Form 2

NOTICE OF AN APPLICATION FOR PLANNING PERMIT

The land affected by the application is located at:	Garfield North Road, Garfield North 3814 (Cannibal Creek Recreation Reserve) CA12J, 12K & 12H Parish of Bunyip
The application is for a permit to:	Use and Development of Land for a Hall
The applicant for the permit is:	Cardinia Shire Council
The application reference number is:	T230547
You may look at the application and any documents that support the application at the office of the Responsible Authority:	Cardinia Shire Council 20 Siding Avenue Officer 3809 This can be done during office hours and is free of charge. Documents can also be viewed on Council's website: https://www.cardinia.vic.gov.au/advertisedplanningapplications

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 sent to the Responsible Authority in writing, at Cardinia Shire Council, PO Box 7, Pakenham, Vic, 3810 or email at mail@cardinia.vic.gov.au.
* include the name and address of the objector/ submitter.
* include the application number and site address.
* include the reasons for the objection, and
* state how the objector would be affected.

The Responsible Authority will not decide on the application before:	06 May 2024

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

Please be aware that copies of objections/submissions received may be made available to any person for the purpose of consideration as part of the planning process.

For additional information or advice contact Cardinia Shire Council, Planning Department on 1300 787 624 or mail@cardinia.vic.gov.au.

Your objection/submission and personal information is collected by Cardinia Shire Council for the purposes of the planning process as set out in the *Planning and Environment Act 1987*. If you do not provide your name and address, Council will not be able to consider your objection/submission. Your objection/submission will be available free of charge at the Council office for any person to inspect and copies may be made available on request to any person for the relevant period set out in the *P&E Act*. You must not submit any personal information or copyright material of third parties without their informed consent. By submitting the material, you agree that the use of the material as detailed above does not breach any third party's right to privacy and copyright.

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Cardinia

T230547

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19-Apr-2024

View map online

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Application Summary

Portal Reference	A4235C7

Basic Information

Proposed Use	The building works for a community centre in Cannibal Creek Reserve, Garfield North. The proposed location straddles both zones - the Public Conservation and Resource Zone and the Green Wedge Zone.
Current Use	There are arenas for horses, toilet facilities and a canteen within the Cannibal Creek Reserve. The footprint of the building is currently vacant with a few trees planted by the committee.
Cost of Works	$1,500,000
Site Address	Cannibal Creek Reserve

Covenant Disclaimer

Does the proposal breach, in any way, an encumbrance on title such as restrictive covenant, section 173 agreement or other obligation such as an easement or building envelope?	No such encumbrances are breached

☐ Note: During the application process you may be required to provide more information in relation to any encumbrances.

Contacts

Type	Name	Address	Contact Details
Applicant	[redacted] Cardinia Shire Council	20 Siding Avenue, Officer VIC 3809	[redacted]
Owner	Department of Energy, Environment and Climate Action	20 Siding Avenue, Officer VIC 3809	
Preferred Contact	[redacted] Cardinia Shire Council	20 Siding Avenue, Officer VIC 3809	[redacted]

Fees

Regulation	Fee Condition	Amount	Modifier	Payable
9 - Class 13	More than $1,000,000 but not more than $5,000,000	$3,665.00	100%	$3,665.00
		Total		**$3,665.00**

Meetings

Meeting Type	Officer Name	Date of Meeting
Pre Application	[redacted]	23 Aug 2022

Documents Uploaded

Date	Type	Filename
02-11-2023	A Copy of Title	Crown Diagram 2006 Parish of Bunyip.pdf
02-11-2023	A Copy of Title	Crown Folio 2006 Parish of Bunyip.pdf
02-11-2023	A Copy of Title	Crown Title 12HPP2290.pdf
02-11-2023	A Copy of Title	Crown title_diagram.pdf
02-11-2023	Site plans	23015-Garfield-Nth-CC-231026.pdf
02-11-2023	Site plans	EAST.jpg
02-11-2023	Proposed elevation plan	EAST.jpg
02-11-2023	Proposed elevation plan	NORTH.jpg
02-11-2023	Proposed elevation plan	SOUTH.jpg
02-11-2023	Proposed elevation plan	WEST.jpg
02-11-2023	Additional Document	FORM__Application_for_a_Planning_Permit__Cardinia_logo__July_2022.pdf

☐ Remember it is against the law to provide false or misleading information, which could result in a heavy fine and cancellation of the permit

Lodged By

Site User	[redacted] Cardinia Shire Council	20 Siding Avenue, Officer VIC 3809	[redacted]
Submission Date	02 November 2023 - 12:21:PM		

Declaration

☑ By ticking this checkbox, I, [redacted] declare that all the information in this application is true and correct; and the Applicant and/or Owner (if not myself) has been notified of the application.

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CROWN FOLIO STATEMENT

VOLUME 11722 FOLIO 334 Security no : 124110236242C
No CofT exists Produced 02/11/2023 11:04 AM

CROWN FOLIO

LAND DESCRIPTION

Crown Allotment 2006 Parish of Bunyip.
Created by instrument MI061124E 06/08/2016

CROWN LAND ADMINISTRATOR

SECRETARY TO THE DEPARTMENT OF ENVIRONMENT, LAND, WATER AND PLANNING of 8 NICHOLSON STREET EAST MELBOURNE VIC 3002
MI061124E 06/08/2016

STATUS, ENCUMBRANCES AND NOTICES

RESERVATION MI061126A 06/08/2016
TEMPORARY
PUBLIC RECREATION
GP3031

DIAGRAM LOCATION

SEE CD026464T FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NIL

----------END OF CROWN FOLIO STATEMENT----------

Additional information: (not part of the Crown Folio Statement)

Street Address: GARFIELD NORTH ROAD GARFIELD NORTH VIC 3814

DOCUMENT END

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Number of Pages (excluding this cover sheet)	**1**
Document Assembled	**02/11/2023 11:06**

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CROWN DIAGRAM

CD026464T

Location of Land

Parish : BUNYIP
Allotment : 2006

This plan has been created to assist in locating a Crown Land parcel

Warning - No warranty is given as to the accuracy or completeness of this plan

Any derived dimensions are approximate

Standard Parcel Identifier (SPI) : 2006\PP2290

Vicmap Parcel PFI : 216047869

Coordinate Position

MGA : 384110, 5785940 (55)

VicRoads Directory Reference : 96 C3 (ed. 7)

Compiled from VICMAP cadastral mapping data

Date: 14/01/2011

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SCALE
0 100 200 300 400 500
METRES

Sheet 1 of 1 Sheets

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CROWN DIAGRAM

CD026479E

Location of Land

Parish : BUNYIP
Allotment : 12H

This plan has been created to assist in locating a Crown land parcel

Warning: No warranty is given as to the accuracy or completeness of this plan

Any derived dimensions are approximate

Standard Parcel Identifier (SPI) : 12H\PP2290
Vicmap Parcel PFI : 52535842

Coordinate Position
MGA : 384120, 5786090 (55)
Vicroads Directory Reference : 96 C3 (ed. 6)

Compiled from VICMAP cadastral mapping data

Date: 22/05/2009

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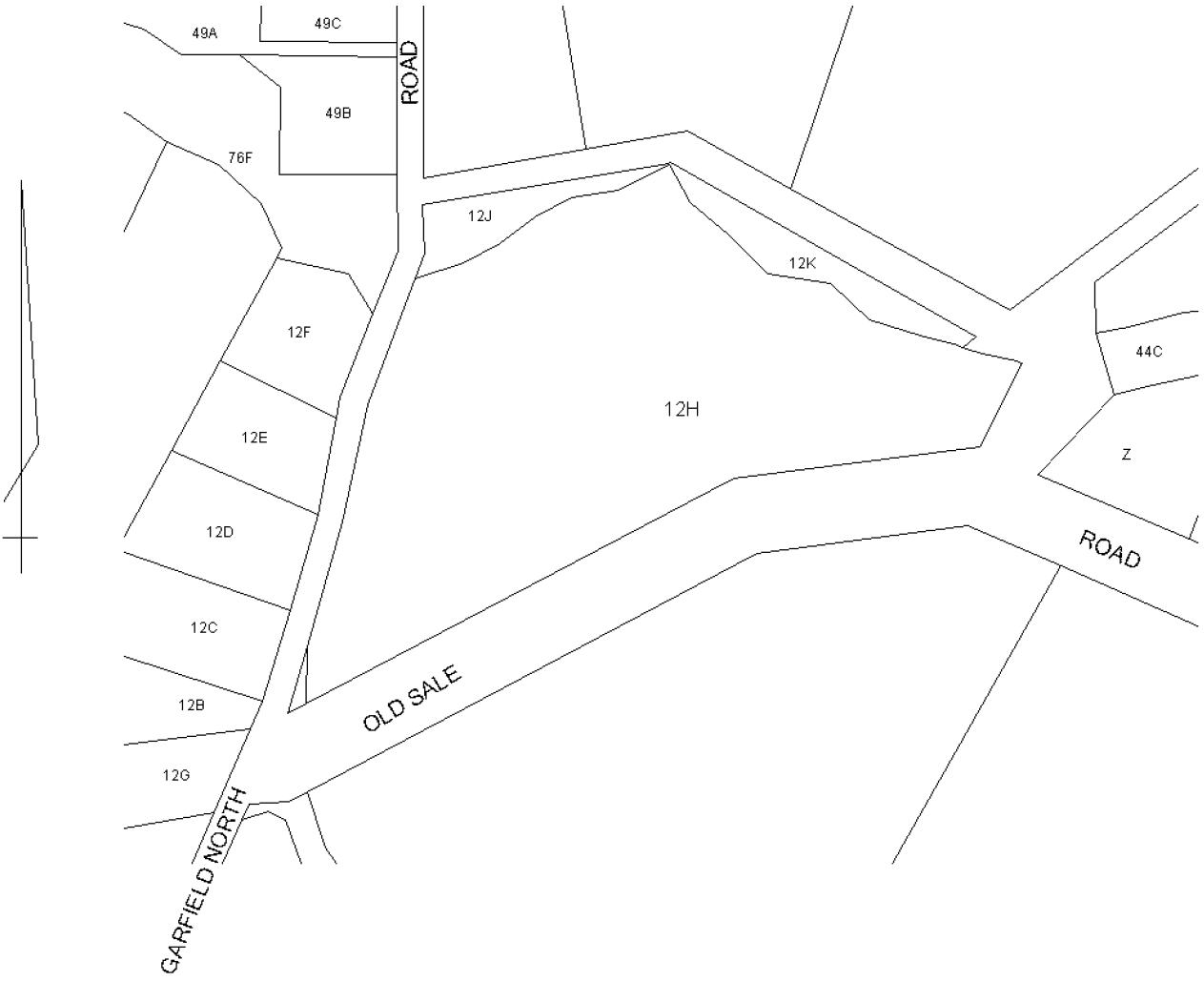

SCALE
0 100 200 300 400 500
METRES

Sheet 1 of 1 Sheets

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CROWN FOLIO STATEMENT

VOLUME 11722 FOLIO 349 Security no : 124108982218V
No CofT exists Produced 11/09/2023 10:20 AM

CROWN FOLIO

LAND DESCRIPTION

Crown Allotment 12H Parish of Bunyip.
Created by instrument MI061166M 06/08/2016

CROWN LAND ADMINISTRATOR

SECRETARY TO THE DEPARTMENT OF ENVIRONMENT, LAND, WATER AND PLANNING of 8 NICHOLSON STREET EAST MELBOURNE VIC 3002
MI061166M 06/08/2016

STATUS, ENCUMBRANCES AND NOTICES

RESERVATION MI061168H 06/08/2016
TEMPORARY
CAMPING AND FOR AFFORDING ACCESS TO WATER

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RESERVATION MI061169F 06/08/2016
TEMPORARY
PUBLIC RECREATION

DIAGRAM LOCATION

SEE CD026479E FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NIL

----------END OF CROWN FOLIO STATEMENT----------

Additional information: (not part of the Crown Folio Statement)

Street Address: GARFIELD NORTH ROAD GARFIELD NORTH VIC 3814

DOCUMENT END

Home	Account: **322250**		Authority Fee(GST exclusive): **$9.16** Service Fee(GST exclusive): **$0.00** GST Payable: **$0.00** Total: **$9.16**	11/09/2023 10:20AM

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Cardinia

Planning Enquiries
Phone: 1300 787 624
Web: www.cardinia.vic.gov.au

Office Use Only

Application No.: Date Lodged: / /

Application for a **Planning Permit**

If you need help to complete this form, read MORE INFORMATION at the end of this form.

⚠ Any material submitted with this application, including plans and personal information, will be made available for public viewing, including electronically, and copies may be made for interested parties for the purpose of enabling consideration and review as part of a planning process under the *Planning and Environment Act 1987*. If you have any questions, please contact Council's planning department.

⚠ **Questions marked with an asterisk (*) must be completed.**

⚠ **If the space provided on the form is insufficient, attach a separate sheet.**

i Click for further information.

Clear Form

The Land i

Address of the land. Complete the Street Address and one of the Formal Land Descriptions.

Street Address *

Unit No.: | St. No.: | St. Name: Old Sale Road

Suburb/Locality: Garfield North | Postcode: 3814

Formal Land Description *
Complete either A or B.

⚠ This information can be found on the certificate of title.

If this application relates to more than one address, attach a separate sheet setting out any additional property details.

A Lot No.: ○ Lodged Plan ○ Title Plan ○ Plan of Subdivision No.:

OR

B Crown Allotment No.: 12H/2006 | Section No.: VOLUME 11722 FOLIO 349/334

Parish/Township Name: Parish of Bunyip

The Proposal

⚠ You must give full details of your proposal and attach the information required to assess the application. Insufficient or unclear information will delay your application.

i **For what use, development or other matter do you require a permit?** *

The building works for a community centre in Cannibal Creek Reserve, Garfield North.

The proposed location straddles both zones - the Public Conservation and Resource Zone and the Green Wedge Zone.

Plans are attached herewith

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☑ Provide additional information about the proposal, including: plans and elevations; any information required by the planning scheme, requested by Council or outlined in a Council planning permit checklist; and if required, a description of the likely effect of the proposal.

i **Estimated cost of any development for which the permit is required** *

Cost $ 1.5M ⚠ You may be required to verify this estimate. Insert '0' if no development is proposed.

If the application is for land within **metropolitan Melbourne** (as defined in section 3 of the *Planning and Environment Act 1987*) and the estimated cost of the development exceeds $1 million (adjusted annually by CPI) the Metropolitan Planning Levy **must** be paid to the State Revenue Office and a current levy certificate **must** be submitted with the application.
Visit www.sro.vic.gov.au for information.

Existing Conditions

Describe how the land is used and developed now *

For example, vacant, three dwellings, medical centre with two practitioners, licensed restaurant with 80 seats, grazing.

There are arenas for horses, toilet facilities and a canteen within the Cannibal Creek Reserve.
The footprint of the building is currently vacant with a few trees planted by the committee.

☑ Provide a plan of the existing conditions. Photos are also helpful.

Title Information

Encumbrances on title *

Does the proposal breach, in any way, an encumbrance on title such as a restrictive covenant, section 173 agreement or other obligation such as an easement or building envelope?

- ○ Yes (If 'yes' contact Council for advice on how to proceed before continuing with this application.)
- ☑ No
- ○ Not applicable (no such encumbrance applies).

☑ Provide a full, current copy of the title for each individual parcel of land forming the subject site.
The title includes: the covering 'register search statement', the title diagram and the associated title documents, known as 'instruments', for example, restrictive covenants.

Applicant and Owner Details

Provide details of the applicant and the owner of the land.

Applicant *

The person who wants the permit.

[redacted]

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Postal Address: If it is a P.O. Box, enter the details here:

Unit No.: St. No.: 20 St. Name: Siding Avenue

Suburb/Locality: Officer State: VIC Postcode: 3809

Please provide at least one contact phone number *

Contact information for applicant OR contact person below

Business phone: [redacted] Email: [redacted]

Mobile phone: [redacted] Fax:

Where the preferred contact person for the application is different from the applicant, provide the details of that person.

Contact person's details*

Same as applicant ☑

Name:

Title: First Name: Surname:

Organisation (if applicable):

Postal Address: If it is a P.O. Box, enter the details here:

Unit No.: St. No.: St. Name:

Suburb/Locality: State: Postcode:

Owner *

The person or organisation who owns the land

Where the owner is different from the applicant, provide the details of that person or organisation.

Same as applicant ☐

Name:

Title: First Name: Surname:

Organisation (if applicable): Department of Energy, Environment and Climate Action

Postal Address: If it is a P.O. Box, enter the details here:

Unit No.: St. No.: PO Box 500 St. Name:

Suburb/Locality: East Melbourne State: VIC Postcode: 8002

Owner's Signature (Optional): Date: day / month / year

Declaration

This form must be signed by the applicant *

⚠ Remember it is against the law to provide false or misleading information, which could result in a heavy fine and cancellation of the permit.

I declare that I am the applicant; and that all the information in this application is true and cor[redacted]of the permit application.

Si[redacted]

Date: 02/11/2023
day / month / year

Need help with the Application?

General information about the planning process is available at planning.vic.gov.au

Contact Council's planning department to discuss the specific requirements for this application and obtain a planning permit checklist. Insufficient or unclear information may delay your application.

Has there been a pre-application meeting with a council planning officer?

○ No ☑ Yes If 'Yes', with whom?: Sam Andrews

Date: 23/08/2022 day / month / year

Checklist

Have you:

☑ Filled in the form completely?

☐ Paid or included the application fee? ⚠ Most applications require a fee to be paid. Contact Council to determine the appropriate fee.

☑ Provided all necessary supporting information and documents?

- ☑ A full, current copy of title information for each individual parcel of land forming the subject site.
- ☐ A plan of existing conditions.
- ☑ Plans showing the layout and details of the proposal.
- ☐ Any information required by the planning scheme, requested by council or outlined in a council planning permit checklist.
- ☑ If required, a description of the likely effect of the proposal (for example, traffic, noise, environmental impacts).
- ☐ If applicable, a current Metropolitan Planning Levy certificate (a levy certificate expires 90 days after the day on which it is issued by the State Revenue Office and then cannot be used). Failure to comply means the application is void.

☑ Completed the relevant council planning permit checklist?

☑ Signed the declaration?

Lodgement

Lodge the completed and signed form, the fee and all documents with:

Cardinia Shire Council
PO Box 7
Pakenham VIC 3810

In person: 20 Siding Avenue, Officer

Contact Information:
Telephone: 1300 787 624
Email: mail@cardinia.vic.gov.au
DX: 81006

Deliver application in person, by post or by electronic lodgement.

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MORE INFORMATION

The Land

Planning permits relate to the use and development of the land. It is important that accurate, clear and concise details of the land are provided with the application.

How is land identified?

Land is commonly identified by a street address, but sometimes this alone does not provide an accurate identification of the relevant parcel of land relating to an application. Make sure you also provide the formal land description - the lot and plan number or the crown, section and parish/township details (as applicable) for the subject site. This information is shown on the title.

See **Example 1**.

The Proposal

Why is it important to describe the proposal correctly?

The application requires a description of what you want to do with the land. You must describe how the land will be used or developed as a result of the proposal. It is important that you understand the reasons why you need a permit in order to suitably describe the proposal. By providing an accurate description of the proposal, you will avoid unnecessary delays associated with amending the description at a later date.

⚠ Planning schemes use specific definitions for different types of use and development. Contact the Council planning office at an early stage in preparing your application to ensure that you use the appropriate terminology and provide the required details.

How do planning schemes affect proposals?

A planning scheme sets out policies and requirements for the use, development and protection of land. There is a planning scheme for every municipality in Victoria. Development of land includes the construction of a building, carrying out works, subdividing land or buildings and displaying signs.

Proposals must comply with the planning scheme provisions in accordance with Clause 61.05 of the planning scheme. Provisions may relate to the State Planning Policy Framework, the Local Planning Policy Framework, zones, overlays, particular and general provisions. You can access the planning scheme by either contacting Council's planning department or by visiting Planning Schemes Online at planning-schemes.delwp.vic.gov.au

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⚠ You can obtain a planning certificate to establish planning scheme details about your property. A planning certificate identifies the zones and overlays that apply to the land, but it does not identify all of the provisions of the planning scheme that may be relevant to your application. Planning certificates for land in metropolitan areas and most rural areas can be obtained by visiting www.landata.vic.gov.au Contact your local Council to obtain a planning certificate in Central Goldfields, Corangamite, Macedon Ranges and Greater Geelong. You can also use the free Planning Property Report to obtain the same information.

See **Example 2**.

Estimated cost of development

In most instances an application fee will be required. This fee must be paid when you lodge the application. The fee is set down by government regulations.

To help Council calculate the application fee, you must provide an accurate cost estimate of the proposed development. This cost does not include the costs of development that you could undertake without a permit or that are separate from the permit process. Development costs should be calculated at a normal industry rate for the type of construction you propose.

Council may ask you to justify your cost estimates. Costs are required solely to allow Council to calculate the permit application fee. Fees are exempt from GST.

⚠ Costs for different types of development can be obtained from specialist publications such as Cordell Housing: Building Cost Guide or Rawlinsons: Australian Construction Handbook.

⚠ Contact the Council to determine the appropriate fee. Go to planning.vic.gov.au to view a summary of fees in the Planning and Environment (Fees) Regulations.

Metropolitan Planning Levy refer Division 5A of Part 4 of the *Planning and Environment Act 1987* (the Act). A planning permit application under section 47 or 96A of the Act for a development of land in metropolitan Melbourne as defined in section 3 of the Act may be a leviable application. If the cost of the development exceeds the threshold of $1 million (adjusted annually by consumer price index) a levy certificate must be obtained from the State Revenue Office after payment of the levy. A valid levy certificate must be submitted to the responsible planning authority (usually council) with a leviable planning permit application. Refer to the State Revenue Office website at www.sro.vic.gov.au for more information. A leviable application submitted without a levy certificate is void.

Existing Conditions

How should land be described?

You need to describe, in general terms, the way the land is used now, including the activities, buildings, structures and works that exist (e.g. single dwelling, 24 dwellings in a three-storey building, medical centre with three practitioners and 8 car parking spaces, vacant building, vacant land, grazing land, bush block).

Please attach to your application a plan of the existing conditions of the land. Check with the local Council for the quantity, scale and level of detail required. It is also helpful to include photographs of the existing conditions.

See **Example 3**.

Title Information

What is an encumbrance?

An 'encumbrance' is a formal obligation on the land, with the most common type being a 'mortgage'. Other common examples of encumbrances include:

- **Restrictive Covenants**: A 'restrictive covenant' is a written agreement between owners of land restricting the use or development of the land for the benefit of others, (eg. a limit of one dwelling or limits on types of building materials to be used).
- **Section 173 Agreements**: A 'section 173 agreement' is a contract between an owner of the land and the Council which sets out limitations on the use or development of the land.
- **Easements:** An 'easement' gives rights to other parties to use the land or provide for services or access on, under or above the surface of the land.
- **Building Envelopes:** A 'building envelope' defines the development boundaries for the land.

Aside from mortgages, the above encumbrances can potentially limit or even prevent certain types of proposals.

What documents should I check to find encumbrances?

Encumbrances are identified on the title (register search statement) under the header 'encumbrances, caveats and notices'. The actual details of an encumbrance are usually provided in a separate document (instrument) associated with the title. Sometimes encumbrances are also marked on the title diagram or plan, such as easements or building envelopes.

What about caveats and notices?

A 'caveat' is a record of a claim from a party to an interest in the land. Caveats are not normally relevant to planning applications as they typically relate to a purchaser, mortgagee or chargee claim, but can sometimes include claims to a covenant or easement on the land. These types of caveats may affect your proposal.

Other less common types of obligations may also be specified on title in the form of 'notices'. These may have an effect on your proposal, such as a notice that the building on the land is listed on the Heritage Register.

What happens if the proposal contravenes an encumbrance on title?

Encumbrances may affect or limit your proposal or prevent it from proceeding. Section 61(4) of the *Planning and Environment Act 1987* for example, prevents a Council from granting a permit if it would result in a breach of a registered restrictive covenant. If the proposal contravenes any encumbrance, contact the Council for advice on how to proceed.

You may be able to modify your proposal to respond to the issue. If not, separate procedures exist to change or remove the various types of encumbrances from the title. The procedures are generally quite involved and if the encumbrance relates to more than the subject property, the process will include notice to the affected party.

⚠ You should seek advice from an appropriately qualified person, such as a solicitor, if you need to interpret the effect of an encumbrance or if you seek to amend or remove an encumbrance.

Why is title information required?

Title information confirms the location and dimensions of the land specified in the planning application and any obligations affecting what can be done on or with the land.

As well as describing the land, a full copy of the title will include a diagram or plan of the land and will identify any encumbrances, caveats and notices.

What is a 'full' copy of the title?

The title information accompanying your application must include a 'register search statement' and the title diagram, which together make up the title.

In addition, any relevant associated title documents, known as 'instruments', must also be provided to make up a full copy of the title.

Check the title to see if any of the types of encumbrances, such as a restrictive covenant, section 173 agreement, easement or building envelope, are listed. If so, you must submit a copy of the document (instrument) describing that encumbrance. Mortgages do not need to be provided with planning applications.

⚠ Some titles have not yet been converted by Land Registry into an electronic register search statement format. In these earlier types of titles, the diagram and encumbrances are often detailed on the actual title, rather than in separate plans or instruments.

Why is 'current' title information required?

It is important that you attach a current copy of the title for each individual parcel of land forming the subject site. 'Current' title information accurately provides all relevant and up-to-date information.

Some councils require that title information must have been searched within a specified time frame. Contact the Council for advice on their requirements.

⚠ Copies of title documents can be obtained from Land Registry: Level 10, 570 Bourke Street, Melbourne; 03 8636 2010; www.landata.vic.gov.au – go direct to "titles & property certificates".

Applicant and Owner Details

This section provides information about the permit applicant, the owner of the land and the person who should be contacted about any matters concerning the permit application.

The applicant is the person or organisation that wants the permit. The applicant can, but need not, be the contact person.

In order to avoid any confusion, the Council will communicate only with the person who is also responsible for providing further details. The contact may be a professional adviser (e.g. architect or planner) engaged to prepare or manage the application. To ensure prompt communications, contact details should be given.

Check with Council how they prefer to communicate with you about the application. If an email address is provided this may be the preferred method of communication between council and the applicant/contact.

The owner of the land is the person or organisation who owns the land at the time the application is made. Where a parcel of land has been sold and an application made prior to settlement, the owner's details should be identified as those of the vendor. The owner can, but need not, be the contact or the applicant.

See **Example 4**.

Declaration

The declaration should be signed by the person who takes responsibility for the accuracy of all the information that is provided. This declaration is a signed statement that the information included with the application is true and correct at the time of lodgement.

The declaration can be signed by the applicant or owner. If the owner is not the applicant, the owner must either sign the application form or must be notified of the application which is acknowledged in the declaration.

⚠ Obtaining or attempting to obtain a permit by wilfully making or causing any false representation or declaration, either orally or in writing, is an offence under the *Planning and Environment Act 1987* and could result in a fine and/or cancellation of the permit.

Need help with the Application?

If you have attended a pre-application meeting with a Council planner, fill in the name of the planner and the date, so that the person can be consulted about the application once it has been lodged.

Checklist

What additional information should you provide to support the proposal?

You should provide sufficient supporting material with the application to describe the proposal in enough detail for the Council to make a decision. It is important that copies of all plans and information submitted with the application are legible.

There may be specific application requirements set out in the planning scheme for the use or development you propose. The application should demonstrate how these have been addressed or met.

The checklist is to help ensure that you have:

- provided all the required information on the form
- included payment of the application fee
- attached all necessary supporting information and documents
- completed the relevant Council planning permit checklist
- signed the declaration on the last page of the application form

⚠ The more complete the information you provide with your permit application, the sooner Council will be able to make a decision.

Lodgement

The application must be lodged with the Council responsible for the planning scheme in which the land affected by the application is located. In some cases the Minister for Planning or another body is the responsible authority instead of Council. Ask the Council if in doubt.

Check with Council how they prefer to have the application lodged. For example, they may have an online lodgement system, prefer email or want an electronic and hard copy. Check also how many copies of plans and the size of plans that may be required.

Contact details are listed in the lodgement section on the last page of the form.

⚠ Approval from other authorities: In addition to obtaining a planning permit, approvals or exemptions may be required from other authorities or Council departments. Depending on the nature of your proposal, these may include food or health registrations, building permits or approvals from water and other service authorities.

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EXAMPLES

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Example 1

The Land

Address of the land. Complete the Street Address and one of the Formal Land Descriptions.

Street Address *

St. No.: 26 St. Name: Planmore Avenue

Suburb/Locality: HAWTHORN

Formal Land Description *
Complete either A or B.

This information can be found on the certificate of title.

If this application relates to more than one address, attach a separate sheet setting out any additional property details.

A ○ Lodged Plan ○ Title Plan ☑ Plan of Subdivision

OR

B

Example 2

For what use, development or other matter do you require a permit? *

Construction of two, double-storey dwellings and construction of two new crossovers.

☒ Provide additional information about the proposal, including: plans and elevations; any information required by the planning scheme, requested by Council or outlined in a Council planning permit checklist; and if required, a description of the likely effect of the proposal.

Example 3

Existing Conditions

Describe how the land is used and developed now *

For example, vacant, three dwellings, medical centre with two practitioners, licensed restaurant with 80 seats, grazing.

Single dwelling.

☒ rovide a plan of the existing conditions. Photos are also helpful.

Example 4

Applicant and Owner Details

Provide details of the applicant and the owner of the land.

Applicant *

The person who wants the permit.

Name:

Title: Mr First Name: Len Surname: Browning

Organisation (if applicable): Responsible Developers P/L

Postal Address: If it is a P.O. Box, enter the details here:

Unit No.: 4 St. No.: 12 St. Name: Ardour Lane

Suburb/Locality: Wycheproof State: Vic Postcode: 3527

Please provide at least one contact phone number *

Contact information for applicant OR contact person below

Business phone: 9123 4567 Email: tcpl@bigpond.net.au

Mobile phone: 0412 345 678 Fax: 9123 4567

Where the preferred contact person for the application is different from the applicant, provide the details of that person.

Contact person's details* Same as applicant ☐

Name:

Title: Mr First Name: Andrew Surname: Hodge

Organisation (if applicable): Town Planning Consultants

Postal Address: If it is a P.O. Box, enter the details here:

Unit No.: St. No.: St. Name: PO Box 111

Suburb/Locality: Parkdale State: Vic Postcode: 3194

Owner *

The person or organisation who owns the land

Where the owner is different from the applicant, provide the details of that person or organisation.

Name: Same as applicant ☑

Title: First Name: Surname:

Organisation (if applicable):

Postal Address: If it is a P.O. Box, enter the details here:

Unit No.: St. No.: St. Name:

Suburb/Locality: State: Postcode:

Owner's Signature (Optional): Date: day / month / year

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CROWN FOLIO STATEMENT

VOLUME 11722 FOLIO 346
No CofT exists

Security no : 124111751691Y
Produced 10/01/2024 10:12 AM

CROWN FOLIO

LAND DESCRIPTION

Crown Allotment 12L Parish of Bunyip.
Created by instrument MI061158L 06/08/2016

CROWN LAND ADMINISTRATOR

SECRETARY TO THE DEPARTMENT OF ENVIRONMENT, LAND, WATER AND PLANNING of 8 NICHOLSON STREET EAST MELBOURNE VIC 3002
MI061158L 06/08/2016

STATUS, ENCUMBRANCES AND NOTICES

DIAGRAM LOCATION

SEE CD026476L FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NIL

----------END OF CROWN FOLIO STATEMENT----------

Additional information: (not part of the Crown Folio Statement)

Street Address: GARFIELD NORTH ROAD GARFIELD NORTH VIC 3814

DOCUMENT END

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CROWN DIAGRAM

CD026476L

Location of Land

Parish : BUNYIP
Allotment : 12L

This plan has been created to assist in locating a Crown land parcel

Warning: No warranty is given as to the accuracy or completeness of this plan

Any derived dimensions are approximate

Standard Parcel Identifier (SPI) : 12L\PP2290

Vicmap Parcel PFI : 52535839

Coordinate Position

MGA : 383840, 5785880 (55)

Vicroads Directory Reference : 96 C3 (ed. 6)

Compiled from VICMAP cadastral mapping data

Date: 22/05/2009

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CROWN FOLIO STATEMENT

VOLUME 11722 FOLIO 347 Security no : 124111751689C
No CofT exists Produced 10/01/2024 10:12 AM

CROWN FOLIO

LAND DESCRIPTION

Crown Allotment 12J Parish of Bunyip.
Created by instrument MI061160A 06/08/2016

CROWN LAND ADMINISTRATOR

SECRETARY TO THE DEPARTMENT OF ENVIRONMENT, LAND, WATER AND PLANNING of 8 NICHOLSON STREET EAST MELBOURNE VIC 3002
MI061160A 06/08/2016

STATUS, ENCUMBRANCES AND NOTICES

RESERVATION MI061162V 06/08/2016
TEMPORARY
PUBLIC RECREATION
GP3041

DIAGRAM LOCATION

SEE CD026477J FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NIL

----------END OF CROWN FOLIO STATEMENT----------

Additional information: (not part of the Crown Folio Statement)

Street Address: GARFIELD NORTH ROAD GARFIELD NORTH VIC 3814

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CROWN DIAGRAM

CD026477J

Location of Land

Parish : BUNYIP
Allotment : 12J

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Warning: No warranty is given as to the accuracy or completeness of this plan

Any derived dimensions are approximate

Standard Parcel Identifier (SPI) : 12J\PP2290

Vicmap Parcel PFI : 52535844

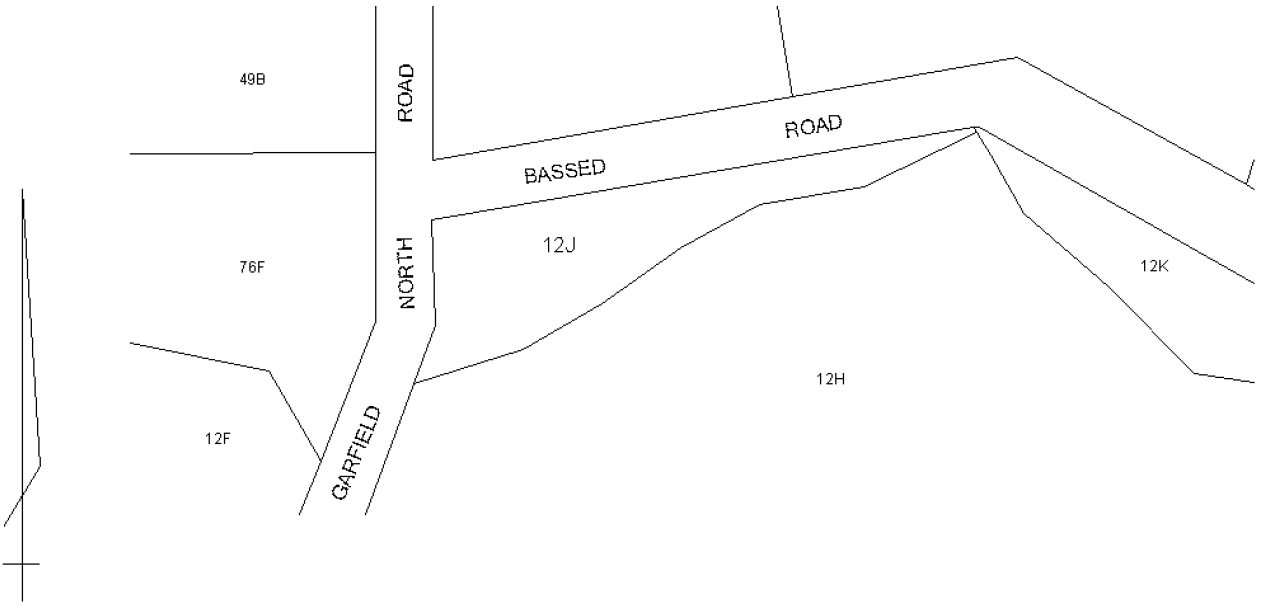
Coordinate Position

MGA : 384020, 5786250 (55)

Vicroads Directory Reference : 96 C3 (ed. 6)

Compiled from VICMAP cadastral mapping data

Date: 22/05/2009



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CROWN FOLIO STATEMENT

VOLUME 11722 FOLIO 348 Security no : 124111751690A
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CROWN FOLIO

LAND DESCRIPTION

Crown Allotment 12K Parish of Bunyip.
Created by instrument MI061163T 06/08/2016

CROWN LAND ADMINISTRATOR

SECRETARY TO THE DEPARTMENT OF ENVIRONMENT, LAND, WATER AND PLANNING of 8 NICHOLSON STREET EAST MELBOURNE VIC 3002
MI061163T 06/08/2016

STATUS, ENCUMBRANCES AND NOTICES

RESERVATION MI061165P 06/08/2016
TEMPORARY
PUBLIC RECREATION
GP3041

DIAGRAM LOCATION

SEE CD026478G FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NIL

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Additional information: (not part of the Crown Folio Statement)

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CROWN DIAGRAM

CD026478G

Location of Land

Parish : BUNYIP
Allotment : 12K

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Warning: No warranty is given as to the accuracy or completeness of this plan

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Standard Parcel Identifier (SPI) : 12K\PP2290

Vicmap Parcel PFI : 52535845

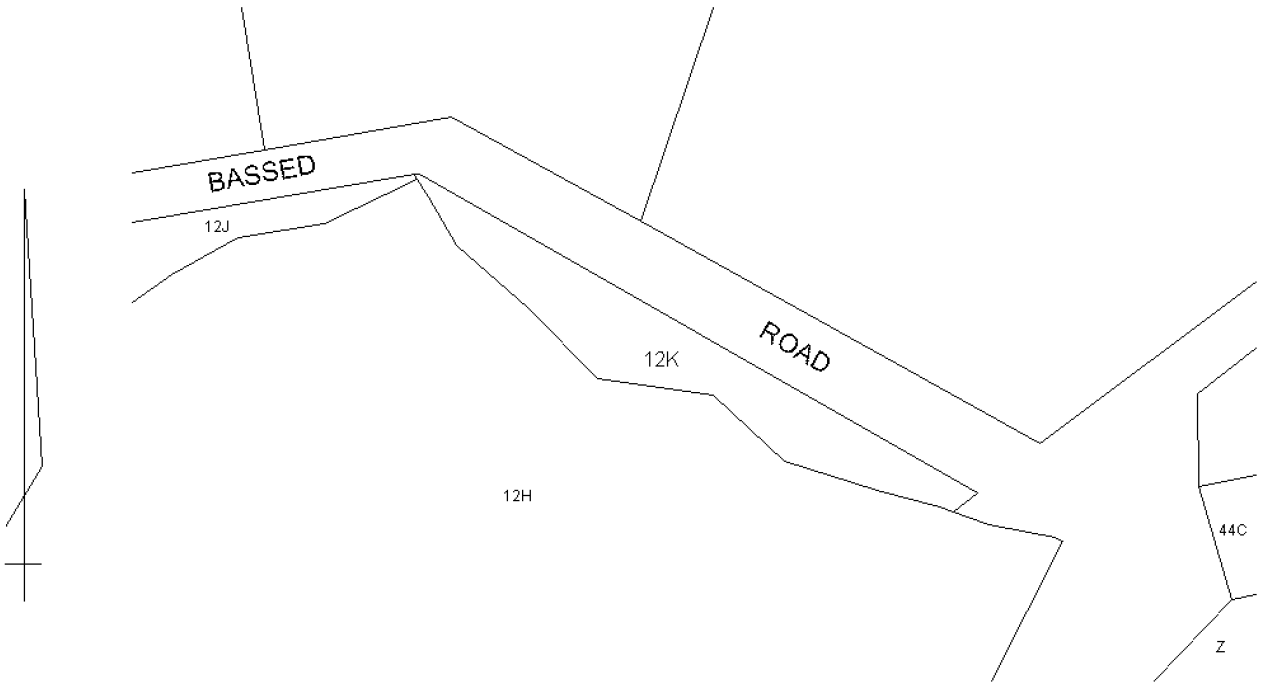
Coordinate Position

MGA : 384250, 5786230 (55)

Vicroads Directory Reference : 96 C3 (ed. 6)

Compiled from VICMAP cadastral mapping data

Date: 22/05/2009



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CROWN FOLIO STATEMENT

VOLUME 11722 FOLIO 334 Security no : 124110236242C
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CROWN FOLIO

LAND DESCRIPTION

Crown Allotment 2006 Parish of Bunyip.
Created by instrument MI061124E 06/08/2016

CROWN LAND ADMINISTRATOR

SECRETARY TO THE DEPARTMENT OF ENVIRONMENT, LAND, WATER AND PLANNING of 8 NICHOLSON STREET EAST MELBOURNE VIC 3002
MI061124E 06/08/2016

STATUS, ENCUMBRANCES AND NOTICES

RESERVATION MI061126A 06/08/2016
TEMPORARY
PUBLIC RECREATION
GP3031

DIAGRAM LOCATION

SEE CD026464T FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NIL

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CROWN DIAGRAM

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Location of Land

Parish : BUNYIP
Allotment : 2006

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Standard Parcel Identifier (SPI) : 2006\PP2290

Vicmap Parcel PFI : 216047869

Coordinate Position

MGA : 384110, 5785940 (55)

VicRoads Directory Reference : 96 C3 (ed. 7)

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Date: 14/01/2011

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CROWN FOLIO STATEMENT

VOLUME 11722 FOLIO 349 Security no : 124108982218V
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CROWN FOLIO

LAND DESCRIPTION

Crown Allotment 12H Parish of Bunyip.
Created by instrument MI061166M 06/08/2016

CROWN LAND ADMINISTRATOR

SECRETARY TO THE DEPARTMENT OF ENVIRONMENT, LAND, WATER AND PLANNING of 8 NICHOLSON STREET EAST MELBOURNE VIC 3002
MI061166M 06/08/2016

STATUS, ENCUMBRANCES AND NOTICES

RESERVATION MI061168H 06/08/2016
TEMPORARY
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RESERVATION MI061169F 06/08/2016
TEMPORARY
PUBLIC RECREATION

DIAGRAM LOCATION

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ACTIVITY IN THE LAST 125 DAYS

NIL

----------END OF CROWN FOLIO STATEMENT----------

Additional information: (not part of the Crown Folio Statement)

Street Address: GARFIELD NORTH ROAD GARFIELD NORTH VIC 3814

DOCUMENT END

Home	Account: **322250**		Authority Fee(GST exclusive): **$9.16** Service Fee(GST exclusive): **$0.00** GST Payable: **$0.00** Total: **$9.16**	11/09/2023 10:20AM

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CROWN DIAGRAM

CD026479E

Location of Land

Parish : BUNYIP
Allotment : 12H

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Warning: No warranty is given as to the accuracy or completeness of this plan

Any derived dimensions are approximate

Standard Parcel Identifier (SPI) : 12H\PP2290
Vicmap Parcel PFI : 52535842

Coordinate Position
MGA : 384120, 5786090 (55)
Vicroads Directory Reference : 96 C3 (ed. 6)

Compiled from VICMAP cadastral mapping data

Date: 22/05/2009

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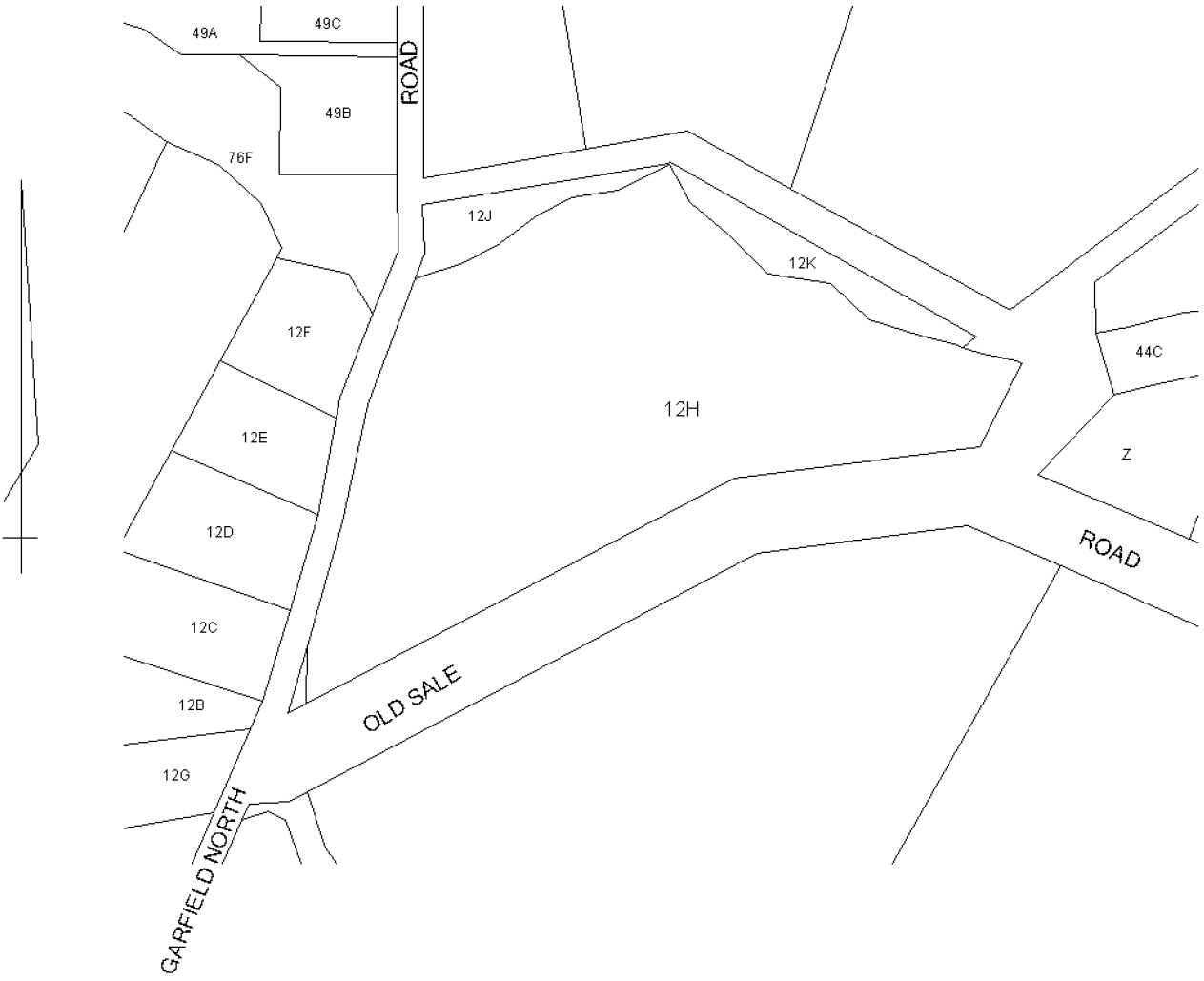

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METRES

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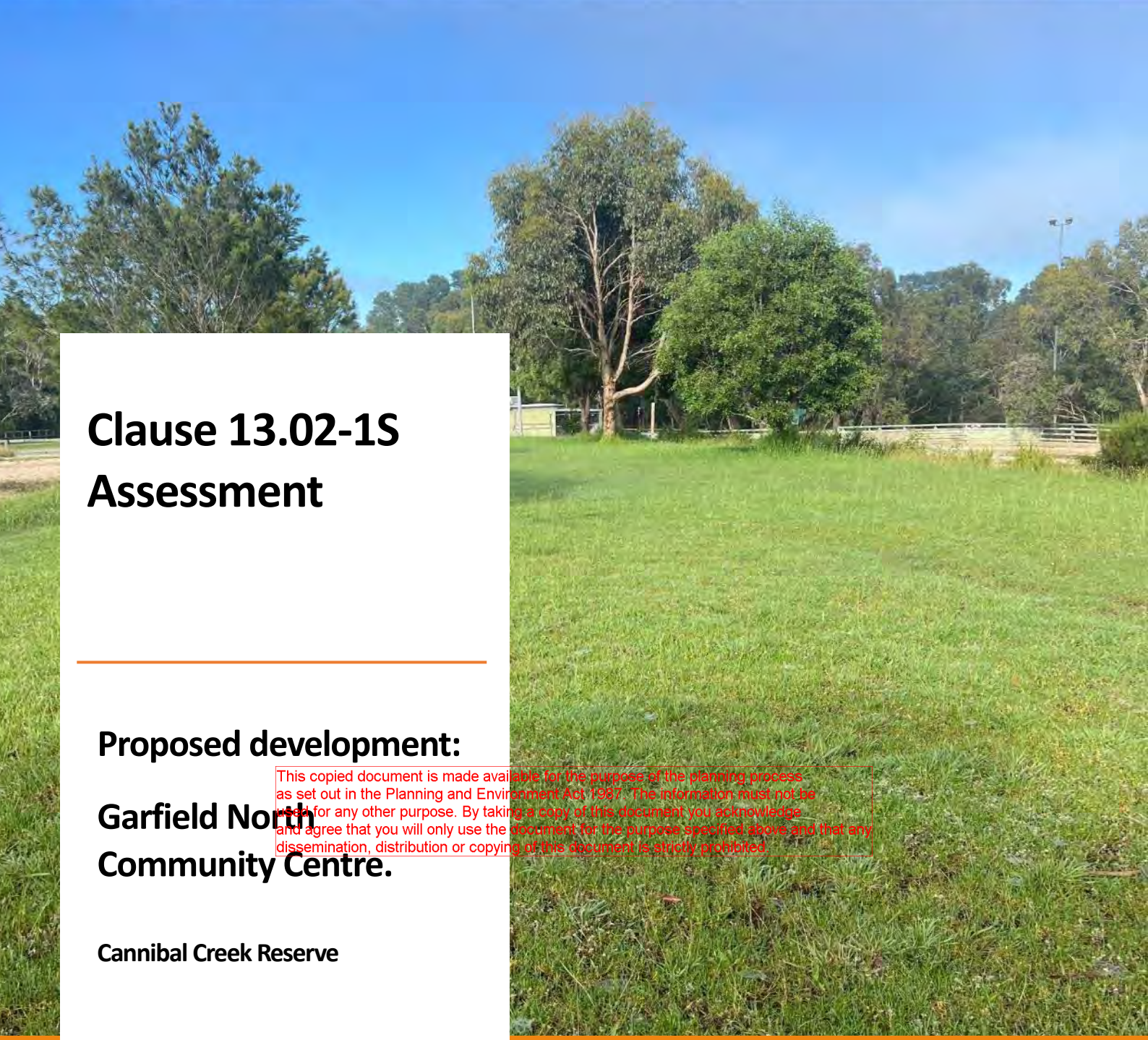

Clause 13.02-1S Assessment

Proposed development:

Garfield North Community Centre.

Cannibal Creek Reserve

February 2024

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Cover image: View of the Cannibal Creek Reserve site (sourced from Fire Risk Consultants).

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*Where the term **"Bushfire prevention and mitigation related activities"** (or words to that effect) are used, this is to be defined as the clearance of vegetation in accordance with the Victorian State Government guidelines, including clearing and maintenance of existing fire breaks and/or fire access for fire fighters under electricity pylons and properties that have been constructed to Australian Standard AS3959 and/or the National Construction Code.*

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1. Introduction

This report has been developed to assess the proposed development against the requirements of Clause 13.02-1S of the Cardinia Planning Scheme. The objective of clause 13.02-1S is 'to strengthen the resilience of settlements and communities to bushfire through risk-based planning that prioritises the protection of human life'. As this property is in a Bushfire Prone Area it meets the 'Policy Application' test to be assessed against the Clause 13.02-1S Policy.

The report has been developed following an extensive assessment of the landscape and local bushfire risk along with access, egress and topography.

The development proposes to construct a new building within the existing Cannibal Creek Reserve. The new building will be to house the Garfield North Community Centre. The development includes the provision of additional car parking and upgrading of the access road. The development is occurring between existing pony Club infrastructure.

The development is to the north of the Garfield township and is within the Garfield North locality. The site is accessed from Garfield North Road to the north of Princes Highway. The site is used by other community groups including the Cannibal Creek Pony Club. The Cannibal Creek Reserve is managed by a Committee of Management.

This report has been developed following a site inspection, analysis of various plans and publications that assess bushfire risk within this area and assessment against Clause 13.02-1S of the Cardinia Planning Scheme. Figure 1 provides an overview of the surrounding area and the various land uses.

2. Application Details

Table 1 - Application details

Municipality	Cardinia
Address	Garfield North Road, Garfield North
Overlays	Not applicable
Zoning	Green Wedge Zone (GWZ), Public Conservation and Resource Zone (PCRZ)

3. Site Description

Table 2 - Site description

Existing use of buildings and works on or near the land	The development is occurring on an existing property that is approximately 15 hectares. The site is a mix of native vegetation associated with the Cannibal Creek and the Cannibal Creek Swamp. The central area is considered managed and contains the Pony Club infrastructure. The surrounding landscape contains a mix of farming and small acreage properties. There are some areas of forested vegetation along the Cannibal Creek and within private properties to the north and west of the site.
Development size	15.7 hectares.
Existing vehicle access arrangements	Access to the existing property is from Garfield North Road which connects to Princes Highway to the south.

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Location of nearest fire hydrant	There are no street fire hydrants in the surrounding area.

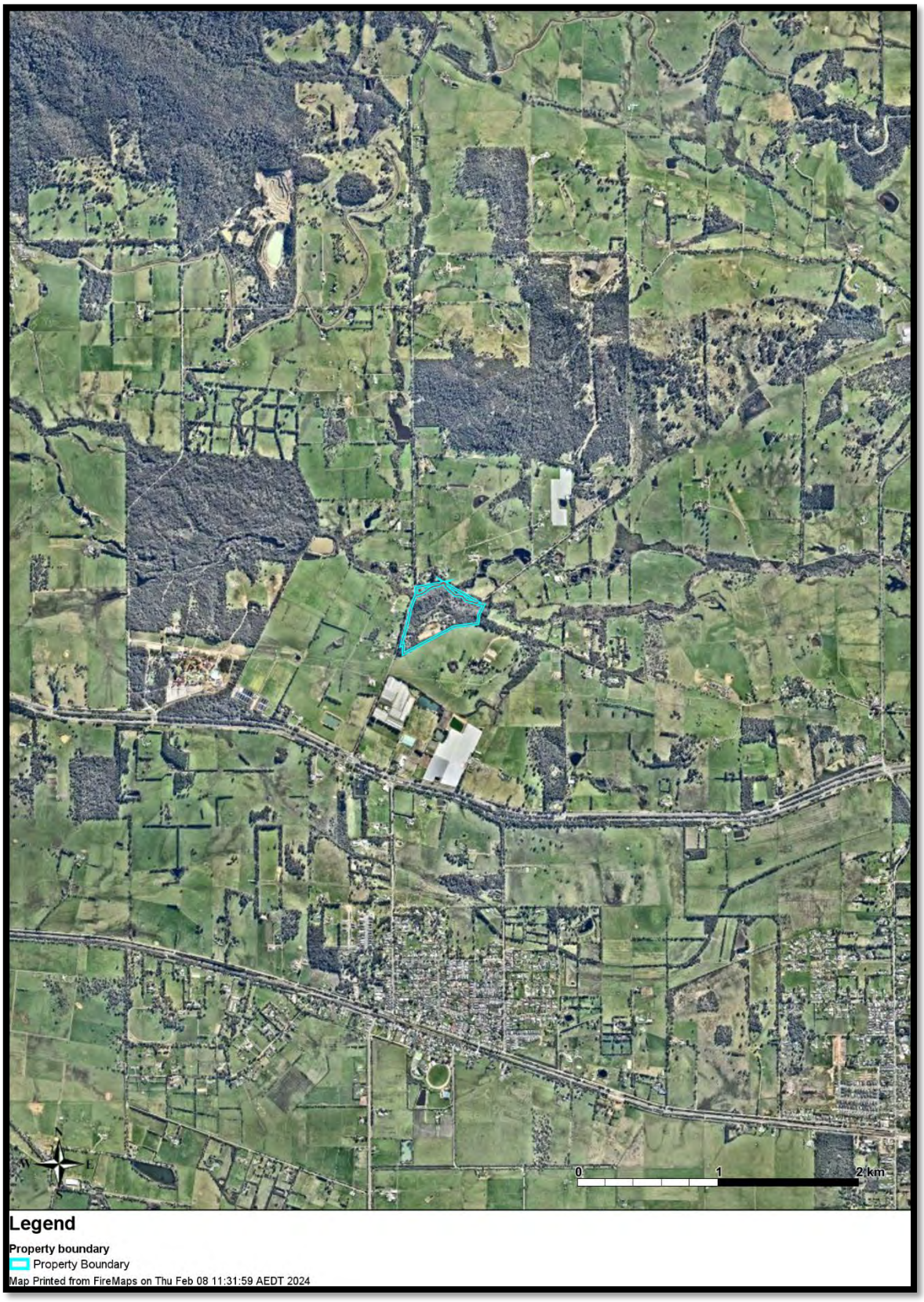

Figure 1 – Subject site and surrounding landscape.

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4. Bushfire risk in south east Australia

The southeast of Australia is one of the most fire prone areas in the world.

The rate a bushfire can spread is a direct result of the weather, fuel hazard (including dryness, quantity and arrangement) and the topography in which the fire is burning. Bushfire fuel is the only one of these three factors that it is possible to modify.

Extreme fire conditions can occur in south-eastern Australia when dry winters and springs are followed by summers where bushfire fuels become very dry.

When these conditions combine, fires can be expected to move quickly under the influence of strong, gusty north westerly winds. These fires can then move rapidly in a different direction when the subsequent south–westerly wind change arrives. Fires that start under these conditions can reach a very high intensity, even in areas of relatively low fuel loads and can be difficult to control until the weather conditions abate.

The height of a bushfire's intensity is directly linked to its destructiveness and the more difficult it is to control. As the intensity increases so does the difficulty of containment and effective suppression. Very high intensity fires with flame heights greater than 10 metres are generally uncontrollable.

Bushfire intensity is a function of the heat content of the fuel, the quantity of fuel and the rate of spread of the bushfire. The heat content of vegetation fuels is roughly constant. It has been found that the quantity and distribution of fine fuels are the main factor influencing bushfire behaviour. Larger fuels burning during a bushfire do not contribute significantly to the spread of a bushfire.

Fine fuels available to a bushfire are fuels such as grass, leaves, dead pine needles and twigs that ignite readily and are consumed rapidly when dry. They are often defined as those dead fuels less than 6mm in thickness. Fine fuel load (measured in tonnes per hectare) has therefore been used as a convenient measure of the underlying bushfire hazard in areas dominated by woody vegetation. The fine fuel load at any given time is a balance between the rate of fuel build up, and factors that remove fuel such as litter decomposition and fire. In the absence of fire, fuel loads in forests and woodlands with a shrubby or heathy understorey build up to a quasi-equilibrium state where the rate of fuel production equals the rate of decomposition. The maximum levels vary for different vegetation types and for the same vegetation types in different locations.

It has been found that fuel structure is possibly more important than the total fine fuel load in determining bushfire behaviour. Fuels in forests, woodlands and shrublands can be categorised into four layers with differing effects on fire behaviour (Hines, et al., 2010). These layers are:

- Surface fine fuels: leaves, bark, small twigs and other fine fuel lying on the ground. These fuels provide the horizontal continuity that allows a bushfire to spread

- Near surface fine fuels: grasses, low shrubs, bracken etc. up to about .5 m above the ground surface. Fuels in this layer will burn when the surface fuel layer burns and will increase bushfire intensity

- Elevated fuels: larger shrubs and small saplings with most of the fuel closer to the top of this layer and a clear gap between them and the surface fuels. These interact with the two-layer fuel layers to further increase bushfire intensity. They also contribute to the vertical continuity of fire that allows fire to 'climb' into the tree canopy

- Bark fuels: flammable bark on trees, saplings and large bushes from ground level to the canopy. Loose fibrous bark on string-bark eucalypts, and candle bark on some gums can generate large amounts of burning embers which can start spot fires ahead of the main fire front.

5. Bushfire Hazard Assessment

A Bushfire Hazard Assessment is a key component of assessing risk as outlined within Clause 13.02-1S of the Cardinia Planning Scheme. The requirements outline the need to consider and assess the bushfire hazard on the basis of:

- Landscape conditions (10 kilometres)
- Local conditions (1 kilometre)
- Neighbourhood conditions (400 metres)
- The site for the development

In addition to this assessment, analysis of past bushfire history and the development of likely bushfire scenarios supports the response to the 'settlement planning' requirements of Clause 13.02-1S.

5.1 Bushfire History

The historical information provided by DEECA[1] indicates that bushfires have occurred in the surrounding landscape but have not impacted on this property. Bushfires that have threatened the surrounding area includes 1939, 1983, 2009 and 2019. The closest bushfire occurred in 2019 which approached the property under a north westerly wind influence.

Large bushfires have occurred within the Public Land Reserves to the north of the site. This is approximately 3 – 4 kilometres away and the previous bushfire history has shown that that fire activity tends to reduce when the bushfire extends into the private land that is dominated by farming and small acreage properties. This was demonstrated during the 2019 bushfire with a mix of burnt and unburnt areas.

Due to numerous landscape changes both to the north west and south west, this would likely influence a bushfires ability to continue to travel uninterrupted. The presence of rural living properties which results in a highly fragmented landscape would likely reduce bushfire intensity.

Figure 2 outlines the location of historical bushfires as they relate to the development site.

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[1] https://mapshare.vic.gov.au/MapShareVic/index.html?viewer=MapShareVic.PublicSite&locale=en-AU

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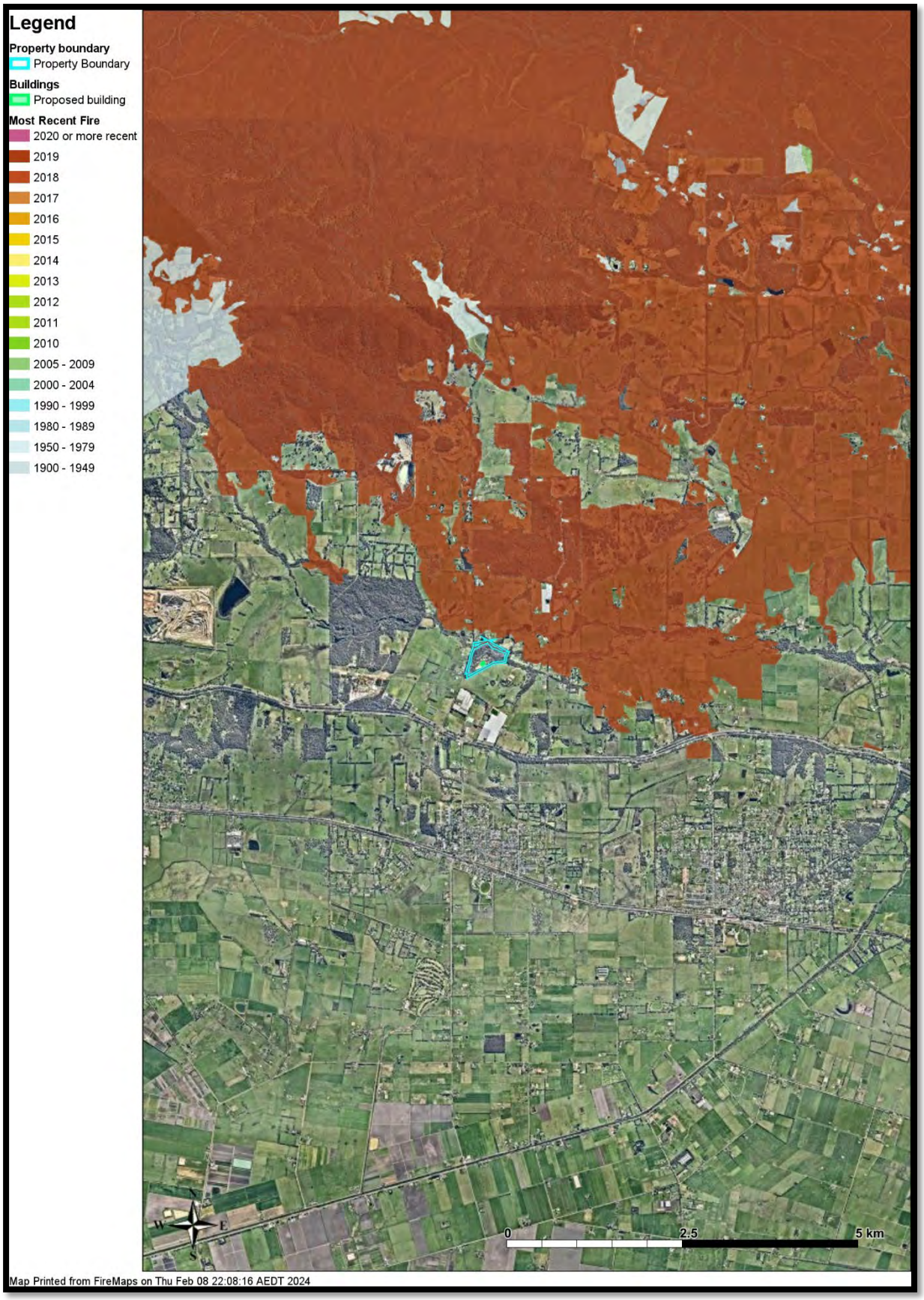

Figure 2 - Bushfire history with the development outlined in blue.

5.2 Vegetation

The development site and the surrounding landscape is a mix of managed areas, grassland and forested areas. To the immediate north that is mainly associated with the Cannibal Creek Swamp is a forested area that extends through to Bassed Road.

The area immediately surrounding the proposed Community Centre is managed and this is maintained due to the need to support the community activities that occur on the site including the Pony Club and Scouts.

To the south of the site is large areas of grassland that is associated with small acreage and farming properties. These areas tend to be well managed during the Fire Danger Period through stock grazing and regular on ground management by landowners.

There are large areas within the surrounding landscape that provide areas where bushfires would likely not burn. These include Gumbuya World, Garfield Fresh Harvest outlet and associated market gardens and the Princes Highway. These areas would likely slow or stop bushfires from spreading in the surrounding landscape under lower fire danger conditions.

Figure 3 indicates the extreme bushfire risk areas in the surrounding landscape. These areas reflect locations where there is connected forested areas of a certain size and would likely support elevated bushfire behaviour through the allocation of the Bushfire management Overlay (BMO).

Figure 4 shows the location of the Bushfire Prone Area (BPA) which is another indicator of bushfire risk. The BPA is allocated to most of Victoria apart from the central areas of townships.

This property is covered by the BPA and not the BMO.

5.3 Access/egress

The existing property is accessible from Garfield North Road. Garfield North Road provides north/south access or egress opportunities.

The Princes Highway is approximately 950 metres to the south and is the most likely travel route if a bushfire is burning in the surrounding landscape.

Travel to the north is likely to be more dangerous than travel to the south.

When arriving at Princes Highway, there is an option to travel either east or west. Either direction will provide safer locations from an approaching bushfire including the Garfield, Bunyip and Longwarry locations. Other options include Drouin/Warragul and Pakenham.

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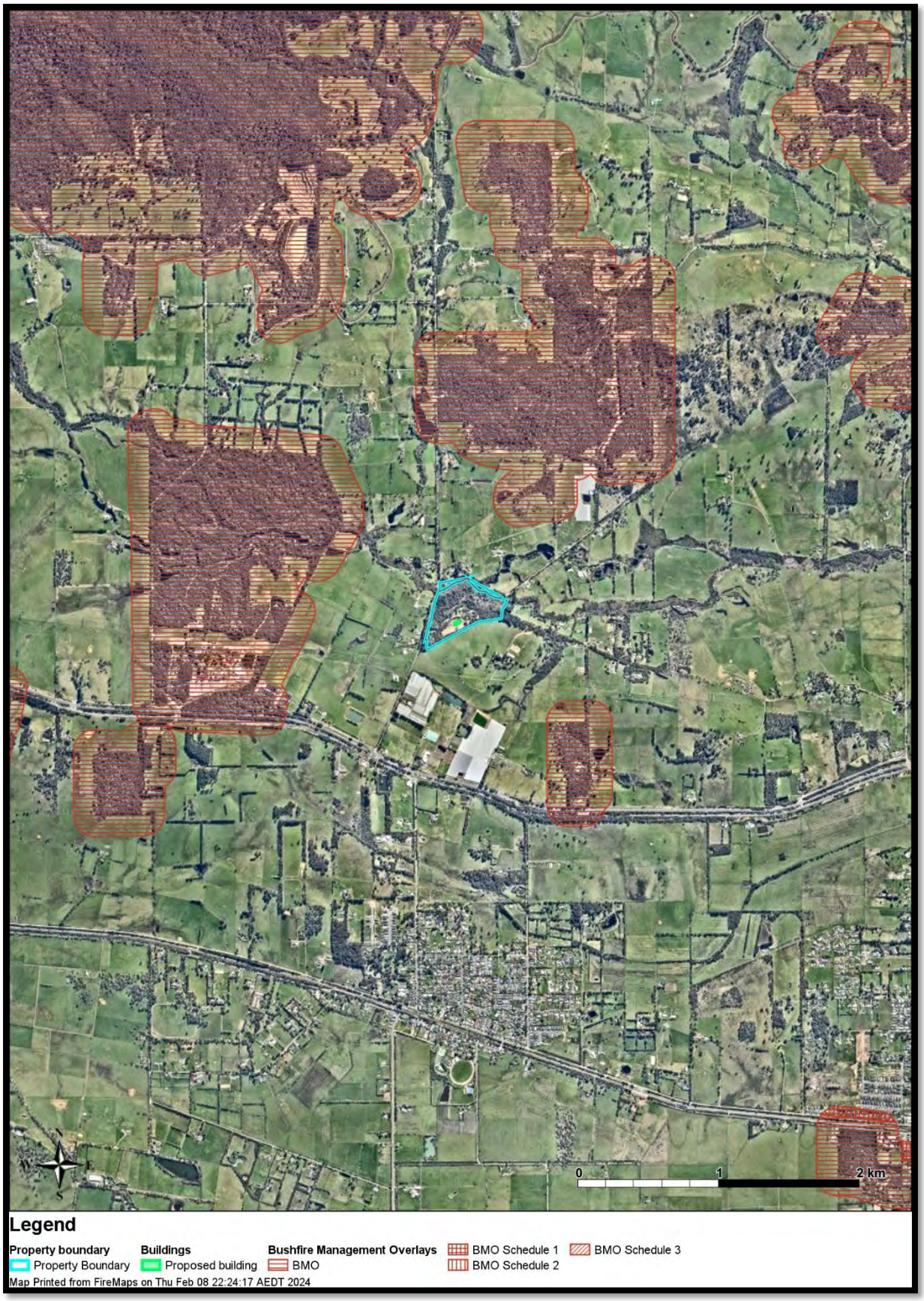

Figure 3 - Bushfire Management Overlay in relation to the proposed development site

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Figure 4 - Bushfire Prone Area coverage of the development site and surrounding area.

5.4 Existing bushfire risk assessments

An analysis of available bushfire risk information has identified the following sources:

- Cardinia Municipal Fire Management Plan (MFMP) 2022 - 2025[2]

The Cardinia MFMP outlines the risk to this location as being primarily driven by the Bunyip State Park to the north west. Bushfires that have occurred within the approximately 16,000 hectare Reserve have threatened the area around this development under a north westerly wind influence.

The MFMP states that there are other plans in place addressing bushfire risk within the Garfield north area including a CFA Local Response Plan and Cardinia Shire Reserve Fire Management Plan.

The MFMP outlines the following mitigation treatments that agencies are likely to utilise to manage the bushfire risk within these types of areas:

- Community safety education programs
- Fuel management projects
- Roadside fuel management
- Community based planning

In relation to this location, it is likely for the surrounding landscape to be regularly maintained by the property owners. The community members would receive regular updates and information from CFA in relation to preparing their properties for the bushfire period.

5.5 Likely Bushfire Scenarios

Due to the nature of the forested landscape surrounding the proposed development, along with bushfire history indicating that this area has been threatened at various times in the recent years, there is a potential for bushfires to approach this development. A bushfire could approach from any direction however history demonstrates that hose approaching from either the north west or south west are considered as having a greater impact.

Table 1 outlines the hazard assessment relating to the proposed development.

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[2] https://www.cardinia.vic.gov.au/download/downloads/id/5311/cardinia_shire_municipal_fire_management_plan_2022_-2025.pdf

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Table 3 - Overview of bushfire hazard and likely scenarios

Bushfire hazard type	Description	Scenario/s	Considerations
Landscape conditions (10 kilometres)	The landscape is dominated by a mix of existing small acreage and farming properties along with forested areas. Extensive Public Land Reserves exist to the north of the development site. Refer to Figure 6 for further detail.	From the north west, bushfires have the potential to originate within the Public Land Reserves and travel into the private properties to the south. Bushfires within the forested areas to the north have the ability to establish over days or weeks during elevated fire danger conditions. Once the fire enters the private properties to the south of the Public Land Reserves, it will be influenced by the fragmented vegetation. The fragmentation is caused by farming practices, small acreage properties and other vegetation management programs. A bushfire can also approach from the south west but will be influenced by the grassland fuels. There are isolated patches of forested areas that would likely support the development of embers. A bushfire approaching from the south west will be influenced by a number of landscape features including the Princes Highway, Garfield North Road, Gumbuya World and the Garfield North Market Gardens. The likely bushfire attack is from embers landing on the property and starting new fires within the vegetated areas.	The provision of effective access and egress options from the Garfield North Road will be critical to ensure people can leave safely and quickly. The existing vegetation management regime will ensure a level of safety under lower fire danger conditions. An emergency management planning process is to be undertaken to ensure people are aware of the required actions if a bushfire is burning in the surrounding landscape. The site should be closed when the fire danger is forecast to be 'catastrophic'. Ongoing management of the vegetation within the Cannibal Creek Reserve should be addressed through the development of a Reserve Fire Management Plan. This plan should consider the level of risk and identify ongoing vegetation management activities that may include fuel reduction burning, slashing and weed management activities.
Local conditions (1 kilometre)	Within one kilometre of the site, the vegetation includes forested areas on the property and grasslands in the surrounding landscape. Refer to Figure 5 for further detail.	The likely scenario is for a fire to start within the forested areas on the property and spread towards the Community Centre. It is likely that the fire danger conditions would need to be elevated due to the vegetation within the swamp maintaining high moisture content. A fire could also start in the surrounding grassland areas and travel towards the site under a north westerly or south westerly wind influence. As mentioned previously, the presence of the Princes Highway and other landscape features to the south and south west will likely influence the bushfire as it approaches.	As above

Bushfire hazard type	Description	Scenario/s	Considerations
Neighbourhood conditions (400 metres)	The vegetation on the property and immediately surrounding the site is forest and grassland. The grassland is associated with agricultural activities. Further detail is provided within Figure 7.	The threat to the development at the neighbourhood level is a fire starting to the north west or south west of the property. The forested areas associated with the Cannibal Creek and Swamp will support bushfire activity. The existing maintained areas that support the activities within the Reserve will be maintained and will assist with reducing the impact of radiant heat and embers onto the new building.	As above.
The site for the development	The site is currently cleared and will be maintained in its current state. The building will be owned by Cardinia Shire Council, and they have the ability to undertake vegetation management activities as required.	Bushfires will not be able to directly impact on the new building due to the surrounding managed areas.	The new building to achieve BAL12.5 construction requirements as outlined within AS3959. The existing vegetation management programs be mandated through the development of a Reserve Fire Management Plan.

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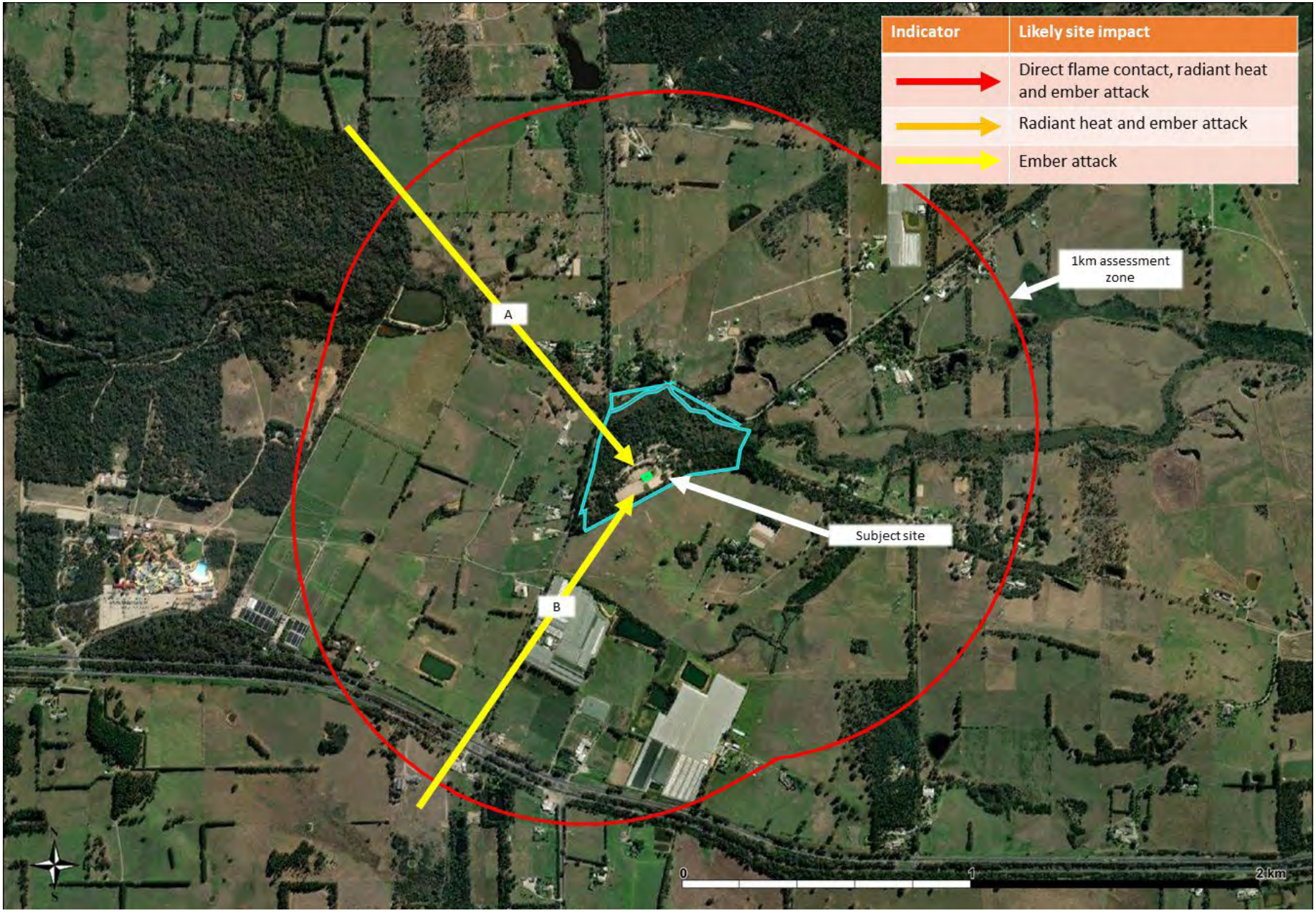

Figure 5 - 1 kilometre landscape risk analysis

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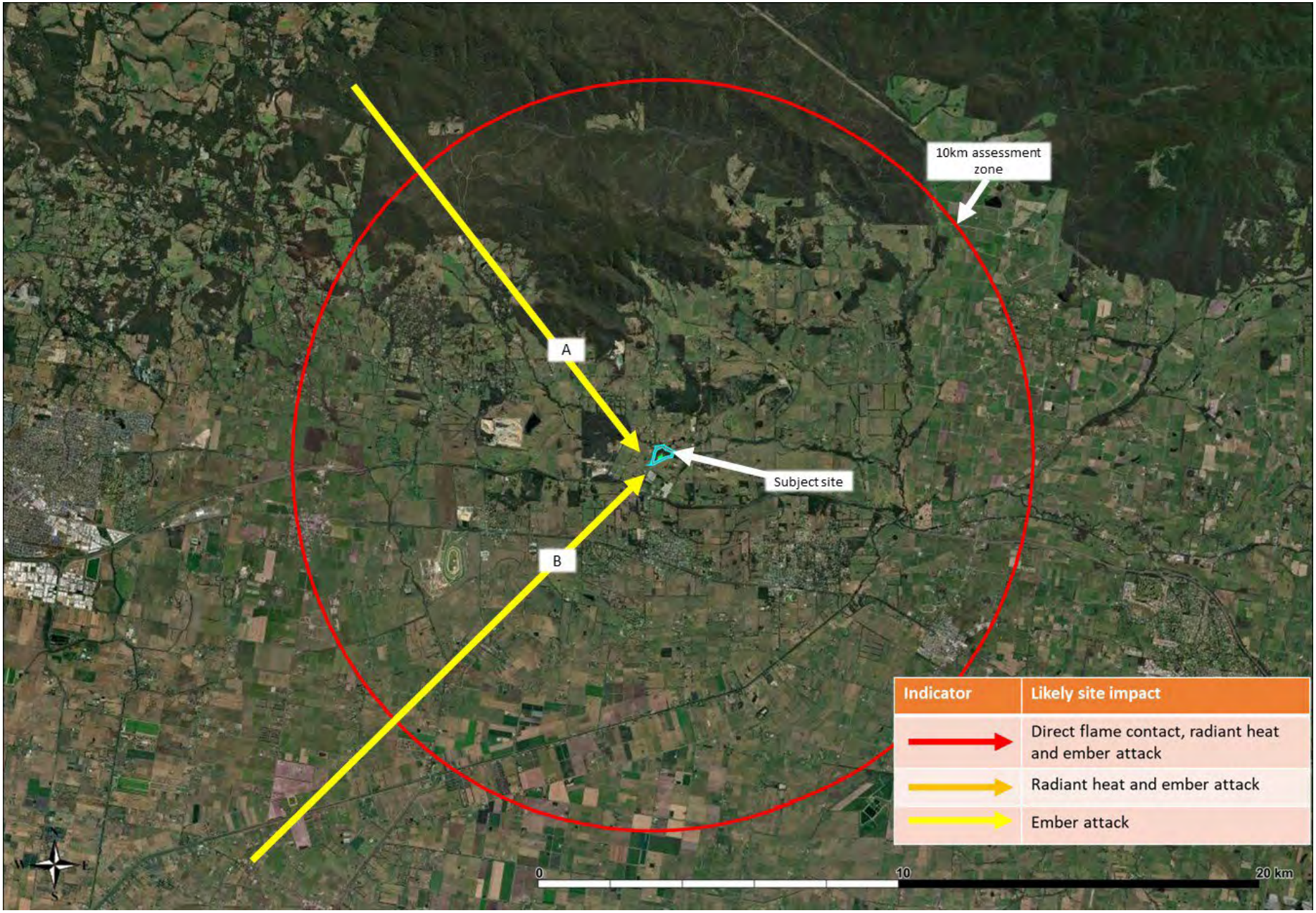

Figure 6 - 10 kilometre landscape risk analysis

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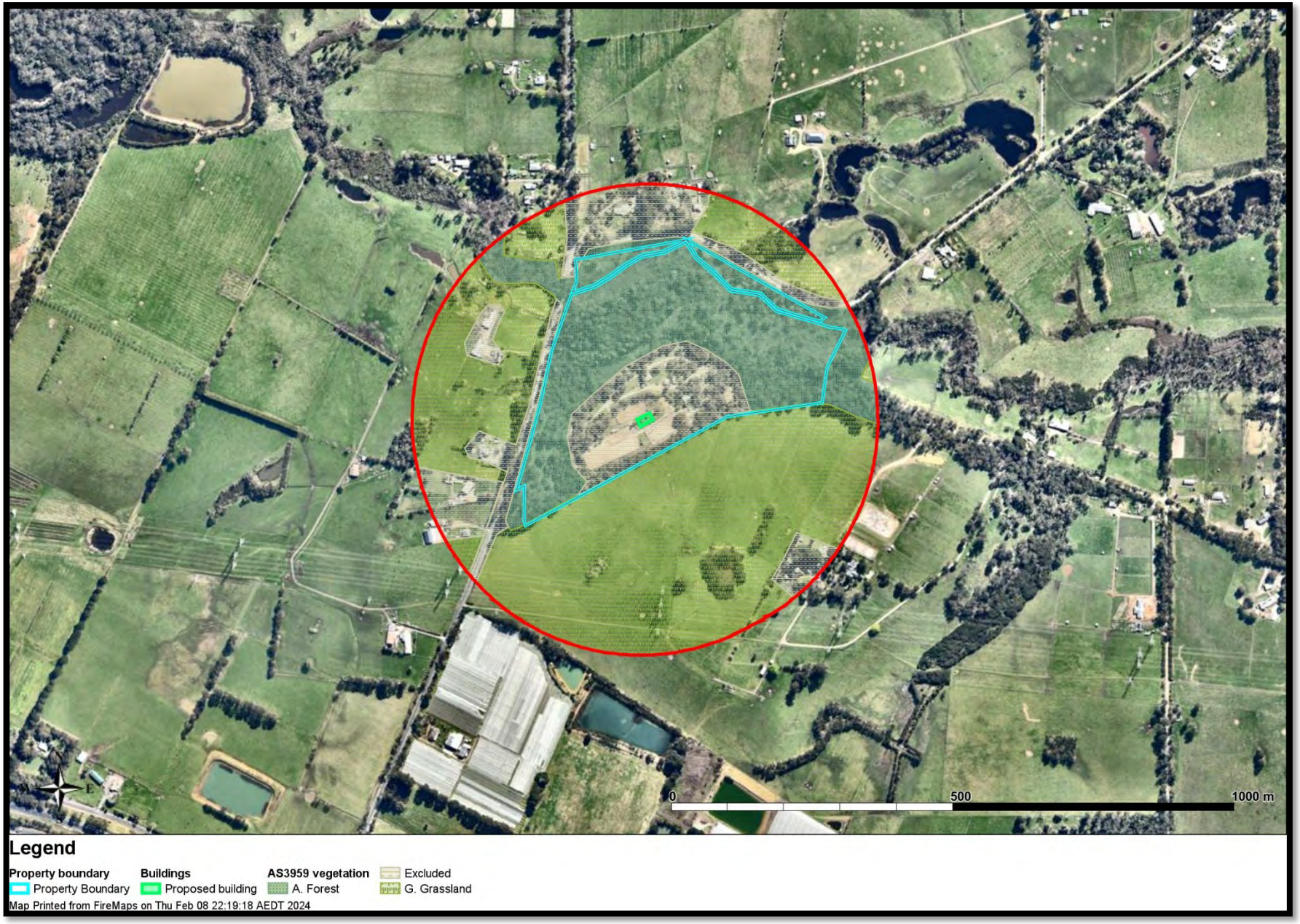

Figure 7 - 400 metre landscape risk analysis

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The landscape risk has been assessed as Type 3. This is a relatively high risk landscape and is due to the limited access and egress opportunities from this development and the availability of safer areas within proximity to the development.

In summary, the landscape analysis has identified the most likely bushfire attack method as being ember attack with low levels of radiant heat.

6. Settlement Planning – Clause 13.02-1S

Clause 13.02-1S of the Cardinia Planning Scheme identifies the objectives that are required to be achieved to strengthen the resilience of settlements and communities and prioritise the protection of human life.

These objectives are addressed within Table 4.

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Table 4 - Settlement planning objectives

Settlement Planning objective	Discussion	Achieved
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 metre under AS 3959-2009 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009)	The development is being placed within an existing community area that is regularly utilised by the local community. The existing cleared area enables the building to be placed in a safer location that will not be impacted by elevated levels of radiant heat. According to the Flamesol calculation (Appendix 3), the building is likely to receive a maximum radiant heat impact of 4.97 kW/m² at FDI 100. FDI 100 conditions have not been experienced since 2009 within this part of Victoria.	✓
Ensuring the availability of, and safe access to, areas assessed as a BAL-LOW rating under AS 3959-2009 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009) where human life can be better protected from the effects of bushfire.	There are safer areas available within the Garfield, Longwarry and Bunyip localities. Under lower fire danger conditions, the building itself may provide a level of safety if people are not able to leave due to bushfire impact.	✓
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 development will not increase the bushfire risk to the future occupants and any residents, property and community infrastructure in the surrounding area. The development will likely reduce the risk to these areas due to the development of fire management and emergency management plans.	✓
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 reducing bushfire risk overall.	This development will reduce the risk to the surrounding areas. There will be a net reduction in bushfire risk to the adjoining land owners and surrounding communities whilst not exposing the development occupants to increased bushfire risk.	✓
Assessing and addressing the bushfire hazard posed to the settlement and the likely bushfire behaviour it will produce at a landscape, settlement, local,	The bushfire hazard has been assessed and has identified the risk from a bushfire to the north west or south west of the development.	✓

Settlement Planning objective	Discussion	Achieved
neighbourhood and site scale, including the potential for neighbourhood-scale destruction.	There is the potential for neighbourhood scale destruction due to the primary vegetation within one kilometre of the development site being a mix of grassland and forests. The requirement for the property to be closed when a catastrophic fire danger rating is determined will ensure people are not present during elevated risk periods.	
Assessing alternative low risk locations for settlement growth on a regional, municipal, settlement, local and neighbourhood basis.	This development is not for the purposes of establishing residential areas. The development will enable the ability to exclude people from the location when the conditions are considered elevated.	✓
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 AS 3959-2009 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009).	This development along with the proposed treatments will areas achieving less than BAL 12.5 when assessed using AS3959 *Construction of buildings in bushfire prone areas*.	✓

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7. Conclusion

Whilst the development is an area that has been assessed as having a high bushfire risk the existing cleared areas and the ability to control the use of the site, ensures that it can be developed safely.

The landscape assessment has identified the potential for bushfires burning in the surrounding Public Land to generate long distance embers that could start new fires in and around the development. This is supported by the historical analysis of bushfires and where and when they occurred in relation to this site.

The MFMP outlines a range of mitigation strategies that we can expect are being implemented by the various agencies along with the adjoining property owners regularly managing the vegetation on their properties.

The development can occur providing the following mitigation treatments are implemented:

- The development of a Bushfire emergency Plan that outlines as a minimum, the requirement to close the site when the fire danger is forecast to be catastrophic.
- The development of a Reserve Fire Management Plan that outlines the annual vegetation management requirements.
- The building to be constructed to BAL12.5 as per AS3959.

The layout design ensures that the building will achieve a maximum radiant heat impact of less than 5 kW/m². This along with the mitigation treatments ensures that the development meets the requirements of Clause 13.02-1S of the Cardinia Planning Scheme.

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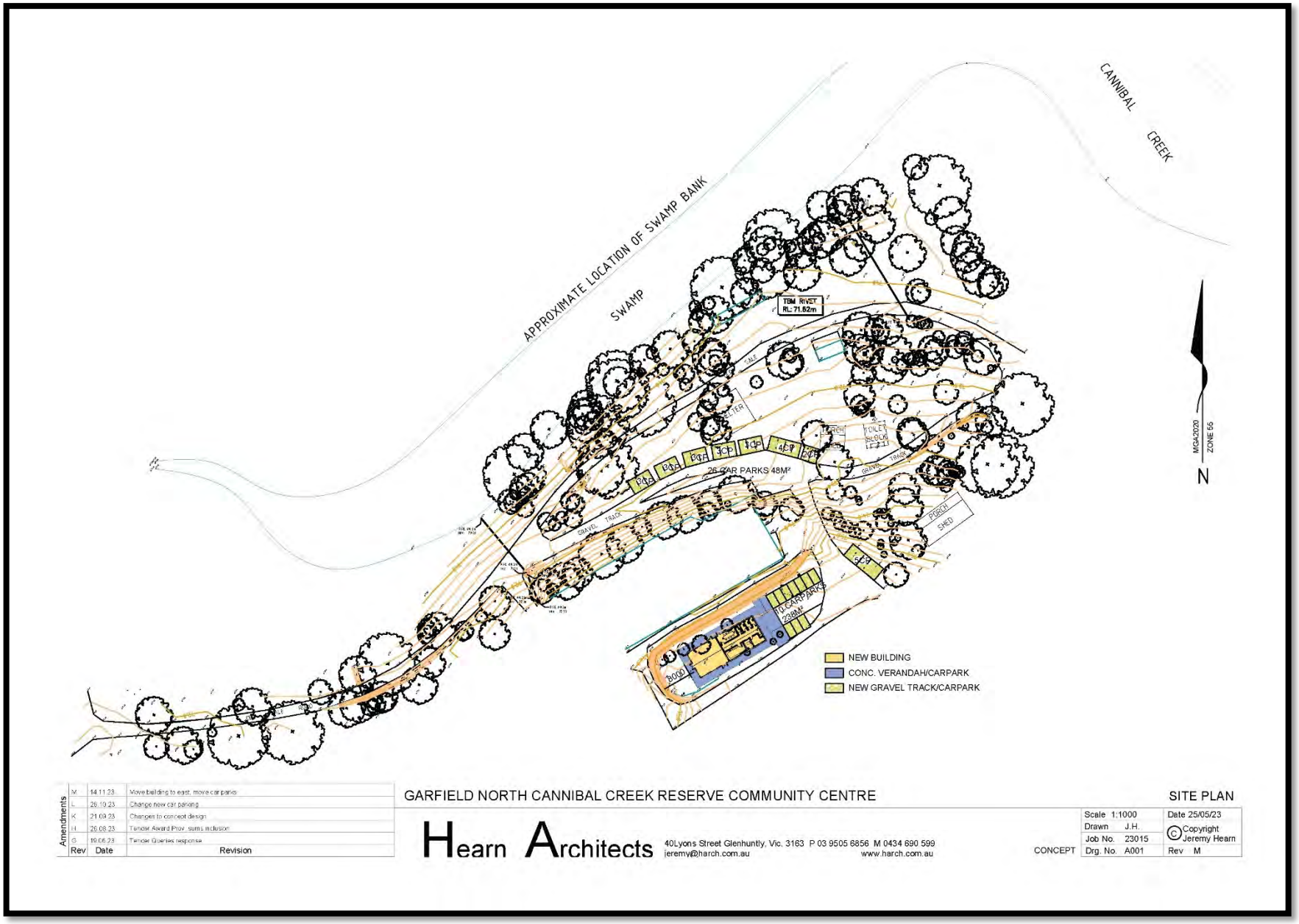
Appendix 1 – Supplied plans



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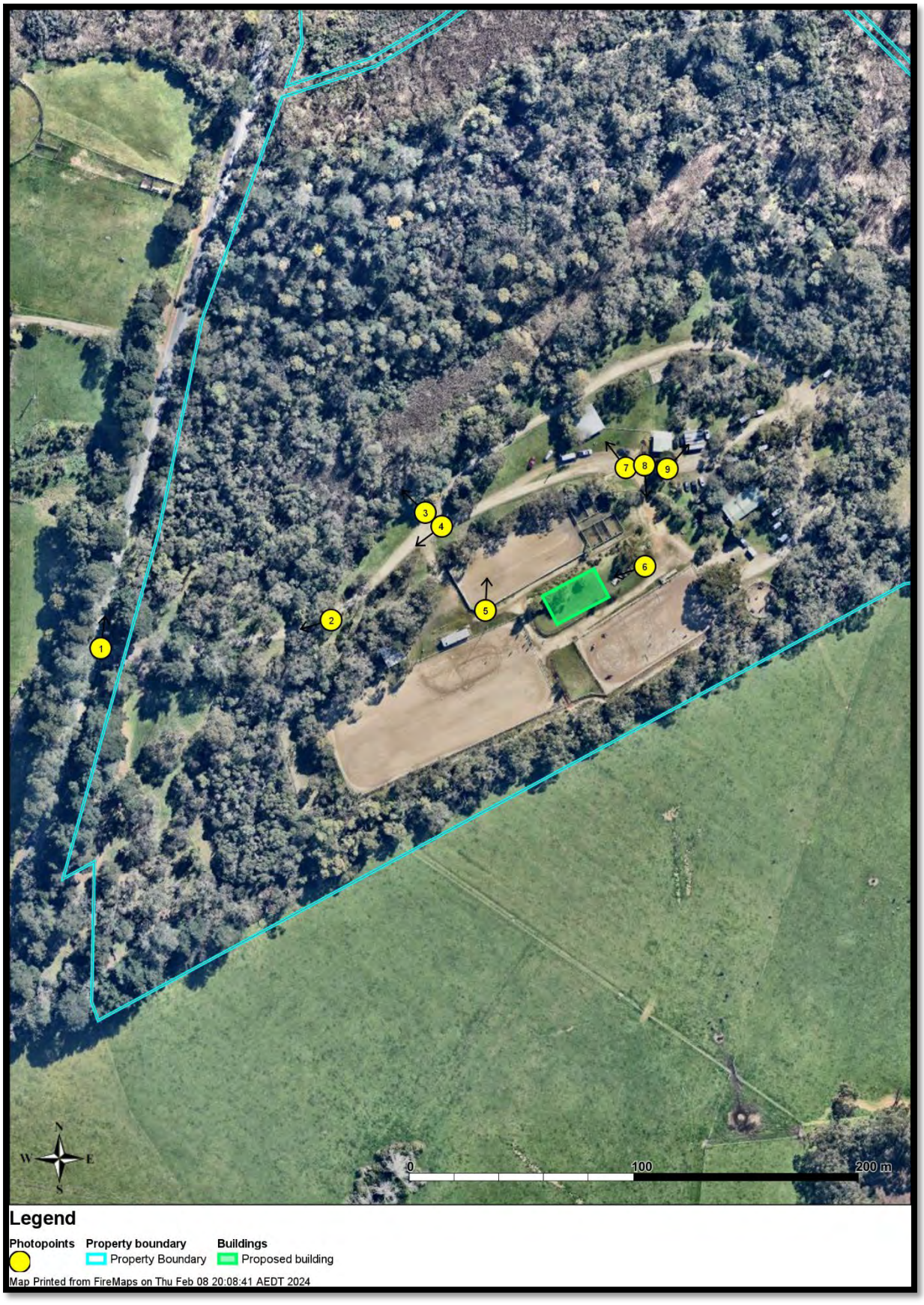
Appendix 2 – Photos



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1 Looking north along Garfield North Road.	
2 Main driveway access to the site.	

3 Typical vegetation to the north of the Reserve.	
4 Looking west along the driveway access.	

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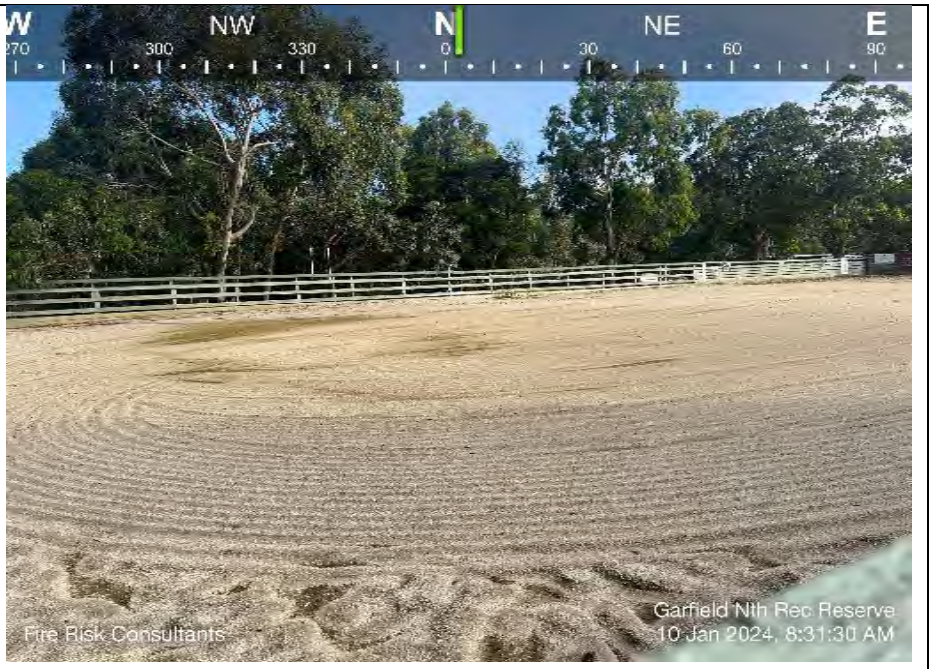
5 Looking across the existing cleared area (horse arena).	
6 Site for the proposed Community Centre.	

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7 Existing structures on the property.	
8 Existing driveway access.	

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9 Existing structures on the site.	

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Appendix 3 – Flamesol calculation

Calculated February 9, 2024, 9:32 am (BALc v.4.9)

Bushfire Attack Level calculator - AS3959-2018 (Method 2)			
Inputs		Outputs	
Fire Danger Index	100	Rate of spread	3 km/h
Vegetation classification	Forest	Flame length	23.7 m
Understorey fuel load	25 t/ha	Flame angle	77 °
Total fuel load	35 t/ha	Panel height	23.09 m
Vegetation height	n/a	Elevation of receiver	11.54 m
Effective slope	0 °	Fire intensity	54,250 kW/m
Site slope	0 °	Transmissivity	0.735
Distance to vegetation	84 m	Viewfactor	0.089
Flame width	100 m	Radiant heat flux	4.97 kW/m²
Windspeed	n/a	Bushfire Attack Level	BAL-12.5
Heat of combustion	18,600 kJ/kg		
Flame temperature	1,090 K		

Rate of Spread - Mcarthur, 1973 & Noble et al., 1980

Flame length - NSW Rural Fire Service, 2001 & Noble et al., 1980

Elevation of receiver - Douglas & Tan, 2005

Flame angle - Douglas & Tan, 2005

Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005

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Appendix 4 – References

Francis Hines, Kevin G Tolhurst, Andrew AG Wilson and Gregory J McCarthy 2010, *Overall Fuel Hazard Guide* 4th Edition, Department of Sustainability and Environment, 44 pp

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Tolhurst, K. and Cheney, N. (1999) *Synopsis of the Knowledge Used in Prescribed Burning in Victoria.* Melbourne: Department of Natural Resources and Environment, Fire Management.

We expect that the maximum number of patrons will be 100 for the new building. To satisfy the rate of .3 per patron for the place of assembly (the requirements of the Car Parking Scheme - Clause 52.06), we have included 36 parking bays.

Minimum car parking spaces = 100*.3
= 33 parking spaces

Table 1: Car parking requirement

Use	Rate Column A	Rate Column B
Place of assembly other than listed in this table	0.3	0.3

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6. Information Required as Part of the Application

a. The community will be able to book the facility for any community use
b. Usual opening hours will be 6am to 12am depending on the bookings
c. Approx 100 patrons are expected

d. 52.31

- A development with an estimated cost of more than $10 million. Under $10M
- A development in the Urban Floodway Zone unless the development is carried out to the satisfaction of the relevant floodplain management authority. N/A
- A development associated with the use of land for accommodation, earth and energy resources industry, energy generation facility, industry or warehouse. N/A
- A development for which an environment effects statement has been, or is required to be, prepared under the Environment Effects Act 1978. N/A
- A development for which the Minister for Planning has decided that an assessment through an environment effects statement under the Environment Effects Act 1978 is not required if the Minister's decision is subject to conditions. N/A

Therefore the exemption should be applied for this project.

15.01-1S
Urban design
The development contributes to community and cultural life by improving the quality of living and working environments, facilitating accessibility and providing for inclusiveness. The design shall comply with relevant standards (DDA) and regulation (BCA) for disabled access and in addition CSC Enhance Standards. The community centre consist of accessible parking, accessible and other toilet facilities, and accessible path of travel. The location is easily accessible from the Old Sale Road and the accessible parking is right in front of the building and as per the Australian Standard. Gravel car parking (as the site is well within the reserve) with adequate number of parking spaces according to the planning guidelines have been proposed. Signage with braille will be installed to provide inclusiveness to the building.

12.01-2S
Native vegetation management
All the trees on site have been planted by the Cannibal Creek Reserve Committee. Impact Assessment Report has been carried out by the qualified consultant. The construction will be carried out according to the tree protection measures as further described in the report. The proposal is to minimise impacts from the removal, destruction or lopping of native vegetation that cannot be avoided.

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LAND CAPABILITY ASSESSMENT REPORT

Garfield North Road
Garfield North VIC

Prepared for: MORE BUILDING GROUP C/O CANNIBAL CREEK COMMUNITY CENTRE
C/O Garfield North Road
Garfield North VIC 3814

Site: Garfield North Road
Garfield North VIC 3814

Prepared by: [redacted] Eco Vision Australia

Reference No. 11BO24 LCA COM

Date: March 7, 2024

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1. Executive Summary

The purpose of this report is to provide a Land Capability Assessment (LCA) for More Building Group C/O The Cannibal Creek Community Centre who are proposing to construct a new community centre at the Cannibal Creek Reserve located at Garfield North Road, Garfield North. The new pavilion will have a new kitchen, toilets, meeting room and amenities wing. The site services four equestrian groups with facility being used most weekends with a maximum number of 150 participants – either Saturday or Sunday or own both days of the weekend (Jason Mortimore email communication -dated Wednesday 31st January 2024 {attached in appendix viii} . An existing toilet and small shower block is located onsite; however, the anticipated hydraulic load will not increase as most people will use the facilities within the new building. Additionally, the toilet facilities are closed during the week. There may also be occasional use of the community centre for others of up to 100 people. It is anticipated that this will not impact on the overall hydraulic load.

The existing septic tank and wastewater field (Absorption Trenches) is located within the vicinity of the existing toilet/small shower block. The existing absorption trenches are located within 60 metres of the onsite watercourses and are now non-compliant with the 60 metre watercourse setback. It is proposed to decommission the absorption trenches and utilise subsurface irrigation (SSI) in conjunction with secondary wastewater treatment within the same vicinity.

Hydraulic load sizing is based on a seven day average load as the site will have a peak capacity during equestrian competitions with a peak daily hydraulic load of 1,500L/D. Potential peak hydraulic loads are 3,000L/W. in addition the proposed Cannibal Creek Reserve Community Centre has functions cater for up to 100 people with no predicted overlap between any equestrian events with no anticipated increase in the maximum peak hydraulic loading rate.

It is proposed to install a Taylex ABS wastewater treatment plant with either a buffer/holding tank or existing septic (primary) tank if suitable with the Land Application Area (LAA) for treated wastewater using Sub Surface Irrigation (SSI). A 1,000 Litre pumpwell is likely to be required to pump wastewater downhill to the proposed Taylex ABS location and SSI location. The size of the site is approximately 15.7ha. The new community reserve centre is located within the riding arenas on the upper portion of the site. The proposed LAA is located downslope and to the north of the new community building. The LAA can be expanded to the grassed area near the signage at the front entry if required. The allotment is very gently undulating with the proposed LAA having a virtually flat to a very gentle slope.

The methods used for this report include soil tests and site survey undertaken by Eco Vision Australia (March 5th, 2023). A desktop study was undertaken and included obtaining relevant planning reports and climate data. Soil samples were taken and further analysed. These methods provided the information to write the LCA.

The overall land capability generally rates between very good to fair. The one matrix indicator that rates as very poor utilising the land capability matrix is the watercourse set back less than 60m. An upgrade to secondary treatment reduces the watercourse setback to 30m. The rainfall the site receives rates as poor. Installation of a secondary wastewater treatment system will aid in protection of groundwater.

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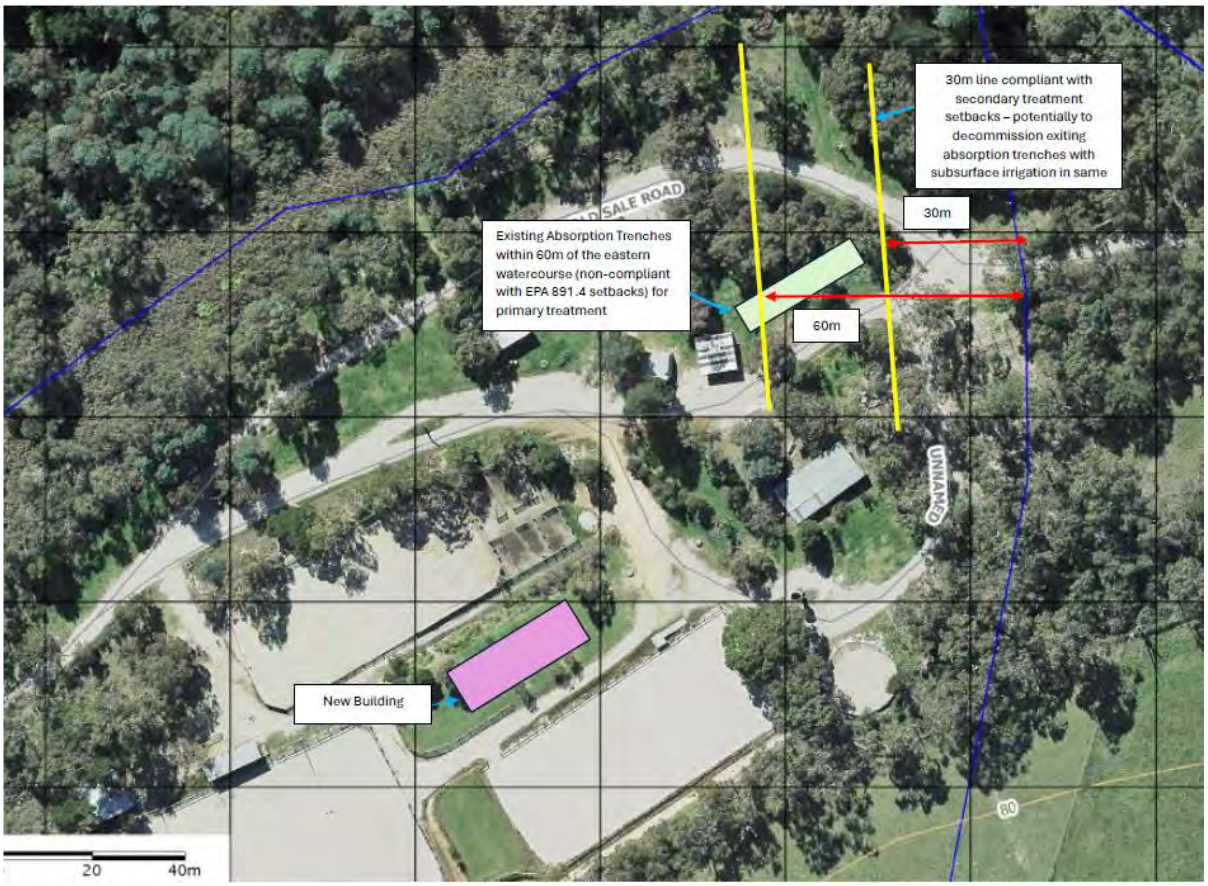
The soil type in the LAA consists of a moderately structured light brown loam to a maximum depth of 400mm overlying moderately structured brown clay loam to a maximum depth of 1100mm. Below 1100mm to 1500mm the soil is a moderately structured sandy light clay. There was little moisture through the soil profile. No groundwater within the proposed LAA was encountered during the site inspection.

The site allows for the installation of a Taylex ABS system in conjunction with either a new balance buffer tank or if the existing septic (primary) tank if suitable to manage peak event loads – wastewater will be distributed to the wastewater field over the days preceding any events.. The allotment size is suitable for the installation of subsurface irrigation (SSI).

Site size is of sufficient size to allow for an appropriately sized effluent treatment field of a minimum size of 180m² (200m² recommended) be established using Sub Surface Irrigation (SSI). A full water balance to attain zero water storage has been used to size the LAA. The aim of the on-site wastewater management system achieves best environmental practice on the property.

The aim of the on-site wastewater management system achieves best environmental practice on the property. Flow rate monitoring is required and if the average flow rates exceed 500L/D the system and consideration can be given to expanding the SSI field. Additional water seals will be required within the treatment system as the site is within the vicinity of a Land Subject to Inundation Overlay (LSIO).



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2. Introduction

Eco Vision Australia has been engaged to undertake a Land Capability Assessment (LCA) for a site at Garfield North Road, Garfield North. The field investigation and report have been undertaken and prepared by suitably experienced staff. Eco Vision Australia has appropriate professional indemnity insurance for this type of work. Our professional indemnity insurance certificate is available on request.

It is proposed to secondary wastewater treatment plant such as a Taylex ABS with potentially a balance/buffer tank for the new Cannibal Creek Recreation Reserve Community building. A 1,000 Litre pumpwell installed near the new community building may be required to pump wastewater downhill towards the wastewater treatment facilities. In addition, the Cannibal Creek Recreation has an existing toilet block with limited shower facilities. An existing primary (septic) tank with absorption trenches service the toilet block. The existing system is functioning well, however as it is a primary system a 60 metre watercourse setback (EPA 891.4). The existing septic (primary) tank has potential to be used as a balance buffer tank if suitably sized and structurally sound. The existing absorption trench field is located within the 60 metre setback particularly to the eastern watercourse as depicted on the site aerial photograph.

The new building will predominately serve as a community facility with a focus on equestrian activity as outlined below.

Current users of the Cannibal Creek Reserve (weekends):

1. Cannibal Creek Pony Club (1st Sunday of the month horse rally)
2. Weekend Competition with up 150 visitors per day (300 per weekend)
3. West Gippsland Quarter Horse Association with up 150 visitors per day (300 per weekend)
4. Mt Cannibal Adult Riding Club (4th Saturday of the month horse rally)

Both the Cannibal Creek Pony Club and Mt Cannibal Adult Riding Club generally have smaller numbers estimated to be approximately 50 people – riders and others. Peak numbers typically on the 2nd and 3rd weekends of the month as shown above.

The new building will serve as a facility to service the various equestrian activities as it is located in between all the horse riding arenas. Wastewater loads will be diverted from the existing toilet block; however, this facility will be available for use and occasional showers.

Hydraulic load sizing is based on a seven day average load as the site will have a peak capacity during equestrian competitions with a peak daily hydraulic load of 1,500L/D. Potential peak hydraulic loads are 3,000L/W. in addition the proposed Cannibal Creek Reserve Community Centre has functions cater for up to 100 people with no predicted overlap between any equestrian events with no anticipated increase in the maximum peak hydraulic loading rate.

This document provides information about the site and soil conditions. It also provides a detailed LCA and includes a conceptual design for a suitable onsite wastewater management system, including recommendations for monitoring and management requirements.

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Site access is from Garfield North Road along the western boundary. The irregular shaped site is approximately 15.7ha in size. The pavilion is to be constructed within upper portions of the site in between a number of horse riding arenas. Boundary dimensions are variable with the southern boundary being approximately 572 metres in length. The proposed LAA is virtually flat to a very gentle slope. Topographical elevations are approximately 80m.

Soil Testing and site survey was undertaken by Eco Vision Australia in March 2024.

Rainfall data was obtained from Longwarry (Gooneparoo) Climate Station – 085208. Evaporation data was obtained from Willow Grove Climate Station - 085283 as this is the closest Climate station that provides this data. There are now few climate stations that provide evaporation data.

There is sufficient land available for sustainable onsite effluent management that maintains appropriate buffers to protect sensitive receptors for to residentially develop the site.

We have considered a number of options for both the treatment system and land application area (LAA). Above all, effluent should be treated to secondary level through the installation of a Taylex wastewater treatment plant with a buffer/balance tank and Land Application by SSI located to the north of the Cannibal Creek Community Centre as shown on the site plan.

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3. Description of the Development

Table 1 Site Description

Site Address:	Garfield North Road Garfield North VIC 3814
Owner/Developer:	Cardinia Shire Council C/- More Building Group
Postal Address:	PO Box 7 Pakenham 3810
Contact:	[redacted]
Council Area:	City of Casey Council
Rural Water Corporation:	Southern Rural Water
Melbourne Water Retailer:	South East Water
Zoning:	Planning Zone – Green Wedge Zone – Schedule 1 (GWZ1) southern portion of the site, Public Conservation Reserve Zone – Schedule (PCRZS), majority of the northern portion of the site, En, Planning Overlays – Environmental Significance Overlay – Schedule 1 (ESO1) lower portion of the site, Land Subject To inundation Overlay Schedule (LSIOS) mid upper portion of the site (LSIOS).
Allotment Size:	15,7016m² (15.7ha)
Domestic Water Supply:	Reticulated
Anticipated Wastewater Load:	**Maximum 150 visitors**. **Maximum** design wastewater load is 10L/person/day, therefore total design load = **1,500L/day**. Peak hydraulic loads are 3,000L/W – Average Daily Hydraulic Load is 428L/D. Design wastewater load 500L/D. This design load is sourced from Code of Practice Onsite Wastewater Management 891.4 (Jul 16). (Table 4 – Minimum daily wastewater flow rates and organic loading with full water reduction facilities)
Anticipated BOD Load:	**Maximum 150 visitors**. **Maximum** design BOD load is 5g/person/day, therefore total design load = **750g/day**. Peak hydraulic loads are 1,500g/d – Average Daily Hydraulic Load is 214g/d. Design wastewater load 500L/D. This design load is sourced from Code of Practice Onsite Wastewater Management 891.4 (Jul 16). (Table 4 – Minimum daily wastewater flow rates and organic loading with full water reduction facilities)
Availability of Sewer:	The area is unsewered and unlikely to be sewered in the short to medium term future

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4. Site Key Features

Robert Krainz undertook a desktop review and site inspection on the 5th of March 2024. A range of site features were assessed in terms of the degree of limitation they present for a range of onsite wastewater management systems. Reference is made to the rating scale described in Table 1 of EPA (2003a). As a guide, remedial measures should be considered whenever ratings of 3, 4, or 5 occur and this might involve land improvement works, soil amelioration or simply adoption of higher-level technologies to ensure environmental protection. Table 3 summarises the key features in relation to effluent management at the site. The site experiences negligible stormwater run-on. There is no evidence of a water table in the proposed LAA.

The soil type in the LAA consists of a moderately structured light brown loam to a maximum depth of 400mm overlying moderately structured brown clay loam to a maximum depth of 1100mm. Below 1100mm to 1500mm the soil is a moderately structured sandy light clay. There was little moisture through the soil profile. No groundwater within the proposed LAA was encountered during the site inspection.

The site is within the locality of Garfield North, which is part of the Green Wedge Zone – Schedule 1 (GWZ1) southern portion of the site, Public Conservation Reserve Zone – Schedule (PCRZS), majority of the northern portion of the site, En, Planning Overlays – Environmental Significance Overlay – Schedule 1 (ESO1) lower portion of the site, Land Subject To Inundation Overlay Schedule (LSIOS) mid upper portion of the site (LSIOS).

Appendix i provides a site locality plan (Property Report) and indicates the location of the site of the proposed development.

Appendix ii provides a Proposed Development Plan.

Appendix iii provides photographs of the existing site conditions

Appendix iv provides Bureau of Meteorology Climate Report for Cranbourne Botanic Gardens (Temperature Statistic) and Cranbourne Botanic Gardens (Rainfall Statistics)

Appendix v provides a full water balance for Sub Surface Irrigation (SS1)

Appendix vi provides Test Site Location Plan

Appendix vii provides Borelog descriptions

Appendix viii provides Cannibal Creek Reserve Onsite Visitor numbers email correspondence

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Table 2 Site Features

Feature	
Climate	The site has a cool temperate climate with maximum temperatures and minimum rainfall in summer (Powelltown DNRE - 086094). The site experiences a mean annual rainfall of (898.8mm – Rainfall – Longwarry DNRE - 085208).
Exposure	The site contains an existing toilet block, open air pavilion, shedding and sand arenas and areas of vegetation. The proposed LAA has moderate to sun and wind exposure.
Vegetation	The overall allotment is densely vegetated in areas beyond the proposed LAA. The proposed LAA is grassed and surrounded with some perimeter upper storey Eucalypt spp. The proposed community building is located upslope of the existing toilet block and wastewater infrastructure.
Landform	The site is contained within a small alluvial plain adjacent to gently undulating granitic terrain landform element. The new Cannibal Creek Community Pavillion is located on Granitic terrain whereas the proposed LAA is located on a small alluvial plain consistent with Tynong clay loam.
Slope	The proposed effluent management area is located on virtually flat land slope within the alluvial plain landform element.
Fill	Minor fill was observed on some sections of the allotment.
Rocks and Rock Outcrops	No rock outcrops or low lying large sub surface rocks were encountered.
Erosion Potential	The erosion hazard is low.
Surface Water	Not applicable.
Flood Potential	Areas available for application of treated effluent lie within the 1:100 year flood level. The site could be subject to water inundation due to the proximity of Cannibal Creek.
Stormwater run-on and upslope seepage	The proposed effluent management area is expected to receive minor stormwater run-on which can be diverted via surface spoon drainage or sub surface drainage. There is no evidence of groundwater seepage, soaks or springs.
Groundwater	There are no signs of shallow groundwater tables.
Site Drainage and Subsurface Drainage	The site could experience variable stormwater run-on and run-off. However, there are minor visible signs of surface dampness. Surface dampness due to recent rainfall and seasonal conditions.
Recommended Buffer Distances	All buffer distances recommended in Table 5 of EPA Code of Practice; 891.4 July 2016 will be achievable in the proposed treatment envelopes.
Available Land Application Area	Considering all site constraints and the buffers mentioned above, the site has ample land that is suitable and available for land application of effluent treated to secondary levels. There will be ample protection for surface and groundwater. Additional water seals will be required as the proposed LAA is located within a Land Subject to Inundation (LSIO) overlay. Melbourne Water has provided correspondence and mapping in respect to potential flood and water impacts which has been considered in this report.

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5. Soil Assessment and Constraints

The sites' soils have been assessed for their suitability for onsite wastewater management by a combination of soil survey and review of desktop published material.

The site at Garfield North Road, Pakenham Upper contains soils consistent with the Quaternary alluvial plain landform element (Qa5) as described in the Cardinia Land Capability Study. The underlying geology is Quaternary alluvium sediments. The ASC soil type for this geology are typically Parapanic, Humic, Semaiaquic Podosols (over Kurosol), medium non-gravelly, clay loamy soils. Podosols are described as soils with a uniform soil profile soils with the onsite soils exhibiting these characteristics.

These are described as non-texture contrast soils that have accumulations of organic matter, iron and aluminium. Sub surface drainage can be variable depending upon the depth of cemented sands which is also known as 'Coffee Rock'. The site visit and field work did not encounter a coffee rock layer. This soil type did not have a textural change through the lower soil profile.

The soil type in the LAA consists of a moderately structured light brown loam to a maximum depth of 400mm overlying moderately structured brown clay loam to a maximum depth of 1100mm. Below 1100mm to 1500mm the soil is a moderately structured sandy light clay. There was little moisture through the soil profile. No groundwater within the proposed LAA was encountered during the site inspection.

Soil permeability was not undertaken however textural soil analysis indicating that infiltration would be relatively fast through the soil profile to a maximum depth of 1500mm. This is consistent with soil permeability testing undertaken on similar soil types. The on-site soils exhibit a very gradual change in texture throughout the soil profile and thus highly beneficial for sub-surface drainage. A conservative Ksat for sandy soils is 1.5m m/d with a corresponding minimum soil percolation rate of 62.5mm per hour.

On-site soils at Garfield North Road, Garfield North

Table 3 Soil Features:

Soil Feature		
Soil Depth	Soil depth up to 1500mm encountered.	
Depth to watertable	Groundwater not encountered.	
Coarse Fragments (%)	No coarse fragments were observed through the soil profile.	
Soil Permeability and Design loading Rates	Soil permeability was not directly measured but can be inferred with reference to Tables L1 to N1 in AS/NZS 1547:2012, that describe conservative design loading rates (DI-R5) and Design Irrigation Rates (DIRs) for various effluent application systems according to soil type. Critical soil properties are texture and structure, but depth, colour and degree of mottling are also used to infer drainage conditions. We note that the indicative loading rates below assume secondary treated effluent is being applied. Reduced loading rates would apply to primary treatment systems (septic tanks), although these are not recommended here.	
	Topsoils	Subsoils
Description	**Loam (moderately structured)**	**Clay Loam (moderately structured)**
Soil Category (AS/ NZ1547:2012)	**3a**	**4a**
Design Irrigation Rate (DIR mm/week)	**28 (4mm/d)**	**24.5 (3.5mm/d)**
Design Loading Rate (DLR mm/week) for trenches/beds	**Design Loading Rate** 105 (15mm/d)	**Design Loading Rate** **70 (10mm/d)**
pH	The pH of 1:5 soil/water suspensions was not measured. The present soil conditions do not appear to be restricting plant growth.	
Electrical Conductivity	Electrical conductivity was not measured.	

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6. Land Capability Assessment Matrix

The Land Capability Assessment has been developed for the whole site, but using the soils in the vicinity of the building envelope.

Table 4 Land Capability Assessment Matrix

LAND FEATURES	Land capability class rating					Site rating
	Very good (1)	Good (2)	Fair (3)	Poor (4)	Very poor (5)	
GENERAL CHARACTERISTICS						
Site drainage	No visible signs of dampness	Moist soil, but no standing water in soil pit		Visible signs of dampness, such as moisture-tolerant plants	Water ponding on surface	1
Runoff	None	Low	Moderate	High – need for diversionary structures	Very high – diversion not practical	2
Flood Levels	Never		<1 in 100	>1 in 100 and <1 in 20	<1 in 20	4
Proximity to Watercourses	>60 metres				<60	5
Slope (%)	0-2	2-8	8-12	12-20	>20	1
Landslip	No actual or potential failure		Low potential for failure	High potential for failure	Present or past failure	3
Groundwater (seasonal watertable depth (m)	>5	5-2.5	2.5-2.0	2.0-1.5	<1.5	3
Rock outcrop (1% of land surface containing rock >200mm)	0	<10%	10-20%	20-50%	>50%	1
Erosion potential	No erosion potential	Minor	Moderate	High	Severe erosion potential	2
Exposure	High sun and wind exposure		Moderate	Low sun and wind exposure		3
Landform	Hill crests, convex side slopes and plains		Concave sideslopes and footslopes		Floodplains & incised channels	1
Vegetation Type	Turf or pasture				Dense forest with little understorey	1
Average Rainfall (mm/yr)	<450	450-650	650-750	750-1000	>1000	4
Pan evaporation (mm/yr)	<1500	1250-1500	1000-1250	---	<1000	3
Fill	No fill		Fill present			1

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SOIL PROFILE CHARACTERISTICS						
Soil permeability category[1]	2 and 3	4		5	1 and 6	2
Profile depth	>2m	1.5-2m	1.5 – 1	1.0-0.5m	>0.5m	2
Presence of mottling	None				Extensive	3
Course fragments (%)	<10	10-20	20-40		>40	1
Permeability * (m/d)	0.3-0.15	0.08-0.15 0.3-0.6	0.06-0.08 0.6-1.5	--- 1.5-2.0	<0.06 >2.0	3
pH	6-8		4.5-6		<4.5, >8	3
Emerson Aggregate	4, 6, 8	5	7	2, 3	1	3
Electrical Conductivity	<0.3	0.3-0.8	0.8-2	2-4	>4	1
Sodicitiy ESP%	<3		6-8	8-14	>14	2
Overall Site Rating			Poor			4

1. Source: AS/NZ1547:2012

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7. The Management Program

This LCA will accompany an application submitted to the Cardinia Shire Council for a new secondary wastewater treatment system such as a Taylex ABS and balance/buffer tank or if suitable the existing primary (septic) tank for the new Cannibal Creek Reserve Community Hydraulic load sizing is based on a seven day average load as the site will have a potential peak capacity 26 times a year. The existing absorption trenches will be decommissioned as they are not compliant with a minimum 60 metre watercourse setback. The existing absorption field will be decommissioned and relaces with SSI. As such, this report provides recommendations for treatment and land application systems that are appropriate to the land capability. The following sections provide an overview of a suitable system, with sizing and design considerations and justification for its selection. Detailed design for the system is beyond the scope of this study but should be undertaken at the time of building application and submitted to Council.

7.1 Treatment System

To treat domestic wastewater and allow irrigation with the treated effluent, the existing system provides secondary treatment with disinfection to meet Environment Protection Authority requirements for irrigation. Indicative target effluent quality is:

- BOD <20 mg/l;
- SS <30 mg/l;

7.2 Land Application

A range of possible land application systems have been considered, such as absorption trenches, evapotranspiration/absorption (ETA) beds, surface and subsurface irrigation, and sand mounds. The preferred system is pressure compensating **subsurface irrigation**. In combination with the selected secondary treatment system subsurface irrigation will provide even and widespread dispersal of highly treated effluent loads within the root-zone of plants. Subsurface irrigation will provide beneficial reuse of wastewater. It will also ensure that the risk of effluent being transported off this site will be negligible.

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7.3 Sizing the Irrigation System

To determine the necessary size of the irrigation area water and nutrient balance modelling has been considered.

The full water balance has been considered to calculate the LAA area. As a result of these calculations a minimum area of 180m² (200m² recommended) is suitable for the Subsurface Irrigation (SSI) as long as the recommended LAA installation and management strategies are followed.

This is based upon an average load of 500 litres/day with full water reduction facilities.

Water Balance

A full water balance for using SSI (180m²) is provided in appendix iv.

Nutrient Balance

A nutrient balance has been undertaken to check that the LAA (if subsurface irrigation is used) is of sufficient size to ensure nutrients (phosphorus and nitrogen) are assimilated by the soils and vegetation. It is acknowledged that a proportion of nitrogen will be retained in the soil through processes such as mineralisation and volatilisation.

Summary and Discussion

It is worth noting that modeling includes several significant factors of conservatism:

- Average hydraulic load (500 L/day). It is likely that the actual numbers and daily water usage will be less than this;
- From the nutrient balances, in the absence of site-specific data very conservative estimates of crop nutrient uptake rates and total nitrogen lost to soil processes are considered.

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7.4 Siting and Configuration of the Land Application Area

It is preferable to keep the irrigation area as high on the property as possible based upon the proposed site plan. Eco Vision has delineated on the provided site plan a suitable LAA, but the areas tested are deemed suitable.

As well as providing area for application of effluent, it is important that buffer distances be adhered to. It is important to note that buffers are measured as the overland flow path for run-off water from the effluent irrigation area.

The LAA area is sized at a minimum area of 180m² (200m²) and located as depicted on the site plan.

It is recommended that the owner consult an irrigation expert familiar with wastewater irrigation equipment, to help design and install the irrigation system. The irrigation plan must ensure good, even application of effluent.

7.5 Irrigation System Design

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

Subsurface irrigation comprises a network of drip-irrigation lines that is specially designed for use with wastewater. The pipe contains pressure compensating emitters that employ a biocide to prevent build-up of slimes and inhibit root penetration. The laterals are usually 0.5 to 1.0 m apart, roughly parallel and along the contour if possible. -Installation depth is commonly 100-150 mm. It is critical that the irrigation pump be sized properly to ensure adequate pressure and delivery 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 following manufacturer's instructions.

Vacuum breakers should be installed at the high points 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 east yearly. Flush water can be either returned to the treatment system or should be released where it will be readily absorbed.

All trenching used to install the pipes must be backfilled properly to prevent preferential subsurface flows along trench lines, particularly where trenches are not absolutely parallel to contours. Irrigation areas should not be subject to high traffic movement, especially by vehicles, otherwise compaction around emitters can lead to premature system failure.

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7.6 Buffer Distances

Buffer distances from LAAs are required to help prevent human contact, maintain public amenity, and protect sensitive environments. Council generally adopts the following nominal buffers secondary sewage and greywater effluent, described in EPA Vic (891.4):

Landscape feature or structure	Setback distances (m)		
	Primary sewage and greywater systems	Secondary sewage and greywater systems	Advanced secondary greywater systems [3]
Building			
Wastewater field up-slope of building [7]	6	3	3
Wastewater field down-slope of building	3	1.5	1.5
Wastewater up-slope of cutting/escarpment [12]	15	15	15
Allotment boundary			
Wastewater field up-slope of adjacent lot	6	3	1
Wastewater field down-slope of adjacent lot	3	1.5	0.5
Services			
Water supply pipe	3	1.5	1.5
Wastewater up-slope of potable supply channel	300	150	150
Wastewater field down-slope of potable supply channel	20	10	10
Gas supply pipe	3	1.5	1.5
In-ground water tank [14]	15	7.5	3
Stormwater drain	6	3	2
Recreational areas			
Children's grassed playground [15]	6	3 [16]	2 [16]
In-ground swimming pool	6	3 [16]	2 [16]
Surface waters (up-slope of:)			
Dam, lake or reservoir (potable water supply) [8, 13]	300	300 [4]	150
Waterways (potable water supply) [9, 13]	100	100 [4, 5, 17]	50
Waterways, wetlands (continuous or ephemeral, non-potable); estuaries, ocean beach at high-tide mark; dams, reservoirs or lakes (stock and domestic, non-potable) [8, 9]	60	30	30
Groundwater bores			
Category 1 and 2a soils	NA [11]	50 [19,]	20
Category 2b to 6 soils	20	20	20
Watertable			
Vertical depth from base of trench to the highest seasonal water table [18]	1.5	1.5	1.5
Vertical depth from irrigation pipes to the highest seasonal water table [18]	NA	1.5	1.5

All nominal buffers are achievable for a suitably sized LAA.

8. Monitoring, Operation and Maintenance

Maintenance is to be carried out in accordance with the certificate of approval and Council's permit conditions. The system proposed above will only function adequately if appropriately maintained. Residents will be required to carry out maintenance as discussed below.

To ensure the treatment system functions adequately, the operators must:

- Have a suitably qualified maintenance contractor service the AWTS as required by Council under the approval to operate.
- Any pump will need regular maintenance and seals checked regularly.
- Use household cleaning products sparingly and check that they are suitable for septic tanks;
- Keep as much fat and oil out of the system as possible; and
- Conserve water

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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 of irrigation lines;
- Regularly clean in-line filters;
- Not erect any structures over the LAA;
- Minimise vehicle access to the LAA, to prevent compaction; and
- Ensure that the LAA is kept level by filling any depressions with good quality topsoil (not clay).
- Good water conservation is an important aspect in the overall management of onsite systems. It will be important for the ongoing performance of both the treatment and application system that they are not overloaded hydraulically. AAA rated plumbing is recommended for all future water fixtures.

9. Stormwater Management

As mentioned above, stormwater runoff is not expected to be a major concern in this case. However, the construction and maintenance of diversion drains would provide an additional precaution. Roof stormwater must not be disposed in the LAA.

10. Conclusions

As a result of our investigations, we recommend that a sustainable onsite wastewater management system can be built to meet the needs of a new residence on the allotment.

Specifically, we recommend the following:

- Decommission the existing absorption trenches;
- Installation of a Taylex ABS waste treatment plant in conjunction with either a buffer/balance tank or if suitable use the existing primary (septic) tank to manage peak inflows for distribution over a seven day cycle;
- Potentially install a 1,000 litre pump well to distribute wastewater to the secondary treatment system adjacent to the existing toilet and small shower block;
- Install a flow metre to monitor the hydraulic wastewater load and if it increases above an average 500L/D the SSI field may need to be expanded;
- Additional water seals required on the treatment system due to the proximity of an LSIO overlay;
- System requires supervision by the designer and test on completion;
- Land application of wastewater in a minimum 180m² wastewater field located to the north of the proposed pavilion. 200m² of area is recommended to be installed for additional environmental benefit;
- There is additional area available for wastewater if required;
- LAA location can be adjusted slightly if required in consultation with Eco Vision Australia;
- Installation of full water reduction facilities in the new building to reduce the hydraulic load for onsite disposal;

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- Do not allow any vehicle access and utilise surface plants that tolerate wet conditions (including roots) and have a high evapo-transpiration capacity. Where possible use plants well exposed to the sun. Plant high transpiration species to minimise waterlogging.
- Use of low phosphorus and low sodium (liquid) detergents to improve effluent quality and maintain soil properties;
- Operation and management of the treatment and disposal system in accordance with manufacturer's recommendations and the recommendations made in this report; and
- Construction of diversion drains on sides of the LAA to divert stormwater and surface water run- on.

[redacted]

Land Management Consultant

Grad Cert. Environmental Management (CSU), Ad. Dip. Land Management (Syd), Cert Hort. Landscape & Nursery (Qld)

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11. References & Bibliography

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McKenzie N., Jacquier D., Isbell R. & Brown K. (2004), *Australian Soils and Landscapes: An illustrated compendium.* CSIRO Publishing

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11. APPENDICES

i. Site Locality Plan – Property Reports
ii. Proposed Development Plan
iii. Existing conditions
iv. Bureau of Meteorology Rainfall Report for Cranbourne Botanic Gardens and Climate Report for Cranbourne Botanic Gardens
v. Full Water Balance
vi. Test Site Location Plan
vii. Borelogs Description
viii. Cannibal Creek Reserve Onsite Visitor numbers email correspondence

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APPENDIX i

SITE LOCALITY PLAN - PROPERTY PLANNING REPORTS

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PROPERTY REPORT

VICTORIA State Government | Energy, Environment and Climate Action

From www.land.vic.gov.au at 20 February 2024 04:07 PM

PROPERTY DETAILS

Address:	**GARFIELD NORTH ROAD GARFIELD NORTH 3814**
Crown Description:	**This property has 5 parcels. See table below**
Standard Parcel Identifier (SPI):	**See table below**
Local Government Area (Council):	**CARDINIA** www.cardinia.vic.gov.au
Council Property Number:	**4318650300**
Directory Reference:	**Vicroads 96 C3**

SITE DIMENSIONS

All dimensions and areas are approximate. They may not agree with those shown on a title or plan.

Area: 157016 sq. m (15.70 ha)
Perimeter: 2772 m
For this property:
—— Site boundaries
—— Road frontages

Dimensions for individual parcels require a separate search, but dimensions for individual units are generally not available.

29 overlapping dimension labels are not being displayed

Calculating the area from the dimensions shown may give a different value to the area shown above.

For more accurate dimensions get copy of plan of Title and Property Certificate

PARCEL DETAILS

The letter in the first column identifies the parcel in the diagram above

	Lot/Plan or Crown Description	SPI
	PARISH OF BUNYIP	
A	Allot. 12H	12H\PP2290
B	Allot. 12J	12J\PP2290
C	Allot. 12K	12K\PP2290
D	Allot. 12L	12L\PP2290
E	Allot. 2006	2006\PP2290

UTILITIES

Rural Water Corporation:	**Southern Rural Water**
Melbourne Water Retailer:	**South East Water**
Melbourne Water:	**Inside drainage boundary**
Power Distributor:	**AUSNET**

STATE ELECTORATES

Legislative Council:	**EASTERN VICTORIA**
Legislative Assembly:	**NARRACAN**

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PLANNING PROPERTY REPORT

VICTORIA State Government | Environment, Land, Water and Planning

From www.planning.vic.gov.au at 20 February 2024 04:39 PM

PROPERTY DETAILS

Address:	**GARFIELD NORTH ROAD GARFIELD NORTH 3814**
Crown Description:	**More than one parcel - see link below**
Standard Parcel Identifier (SPI):	**More than one parcel - see link below**
Local Government Area (Council):	**CARDINIA** www.cardinia.vic.gov.au
Council Property Number:	**4318650300**
Planning Scheme:	**Cardinia** Planning Scheme - Cardinia
Directory Reference:	**Vicroads 96 C3**

This property has 5 parcels. For full parcel details get the free Property report at Property Reports

UTILITIES

Rural Water Corporation:	**Southern Rural Water**
Melbourne Water Retailer:	**South East Water**
Melbourne Water:	**Inside drainage boundary**
Power Distributor:	**AUSNET**

STATE ELECTORATES

Legislative Council:	**EASTERN VICTORIA**
Legislative Assembly:	**NARRACAN**

OTHER

Registered Aboriginal Party: **Bunurong Land Council Aboriginal Corporation**

View location in VicPlan

Planning Zones

GREEN WEDGE ZONE (GWZ)
GREEN WEDGE ZONE - SCHEDULE 1 (GWZ1)
PUBLIC CONSERVATION AND RESOURCE ZONE (PCRZ)
SCHEDULE TO THE PUBLIC CONSERVATION AND RESOURCE ZONE (PCRZ)

GWZ - Green Wedge | PCRZ - Public Conservation and Resource | TRZ2 - Principal Road Network
Water area | Water course

Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

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PLANNING PROPERTY REPORT

VICTORIA State Government | Environment, Land, Water and Planning

Planning Overlays

ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)
ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)

ESO - Environmental Significance Overlay | Water area | Water course

Note: due to overlaps, some overlays may not be visible, and some colours may not match those in the legend.

LAND SUBJECT TO INUNDATION OVERLAY (LSIO)
LAND SUBJECT TO INUNDATION OVERLAY SCHEDULE (LSIO)

LSIO - Land Subject to Inundation Overlay | Water area | Water course

Note: due to overlaps, some overlays may not be visible, and some colours may not match those in the legend.

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PLANNING PROPERTY REPORT

VICTORIA State Government | Environment, Land, Water and Planning

Planning Overlays

OTHER OVERLAYS

Other overlays in the vicinity not directly affecting this land

BUSHFIRE MANAGEMENT OVERLAY (BMO)

HERITAGE OVERLAY (HO)

Note: due to overlaps, some overlays may not be visible, and some colours may not match those in the legend

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Areas of Aboriginal Cultural Heritage Sensitivity

All or part of this property is an 'area of cultural heritage sensitivity'.

'Areas of cultural heritage sensitivity' are defined under the Aboriginal Heritage Regulations 2018, and include registered Aboriginal cultural heritage places and land form types that are generally regarded as more likely to contain Aboriginal cultural heritage.

Under the Aboriginal Heritage Regulations 2018, 'areas of cultural heritage sensitivity' are one part of a two part trigger which require a 'cultural heritage management plan' be prepared where a listed 'high impact activity' is proposed.

If a significant land use change is proposed (for example, a subdivision into 3 or more lots), a cultural heritage management plan may be triggered. One or two dwellings, works ancillary to a dwelling, services to a dwelling, alteration of buildings and minor works are examples of works exempt from this requirement.

Under the Aboriginal Heritage Act 2006, where a cultural heritage management plan is required, planning permits, licences and work authorities cannot be issued unless the cultural heritage management plan has been approved for the activity.

For further information about whether a Cultural Heritage Management Plan is required go to: http://www.gav.nrms.net.au/gavQuestion1.aspx

More information, including links to both the Aboriginal Heritage Act 2006 and the Aboriginal Heritage Regulations 2018, can also be found here - https://www.aboriginalvictoria.vic.gov.au/aboriginal-heritage-legislation

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PLANNING PROPERTY REPORT

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Further Planning Information

Planning scheme data last updated on 7 December 2023.

A **planning scheme** sets out policies and requirements for the use, development and protection of land. This report provides information about the zone and overlay provisions that apply to the selected land. Information about the State and local policy, particular, general and operational provisions of the local planning scheme that may affect the use of this land can be obtained by contacting the local council or by visiting https://www.planning.vic.gov.au

This report is NOT a **Planning Certificate** issued pursuant to Section 199 of the ***Planning and Environment Act 1987.*** It does not include information about exhibited planning scheme amendments, or zonings that may abut the land. To obtain a Planning Certificate go to Titles and Property Certificates at Landata - https://www.landata.vic.gov.au

For details of surrounding properties, use this service to get the Reports for properties of interest.

To view planning zones, overlay and heritage information in an interactive format visit https://mapshare.maps.vic.gov.au/vicplan

For other information about planning in Victoria visit https://www.planning.vic.gov.au

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Designated Bushfire Prone Areas

This property is in a designated bushfire prone area. Special bushfire construction requirements apply to the part of the property mapped as a designated bushfire prone area (BPA). Planning provisions may apply.

Where part of the property is mapped as BPA, if no part of the building envelope or footprint falls within the BPA area, the BPA construction requirements do not apply.

Note: the relevant building surveyor determines the need for compliance with the bushfire construction requirements.

Designated BPA are determined by the Minister for Planning following a detailed review process. The Building Regulations 2018, through adoption of the Building Code of Australia, apply bushfire protection standards for building works in designated BPA.

Designated BPA maps can be viewed on VicPlan at https://mapshare.vic.gov.au/vicplan/ or at the relevant local council.

Create a BPA definition plan in VicPlan to measure the BPA.

Information for lot owners building in the BPA is available at https://www.planning.vic.gov.au

Further information about the building control system and building in bushfire prone areas can be found on the Victorian Building Authority website https://www.vba.vic.gov.au. Copies of the Building Act and Building Regulations are available from http://www.legislation.vic.gov.au. For Planning Scheme Provisions in bushfire areas visit https://www.planning.vic.gov.au

Native Vegetation

Native plants that are indigenous to the region and important for biodiversity might be present on this property. This could include trees, shrubs, herbs, grasses or aquatic plants. There are a range of regulations that may apply including need to obtain a planning permit under Clause 52.17 of the local planning scheme. For more information see Native Vegetation (Clause 52.17) with local variations in Native Vegetation (Clause 52.17) Schedule.

To help identify native vegetation on this property and the application of Clause 52.17 please visit the Native Vegetation Information Management system https://nvim.delwp.vic.gov.au/ and Native vegetation (environment.vic.gov.au) or please contact your relevant council.

You can find out more about the natural values on your property through NatureKit NatureKit (environment.vic.gov.au)

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Read the full disclaimer at https://www.delwp.vic.gov.au/disclaimer

Notwithstanding this disclaimer, a vendor may rely on the information in this report for the purpose of a statement that land is in a bushfire prone area as required by section 32C(b) of the Sale of Land 1962 (Vic).

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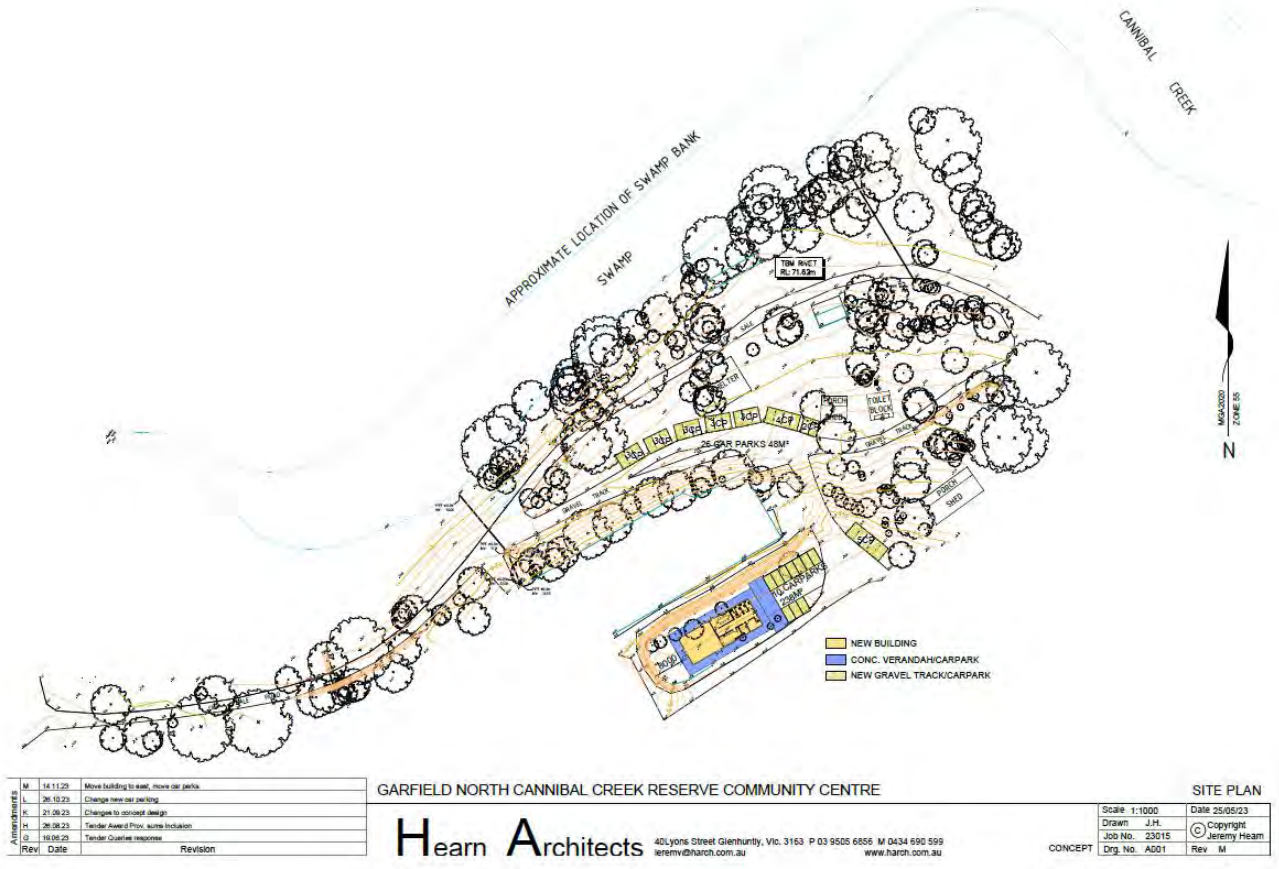
APPENDIX ii

PROPOSED DEVELOPMENT PLAN, AERIAL PHOTO, MAPSHARE & GEOVIC



Amendments			
M	14.11.23	Move building to east, move car parks	
L	26.10.23	Change new car parking	
K	21.09.23	Changes to concept design	
H	26.08.23	Tender Award Prov. sums Inclusion	
G	19.06.23	Tender Queries response	
Rev	Date	Revision	

GARFIELD NORTH CANNIBAL CREEK RESERVE COMMUNITY CENTRE

SITE PLAN

Hearn Architects 40Lyons Street Glenhuntly, Vic. 3163 P 03 9505 6855 M 0434 690 599 jeremv@harch.com.au www.harch.com.au

CONCEPT

Scale 1:1000	Date 25/05/23
Drawn J.H.	© Copyright Jeremy Hearn
Job No. 23015	
Drg. No. A001	Rev M

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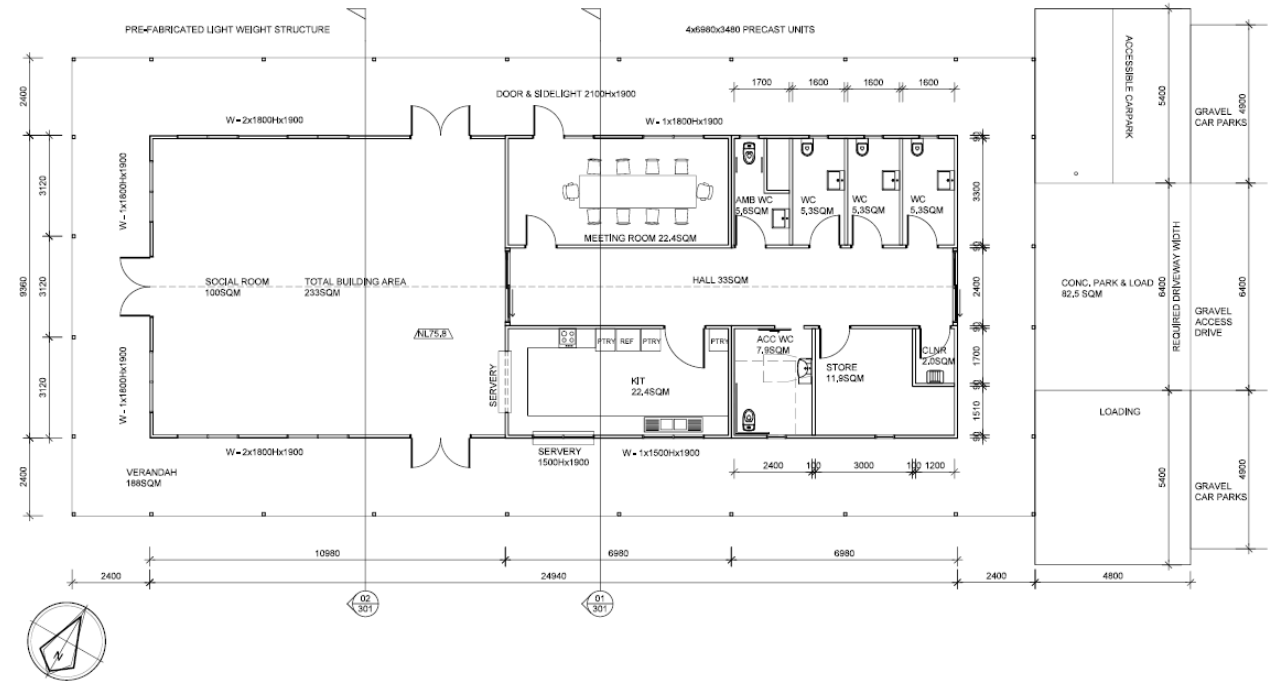

Amendments	Rev	Date	Revision
	O	26.10.23	Minor amendments
	N	18.10.23	Minor amendments
	M	17.10.23	Add section 02
	L	6.10.23	Changes to concept design

GARFIELD NORTH CANNIBAL CREEK RESERVE COMMUNITY CENTRE

FLOOR PLAN

Hearn Architects 40Lyons Street Glenhuntly, Vic. 3163 P 03 9505 6856 M 0434 690 599
jeremy@harch.com.au www.harch.com.au

CONCEPT

Scale	1:100
Date	25/05/23
Drawn	J.H.
Job No.	23015
Drg. No.	A101
Rev	O

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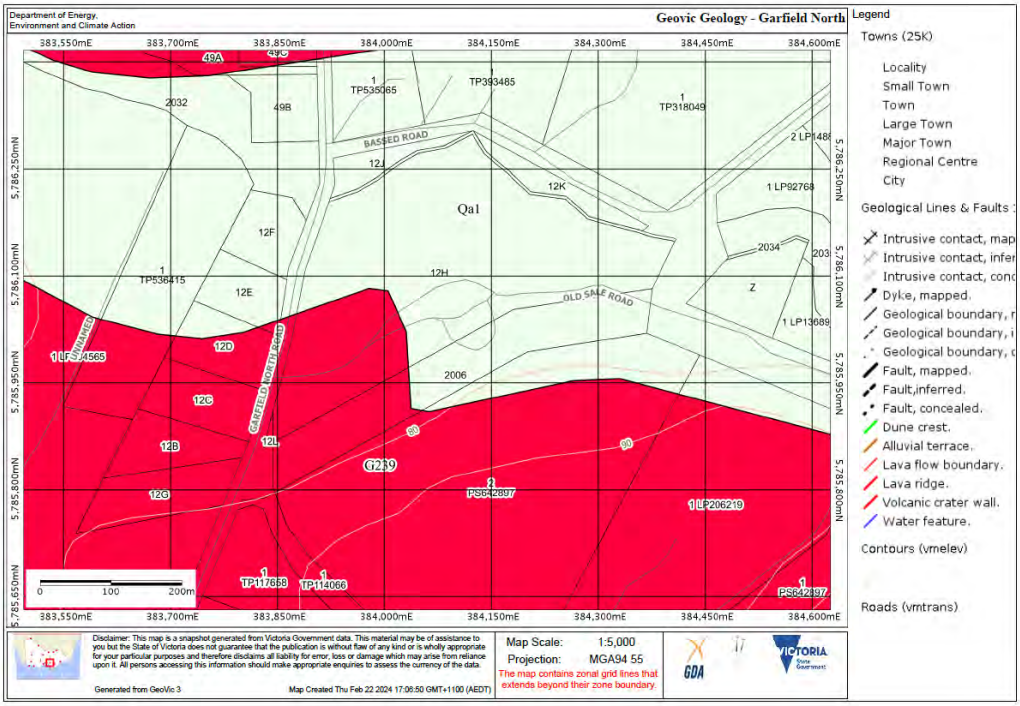

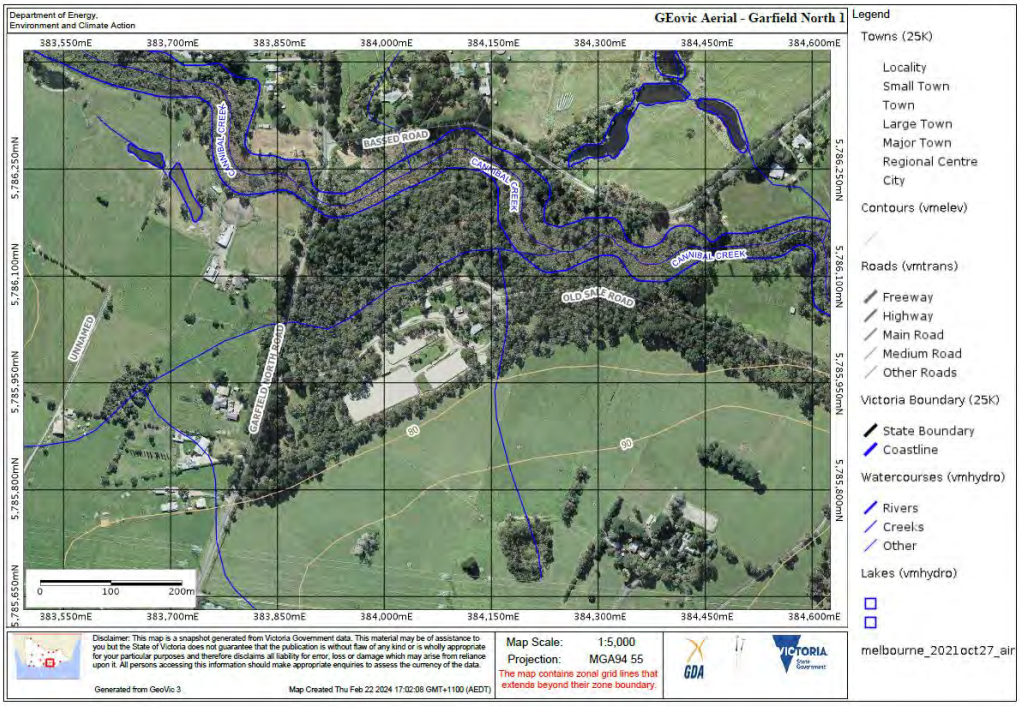

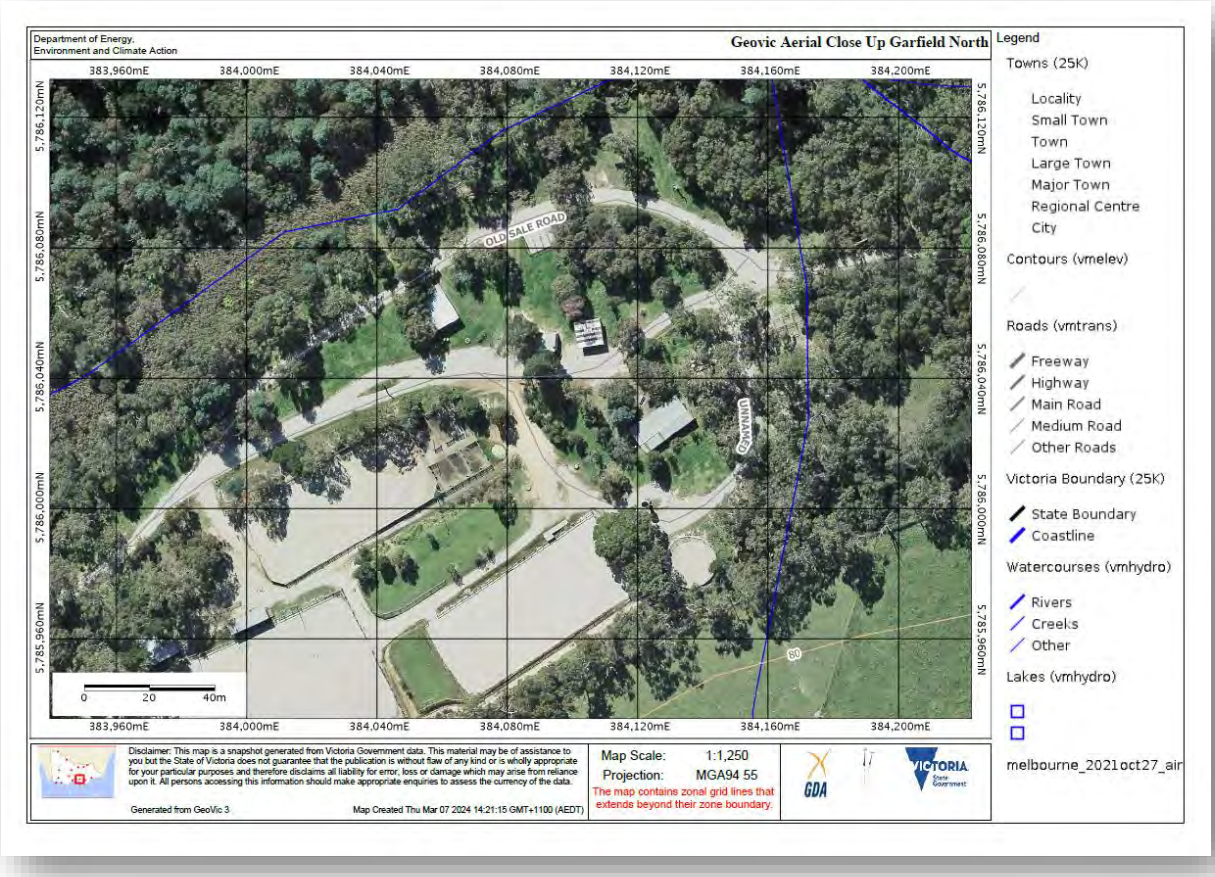

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APPENDIX iii

EXISTING CONDITIONS

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P1 - View towards the north depicting moderate exposure SSI field location – must meet a minimum 30m watercourse setback (Garfield North Road, Garfield North).

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P2 - View towards the north depicting LAA available for SSI – must meet a minimum 30m watercourse setback,, in addition SSI can be placed around any vegetation and mulched (Garfield North Road, Garfield North).

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P3 - View towards the west depicting the existing toilet block (locked weekdays) and location of the proposed secondary treatment tank and buffer tank location (Garfield North Road, Garfield North).

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P2 - View towards the north east depicting LAA available for SSI – must meet a minimum 30m watercourse setback,, in addition SSI can be placed around any vegetation and mulched (Garfield North Road, Garfield North).

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APPENDIX iv

CLIMATE STATISTICS TEMPERATURE POWELLTOWN DNRE (086094) & RAINFALL LONGWARRY {GOONEPAROO} (085208)

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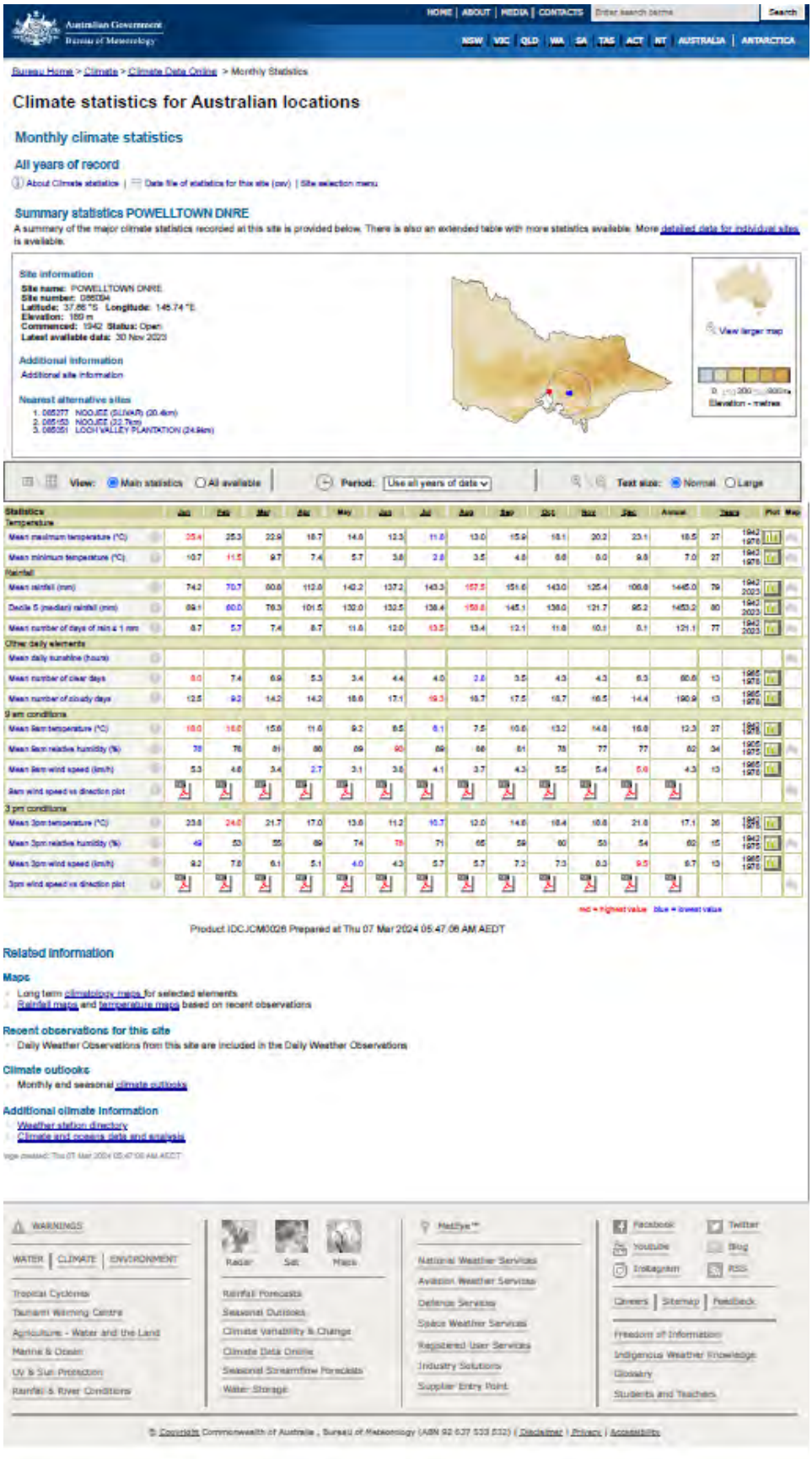

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Bureau Home > Climate > Climate Data Online > Monthly Statistics

Climate statistics for Australian locations

Monthly climate statistics

All years of record

About Climate statistics | Data file of statistics for this site (csv) | Site selection menu

Summary statistics POWELLTOWN DNRE

A summary of the major climate statistics recorded at this site is provided below. There is also an extended table with more statistics available. More detailed data for individual sites is available.

Site information

Site name: POWELLTOWN DNRE
Site number: 086094
Latitude: 37.66 °S **Longitude:** 146.74 °E
Elevation: 169 m
Commenced: 1942 **Status:** Open
Latest available data: 30 Nov 2023

Additional information

Additional site information

Nearest alternative sites

1. 085277 NOOJEE (SLOPER) (20.4km)
2. 085153 NOOJEE (22.7km)
3. 085351 LOCH VALLEY PLANTATION (24.9km)

View larger map

Elevation - metres

View: Main statistics | All available | Period: Use all years of data | Text size: Normal | Large

Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years	Plot	Map
Temperature																
Mean maximum temperature (°C)	25.4	25.3	22.9	18.7	14.6	12.3	11.6	13.0	15.9	18.1	20.2	23.1	18.5	27	1942 1978	
Mean minimum temperature (°C)	10.7	11.5	9.7	7.4	5.7	3.8	2.8	3.5	4.8	6.6	8.0	9.5	7.0	27	1942 1978	
Rainfall																
Mean rainfall (mm)	74.2	70.7	80.8	112.6	142.2	137.2	143.3	157.5	151.6	143.0	125.4	106.6	1445.0	79	1942 2023	
Decile 5 (median) rainfall (mm)	69.1	60.0	76.3	101.5	132.0	132.5	138.4	159.8	145.1	139.0	121.7	95.2	1453.2	80	1942 2023	
Mean number of days of rain ≥ 1 mm	6.7	5.7	7.4	9.7	11.8	12.0	13.5	13.4	12.1	11.8	10.1	8.1	121.1	77	1942 2023	
Other daily elements																
Mean daily sunshine (hours)																
Mean number of clear days	8.0	7.4	6.9	5.3	3.4	4.4	4.0	2.8	3.5	4.3	4.3	6.3	60.6	13	1965 1978	
Mean number of cloudy days	12.5	9.3	14.2	14.3	18.8	17.1	19.3	18.7	17.5	16.7	16.5	14.4	190.9	13	1965 1978	
9 am conditions																
Mean 9am temperature (°C)	18.0	18.0	15.8	11.8	9.2	8.5	8.1	7.5	10.6	13.2	14.8	16.8	12.3	27	1942 1978	
Mean 9am relative humidity (%)	78	78	81	86	89	90	89	88	81	78	77	77	82	34	1965 1978	
Mean 9am wind speed (km/h)	5.3	4.8	3.4	2.7	3.1	3.8	4.1	3.7	4.3	5.5	5.4	5.9	4.3	13	1965 1978	
9am wind speed vs direction plot																
3 pm conditions																
Mean 3pm temperature (°C)	23.8	24.0	21.7	17.0	13.8	11.2	10.7	12.0	14.6	16.4	18.6	21.0	17.1	26	1942 1978	
Mean 3pm relative humidity (%)	49	53	55	69	74	78	71	66	59	60	58	54	62	15	1942 1978	
Mean 3pm wind speed (km/h)	9.2	7.8	6.1	5.1	4.0	4.3	5.7	5.7	7.2	7.3	8.3	9.5	6.7	13	1965 1978	
3pm wind speed vs direction plot																

red = highest value blue = lowest value

Product IDCJCM0026 Prepared at Thu 07 Mar 2024 05:47:06 AM AEDT

Related information

Maps

- Long term climatology maps for selected elements
- Rainfall maps and temperature maps based on recent observations

Recent observations for this site

- Daily Weather Observations from this site are included in the Daily Weather Observations

Climate outlooks

- Monthly and seasonal climate outlooks

Additional climate information

- Weather station directory
- Climate and oceans data and analysis

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Radar | Sat | Maps

Rainfall Forecasts
Seasonal Outlooks
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Monthly Rainfall (millimetres)

LONGWARRY (GOONEPAROO)

Station Number: 085208 · State: VIC · Opened: 1969 · Status: Open · Latitude: 38.07°S · Longitude: 145.77°E · Elevation: 50 m

Statistics for this station calculated over all years of data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean	59.5	50.3	59.0	68.2	75.3	69.9	71.4	83.2	90.5	87.6	83.9	72.4	898.3
Lowest	5.0	2.2	15.7	15.5	17.4	10.6	17.4	19.0	28.2	19.7	23.6	4.5	614.4
5th percentile	8.1	5.7	24.3	26.9	27.7	22.8	33.9	32.3	42.4	39.5	26.7	21.2	676.9
10th percentile	23.7	8.8	25.7	31.0	40.0	40.5	37.4	44.3	48.3	50.4	38.8	32.6	703.3
Median	58.6	39.7	52.1	63.8	79.6	61.3	64.9	74.4	85.1	82.6	82.2	67.4	888.8
90th percentile	92.2	114.9	100.6	114.9	98.3	115.3	112.0	132.7	141.9	142.3	130.2	128.1	1081.0
95th percentile	114.4	152.6	113.7	133.1	132.1	119.9	129.0	143.2	155.7	146.8	145.4	140.5	1084.7
Highest	138.4	190.2	186.4	165.8	158.0	137.0	140.8	202.2	179.6	200.0	180.2	152.4	1102.0

Statistics calculated over the period 1961-1990

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean	57.3	42.6	69.7	65.8	79.6	66.2	77.5	86.3	85.5	97.8	82.4	72.8	885.1
Lowest	7.0	5.8	15.7	27.2	29.4	17.0	17.4	19.0	28.2	38.2	23.8	5.9	676.7
5th Percentile	24.4	8.8	24.0	32.2	39.2	17.3	24.2	31.4	47.3	58.5	26.2	30.3	677.1
10th percentile	31.0	10.7	25.2	37.2	40.6	47.6	33.7	42.5	49.7	64.2	30.3	35.0	701.9
Median	56.8	28.2	54.8	59.6	80.6	66.2	87.8	77.1	82.0	91.1	81.4	67.3	866.5
90th percentile	84.6	79.6	115.4	88.0	98.0	95.4	111.2	140.7	131.9	141.4	132.5	125.7	1052.8
95th percentile	90.2	120.6	142.0	111.4	134.0	97.8	140.6	148.8	140.3	148.1	133.4	142.2	1075.2
Highest	91.0	190.2	186.4	126.2	146.4	134.2	140.8	202.2	143.2	200.0	156.6	152.4	1082.2

1) Calculation of statistics

Summary statistics, other than the Highest and Lowest values, are only calculated if there are at least 20 years of data available.

2) Gaps and missing data

Gaps may be caused by a damaged instrument, a temporary change to the site operation, or due to the absence or illness of an observer.

3) Further information

http://www.bom.gov.au/climate/cdo/about/about-rain-data.shtml.

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APPENDIX v

FULL WATER BALANCE FOR SUB SURFACE IRRIGATION

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Nominated Area Water Balance & Storage Calculations - Sub surface Irrigation

Site Address: Cannibal Creek Reserve Community Centre Garfield North Road, Garfield North

INPUT DATA			
Design Wastewater Flow	Q	500	L/day
Design DIR	DI R	24.5	mm/week
Daily DIR		3.5	mm/day
Nominated Land Application Area	L	350	m sq
Crop Factor	C	0.7-0.8	unitless
Retained Rainfall	Rf	0.8	unitless
Rainfall Data	Longwarry {Gooneparoo} (085200)		
Evaporation Data	Willow Grove (085283)		

500 Ave hydraulic load

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	366
Rainfall	R	\	mm/month	59.6	50.3	59.1	68.2	75.3	69.8	73.4	83.3	89.2	87.6	83.9	73.8	873.6
Evaporation	E	\	mm/month	177.6	148.4	95.7	68.5	53.3	49.1	48.1	58.7	85	142.2	137.6	209	1273.2
Crop Factor	C			0.80	0.80	0.80	0.75	0.75	0.75	0.75	0.75	0.75	0.80	0.80	0.80	
OUTPUTS																
Evapotranspiration	ET	ExC	mm/month	142.1	118.7	76.6	51.4	40.0	36.8	36.1	44.0	63.8	113.8	110.1	167.2	1000.426
Percolation	B	(DIR/7)xD	mm/month	108.5	98	108.5	105.0	108.5	105.0	108.5	108.5	105.0	108.5	105.0	108.5	1277.5
Outputs		ET+B	mm/month	250.6	216.72	185.1	156.4	148.5	141.8	144.6	152.5	168.8	222.3	215.1	275.7	2277.9
INPUTS																
Retained Rainfall	RR	R*Rf	mm/month	47.68	40.24	47.28	54.56	60.24	55.84	58.72	66.64	71.36	70.08	67.12	59.04	698.8
Effluent Irrigation	W	(QxD)/L	mm/month	44.3	40.0	44.3	42.9	44.3	42.9	44.3	44.3	42.9	44.3	42.9	44.3	521.4
Inputs		RR+W	mm/month	92.0	80.2	91.6	97.4	104.5	98.7	103.0	110.9	114.2	114.4	110.0	103.3	1220.2
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	-158.6	-136.5	-93.5	-59.0	-43.9	-43.1	-41.6	-41.6	-54.5	-107.9	-105.1	-172.4	-469.2
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	0.0
Maximum Storage for Nominated Area	N		mm	0.00												
	V	NxL	L	0												
LAND AREA REQUIRED FOR ZERO STORAGE			m^2	76	79	112	147	176	**174**	181	180	154	102	101	72	

MINIMUM AREA REQUIRED FOR ZERO STORAGE: 180.5 m^2

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ECO VISION Australia
ABN 96 203 943 465
Land Management Consultants

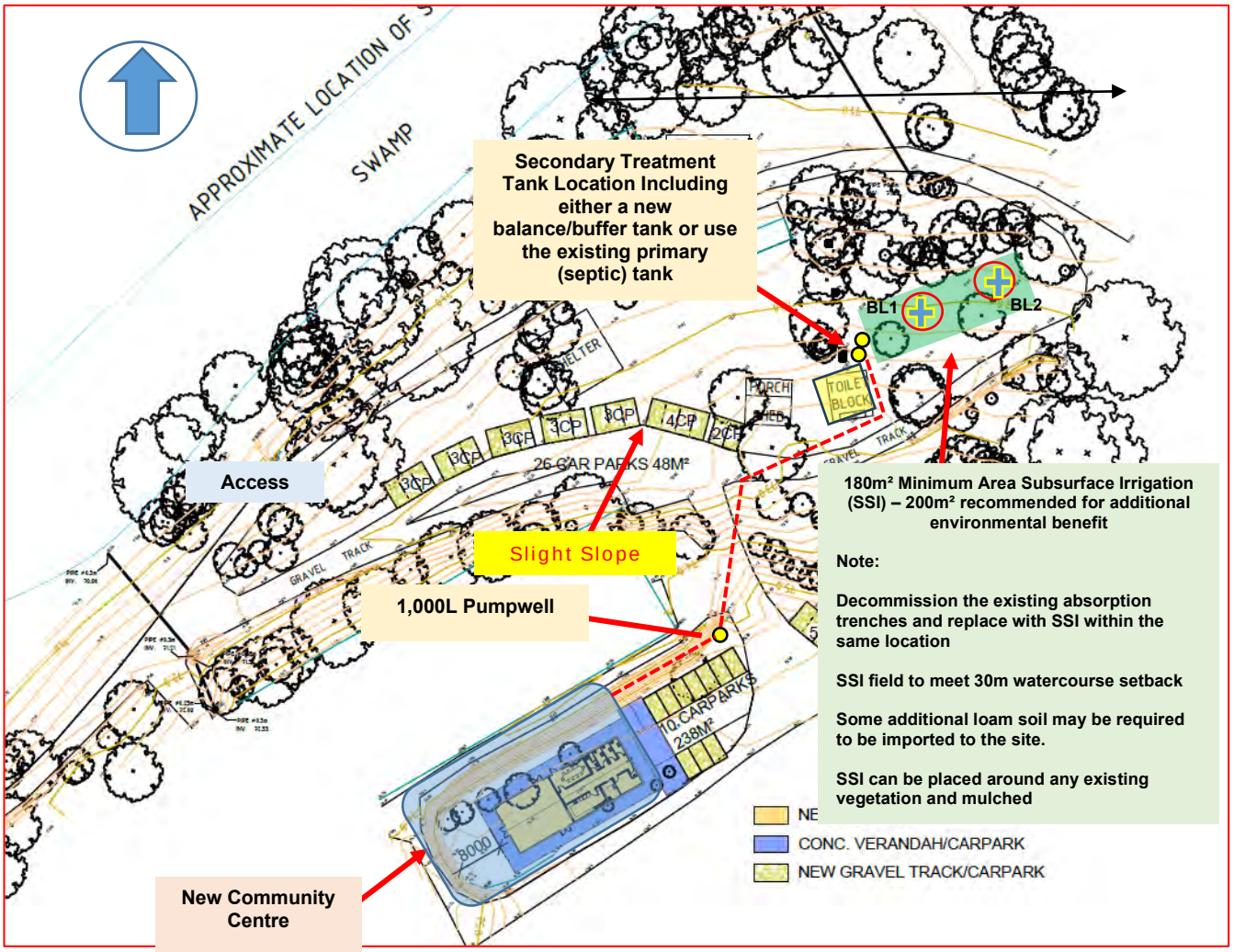
APPENDIX vi

TEST SITE LOCATION PLAN

BORE LOG LOCATION PLAN & PROPOSED LAA (NOT TO SCALE)

Date: 18/03/24

Garfield North Road, Garfield North



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60m² Minimum Area Absorption trench Area (2 trenches 30m long × 1m wide) – placed end to end with 1 metre spacing and distribution box in between.

Note:

Existing Horse Tie Fence to be moved forward approximately 5 metres forward

LAA to be placed 3m metres downslope of the existing boundary fence along Langley Road.

LAA area can be adjusted to suit contours and services location

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APPENDIX vii

BORELOGS

ECO VISION Australia
ABN 96 203 943 465
Land Management Consultants

BORELOG SHEET

CLIENT: More Building Group C/O Morning Mist Reserve Pony Club
PROJECT ADDRESS: Garfield North Road, Garfield North
JOB NO: 11BO24 – LCA
FIELD WORK DATE: 05/03/24
LOGGED BY: [redacted]
DRILLING METHOD: 90mm Mechanical Auger, 100mm Earth Auger, Shovel and Crowbar

BORELOG 1				BORELOG 2			
DEPTH	Soil Profile	Clr	Fill	DEPTH	SOIL PROFILE	Clr	Fill
100mm	Loam (Lt Br)			100mm	Loam (Lt Br)		
200mm	Dry; Medium Dense			200mm	Dry; Medium Dense		
300mm				300mm			
400mm	Clay Loam (Br)			400mm			
500mm	Dry; Medium Dense			500mm	Clay Loam (Br)		
600mm				600mm	Dry; Medium Dense		
700mm				700mm			
800mm				800mm			
900mm				900mm			
1000mm				1000mm			
1100mm	Light Clay (Yl Or)			1100mm			
1200mm	Dry, Stiff			1200mm	Light Clay (Yl Or)		
1300mm	Sandy			1300mm	Dry, Stiff		
1400mm	Slightly Mottled			1400mm	Sandy		
1500mm				1500mm	Slightly Mottled		
1600mm	End Log			1600mm	End Log		
1700mm				1700mm			
1800mm				1800mm			
1900mm				1900mm			
2000mm				2000mm			
2100mm				2100mm			

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APPENDIX viii

CANNIBAL CREEK ONSITE VISITOR NUMBERS EMAIL CORRESPONDENCE

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I have also received the following information from council regarding the existing septic facilities:

Thanks [redacted],

Below is the response from the committee regarding the existing septic system. Unfortunately, they were not able to provide any specs.

The current toilet block was build 25 years ago or more.

The septic system is cleaned on a regular basis, tri annually. The septic lines are protected from vehicles, mowed and pits cleaned regularly. There are 4 drainage lines.

There has never been a failure or blockage with the current toilets.

The Quarter Horse group holds monthly rallies with large competitions at times. There can be over 150 people at CCR for a weekend horse rally with showers also in use and no problems have ever occurred.

The proposed GNCB will only hold 100 people for functions.

The water to the current toilets is mains pressure potable water.

The CCRCoM does not have any written specifications for the current toilets.
Some of the CCRCoM members have already been carrying volunteer hours maintaining the CCR already this year and today.

Kind regards,

[redacted]

Kind Regards,

[redacted]

Director / Registered Builder

(DB-U 45031 / CB-L 45030)

m 0451 117 194
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more
BUILDING GROUP

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Arbor Survey

CONSTRUCTION IMPACT ASSESSMENT

Site Address:
Cannibal Creek Reserve
Garfield North Road
GARFIELD NORTH

Prepared:
16 January 2024

Document Ref:
R6724 Community Centre GARFIELD NORTH

Version / Revision: 1
Issued: 19/01/2024

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Document Control

ITEM	DETAIL
Arbor Survey Reference:	R6724 Community Centre GARFIELD NORTH
Client Reference:	P23242534
Site / Data Collected:	11/01/2024
Report Prepared:	17/01/2024
Reviewed:	18/12/2023
Status:	Final
Version / Revision No:	1
Revision Date:	N/A
Issued Date:	19/01/20244
Issue format:	Portable Document Format (*.pdf) – Uncontrolled when Printed

1. SUMMARY

The Construction Impact Assessment has been undertaken to determine the impact to trees or vegetation within Cannibal Creek Reserve, Garfield North within the vicinity of the proposed construction of the Garfield North Community Centre. The report provides an overview of the site characteristics and relevant regulatory controls, the arboricultural condition of the trees and determines the Arboricultural Value of the trees and vegetation within the project area where the tree protection zones may be impacted. The primary purpose of this assessment is to identify the impact from the proposed construction and to outline impact mitigation and tree protection measures where possible. The assessment is of 17 trees and or groups of trees within the project area as per the provide scope. The following is a summary of the arboricultural value of the trees.

HIGH ARBORICULTURAL VALUE TREES

- 6 trees, Tree 1 (*Eucalyptus viminalis* - Manna Gum), Trees 8 and 9 (*Allocasuarina littoralis* – Black Sheoak) , Tree 15 (*Acacia melanoxylon* – Blackwood) and Tree 16 & 17 (*Eucalyptus ovata* – Swamp Gum), are of high arboricultural value. These trees are in good health with fair-good structure.

MEDIUM ARBORICULTURAL VALUE TREES

- 3 trees, Tree 3 (*Eucalyptus ovata* – Swamp Gum), Tree 7 (*Allocasuarina littoralis* – Black Sheoak) and Tree 13 (*Pinus radiata* – Monterey Pine) are of medium arboricultural value. These trees have been given this rating as they are of fair-good arboricultural condition overall.

TREES OF LOW ARBORICULTURAL VALUE

- 8 trees (Trees 2, 4-6, 10-12* & 14) are of low arboricultural value. These trees are of poor arboricultural condition in terms of their health and/or structure.

The proposed development Plans were viewed in the preparation of this report. Based on the proposed design and the guidelines of the *Australian Standard AS4970 - 2009 - Protection of Trees on Development Sites*:

TREES THAT CANNOT BE PROTECTED

- 7 trees cannot be protected as they are located within works envelopes, or they are within close proximity to buildings and works and will incur a high level of encroachment into the Tree Protection Zone (TPZ) and the Structural Root Zone (SRZ). Of these trees:
  - 1 tree (Tree 1) is considered to be of high protection value,
  - 1 tree (Tree 3) is of moderate protection value and,
  - 5 trees (Trees 2, 4 & 7-9) are of no protection value.

TREES THAT WILL INCUR MAJOR ENCROACHMENT (GREATER THAN 10%) INTO THE TREE PROTECTION ZONE

- No (0) trees or groups of trees will incur 'Major Encroachment' into the tree protection zones.

TREES THAT WILL INCUR NO OR MINOR ENCROACHMENT (10% OR LESS) INTO THEIR TREE PROTECTION ZONE

- 10 trees or groups of trees will incur no or 'Minor Encroachment' into the tree protection zones.
  - Trees 13 & 15-17 are of high and moderate protection value. Impact mitigation (where required) and protection measures are outlined in Section 6.2.
  - 6 trees (Trees 5, 6, 10-12* & 14) have no protection value and should not be retained or protected as part of any future development.

The Construction Impact Plans in Section 7.2 provide a visual representation of the arboricultural values of the trees and indicates the Tree Protection Zone (TPZ), Structural Root Zone (SRZ) and encroachment from proposed works for trees that are considered to be of medium and high arboricultural value.

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2. INTRODUCTION

Arbor Survey Pty Ltd has undertaken a Construction Impact Assessment in accordance with the *Australian Standard AS4970 - 2009 - Protection of Trees on Development Sites* for the trees within the vicinity of the proposed construction of a Community Centre and Car Parks works at Cannibal Creek Reserve, Garfield North. This assessment is an analysis of 17 trees and or groups as identified in the provided scope of works. Site analysis and field data collection was undertaken on 11 January 2024.

This report provides an assessment of the condition of the trees, expressed as the Arboricultural Value. The Arboricultural Value of the trees takes into account the arboricultural condition, landscape and environmental significance of the trees assessed. The assessment of the trees in terms of their overall condition has been made in accordance with the Survey Methodology and Descriptors in Appendix 8.1. These must be referred to when reading this report.

Impact mitigation and tree protection measures are recommended to reduce the impact on high and medium arboricultural value trees were possible. These measures are based on the guidelines of the *Australian Standard AS4970 - 2009 - Protection of Trees on Development Sites.*

3. REPORT OBJECTIVES, RESOURCE DOCUMENTS AND VEGETATION CONTROLS

3.1 REPORT OBJECTIVES

The Construction Impact Assessment has been prepared in accordance with relevant industry standards. The report objectives are:

- To assess tree condition based on the Visual Tree Assessment Methodology (VTA) and landscape significance of the trees or groups of trees on the project site and adjacent land where the tree protection zones (TPZ) may extend into the project site and may be affected by any proposed development or construction
- To identify any relevant Local Laws or Planning controls or exemptions that may be applicable to the site
- To assess the impact to all trees from the proposed development or construction (based upon the *Australian Standard AS 4970 - 2009 - Protection of Trees on Development Sites*)
- To provide impact mitigation and tree protection measures for trees assessed.

The recommendations given are based on the condition of the trees and their suitability for retention and or protection in relation to their current and future growing environment. Recommendations are not driven by the proposed works on the land and impact mitigation measures are provided where possible and practical.

Trees that are considered to be worthy of protection are afforded general guidelines for tree protection measures. These guidelines do not constitute a Tree Management or Protection Plan (as per the *Australian Standard AS 4970 - 2009 - Protection of Trees on Development Sites*).

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3.2 Documents / Resources viewed in preparation of this report

The following documents and resources were viewed or relied upon in preparation of this report:

Plans

- Proposed Development Plans: Hearn Architects (Ref No.: 23015, Drawings/ Sheets: A001, Revision: M, Dated: 14/11/2023).

  (Note: All plans assessed from others and used as a basis for this assessment are assumed to be true and correct)

Planning Controls

- Vic Plan – Department of Environment, Land, Water and Planning (DELWP) (https://mapshare.vic.gov.au/vicplan/)

Responsible Authority

- Cardinia Planning Scheme

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Other

- VicMap Data (Spatial Property Cadastre) (http://services.land.vic.gov.au/SpatialDatamart/)
- Aerial Photograph of the site (Nearmap™ – Dated: 03/09/2023).

3.3 Vegetation Controls

The project site is located within Public Conservation And Resource Zone – (PCRZ) of the Cardinia Planning Scheme. The following table shows the statutory regulations and/or exemptions that may apply to the project area.

Table 1: Vegetation Protection Controls

Vegetation Controls / Exemptions	Applies to tree(s):	Reason
Heritage Overlay (HO)	N/A	Does not apply.
Significant Landscape Overlay (SLO)	N/A	Does not apply.
Environmental Significance Overlay – Schedule 1 (ESO1) **Note - ESO1 only applies to the southern portion of the Tree Assessment Area**	Trees 7-10	In addition to the exemptions under C52.12, a permit is not required to remove, destroy or lop any vegetation if: • The vegetation is dead as a result of natural circumstances (subject to the responsible authority). This exemption does not apply to standing dead trees with a trunk diameter of 40 centimetres or more at a height of 1.3 metres above ground level • pruned or lopped (but not removed) as part of normal domestic or horticultural practice for the species • The vegetation is a listed environmental weed species
Vegetation Protection Overlay (VPO)	N/A	Does not apply.
Clause 52.17 'Native Vegetation'	Trees 1-11 & 14-17	Indigenous & Victorian Native vegetation is self-sown or has been planted or managed with public funding for the purposes of land protection or enhancing biodiversity require a permit and offset for their removal. Dead trees with a diameter less than 40cm are exempt. **Council is to determine if the trees have been planted for conservation purposes.**
Clause 52.12 'Bushfire Protection: Exemptions'	N/A	Site is within a Bushfire Prone Area (BPA) however assess trees do not meet the exemptions.
Local Law	All trees assessed	**Clause 59:** A person must not destroy, damage, lop, remove or interfere with any trees or vegetation (living or dead) on any Council land or road (including road reserve, footpath or nature strip) without written consent of the Council.

4. Site Analysis

4.1 Site Description and Tree Locations

The project site is located on the eastern side of Garfield North Road, Garfield North. The site is approximately 160,000m² in size and is relatively flat with a change in grade of approximately 1m across the site etc. The aerial photograph in Figure 1 shows the project site and tree assessment areas. Only trees within the vicinity of proposed works were assessed as per the provided scope.

Figure 1: Aerial photograph of the tree assessment areas (Nearmap™, Dated: 03/09/2023)

4.2 Origin and Landscape Significance

16 trees / groups are Indigenous to the local area and 1 tree is an Exotic specimen. All trees assessed are considered to be mix of planted and self-sown species.

From the trees / groups assessed:

- 3 trees (Trees 13, 16 & 17) are of high landscape significance and are dominant on the site and to the streetscape/ local area. These trees are 12-18 metres in height with canopy spreads of 7-12 metres.
- 4 trees (Tree 1, 3, 6 & 14) are of moderate landscape significance. These trees may provide screening or other landscape attributes that are of value.

The remaining trees are of low landscape significance and value in terms of their mass and contribution to the canopy coverage to the immediate local area. Some of these trees may be in good condition in terms of their arboricultural characteristics, however, the landscape or amenity value they provide could easily be replaced with new planting.

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5. Arboricultural Assessment

5.1 Arboricultural Value Assessment

Arboricultural value is rated according to the overall health, structure, life expectancy and significance within the landscape. The Arboricultural Value only relates to the physical condition of the tree or trees and does not take into account the vegetation/ environmental status/ controls, the suitability of the tree in the landscape or the ownership of the tree (Refer to Appendix 8.1 for further information on the descriptors used). The following is a summary of the arboricultural value of the trees.

High Arboricultural Value Trees

- 6 trees, Tree 1 (*Eucalyptus viminalis* - Manna Gum), Trees 8 and 9 (*Allocasuarina littoralis* – Black Sheoak) , Tree 15 (*Acacia melanoxylon* – Blackwood) and Tree 16 & 17 (*Eucalyptus ovata* – Swamp Gum), are of high arboricultural value. These trees are in good health with fair-good structure.

Medium Arboricultural Value Trees

- 3 trees, Tree 3 (*Eucalyptus ovata* – Swamp Gum), Tree 7 (*Allocasuarina littoralis* – Black Sheoak) and Tree 13 (*Pinus radiata* – Monterey Pine) are of medium arboricultural value. These trees have been given this rating as they are of fair-good arboricultural condition overall.

Trees of Low Arboricultural Value

- 8 trees (Trees 2, 4-6, 10-12* & 14) are of low arboricultural value. These trees are of poor arboricultural condition in terms of their health and/or structure.

6. Construction Impact Assessment and Impact Mitigation Recommendations

6.1 Construction Impact Assessment

The following table provides a summary of the impact of the proposal on the assessed trees based on their arboricultural value in accordance with the guidelines of the *Australian Standard AS4970 - 2009 - Protection of Trees on Development Sites*. The encroachment is based on all works including the shared user path, kerb realignment and drainage works.

Table 2: Encroachment Summary

Arboricultural Value	No Encroachment	Minor Encroachment	Major Encroachment	Cannot be Protected
Low	3 trees **(Trees 6, 11 & 12*)**	3 trees **(Trees 5, 10 & 14)**	0 trees	5 trees **(Trees 2, 4 & 7-9)**
Medium	1 tree **(Tree 15)**	1 tree **(Tree 13)**	0 trees	1 tree **(Tree 3)**
High	2 trees **(Trees 16 & 17)**	0 trees	0 trees	1 tree **(Tree 1)**

**** Denotes groups of trees***

The encroachment into the tree protection zone from buildings and or any works (including the construction of paths, driveways, landscaping etc) may be considered as low impact to significant impact. For example, a tree may have an encroachment of 30% into the tree protection zone (TPZ), however this encroachment is from landscaping/ path works or for a wooden deck that is to be constructed above natural ground level. In such cases, the impact can be defined as 'Low Impact' and impact mitigation actions can be easily applied during construction. Conversely, an encroachment into the TPZ of 30% may be from a deep excavation (such as a basement) in which case the impact would be defined as 'Significant Impact' and impact mitigation can only be achieved through a redesign of the works proposal.

In some cases, similar type works (i.e. such as a new driveway or crossover in a TPZ) may be defined as either Low, Moderate, High or Significant Impact. In these cases, the impact level will be defined by the topography of the site and the ability to construct above natural grade.

Table 3 below provides a summary of the encroachment and indicates whether the impact is considered to be Low, Moderate, High or Significant. The impact mitigation recommendations in Section 6.2 outline what is required to protect these trees where possible.

Table 3: Construction / Development Impact Summary

Tree No.	Botanical Name	Arbor Value	Encroachment	Element	Impact Comment
1	*Eucalyptus viminalis*	High	100%	New gravel carpark	Lost - Within Works Footprint
2	*Acacia melanoxylon*	Low	100%	New Building/Concrete Verandah	Lost - Within Works Footprint
3	*Eucalyptus ovata*	Medium	100%	New Building/Concrete Verandah	Lost - Within Works Footprint
4	*Acacia melanoxylon*	Low	100%	New Building/Concrete Verandah	Lost - Within Works Footprint
5	*Acacia melanoxylon*	Low	1%	New Concrete Verandah	Low - Minor encroachment
6	*Eucalyptus ovata*	Low	0%	None	None - No Impact
7	*Allocasuarina littoralis*	Medium	100%	New Building/Concrete Verandah	Lost - Within Works Footprint
8	*Allocasuarina littoralis*	High	100%	New Concrete Verandah/Carport	Lost - Within Works Footprint
9	*Allocasuarina littoralis*	High	100%	New Concrete Verandah/Carport	Lost - Within Works Footprint
10	*Eucalyptus radiata*	Low	2%	New gravel carpark	Low - Minor encroachment
11	*Acacia melanoxylon*	Low	0%	None	None- No Impact
12*	*Acacia melanoxylon*	Low	0%	None	None- No Impact
13	*Pinus radiata*	Medium	5%	New gravel carpark	Low - Minor encroachment
14	*Eucalyptus ovata*	Low	5%	New gravel carpark	Low - Minor encroachment
15	*Acacia melanoxylon*	High	0%	None	None - No Impact
16	*Eucalyptus ovata*	High	0%	None	None - No Impact
17	*Eucalyptus ovata*	High	0%	None	None - No Impact

6.2 Impact Mitigation Recommendations

Tree protection and impact mitigation measures are listed below in order to reduce the potential of direct or indirect impacts (soil compaction, physical tree/root damage etc). For further information on general guidelines for tree protection see Appendix 8.3.

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Trees Retention / Removal Status

- 7 trees (Trees 1-4 & 7-9) are considered lost as part of the works proposed. Of these trees, Trees 1 & 3 are considered to be of high and medium arboricultural value.
- Trees 5, 10, 13 and 14 will incur encroachments of 5% or less into their Tree Protection Zones (TPZs) which is considered 'Minor Encroachment' (TPZ's). These trees will tolerate the impact by the proposed works.
- The remaining trees / group (Trees 6, 11, 12* & 15-17) will not be impacted by the proposed works.

Permit Requirements

- The removal of Trees 7-9 require a permit for their removal under the ESO1 which covers the southern part of the Tree Assessment Area.
- Council is to determine if a Native Vegetation Removal Report & Offset is required under Clause 52.17 for the removal of Trees 1-4 and 7-9 as these trees are considered to be planted.

Further investigation required

- No further investigation is required as trees that can be retained / protected will incur no or 'Minor Encroachment' into their Tree Protection Zones (TPZs).

Specific construction recommendations

- No further investigation is required

Standard Tree Protection Measures

- Standard tree protection fencing must be established around the TPZs of Retained Trees (where outside proposed works footprint). The fencing is to remain in place during all site preparation / levelling and construction works.

Specialised Tree Protection Measures

- Not required

General Tree Protection Requirements

- Soil levels within the TPZs (where outside building/ driveway or works footprints) should remain at existing grade and permeable
- Any excavation (demolition and construction) within the TPZs should be supervised by a qualified arborist. Any roots uncovered must be cleanly pruned with sharp/sterile hand tools
- All tree protection measures must remain in place for the duration of works and can only be removed in consultation with the Project Arborist or local Responsible Authority
- Any required pruning must be in accordance with *Australian Standard AS4373-2007 Pruning of Amenity Trees* and carried out by a minimum AQF Level 3 Arborist.
- All services should be located outside the TPZ of trees to be protected. Where no alternative exists, a non-destructive root investigation or directional boring under supervision of a qualified Arborist must be undertaken to install the services.

Tree Management During Construction

Dependant on the final design, it is recommended that a Tree Management Report and Protection Plan (TMPP) is created as a condition of permit that will specify the exact requirements for tree protection of all trees to be protected/retained. As part of the TMPP, it is recommended that there is a certification framework that details the actions required at all stages of development, the timing of supervision and the Certification methods to be undertaken by the Project Arborist.

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7. Tree Data and Plans

7.1 Tree Data

Tree No	Botanical Name	Common Name	Origin	DBH (cm)	Basal Dia (cm)	Height (m)	Spread (m)	Health	Structure	Age Class	Arbor Value	SRZ (m)	TPZ (m)	Encroach (%)	Notes
1	*Eucalyptus viminalis*	Manna Gum	Indigenous	56	66	11	8	Good	Fair-Good	Mature	High	2.8	6.7	100%	Codominant stems
2	*Acacia melanoxylon*	Blackwood	Indigenous	11/8/16 (21)	26	5	4	Good	Poor	Semi-Mature	Low	1.9	2.5	100%	Wound with borer
3	*Eucalyptus ovata*	Swamp Gum	Indigenous	36	38	9	8	Good	Fair	Semi-Mature	Medium	2.2	4.3	100%	Minor deadwood, acute union
4	*Acacia melanoxylon*	Blackwood	Indigenous	19/18 (26.2)	30	6	5	Good	Fair-Poor	Semi-Mature	Low	2.0	3.1	100%	Included union, borer
5	*Acacia melanoxylon*	Blackwood	Indigenous	11/11/19 (24.6)	25	5	5	Good	Poor	Semi-Mature	Low	1.8	3.0	1%	Borer, deadwood
6	*Eucalyptus ovata*	Swamp Gum	Indigenous	28	34	11	5	Good	Poor	Semi-Mature	Low	2.1	3.4	0%	Acute union (active split)
7	*Allocasuarina littoralis*	Black Sheoak	Indigenous	20/10 (22.4)	29	5	3	Fair	Fair-Good	Semi-Mature	Medium	2.0	2.7	100%	Low landscape value
8	*Allocasuarina littoralis*	Black Sheoak	Indigenous	7/7/8/9 (15.6)	22	3	3	Good	Fair	Semi-Mature	High	1.8	2.0	100%	Low landscape value
9	*Allocasuarina littoralis*	Black Sheoak	Indigenous	15/9/8 (19.2)	23	3	2	Good	Fair	Semi-Mature	High	1.8	2.3	100%	Low landscape value
10	*Eucalyptus radiata*	Narrow-leaved Peppermint	Indigenous	37/34 (50.2)	48	7	7	Fair-Good	Poor	Mature	Low	2.4	6.0	2%	Deadwood, co-dominant, failed branch, dead stem
11	*Acacia melanoxylon*	Blackwood	Indigenous	<10	<10	3	1	Fair-Good	Poor	Mature	Low	1.5	2.0	0%	Borer
12*	*Acacia melanoxylon*	Blackwood	Indigenous	12	15	7	1	Dead	Poor	Mature	Low	1.5	2.0	0%	2x dead trees
13	*Pinus radiata*	Radiata Pine	Exotic	68	76	18	8.5	Fair	Fair	Mature	Medium	2.9	8.2	5%	Minor deadwood, thinning upper canopy
14	*Eucalyptus ovata*	Swamp Gum	Indigenous	45	55	11	9	Fair	Fair-Poor	Mature	Low	2.6	5.4	5%	Deadwood, wound on main stem, poor form
15	*Acacia melanoxylon*	Blackwood	Indigenous	28	35	7.5	6	Good	Fair	Semi-Mature	High	2.1	3.4	0%	Minor deadwood
16	*Eucalyptus ovata*	Swamp Gum	Indigenous	36/17 (39.8)	44	12	7	Good	Fair-Good	Mature	High	2.3	4.8	0%	
17	*Eucalyptus ovata*	Swamp Gum	Indigenous	42	55	15	12	Good	Fair-Good	Mature	High	2.6	5.0	0%	

**** Denotes groups of trees***

Note: DBH (cm) is the diameter at breast height (1.4m from natural ground level), Basal Dia (cm) is the diameter of the trunk above the root flare, Arbor Value is the Arboriculture Vale, SRZ (m) is the structural root zone in metres in a radius from the centre of the trunk, TPZ (m) is the tree protection zone in metres in a radius from the centre of the trunk. The Encroach (%) is the level of encroachment into the tree protection zone of the tree from the excavation/ construction works. These measurements and distances are calculated from the Australian Standard AS4970 - 2009 - Protection of Trees on Development sites.

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Arbor Survey

37 Arbor Way
CARRUM DOWNS VIC 3201
Phone: 03 8521 4966

7.2 TREE LOCATION PLAN

Site: Community Centre
Cannibal Creek Reserve
GARFIELD NORTH

Client: [REDACTED]

Arbor Survey Ref: R6724

Revision: -

Date Drawn: 15 January 2023

Source Plan: Aerial Photograph
NearMap
Date: 03/09/2023

0 2 4 8 12 16 20 Meters

Coordinate System: GDA 2020 MGA Zone 55
Scale: 1:400 at Sheet Size A3

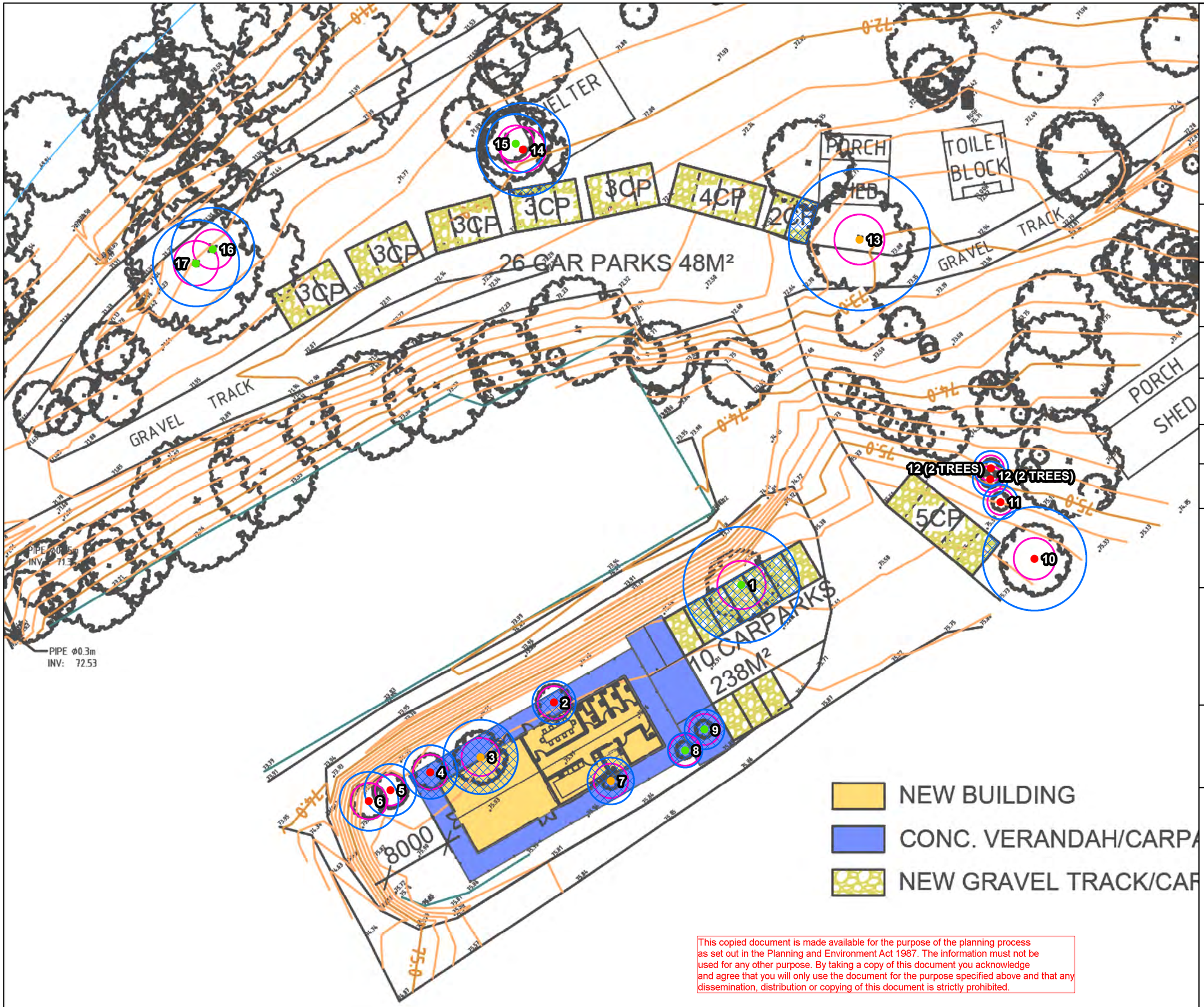
Legend

Arboricultural Value

- High
- Medium
- Low

Tree Protection Areas

- Tree Protection Zone (TPZ)
- Structural Root Zone (SRZ)



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Arbor Survey
37 Arbor Way
CARRUM DOWNS VIC 3201
Phone: 03 8521 4966

7.2 CONSTRUCTION IMPACT PLAN

Site:
Community Centre
Cannibal Creek Reserve
GARFIELD NORTH

Client:
[REDACTED]

Arbor Survey Ref:
R6724

Revision:
-

Date Drawn:
15 January 2023

Source Plan:
Site Plan
Hearn Architects
Ref: 23015 Dwg: A001
Rev: M Date: 14/11/2023

0 2 4 8 12 16 20 Meters

Coordinate System: GDA 2020 MGA Zone 55
Scale: 1:400 at Sheet Size A3

Legend

Arboricultural Value

- High
- Medium
- Low

Tree Protection Areas

- Tree Protection Zone (TPZ)
- Structural Root Zone (SRZ)
- Encroachment

Tree No: 1
Botanical Name: *Eucalyptus viminalis*
Common Name: Manna Gum
Origin: Indigenous
Establishment: Planted
DBH (cm): 56
Basal Dia (cm): 66
Height (m): 11
Spread (m): 8
Health: Good
Structure: Fair-Good
Age Category: Mature
Landscape Value: Moderate

ARBORICULTURAL VALUE High
Vegetation Control: C52.17 (TBC)
Comments Codominant

Tree Protection Areas
TPZ (m): 6.7
SRZ (m): 2.8
TPZ Area (m2): 141.0
TPZ 10% (m) 4.6

Impact Assessment
TPZ Encroachment: 100%
Impact Comments: Lost - Within works footprint

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Tree No: 2
Botanical Name: *Acacia melanoxylon*
Common Name: Blackwood
Origin: Indigenous
Establishment: Planted
DBH (cm): 11/8/16 (21)
Basal Dia (cm): 26
Height (m): 5
Spread (m): 4
Health: Good
Structure: Poor
Age Category: Semi-Mature
Landscape Value: Low

ARBORICULTURAL VALUE Low
Vegetation Control: C52.17 (TBC)
Comments Wound with borer

Tree Protection Areas
TPZ (m): 2.5
SRZ (m): 1.9
TPZ Area (m2): 19.6
TPZ 10% (m) 1.7

Impact Assessment
TPZ Encroachment: 100%
Impact Comments: Lost - Within works footprint


Tree No: 3
Botanical Name: *Eucalyptus ovata*
Common Name: Swamp Gum
Origin: Indigenous
Establishment: Planted
DBH (cm): 36
Basal Dia (cm): 38
Height (m): 9
Spread (m): 8
Health: Good
Structure: Fair
Age Category: Semi-Mature
Landscape Value: Moderate

ARBORICULTURAL VALUE **Medium**
Vegetation Control: C52.17 (TBC)
Comments Minor deadwood, acute union

Tree Protection Areas
TPZ (m): 4.3
SRZ (m): 2.2
TPZ Area (m2): 58.1
TPZ 10% (m) 3.0

Impact Assessment
TPZ Encroachment: 100%
Impact Comments: Lost - Within works footprint

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Tree No: 4
Botanical Name: *Acacia melanoxylon*
Common Name: Blackwood
Origin: Indigenous
Establishment: Planted
DBH (cm): 19/18 (26.2)
Basal Dia (cm): 30
Height (m): 6
Spread (m): 5
Health: Good
Structure: Fair-Poor
Age Category: Semi-Mature
Landscape Value: Low

ARBORICULTURAL VALUE **Low**
Vegetation Control: C52.17 (TBC)
Comments Included union, borer

Tree Protection Areas
TPZ (m): 3.1
SRZ (m): 2.0
TPZ Area (m2): 30.2
TPZ 10% (m) 2.1

Impact Assessment
TPZ Encroachment: 100%
Impact Comments: Lost - Within works footprint

Tree No: 5
Botanical Name: *Acacia melanoxylon*
Common Name: Blackwood
Origin: Indigenous
Establishment: Planted
DBH (cm): 11/11/19 (24.6)
Basal Dia (cm): 25
Height (m): 5
Spread (m): 5
Health: Good
Structure: Poor
Age Category: Semi-Mature
Landscape Value: Low

ARBORICULTURAL VALUE Low
Vegetation Control: C52.17 (TBC)
Comments Borer, deadwood

Tree Protection Areas
TPZ (m): 3.0
SRZ (m): 1.8
TPZ Area (m2): 28.3
TPZ 10% (m) 2.1

Impact Assessment
TPZ Encroachment: 1%
Impact Comments: Low - Minor Encroachment. Standard tree protection

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Tree No: 6
Botanical Name: *Eucalyptus ovata*
Common Name: Swamp Gum
Origin: Indigenous
Establishment: Planted
DBH (cm): 28
Basal Dia (cm): 34
Height (m): 11
Spread (m): 5
Health: Good
Structure: Poor
Age Category: Semi-Mature
Landscape Value: Moderate

ARBORICULTURAL VALUE Low
Vegetation Control: C52.17 (TBC)
Comments Acute union (split)

Tree Protection Areas
TPZ (m): 3.4
SRZ (m): 2.1
TPZ Area (m2): 36.3
TPZ 10% (m) 2.3

Impact Assessment
TPZ Encroachment: 0%
Impact Comments: None - Standard tree protection

Tree No: 7
Botanical Name: *Allocasuarina littoralis*
Common Name: Black Sheoak
Origin: Indigenous
Establishment: Planted
DBH (cm): 20/10 (22.4)
Basal Dia (cm): 29
Height (m): 5
Spread (m): 3
Health: Fair
Structure: Fair-Good
Age Category: Semi-Mature
Landscape Value: Low

ARBORICULTURAL VALUE **Medium**
Vegetation Control: C52.17 (TBC), ESO1
Comments Low landscape value

Tree Protection Areas
TPZ (m): 2.7
SRZ (m): 2.0
TPZ Area (m2): 22.9
TPZ 10% (m) 1.9

Impact Assessment
TPZ Encroachment: 100%
Impact Comments: Lost - Within works footprint

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Tree No: 8
Botanical Name: *Allocasuarina littoralis*
Common Name: Black Sheoak
Origin: Indigenous
Establishment: Planted
DBH (cm): 7/7/8/9 (15.6)
Basal Dia (cm): 22
Height (m): 3
Spread (m): 3
Health: Good
Structure: Fair
Age Category: Semi-Mature
Landscape Value: Low

ARBORICULTURAL VALUE **High**
Vegetation Control: C52.17 (TBC), ESO1
Comments Low landscape value

Tree Protection Areas
TPZ (m): 2.0
SRZ (m): 1.8
TPZ Area (m2): 12.6
TPZ 10% (m) 1.4

Impact Assessment
TPZ Encroachment: 100%
Impact Comments: Lost - Within works footprint

Tree No: 9
Botanical Name: *Allocasuarina littoralis*
Common Name: Black Sheoak
Origin: Indigenous
Establishment: Planted
DBH (cm): 15/9/8 (19.2)
Basal Dia (cm): 23
Height (m): 3
Spread (m): 2
Health: Good
Structure: Fair
Age Category: Semi-Mature
Landscape Value: Low

ARBORICULTURAL VALUE High
Vegetation Control: C52.17 (TBC), ESO1
Comments Low landscape value

Tree Protection Areas
TPZ (m): 2.3
SRZ (m): 1.8
TPZ Area (m2): 16.6
TPZ 10% (m) 1.6

Impact Assessment
TPZ Encroachment: 100%
Impact Comments: Lost - Within works footprint

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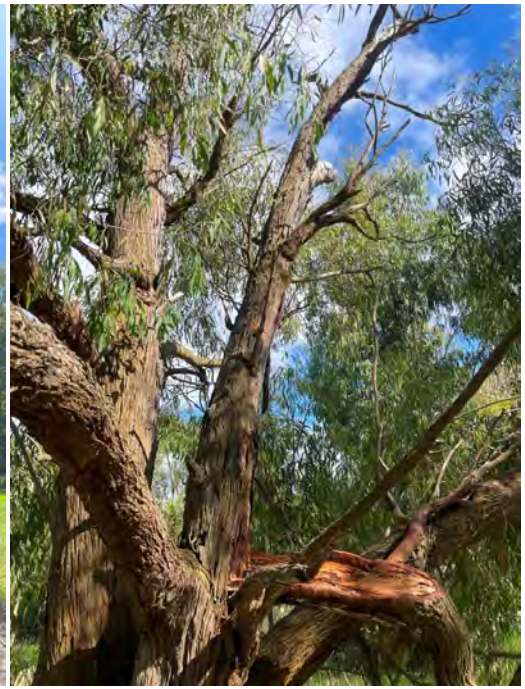
Tree No: 10
Botanical Name: *Eucalyptus radiata*
Common Name: Narrow-leaved Peppermin
Origin: Indigenous
Establishment: Planted
DBH (cm): 37/34 (50.2)
Basal Dia (cm): 48
Height (m): 7
Spread (m): 7
Health: Fair-Good
Structure: Poor
Age Category: Mature
Landscape Value: Low

ARBORICULTURAL VALUE Low
Vegetation Control: C52.17 (TBC), ESO1
Comments Deadwood, co-dominant, failed branch, dead stem

Tree Protection Areas
TPZ (m): 6.0
SRZ (m): 2.4
TPZ Area (m2): 113.1
TPZ 10% (m) 4.1

Impact Assessment
TPZ Encroachment: 2%
Impact Comments: Low - Minor Encroachment. Standard tree protection



Tree No: 11
Botanical Name: *Acacia melanoxylon*
Common Name: Blackwood
Origin: Indigenous
Establishment: Self-Sown
DBH (cm): <10
Basal Dia (cm): <10
Height (m): 3
Spread (m): 1
Health: Fair-Good
Structure: Poor
Age Category: Mature
Landscape Value: Low

ARBORICULTURAL VALUE Low
Vegetation Control: C52.17
Comments Borer

Tree Protection Areas
TPZ (m): 2.0
SRZ (m): 1.5
TPZ Area (m2): 12.6
TPZ 10% (m) 1.4

Impact Assessment
TPZ Encroachment: 0%
Impact Comments: None - Standard tree protection

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Tree No: 12 (2 TREES)
Botanical Name: *Acacia melanoxylon*
Common Name: Blackwood
Origin: Indigenous
Establishment: Planted
DBH (cm): 12
Basal Dia (cm): 15
Height (m): 7
Spread (m): 1
Health: Dead
Structure: Poor
Age Category: Mature
Landscape Value: Low

ARBORICULTURAL VALUE Low
Vegetation Control: Exempt (Dead <40cm)
Comments 2x dead trees

Tree Protection Areas
TPZ (m): 2.0
SRZ (m): 1.5
TPZ Area (m2): 12.6
TPZ 10% (m) 1.4

Impact Assessment
TPZ Encroachment: 0%
Impact Comments: None - Standard tree protection

Tree No: 13
Botanical Name: *Pinus radiata*
Common Name: Radiata Pine
Origin: Exotic
Establishment: Self-Sown
DBH (cm): 68
Basal Dia (cm): 76
Height (m): 18
Spread (m): 8.5
Health: Fair
Structure: Fair
Age Category: Mature
Landscape Value: High

ARBORICULTURAL VALUE **Medium**
Vegetation Control: N/A
Comments Minor deadwood, thinning upper canopy

Tree Protection Areas
TPZ (m): 8.2
SRZ (m): 2.9
TPZ Area (m2): 211.2
TPZ 10% (m) 5.6

Impact Assessment
TPZ Encroachment: 5%
Impact Comments: Low - Minor Encroachment. Standard tree protection

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Tree No: 14
Botanical Name: *Eucalyptus ovata*
Common Name: Swamp Gum
Origin: Indigenous
Establishment: Planted
DBH (cm): 45
Basal Dia (cm): 55
Height (m): 11
Spread (m): 9
Health: Fair
Structure: Fair-Poor
Age Category: Mature
Landscape Value: Moderate

ARBORICULTURAL VALUE **Low**
Vegetation Control: C52.17 (TBC)
Comments Deadwood, wound on main stem, poor form

Tree Protection Areas
TPZ (m): 5.4
SRZ (m): 2.6
TPZ Area (m2): 91.6
TPZ 10% (m) 3.7

Impact Assessment
TPZ Encroachment: 5%
Impact Comments: Low - Minor Encroachment. Standard tree protection

Tree No: 15
Botanical Name: *Acacia melanoxylon*
Common Name: Blackwood
Origin: Indigenous
Establishment: Planted
DBH (cm): 28
Basal Dia (cm): 35
Height (m): 7.5
Spread (m): 6
Health: Good
Structure: Fair
Age Category: Semi-Mature
Landscape Value: Low

ARBORICULTURAL VALUE High
Vegetation Control: C52.17 (TBC)
Comments Minor deadwood

Tree Protection Areas
TPZ (m): 3.4
SRZ (m): 2.1
TPZ Area (m2): 36.3
TPZ 10% (m) 2.3

Impact Assessment
TPZ Encroachment: 0%
Impact Comments: None - Standard tree protection

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Tree No: 16
Botanical Name: *Eucalyptus ovata*
Common Name: Swamp Gum
Origin: Indigenous
Establishment: Self-Sown
DBH (cm): 36/17 (39.8)
Basal Dia (cm): 44
Height (m): 12
Spread (m): 7
Health: Good
Structure: Fair-Good
Age Category: Mature
Landscape Value: High

ARBORICULTURAL VALUE High
Vegetation Control: C52.17
Comments

Tree Protection Areas
TPZ (m): 4.8
SRZ (m): 2.3
TPZ Area (m2): 72.4
TPZ 10% (m) 3.3

Impact Assessment
TPZ Encroachment: 0%
Impact Comments: None - Standard tree protection

Tree No: 17
Botanical Name: *Eucalyptus ovata*
Common Name: Swamp Gum
Origin: Indigenous
Establishment: Self-Sown
DBH (cm): 42
Basal Dia (cm): 55
Height (m): 15
Spread (m): 12
Health: Good
Structure: Fair-Good
Age Category: Mature
Landscape Value: High

ARBORICULTURAL VALUE High
Vegetation Control: C52.17
Comments

Tree Protection Areas

TPZ (m): 5.0
SRZ (m): 2.6
TPZ Area (m2): 78.5
TPZ 10% (m) 3.4

Impact Assessment

TPZ Encroachment: 0%
Impact Comments: None - Standard tree protection

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8. APPENDICES

8.1 SURVEY METHODOLOGY AND DESCRIPTORS

Site observations and tree data was recorded on site at the date noted within Section 2 (Introduction). This report is based upon the condition of the trees and the site conditions noted on the inspection date(s) only. The characteristics of each tree or group of trees of similar characteristics have been undertaken in accordance with the Visual Tree Assessment (VTA) methodology (Mattheck & Breloer, 1998).

The data is included in this report in a detailed table, located in Section 7.1. Tree Location (existing conditions) and Development Impact (proposed development) Plans are provided in Section 7.2 where relevant. Site photographs (if relevant) are provided in Section 7.3.

The survey identifies all trees or groups of trees within the project site over 2 metres in height and on adjoining lands (neighbouring properties and or Council or other regulatory body or Crown land) where their projected Tree Protection Zones (TPZs) extend to within the project site and may be affected by the proposed buildings and or works. The assessment is undertaken from a visual inspection from ground level only. No individual tree or trees were climbed and no samples of soil, plant material or pest and disease infestation (if present) were taken for analysis. Defects not apparent from this ground-based visual inspection are excluded from the discussion within this report. This report is not a risk assessment and no other assessment methodologies have been used.

This assessment is based on an improved and modified version of current industry best practice. 'Retention Value' is not used as the primary driver for any recommendations. The primary driver for the recommendations within the report is the characteristic of 'Protection Value'. Protection value is derived from a combination of the physical arboricultural characteristics and life expectancy recorded as the 'Arboricultural Value' in conjunction with the landscape significance or amenity value, ownership, and relevant regulatory controls.

The following data is recorded on site:

- **Tree Identification Number (Tree No.)** – This is a sequential numeric numbering system used to identify each tree on the attached site map. These numbers may also relate to tags placed on each tree in the field if required. Any deviation of the numbering system will be specifically noted within the report.

- **Genus/ Species (Botanical Name)** – Species identification is considered as common and made using species characteristics observed on site or sampled and researched off site. Specific cultivar or subspecies details are omitted unless where known. No samples have been taken to the National Herbarium of Victoria for accurate analysis and identification unless specifically noted within the report.

- **Common Name** – This is the typical common name assigned to the tree species. For many trees, there is likely to be numerous common names that could be used. The common name provided should only be seen as a secondary identification tool.

- **Origin** – This may be recorded as Native (originates from Australia, outside of the survey area), Indigenous (originates from within the survey area), Exotic (originates from outside of Australia).

- **DBH (cm)** – this is the Diameter at Breast Height (DBH) measured using a diameter tape at approximately 1.4 metres from natural ground level. Where the trunk diameter at this point may be affected by natural growth such as a major union point, the DBH will be measured just below this union point. For multiple stemmed trees, the measurements are provided for up to 4 stems (at 1.4 metres from natural ground level). These will be recorded, and the combined or total diameter will be calculated in accordance with the Australian Standard AS 4970-2009-Protection of Trees on Development Sites using the formula below:

$$\text{Total DBH} = \sqrt{(\text{DBH}_1)^2 + (\text{DBH}_2)^2 + (\text{DBH}_3)^2 + (\text{DBH}_4)^2}$$

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This is represented in the tree data as "Stem1/Stem2/Stem3/Stem4 (Calculated DBH)" – i.e. 15/28/34/19 (50.3). The calculated DBH of the stems is used to determine the Tree Protection Zone. For trees with more than 4 stems, the DBH (cm) measurement is recorded as 'Multi-stemmed' or similar. In instances where 'Multi-stemmed' is recorded, the Tree Protection Zone will be based on a basal measurement. For neighbouring property trees and where access is limited, an approximate DBH (cm) will be provided.

- **Basal Dia (cm)** – this is the diameter of the tree at the trunk base (including multiple stemmed trees) at a level above the trunk basal flare. This is used to determine the Structural Root Zone (SRZ). In some cases, this will be noted as being 'Multi -stemmed' and the SRZ will be estimated using an approximate basal diameter. For neighbouring property trees and where access is limited, an approximate Basal Diameter (cm) will be provided.

- **Height (m)** – this is the approximate height of the canopy of the tree or the largest canopy height of a group of trees. This is an approximated height based on known landscape reference points. In cases of large significant trees where accurate height measurements are required (as height will directly affect the outcome or recommendations of the report), a Nikon Forestry Pro Laser Range finder will be used. Where measured heights have been used, this will be noted within the report data and detailed within the report.

- **Spread (m)** – this is the approximate canopy spread of the tree on the widest axis. This is given as a single measure and is provided as a guide to show overall canopy spread within the landscape. Where multiple canopy dimensions are required (i.e. proximity to buildings and or severely asymmetric canopy growth) as it may affect the outcome of tree protection, these will be noted within the report data and detailed in the Development Impact Assessment.

- **Health** - relates to the tree vigour and canopy density. The characteristic assigned to the tree may be represented as a combination of any of these categories (e.g. Fair to Poor or Fair–Poor). In these instances, there may be a combination of the characteristics listed below or the foliage density is at the upper or lower scale of each category. In some cases, 'Health' may be noted as being 'Very Good' which indicates an optimal condition or 'Very Poor' which indicates that the tree is of such poor health and is unlikely to recover. In some cases, the 'Health' condition will be provided as 'Dead'. In this case, there is no observable indication that the tree is alive at the time of inspection. Health is rated according to the following categories:

Category	Description
Good	Foliage density / bud formation (Deciduous) is greater than 75% at optimal growth. There is less than 10% canopy dieback present and foliage has no or very minor tip dieback. Tree may also have visible extension growth if it is in active growth and is showing no signs of nutrient deficiency (i.e. chlorosis) or active pest or disease presence. The tree may also have good wound wood development.
Fair	Foliage density / bud formation (Deciduous) is between 50-75% at optimal growth for the species. There may be 10-30% canopy dieback present and foliage may have minor tip dieback. Tree maybe showing signs of normal growth, but it is not consistent throughout the crown. Some foliage discolouration may be present from possible nutrient deficiency or other cause (i.e. pest or disease).
Poor	Canopy may be asymmetrical (not typical for the species and affecting vigour) and or canopy may be suppressed. There may be greater than 30% canopy dieback present and foliage density is below 50%. Stunted growth through leaf size or petiole extension and discolouration of the leaf may be present. Tree may be producing epicormic shoots as a stress response. Nutrient deficiency, lack of resources (water, light etc) or pathogens may be the causal agent in the tree's decline.

- **Structure** - relates to the physical form of the tree, including the trunk(s), main scaffold branches and roots. Structure includes the attributes that may influence the probability of trunk, limb, or root plate failure. The characteristic assigned to the tree may be represented as a combination of any of these categories (e.g. Fair to Poor or Fair to Good). In these instances, there may be a combination of the characteristics listed below. In some cases, 'Structure' may be noted as being 'Very Good' which indicates an optimal condition or 'Very Poor' which indicates that the tree has major structural defects and may be of a relatively high risk of failure of the identified tree part.
  Structure is rated according to the following categories:

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Category	Description
Good	The form of the tree is excurrent or decurrent and typical of the species characteristics and exhibits good symmetrical form. Major limbs are well formed with acceptable branch taper and unions appear to be strong with no signs of major defects. The tree has minimal defects or decay throughout the trunk and limbs. There is no signs of root plate heave or damage to the root system (mechanical or other). The tree is unlikely to suffer major branch or trunk failure under normal environmental (weather) conditions.
Fair	The form of the tree is excurrent or decurrent and typical of the species characteristics and has a fairly symmetrical form. Tree may exhibit minor structural defects that may be managed through formative/remedial/restorative or structural pruning. Only minor wounds and or areas of decay are present that do not affect the overall stability or structural integrity of any major parts of the tree. Minor root damage may have occurred in the past. Defects present are likely to cause only minor branch failure under normal environmental (weather) conditions.
Poor	Tree has a poorly formed crown that is not symmetrical. Branch and or trunk taper may be unacceptable and scaffold limbs may be overextended. Branch unions may exhibit significant defects that cannot be managed through formative pruning. There is likely to be decay in parts of the tree that may result in branch or trunk failure. Major root damage may have occurred and there may be evidence of root plate heave. Defects that are present may result in major failure of branches or trunk under normal environmental (weather) conditions.

- **Age Class** - is given as a guide to the current life stage of the tree. Ultimately, the level of maturity that a tree may reach is dependent on the growing environment. The 'Mature' age class may extend for many years and is given only as an indication of the maturity of the tree based on the conditions of the local environment. Age Class is rated according to the following categories:

Category	Description
New Planting	Planted within approximately 2 years
Juvenile	Estimated as between 2 - 10 years old
Semi-mature	Estimated at between 10 – 20 years old, however, this may be species dependant
Mature	Estimated at over 25 years old or in a life stage that is considered at the peak of growth for the species.
Senescent	In the declining phase of the tree's lifespan

- **Arboricultural Value** - is rated according to the overall health, structure, and estimated life expectancy of the tree (often referred to as 'Useful Life Expectancy -ULE'). Often the life expectancy or ULE of a tree may be difficult to quantify as there are too many variables and therefore it is not directly recorded as a characteristic in the report. ULE has traditionally been used to guide future replanting and tree population heuristics.

  The 'Arboricultural Value' takes into account the overall condition and life expectancy of the tree however it does not take into account the landscape or environmental status or suitability of the tree in the landscape. This rating is not a 'Retention Value' or 'Protection Value', it is only a rating of the overall condition of the physical characteristics of the tree and its expected longevity (based on growing conditions). For example, a tree of a semi mature or younger age class may be given a medium or high arboricultural value based on its condition, however it may be given no protection value based on its current size and low landscape significance and or amenity value. The arboricultural value is rated based on the following categories:

Category	Description
Low	A tree of low arboricultural value may be considered to be in poor condition overall with a low life expectancy (less than 10 years). The tree may be showing signs of poor health and or structure. The tree may either have a poor health rating and it is unlikely to recover or a poor structure that cannot be remedied though normal arboricultural pruning practices.
Medium	A tree of medium arboricultural value may be considered to be in fair condition overall. This tree may be considered as an average tree that provides average benefits to the site and local area with an estimated longevity of between 10 – 20 years. The tree may have evidence of fair to poor health that may be improved through cultural practices. The tree may have some structural defects that can be remedied through normal arboricultural pruning practices.

Category	Description
High	A tree of high arboricultural value may be considered to be of good overall health and structure. The tree is considered to have a life expectancy of greater than 20 years. Under normal maintenance practices this tree is expected to perform well in the landscape in the long term.

- **Ownership** – the ownership is noted as this may affect the 'Protection Value' of a tree or group of trees. Generally, trees and or vegetation that are located on adjoining lands that are not of the ownership of the project site may be subject to permission for removal and or works within the tree protection zone. Traditionally, this may be referred to as 'Third Party Ownership'. Adjoining lands may be owned by private property owners and this is noted as being in the category 'Neighbours'. Trees located on road reserves, nature strips or adjoining parklands/ open spaces are often owned or managed by the local Responsible Authority and are given the ownership category of 'Council'. Where known, ownership may be noted as being 'Crown' or another regulatory body (e.g. Melbourne Water). In some cases, the ownership will be noted as 'Other' and this will be explained in the 'Site Analysis' section of the report.

- **Protection Value** - is determined based on a combination of the Arboricultural Value, the ownership/ location of the tree, the landscape/ ecological and or cultural / heritage significance of the tree. The Protection Value also takes into account the suitability of the tree in the current and future landscape and the species status (i.e. identified weed species). The tree may also be protected under any relevant Planning or Local Law regulations which is also taken into account under Protection Value. Protection Value is rated according to the following categories:

Category	Description
None	A tree or group of trees of 'No' protection value may be considered to be in poor condition overall and is assigned a low arboricultural value and is within the project site. The tree may be of medium or high arboricultural value, however, if it is a known weed species, is doing considerable infrastructure damage or is not suitable to the site (based on its physical characteristics) it is considered to be of no protection value. The tree may be a juvenile to young specimen that can easily be replaced with new tree planting that will provide a greater amenity in the next 5 – 10 years. This tree may have a low landscape significance in terms of its height and mass within the landscape (I.e. generally less than 8 metres in height and spread) Trees that are located on adjoining land may be given a rating of 'None' if they are found to be dead or extremely hazardous and do not have any regulatory protection and or habitat value. In such instances this will be defined within the report. The tree(s) may or may not be subject to any local Planning or other regulatory control (i.e. Local Law).
Moderate	A tree or group of trees of 'Moderate' protection value may be considered to be in fair to good condition overall and is located within the project site. The tree may be of medium or high arboricultural value, however, it may or may not be suitable to the site in the long term (based on its physical characteristics) for greater than 20 years. The tree may provide a moderate level of landscape significance or amenity and be of moderate individual significance. The tree may be in a semi mature to early mature life stage. Ideally any future development should consider a moderate protection value to be retained and incorporated into the design. However, if the retention and or adequate protection of this tree cannot be achieved with a reasonable design footprint then consideration should be given to the removal of the tree and replacement with a new tree suitable to the landscape and available space. Only trees within the project site may be given a rating of 'Moderate'. Trees that are located on adjoining land are not given a rating of 'Moderate'. The tree(s) may or may not be subject to any local Planning or other regulatory control (i.e. Local Law).

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Category	Description
High	A tree or group of trees of 'High' protection value may be considered to be in good condition overall and is suitably located within the project site (i.e. within the front setback). The tree (if within the project site) will be of high arboricultural value and should have a life expectancy of greater than 20 years if protected and managed. The tree may provide a moderate to high level of landscape significance or amenity and be of moderate to high individual significance. The tree will be in a mature life stage but not beginning senescence. Ideally any future development should consider a high protection value to be retained and incorporated into the design when the tree is located on the site. The design should have regard to the adequate protection of this tree throughout any development on the project site. This tree may have a high landscape significance in terms of its height and mass within the landscape (I.e. generally greater than 12 metres in height and spread) Trees located on adjoining lands, not of the ownership of the project site, are given a high protection value, regardless of their overall condition (Arboricultural Value), the environmental / landscape significance and or cultural / heritage significance (i.e. historic or remnant old veteran trees) unless they are Dead and do not have any regulatory protection and or habitat value. High protection value may also be assigned to known weed species, however this will be noted within the report. The tree(s) may or may not be subject to any local Planning or other regulatory control (i.e. Local Law).

- **SRZ (m)** - The Structural Root Zone (SRZ) (referenced from *Australian Standard AS4970-2009 - Protection of Trees on Development Sites*) is the calculated distance based on Basal Dia (cm). The SRZ identifies the minimum radius at which the root plate should not be disturbed. This measure only relates to the trees' stability and does not take into account the implications of a decline in health. The measurement is given in metres in a radius from the centre of the tree trunk.

- **TPZ (m)** - The Tree Protection Zone (TPZ) (referenced from *Australian Standard AS4970-2009 - Protection of Trees on Development Sites*) is the calculated distance based on the DBH of the tree. The TPZ addresses the physiological implications by retaining an ideal area around the tree to survive in the landscape on a long-term basis. The measurement is given in metres in a radius from the centre of the trunk.

- **TPZArea (m2)** - is the tree protection zone in square metres (m^2) around the trunk.

- **TPZ10% (m)** - identifies the 10% encroachment radial distance into the tree protection zone on one side of the tree only (Minor Encroachment).

- **Encroach (%)** - is the level of encroachment into the TPZ of the tree from the excavation/ buildings and works.

- **Notes/ Comments** – The general notes/ comments provide additional support where required for the tree data collected in the field.

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8.2 Glossary of Commonly Used Terms

Amenity
Although difficult to quantify, the term as used in this report relates to the contribution given to the landscape or streetscape in terms of visual aesthetics. It may also relate to the contribution in terms of shade or protection from the elements.

Bifurcation
A stem or branch forked or divided into two or more parts or branches. Used to describe a union point. A bifurcation may have different characteristics dependant on the load distribution on the union and the size of the branches or stems that arise from the union point.

Branch Bark Ridge
Swelling of bark tissue on the upper side of the branch junction or union. Considered the normal pattern of development in contrast to included bark (from Matheny & Clark, 1994).

Branch collar
Trunk tissue that forms around the base of a branch between the main stem and the branch. As the branch decreases in vigour or begins to die, the branch collar becomes more pronounced (AS4373).

Chlorotic
Discolouration of the leaves, yellow in colour resulting from a lack of chlorophyll

Codominant
Generally, relates to trunks/ stems (although it may relate to scaffold branches within the crown) of two or more and of equal or similar size and relative importance (Matheny & Clark, 1994).

Compartmentalisation
Physiological process which creates the chemical and mechanical boundaries that act to limit the spread of disease and decay organisms (Matheny & Clark, 1994).

Decay
Degeneration and de-lignification of plant tissue, including wood, by pathogens or micro-organisms (AS4373).

Epicormic Shoots
Shoots which arise from adventitious or latent buds (usually dormant). They are generally produced in response to environmental stress.

Included Bark
The pattern of development at a branch union where bark is turned inward rather than outward or pushed out. Relates to the branch bark ridge and bifurcations. (Matheny & Clark, 1994)

Live Crown Ratio (LCR)
Relative proportion of healthy crown in proportion to overall tree height. Often not used in isolation due to the different natural forms of many species and growing conditions. Generally, an LCR of less than 30% may result in a poor structural rating, however, when this is used and noted within this report, it is based on potential changes to the environment where this condition may have an effect on long term protection value.

Lateral
A branch arising from another branch or stem (AS4373)

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Lopping
Cutting back a limb or stem at any point with no regard to natural target pruning. Random cutting of branches or stems between branch unions or at internodes on young trees. Not considered an acceptable practice as part of the *Australian Standard AS4373-2007 - Pruning of Amenity Trees.*

Senescence or Senescent
The organic process of age and the deterioration of tissue within the tree.

Wound wood/ Reaction Wood
Lignified, partially differentiated tissue which develops from the callus associated with wound or pruning cuts.

8.3 Bibliography and Cited References

Coder, K.D., 1996, *Construction Damage Assessments: Trees and Sites*, The University of Georgia, SC, USA.

Harris, R.W. Clark, J.R. & Matheny, N.P., 1999, *Arboriculture, Integrated Management of Landscape Trees, Shrubs and Vines*, 3rd Edn. Prentice-Hall, Inc, USA.

Helliwell, D.R., 1985, *Trees on Development Sites*, Arboricultural Association, Romsey, England

Matheny, N.P. & Clark, J.R., 1994, *Evaluation of Hazard Trees in Urban Areas,* 2nd Edn., ISA Publications

Mattheck, C. & Breloer, H., 1998, *The Body Language of Trees – A Handbook for Failure Analysis,* The Stationary Office, Norwich, London.

Standards Australia 2007, *Australian Standard AS4373-2007, Pruning of Amenity Trees*, 14 March 2007.

Standards Australia 2009, *Australian Standard AS4970-2009, Protection of Trees on Development Sites*, 31 July 2009.

8.4 Tree Protection Guidelines

8.4.1 Background

Arbor Survey Pty Ltd assesses individual tree protection requirements based upon the *Australian Standard AS4970-2009 - Protection of Trees on Development Sites*. Tree protection requirements are calculated based upon trunk diameter of the tree at breast height. These calculations produce what is referred to in this report as the Tree Protection Zone (TPZ) and is provided as a measurement in metres in a radius from the centre of the trunk.

The TPZ is the zone in which protective measures should be applied in order to protect the tree(s) whilst maintaining the current levels of health and vigour.

Determination of the structural root zone or the zone of rapid taper is provided as the Structural Root Zone (SRZ). The structural root zone calculations (may also be referred to as the Root Plate Radius (RPR)) of the tree, based upon the *Australian Standard AS4970-2009*. The SRZ determines the minimum distance around the tree in which the structural stability of the tree should be able to be maintained.

It is important to note that the SRZ only determines the root plate area or the zone of rapid taper. Excavation within this area will not only cause a decline in tree vigour but may also cause catastrophic tree failure (Coder, 1996).

Often it is difficult to protect the entire TPZ due to site constraints. In such events it is imperative that condition and species tolerance to disturbance are evaluated in conjunction with the site characteristics. Helliwell (1985) and Harris (1999) identified that a healthy tree may tolerate removal of up to one-third of its roots and possibly up to 50% in some cases, although stability may be compromised at this level.

In situations where the TPZ of a tree to be retained will be in close proximity to a proposed development or where there will be encroachment into the TPZ of a tree, a specific tree management plan should be developed. This plan provides prescriptive measures to protect trees on development sites

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8.4.2 General Tree Protection Requirements

The following requirements are only provided only for basic guidance, these guidelines do not constitute a specific tree management and protection plan.

- A tree protective fence should be installed at the recommended distance allocated for each tree to be retained. The fence should be located at the TPZ distance provided where possible.

- The protection fence should be rigid (chain link or similar) and should not be less than 1.8 metres in height. Fencing should be firmly attached to a removable concrete or similar base. Alternatively, star pickets (1.5 metre spacing) and para-webbing may be used to define the tree protection area. Fencing should be in accordance with the *Australian Standard for Temporary Fencing AS4687*.

- In cases where the TPZ cannot be entirely fenced, it is recommended that ground protection is used. Specific ground protection requirements will form part of a tree protection plan that should be developed for all trees to be retained.

- No soil levels must be altered within the fenced TPZ area, no heavy machinery should be allowed to pass within this area and no spoil, chemicals, building materials or refuse should be stored within this area. Nothing whatsoever should be attached to the tree (excluding tape to identify a tree to be protected).

- The area within the tree protection fence should be covered with a layer of organic mulch (mixed particle sized woodchip) to a depth of 100mm prior to the commencement of the project. Mulch material should comply with *Australian Standard* AS4454.

- The tree protective fencing should be installed prior to any works (including demolition) commencing on site and should remain in place until all site development work is completed. The protective fencing should be located at the prescribed TPZ distance where possible and clearly signed **TREE PROTECTION ZONE**. The sign should be similar to the attached image (as recommended by the *Australian Standard AS4970-2009*) and should be of a size no smaller than 400mm x 300mm:

- An area should be designated on site, outside of any tree protection zone, where all building materials, chemicals etc. can be stored throughout the proposed development.

- Open trenching for underground services located within the recommended tree protection zone (TPZ) must be avoided. Should there be no alternative for service location; the services must be bored underneath the TPZ or a non-destructive root investigation (NDRI) should be undertaken. No trenching with machinery should be used to install services within the protected area.

- Soil moisture during construction should be maintained at not less than 50% of field capacity (usually 10 litres of water per 10mm of each tree DBH per week). Irrigation may be applied by hand, automatic or manual irrigation system, or by fine spray from water tanker located outside the fenced area. Water is to be applied at a volume and frequency required so as to maintain turgor and leaf retention and encourage healthy root development. The Project Arborist should discuss variations to the amount of water to be supplied with the site or Project Manager.

- Remedial pruning works recommended to be undertaken on the project trees must be carried out to *Australian Standard AS4373-2007 – Pruning of Amenity Trees*, by a qualified Arborist (Minimum AQF Level 3). If pruning works are to be undertaken, then these works should be carried out prior to any construction works beginning on site.

- Documentation should be provided to the site manager by the Project Arborist for each inspection during the development process which details the consultant Arborist name, date and time of inspection, the stage of development, and provides comments of what actions are required.

8.5 TERMS AND CONDITIONS

1. Arbor Survey Pty Ltd contracts with you on the basis that you promise that all legal information which you provide, including land title and ownership of other property, are correct. The author is not responsible for verifying or ascertaining any of these issues.

2. Arbor Survey Pty Ltd contracts with you on the basis that your promise that all affected property complies with all applicable statutes and legislation.

3. Arbor Survey Pty Ltd has taken reasonable care to obtain necessary information from reliable sources and to verify data. However, the author neither guarantees nor is responsible for the accuracy of information provided by others.

4. If, after delivery of this report, you later require a representative to attend court to give evidence or to assist in the preparation for a hearing because of this report, you must pay an additional fee at the current rate for expert evidence.

5. Alteration of this report invalidates the entire report.

6. Arbor Survey Pty Ltd retains the copyright in this report. Possession of the original or a copy of this report does not give you or anyone else any right of reproduction, publication or use without the written permission of Arbor Survey Pty Ltd.

7. The contents of this report represent the professional opinion of the consultant. The consultancy fee for the preparation of this report is in no way contingent upon the consultant reporting a particular conclusion of fact, nor upon the occurrence of a subsequent event.

8. Sketches, diagrams, graphs, and photographs in this report are intended as visual aids, are not to scale unless stated to be so, and must not be construed as engineering or architectural reports or as surveys.

9. Unless expressly stated otherwise:

    a. The information in this report covers only those items which were examined and reflects the condition of those items at the time of the inspection only.

    b. The inspection is limited to visual examination of accessible components without dissection, excavation, or probing. There is no warranty or guarantee, expressed or implied, that even if they were not present during our inspection, problems or defects in plants or property examined may not arise in the future.

10. This agreement supersedes all prior discussions and representations between Arbor Survey Pty Ltd and the client on the subject and is the entire agreement and understanding between the two parties.

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BASSED ROAD

191.57
79°23'

CANNIBAL CREEK

288.47
117°29'

231°38'
40.23

BASSED ROAD

CANNIBAL CREEK

CANNIBAL CREEK

CANNIBAL CREEK

358°42'
34.07

19°28'
138.07

CAs 12H, 12J & 12K

GARFIELD NORTH ROAD

11°10'
95.55

66.39
206°07'

195.33
261°06'

PROPOSED BUILDING

CA 2006

OLD SALE ROAD

104.94
13°53'

240°21'
383.79

02
-

CA 12L

13°53'
52.58

45.17
359°43'10"

22°12'
2.01

15.65
240°21'

01
-

ALLOTMENT PLAN
1:2000

MGA2020 ZONE 55

N

PLAN OF ALLOTMENTS
CA 12H, 12J, 12K, 12L & 2006
Garfield North Road
Garfield North
SCALE 1:2000
DATE OF SURVEY : 02/10/2023
DRAWN BY : T. DOLE
SURV. REF. NO. 20946

APPROXIMATE LOCATION OF SWAMP BANK

SWAMP

CANNIBAL CREEK

TBM RIVET
RL: 71.62m

OLD SALE ROAD

SHELTER

PORCH
SHED

TOILET BLOCK

GRAVEL TRACK

3CP 3CP 3CP 3CP 3CP 4CP 2CP

26 CAR PARKS 48M²

3CP 3CP

5CP

PORCH
SHED

10 CARPARKS
238M²

8000

PIPE Ø0.3m INV: 70.06
PIPE Ø0.3m INV: 71.21
PIPE Ø0.25m INV: 72.08
PIPE Ø0.3m INV: 72.53

195.33
261°06'

122428 REFER PLAN FOR SETOUT POINT

CA 2006

CA 12H

104.94
13°53'

383.79
240°21'

NEW BUILDING
CONC. VERANDAH/CARPARK
NEW GRAVEL TRACK/CARPARK
NEW CAR PARKS 2600x4900, NEW TRACKS 6400 WIDE

02
-
SITE PLAN
1:500

MGA2020 ZONE 55

N

DEVELOPMENT SUMMARY

SITE AREA
CAs H,J & K 122283 SQUARE METRES
CA 2006 35182 SQUARE METRES
TOTAL AREA 157465 SQUARE METRES

EXISTING BUILDINGS
SHELTER 142 SQM
SHED & PORCH 65 SQM
SHED & PORCH 161 SQM
TOILET BLOCK 57 SQM

NEW BUILDING (1 ONLY) COMMUNITY CENTRE
BUILDING 233 SQM
VERANDAH 188 SQM

TOTAL IMPERMEABLE AREA
846 SQM

TOTAL PERMEABLE AREA
156619 SQM

TOTAL SITE COVER
0.54%

Amendments

Rev	Date	Revision
02	29.01.24	Number car parks
01	15.01.24	For approval

Amendments

Rev	Date	Revision

Amendments

Rev	Date	Revision

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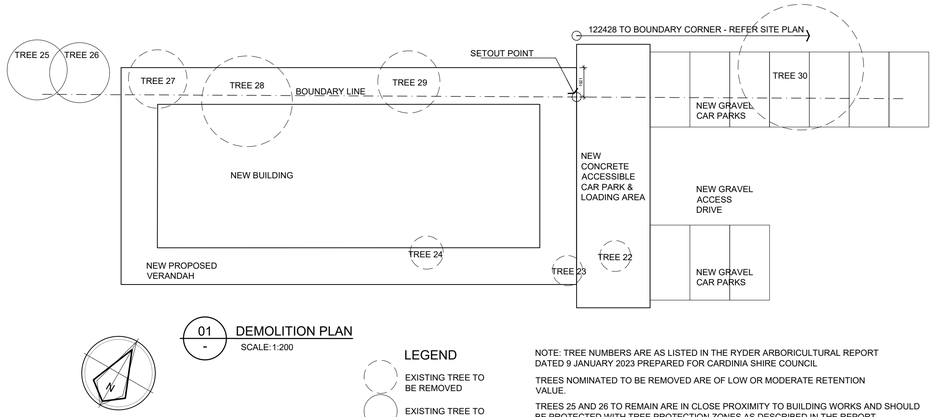
GARFIELD NORTH COMMUNITY CENTRE
CANNIBAL CREEK RESERVE
GARFIELD NORTH VIC. 3814

TOWN PLANNING

SITE PLAN

Scale	AS SHOWN	Date	20.12.23
Drawn	JH	Copyright Jeremy Hearn	
Job No.	23015		
Drg. No.	TP001	Rev	02



01 - DEMOLITION PLAN
SCALE:1:200

LEGEND

EXISTING TREE TO BE REMOVED

EXISTING TREE TO REMAIN

NOTE: TREE NUMBERS ARE AS LISTED IN THE RYDER ARBORICULTURAL REPORT DATED 9 JANUARY 2023 PREPARED FOR CARDINIA SHIRE COUNCIL

TREES NOMINATED TO BE REMOVED ARE OF LOW OR MODERATE RETENTION VALUE.

TREES 25 AND 26 TO REMAIN ARE IN CLOSE PROXIMITY TO BUILDING WORKS AND SHOULD BE PROTECTED WITH TREE PROTECTION ZONES AS DESCRIBED IN THE REPORT.

NEW GRAVEL PARKING BAYS OFF THE EXISTING TRACK HAVE BEEN ARRANGED TO AVOID TREES.

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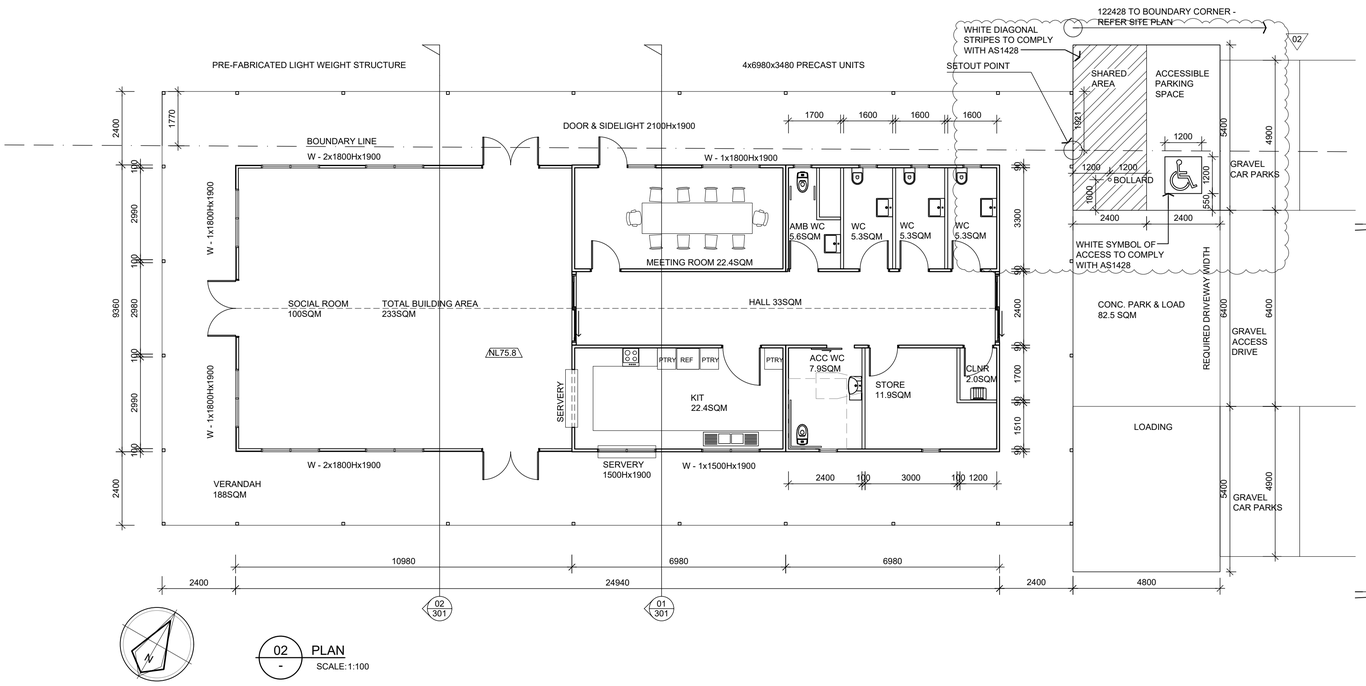
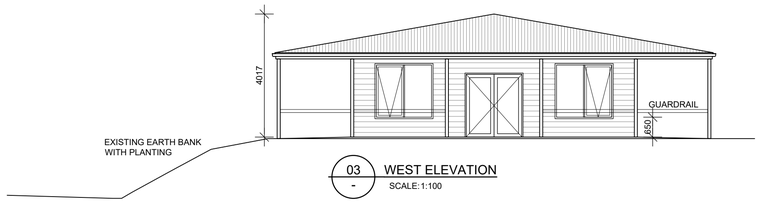
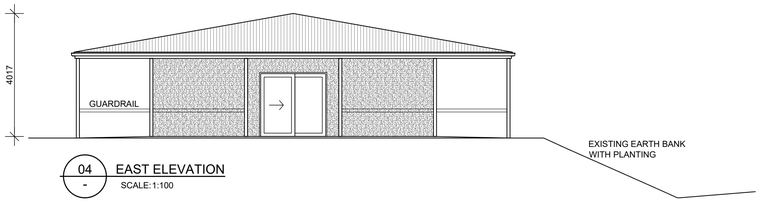


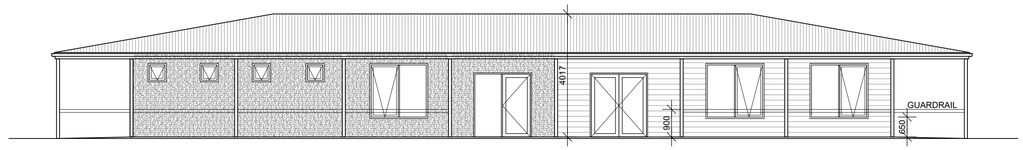
02 - PLAN
SCALE:1:100



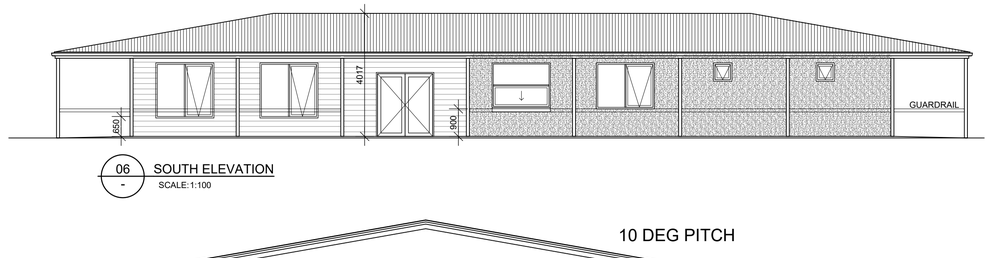
03 - WEST ELEVATION
SCALE:1:100



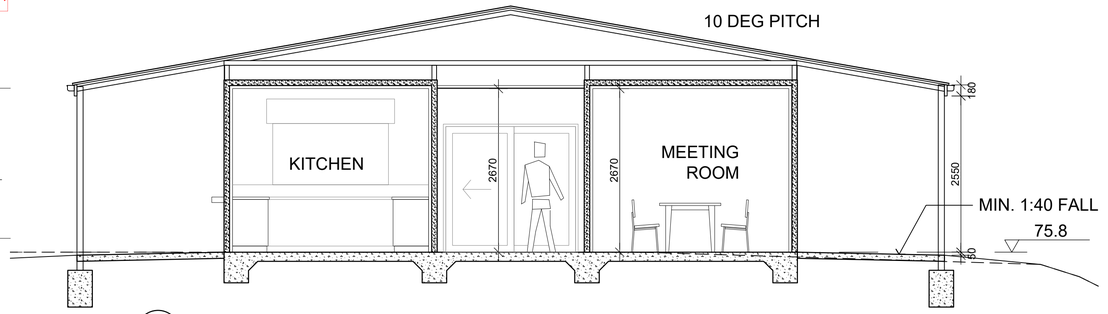
04 - EAST ELEVATION
SCALE:1:100



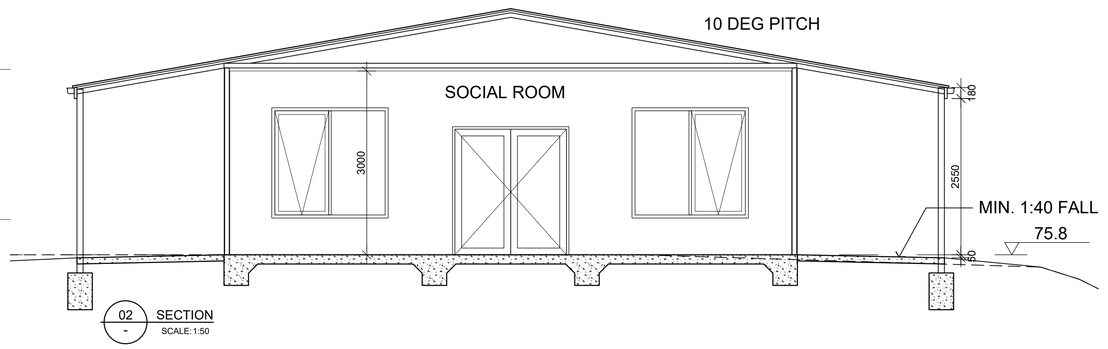
05 - NORTH ELEVATION
SCALE:1:100



06 - SOUTH ELEVATION
SCALE:1:100



01 - SECTION
SCALE:1:50



02 - SECTION
SCALE:1:50

FINISHES LEGEND

TEXTURED PAINT ON CONCRETE

FC SHIPLAP WEATHERBOARD PAINT FINISH

COLORBOND METAL ROOFING

WINDOWS - FRAMES - COLORBOND ALUMINIUM GLASS CLEAR

POSTS AND FASCIA PAINT FINISH

Amendments			
Rev	Date	Revision	
02	29.01.24	Notate accessible park	
01	15.01.24	For approval	

Amendments		
Rev	Date	Revision

Amendments		
Rev	Date	Revision

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GARFIELD NORTH COMMUNITY CENTRE
CANNIBAL CREEK RESERVE
GARFIELD NORTH VIC. 3814

PLANS

TOWN PLANNING

Scale	AS SHOWN	Date	10.01.24
Drawn	JH		
Job No.	23015		
Drg. No.	TP101	Rev	02

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Hearn Architects
Garfield North Community Centre
Exterior Colour Scheme
Rev. D 14.11.23

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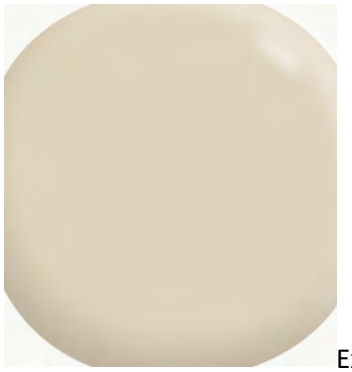
Exterior weatherboards and concrete walls – Dulux Ecru


Roofing, Gutters & downpipes Colorbond Paperbark


Window & door frames Dulux Powdercoat Dune


Exterior concrete paving – Broom Finish