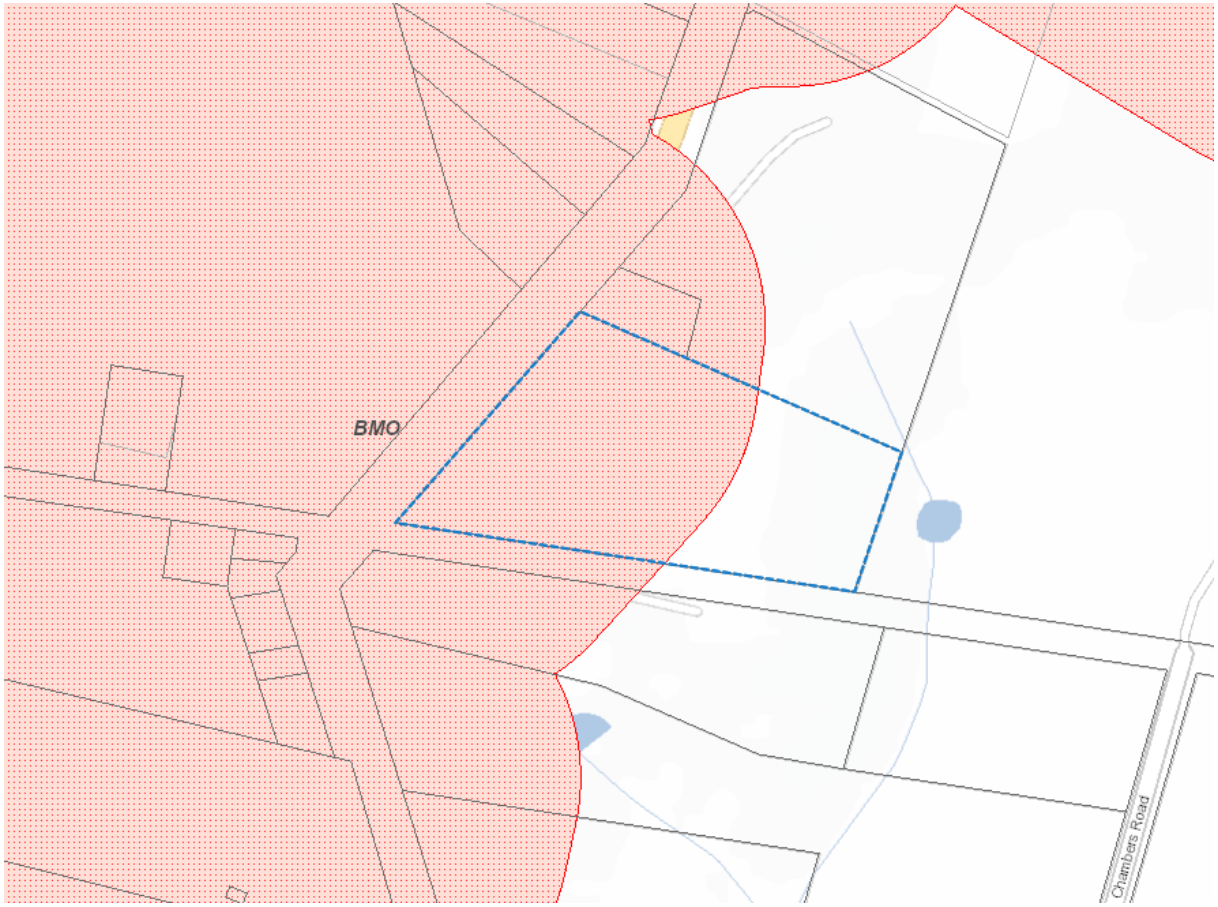

Figure 5 – *Bushfire Management Overlay – (source - mapshare.vic.gov.au)*

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Erosion Management Overlay

The purpose of the Erosion Management Overlay is:

- *To implement the Municipal Planning Strategy and the Planning Policy Framework.*
- *To protect areas prone to erosion, landslip or other land degradation processes, by minimising land disturbance and inappropriate development*

An extract of the Erosion Management Overlay Map is provided in ***Figure 6.***

Clause 44.01-5 provides a permit is required to subdivide land and as such the relevant decision guidelines are addressed in Section 6 of this submission.

A Geotechnical Risk Assessment Waiver is contained in ***Appendix D***.

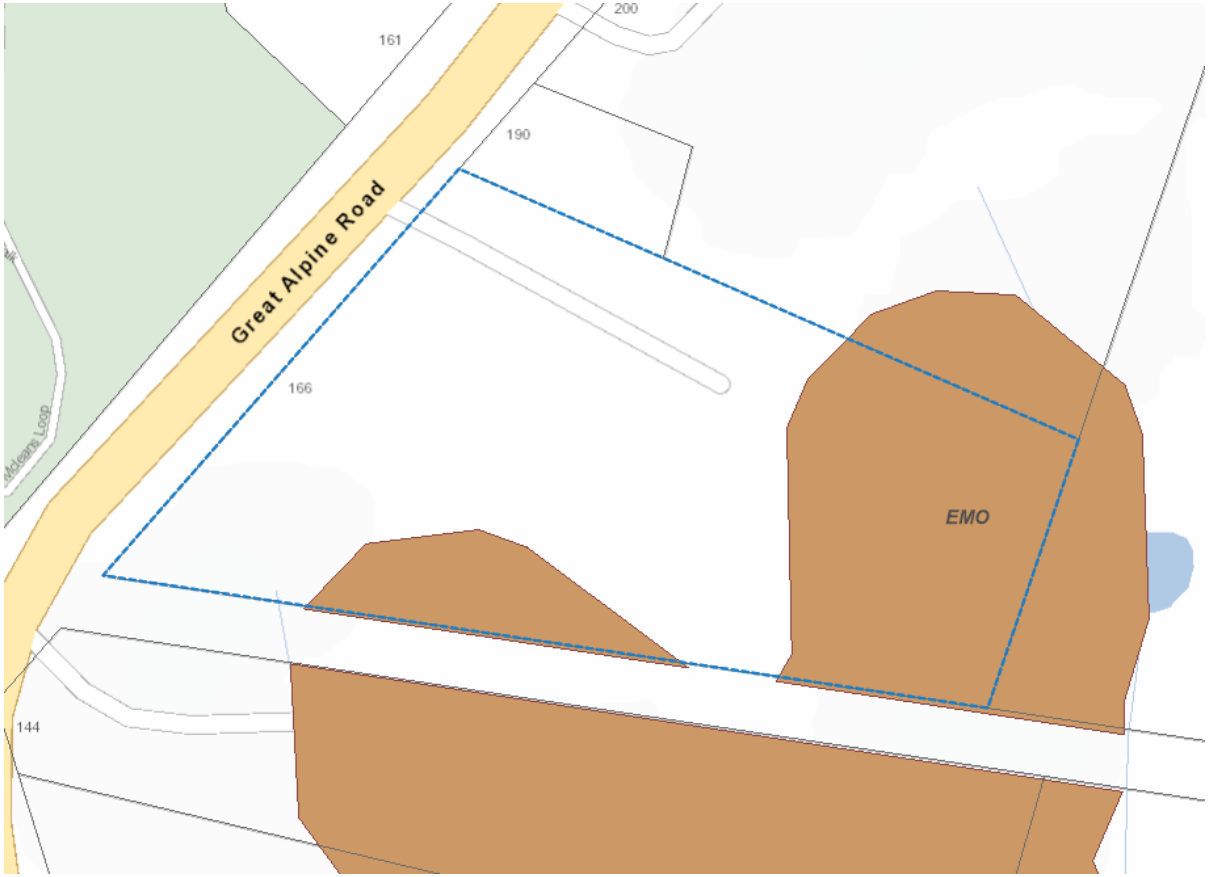

Figure 6 – *Erosion Management Overlay – (source - mapshare.vic.gov.au)*

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Vegetation Protection Overlay – Schedule 1

The purpose of the Vegetation Protection Overlay is:

- *To implement the Municipal Planning Strategy and the Planning Policy Framework.*
- *To protect areas of significant vegetation.*
- *To ensure that development minimises loss of vegetation.*
- *To preserve existing trees and other vegetation.*
- *To recognise vegetation protection areas as locations of special significance, natural beauty, interest and importance.*
- *To maintain and enhance habitat and habitat corridors for indigenous fauna.*
- *To encourage the regeneration of native vegetation.*

An extract of the Vegetation Protection Overlay map is provided in ***Figure 8.***

The proposed subdivision is not seeking to remove, destroy or lop any vegetation. As such a permit is not required under the provisions of the Vegetation Protection Overlay. This is not addressed further.

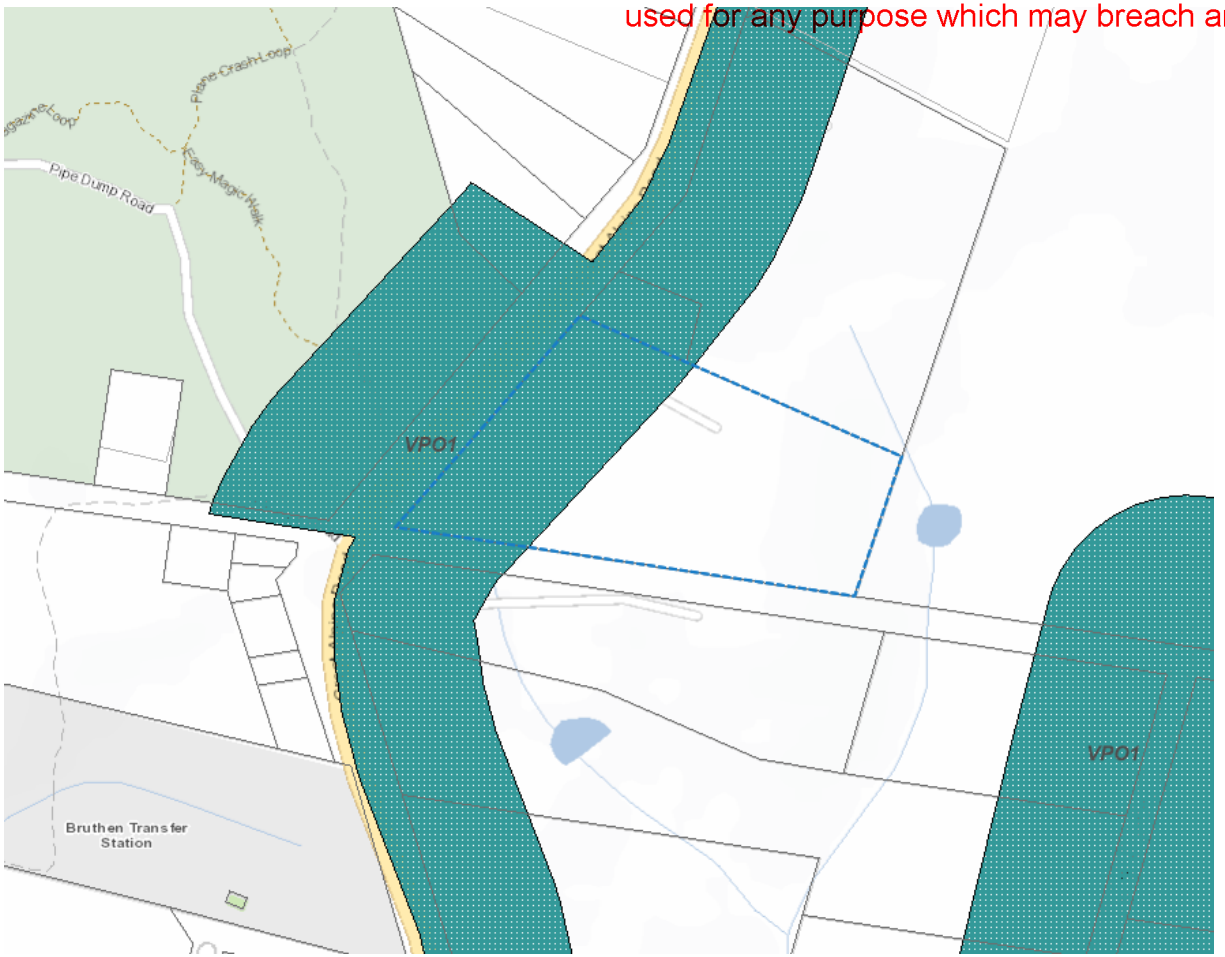

Figure 7 – *Vegetation Protection Overlay – (source - mapshare.vic.gov.au)*

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Aboriginal Cultural Heritage

Under the provisions of the *Aboriginal Heritage Act 2006* the subject site is not recognised as being within an area of Aboriginal Cultural Heritage Sensitivity, as such a Cultural Heritage Management Plan is not required.

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5. OTHER PLANNING PROVISIONS

CLAUSE 52.29 - LAND ADJACENT TO THE PRINCIPAL ROAD NETWORK

The purpose of the provisions at Clause 52.29 are:

"To ensure appropriate access to the Principal Road Network or land planned to form part of the Principal Road Network.

To ensure appropriate subdivision of land adjacent to Principal Road Network or land planned to form part of the Principal Road Network."

A permit is required under Clause 52.29-2 to create or alter access to a road in a Transport Zone 2 and to subdivide land adjacent to a road in a Transport Zone 2.

The application is seeking approval for a Two Lot Subdivision and the creation of access to a Transport Zone 2.

The new access point will be located in the southern portion of the western boundary and will provide access to proposed Lot 2 directly from Great Alpine Road.

The proposed access will connect to the existing access driveway to 144 Great Alpine Road. The existing access is opposite the intersection of the Great Alpine Road and McLeans Road.

The new access will be constructed to the standard as required by the responsible authority. It is anticipated that construction standards will form part of any planning permit to be granted.

Details of the proposed access point are contained within the proposed plan of subdivision in ***Appendix B***. The location of the existing access point that the proposed access will connect to is shown in the photograph provided below.

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6. PLANNING ASSESSMENT

This proposal has been assessed against the objectives and standards of applicable clauses of the East Gippsland Planning Scheme and it is considered that the proposed subdivision and creation of access to a Transport Zone is appropriate for the following reasons:

- The proposal meets the objectives of the Municipal Planning Strategy at **Clause 02** and the Planning Policy Framework at **Clause 10** providing an additional vacant parcel of land that can be developed in the future with a residential dwelling that can be respectful of the existing surrounding development and the environment.
- The proposal will contribute to a high standard of environmental sustainability, urban design and amenity by designing a lot layout to meet the constraints of the land reducing any potential negative environmental implications as sought to achieve by the relevant clauses including **Clause 02.03** and **Clause 11**. The site does contain scattered vegetation however no vegetation is required to be removed to facilitate the proposed subdivision.
- **Clause 02.03-1** identifies Bruthen as a rural settlement. Bruthen offers an ideal setting for rural-residential living, conveniently situated just 25 kilometres northeast of Bairnsdale and 30 kilometres northwest of Lakes Entrance. The proposed subdivision will result in one vacant allotment that can adequately accommodate a residential dwelling in the future. The subject site is currently connected to all available services the proposed vacant lot being created will be connected to all available services and infrastructure including reticulated water, electricity, telecommunications and a good quality road network. A septic system will provide for effluent treatment and disposal.
- **Clause 13.04-2S** requires consideration of erosion and landslip. The proposed subdivision is within an area identified as potentially being susceptible to erosion. All preventative measures will be undertaken during the construction phase of the proposed subdivision to ensure no erosion hazards occur.
- The proposal meets the objectives of **Clause 16** by providing an additional vacant allotment that can be developed with a dwelling in the future which in turn will support housing for the area**. Clause 16.01-2S** recognises the need to ensure land supply is sufficient to meet demand. The proposed subdivision will create one additional vacant lot within an existing low density residential area in Bruthen.
- The proposal is generally consistent with the decision guidelines of the Low Density Residential Zone at **Clause 32.08-12** which seeks to accommodate low-density residential development on lots capable of treating and retaining all wastewater in the absence of reticulated sewerage.
- The proposed vacant lot being created is of a suitable size to treat and retain wastewater whilst maintaining suitable distances from the dam on the site. A Land Capability Assessment is contained in ***Appendix E.***
- The proposed subdivision creates one additional vacant allotment that can be developed in the future with a residential dwelling that can be keeping with the rural residential character of the area. Proposed Lot 1 will contain the existing dwelling and associated facilities. Proposed Lot 2 will be vacant land and contain the existing dam and a building envelope.
- The proposed subdivision has addressed the relevant standards of Integrated Water Management as set out in Clause 56.07-1 to 56.07-4 and is contained in ***Appendix C***.
- Access to proposed Lot 1 will be via the existing gravel crossover and driveway in the northern portion of the western boundary directly from Great Alpine Road. Access to proposed Lot 2 will be provided in

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the southern portion of the western boundary directly from Great Alpine Road as indicated on the proposed development plans.

- **Clauses 02.03-3, 13.01-1S** and **44.06** require consideration of bushfire hazards and implications as a result of any proposed subdivision and development. A Bushfire Management Report is provided in ***Appendix F*** which concludes the building envelope provided on the proposed Lot 2 can achieve a BAL 29 rating. Any future dwelling on the vacant lot being created will need to be constructed to the requirements of a BAL 29 rating and include defendable spaces for a distance of 32 metres around the dwelling, install a 10,000-litre dedicated for CFA use and provide access to the dwelling and water supply that is constructed to meet the requirements for emergency service vehicles. All approved bushfire protection measures have been incorporated into the proposal. The proposed Lot 2 contains a 30 metre by 21 metre building envelope. **Clause 44.06-4** provides the application must meet the requirements of **Clause 53.02**. All of the approved measures set out in Clause 53.02-4 have been incorporated into the proposal and it is concluded the risks can be reduced to an acceptable level.
- The proposal is consistent with the decision guidelines of the Erosion Management Overlay at **Clause 44.01** which seeks to protect areas prone to erosion, landslip, other land degradation.
- No earthworks are required to facilitate the proposed subdivision.
- Access to proposed Lot 1 is existing and will remain unchanged. Access to proposed lot 2 will be provided in the southern portion of the western boundary directly from Great Alpine Road and will be constructed to the satisfaction of the responsible authority.
- The subject site does contain scattered vegetation however no vegetation is required to be removed to facilitate the proposed subdivision. The vegetation identified within the 'plantation' area along the western boundary is all planted and therefore would be exempt from the need to obtain approval should any removal be required.
- A Geotechnical Risk Assessment waiver is contained in ***Appendix D*** that concludes the proposed vacant lot being created is suitable for future residential development and is unlikely to contribute or cause additional erosion hazards.
- The proposal has addressed the decision guidelines at **Clause 52.29-6** Land Adjacent to the Principal Road Network. The proposal is seeking approval for the creation of access to a Transport Zone. It is proposed to provide access to proposed Lot 2 in the southern portion of the western boundary, directly from Great Alpine Road as indicated on the proposed plan of subdivision. Great Alpine Road is identified as a Transport Zone 2. The additional access point in this instance is unlikely to have a negative impact on the flow of traffic in the area. No vegetation is required to be removed to create the additional access point. It is proposed to utilise the existing access for the adjoining property at 144 Great Alpine Road.
- This submission has addressed the decision guidelines of **Clause 65.01** and the proposed subdivision supports orderly planning of the area whilst taking into consideration the potential effect on the environment, human health and the amenity of the area. The proposal does not require the removal of any native vegetation and there will be no negative impact on the existing road network. One new access point is proposed that will provide access for proposed Lot 2.
- The site is not identified as being susceptible to flooding hazards however is susceptible to erosion and bushfire hazards. A Geotechnical Risk assessment wavier is

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contained in ***Appendix D*** that concludes the subject site is suitable for the proposed subdivision and future development. A Bushfire Management Report is contained in ***Appendix F.***

- Standard erosion prevention measures will be adopted during the provision of services and creation of access to the proposed Lot 2. There are no factors of this proposal that are likely to cause or contribute to land degradation, salinity or reduce water quality.
- This submission has addressed the decision guidelines of **Clause 65.02** and it is concluded the proposed subdivision is suitable in this location and the subject site can adequately accommodate a residential dwelling in the future that will in turn support the community by providing for additional housing.
- The subject site is currently connected to all available services and the proposed Lot 2 will be connected to all available services. The additional lot is not expected to exceed the capacity of the services in this location. Proposed Lot 1 will contain the existing dwelling and associated facilities. Proposed Lot 2 will be vacant land, suitable for future residential development.

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7. CONCLUSION

This submission is in support of a planning permit application for a Two Lot Subdivision and creation of access to Transport Zone at 166 Great Alpine Road, Bruthen.

The relevant provisions of the East Gippsland Planning Scheme have been addressed and it has been ascertained that the proposed subdivision is appropriate in this location. It is requested that the proposal be supported for the following reasons:

- The proposal is consistent with the objectives and strategies outlined in the Municipal Planning Strategy and the Planning Policy Framework.
- The proposal is generally consistent with the objectives of the Low Density Residential Zone, Bushfire Management Overlay and Erosion Management Overlay.
- The hazards associated with bushfire and erosion can be reduced to an acceptable level.
- The proposed subdivision will result in one vacant allotment that can be developed with a residential dwelling in the future.

It is requested that a planning permit be granted for this subdivision.

Development Solutions Victoria

Disclaimer:

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APPENDIX C

Clause 56.07-1 to 56.07-4

Integrated Water Management

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CLAUSE 56.07-1 to 56.07-4

Integrated Water Management

Clause 56.07-1 Drinking water supply objectives	**To reduce the use of drinking water. To provide an adequate, cost-effective supply of drinking water.**
Response:	The subject site is currently connected to the reticulated water supply network. The proposed vacant lot being created will also be connected to the reticulated water supply network which provides for an appropriate drinking water supply. The size of the proposed vacant lot being created will encourage the inclusion of a water tank with any future residential development. **The proposal meets the objectives and standards of this clause.**
Clause 56.07-2 Reused and recycled water objective	**To provide for the substitution of drinking water for non-drinking purposes with reused and recycled water.**
Response:	A reuse and recycle water supply is not available to this site at this time. Water supply to proposed vacant allotment will be via the existing reticulated water system. Proposed Lot 1 is currently connected to the reticulated water system in addition to multiple water tanks for additional supply. This will remain unchanged. **The proposal meets the objectives and standards of this clause.**
Clause 56.07-3 Waste water management objective	**To provide a waste water system that is adequate for the maintenance of public health and the management of effluent in an environmentally friendly manner.**
Response:	There is no reticulated sewer in this location. The proposed Lot 2 will be required to treat and retain wastewater within the allotment boundaries via a secondary treatment system as recommended within the Land Capability Assessment contained in ***Appendix E***. **The proposal meets the objectives and standards of this clause.**

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Clause 56.07-4 Stormwater management objectives	**To minimise damage to properties and inconvenience to residents from stormwater.** **To ensure that the street operates adequately during major storm events and provides for public safety.** **To minimise increases in stormwater and protect the environmental values and physical characteristics of receiving waters from degradation by stormwater.** **To encourage stormwater management that maximises the retention and reuse of stormwater.** **To encourage stormwater management that contributes to cooling, local habitat improvements and provision of attractive and enjoyable spaces.**
Response:	It is expected that any planning permit to be issued would include requirements for the construction and management of drainage for the vacant lot being created. The impact on receiving waters is likely to be minimal particularly given the size of the proposed vacant allotment being created and the likely inclusion of a water tank for any future development. The proposed vacant lot being created is expected to be able to be drained to the satisfaction of the responsible authority. Stormwater from the existing dwelling and associated facilities on proposed Lot 1 is appropriately managed with no known issues and will remain unchanged. There is an existing dam that will be located wholly in proposed Lot 2 as indicated on the proposed plan of subdivision. **The proposal meets the objectives and standards of this clause.**

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17 May 2024 24097-GA

Development Solutions Victoria
Bairnsdale, VIC, 3875

GEOTECHNICAL WAIVER – EROSION MANAGEMENT OVERLAY
166 GREAT ALPINE ROAD, BRUTHEN, VICTORIA, 3885

Introduction

Development Solutions Victoria has engaged DBM Geotech to undertake a geotechnical assessment for the proposed subdivision at 166 Great Alpine Road, Bruthen.

The site is within the East Gippsland Shire Council Erosion Management Overlay. This geotechnical assessment has been conducted to identify any areas prone to erosion or land instability and assess if the proposed subdivision is suitable for the site.

Site conditions and proposed redevelopment

The site is a rural allotment of about 3.85 Ha located on east side of Great Alpine Road, Bruthen. We understand that the proposed subdivision comprises splitting off an allotment of 5738m^2. The site of the proposed allotment is in the southwest corner of the site. The site at this location has a moderate slope of about 5 to 8 degrees.

Site Geology

The 1:250,000 Geological survey map on GeoVic indicates that the site is underlain by Colluvium. The subsurface conditions encountered at the site are consistent with geological map.

Field investigation

DBM Geotech undertook a geotechnical investigation on 8 May 2024 comprising the drilling of three boreholes at the site. A summary of the ground conditions is presented in Table 1. The approximate location of the boreholes and borehole logs are attached to this report.

Table 1: Ground profile

Ground Profile	BH1 (m)	BH2 (m)	BH3 (m)
Silty SAND	0.0 – 0.3	0.0 – 0.75	0.0 – 0.55
Sandy CLAY / clayey SAND	0.3 – 1.5	0.75 – 1.5	0.55 – 1.5

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Geotechnical Waiver

An engineer from DBM Geotech visited the site on 8 May 2024 and observed the following:

- The site and surrounds are gently to moderately sloping with a slope angle of about 5 to 8 degrees.
- No evidence of erosion or landslip was observed at the site.
- The proposed building envelope has a slope angle of about 8 degrees.

Based on our site assessment we consider that the landslide risk at the site is low. Therefore, in accordance with Section 4 of the East Gippsland Shire Council Erosion management overlay we consider that a full geotechnical assessment is not necessary for the proposed subdivision. Photos of the site are provided in Figure 2-3 attached.

Although a full geotechnical assessment is not necessary, the soils at the site are likely susceptible to erosion when exposed during site works and land instability if inappropriate earthworks are undertaken. Therefore, we recommend that the below erosion protections measures and earthworks recommendations are followed for any development on the proposed subdivided allotment.

Erosion Protection Measures

We recommend that vegetation is left in place as long as possible. The removal of vegetation at the site should be kept to a minimum and any vegetation removal shall only be undertaken where it is necessary to construct driveways and building platforms. Furthermore, where stripping is undertaken across earthworks areas, re-vegetation and/or batter protection should be implemented as soon as possible to reduce the effects of erosion.

We recommend that adequate erosion control measures (i.e. silt fences, diversion banks) be implement during construction and be maintained until vegetation has been established across cleared areas. In addition, we recommend good drainage protection be implemented on batter slopes, roadways and behind retaining walls.

Earthworks Recommendations

We recommend that any earthworks undertaken on the proposed subdivided site is undertaken in accordance with the following:

- Unretained cut faces are limited to heights of 2.0m and are battered back at a maximum gradient of 1Vertical:2Horizontal.
- Unretained fill batters are kept to a maximum of 1.5m in height and are battered at a maximum gradient of 1V:2H.
- Adequate drainage measures are provided at the crest and toe of all batter slopes to prevent water ponding or flowing down the batter slope which can lead to erosion and affect batter stability.

Batter slopes exceeding the above heights mentioned above should be retained with engineered designed retaining walls or be reviewed by DBM Geotech.

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Limitations

Your attention is drawn to the document – 'Limitations' which is attached to this letter report. The statements presented in this document are intended to advise you of what your realistic expectations of this report should be. The document is not intended to reduce the level of responsibility accepted by DBM Geotech, but rather to ensure that all parties who may rely on this report are aware of the responsibilities each assumes is so doing.

Yours sincerely,

DBM Geotech

David Barry – Macaulay
BEng (Hons), MEngSc (Res), MIEAust CPEng
EA Membership number: 3308334
ABN 69 666 900 643

Attachments: Figure 1 – Figure 4, Borehole Logs, Limitations

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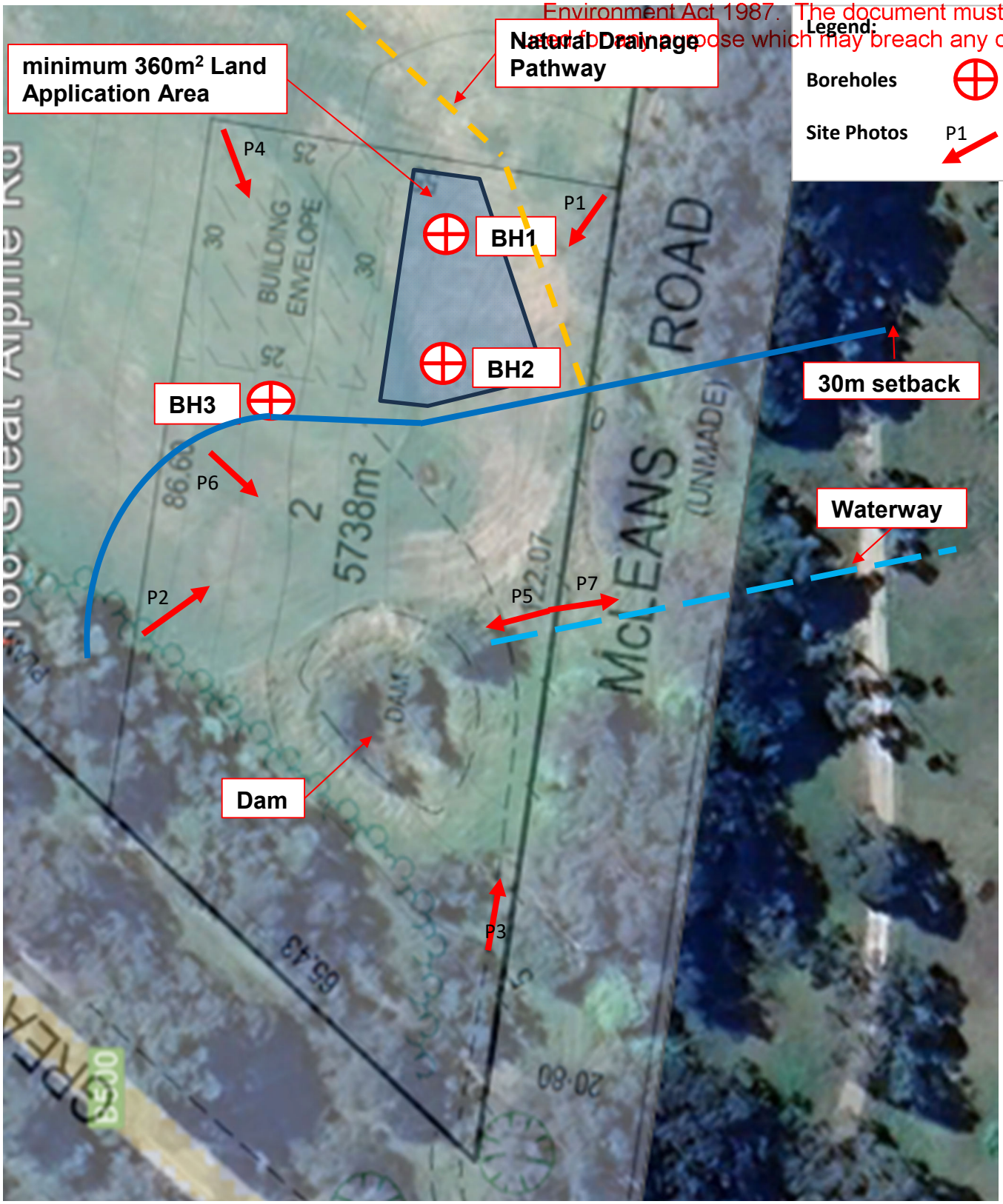

Not to scale

dbm GEOTECH	SITE ADDRESS: 166 Great Alpine Road, Bruthen	FIGURE 1
	CLIENT: Development Solutions Victoria	SITE PLAN
	JOB NUMBER: 24097	

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P1

P2

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dbm GEOTECH	SITE ADDRESS: 166 Great Alpine Road, Bruthen	**FIGURE 2**
	CLIENT: Development Solutions Victoria	**SITE PHOTOS**
	JOB NUMBER: 24097	

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P3

P4

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dbm GEOTECH	SITE ADDRESS: 166 Great Alpine Road, Bruthen	**FIGURE 3**
	CLIENT: Development Solutions Victoria	**SITE PHOTOS**
	JOB NUMBER: 24097	

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P5

P6

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dbm GEOTECH	SITE ADDRESS: 166 Great Alpine Road, Bruthen	**FIGURE 4**
	CLIENT: Development Solutions Victoria	**SITE PHOTOS**
	JOB NUMBER: 24097	

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DBM GEOTECH

REPORT OF BOREHOLE: BH1

Job No	: 24097	Easting	: 573,664.42	Sheet	: 1 OF 1
Client	: . Owner / Designer	Northing	: 5,827,774.66	Logged	: David Barry-Macaulay
Project	: 166 Great Alpine Rd, Bruthen	UTM	: 55H	Logged Date	: 08/05/2024
Location	: 166 Great Alpine Rd, Bruthen VIC	Drill Rig	: Push Tube	Checked	:
Contractor	: DBM Geotech	Inclination	:	Checked Date	: 14/05/2024

Drilling Method	Water	Depth (m)	Graphic Log	Classification Code	Material Description	Moisture	Consistency/Density	Samples	Testing	Shear Strength
		0.3		SM	Silty SAND (SM) : grey, loose to medium dense, fine to coarse grained, moist, (loamy sand).	M	L-MD			
		0.6		Cl	Sandy CLAY (Cl) : stiff, medium plasticity, orange with grey, medium grained sand, moist.		St			
		0.95		Cl	CLAY (Cl) : stiff, medium plasticity, orange with grey, moist, light clay, moderately structured .					
		1		SC	Clayey SAND (SC) : orange, medium dense to dense, medium plasticity clay, medium grained, moist.		MD-D			
					BH1 Terminated at 1.5m					
		3								

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DBM GEOTECH

REPORT OF BOREHOLE: BH2

Job No	: 24097	Easting	: 573,524.98	Sheet	: 1 OF 1
Client	: . Owner / Designer	Northing	: 5,826,734.80	Logged	: David Barry-Macaulay
Project	: 166 Great Alpine Rd, Bruthen	UTM	: 55H	Logged Date	: 08/05/2024
Location	: 166 Great Alpine Rd, Bruthen VIC	Drill Rig	: Push Tube	Checked	:
Contractor	: DBM Geotech	Inclination	:	Checked Date	: 14/05/2024

Drilling Method	Water	Depth (m)	Graphic Log	Classification Code	Material Description	Moisture	Consistency/Density	Samples	Testing	Shear Strength
				SM	Silty SAND (SM) : grey, loose to medium dense, fine to coarse grained, moist, (loamy sand).	M	L-MD			
		0.75		CI	Sandy CLAY (CI) : stiff, medium plasticity, orange with grey, medium grained sand, moist.		St			
		1								
		1.1		SC	Clayey SAND (SC) : orange, medium dense to dense, medium plasticity clay, medium grained, moist.		MD-D			
					BH2 Terminated at 1.5m					

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DBM GEOTECH

REPORT OF BOREHOLE: BH3

Job No	: 24097	Easting	: 573,524.98	Sheet	: 1 OF 1
Client	: . Owner / Designer	Northing	: 5,826,734.80	Logged	: David Barry-Macaulay
Project	: 166 Great Alpine Rd, Bruthen	UTM	: 55H	Logged Date	: 08/05/2024
Location	: 166 Great Alpine Rd, Bruthen VIC	Drill Rig	: Push Tube	Checked	:
Contractor	: DBM Geotech	Inclination	:	Checked Date	: 14/05/2024

Drilling Method	Water	Depth (m)	Graphic Log	Classification Code	Material Description	Moisture	Consistency/Density	Samples	Testing	Shear Strength
				SM	Silty SAND (SM) : grey, loose to medium dense, fine to coarse grained, moist, (loamy sand).	M	L-MD			
		0.55		SC	Clayey SAND (SC) : orange, medium dense to dense, medium plasticity clay, medium grained, trace fine to medium sized gravel, moist.		MD-D			
		0.8		Cl	Sandy CLAY (Cl) : stiff, medium plasticity, orange with grey, medium grained sand, moist.		St			
		1								
		1.2		Cl	CLAY (Cl) : stiff to very stiff, medium plasticity, orange with grey, with medium grained sand, moist.		St-VSt			
					BH3 Terminated at 1.5m					
		2								
		3								

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The scope and the period of DBM Geotech's Services are as described in DBM Geotech's proposal and are subject to restrictions and limitations. DBM Geotech did not perform a complete assessment of all possible conditions or circumstances that may exist at the site referenced in the Document. If a service or other work is not expressly referred to in this Report, do not assume that it has been provided or performed. If a matter is not addressed in this Report, do not assume that any determination has been made by DBM Geotech in regards to it.

Conditions may exist which were undetectable given the limited nature of the enquiry DBM Geotech was retained to undertake. Variations in conditions may occur between investigation locations, and there may be special conditions pertaining to the site which have not been revealed by the investigation and which have not therefore been taken into account in the Document. Accordingly, additional studies and actions may be required.

DBM Geotech accepts no responsibility for and makes no representation as to the accuracy or completeness of the information provided to it by or on behalf of the Client or sourced from any third party. DBM Geotech has assumed that such information is correct unless otherwise stated and no responsibility is accepted by DBM Geotech for incomplete or inaccurate data supplied by its Client or any other person for whom DBM Geotech is not responsible. DBM Geotech has not taken account of matters that may have existed when the Report was prepared but which were only later disclosed to DBM Geotech.

Having regard to the matters referred to in the previous paragraphs on this page in particular carrying out the Service has allowed DBM Geotech to form no more than an opinion as to the actual conditions at any relevant location. That opinion is necessarily constrained by the extent of the information collected by DBM Geotech or otherwise made available to DBM Geotech. Further, the passage of time may affect the accuracy, applicability or usefulness of the opinions, assessments or other information in this Document. This Document is based upon the information and other circumstances that existed and were known to DBM Geotech when the Services were performed and this Document was prepared. DBM Geotech has not considered the effect of any possible future development included physical changes to any relevant location or change to any laws or regulations relevant to such location.

By date, or revision, the Document supersedes any prior report or other document issued by DBM Geotech dealing with any matter that is addressed in the Document.

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dbm GEOTECH

17 May 2024

LAND CAPABILITY ASSESSMENT

PROPOSED DEVELOPMENT
166 GREAT ALPINE ROAD
BRUTHEN, VICTORIA, 3885

Prepared for:
Development Solutions Victoria

Report Number: 24097_LCA

dbm Geotech Consulting Pty Ltd
Kilcunda, Victoria, 3995
ABN 69 666 900 643
www.dbmgeotech.com.au

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SUMMARY

Location:

Address: 166 Great Alpine Road, Bruthen SIP: 1\PS411137

Land Features:

Slope of land: 10-15%

Aspect: southerly

Evaporation: 1510mm

Distance to surface water: onsite dam and waterway.

Flooding: > 1in 100 years

Rainfall: 749mm

Soil Characteristics:

Soil texture (limiting layer): sandy clay

Permeability: 0.12-0.5 mm/day

Treatment System:

EPA approved secondary treatment

Land Application system:

Subsurface drip irrigation or wick trenches

Design Loading rate (DLR):

Sub-surface irrigation: 3.5 mm/day; Wick Trenches: 10mm/day

Land Application Area minimum size

Design Flow Rate	Subsurface irrigation	Wick Trenches
3-bedroom dwelling – 600L/day	240 m^2	53 m^2 (34 lineal meters of trench)
4-bedroom dwelling – 750L/day	300 m^2	66 m^2 (42 lineal meters of trench)
5-bedroom dwelling – 900L/day	360 m^2	79 m^2 (50 lineal meters of trench)

Site Constraints:

onsite dam and waterway, dispersive soils, Run-on & Runoff

Special Conditions / Mitigation Measures:

Onsite Dam and waterway: Treat wastewater to secondary level and Locate Land Application Area a minimum 30m from the dam and waterway.

Dispersive Soils: Soil Amelioration recommended. Add liquid gypsum to tank when commissioning system. Gypsum to be applied at manufactures recommended rate.

Run-on & Runoff: Diversion of roof and road drainage away from the effluent dispersal area.

Buffer Distances:

Site boundaries and buildings: 1.5m downslope; 3.0m upslope

Waterway (potable): 100m

Waterway (non-potable): 30m

Natural Drainage pathway: 5m

Management:

Desludging primary tank: every **3 years**

Quarterly servicing of treatment plant and inspection of effluent dispersal area.

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1.0 INTRODUCTION

Development Solutions Victoria has engaged DBM Geotech Consulting Pty Ltd (DBM Geotech) to undertake a Land Capability Assessment for the proposed subdivision at 166 Great Alpine Road, Bruthen. The field investigation and report have been undertaken and prepared by suitability experienced consultants.

This report will accompany an application for a planning permit to sub-divide the land at 166 Great Alpine Road, Bruthen and can also be used for a Septic Tank Permit to Install for an onsite wastewater management system at 166 Great Alpine Road, Bruthen. The report provides information about the site and soil conditions. It also provides a Land Capability Assessment (LCA) for the site and includes a conceptual design for a suitable onsite wastewater management system, including recommendations for monitoring and management requirements.

2.0 DESCRIPTION OF THE DEVELOPMENT

The site is a rural allotment of about 3.85 Hectares. We understand that the proposed subdivision comprises splitting off an allotment of 5738m^2. The site of the proposed allotment is in the southwest corner of the site. The site at this location has a moderate slope of about 10 – 15%.

The proposed allotment has a dam over the west part of the site and a designated waterway running from the dam south of the site.

Site Address: 1\PS411137; 166 Great Alpine Road, Bruthen (Figure 1)

Council Area: East Gippsland Shire Council

Zoning: LDRZ – Low Density Residential Zone

Domestic Water Supply: Tank water

Anticipated Wastewater Load: Assume a residence with full water-reduction fixtures at maximum occupancy. Wastewater generation = 150 L/person/day; (Table 4 of the EPA Code of Practice 891.4).

Availability of Sewer: The area is unsewered and unlikely to be sewered within the next 10-20 years.

3.0 SITE AND SOIL ASSESSMENT

3.1 SITE KEY FEATURES

DBM Geotech undertook a site investigation on the 8 May 2024. Table 1 summarises the key features of the site in relation to effluent management proposed for the site.

NOTE:

- The site is not in a special water supply catchment area.
- The site experiences minor stormwater run-on from Great Alpine Road.
- The risk of effluent transport offsite is low.

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Figure 1 attached provides a site plan and indicates the location of the proposed dwelling. Site photos are shown in Figure 2-5.

Table 1: Site Assessment

Feature	Description	Constraint	Measures
Buffer Distances	All relevant buffer distances in Table 5 of the EPA Code of Practice 891.4 are achievable from the proposed effluent management area.	Minor	NN
Climate	Average annual rainfall 749mm (Bruthen Station No. 084003).	Moderate	Design system using water balance
Drainage	No visable signs of surface dampness, spring activity or hydophilic vegitation in the proposed efflient management area or surrounds.	Minor	NN
Erosion & Landslip	No evidence of sheet or rill erosion; the erosion hazard is low. No evidence of landslip and landslip potential is low.	Minor	NN
Exposure & Aspect	LAA has an southerly aspect with high sun and wind exposure.	Minor	NN
Flooding	The proposed effluent management area is located above the 1:100 year flood level (source BCS).	Minor	NN
Groundwater	No groundwater was observed at the site	Minor	NN
Imported Fill	No imported fill material was observed anywhere on the site.	Nil	NN
Land Available for LAA	Considering all the constraints and buffers, secondary treatment of effluent is reqiured to ensure suitable setback from nearby waterway.	Moderate	Treat Wastewater to secondary level.
Landform	Rolling hills	Nil	NN
Rock Outcrops	None	Nil	NN
Run-on & Runoff	Minor stormwater run-on and minor run-off hazard.	Minor - Moderate	Ensure stormwater from building site is diverted away from effluent disposal field.
Slope	The proposed effluent management area has a slope of about 10-15%.	Minor - Moderate	Recude loading rate for sub-surface irrigation by 20%
Surface Waters	The nearest surface water is a dam and waterway loacted on the proposed property.	Moderate	Treat Wastewater to secondary level to reduce setback distances to 30m.
Vegetation	Mixture of grasses.	Nil	NN

NN: not needed

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3.2 SITE ASSESSMENT RESULTS

Based on the most constraining site features, the overall land capability of the site to sustainably manage all effluent onsite is satisfactory. The proposed effluent management area is located above the 1:100 flood level and by using secondary treatment, there will be suitable protection of surface waters and groundwater.

3.3 SOIL KEY FEATURES

The site's soils have been assessed for their suitability for onsite wastewater management by a combination of soil survey and desktop review of published soil survey information as outlined below.

A soil survey was carried out at the site to determine suitability for application of treated effluent. Soil investigations were conducted at three locations as shown in Figure 1. The investigation was carried out using a hand auger to depths of 1.5m below ground level. This was sufficient to adequately characterise the soils as only minor variation would be expected throughout the area of interest.

Soils were typically categorised as a loamy SAND overlying interbedded sandy clay / sandy clay loam / light clay. Considering the physical characteristics of the subsoil in the area of the site, effluent application via sub surface irrigation or wick trenches is a suitable and viable disposal system for this site.

Full profile descriptions of the soils are provided in Appendix A. Table 2 provides an assessment of the physical and chemical characteristics of each soil type.

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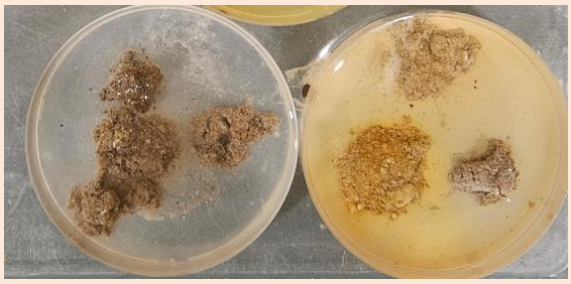
Table 2: Soil Assessment

Feature	Assessment	Constraint	Measures
Electrical Conductivity (ECe) (dS/m)	EC (1:5 soil : water suspension) 50 µS/cm @ 0.6m 120 µS/cm @ 0.6m	Minor	NN
Emerson Aggregate Class	sandy LOAM @ 0.3m: slaking, no dispersion sandy CLAY @ 0.6m: slaking, and dispersion 	Moderate	Soil Amelioration recommended. Add liquid gypsum to tank when commissioning system. Gypsum to be applied at manufactures recommended rate.
pH	5.5 @ 0.3m 5.5 @ 0.6m	Minor	NN
Rock Fragments	Less than 10%	Minor	NN
Soil Depth	Total soil depth >1.5m	Minor	NN
Sodicity (ESP)	Long-term soil sodality monitoring is not required. Present soil conditions are not restricting plant growth.	Minor	NN
Soil Permeability & Design Loading Rates	sandy CLAY: 0.12 – 0.5 m/day saturated conductivity (Ksat) (AS/NZS1547:2012) DIR = 2.9 mm/day for irrigation system (3.5mm/day -20% to take into account the slope) DLR = 10 mm/day for wick trenches	Minor	NN
Soil Texture & Structure	Sandy LOAM: 0.0 – 0.5m Sandy CLAY / sandy clay LOAM / light CLAY: 0.5m – 1.5m	Minor	NN
Watertable Depth	Groundwater not encountered.	Minor	NN

NN: Not Needed

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3.4 OVERALL LAND CAPABILITY RATING

For the soil in the proposed land application area, no features present a moderate or major constraint that cannot be mitigated.

Based on the results of the site and soil assessment tabled above and provided in the Appendices, the overall land capability of the proposed effluent management area is constrained. However, the effluent management system will be designed, installed and maintained in ways which will mitigate these factors.

4.0 SYSTEM SELECTION AND DESIGN

The following sections provide an overview of a suitable onsite wastewater management system, with sizing and design considerations and justification for its selection. Detailed design for the system should be undertaken at the time of the building application and submitted to Council.

4.1 TARGET EFFLUENT QUALITY

Based on the site constraints a secondary treatment system is recommended at this site. The secondary effluent quality required is:

- Biochemical Oxygen Demand, less than 20 mg/L;
- Total Suspended Solids, less than 30 mg/L;

Refer to the EPA website for the list of approved options that are available http://www.epa.vic.gov.au/en/your-environment/water/onsite-wastewater.

The property owner has the responsibility for the final selection of the secondary treatment system and will include the details of it in the Septic Tank Permit to Install application form for Council approval.

4.2 EFFLUENT MANAGEMENT OPTIONS

A range of possible land application systems have been considered, such as absorption trenches, evapo-transporation/absorption (ETA) beds, subsurface irrigation, and mounds.

The preferred system at this site is either shallow pressure compensated drip irrigation or wick trenches. These systems are considered suitable to overcome the site constraints and ensure that that the risk of effluent being transported off-site will be negligible.

A detailed irrigation system design is beyond the scope of this report however a general description of the system is provided here for the information of the client and council.

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Description of Irrigation System

Sub surface irrigation comprises a network of drip-irrigation lines that are specially design for use with wastewater. The pipe contains pressure compensating emitters (drippers) that employ a biocide to prevent build-up of slimes and inhibit root penetration. The lateral pipes are usually 0.6m to 1.0m apart, installed parallel along the contour. Installation depth is 100-150mm in accordance with AS1547:2012. It is critical that the irrigation pump be sized properly to ensure adequate pressure and deliver rate to the irrigation network.

A filter is installed in the main line to remove fine particulates that could block the emitters. This must be cleaned regularly (typically monthly) following manufacturer's instructions. Vacuum breakers should be installed at the high point/s in the system to prevent air and soil being sucked back into the drippers when the pump shuts off. Flushing valves are an important component and allow periodic flushing of the lines, which should be done at six monthly intervals.

Description of Wick Trenches

Wick trenches are designed to maximise the movement of effluent up thought the soil to plant roots and the atmosphere. Wick trenches are a series of trenches with adjacent evapo-transpiration beds that are underlain and joined by a layer of geotextile. Typically, they consist of a 0.6m wide by 0.6m deep trench with a 1.0m wide by 0.15m deep evapo-transpiration bed. The surface of the combine trench and bed is planted with herbaceous vegetation to maximise the wicking effect over the large surface area. The geotextile acts as the 'wick' to continuously draw liquid upwards through papillary action.

4.3 SIZING THE IRRIGATION SYSTEM

To determine the necessary size of the Land Application Area, water balance modelling has been undertaken using the method and water balance tool in the Victorian Land Capability Assessment Framework (2014) and the EPA Code (2016).

WATER BALANCE

The water balance can be express by the following equation:

Precipitation + Effluent Applied = Evapotranspiration + Percolation

Data used in the water balance includes:

- Mean monthly rainfall (Bruthen) and mean monthly pan evaporation for Bruthen from the Australian Landscape water Balance;
- Average daily effluent load – 600L/day - 900L/day from Table 4 of the EPA 891.4 based on 5-bedroom house;
- Subsurface irrigation (DLR) = 2.9 mm/day; Wick Trench DLR = 12 mm/day
- Crop factor – 0.6 to 0.8; and
- Retained rainfall – 75% (reduced rainfall due to runoff during high rainfall events on the moderately 10-15% slope)

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The nominated area method is used to calculate the area required to balance all inputs and outputs to the water balance. As a result of these calculations a minimum land application area required for sub-surface irrigation and wick trenches is shown in Table 3. The full water balance calculation is shown in Appendix A.

Table 3: land application area

Number of Bedrooms*	Total Daily wastewater flow (L/day)	Required LAA Size	
		Sub Surface Irrigation	Wick Trenches
3	600	240 m^2	53 m^2 (34 lineal meters of trench)
4	750	300 m^2	66 m^2 (42 lineal meters of trench)
5	900	360 m^2	79 m^2 (50 lineal meters of trench)

***In accordance with EPA 891.4 any room such as a study, library or sunroom that can be closed off with a door, shall be treated as a bedroom.**

4.4 SITING AND CONFIGURATION OF THE IRRIGATION SYSTEM

We have provided an approximate location of the land application area on the attached site plan Figure 1. We recommend that a minimum 360m^2 sized effluent disposal area is reserved for effluent on this site. We recommend that this is included on the plan of subdivision and the effluent disposal field is setback a suitable distance from all waterways, site boundaries and building envolopes.

Whilst there is suitable area for application of the effluent, it is important that appropriate buffer distances be maintained. It is important to note that buffers are measured as the overland flow path for run-off water from the effluent irrigation area.

It is recommended that the owner consult a wastewater contractor familiar with effluent system construction to construct the system, and an appropriately registered plumbing/drainage practitioner to install the system.

4.5 STORMWATER RUN-ON MEASURES

Stormwater run-on protection measures are recommended at this site. Stormwater run-on from buildings and significant rainstorm events pose a risk to the effluent disposal field. Stormwater run-on should be mitigated by the following:

- Diversion of roof drainage away from the effluent dispersal area.

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4.6 BUFFER DISTANCES

Setback buffer distances from effluent land application areas and treatment systems are required to help prevent human contact, maintain public amenity and protect sensitive environments. The relevant buffer distances for this site, taken from Table 5 of the EPA Code of Practice 891.4 are:

Secondary Treatment buffer distances:

- 20 m from groundwater bores;
- 100 m upslope from watercourses in a potable water supply catchment;
- 30 m upslope from non-potable watercourses; and
- 3.0 m if area up-gradient and 1.5 m if area down-gradient of property boundaries, swimming pools and buildings.

5.0 MONITORING, OPERATION AND MAINTENANCE

Maintenance is to be carried out in accordance with the EPA Certificate of Approval of the selected secondary treatment system and Council's permit conditions. The treatment system will only function adequately if appropriately and regularly maintained.

To ensure the treatment system functions adequately, residents must:

- Have a suitably qualified maintenance contractor service the secondary treatment system at the frequency required by Council under the permit to use;
- Use household cleaning products that are suitable for septic tanks;
- Keep as much fat and oil out of the system as possible; and
- Conserve water (AAA rated fixtures and appliances are recommended).

To ensure the land application system functions adequately, residents must:

- Regularly harvest (mow) vegetation within the LAA and remove this to maximise uptake of water and nutrients;
- Monitor and maintain the subsurface irrigation system following the manufacturer's recommendations, including flushing the irrigation lines;
- Regularly clean in-line filters;
- Not erect any structures and paths over the LAA;
- Avoid vehicle and livestock access to the LAA, to prevent compaction and damage; and
- Ensure that the LAA is kept level by filling any depressions with good quality topsoil (not clay).

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6.0 CONCULSION

As a result of our investigations, we conclude that sustainable onsite wastewater management is feasible with appropriate mitigation measures, as outlined, for the proposed subdivision at 166 Great Alpine Road, Bruthen.

Specifically, we recommend the following:

- Secondary treatment of wastewater by an EPA-accredited treatment system;
- Land application of treated effluent via subsurface irrigation (which may be subdivided into two or more evenly sized zones using an indexing or sequencing valve) or wick trenches;
- Installation of water saving fixtures (minimum 4 star WELS) and appliances (minimum 3 star WELS) in the new residence to reduce the effluent load;
- Use of low phosphorus and low sodium (liquid) detergents to improve effluent quality and maintain soil properties for growing plants; and
- Operation and management of the treatment and disposal system in accordance with manufacturer's recommendations, the EPA Certificate of Approval, the EPA Code of Practice (2016) and the recommendations made in this report.

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7.0 REFERENCES

Environment Protection Authority (1991). Guidelines for Wastewater Irrigation Publication 168.

Environment Protection Authority (2016). Publication 891.4 Code of Practice for Onsite Wastewater Management.

Geary, P. and Gardner, E. (1996). On-site Disposal of Effluent. In Proceedings from the one day conference Innovative Approaches to the Management of Waste and Water, Lismore 1996.

Isbell, R.F. (1996). The Australian Soil Classification. CSIRO Publishing, Melbourne.

Municipal Association of Victoria, Department of Environment and Sustainability and EPA Victoria (2014) Victorian Land Capability Assessment Framework.

Standards Australia / Standards New Zealand (2012). AS/NZS 1547:2012 On-site domestic-wastewater management.

8.0 LIMITATIONS

Your attention is drawn to the document – 'Limitations' which is included in Appendix B of this report. The statements presented in this document are intended to advise you of what your realistic expectations of this report should be. The document is not intended to reduce the level of responsibility accepted by DBM Geotech, but rather to ensure that all parties who may rely on this report are aware of the responsibilities each assumes is so doing.

DBM Geotech

David Barry – Macaulay
BEng (Hons), MEngSc (Res), MIEAust CPEng
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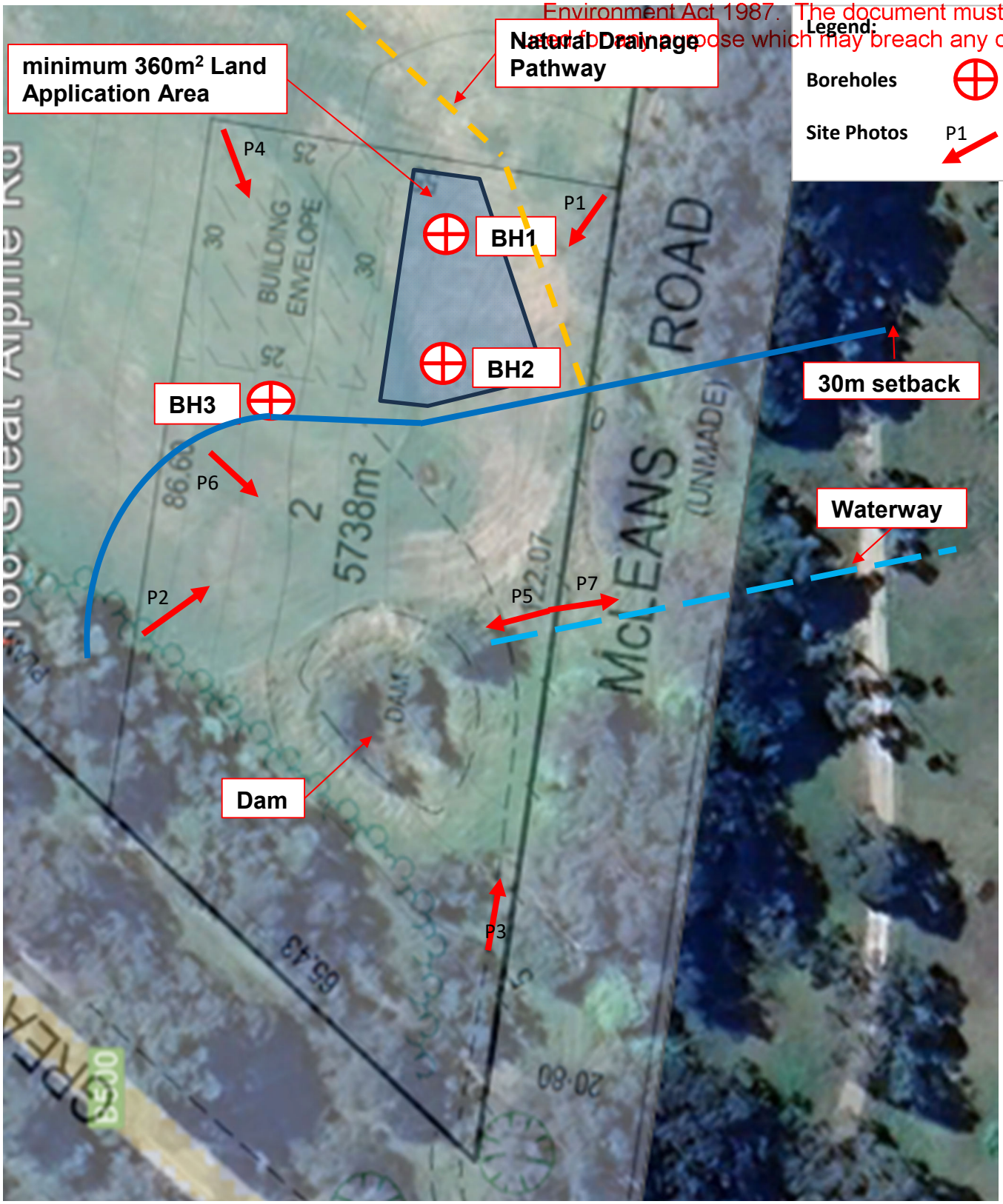

Not to scale

dbm GEOTECH	SITE ADDRESS: 166 Great Alpine Road, Bruthen	FIGURE 1
	CLIENT: Development Solutions Victoria	SITE PLAN
	JOB NUMBER: 24097	

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P1

P2

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dbm GEOTECH	SITE ADDRESS: 166 Great Alpine Road, Bruthen	**FIGURE 2**
	CLIENT: Development Solutions Victoria	**SITE PHOTOS**
	JOB NUMBER: 24097	

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P3

P4

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dbm GEOTECH	SITE ADDRESS: 166 Great Alpine Road, Bruthen	**FIGURE 3**
	CLIENT: Development Solutions Victoria	**SITE PHOTOS**
	JOB NUMBER: 24097	

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P5

P6

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dbm GEOTECH	SITE ADDRESS: 166 Great Alpine Road, Bruthen	**FIGURE 4**
	CLIENT: Development Solutions Victoria	**SITE PHOTOS**
	JOB NUMBER: 24097	

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P7

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dbm GEOTECH	SITE ADDRESS: 166 Great Alpine Road, Bruthen	**FIGURE 5**
	CLIENT: Development Solutions Victoria	**SITE PHOTOS**
	JOB NUMBER: 24097	

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Appendix A

Reports of Boreholes

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Victorian Land Capability Assessment Framework
Wick Trench DLR = 12.0mm/day

Please read the attached notes before using this spreadsheet

Irrigation area sizing using Nominated Area Water Balance for Zero Storage

Site Address:	**166 Great Alpine Road, Bruthen**		
Date:	15-May-24	**Assessor:**	David Barry-Macaulay

INPUT DATA

Design Wastewater Flow	Q	900	L/day	Based on 5 bed home, 150L/day loading rate
Design Irrigation Rate	DIR	12.0	mm/day	Based on soil texture class/permeability and derived from Table 9 in the EPA Code of Practice (2013)
Nominated Land Application Area	L	285	m^2	[1]
Crop Factor	C	0.8	unitless	Estimates evapotranspiration as a fraction of pan evaporation; varies with season and crop type[2]
Rainfall Runoff Factor	RF	0.7	unitless	Proportion of rainfall that remains onsite and infiltrates, allowing for any runoff
Mean Monthly Rainfall Data	Bruthen (084003)			BoM Station and number
Mean Monthly Pan Evaporation Data	Bruthen			Synthetic Pan Evaporation from BOM Australian Water Outlook [-37.707 147.833]

Parameter	Symbol	Formula	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Days in month	D		days	31	28	31	30	31	30	31	31	30	31	30	31	**365**
Rainfall	R		mm/month	62.7	51.8	56.7	64.4	58.6	69.2	53.5	52.8	60.4	74	70.4	74.1	**748.6**
Evaporation	E		mm/month	220.9	176.9	149.6	94.1	66.7	50.7	58.9	78.5	103.3	140.1	166.8	203.7	**1510.2368**
Crop Factor	C		unitless	0.80	0.80	0.70	0.70	0.60	0.60	0.60	0.60	0.70	0.80	0.80	0.80	
OUTPUTS																
Evapotranspiration	ET	ExC	mm/month	177	142	105	66	40	30	35	47	72	112	133	163	**1122.5289**
Percolation	B	DIRxD	mm/month	372.0	336	372.0	360.0	372.0	360.0	372.0	372.0	360.0	372.0	360.0	372.0	**4380.0**
Outputs		ET+B	mm/month	548.7	477.5578947	476.7	425.9	412.0	390.4	407.3	419.1	432.3	484.1	493.5	534.9	**5502.5**
INPUTS																
Retained Rainfall	RR	RxRF	mm/month	43.89	36.26	39.69	45.08	41.02	48.44	37.45	36.96	42.28	51.8	49.28	51.87	**524.02**
Applied Effluent	W	(QxD)/L	mm/month	97.9	88.4	97.9	94.7	97.9	94.7	97.9	97.9	94.7	97.9	94.7	97.9	**1152.6**
Inputs		RR+W	mm/month	141.8	124.7	137.6	139.8	138.9	143.2	135.3	134.9	137.0	149.7	144.0	149.8	**1676.7**
STORAGE CALCULATION																
Storage remaining from previous month			mm/month	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Storage for the month	S	(RR+W)-(ET+B)	mm/month	-407.0	-352.9	-339.1	-286.1	-273.1	-247.3	-272.0	-284.3	-295.3	-334.4	-349.4	-385.2	
Cumulative Storage	M		mm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Maximum Storage for Nominated Area	N		mm	0.00												
	V	NxL	L	0												
LAND AREA REQUIRED FOR ZERO STORAGE			m^2	55	57	64	71	75	79	75	73	69	65	61	58	

MINIMUM AREA REQUIRED FOR ZERO STORAGE: 79.0 m^2 49.375

CELLS

	Please enter data in blue cells
XX	Red cells are automatically populated by the spreadsheet
XX	Data in yellow cells is calculated by the spreadsheet, DO NOT ALTER THESE CELLS

NOTES

[1] This value should be the largest of the following: land application area required based on the most limiting nutrient balance or minimum area required for zero storage

[2] Values selected are suitable for mixture of grass and eucalyptus trees

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Victorian Land Capability Assessment Framework
Sub-surface Irrigation DLR = 2.9mm/day

Please read the attached notes before using this spreadsheet

Irrigation area sizing using Nominated Area Water Balance for Zero Storage

Site Address:	**166 Great Alpine Road, Bruthen**		
Date:	15-May-24	**Assessor:**	David Barry-Macaulay

INPUT DATA

Design Wastewater Flow	Q	900	L/day	Based on 5 bed home, 150L/day loading rate
Design Irrigation Rate	DIR	2.9	mm/day	Based on soil texture class/permeability and derived from Table 9 in the EPA Code of Practice (2013)
Nominated Land Application Area	L	285	m^2	[1]
Crop Factor	C	0.8	unitless	Estimates evapotranspiration as a fraction of pan evaporation; varies with season and crop type[2]
Rainfall Runoff Factor	RF	0.7	unitless	Proportion of rainfall that remains onsite and infiltrates, allowing for any runoff
Mean Monthly Rainfall Data	Bruthen (084003)			BoM Station and number
Mean Monthly Pan Evaporation Data	Bruthen			Synthetic Pan Evaporation from BOM Australian Water Outlook [-37.707 147.833]

Parameter	Symbol	Formula	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Days in month	D		days	31	28	31	30	31	30	31	31	30	31	30	31	**365**
Rainfall	R		mm/month	62.7	51.8	56.7	64.4	58.6	69.2	53.5	52.8	60.4	74	70.4	74.1	**748.6**
Evaporation	E		mm/month	221.2	175.7	156.8	108.1	80.3	62.0	71.6	94.3	119.7	159.2	178.9	211.1	**1638.8158**
Crop Factor	C		unitless	0.80	0.80	0.70	0.70	0.60	0.60	0.60	0.60	0.70	0.80	0.80	0.80	
OUTPUTS																
Evapotranspiration	ET	ExC	mm/month	177	141	110	76	48	37	43	57	84	127	143	169	**1210.9684**
Percolation	B	DIRxD	mm/month	89.9	81.2	89.9	87.0	89.9	87.0	89.9	89.9	87.0	89.9	87.0	89.9	**1058.5**
Outputs		ET+B	mm/month	266.8	221.7894737	199.7	162.7	138.1	124.2	132.8	146.5	170.8	217.2	230.1	258.8	**2269.5**
INPUTS																
Retained Rainfall	RR	RxRF	mm/month	43.89	36.26	39.69	45.08	41.02	48.44	37.45	36.96	42.28	51.8	49.28	51.87	**524.02**
Applied Effluent	W	(QxD)/L	mm/month	97.9	88.4	97.9	94.7	97.9	94.7	97.9	97.9	94.7	97.9	94.7	97.9	**1152.6**
Inputs		RR+W	mm/month	141.8	124.7	137.6	139.8	138.9	143.2	135.3	134.9	137.0	149.7	144.0	149.8	**1676.7**
STORAGE CALCULATION																
Storage remaining from previous month			mm/month	0.0	0.0	0.0	0.0	0.0	0.8	19.8	22.3	10.7	0.0	0.0	0.0	
Storage for the month	S	(RR+W)-(ET+B)	mm/month	-125.0	-97.1	-62.1	-22.8	0.8	19.0	2.5	-11.6	-33.7	-67.6	-86.1	-109.0	
Cumulative Storage	M		mm	0.0	0.0	0.0	0.0	0.8	19.8	22.3	10.7	0.0	0.0	0.0	0.0	
Maximum Storage for Nominated Area	N		mm	22.30												
	V	NxL	L	6355												
LAND AREA REQUIRED FOR ZERO STORAGE			m^2	125	136	174	230	287	356	293	255	210	169	149	135	

MINIMUM AREA REQUIRED FOR ZERO STORAGE: 357.0 m^2

CELLS

	Please enter data in blue cells
XX	Red cells are automatically populated by the spreadsheet
XX	Data in yellow cells is calculated by the spreadsheet, DO NOT ALTER THESE CELLS

NOTES

[1] This value should be the largest of the following: land application area required based on the most limiting nutrient balance or minimum area required for zero storage

[2] Values selected are suitable for mixture of grass and eucalyptus trees

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DBM GEOTECH

REPORT OF BOREHOLE: BH1

Job No	: 24097	Easting	: 573,664.42	Sheet	: 1 OF 1
Client	: . Owner / Designer	Northing	: 5,827,774.66	Logged	: David Barry-Macaulay
Project	: 166 Great Alpine Rd, Bruthen	UTM	: 55H	Logged Date	: 08/05/2024
Location	: 166 Great Alpine Rd, Bruthen VIC	Drill Rig	: Push Tube	Checked	:
Contractor	: DBM Geotech	Inclination	:	Checked Date	: 14/05/2024

Drilling Method	Water	Depth (m)	Graphic Log	Classification Code	Material Description	Moisture	Consistency/Density	Samples	Testing	Shear Strength
		0.3		SM	Silty SAND (SM) : grey, loose to medium dense, fine to coarse grained, moist, (loamy sand).	M	L-MD			
		0.6		Cl	Sandy CLAY (Cl) : stiff, medium plasticity, orange with grey, medium grained sand, moist.		St			
		0.95		Cl	CLAY (Cl) : stiff, medium plasticity, orange with grey, moist, light clay, moderately structured .					
		1		SC	Clayey SAND (SC) : orange, medium dense to dense, medium plasticity clay, medium grained, moist.		MD-D			
					BH1 Terminated at 1.5m					

3

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DBM GEOTECH

REPORT OF BOREHOLE: BH2

Job No	: 24097	Easting	: 573,524.98	Sheet	: 1 OF 1
Client	: . Owner / Designer	Northing	: 5,826,734.80	Logged	: David Barry-Macaulay
Project	: 166 Great Alpine Rd, Bruthen	UTM	: 55H	Logged Date	: 08/05/2024
Location	: 166 Great Alpine Rd, Bruthen VIC	Drill Rig	: Push Tube	Checked	:
Contractor	: DBM Geotech	Inclination	:	Checked Date	: 14/05/2024

Drilling Method	Water	Depth (m)	Graphic Log	Classification Code	Material Description	Moisture	Consistency/Density	Samples	Testing	Shear Strength
				SM	Silty SAND (SM) : grey, loose to medium dense, fine to coarse grained, moist, (loamy sand).	M	L-MD			
		0.75		Cl	Sandy CLAY (Cl) : stiff, medium plasticity, orange with grey, medium grained sand, moist.		St			
		1								
		1.1		SC	Clayey SAND (SC) : orange, medium dense to dense, medium plasticity clay, medium grained, moist.		MD-D			
					BH2 Terminated at 1.5m					
		3								

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DBM GEOTECH

REPORT OF BOREHOLE: BH3

Job No	: 24097	Easting	: 573,524.98	Sheet	: 1 OF 1
Client	: . Owner / Designer	Northing	: 5,826,734.80	Logged	: David Barry-Macaulay
Project	: 166 Great Alpine Rd, Bruthen	UTM	: 55H	Logged Date	: 08/05/2024
Location	: 166 Great Alpine Rd, Bruthen VIC	Drill Rig	: Push Tube	Checked	:
Contractor	: DBM Geotech	Inclination	:	Checked Date	: 14/05/2024

Drilling Method	Water	Depth (m)	Graphic Log	Classification Code	Material Description	Moisture	Consistency/Density	Samples	Testing	Shear Strength
		0		SM	Silty SAND (SM) : grey, loose to medium dense, fine to coarse grained, moist, (loamy sand).	M	L-MD			
		0.55		SC	Clayey SAND (SC) : orange, medium dense to dense, medium plasticity clay, medium grained, trace fine to medium sized gravel, moist.		MD-D			
		0.8		Cl	Sandy CLAY (Cl) : stiff, medium plasticity, orange with grey, medium grained sand, moist.		St			
		1								
		1.2		Cl	CLAY (Cl) : stiff to very stiff, medium plasticity, orange with grey, with medium grained sand, moist.		St-VSt			
					BH3 Terminated at 1.5m					
		2								
		3								

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Appendix B

Limitations

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Having regard to the matters referred to in the previous paragraphs on this page in particular carrying out the Service has allowed DBM Geotech to form no more than an opinion as to the actual conditions at any relevant location. That opinion is necessarily constrained by the extent of the information collected by DBM Geotech or otherwise made available to DBM Geotech. Further, the passage of time may affect the accuracy, applicability or usefulness of the opinions, assessments or other information in this Document. This Document is based upon the information and other circumstances that existed and were known to DBM Geotech when the Services were performed and this Document was prepared. DBM Geotech has not considered the effect of any possible future development included physical changes to any relevant location or change to any laws or regulations relevant to such location.

By date, or revision, the Document supersedes any prior report or other document issued by DBM Geotech dealing with any matter that is addressed in the Document.

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Euca Planning
Bushfire Specialists

BPAD Bushfire Planning & Design Accredited Practitioner Level 3

Bushfire Planning Report V1.1

Including Bushfire Management Statement

Lot 1 PS411137

166 Great Alpine Road, Bruthen 3885

July 31st, 2024.

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Euca Planning Pty Ltd

PO Box 570, Warragul 3820.

Phone: 0418 597 662 Email: info@eucaplanning.com.au

Director & Principal Consultant: Deanne Smith

Qualifications/Accreditations:

- Masters of Planning (Professional) – Deakin University
- Postgraduate Diploma in Bushfire Planning and Management – The University of Melbourne (2017)
- Graduate Diploma of Applied Science (Agricultural Studies) – Charles Sturt University
- Graduate Certificate in Public Sector Management – Flinders University
- Bachelor of Science – University of Melbourne (1996)

Memberships

- Member of Planning Institute of Australia (MPIA)
- Corporate Bronze Member of Fire Protection Association of Australia

Acknowledgement of Country

Euca Planning would like to acknowledge the Gurnaikurnai people as the Traditional owners of the unceded land that we conduct our business on. We pay our Respects to their Elders past, present, and future.

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Requirements detailed in this document do not guarantee survival of the buildings or the occupants. The client is strongly encouraged to develop and practice a bushfire survival plan.

Information and assistance including a template for a Bushfire Survival Plan is provided as part of the 'Fire Ready Kit' available through the CFA website at www.cfa.vic.gov.au or through your local CFA Regional office.

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Version Control

	Name	Date Completed	Comments
Field Assessment	Courtney Campbell	2 April 2024	
Mapping	Deanne Smith	16 May 2024	
Final Report	Deanne Smith	31 July 2024	
Revision 1	Deanne Smith	17 August 2024	Correct plan

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Executive Summary

This report has been prepared to accompany a planning permit application for a subdivision at 166 Great Alpine Road, Bruthen. The site is within the Bushfire Management Overlay (BMO) and is required to demonstrate that the development has regard for the surrounding bushfire hazards.

This report presents a comprehensive assessment of the hazards and suggests mitigation measures to improve the protection of life and property for the proposed subdivision at 166 Great Alpine Road, Bruthen. The site is within the Low Density Residential Zone (LDRZ) and is a subdivision so requires a Pathway 2 application to meet the objectives and approval measures of Clause 53.02 of the East Gippsland Planning Scheme. As such a Pathway 2 style response has been adopted for this report.

This report includes the following components:

- An **Assessment against Clause13.02-1S** of the East Gippsland Planning Scheme.
- A **Bushfire Hazard Landscape Assessment** that considers the landscape risk and whether the Clause 53.02 modelled fire assumptions are adequate.
- A **Bushfire Hazard Site Assessment** considering localised hazards, defendable space and the bushfire attack level.
- A **Bushfire Management Statement** that outlines the design response to the relevant approval measures in Clause 53.02 from the East Gippsland Planning Scheme.
- A **Bushfire Management Plan** that spatially endorses the bushfire mitigation measures.

The development site is in Bruthen, a small rural town. The site is located near other established dwellings, on the northern aspect of the township and is currently developed with a dwelling. The land is accessed by a public road, Great Alpine Road. The proposed development has grassland in the north, east and south with forest in the west and south.

The Bushfire Management Statement demonstrates that the defendable space objectives can be met for Column C of Table 2 to Clause 53.02-5 with onsite defendable space. Access will be provided for the new lot. Water supply is not required to be provided until such time as a new dwelling is built.

Due to the bark hazard of the forest, the proposed development is expected to be affected by moderate ember attack and radiant heat in the event of a bushfire. Column C separation (BAL29) is deemed appropriate considering the lot arrangement in this area of the township.

The site is able to meet the approval measures within Clause 53.02 for Column C separation, a BAL of 29, based on an FFDI of 100 and a flame temperature of 1090K.

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1.0 Introduction

This Bushfire Management Statement (BMS) has been prepared to enable the applicants to respond to the requirements of Clause 44.06 Bushfire Management Overlay (BMO) (known from this point on as Clause 44.06), and in accordance with the application requirements of Clause 53.02– Bushfire Planning (known from this point on as Clause 53.02).

The statement contains three components:

1 An **assessment against Clause13.02-1S** of the East Gippsland Planning Scheme.
2 A **bushfire hazard landscape assessment** including a plan that describes the bushfire hazard of the general locality more than 150 metres from the site.
3 A **bushfire hazard site assessment** including a plan that describes the bushfire hazard within 150 metres of the proposed development. The description of the hazard has been prepared in accordance with Section 2.2.3 to 2.2.5 of AS3959:2018 Construction of buildings in bushfire prone areas (Standards Australia) and is supported by photographs to assist in describing the bushfire hazard.
4 A **bushfire management statement** describing how the proposed development responds to the requirements of Clause 44.06 and 53.02.
5 A **bushfire management plan** prescribing the bushfire mitigation measures.

1.1 Application Details

Municipality	East Gippsland Shire Council
Title Description	Lot 1 PS411137
Overlays	Bushfire Management Overlay (BMO) Erosion Management Overlay (EMO) Vegetation Protection Overlay – Schedule 1 (VPO1)
Zoning	Low Density Residential Zone (LDRZ)

1.2 Site Description

Site shape	Irregular
Site area	3.87ha
Site Dimensions	The property has a road frontage to the Great Alpine Road of approximately 194.41 metres and the property has a depth of approximately 322 metres
Existing use and siting of buildings and works on and near the land	Existing house and outbuildings
Existing vehicle arrangements	Access from Great Alpine Road
Nearest fire hydrant	Not applicable
Private bushfire shelter	Not applicable
Any other site features relevant to bushfire risk	Scattered vegetation, landscape fire risk to the north and west

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1.3 Site Location

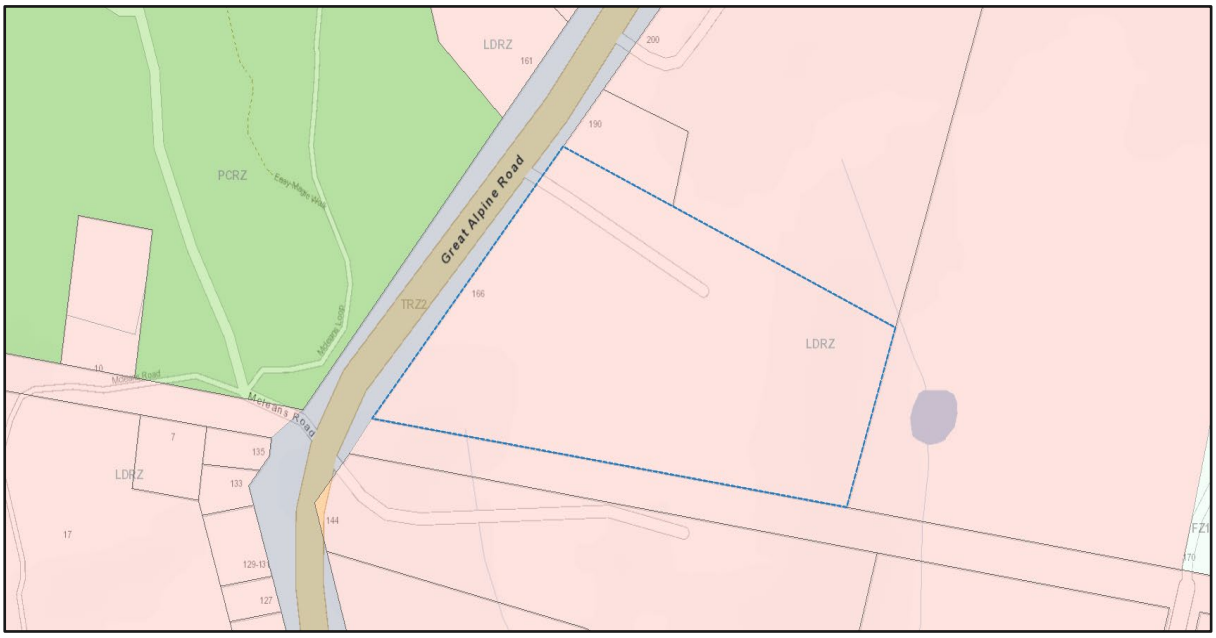

Figure One: Property Location – identified with the blue dashes central to the map (VicPlan, 2024)

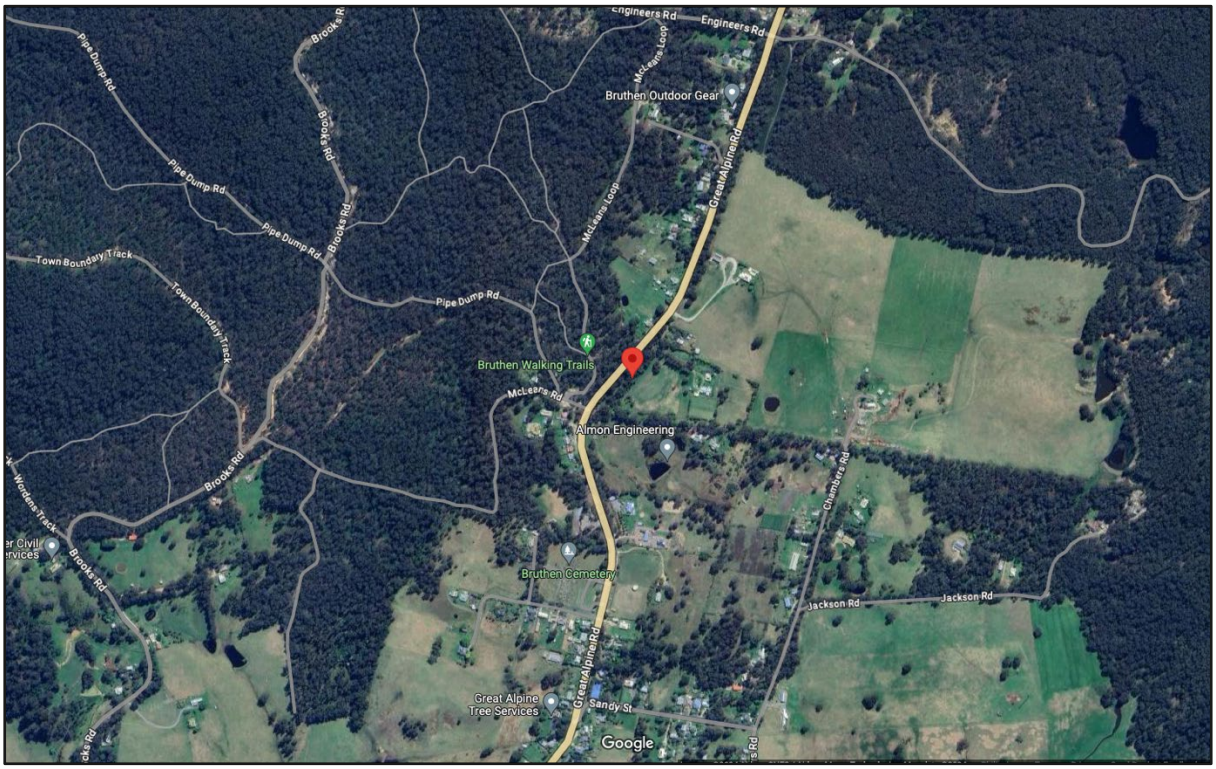

Figure Two: Property Location 166 Great Alpine Road, Bruthen (Google Maps, 2024)

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2.0 Bushfire Hazard Landscape Assessment

2.1 Planning Policy Framework

Clause 71.02-3 (integrated decision making) of the Planning Scheme has been recently amended and provides that:

Planning authorities and responsible authorities should endeavour to integrate the range of policies relevant to the issues to be determined and balance conflicting objectives in favour of net community benefit and sustainable development for the benefit of present and future generations. However, in bushfire affected areas, planning authorities and responsible authorities must prioritise the protection of human life over all other policy considerations.

Clause 13.02-1S (Bushfire) of the Planning Scheme applies to all decision making and seeks to:

> *To strengthen the resilience of settlements and communities to bushfire through **risk-based planning** that prioritises the protection of human life.*
> **[Emphasis added]**

Clause 13.02-1S includes a number of strategies to achieve that objective. Broadly these strategies include:

- prioritising the protection of human life;
- requiring a robust assessment of the bushfire hazard and risk assessment before any strategic or statutory decision is made; and
- directing population growth and new settlements to low-risk locations.

Importantly in relation to the protection of human life, clause 13.02-1S includes the following requirements:

Give priority to the protection of human life by:

- *Prioritising the protection of human life over all other policy considerations.*
- *Directing population growth and development to low-risk locations and ensuring the availability of, and safe access to, areas where human life can be better protected from the effects of bushfire.*
- *Reducing the vulnerability of communities to bushfire through the consideration of bushfire risk in decision-making at all stages of the planning process.*

In relation to Bushfire hazard identification and assessment, clause 13.02-1S includes the following relevant requirements:

Identify bushfire hazard and undertake appropriate risk assessment by:

- *Applying the best available science to identify vegetation, topographic and climatic conditions that create a bushfire hazard.*
- *Considering the best available information about bushfire hazard including the map of designated bushfire prone areas prepared under the Building Act 1993 or*

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regulations made under that Act.

- *Considering and assessing the bushfire hazard on the basis of:*
    - *Landscape conditions - meaning conditions in the landscape within 20 kilometres (and potentially up to 75 kilometres) of a site;*
    - *Local conditions - meaning conditions in the area within approximately 1 kilometre of a site;*
    - *Neighbourhood conditions – meaning conditions in the area within 400 metres of a site; and*
    - *The site for the development.*
- *Consulting with emergency management agencies and the relevant fire authority early in the process to receive their recommendations and implement appropriate bushfire protection measures.*
- *Ensuring that strategic planning documents, planning scheme amendments, planning permit applications and development plan approvals properly assess bushfire risk and include appropriate bushfire protection measures.*
- *Not approving development where a landowner or proponent has not satisfactorily demonstrated that the relevant policies have been addressed, performance measures satisfied or bushfire protection measures can be adequately implemented.*

Importantly in relation to settlement planning, clause 13.02-1S includes the following requirements:

> Plan to strengthen the resilience of settlements and communities and prioritise protection of human life by:

- *Directing population growth and development to low-risk locations, being those locations assessed as having a radiant heat flux of less than 12.5 kilowatts/square metres under AS3959-2009 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009).*
- *Ensuring the availability of, and safe access to, areas assessed as a BAL-LOW rating under AS3959-2009 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009) where human life can be better protected from the effects of bushfire.*
- *Ensuring the bushfire risk to existing and future residents, property and community infrastructure will not increase as a result of future land use and development.*
- *Achieving no net increase in risk to existing and future residents, property and community infrastructure, through the implementation of bushfire protection measures and where possible reduce bushfire risk overall.*
- *Assessing and addressing the bushfire hazard posed to the settlement and the likely bushfire behaviour it will produce at a landscape, settlement, local, neighborhood and site scale, including the potential for neighborhood-scale destruction.*
- *Assessing alternative low risk locations for settlement growth on a regional, municipal, settlement, local and neighborhood basis*.

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- *Not approving any strategic planning document, local planning policy, or planning scheme amendment that will result in the introduction or intensification of development in an area that has, or will on completion have, more than a BAL-12.5 rating under AS3959-2009.*

In relation to use and development control in a Bushfire Prone area, clause 13.02-1S includes the following relevant requirements:

> *Use and development control in a Bushfire Prone Area In a bushfire prone area designated in accordance with regulations made under the Building Act 1993, bushfire risk should be considered when assessing planning applications for the following uses and development:*
> *… Subdivisions of more than 10 lots*
> *…. Accommodation*
>
> *When assessing a planning permit application for the above uses and development:*
>
> - *Consider the risk of bushfire to people, property and community infrastructure.*
> - *Require the implementation of appropriate bushfire protection measures to address the identified bushfire risk.*
> - *Ensure new development can implement bushfire protection measures without unacceptable biodiversity impacts.*

The use and development control does not specifically apply to this proposal as the subdivision is only 2 lots, and no dwelling is proposed. However, the ultimate intent of the new lot will be to develop a dwelling and this report demonstrates that the lot meets Clause 13.02-1S including the long-term intent of the use and development control without jeopardization of the safety of the existing dwelling.

When these strategies are read together it is clear that any future development would be required to provide a considered assessment of the bushfire risk. As such, the development must ensure it responds to bushfire risk. The purpose of this report is to undertake such an assessment for the site including an assessment of the likely fire behaviour and the risk to future residents. It is acknowledged that this site is subject to the Bushfire Management Overlay and Parts 3 to 5 of this report specifically address the application requirements of Clause 44.06 and 53.02 of the East Gippsland Planning Scheme.

In the context of strategic planning decisions, these strategies need to be read as on balance and consider the '*net increase in risk to existing and future residents*'. As it relates to the objectives at Clause 13.02-1S of the Planning Scheme, it is necessary to ensure that the protection of human life is prioritised when decisions are made. However, the strategies listed at Clause 13.02-1S in the Planning Scheme are not 'mandatory requirements' and it is not necessary to 'tick every box'. It is more important to ensure that decisions are consistent with the State policy objectives and build resilient communities.

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2.2 Planning Policy Framework Assessment

2.2.1 Objective

Clause 13.02-1S seeks to '*strengthen the resilience of settlements and communities to bushfire through risk-based planning that prioritises the protection of human life*'.

2.2.2 Application

The policy must be applied to all planning and decision making under the Planning and Environment Act 1987 relating to land which is within a designated bushfire prone area; or subject to a Bushfire Management Overlay.

Bushfire Prone Area and Bushfire Management Overlay

The planning proposal area is included in the Bushfire Prone Area (BPA). As described in Planning Advisory Note 46 (2013), the BPA is a building regulation tool that identifies where moderate bushfire hazard can be expected. It applies to areas subject to the BMO, and to areas that experience a lower head fire intensity modelled to be between 4,000kW/m and 30,000kW/m. This level of hazard informs areas declared as bushfire prone in the building system. Areas at the upper end of the bushfire intensity range (that is 28,000kW/m and above and referred to as BHL1b) are considered, where appropriate, for applying the BMO based on the advice of the relevant fire authority. The western portion of the land is contained in the BMO and the entire planning proposal site is subject to the BPA. The greater area in Bruthen is also in the BPA and part BMO reflecting the moderate to high bushfire hazard that can be expected from the vegetation connecting to and distributed through the area.

In December 2017, Clause 13.02-1S of the East Gippsland Planning Scheme was amended to specifically refer to Bushfire Prone Areas and to strengthen the consideration of bushfire risk in all planning decisions. As the site is fully contained within the Bushfire Prone Area, the minimum level of construction for all dwellings is BAL 12.5, and this bushfire risk must be considered.

2.2.3 Strategies

Protection of human life

Give priority to the protection of human life by:	*Response*
Prioritising the protection of human life over all other policy considerations	- This proposal provides for a new lot that can accommodate a dwelling that responds to the risk of bushfire through siting and construction in a township area.
Directing population growth and development to low-risk locations and ensuring the availability of, and safe access to,	- The lot has existed for many years and is part of an estate with many lots containing established dwellings. - Existing dwellings exist adjacent to this

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areas where human life can be better protected from the effects of bushfire.	development and the dwelling is sited in an area of the site that is substantially cleared. - The overall design can respond to the vegetation corridor to the west and south. - The existing road network facilitates safe egress towards Bruthen Township. - Access and egress are facilitated from Great Alpine Road.
Reducing the vulnerability of communities to bushfire through the consideration of bushfire risk in decision-making at all stages of the planning process.	- An application to develop land needs to articulate how the design responds to the identified bushfire risk. - The subdivision provides a building envelope on the new lot that considers the bushfire hazard. - The vegetation is expected to yield less than 29kW/m^2 of radiant heat.

Bushfire hazard identification and assessment

Identify bushfire hazard and undertake appropriate risk assessment by:	*Response*
Applying the best available science to identify vegetation, topographic and climatic conditions that create a bushfire hazard.	- The East Gippsland Planning Scheme relies on the planning proposal to respond to bushfire based on current assessment methods. - Clauses 13.02-1S, 44.06 and 53.02 are to be considered for proposal. - Clause 71.02-3 *Integrated Decision Making* strengthens the importance of bushfire planning as an appropriate tool to reconcile potential conflicts in design and vision. - The assessment method aligns with AS3959, and is provided in this report (see Section 4).
Considering the best available information about bushfire hazard including the map of designated bushfire prone areas prepared under the Building Act 1993 or regulations made under that Act.	- Consistent with the revised Clause 13.02-1S, the planning proposal responds to the Bushfire Prone Area and the Bushfire Management Overlay. - This report demonstrates that sufficient setbacks from the vegetation can be achieved to meet Column C of Table 2 of Clause 53.02 in all directions. This is an appropriate benchmark for this development given the proximity to town, the narrow vegetation strip to the south and the road to the west.
Applying the Bushfire Management Overlay in planning schemes to areas where the extent of	- The BMO does apply to the western portion of this land recognising that the

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vegetation can create an extreme bushfire hazard	land is in an area of high bushfire hazard. The BMO is addressed in Sections 3 to 5 of this report.
Considering and assessing the bushfire hazard on the basis of: • Landscape conditions - meaning the conditions in the landscape within 20 kilometres and potentially up to 75 kilometres from a site; • Local conditions - meaning conditions in the area within approximately 1 kilometre from a site; • Neighbourhood conditions - meaning conditions in the area within 400 metres of a site; and, • The site for the development	- As it is a subdivision in the BMO four scales of consideration are applied - Landscape conditions and local site conditions within Section 3.0 of this report. - Neighbourhood and local conditions are considered in Figure 3(a) and Figure 3(b). - The site conditions are considered through the Bushfire Hazard Site Assessment within Section 4.0 of this report.
Consulting with emergency management agencies and the relevant fire authority early in the process to receive their recommendations and implement appropriate bushfire protection measures.	- It is expected that this development would be referred to CFA for consideration as it is in the Bushfire Management Overlay.
Ensuring that strategic planning documents, planning scheme amendments, planning permit applications and development plan approvals properly assess bushfire risk and include appropriate bushfire protection measures	- The content of this report provides a solid foundation for the design and subsequent approval of the planning proposal, with regard to bushfire risk. - Assessing the site-based bushfire risk and including appropriate bushfire protection measures (e.g. managed land, BALs, separation from the hazard) enables the achievement of the direction of the Planning Scheme.
Not approving development where a landowner or proponent has not satisfactorily demonstrated that the relevant policies have been addressed, performance measures satisfied or bushfire protection measures can be adequately implemented.	- This element of the revised Clause 13.02-1S is the most important element and empowers the Responsible Authority to not approve a permit application until it is satisfied with the bushfire protection measures being implemented. - This report demonstrates that the risk of bushfire should not be a reason for refusal.

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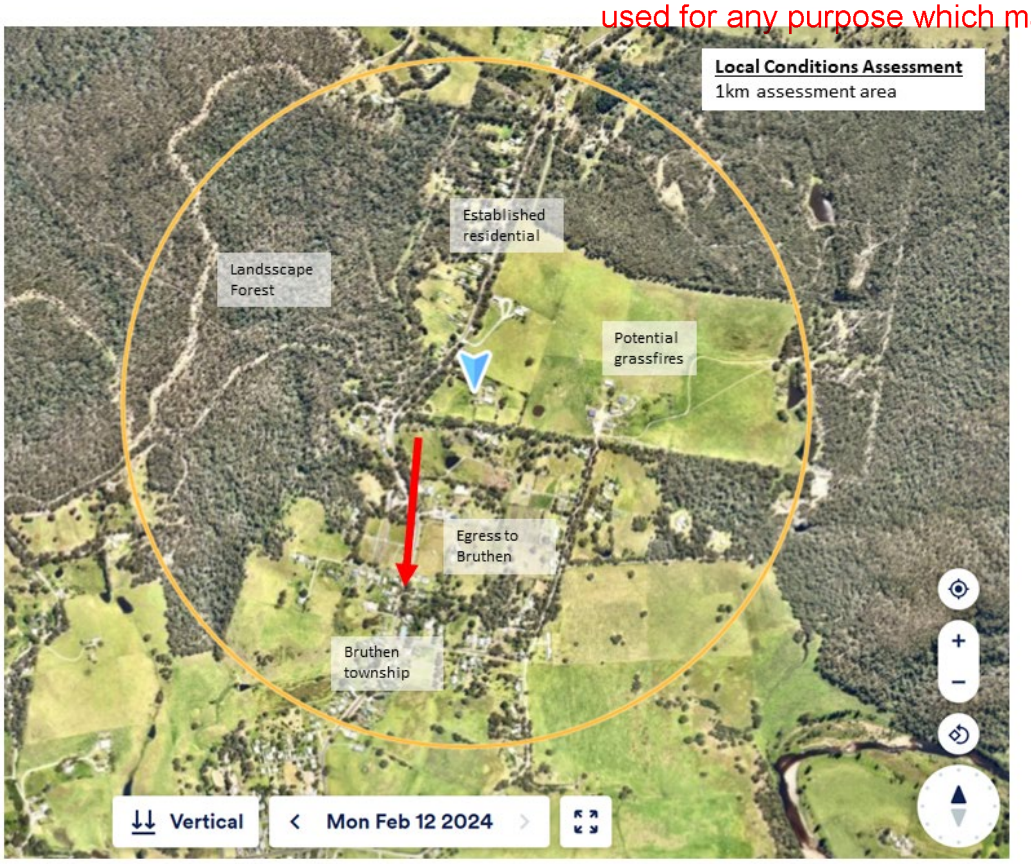

Figure Three (a): Local conditions (within 1km) (Source: Nearmaps, 2024)

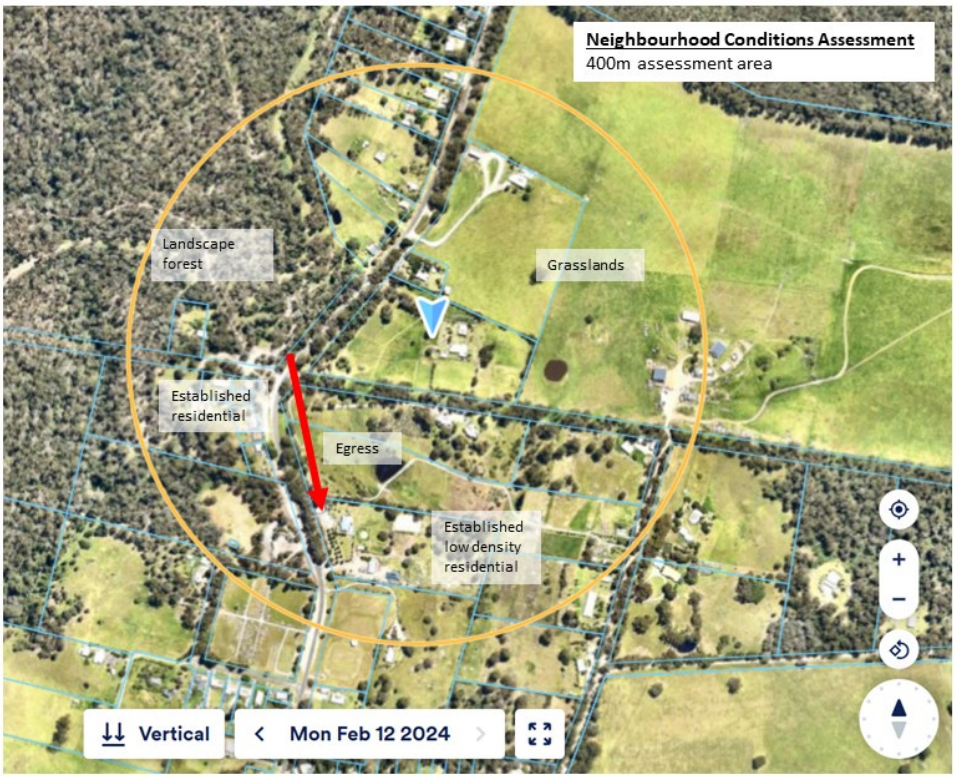

Figure Three (b): Neighbourhood conditions (within 400m)(source: Nearmaps, 2024)

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Settlement Planning

Plan to strengthen the resilience of settlements and communities and prioritise protection of human life by:	*Response*
Directing population growth and development to low-risk locations, being those locations assessed as having a radiant heat flux of less than 12.5 kilowatts/square metres under AS3959-2018 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009).	- Recognising the land is an established lot in an area that is at high risk from bushfire, development of land by subdivision should only proceed where all elements of the BMO are achieved. - This report demonstrates that this goal is achieved including the provision of the greatest separation from the hazard and an increased level of construction. - The new lot has a siting that has been assessed as having a radiant heat flux of less than 29kW/m2 under AS3959.
Ensuring the availability of, and safe access to, areas assessed as a BAL-LOW rating under AS3959-2018 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009) where human life can be better protected from the effects of bushfire	- The nature of the settlement of Bruthen provides ready access with a 4-minute drive to areas of the greater Bruthen township provide shelter, and further afield to Bairnsdale for BAL-LOW.
Ensuring the bushfire risk to existing and future residents, property and community infrastructure will not increase as a result of future land use and development.	- The establishment and maintenance of defendable space will accompany the build of a dwelling on the new lot.
Achieving no net increase in risk to existing and future residents, property and community infrastructure, through the implementation of bushfire protection measures and where possible reduce bushfire risk overall.	- Any new dwelling will implement the current regulations pertaining to bushfire construction. A Section 173 Agreement will ensure this occurs on Lot 2.
Assessing and addressing the bushfire hazard posed to the settlement and the likely bushfire behaviour it will produce at a landscape, settlement, local, neighbourhood and site scale, including the potential for neighbourhood-scale destruction	- As it is an existing dwelling and a subdivision in the BMO, four scales of consideration are applied: and contained in this report. - The site conditions are best considered through the Bushfire Hazard Site Assessment methodology.
Assessing alternative low risk locations for settlement growth on a regional, municipal, settlement, local and neighbourhood basis.	- The proposal is an existing lot in an established are adjacent the main town. - This proposal increases the resilience by providing two smaller developments both likely to being developed with new resilient dwellings, and provides for a more managed area of land.
Not approving any strategic planning document, local planning policy, or planning scheme amendment that will result in the introduction or intensification of development	- The proposal is a statutory planning application only.

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in an area that has, or will on completion have, more than a BAL-12.5 rating under AS3959-2018.	

Areas of high biodiversity conservation value

Ensure settlement growth and development approvals can implement bushfire protection measures without unacceptable biodiversity impacts by discouraging settlement growth and development in bushfire affected areas that are of high biodiversity conservation value.

Assessment of the development

- No vegetation requires removal
- The vegetation onsite along the western boundary and along the southern boundary are both kept and assessed conservatively as forest.

Use and development control in a Bushfire Prone Area

In a bushfire prone area designated in accordance with regulations made under the Building Act 1993, bushfire risk should be considered when assessing planning applications for accommodation, and for subdivisions of 10 or more lots. Neither of these apply to this situation. This report does provide evidence that the proposal achieves no net increase in bushfire risk.

2.2.4 Policy Guidelines

Planning must consider as relevant:	Response
Any relevant approved State, regional and municipal fire prevention plan.	Fire prevention measures of the East Gippsland Shire Municipal Fire Prevention Plan ensure the roadside of the Great Alpine Road and the neighbourhood are managed.
AS3959-2018 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009).	This is relevant through the derivation of Bushfire Attack Levels, and is considered when referring to the BAL. Current standard is AS3959-2018.
Building in bushfire-prone areas - CSIRO & Standards Australia (SAA HB36-1993, May 1993).	This is the handbook to AS3959 and does not need to be considered directly by the planning proposal.
Any Bushfire Prone Area map prepared under the Building Act 1993 or regulations made under that Act.	The updated Bushfire Prone Area map has been considered in this report.

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3.0 Bushfire Hazard Landscape Assessment

The Bushfire Hazard Landscape Assessment includes a plan that describes the bushfire hazard of the general locality surrounding the site (Figure Three, additionally a copy is provided in Appendix One).

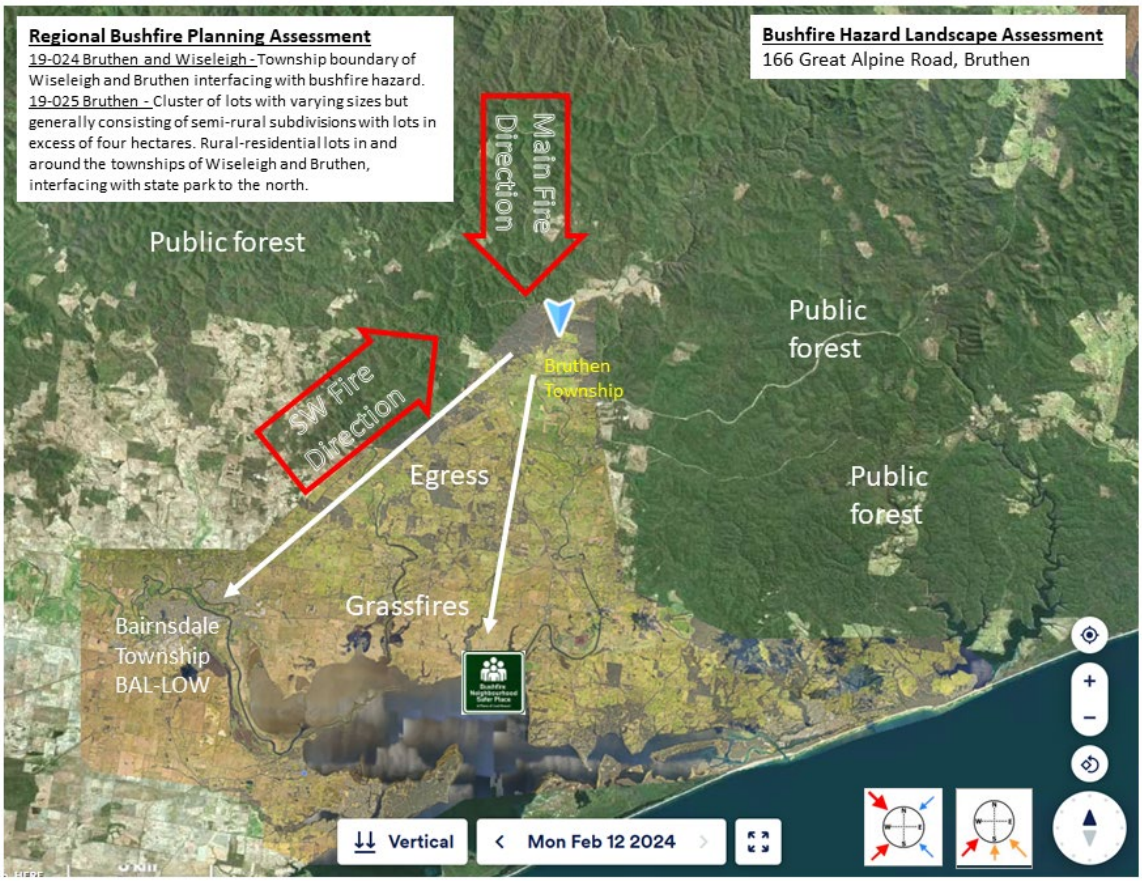

Figure Three – Bushfire Hazard Landscape Assessment – Overall subdivision level

The landscape risk of a site is an important consideration when mitigating bushfire hazards. The landscape risk is the combination of several elements in the surrounding landscape. These relate to the vegetation extent, the area available to a landscape bushfire, the orientation of the ridgelines and the steepness of the terrain, the accessibility to low threat areas and the quality of the road networks surrounding the site.

The site is considered '**Landscape Type 3'** as defined by DELWP guidance:

- *The type and extent of vegetation located more than 150 metres from the site may result in neighbourhood-scale destruction as it interacts with the bushfire hazard on and close to a site.*
- *Bushfire can approach from more than one aspect.*
- *The site is located in an area that is not managed in a minimum fuel condition.*
- *Access to an appropriate place that provides shelter from bushfire is not certain.*

The site will experience landscape fire scenarios that are not all within the assumptions of the Bushfire Management Overlay.

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3.1 Regional Bushfire Planning Assessment

The Regional Bushfire Planning Assessment (RBPA) for the Gippsland Region (2012) provides a high-level analysis of locations where the bushfire hazard may impact on planning objectives. The RBPA provides information where a range of land use planning matters intersect with a bushfire hazard to influence the level of risk to life and property from bushfire. This information is required to be used as part of strategic land use and settlement planning at the regional, municipal and local levels.

> *"The RBPA is not a statutory planning provision and does not directly translate into planning schemes. However, it complements planning scheme provisions such as the Bushfire Management Overlay (BMO) by providing spatial and qualitative information from a variety of sources which together can inform considerations about where bushfire should be assessed early in the strategic planning process."* RBPA – Gippsland Region (2012)

After review of the RBPA, it is noted that the proposal falls in an area identified as:

> *<u>19-024 Bruthen and Wiseleigh</u> – Township boundary of Wiseleigh and Bruthen interfacing with bushfire hazard.*
>
> *<u>19-025 Bruthen</u> – Cluster of lots with varying sizes but generally consisting of semi-rural subdivisions with lots in excess of four hectares. Rural-residential lots in and around the townships of Wiseleigh and Bruthen, interfacing with state park to the north.*

3.2 Vegetation Extent in the Broader Landscape

The vegetation in the broader landscape is forest with grassland along the settled valleys and the foothills further south. The grassland occurs as grazing land. An indication of the Ecological Vegetation Classes in the landscape is provided below (site central to image).

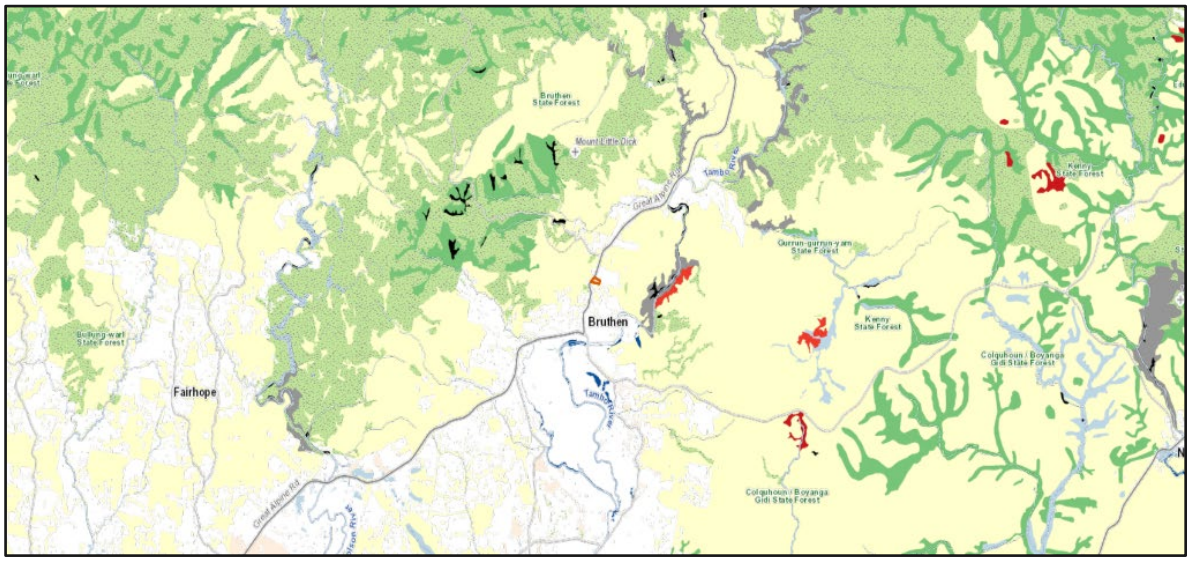

Figure Five – Biodiversity Map showing Lowland Forests (pale orange), Dry Forests (green with dark dots), Shrubby Damp Forest (green), Rainforests (black), Riverine Escarpment Scrub (deep purple), Heathy Woodlands (deep red), and Riparian Forest (blue with dark spots) (NatureKit, 2024).

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3.3 Topography

The topography of the surrounding landscape is typical of this area of Bruthen. The terrain comprises gentle undulations and a predominance of land sloping towards the north-west, continuing into forest at higher elevations.

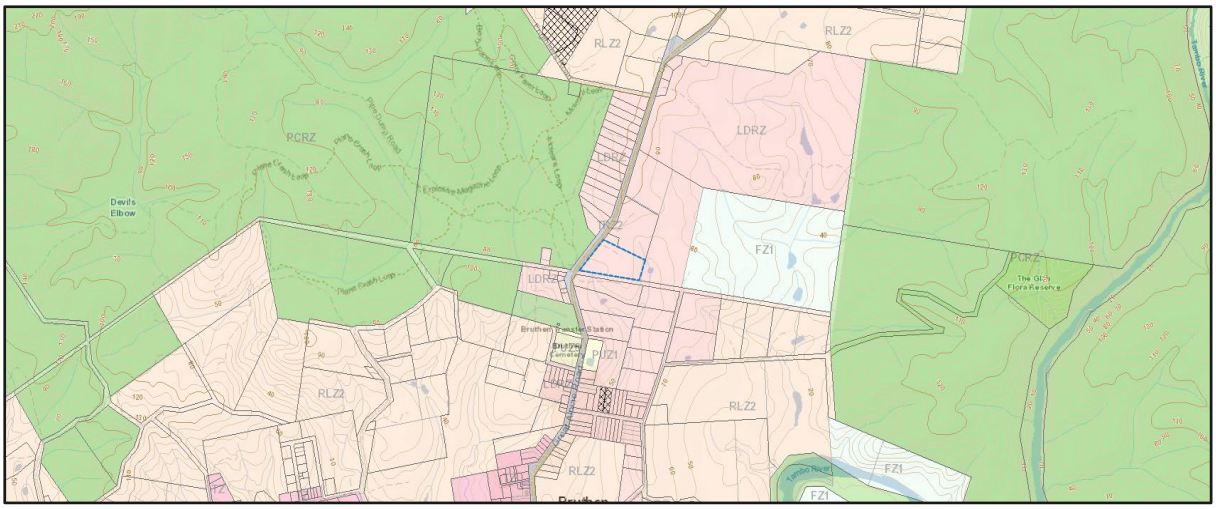

Figure Six – Topography of surrounding landscape (VicPlan, 2024)

3.4 Surrounding Road Network

The planning proposal site has frontage to Great Alpine Road. This access is directly into town.

3.5 Bushfire History of the Area

There is a long history of bushfire in the area with campaign fires and planning burning frequently occurring in the public forest. Fire history is not indicated as occurring on the specific land; however, it is expected that the land would have come under ember attack in previous major events.

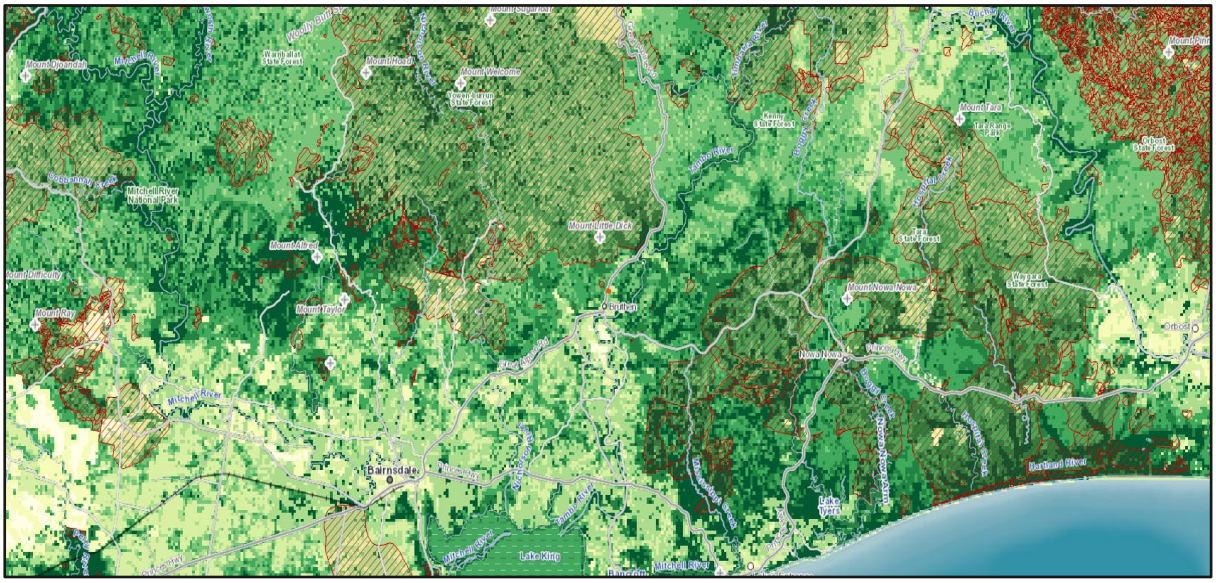

Figure Seven – Fire history (NatureKit 2024)

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3.6 Bushfire Scenarios

The site is at an increased risk from bushfire due to Bruthen State Forest to the west and forest in the broader landscape. Consideration of the potential bushfire behaviour local to the site has been undertaken in refining the options and to inform the building envelope location, siting, extent of vegetation management and building construction level.

Scenario 1 – Bushfire from the north and north-east

A fire approaching from the north under hot winds has the potential for a 17km+ fire run and fire approaching from the north-east has potential for a 21km+ fire run through public forest. This fire would impact the area and threaten Bruthen township and potential convention column collapse from north-east. A fire from this direction can bring embers to the site and ignite localised fuels providing radiant heat. This fire is a landscape fire, and may block the egress from the site beyond Bruthen. Early evacuation is recommended with shelter further afield than Bruthen.

Scenario 2 – Bushfire from the south-east

A fire approaching from the south-east has the potential for a 20km+ fire run through public forest. Cooler winds would be expected, and a fire run from this direction would be unusual and interrupted by Tambo River. A fire from this direction can bring embers to the site and ignite localised fuels providing radiant heat. This fire is unlikley to be landscape fire.

Scenario 3 – Bushfire from the west

A fire approaching from the west has the potential for a 50km+ fire run through public forest under hot winds with propagation from rugged terrain. The fire would impact the area and threaten Bruthen township. A fire from this direction can bring embers to the site and ignite localised fuels provided radiant heat. The fire is a landscape fire, and may block egress from the site. Early evacutation is recommended with shelter further afield than Bruthen.

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4.0 Bushfire Management Statement

The Bushfire Hazard Site Assessment includes a plan that describes the bushfire hazard within 150 metres of the proposed development. The description of the hazard is prepared in accordance with AS3959:2018 Construction of buildings in bushfire prone areas (Standards Australia) excluding paragraph (a) of section 2.2.3.2 (Vegetation exclusions). Refer to Figure Six and a larger copy is provided in Appendix Two. Distances are detailed in Table 1 and Table 2.

Figure Eight – Bushfire Hazard Site Assessment – Overall subdivision level

4.1 Vegetation

The vegetation within the 150-metre assessment area was classified according to AS3959:2018, Technical Guide (DELWP, 2017) and the Overall Fuel Hazard Assessment Guide (DSE, 2010).

The AS3959:2018 approach uses a generalised description of vegetation based on the AUSLIG (Australian Natural Resources Atlas" No.7 Native Vegetation) classification system. According to this method, vegetation can be classified into seven categories. Each category indicates a fire behaviour and these categories or classifications are then used to determine bushfire intensity. Information gained from the Ecological Vegetation Classes informs the vegetation classification chosen.

The forms of classifiable vegetation identified for this site are described below.

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Vegetation Classification: Forest

AS3959:2018 Definition:

Open forest – Trees 10-30 m high; 30-70% foliage cover (may include understorey of sclerophyllous low trees and tall scrubs or grass). Typically dominated by eucalypts.

Site Description:

The proposed lot has forest that is flat (initially) then sloping to a 5-degree downslope in the west beyond the 150-metre assessment area. Vegetation on the land and the Great Alpine Road reserve contribute to the forest hazard. The building envelope is sited 32 metres from the western forest. In the south, is a road reserve that is vegetated and is assessed as forest given its connectivity to the western forest. The forest is assessed as flat, and the building envelope is 25 metres north of the southern hazard.

Image –The forest west of Great Alpine Road

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Image –The forest in the road reserve along the southern boundary

Image –The forest on the lot adjacent the Great Alpine Road

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Vegetation Classification: Grassland

AS3959:2018 Definition:

Sown pasture – All forms, including situations with shrubs and trees, if the overstorey foliage cover is less than 10%.

Site Description:

The lot has grassland onsite which is generally flat but has some undulation further away. In the east the grassland has an 11-degree downslope, just inside the 150-metre assessment area. To the south the grassland is in the front of a property and has a gentle 3-degree downslope. The grassland is all used as grazing paddocks.

Image– Looking at the western grassland with the 11-degree downslope to the dam and upslope beyond.

Image– Looking at the western grassland that is flat immediately behind the proposed lot.

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Vegetation Classification: Excludable and Low threat vegetation

AS3959:2018 Definition:

2.2.3.2 Exclusions – Low threat vegetation and non-vegetated areas

The following vegetation shall be excluded from a BAL assessment:

(a) Vegetation of any type that is more than 100 m from the site
(b) Single areas of vegetation less than 1 ha in area and not within 100 m of other areas of vegetation being classified vegetation.
(c) Multiple areas of vegetation less than 0.25 ha in area and not within 20 m of the site, or each other or of other areas of vegetation being classified vegetation.
(d) Strips of vegetation less than 20 m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20 m of the site or each other, or other areas of vegetation being classified vegetation.
(e) Non-vegetated areas, that is, areas permanently cleared of vegetation, including waterways, exposed beaches, roads, footpaths, buildings and rocky outcrops.
(f) Vegetation regarded as low threat due to factors such as flammability, moisture content or fuel load. This includes grassland managed in a minimal fuel condition, mangroves and other saline wetlands, maintained lawns, gold courses (such as playing areas and fairways), maintained public reserves and parklands, sporting fields, vineyards, orchards, banana plantations, market gardens (and other non-curing crops), cultivated gardens, commercial nurseries, nature strips and windbreaks.

NOTES:
1. *Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack (recognizable as short-cropped grass for example, to a nominal height of 100 mm).*
2. *A windbreak is considered a single row of trees used as a screen or to reduce the effect of wind on the leeward side of the trees.*

Site Description:

The land immediately north of the lot has developed dwellings, some lots being smaller. The land to the south-west is small lots all established with dwellings. To the south-east is a dwelling and managed garden. Great Alpine Road is sealed and considered non-vegetated.

Image – Existing dwellings in the south-west

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4.2 Topography

The topography of the site and the surrounding is gentle undulations (Figure Seven). Most of the land falls away from the site except for along Great Alpine Road where it is generally flatter.

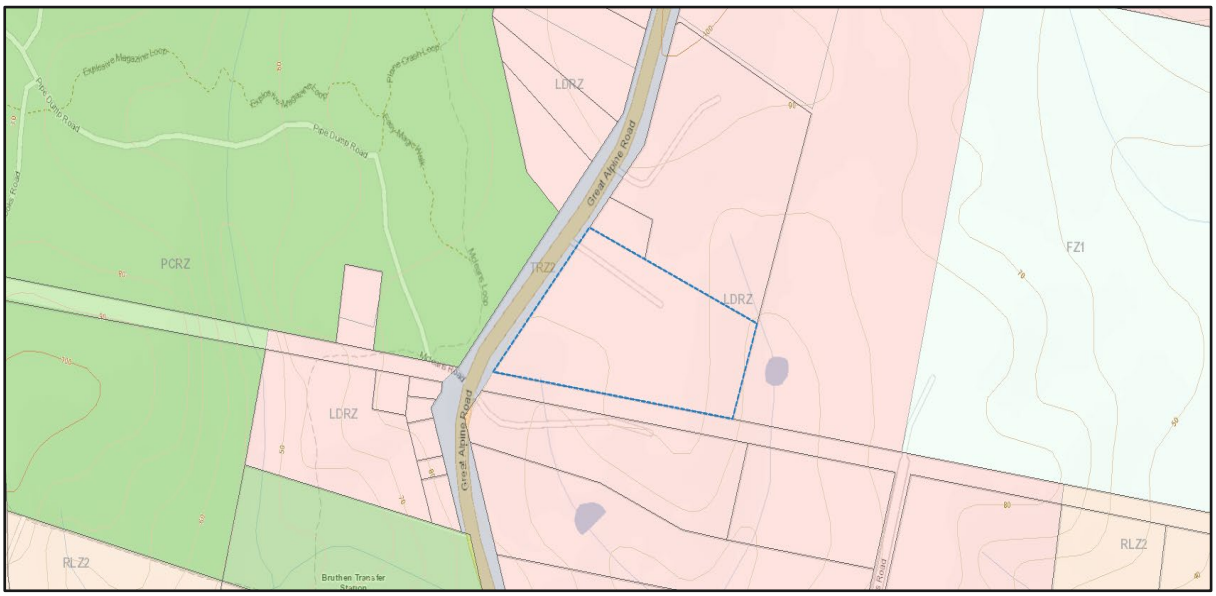

Figure Seven – Topography of the site

4.3 Separation from the Hazard and Bushfire Attack Level for the Proposed Development

The bushfire attack level (BAL) is a means of measuring the severity of a building's potential exposure to ember attack, radiant heat and direct flame contact, using increments of radiant heat expressed in kilowatts per metre squared. The BAL is also the basis for establishing the requirements for construction to improve protection of building elements from attack by bushfire.

The highest BAL determines the construction requirements for the dwelling. The BAL for this site has been calculated using a Forest Fire Danger Index (FFDI) of 100 and a Flame Temperature of 1090K. These parameters are in accordance with the risk parameters set in Clause 53.02.

An assessment of the site conditions without modification was made and informs the BAL assessment. As this is a two-lot subdivision, the ability for each site to achieve a dwelling site with a BAL29 defendable space, is required by Clause 44.06.

Table 1 – Separation from the Hazard Assessment- overall subdivision

Orientation	Highest threat vegetation	Average slope under classifiable vegetation	Separation distance	Bushfire Attack Level (BAL)
North	Grassland	Upslope	0 metres	<Column D
	Low threat vegetation	Not applicable	Not applicable	Table 2
East	Grassland	11 degrees downslope	0 metres	<Column D
South	Forest	Flat	0 metres	<Column D
	Grassland	3 degrees downslope	46 metres	Column A
	Low threat vegetation	Not applicable	Not applicable	Table 2
West	Forest	6 degrees downslope	0 metres	<Column D

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Table 2 – Defendable Space determination for the building envelope – Lot 2 (Column C, BAL29)

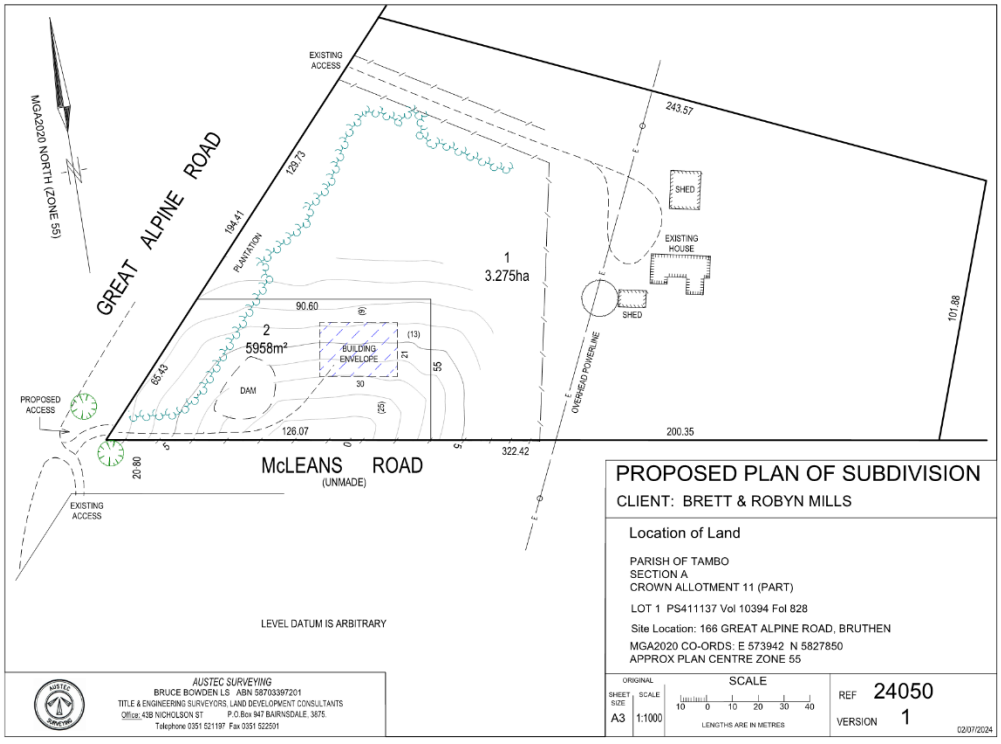
Orientation	Highest threat vegetation	Average slope under classifiable vegetation	Separation distance currently	Defendable space required
North	Grassland	Flat	0 metres	9 metres
East	Grassland	11 degrees downslope	0 metres	13 metres
South	Forest	Flat	25 metres	25 metres
West	Forest	5 degrees downslope	32 metres	32 metres

Assumptions:

- The balance lot (Lot 1) will remain as grassland
- The road reserve in the south will remain undeveloped and present as forest
- The vegetation on the proposed Lot 1 (western side) will remain.
- The building envelope is sited to achieve the required defendable space within Lot 1.

5.0 Bushfire Management Statement

Refer to Appendix Three for the proposed Plan of Subdivision. Below is an image of the proposed Plan of Subdivision



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5.1 Design Response Against Clause 53.02

In accordance with Clause 44.06 Bushfire Management Overlay a response is provided against Clause 53.02. A selection of the sub clauses and associated objectives, approved measures (AM), alternative measures (AltM) and decision guidelines applies to this application. Table 3 details which clauses are relevant to this application and the following pages demonstrate how the requirements have been met for each relevant standard.

Table 3 Specification of relevant clauses

Clause	Approved Measure	Achieved	Justification
Clause 53.02-3 Dwelling in existing settlements – Bushfire protection objective	AM 1.1	Not applicable	
	AM 1.2	Not applicable	
	AM 1.3	Not applicable	
Clause 53.02-4.1 Landscape, siting and design objectives	AM 2.1	Applicable	Subdivision
	AM 2.2	Applicable	As required by AM5.2
	AM 2.3	Not applicable	Subdivision only, no new buildings
Clause 53.02-4.2 Defendable space and construction objectives	AM 3.1	Not applicable	Addressed through AM5.1
	AM 3.2	Not applicable	
	AltM 3.3	Not applicable	
	AltM 3.4	Not applicable	
	AltM 3.5	Not applicable	
	AltM 3.6	Not applicable	
Clause 53.02-4.3 Water supply and access objectives	AM 4.1	Applicable	As required by AM5.2
	AM 4.2	Not applicable	
Clause 53.02-4.4 Subdivision objectives	AM 5.1	Not applicable	
	AM 5.2	Applicable	Low Density Residential Zone (LDRZ)
	AM 5.3	Not applicable	Less than 10 lots
	AM 5.4	Applicable	Limited relevance
	AltM 5.5	Not applicable	Less than 10 lots

The following part of the application outlines each of the relevant clauses and provides justification as to how this design responds to the requirements.

Clause 53.02-4.1 Bushfire Protection objective

Landscape, siting and design objective

Development is appropriate having regard to the nature of the bushfire risk arising from the surrounding landscape.

Development is sited to minimise the risk from bushfire.

Development is sited to provide safe access for vehicles, including emergency vehicles.

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Building design minimises vulnerability to bushfire attack.

Approved Measure	Requirement
AM 2.1	**The bushfire risk to the development from the landscape beyond the site can be mitigated to an acceptable level.** **Response:** This site is positioned to the north of Bruthen as part of the township, is an infill subdivision in an established settlement. The subdivision increases the opportunity for one dwelling to be located in close proximity to existing dwellings. The site will experience ember attack, radiant heat and localised ignitions associated with forest runs of fire from the north and west, and scattered vegetation. These scenarios are detailed earlier in this report and will bring fire to the locality. It is noted that site has reasonable access, an ability to achieve a separation from the hazard commensurate to Column C of Table 2 to Clause 53.02-5 and has proximity to a township settlement. The landscape bushfire scenarios north of the site are not within the scope of the Bushfire Management Overlay assumptions, and convective column collapse is feasible.
AM 2.2	**A building is sited to ensure the site best achieves the following:** • **The maximum separation distance between the building and the bushfire hazard** • **The building is in close proximity to a public road** • **Access can be provided to the building for emergency services vehicles** **Response:** There is an ability to locate a dwelling to achieve separation distance from the hazard. The siting opportunity on Lot 2 achieves Column C of Table 2 to Clause 53.02-5. Lot 2 has defendable space to be provided thus separating the bushfire hazard from any future dwelling. Lots 1 and 2 directly access a public road. Fire brigade access and firefighting water supply is specified for Lot 2.

Clause 53.02-4.3 Water supply and access objectives

A static water supply is provided to assist in protecting property.

Vehicle access is designed and constructed to enhance safety in the event of a bushfire.

Approved Measure	Requirement
AM 4.1	**A building used for a dwelling (including an extension or alteration to a dwelling), a dependant person's unit, industry, office or retail premises is provided with:** • **A static water supply for firefighting and property protection purposes specified in Table 4 to Clause 53.02-5.** • **Vehicle access that is designed and constructed as specified in Table 5 to Clause 53.02-5.** **The water supply may be in the same tank as other water supplies provided that a separate outlet is reserved for firefighting water supplies.**

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Response: Both lots require a non-combustible water tank containing a minimum of 10,000 litres of water to be provided at the time of building a dwelling. This requirement will be achieved through the required Section 173 agreement relating to bushfire protection measures on Lot 2. Both lots directly access a public road. Lots 1 and 2 directly access a public road. Fire brigade access and firefighting water supply is specified for Lot 2.

The subdivision meets the approved measures AM4.1 and the water supply and access objective (Clause 53.02-4.3) as required by Clause 53.02-4.4 AM5.2.

Clause 53.02-4.4 Subdivision objectives

To provide lots that are capable of being developed in accordance with the objectives of Clause 53.02.

To specify at the subdivision stage bushfire protection measures to develop a lot with a single dwelling on land zoned for residential or rural residential purposes.

Approved Measure	Requirement

AM 5.2	**An application to subdivide land zoned for residential or rural residential purposes must be accompanied by a plan that shows:**
	• **Each lot satisfies the approved measure in AM2.1**
	• **A building envelope for a single dwelling on each lot that complies with AM2.2 and provides defendable space in accordance with:**
	  ○ **Columns A or B of Table 2 to Clause 53.02-5 for a subdivision that creates 10 or more lots; or**
	  ○ **Columns A, B or C of Table 2 to Clause 53.02-5 for a subdivision that creates less than 10 lots.**
	The bushfire attack that corresponds to the defendable space provided in accordance with Table 2 to Clause 53.02-5 must be noted on the building envelope.
	• **Defendable space wholly contained within the boundaries of the proposed subdivision. Defendable space may be shared between lots within the subdivision. Defendable space for a lot may utilise communal areas, such as roads, where that land can meet the requirements for defendable space.**
	• **Vegetation management requirements in accordance with Table 6 to implement and maintain the defendable space required under this approved measure.**
	• **Water supply and vehicle access that complies with AM4.1.**
	
	Response: Lot 2 (the smaller new lot) can provide separation from the hazard in accordance with Column C of Table 2 to Clause

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	53.02-5, as detailed earlier in this report. Lot 1 has an existing dwelling, however it has ample room to provide a future siting that meets Column A, B or C of Table 2 to Clause 5.02-5. It is demonstrated that a future dwelling site Lot 2 is able to be achieved and be exposed to a radiant heat flux of less than 29kW/m^2. Defendable space is wholly contained within the boundaries of the proposed subdivision. There is no reliance on off-site defendable space, and it is appropriate to rely on the balance of Lot 1 as being grassland. The vegetation management requirements for the subdivision are detailed on the Bushfire Management Plan. <u>Water supply and vehicle access</u> Both lots require a non-combustible water tank containing a minimum of 10,000 litres of water to be provided at the time of building a dwelling. This requirement will be achieved through the required Section 173 agreement relating to bushfire protection measures on Lot 2. Both lots directly access a public road. Lots 1 and 2 directly access a public road. Fire brigade access and firefighting water supply is specified for Lot 2. The subdivision meets the approved measures AM4.1 and the water supply and access objective (Clause 53.02-4.3) as required by Clause 53.02-4.4 AM5.2.
AM5.4	**A subdivision manages the bushfire risk to future development from existing or proposed landscaping, public open space and communal areas.** **Response:** There are no communal areas, and the new lot that has the greatest influence on existing development will have defendable space applied.

5.2 Expected Planning Permit Conditions

The following are expected to be the planning permit conditions, and apply to Lot 2 only:

Bushfire Management Plan not altered

The Bushfire Management Plan (Version 1, dated 3/7/2024) must be endorsed to form part of the permit and must not be altered unless otherwise agreed in writing by the CFA and the Responsible Authority.

Matters to be set out in Section 173 Agreement

To give effect to the requirements of Clause 44.06-4 of the East Gippsland Planning Scheme, and the above condition, the section 173 Agreement prepared in accordance with Clause 44.06-4 must specify the following:

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• The occupation of a dwelling or dependent person's unit must not start on any lot until all of the bushfire mitigation measures specified on the Bushfire Management Plan endorsed under this permit have been implemented on the relevant lot to the satisfaction of the Responsible Authority.

• The bushfire mitigation measures which form part of the Section 173 Agreement and the planning permit and endorsed plans, including those relating to construction standards (BAL), defendable space, water supply and access must be maintained to the satisfaction of the Responsible Authority.

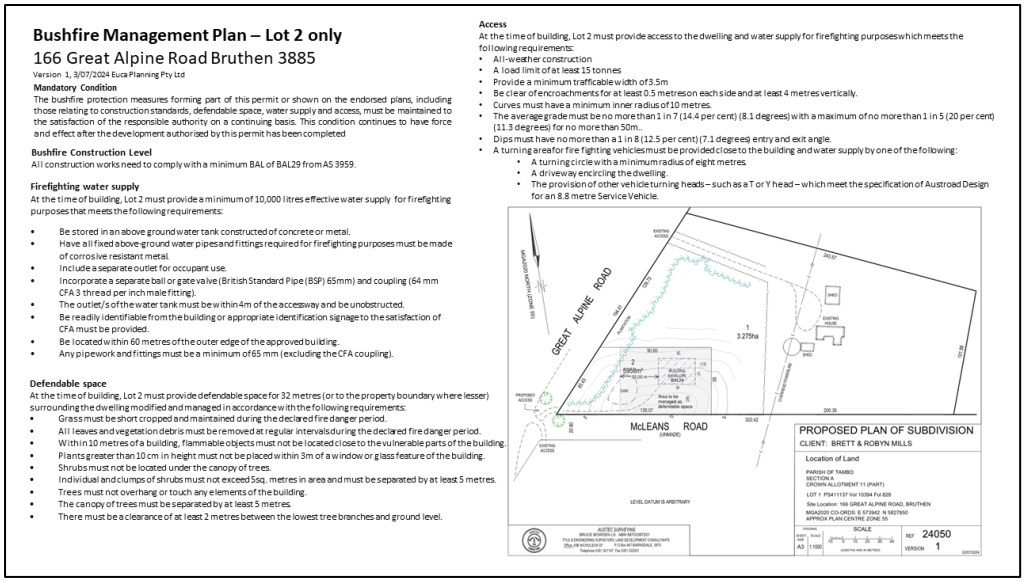
The Bushfire Management Plan endorsed under this permit must be included as an annexure to the agreement.

Maintenance of defendable space

Before the Statement of Compliance is issued under the Subdivision Act 1988 defendable space on every lot in the subdivision must be implemented and maintained as specified on the Bushfire Management Plan, unless otherwise agreed in writing by the CFA and the Responsible Authority.

5.3 Bushfire Management Plan

Refer to Appendix Four for the proposed Bushfire Management Plan. Below is an image of the proposed Bushfire Management Plan.



Bushfire Management Plan – Lot 2 only
166 Great Alpine Road Bruthen 3885
Version 1, 3/07/2024 Euca Planning Pty Ltd

Mandatory Condition
The bushfire protection measures forming part of this permit or shown on the endorsed plans, including those relating to construction standards, defendable space, water supply and access, must be maintained to the satisfaction of the responsible authority on a continuing basis. This condition continues to have force and effect after the development authorised by this permit has been completed

Bushfire Construction Level
All construction works need to comply with a minimum BAL of BAL29 from AS 3959.

Firefighting water supply
At the time of building, Lot 2 must provide a minimum of 10,000 litres effective water supply for firefighting purposes that meets the following requirements:

- Be stored in an above ground water tank constructed of concrete or metal.
- Have all fixed above-ground water pipes and fittings required for firefighting purposes must be made of corrosive resistant metal.
- Include a separate outlet for occupant use.
- Incorporate a separate ball or gate valve (British Standard Pipe (BSP) 65mm) and coupling (64 mm CFA 3 thread per inch male fitting).
- The outlet/s of the water tank must be within 4m of the accessway and be unobstructed.
- Be readily identifiable from the building or appropriate identification signage to the satisfaction of CFA must be provided.
- Be located within 60 metres of the outer edge of the approved building.
- Any pipework and fittings must be a minimum of 65 mm (excluding the CFA coupling).

Defendable space
At the time of building, Lot 2 must provide defendable space for 32 metres (or to the property boundary where lesser) surrounding the dwelling modified and managed in accordance with the following requirements:

- Grass must be short cropped and maintained during the declared fire danger period.
- All leaves and vegetation debris must be removed at regular intervals during the declared fire danger period.
- Within 10 metres of a building, flammable objects must not be located close to the vulnerable parts of the building.
- Plants greater than 10 cm in height must not be placed within 3m of a window or glass feature of the building.
- Shrubs must not be located under the canopy of trees.
- Individual and clumps of shrubs must not exceed 5sq. metres in area and must be separated by at least 5 metres.
- Trees must not overhang or touch any elements of the building.
- The canopy of trees must be separated by at least 5 metres.
- There must be a clearance of at least 2 metres between the lowest tree branches and ground level.

Access
At the time of building, Lot 2 must provide access to the dwelling and water supply for firefighting purposes which meets the following requirements:

- All-weather construction
- A load limit of at least 15 tonnes
- Provide a minimum trafficable width of 3.5m
- Be clear of encroachments for at least 0.5 metres on each side and at least 4 metres vertically.
- Curves must have a minimum inner radius of 10 metres.
- The average grade must be no more than 1 in 7 (14.4 per cent) (8.1 degrees) with a maximum of no more than 1 in 5 (20 per cent) (11.3 degrees) for no more than 50m..
- Dips must have no more than a 1 in 8 (12.5 per cent) (7.1 degrees) entry and exit angle.
- A turning area for fire fighting vehicles must be provided close to the building and water supply by one of the following:
  - A turning circle with a minimum radius of eight metres.
  - A driveway encircling the dwelling.
  - The provision of other vehicle turning heads – such as a T or Y head – which meet the specification of Austroad Design for an 8.8 metre Service Vehicle.

6.0 References

Standards Australia (2018) Construction of Buildings in Bushfire Prone Areas. Standards Australia, North Sydney, NSW.

The State of Victoria Department of Environment, Land, Water and Planning (2024) NatureKit.

The State of Victoria Department of Environment, Land, Water and Planning (2015) Fire Operations Plan 2015/16-2017/18 Gippsland Region.

The State of Victoria Department of Planning and Community Development (2012) Regional Bushfire Planning Assessment – Gippsland Region.

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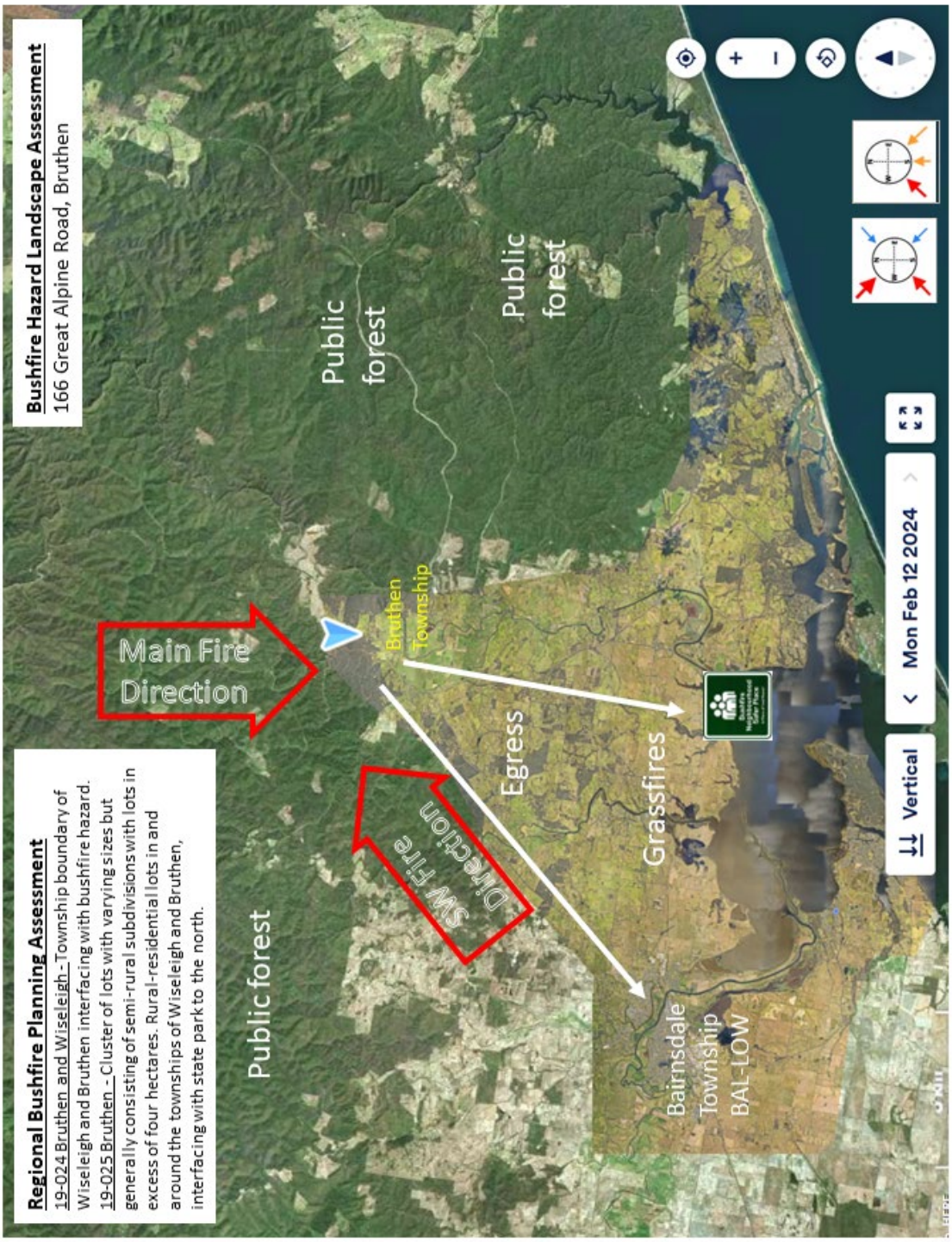
7.0 Appendices

Appendix One – Bushfire Hazard Landscape Assessment



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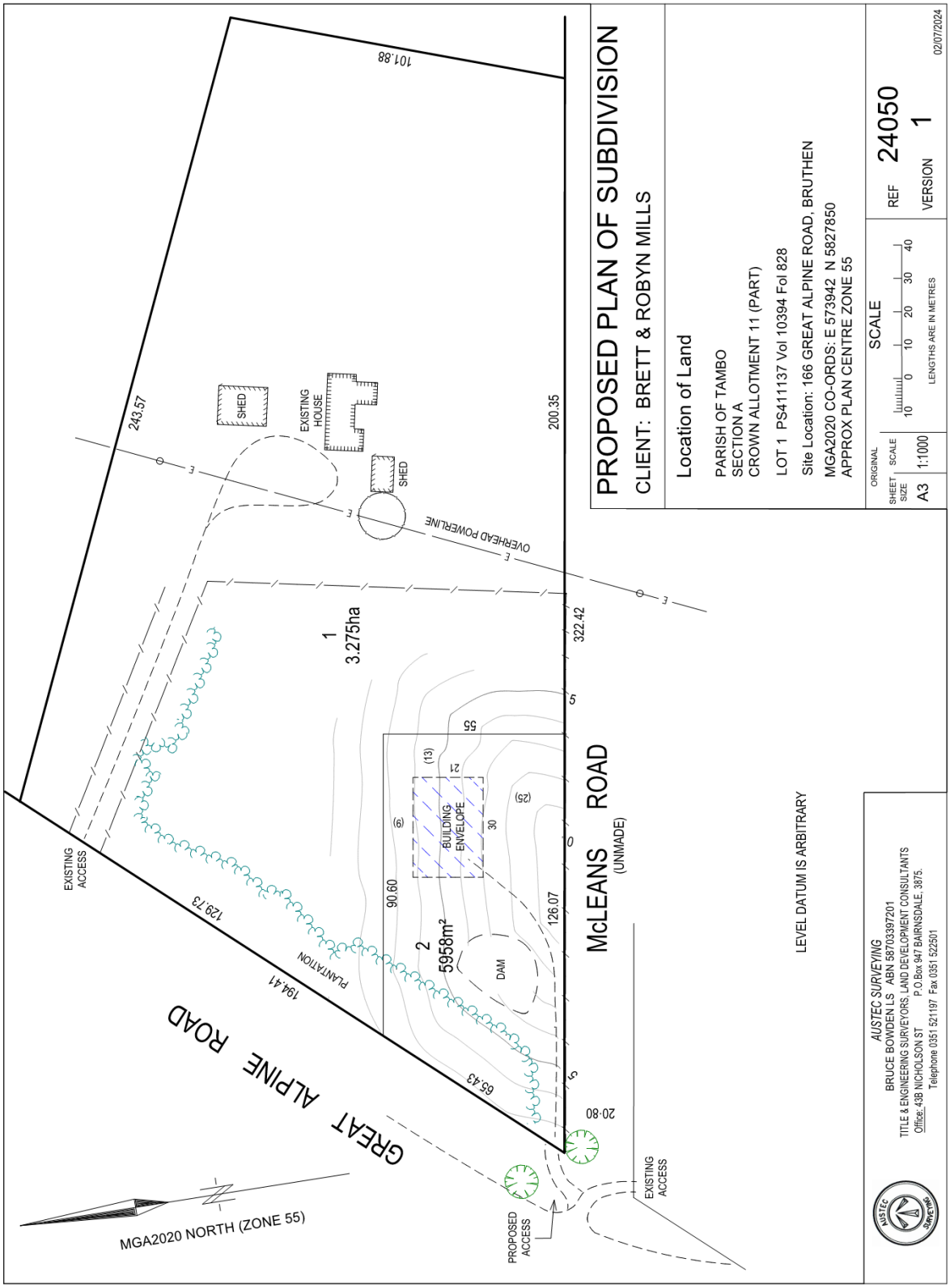
Appendix Three –Proposed Plan of Subdivision



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Bushfire Management Plan – Lot 2 only

166 Great Alpine Road Bruthen 3885

Version 1, 3/07/2024 Euca Planning Pty Ltd

Mandatory Condition

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Firefighting water supply

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- Plants greater than 10 cm in height must not be placed within 3m of a window or glass feature of the building.
- Shrubs must not be located under the canopy of trees.
- Individual and clumps of shrubs must not exceed 5sq. metres in area and must be separated by at least 5 metres.
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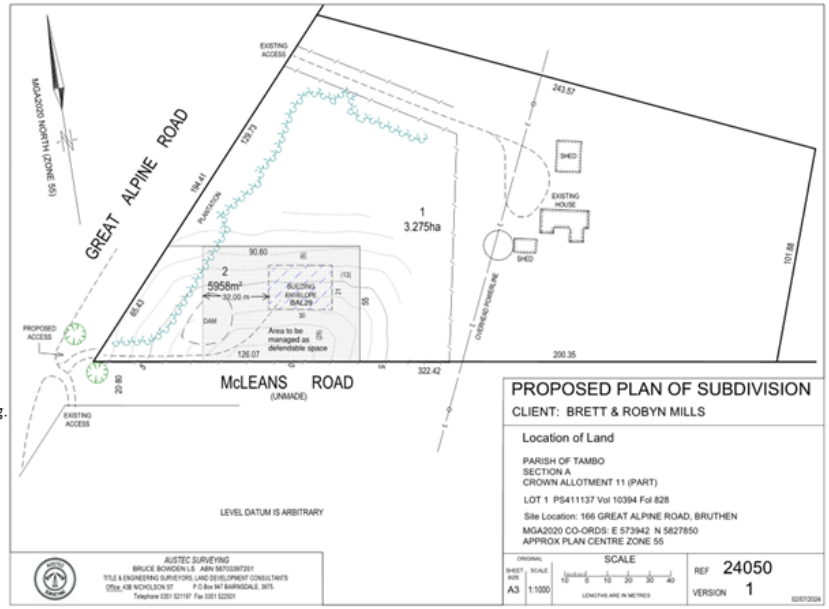

Appendix Four – Proposed Bushfire Management Plan

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MGA2020 NORTH (ZONE 55)

GREAT ALPINE ROAD

EXISTING ACCESS

129.73

194.41

PLANTATION

1
3.275ha

90.60

2
5958m²

BUILDING ENVELOPE

(9)

(13)

21

30

55

65.43

DAM

(25)

PROPOSED ACCESS

126.07

5

0

5

322.42

(200.35)

142·25

20·80

McLEANS ROAD
(UNMADE)

EXISTING ACCESS

E

OVERHEAD POWERLINE

14·50

7·95

(243.57)

130·09

129·46

129·69

5·92

SHED

EXISTING HOUSE

SHED

127·35

118·56

101.88

POWERLINE EASEMENT 12m WIDE

POWERLINE EASEMENT 12m WIDE

LEVEL DATUM IS ARBITRARY

PROPOSED PLAN OF SUBDIVISION

CLIENT: BRETT & ROBYN MILLS

Location of Land

PARISH OF TAMBO
SECTION A
CROWN ALLOTMENT 11 (PART)

LOT 1 PS411137 Vol 10394 Fol 828

Site Location: 166 GREAT ALPINE ROAD, BRUTHEN

MGA2020 CO-ORDS: E 573942 N 5827850
APPROX PLAN CENTRE ZONE 55

AUSTEC SURVEYING
BRUCE BOWDEN LS ABN 58703397201
TITLE & ENGINEERING SURVEYORS, LAND DEVELOPMENT CONSULTANTS
Office: 43B NICHOLSON ST P.O.Box 947 BAIRNSDALE, 3875.
Telephone 0351 521197 Fax 0351 522501

ORIGINAL SHEET SIZE	SCALE	SCALE	REF	VERSION
A3	1:1000	10 0 10 20 30 40 LENGTHS ARE IN METRES	24050	1

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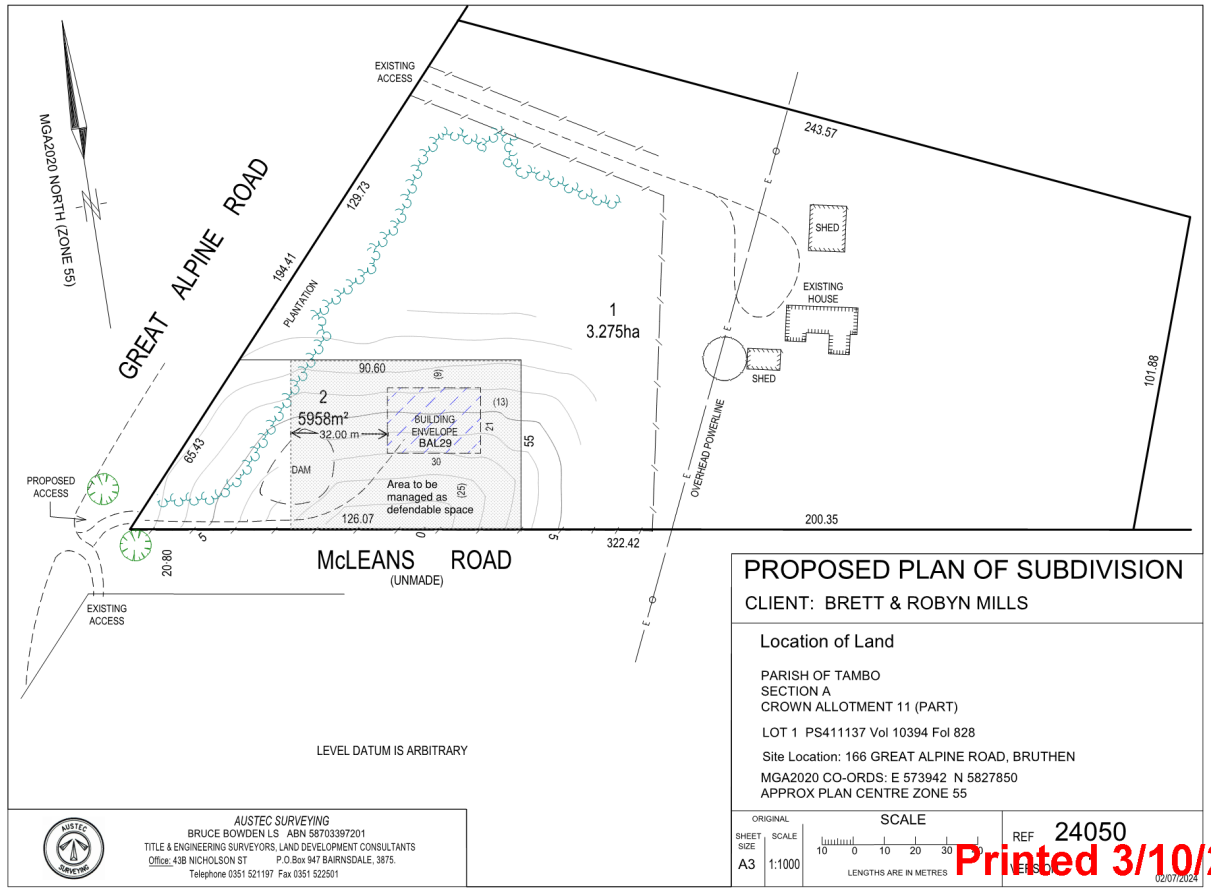

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