Application for a **Planning Permit**

ⓘ Privacy Statement

Any material submitted with this application, including plans and personal information, may 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*. You must not submit any personal information or copyright material of third parties without their informed consent.

Central Goldfields Shire Council (CGSC) cannot publish your personal information (apart from the relevant address) on its internet site unless you consent to this. Do you consent to your personal information (such as your name and contact details) being made available to members of the public?

✓ No.

Yes. (Name only?)

ⓘ Questions marked with must be completed.

More information about the planning permit application process is found here.

Please submit your application to planning@cgoldshire.vic.gov.au.

Application type

Is this a VicSmart application?

✓ No

Yes. Please specify which classes:

Pre-application meeting

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

No

✓ Yes. Name and date: Andrew Page 24th March 2023

Applicant details

Name: Nigel Douglas

Organisation (if applicable): B.F. & R Douglas Building Consultants

Address: 98 High st Maryborough Vic 3465

Phone number: 0354611220

Email: nbd75@hotmail.com

Preferred contact (if different to applicant):

Name:

Organisation (if applicable):

Address:

Phone number:

Email:

Land details

Address:

765 Maryborough-Dunolly Rd Havelock Vic 3465

Formal land description:

Lot: on Lodged Plan/Title Plan/Plan of Subdivision:

OR

✓ Crown Allotment: 28 Section: 1A

Parish/Township of: Bet Bet

Land owner: Ashley John Matthews & Rebecca Edwards

Current land use and development description:

Farm land with dwelling & sheds

Proposal

Description of the use, development or other matter proposed:

Extension to existing dwelling

Estimated cost of development (if applicable): $180,000

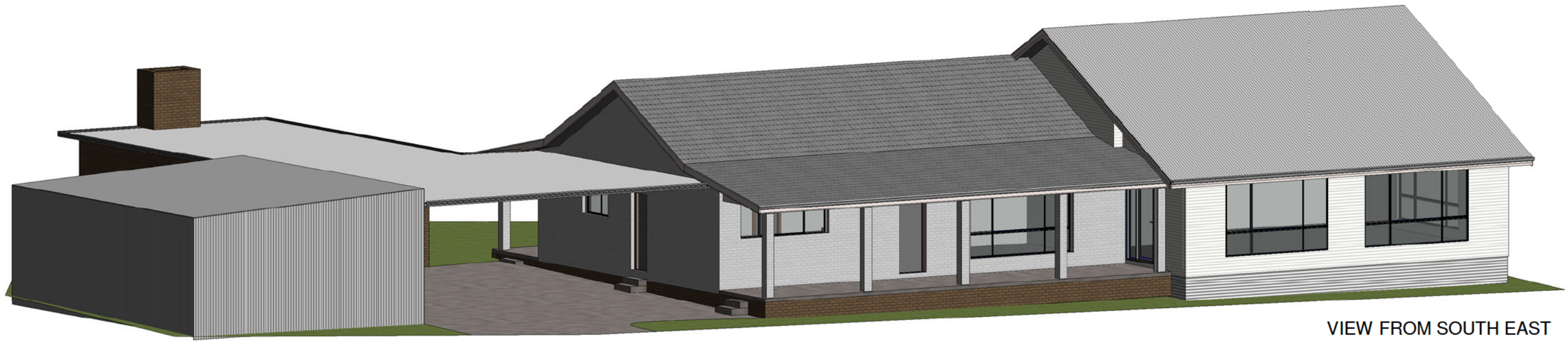
Applicant declaration

☐ I declare that all the information in this application is true and correct; and the [redacted] not myself) has been notified of the permit application.

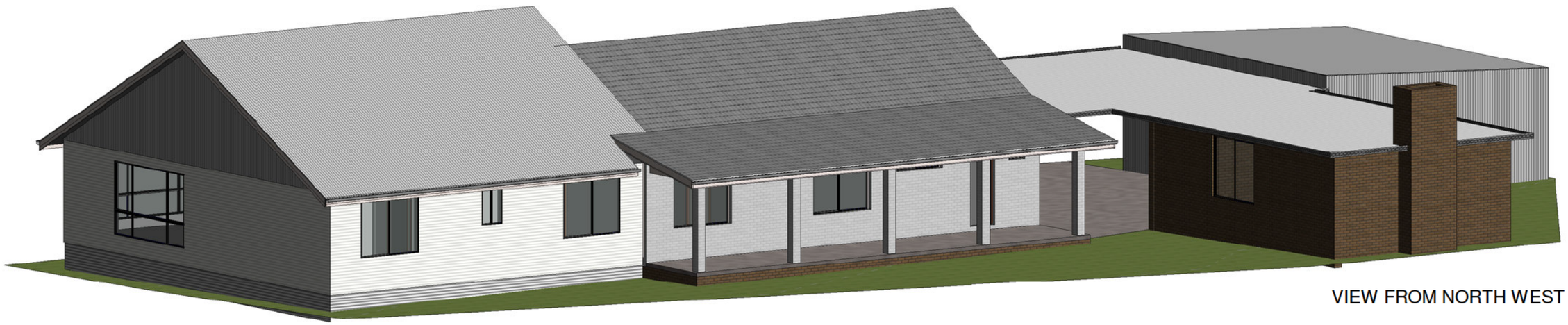
Date: 14th April 2025

Application checklist

- ✓ Correctly filled and signed planning permit application form.
- ✓ Full and current copy of title documents: Register Search Statement, Title Plan and any restrictive covenants (generated within 3 months) – can be purchased from Landata.
- ✓ Plans drawn to scale and dimensioned which show:
  - Site shape, size, dimensions and orientation.
  - The siting and use of existing and proposed buildings.
  - Adjacent buildings and uses.
  - The building form and scale.
  - Setbacks to property boundaries.
- ✓ Information required by the planning scheme.



VIEW FROM SOUTH EAST



VIEW FROM NORTH WEST

CLIENT: EDWARDS/MATTHEWS-HAVELOCK

PROJECT: PROPOSED ATERATIONS & ADDITIONS TO BRICK DWELLING AT
765 MARYBOROUGH-DUNOLLY RD
HAVELOCK 3465

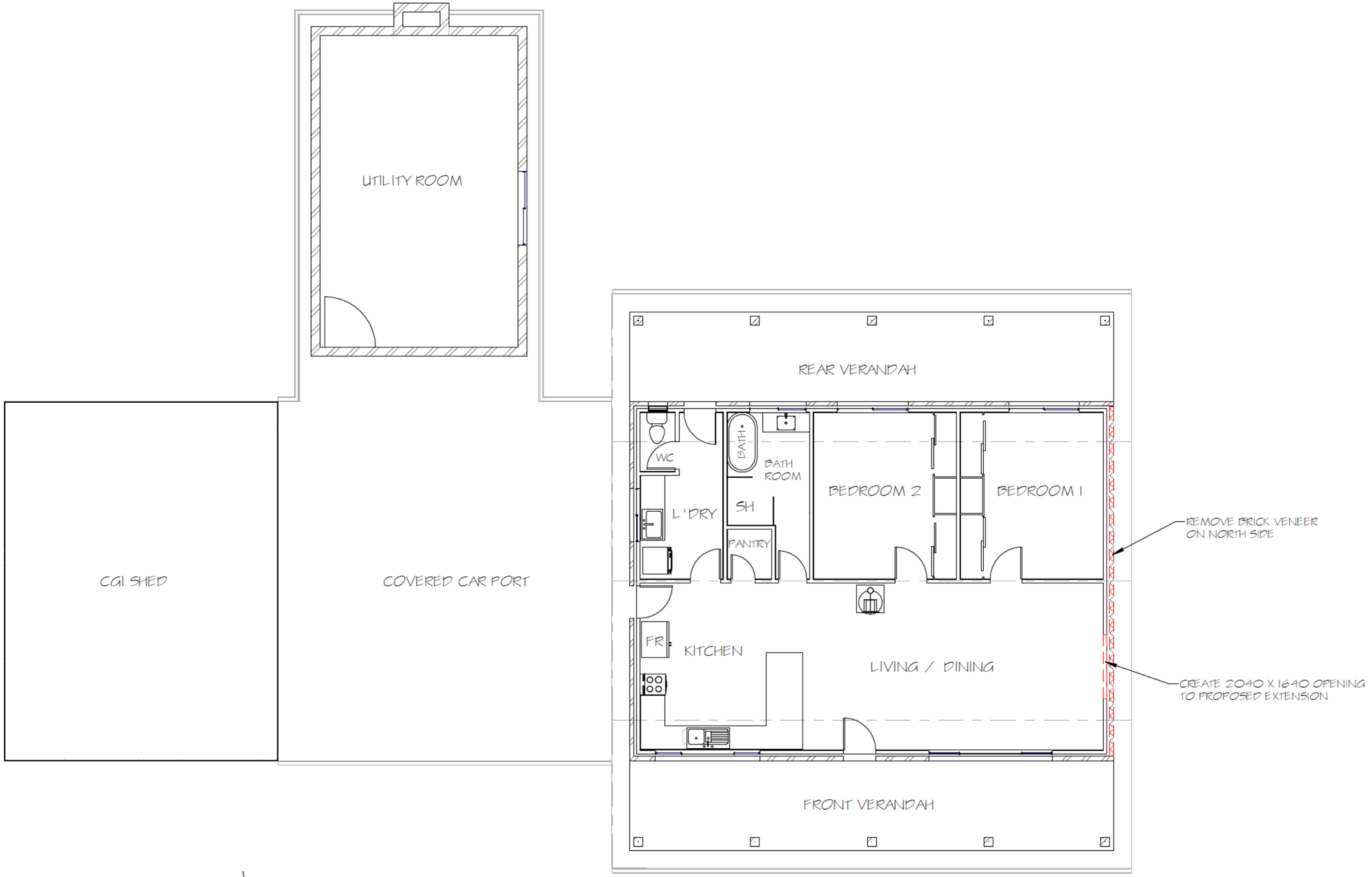
DRAWN: NBD

PROJECT NO: EM518

DATE: 18/02/2026 8:43:17 PM

COMMENCEMENT DATE: 24/03/2023

B.F. & R. DOUGLAS
BUILDING CONSULTANTS
REGISTERED BUILDING PRACTITIONER
98 HIGH ST MARYBOROUGH VIC 3465
Tel:0354611220 Fax:0354611208
Email:bfdouglas@outlook.com



EXISTING DWELLING

EDWARDS/MATTHEWS-HAVELOCK

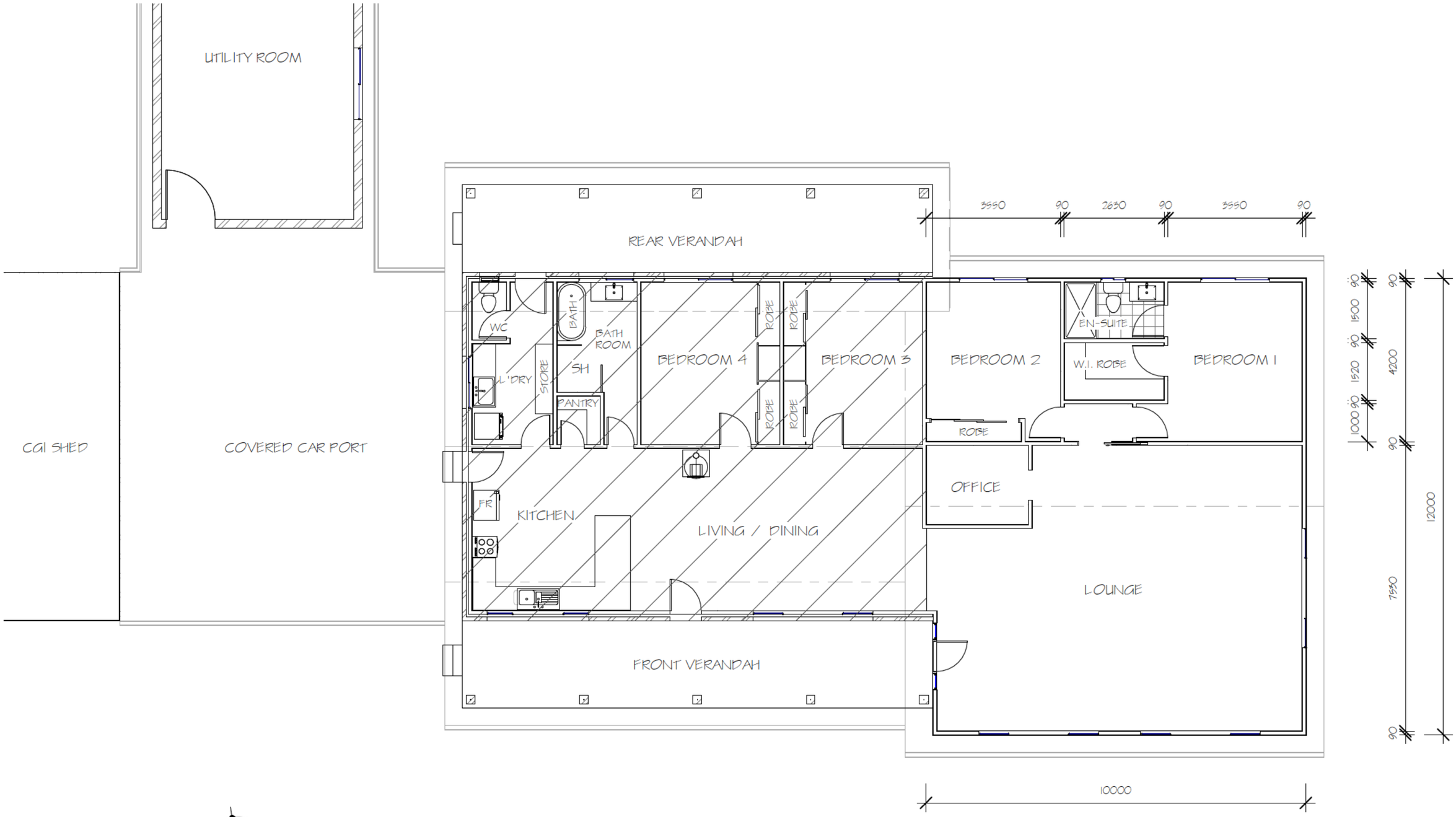
PROPOSED ATERATIONS & ADDITIONS TO BRICK DWELLING AT
765 MARYBOROUGH-DUNOLLY RD
HAVELOCK 3465

FLOOR PLAN - EXISTING

SHEET NO: A01 | SCALE: 1:100 | PROJECT NO: EM818
DESIGNED: B. DOUGLAS DP-AD14101 | DRAWN: NBD | DATE: 18/02/2026 8:45:17 PM
REVISIONS:

Date	Description	Issue

B.F. & R. DOUGLAS
BUILDING CONSULTANTS
REGISTERED BUILDING PRACTITIONER
98 HIGH ST MARYBOROUGH VIC 3465
Tel:0354611220 Fax:0354611208
Email:bfdouglas@outlook.com



NORTH

FLOOR PLAN

EXISTING FLOOR AREA (HATCHED) : 112M²
EXTENDED FLOOR AREA: 119M²
TOTAL PROPOSED FLOOR AREA: 231M²

EDWARDS/MATTHEWS-HAVELOCK

PROPOSED ATERATIONS &
ADDITIONS TO BRICK DWELLING AT
765 MARYBOROUGH-DUNOLLY RD
HAVELOCK 3465

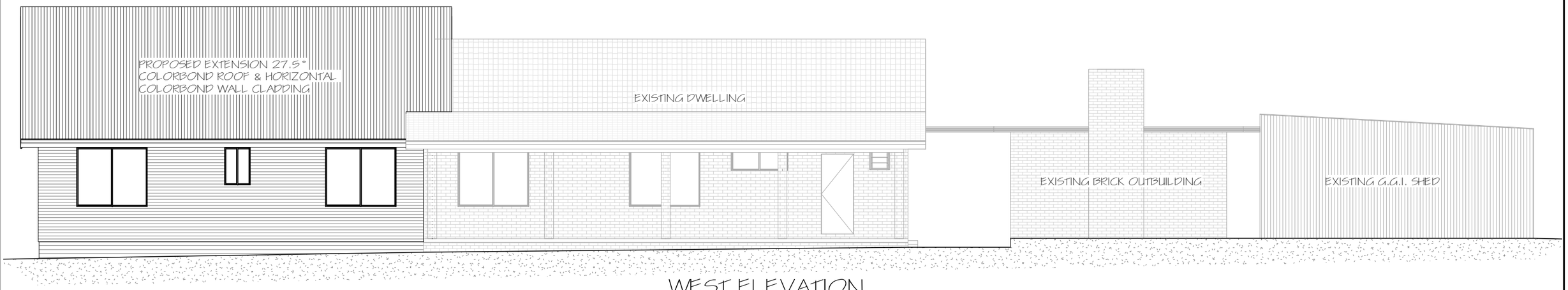
FLOOR PLAN

SHEET NO: A02		SCALE: 1:100	PROJECT NO: EM518
DESIGNED: B.DOUGLAS DP-AD14101		DRAWN: NBD	DATE: 18/02/2026 8:43:18 PM

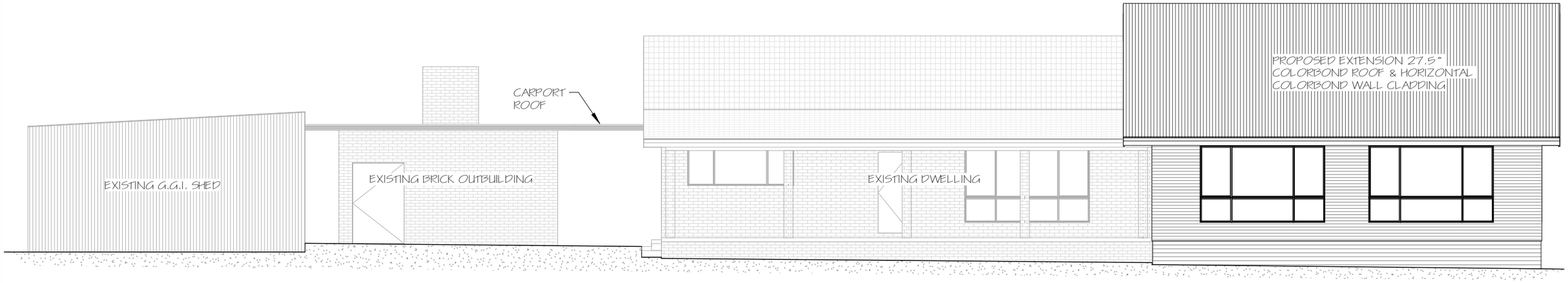
REVISIONS:

Date	Description	Issue

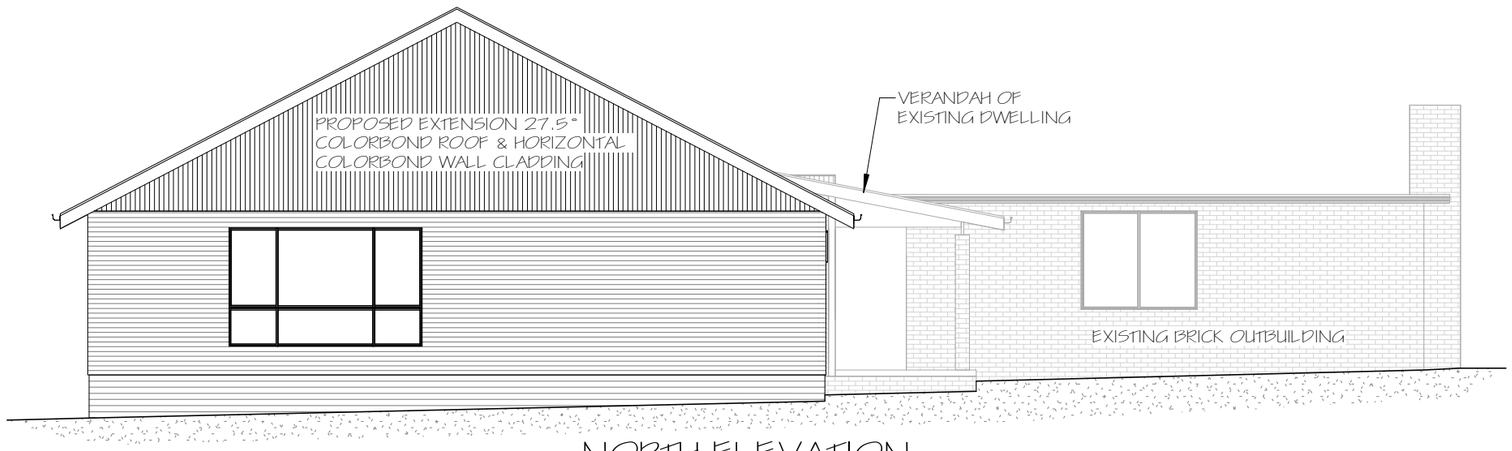
B.F. & R. DOUGLAS
BUILDING CONSULTANTS
REGISTERED BUILDING PRACTITIONER
98 HIGH ST MARYBOROUGH VIC 3465
Tel:0354611220 Fax:0354611208
Email:bfdouglas@outlook.com



WEST ELEVATION



EAST ELEVATION



NORTH ELEVATION

EDWARDS/MATTHEWS-HAVELOCK

PROPOSED ATERATIONS &
ADDITIONS TO BRICK DWELLING AT
765 MARYBOROUGH-DUNOLLY RD
HAVELOCK 3465

ELEVATIONS

SHEET NO: A03 | SCALE: 1:100 | PROJECT NO: EM518
DESIGNED: B. DOUGLAS DP-AD1401 | DRAWN: NBD | DATE: 18/02/2026 8:45:20 PM

REVISIONS:

Date	Description	Issue

B.F. & R. DOUGLAS
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98 HIGH ST MARYBOROUGH VIC 3465
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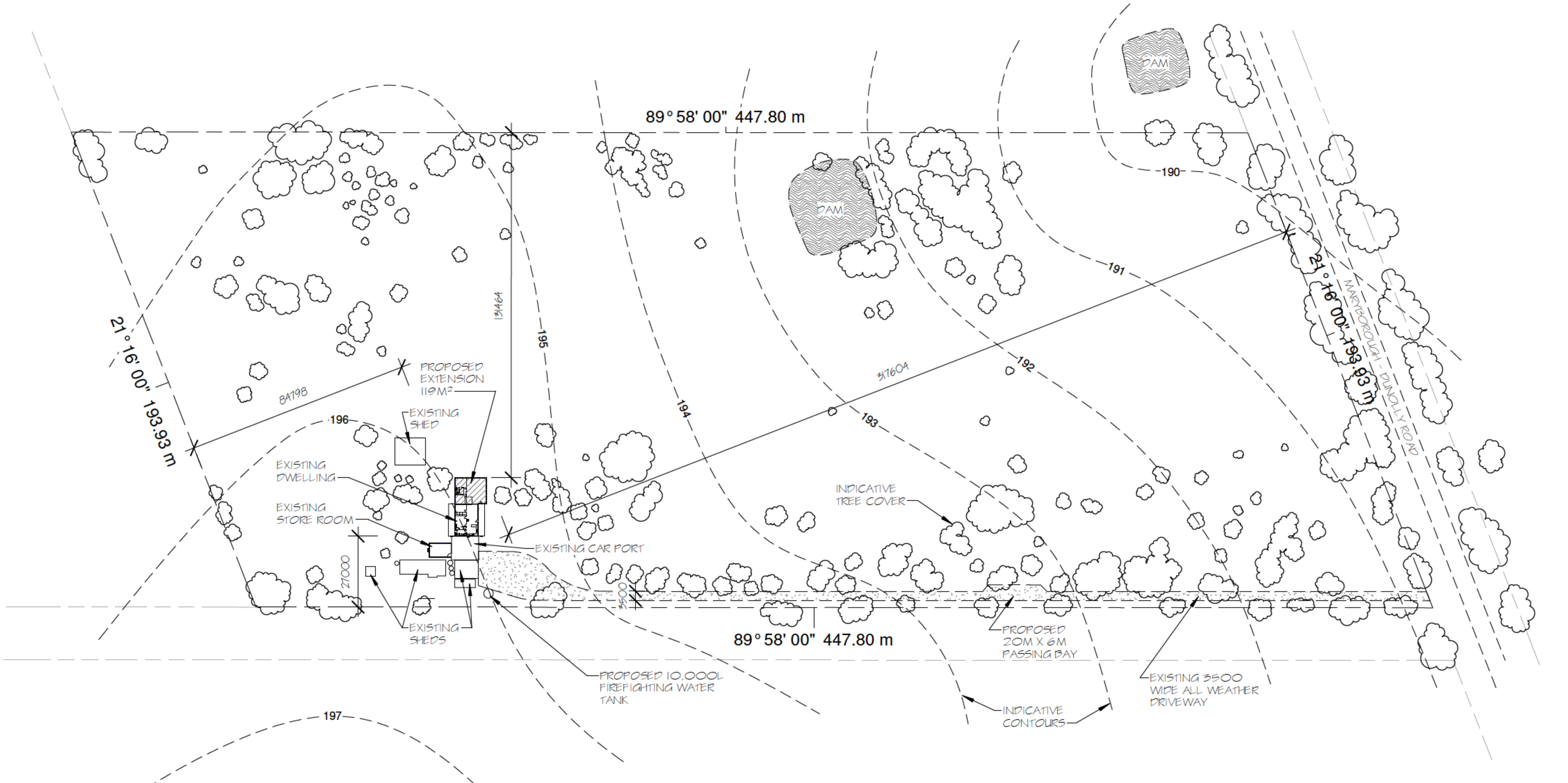
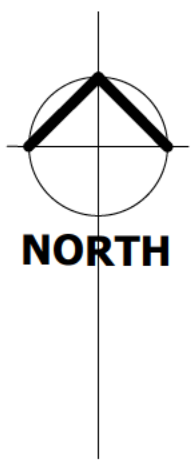
Email:bfdouglas@outlook.com



SITE PLAN



TITLE INFORMATION
PARISH OF BET BET
SECTION 1A
CROWN ALLOTMENT 28
VOL. 5097 FOL. 292
TP280964E
80,908M²

EDWARDS/MATTHEWS-HAVELOCK		SHEET NO: A04	SCALE: 1:1500 / PROJECT NO: EM518
		DESIGNED: B. DOUGLAS DP-AD1401	DRAWN: NBD / DATE: 18/02/2026 8:43:21 PM
PROPOSED ATERATIONS & ADDITIONS TO BRICK DWELLING AT 765 MARYBOROUGH-DUNOLLY RD HAVELOCK 3465	SITE	REVISIONS: Date / Description / Issue	**B.F. & R. DOUGLAS** BUILDING CONSULTANTS REGISTERED BUILDING PRACTITIONER 98 HIGH ST MARYBOROUGH VIC 3465 Tel:0354611220 Fax:0354611208 Email:bfdouglas@outlook.com

edwards environmental

Land Capability Assessment

765 Mayborough-Dunolly Road, Havelock

Prepared for Rebecca Edwards

May 2024 Version 1.0

Assessors' Academic Qualifications and Professional Memberships

Luke Collins is an environmental consultant with Edwards Environmental. Luke has a Bachelor of Engineering (Environmental Engineering) (Honours) specialising in groundwater. Luke has seven years' experience in environmental assessments working on contaminated land projects, civil construction and natural resource management. Luke is a member of the Australian Land & Groundwater Association (ALGA). Site assessments, sampling, preparation of site plans and compilation of reports are undertaken by Luke Collins.

Dean Edwards is the Principal consultant at Edwards Environmental. He has a Bachelor Applied Science (Chemistry) and a Master of Science. Dean has almost 20 years' experience in the environmental industry including 10 years at EPA Victoria. Dean is a member of the Australian Land & Groundwater Association (ALGA). The results of site assessment, analytic results and report were reviewed by Dean Edwards.

NATA Accredited Laboratory

Edwards Environmental engages only NATA accredited laboratories for analytic testing.

Professional Indemnity Insurance

Class of Policy	Professional Indemnity
Insurer	FTA Insurance
Policy No.	2308ProEdwarEnv
Period of cover	17-08-23 – 17-08-24
Policy Limit	$2 million any one claim and $4 million in the aggregate

Limitations

This document was prepared for the purpose as described in the introduction of the report. The conclusion and recommendations of this assessment are based upon evidence obtained through personal interviews, site investigations, representative sampling, data and information supplied by the client, and professional opinion and judgement.

All reasonable care has been taken to ensure that the data and information on which the assessment is based is accurate and complete. The conclusions and recommendation are based on evidence collected at the time of the investigation and Edwards Environmental disclaims all liability for any changes that may have occurred at the site since the investigation. This report shall not be amended or reproduced without written approval from Edwards Environmental.

Land Capability Assessment.

765 Mayborough-Dunolly Road, Havelock

Distribution

Version	Date	Copies	Recipient
1.0	May 2024	Electronic	Rebecca Edwards

Prepared for

Rebecca Edwards

Email: bec@driscollag.com.au

Prepared by

Edwards Environmental

11 Matchett Drive, Strathdale VIC 3550

Telephone: (03) 5406 0522

www.edwardsenvironmental.com.au

ABBREVIATIONS *(Source: EPA 891.4, July 2016)*	
AS/NZS	Australian Standard/New Zealand Standard
AWA	Australian Water Association
AWTS	Aerated wastewater treatment system
BOD_5	Biochemical oxygen demand (5-day test)
CaLP	Catchment and Land Protection Act
CDO	Council delegated officer
CFU	Colony forming units
DIR	Design irrigation rate
DELWP	Department of Environment, Land, Water and Planning
DLR	Design loading rate
DWMP	Domestic wastewater management plan
DSE	Department of Sustainability and Environment
EC	Electrical conductivity
EHO	Environmental health officer
EPA	Environment Protection Authority
EPAI	Environment Protection Agency, Ireland
ETA	Evapo-transpiration absorption (bed)
EVT	Evapo-transpiration
FOG	Fats, oils and grease
IWRG	Industrial Wastewater Resource Guidelines
LCA	Land capability assessment
LAA	Land application area
LPED	Low-pressure effluent distribution system
MAV	Municipal Association of Victoria
NA	Not allowed/Not applicable
PIA	Planning Institute of Australia
PIC	Plumbing Industry Commission
SAR	Sodium absorption ratio
SEPP (GoV):	State Environment Protection Policy (Groundwaters of Victoria)
SEPP (WoV)	State Environment Protection Policy (Waters of Victoria)
SS	Suspended solids
STED	Septic tank effluent drainage
STEG	Septic tank effluent gravity
STEP	Septic tank effluent pump
TDS	Total dissolved salts
TSS	Total suspended solids
UDT	Urine-diversion toilets
UV	Ultraviolet
VBA	Victorian Building Authority
WELS	Water Efficiency Labelling and Standards

Executive Summary

Edwards Environmental was engaged by Rebecca Edwards, to undertake an LCA for 765 Mayborough-Dunolly Road, Havelock. The property is number 64030.0765 in the local government area of Central Goldfields Shire Council, and shown in Appendix 2 *Location Map*. The size of the property is approximately 8.48ha and it is zoned Farming Zone (FZ) under the State Planning Scheme.

The proposal considers renovations to the existing residential building onsite to contain 4 bedrooms.

The report presents the results of the LCA undertaken during autumn 2024. The results indicate the site is capable of sustainable management of primary treated wastewater with discharge to sub surface absorption trenches; using a land application area of 300 square meters.

Table of Contents

1 Introduction

1.1 Background

Edwards Environmental was engaged by Rebecca Edwards, to undertake an LCA for 765 Mayborough-Dunolly Road, Havelock. The property is number 64030.0765 in the local government area of Central Goldfields Shire Council, and shown in Appendix 2 *Location Map*. The size of the property is approximately 8.48ha and it is zoned Farming Zone (FZ) under the State Planning Scheme.

The proposal considers renovations to the existing residential building onsite to contain 4 bedrooms.

The Report assumes WELS-rated water-reduction fixtures and fittings - minimum 4 Stars for dual-flush toilets, shower flow restrictors, aerator taps, flow/pressure control valves and minimum 3 Stars for all appliances *(EPA 891.4 July 2016 Table 4: Note 3)*.

A detailed irrigation system design (i.e. sizing of pumps and pipework) is beyond the scope of this report. Detailed design for the irrigation system should be undertaken by a qualified professional and submitted for council approval.

1.2 Aims

Residential developments in areas without reticulated sewers require wastewater management to protect human health, amenity, resources and the environment. A Land Capability Assessment (LCA) is undertaken for high-risk sites and/or where the site is in a Declared Water Supply Catchment *(refer to EPA 891.4 July 2016, p34 -36)*.

The aims of the report are to:

- assess the capability of the site to sustainably manage wastewater within the allotment boundaries;
- quantify the wastewater volume and nutrient load due to the development;
- determine the effluent quality the treatment system must achieve having regard to site capability;
- design a land application area (LAA) and layout having regard to site capability;
- provide advice to the landowner/occupier to ensure safe on-site disposal of wastewater into the future.

2 Method

Edwards Environmental follows best practice LCA methodology as per *EPA 891.4: 2016*. Soil samples are collected in accordance with *Edwards Environmental Soil Sampling Procedures*. Chain of custody forms are completed for all samples submitted to laboratories. Refer to Appendices for *Sample Receipt Advice* & *Chain of Custody* documentation.

The land capability assessment criteria are from the *Victorian Land Capability Assessment Framework, 2014* ('the framework') and based on *AS/NZS 1547:2012*. There are two broad sets of criteria: site features, and soil chemical/physical features. The levels of constraint (minor, moderate, major) are defined in the framework.

The quantity of wastewater and the organic loading due to the development is estimated from *Table 4 of EPA 891.4 Code of practice – Onsite Wastewater Management (July 2016)* based on information provided by the client (for example the number of occupants).

The level of wastewater treatment (primary, secondary, tertiary) is determined as a function of site constraints, soil constraints and offsite constraints such as sensitivity of the catchment, density of development in the catchment, location of surface waters and other considerations pertaining to long term acceptance rate (LTAR), such as *Council's Domestic Wastewater Management Action Plan*.

The method of land application (absorption, irrigation etc) is determined by effluent quality, site and soil constraints in an iterative process (refer to *Selection of Land Application System: Appendix K of AS/NZS 1547:2012 On-Site Domestic Wastewater Management)*.

The Design Irrigation Rate or Design Loading Rate are determined based on indicative soil permeability (i.e. based primarily on soil structure characteristics, refer *AS/NZS 1547:2012 On-Site domestic Wastewater Management Tables L1(p145) and M1(p160))*. A conservative estimate of soil permeability is typically the cost-effective approach to design. The client's agreement is required prior to undertaking a soil permeability test as it incurs an additional fee.

The land application area for primary treated effluent systems is calculated from *equation L1 (AS/NZS 1547:2012, p.144)* and assumes that beds and trenches will be designed in accordance with *Table L2 p146 AS/NZS 1547:2012* or the most current version of the Standard.

The land application area for irrigation systems is calculated by the approved method *Nominated Area Water Balance for Zero Storage* (*Victorian Land Capability Assessment Framework, 2014*). The calculations use the following inputs:

- Volume of waste water due to the development
- Design irrigation rate
- Crop factor (based on grasses in Victoria)
- Rainfall runoff factor (function of soil type, slope, cut-off drains etc)
- Rainfall and evaporation data (meteorological station in proximity to site)

The following site details are provided in the report (or appendices to the report):

a. Site address (lot number and street address)
b. Title boundaries
c. Council zoning and significance overlays
d. Type of catchment (potable, special, declared)
e. North direction
f. Location, depth and specified use of groundwater bores in vicinity
g. Contour lines at maximum 10m intervals, direction and degree of slope
h. Location of soil sample sites (Bore holes – BH) or profile pits
i. Infrastructure and utilities (existing or proposed)
j. Depth to groundwater in winter
k. Site features and/or constraints (springs, floodplains, surface waters)
l. Rock outcrops,
m. Shallow bedrock, impervious layers
n. Setback distance to surface waters
o. Drainage lines and springs
p. Flood potential
q. Landslip or erosion potential
r. Location of significant vegetation
s. Relevant set back distances
t. Proposed storm water drains and cut offs
u. Actual and proposed buildings, paths, driveways, paddocks
v. Actual and proposed infrastructure (drains, swimming pools, dams)
w. Adjoining land use features/constraints
x. Location of wastewater treatment plant (dimensions)
y. Proposed land application area (LAA) with dimensions and off sets
z. Duplicate LAA with dimensions and off sets

3 Land Capability Assessment

3.1 Development Proposal

The land capability assessment is for the treatment and disposal on-site of wastewater resulting from the proposed development of the land. The proposal considers renovations to the existing residential building onsite to contain 4 bedrooms.

The design wastewater quantity is estimated to be 750 L/day.

TABLE 1: HYDRAULIC LOADING

Source	Typical waste water load L/person/day	No. of Bedrooms	Plus 1	Total Hydraulic Loading (L)
Households with standard water-reduction fixtures	150	4	1	**750**
Total hydraulic load				**750 L/day**

3.2 Site

3.2.1 Site Description

The site investigation was completed on the 19 April 2024 and the following notes were recorded:

- The weather had been dry over the past week
- The proposed effluent field is minimally impacted by stormwater run-on/off
- There is no evidence of a shallow water table
- Rock outcrops were observed on site

TABLE 2: SITE DETAILS			
Address	765 Mayborough-Dunolly Road, Havelock		
Crown Description	Allot. 28 Sec. 1A PARISH OF BET BET	Developer	Rebecca Edwards
Council Area	Central Goldfields Shire Council	Property No.	64030.0765
Allotment Size	8.48ha		
Planning Details *(see Appendix 1 Property Planning Report)*			
Planning Zone	Farming Zone (FZ) Schedule to the Farming Zone (FZ)		
Planning Overlays	BUSHFIRE MANAGEMENT OVERLAY (BMO) EROSIAN MANAGEMENT OVERLAY (EMO) EROSIAN MANAGEMENT OVERLAY – Schedule (EMO) LAND SUBJECT TO INNUNDATION OVERLAY (LSIO) LAND SUBJECT TO INNUDATION OVERLAY – Schedule 1 (LSIO) SALINITY MANAGEMENT OVERLAY (SMO) SALINITY MANAGEMENT OVERLAY – Schedule (SMO)		
Planning Overlays in the vicinity but not directly affecting the land	VEGETATION PROTECTION OVERLAY (VPO) Designated Bushfire Prone Areas		
Infrastructure			
Domestic Water Supply	Yes ☐ Supplier:		No ☒
Design Wastewater Load	750 L/day		
Availability of Sewer	Yes ☐		No ☒
Surface Waters			
Declared Water Supply Catchment?	Yes ☒		No ☐

3.2.2 Site Risk Assessment

TABLE 3: RISK ASSESSMENT OF SITE CHARACTERISTICS *(From Victorian Land Capability Assessment Framework, 2014 - Table 3)*				
Characteristic	**Level of Constraint**			**Assessed Level of Constraint for Site**
	Nil or Minor	**Moderate**	**Major**	
Declared Water Supply Catchment	No		Yes	MAJOR
Reticulated sewer available			No	MAJOR
Aspect (affects solar radiation received)	North / North-East / North-West	East / West / South-East / South-West	South	MINOR
Climate (difference between annual rainfall and pan evaporation)	Excess of evaporation over rainfall in the wettest months	Rainfall approximates to evaporation	Excess of rainfall over evaporation in the wettest months	MINOR
Erosion (or potential for erosion)	Nil or minor	Moderate	Severe	MINOR
Exposure to sun and wind	Full sun and/or high wind or minimal shading	Dappled light	Limited patches of light and little wind to heavily shaded all day	MINOR
Fill (imported)	No fill or minimal fill, or fill is good quality topsoil	Moderate coverage and fill is good quality	Extensive poor quality fill and variable quality fill	MINOR
Flood Frequency (ARI)	Less than 1 in 100 years	Between 100 and 20 years	More than 1 in 20 years	MINOR
Groundwater bores	No bores onsite or on neighbouring properties	Setback distance from bore complies with requirements in EPA Code of Practice 891.3 (as amended)	Setback distance from bore does not comply with requirements in EPA Code of Practice 891.3 (as amended)	MINOR
Land area available for LAA	Exceeds LAA and duplicate LAA and buffer distance requirements	Meets LAA and duplicate LAA and buffer distance requirements	Insufficient area for LAA	MINOR
Landslip (or landslip potential)	Nil	Minor to moderate	High or Severe	MINOR
Rock outcrops (% of surface)	<10%	10-20%	>20%	MINOR
Slope Form (affects water shedding ability)	Convex or divergent side-slopes	Straight side-slopes	Concave or convergent side-slopes	MINOR

TABLE 3: RISK ASSESSMENT OF SITE CHARACTERISTICS *(From Victorian Land Capability Assessment Framework, 2014 - Table 3)*						
Characteristic	**Level of Constraint**					**Assessed Level of Constraint for Site**
	Nil or Minor		**Moderate**		**Major**	
Slope Gradient % for subsurface irrigation	<10%		10-30%		>30%	MINOR
Soil Drainage (qualitative)	No visible signs or likelihood of dampness, even in wet season		Some signs or likelihood of dampness		Wet soil, moisture-loving plants, standing water in pit; water ponding on surface, soil pit fills with water	MINOR
Stormwater run-on	Low likelihood of stormwater run-on				High likelihood of inundation by stormwater run-on	MINOR
Surface waters - setback distance (m)	Setback distance complies with requirements in EPA Code of Practice 891.3 (as amended)				Setback distance does not comply with requirements in EPA Code of Practice 891.3 (as amended)	MINOR
Vegetation coverage over the site	Plentiful vegetation with healthy growth and good potential for nutrient uptake		Limited variety of vegetation		Sparse vegetation or no vegetation	MINOR
Soil Drainage (Field Handbook definitions)	Rapidly drained. Water removed from soil rapidly in relation to supply, excess water flows downward rapidly. No horizon remains wet for more than a few hours after addition	Well drained. Water removed from the soil readily, excess flows downward. Some horizons may remain wet for several days after addition	Moderately well drained. Water removed somewhat slowly in relation to supply, some horizons may remain wet for a week or more after addition	Imperfectly drained. Water removed very slowly in relation to supply, seasonal ponding, all horizons wet for periods of several months, some mottling	Poorly/Very poorly drained. Water remains at or near the surface for most of the year, strong greying. All horizons wet for several months	MINOR

Legend:
Nil or Minor: If all constraints are minor, conventional/standard designs are generally satisfactory.
Moderate: For each moderate constraint an appropriate design modification over and above that of a standard design, should be outlined.
Major: Any major constraint might prove an impediment to successful on-site wastewater management, or alternatively will require in-depth investigation and incorporation of sophisticated mitigation measures in the design to permit compliant onsite wastewater management.

3.3 Soil

3.3.1 Soil investigation

The complete set of analytical results is provided in Appendix 5. The site map illustrates the location of boreholes and or test pits – Appendix 2, and borelogs are presented in Appendix 4. A summary of the analytical results is presented below in Table 4.

TABLE 4 SOIL ANALYSIS RESULTS			
Analytes	**Units**	**BH-01**	**BH-02**
pH	pH units	6.3	6.0
EC@25°C	dS/m	0.266	0.256
Exchangeable Calcium	mg/kg	397	450
Exchangeable Magnesium	mg/kg	905	1110
Exchangeable Potassium	mg/kg	270	317
Exchangeable Sodium	mg/kg	661	1080
CEC	MEQ%	13.0	16.9
ESP	%	22.1	27.8
Sodicity Rating	----	Strongly Sodic	Strongly Sodic
SAR		0.94	1.39
*Emerson Testing – 2 Hours	----	2,2	2,2
*Emerson Testing – 20 Hours	----	1,1	1,1

*Emmerson testing conducted as air dried aggregates/remoulded ped.

The pH is slightly acidic with low salinity concentrations. The soils are strongly sodic and prone to dispersion. The addition of gypsum will form natural aggregation of soil particles which will lead to good soil structure, and hence improved soil permeability refer to Appendix 10.

3.3.2 Soil Category/ Design Irrigation Rate (DIR)

Brown dry SILTY CLAY transitioning to orange-brown LIGHT CLAY with extremely weathered bedrock observed at 1.20m in both boreholes. Soil lithologies taken during boreholes sampling have been attached refer to Appendix 4.

Soil Category: Strongly Structured Light Clays (5a)

Design Irrigation Rate: 5mm/day (taken from EPA Code 891.4 Appendix A: Table 9 Light Clays 5a for Absorption Trenches/Beds)

3.3.3 Soil Risk Assessment

TABLE 4: RISK ASSESSMENT OF SOIL CHARACTERISTICS *(Victorian Land Capability Assessment Framework, 2014 - Tables 2 & 4)*				
Characteristic	**Level of Constraint**			**Assessed Level of Constraint for Site**
	Nil or Minor	**Moderate**	**Major**	
Electrical Conductivity (ECe) (dS/m) as a measure of soil salinity	<0.8	0.8 - 2	>2	MINOR
	EC test result infers the salinity of the soil and its potential impact on plant growth on the LAA. Refer to Hazelton & Murphy (2007) for interpretation of EC test results. Application of effluent increases salt content of soils over time. Refer to Stevens, D.P., Smolenaars, S. and Kelly, J. (2008). Irrigation of Amenity Horticulture with Recycled Water. Smart Water Fund, Victoria.			
Emerson Aggregate Class (consider in context of sodicity)	4, 5, 6, 8	7	1, 2, 3	MAJOR
	EAC results infer dispersibility (as ped slaking, soil dispersion or both). LAAs should not be installed in soils with moderate or high dispersibility, without adequate mitigation (e.g. addition of gypsum, use of irrigation).			
Gleying (see Munsell Soil Colour Chart)	Nil	Some evidence of greenish grey / black or bluish grey / black soil colours	Predominant greenish grey / black, bluish grey / black colours	MINOR
Mottling (see Munsell Soil Colour Chart)	Very well to well-drained soils generally have uniform brownish or reddish colour	Moderately well to imperfectly drained soils have grey and/or yellow brown mottles and in the mottled areas occur higher in the profile the less well-drained the soil	Poorly drained soils have predominant grey colours with yellow brown or reddish-brown mottles located along root channels, large pores and cracks	MINOR
	Gleyed soils indicate permanent saturation (permanent watertable), while orange, yellow and red mottles indicate seasonal saturation with intermittent periods of drying (perched or seasonal watertable).			
pH (favoured range for plants)	5.5 - 8 is the optimum range for a wide range of plants; 4.5 - 5.5 suitable for many acid-loving plants		<4.5, >8	MINOR
	Acid soils (pH <5) or alkaline soils (pH >8) may constrain plant growth and should be ameliorated by use of chemical additives (e.g. lime for acidity). pH <4.5 may lead to aluminium or manganese toxicity; pH>8 may reduce availability of trace elements and phosphate and make gypsum ineffective as an amendment to lower sodicity.			

TABLE 4: RISK ASSESSMENT OF SOIL CHARACTERISTICS *(Victorian Land Capability Assessment Framework, 2014 - Tables 2 & 4)*				
Characteristic	**Level of Constraint**			**Assessed Level of Constraint for Site**
	Nil or Minor	**Moderate**	**Major**	
Rock Fragments (size & volume %)	0 – 10%	10 – 20 %	>20%	MINOR
	Coarse rock fragments displace soil volume and therefore can limit assimilative capacity of soils.			
Sodicity (ESP %)	<6%	6 – 8%	>8%	MAJOR
	The percentage of sodium compounds on cation exchange sites on soil particles. ESP >6% may cause damage to the soil structure. Refer to Hazelton & Murphy (2007). Effluent and greywater contain sodium. A value of ESP = 6% is taken as the threshold between a sodic and non-sodic soil but it depends on the type of clay mineral in the soil. Soils with elevated ESP are often very dispersive and have low permeability.			
Soil Depth to Rock or impermeable layer (m)	>1.5 m	1.5 – 1 m	<1 m	MODERATE
	Deeper soils generally have a greater assimilative capacity for effluent (depending on soil type).			
Soil Structure (pedality)	Highly or Moderately structured	Weakly-structured	Structureless, Massive or hardpan	MINOR
Soil Texture (Indicative Permeability (K_{sat})(m/d))	Cat. 2b (1.4 - 3.0) Cat. 3a (1.5 – 3.0) Cat. 3b (1.5 – 3.0) Cat. 4a (0.5 – 1.5)	Cat. 4b (0.12 – 0.5) Cat. 4c (0.06 – 0.12) Cat. 5a (0.12 – 0.5)	Cat. 1 & 2a (>3.0) Cat. 5b & 5c (0.06 < 0.06) Cat. 6a, b, c (<0.06 - 0.06)	MODERATE
	Refer to Soil Classification in AS/NZS1547 (Table 5.1, p. 39, 2012) and the Design Loading Rates and Design Irrigation Rates in Table 9 of the EPA Code of Practice. Indicative permeability ranges have been allotted to each texture and structure combination, but these may need to be varied due to other soil factors such as sodicity and dispersibility. Soil permeability can be measured directly using the constant head permeability method outlined in AS/NZS 1547: 2012			
Watertable Depth (m) below the base of the LAA	>2 m	2 – 1.5 m	<1.5 m	MINOR
	The required soil depth to protect groundwater depends on soil type; high permeability soils generally require a greater separation distance (soil depth).			

Legend:
Nil or Minor: If all constraints are minor, conventional/standard designs are generally satisfactory.
Moderate: For each moderate constraint an appropriate design modification over and above that of a standard design, should be outlined.
Major: Any major constraint might prove an impediment to successful on-site wastewater management, or alternatively will require in-depth investigation and incorporation of sophisticated mitigation measures in the design to permit compliant onsite wastewater management.

4 Design Response to Identified Constraints

The Major Constraints (from Tables 3 and 4) are summarised in Table 5 with the recommended controls to reduce the risks and/or mitigate the impacts. The controls are incorporated into the design of the treatment and land disposal systems, and the long-term management plan. Soil risk factors can be exacerbated by construction activities particularly if undertaken when the soil is wet. Construction traffic should be kept off the land application areas; trenching and installation should be carried out only when the soil moisture content is below field capacity (i.e. not saturated).

TABLE 5: MANAGEMENT TOOLS/OPTIONS – FOR MODERATE & MAJOR CONSTRAINTS

Site/Soil Constraint	Management Tool/Option
Sewer Availability	Wastewater proposed to be treated and disposed of on-site in a sustainable manner.
Climate	Land application area based on *AS/NZS 1547:2012 equation L1 (page 144)*
Declared Water Supply Catchment	Proposal must meet the effluent quality and set-back distances required by the authorities.
Dispersive Topsoil	To reduce surface crusting and promote establishment of grasses, application of gypsum or lime is recommended (see 'Use of Lime and Gypsum' in Appendix). Application of organic mulch around young plants to moderate fluctuations in soil moisture during summer. Choose low sodium detergents, soaps and washing powders. Maintain solar exposure of the LAA: large trees should NOT be planted where the shade will impinge on the LAA.
Dispersive Sub-Soil /Emmerson Aggregate Class/ Sodicity (ESP)	Design trench depth to avoid exposing the dispersive sub-soil. Place gypsum at the rate of 1kg/square metre in the bottom of trenches prior to placement of aggregate. Supply additional gypsum to the soil surface at 5 – 10-year internals. See 'Use of Lime and Gypsum' in Appendix for more information.
Stormwater run-on / seepage into LAA	Installation and maintenance of cut-off drains or earthen bunds to protect the LAA Collection of roof water to a tank for use on the garden (or other purposes) with tank overflow to discharge to stormwater drains if available.
Water usage	A full water balance was undertaken. Occupiers need to monitor and, if necessary, adjust their water use as the land application area may not be large enough if the design water use is exceeded.
Waste management and system monitoring	Follow the "Advice to home owner / occupier" provided in Section 6.

Treating effluent to a primary standard and discharge to sub surface absorption trenches will provide adequate protection of surface waters, groundwater and the surrounding environment.

5 Wastewater treatment & discharge systems

A detailed irrigation system design (i.e. sizing of pumps and pipework) is beyond the scope of this report. Detailed design for the irrigation system should be undertaken by a qualified professional and submitted for council approval (see Appendices for an overview of the application process).

The following recommendations are in accordance with the *Victorian Land Capability Assessment Framework (2013)*, EPA *Publication 891.4 2016 and AS/NZS 1547:2012*.

5.1 Treatment System

The recommended system is a primary treatment discharging to sub-soil absorption trenches. Absorption trenches are typically excavated 400 to 600mm in depth and backfilled with a minimum 75-100mm depth of crushed rock aggregate before placement of the slotted drainage pipe or drainage arch. After placement of the drainage pipe/arch the trench is backfilled with 'no fines' aggregate to a minimum total depth of 250mm of aggregate. The aggregate surface is covered with geo-fabric before backfilling the trench to within 75mm of natural surface and lightly compacting. Finally, the trench is mounded to ~50mm above natural surface level with clean topsoil (allows for settlement).

5.2 Size of Absorption Trenches and Beds

Trench and bed dimensions are determined from the relationship:

L = Q / (DLR x W)

Where

L = Length

Q = design daily flow in L/day (750 L/day)

DLR = design loading rate in mm/day

The Design Irrigation Rate (DIR) of 5 mm/day is based on strongly structured light clay with a permeability of 0.12 - 0.5 m/day (Ksat).

(Source: EPA 891.4, July 2016 Table 9 refer to Appendix 9)

W = width in m

TABLE 6: TYPICAL DIMENSIONS OF CONVENTIONAL TRENCHES AND BEDS			
(Source: AS/NZS 1547.2012 Table L2)			
	Typical Dimensions (mm)	**Maximum (mm)**	**Minimum (mm)**
Trench Dimensions			
Width	300-450	600	200
Depth to aggregate	200-400	400	200
Depth to topsoil	100-150	150	100
Spacing between adjacent trenches (sidewall to sidewall)	-	N/A	1000
Bed Dimensions			
Width	1000-4000	4000	1000
Depth to aggregate	300-600	600	300
Depth to topsoil	100-150	150	100
Spacing between adjacent trenches (sidewall to sidewall)	-	N/A	1000

The following table sets out the minimum and recommended trench and bed lengths according to trench width based on a Hydraulic Loading of 750 L/day; refer to Appendix 6 *Recommended Trench/Bed Lengths.*

TABLE 7: RECOMMENED TRENCH/BED LENGTHS AND LAA SIZE				
750 L/day 5 mm/day	**Length of absorption trenches (m)**	**Recommended length (m)**	**Recommended LAA (m^2)** (based on minimum 1m edge to edge spacing)	**With Duplicate LAA (m^2)**
Trench width (mm)				
400	375	380	532	1064
500	300	300	450	900
600	250	250	400	800
Bed width (mm)				
1000	150	150	300	600
2000	75	80	240	480
3000	50	50	200	400
4000	38	40	200	400

Assuming 1000mm width for trench construction with 1 metre clearance between trenches the recommended length of 150 metres requires 300 square metres for the LAA. A total of 600 square metres is required which allows for duplication of the LAA as a reserve. The suitable effluent disposal area is delineated in Appendix 3 and complies with the required buffer distances.

5.3 Buffer Distances and Maintenance Considerations

The Site Map (refer to Appendix 2) shows the dimensioned offset distances from the land application area (LAA). The location of the treatment plant and the LAA achieves the required buffer/setback distances to as per *(EPA 891.4 July 2016 Table 5:)* (a copy of "*Setback Distances for Primary and Secondary Treatment Plants*" is included in appendices).

The effluent field must not be subject to high foot traffic. Vehicles and livestock must not have access to the area.

The effluent field must be planted with shallow rooting grasses and/or shrubs that tolerate wet conditions and have a high evapotranspiration capacity, see appendices for a list of plants that are suitable. The plantings should be harvested regularly as it will stimulate the evapotranspiration process, for example, regular mowing of grass species and regular pruning of hedges, rushes and shrubs. Clippings should be utilised or disposed of outside the LAA to minimise nutrient build-up.

All buffer distances are achieved.

5.4 Design and Installation of the Effluent System

The design of the septic system shall be completed by an irrigation specialist and constructed by a person registered or licensed with the Victorian Building Association in Plumbing (Drainage) works.

6 Management Plan

6.1 Landowner/occupiers Responsibilities

The landowner or occupier has a responsibility to ensure proper operation, management, maintenance and reporting on the system operation. Table 8 summarises these responsibilities. Further guidance and clarification of these responsibilities are provided in Section 6.2 to 6.5 below. For the meaning of technical terms, please see the "*Glossary*" provided in appendices.

TABLE 8: MANAGEMENT RESPONSIBILITIES

Task	Frequency
Proper system operation	Daily
Conservation of water	Daily
Monitoring	Especially during and after wet weather
Maintenance	As specified by systems manufacturer, and/or in Council Certificate and immediately in the case of malfunction.
Reporting	As required by council or other authorities. Service records should be kept in a safe place and provided to Council upon request.

6.2 Advice to home owner/occupier on use of the system

For the on-site wastewater system to work well, there are some good habits to encourage and some bad habits to avoid:

a) In order to reduce sludge building up in the tank:
   i. Scrape all dishes to remove fats, grease, etc before washing;
   ii. Keep all possible solids out of the system;
   iii. Don't use a garbage grinder unless the system has been specifically designed to carry the extra load;
   iv. Don't put sanitary napkins and other hygiene products into the system.

b) In order to keep the bacteria working in the tank and in the land-application area:
   i. Use biodegradable soaps;
   ii. Use a low-phosphorus detergent;
   iii. Use a low-sodium detergent in dispersive soil areas;
   iv. Use detergents only in the recommended quantities;
   v. Don't use powerful bleaches, whiteners, nappy soakers, spot removers and disinfectants as it may kill the microorganisms;
   vi. Don't put chemicals or paint down the drain.

c) Conservation of water will reduce the volume of effluent requiring disposal to the land-application area; help make the area last longer and improve its performance.

   Conservation measures include:

   i. Installation of water-conservation fittings;
   ii. Taking showers instead of baths;
   iii. Only washing clothes when there is a full load;
   iv. Only using the dishwasher when there is full load.

d) Avoid overloading the system by spacing out water use as evenly as possible.

   Examples: Do not do all the washing on one day. Do not run the washing machine and dishwasher at the same time.

6.3 Advice on maintenance

a) The primary wastewater-treatment unit (septic tank) will need to:

i. Be desludged regularly i.e. every three to five years or when scum and sludge occupy ⅔ of the volume of the tank (or first stage of a two-stage system);
ii. Be protected from vehicles;
iii. Have any grease trap cleaned out regularly;
iv. Keep the vent and/or access cover of the septic tank exposed;
v. Have any outlet filter inspected and cleaned.

b) All land-application areas need protection as follows:

i. Irrigation areas are not play areas for children and access should be restricted;
ii. Any evapotranspiration areas should be designed to deter pedestrian traffic;
iii. No vehicles or stock should be allowed on trenches or beds;
iv. Deep rooting trees or shrubs should not be grown over absorption trenches or pipes;
v. The surface water diversion drains protecting the land-application area should be kept clear of weeds and tree seedlings so that rain water/storm water can drain away from the LAA;
vi. The baffles or valves in the distribution system should be periodically (monthly or seasonally) changed to direct effluent into alternative trenches or beds, as required by the design.

c) Within LAA, grass and plants should be kept mown/trimmed to maximise uptake of water and nutrients by evapo-transpiration process. Dispose of clippings outside the LAA to minimise nutrient build-up in the soil.

d) Check equipment and:

i. Follow the manufacturer's instructions for maintaining and cleaning pumps, siphons and septic tank filters;
ii. Clean disc filters or filter screens on irrigation-dosing equipment periodically by rinsing back into the primary wastewater-treatment unit;
iii. Flush drip irrigation lines periodically to scour out any accumulated sediment.

6.4 Advice on operating problems

Problems can occur with systems which have not been maintained and where absorption areas have become blocked or clogged. The warning signs are obvious:

a) Absorption field is wet or soggy with wastewater ponding on the surface of the ground.
b) There is a smell of "sewage" near the septic tank or absorption area.
c) The drains and toilets run slowly.
d) The grease trap is full or blocked.

6.5 Advice on the consequences of failure

A failed septic tank and land-application system is a serious health and environmental hazard and can lead to:

a) Spread of infectious diseases.
b) Breeding of mosquitos and attraction of flies and rodents.
c) Nuisance and unpleasantness
d) Pollution and infection of waterways, beaches, streams and shellfish beds.
e) Contamination of bores, wells and groundwater.
f) Alteration of the local ecology.

7 Conclusions

On completion of the site assessment the following conclusions have been made:

- Sewer is not available at the property
- The property is located within a Declared Water Supply Catchment
- The hydraulic loading has been determined at 750 L/day
- The property has sufficient and suitable land for a Land Application Area
- A Land Application Area has been calculated at 300m2
- A reserve Land Application Area of 300m2 has been designated
- All required buffer distances comply with the Code of Practice

From the Land Capability Assessment, it is concluded that sustainable on-site wastewater management is achievable by implementing management options as per Table 5 and the recommendations of this report (see following Section 8).

8 Recommendations

I. Installation of a primary treatment and discharge to sub soil absorption trenches or beds;

II. Land application of treated effluent shall comply with Table 7 & Appendix 6;

III. The design of the septic system shall be completed by an irrigation specialist and constructed by a person registered or licensed with the Victorian Building Association in Plumbing (Drainage) works.

IV. Operation and management of the treatment and disposal system in accordance with manufacturer's recommendations, the EPA Certificate of Approval, EPA *Publication 891.4 2016* and this report.

9 References

TABLE 9: REFERENCES/BIBLIOGRAPHY
AS/NZS 1546.1 – *Septic tanks*
AS/NZS 1546.2 – *Waterless composting toilets*
AS/NZS 1546.3 – *Aerated wastewater treatment systems*
AS/NZS 1546.4:2017 – *Onsite domestic wastewater treatment units – part 3: secondary treatment systems*
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Environment Protection Authority Victoria (2003), *Land Capability Assessment for Onsite Domestic Wastewater Management* (Publication 746.1), Victorian Government, Melbourne
Environment Protection Authority Victoria (2016), *Code of Practice – Onsite Wastewater Management* (Publication 891.4), Victorian Government, Melbourne
Fao.org Soil *Structure* [ftp://ftp.fao.org...]
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R. Patterson (2014) *Technical Note: T14-1 Emerson Aggregate Stability Test for Wastewater – an interpretation for consultants and regulators* Lanfaz Laboratories, Armidale, NSW
Simon Gibbs (2000) *Salinity Notes* (ISSN 1 325-4448)
Soil Conservation Service NSW (1994) *Soils – their properties and management*, Sydney University Press

10 Appendices

Appendix 1

Property Planning Report

PLANNING PROPERTY REPORT

Environment, Land, Water and Planning

From www.planning.vic.gov.au at 29 February 2024 02:51 PM

PROPERTY DETAILS

Address:	**765 MARYBOROUGH-DUNOLLY ROAD HAVELOCK 3465**
Crown Description:	**Allot. 28 Sec. 1A PARISH OF BET BET**
Standard Parce dentifier (SP):	**28~1A\PP2133**
Loca Government Area (Counci):	**CENTRAL GOLDFIELDS** www.centralgoldfields.vic.gov.au
Counci Property Number:	**64030.0765**
P anning Scheme:	**Central Goldfields** Planning Scheme Central Goldfields
Directory Reference:	**Vicroads 43 E9**

UTILITIES

Rura Water Corporation:	**Goulburn-Murray Water**
Urban Water Corporation:	**Central Highlands Water**
Me bourne Water:	**Outside drainage boundary**
Power Distributor:	**POWERCOR**

STATE ELECTORATES

Legis ative Counci :	**WESTERN VICTORIA**
Legis ative Assemb y:	**RIPON**

OTHER

Registered Aborigina Party: **Dja Dja Wurrung Clans Aboriginal Corporation**

View location in VicPlan

Planning Zones

FARMING ZONE (FZ)
SCHEDULE TO THE FARMING ZONE (FZ)

FZ - Farming
PCRZ - Public Conservation and Resource
TRZ1 - State Transport Infrastructure
TRZ2 - Principal Road Network
TRZ3 - Significant Municipal Road
Railway line
Water area
Water course

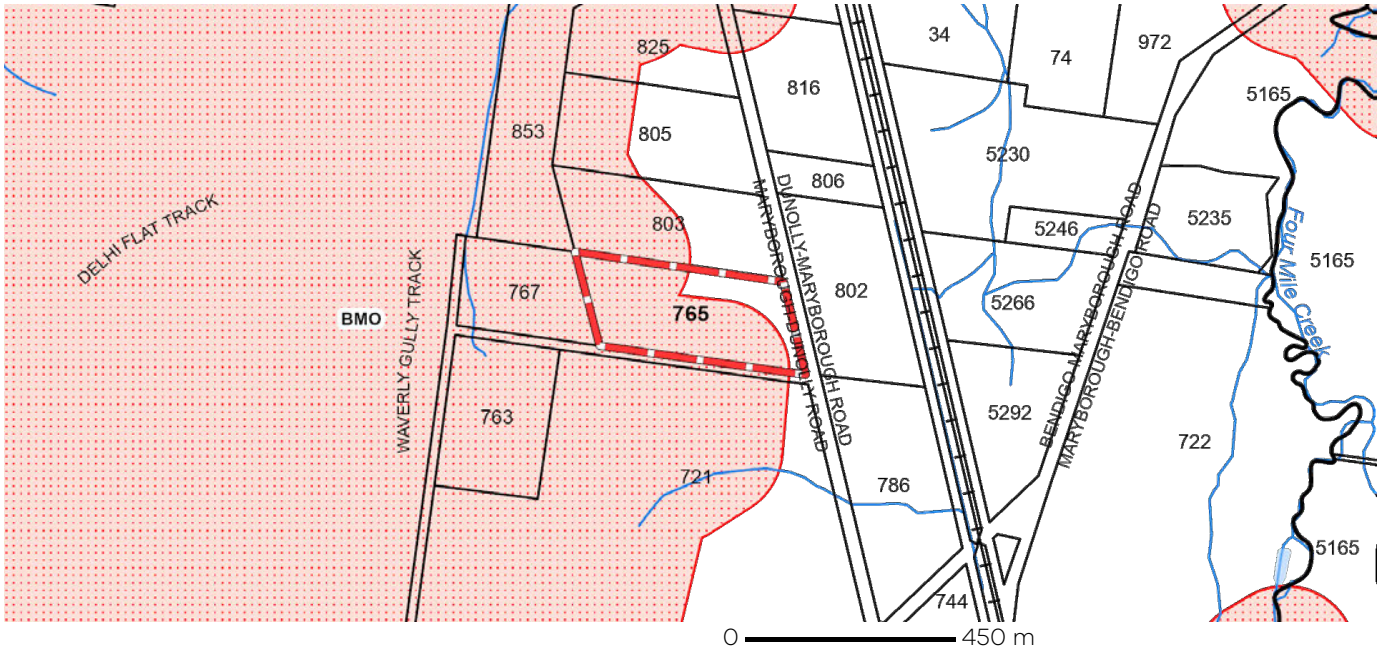
Note: labels for zones may appear outside the actual zone please compare the labels with the legend.

PLANNING PROPERTY REPORT

Environment, Land, Water and Planning

Planning Overlays

BUSHFIRE MANAGEMENT OVERLAY (BMO)



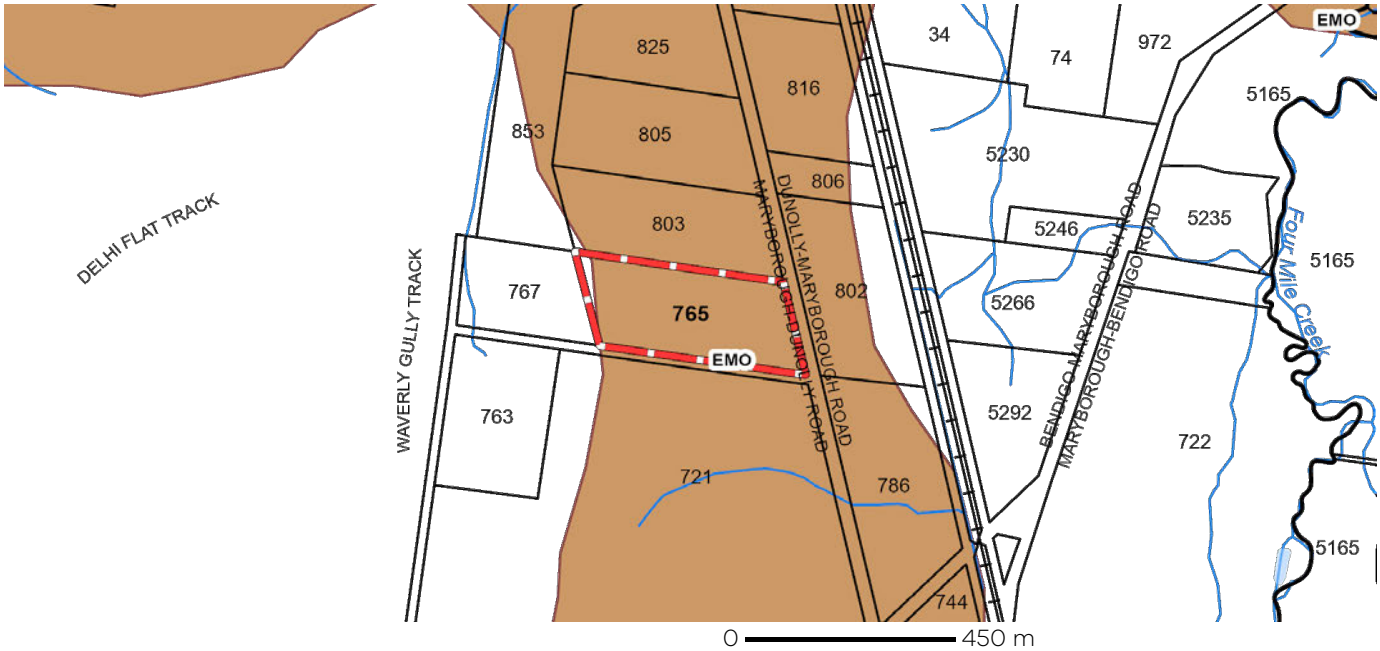
BMO - Bushfire Management Overlay **Railway line** **Water area**

Water course

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

EROSION MANAGEMENT OVERLAY (EMO)

EROSION MANAGEMENT OVERLAY SCHEDULE (EMO)



EMO - Erosion Management Overlay **Railway line** **Water area**

Water course

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

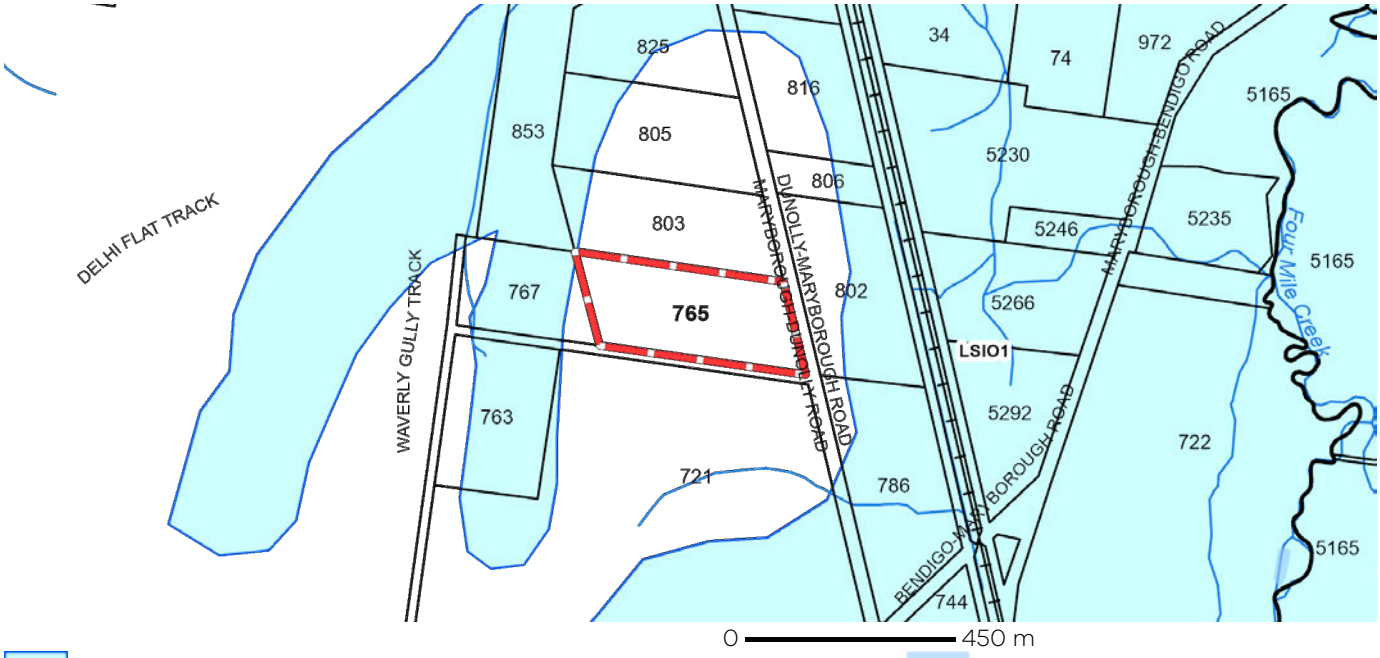
PLANNING PROPERTY REPORT

Environment, Land, Water and Planning

Planning Overlays

LAND SUBJECT TO INUNDATION OVERLAY (LSIO)

LAND SUBJECT TO INUNDATION OVERLAY - SCHEDULE 1 (LSIO1)



LSIO - Land Subject to Inundation Overlay **Railway line** **Water area**

Water course

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

SALINITY MANAGEMENT OVERLAY (SMO)

SALINITY MANAGEMENT OVERLAY SCHEDULE (SMO)

SMO - Salinity Management Overlay **Railway line** **Water area**

Water course

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

PLANNING PROPERTY REPORT

Environment, Land, Water and Planning

Planning Overlays

OTHER OVERLAYS

Other overlays in the vicinity not directly affecting this land

VEGETATION PROTECTION OVERLAY (VPO)

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

Further Planning Information

P anning scheme data ast updated on 7 December 2023.

A **planning scheme** sets out po icies and requirements for the use, deve opment and protection of and.
This report provides information about the zone and over ay provisions that app y to the se ected and.
nformation about the State and oca po icy, particu ar, genera and operationa provisions of the oca p anning scheme that may affect the use of this and can be obtained by contacting the oca counci
or by visiting https://www.p anning.vic.gov.au

This report is NOT a **Planning Certificate** issued pursuant to Section 199 of the ***Planning and Environment Act 1987.***
t does not inc ude information about exhibited p anning scheme amendments, or zonings that may abut the and.
To obtain a P anning Certificate go to Tit es and Property Certificates at Landata - https://www. andata.vic.gov.au

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

To view p anning zones, over ay and heritage information in an interactive format visit
https://mapshare.maps.vic.gov.au/vicp an

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

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 p ants that are indigenous to the region and important for biodiversity might be present on this property. This cou d inc ude trees, shrubs, herbs, grasses or aquatic p ants. There are a range of regu ations that may app y inc uding need to obtain a p anning permit under C ause 52.17 of the oca p anning scheme. For more information see Native Vegetation (C ause 52.17) with oca variations in Native Vegetation (C ause 52.17) Schedu e

To he p identify native vegetation on this property and the app ication of C ause 52.17 p ease visit the Native Vegetation nformation Management system https://nvim.de wp.vic.gov.au/ and Native vegetation (environment.vic.gov.au) or p ease contact your re evant counci .

You can find out more about the natura va ues on your property through NatureKit NatureKit (environment.vic.gov.au)

PROPERTY REPORT

Energy, Environment and Climate Action

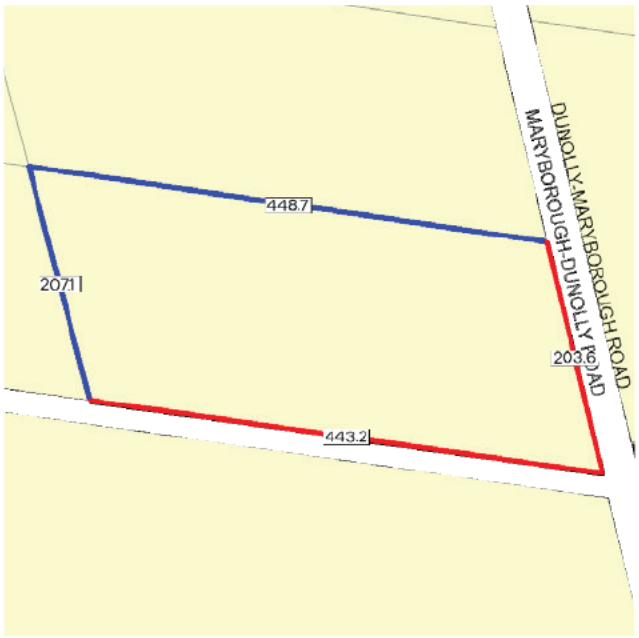
From www.land.vic.gov.au at 29 February 2024 02:49 PM

PROPERTY DETAILS

Address:	**765 MARYBOROUGH-DUNOLLY ROAD HAVELOCK 3465**
Crown Description:	**Allot. 28 Sec. 1A PARISH OF BET BET**
Standard Parce dentifier (SP):	**28~1A\PP2133**
Loca Government Area (Counci):	**CENTRAL GOLDFIELDS** www.centralgoldfields.vic.gov.au
Counci Property Number:	**64030.0765**
Directory Reference:	**Vicroads 43 E9**

SITE DIMENSIONS

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



Area: 84766 sq. m (8.48 ha)
Perimeter: 1303 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.

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 at Title and Property Certificates

UTILITIES

Rura Water Corporation:	**Goulburn-Murray Water**
Urban Water Corporation:	**Central Highlands Water**
Me bourne Water:	**Outside drainage boundary**
Power Distributor:	**POWERCOR**

STATE ELECTORATES

Legis ative Counci :	**WESTERN VICTORIA**
Legis ative Assemb y:	**RIPON**

PLANNING INFORMATION

Property P anning detai s have been removed from the Property Reports to avoid dup ication with the P anning Property Reports from the Department of Transport and P anning which are the authoritative source for a Property P anning information.

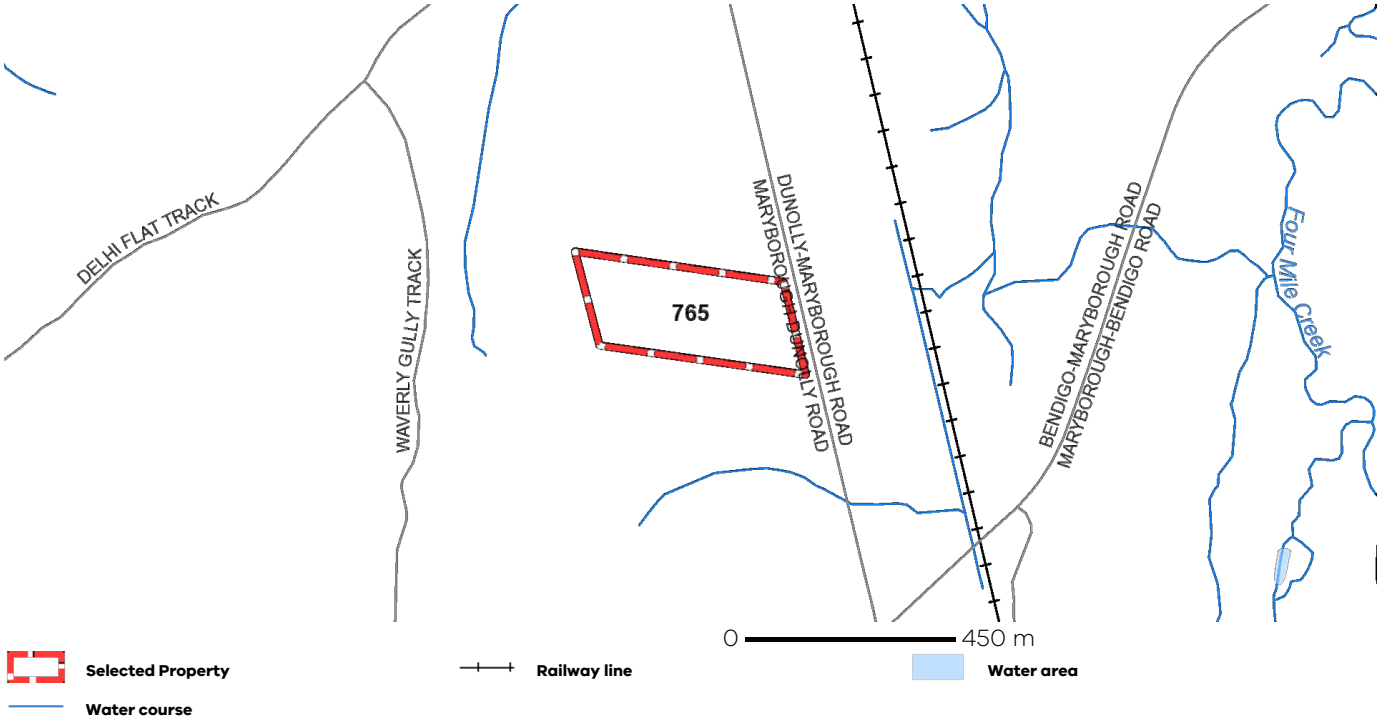
The P anning Property Report for this property can found here - P anning Property Report

P anning Property Reports can be found via these two inks
Vicplan https://mapshare.vic.gov.au/vicp an/
Property and parcel search https://www. and.vic.gov.au/property-and-parce -search

PROPERTY REPORT

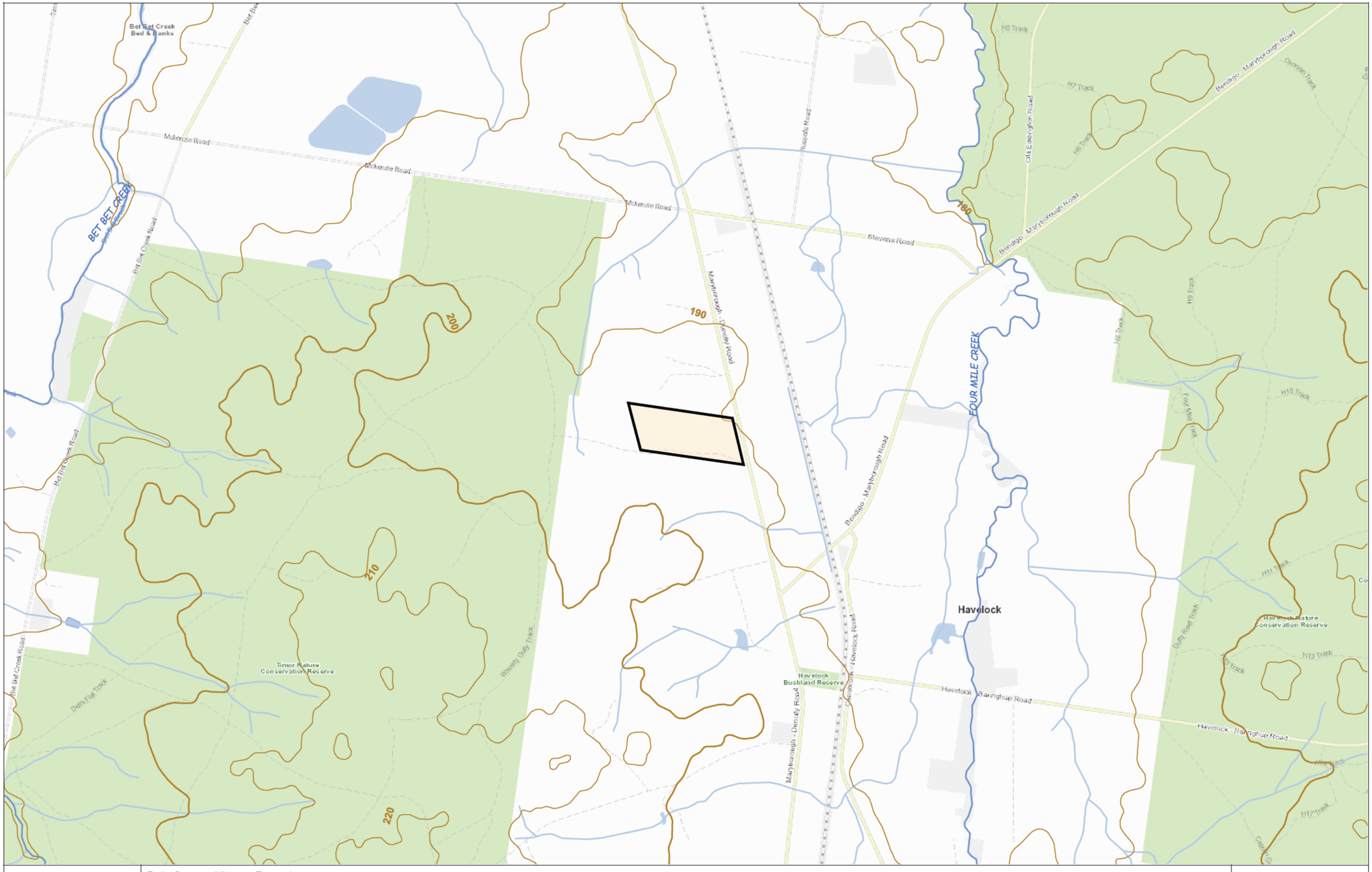
Energy, Environment and Climate Action

Area Map



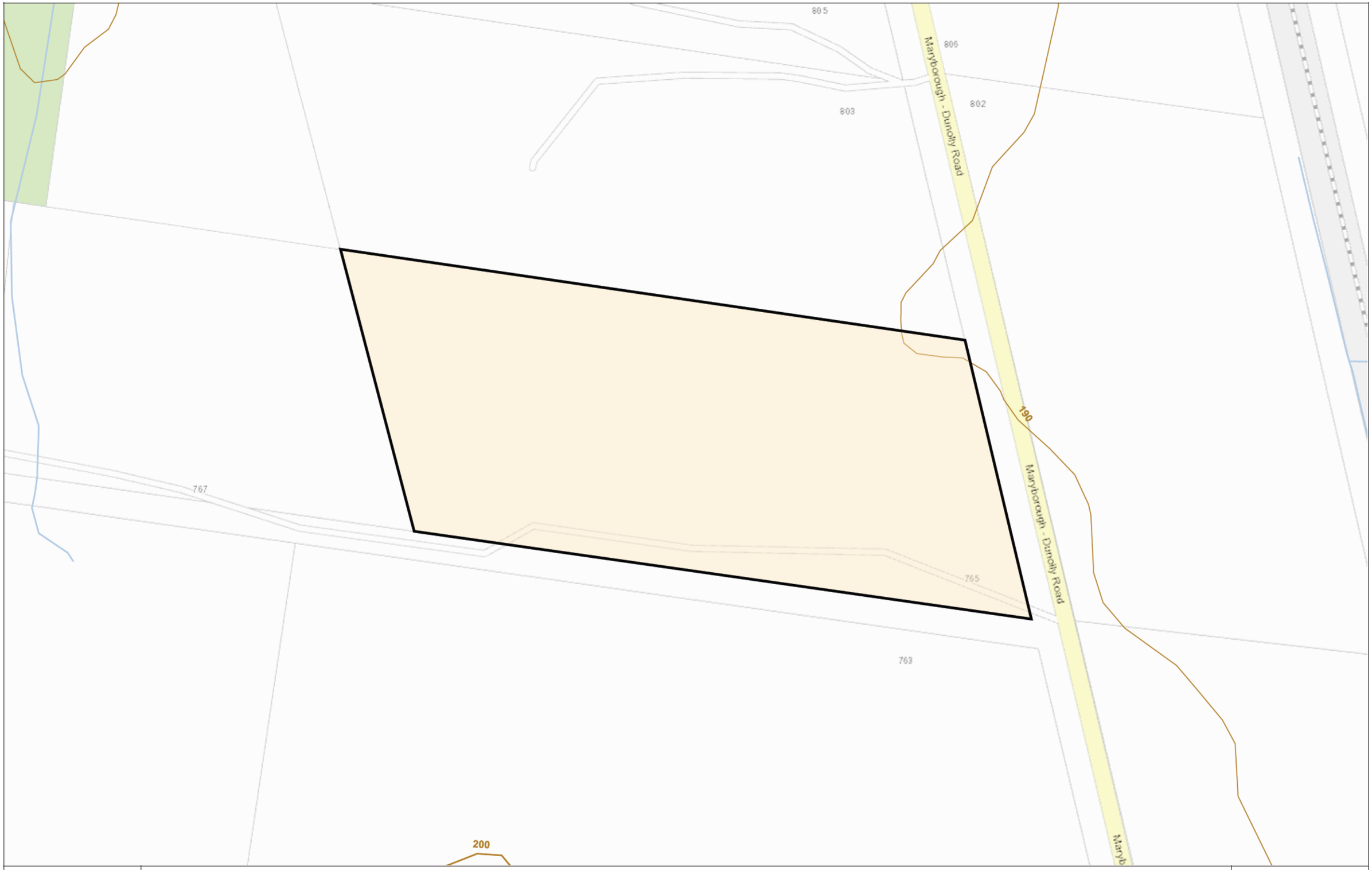
Appendix 2

Site Location Maps & Site Map



Co-ordinates of Plot Corners NW 743363,5908358 SW 743209,5904687 MGA Zone 54	Data Source: Vicmap Property 0 100 200 300 400 500 600 700 800 1000m Scale of Metres (1:15,000)	Co-ordinates of Plot Corners NE 749177,5908113 SE 749023,5904442 MGA Zone 54

MGA Zone 54
Vicroads- 43 E9 (ed.8)
Created 03:05 PM on Apr 24, 2024



Co-ordinates of Plot Corners
NW 745721,5906726
SW 745696,5906114
MGA Zone 54

Data Source: Vicmap Property

0 20 40 60 80 100 120 140 160 180 200m
Scale of Metres (1:2,500)

MGA Zone 54
Vicroads- 43 E9 (ed.8)
Created 03:05 PM on Apr 24, 2024

Co-ordinates of Plot Corners
NE 746690,5906685
SE 746665,5906074
MGA Zone 54

KEY:

PARCEL BOUNDARY
PROPOSED LAA
WATERWAY / DAM
BOREHOLE SAMPLE LOCATION
INFRASTRUCTURE
CONTOUR LINE

GENERAL NOTES:

-THE AERIAL MAP IS PROVIDED FOR ILLUSTRATIVE PURPOSE AND MAY NOT REFLECT CURRENT SITE CONDITIONS

-BOUNDARIES, DIMENSIONS AND AREA SHOWN ON THIS PLAN ARE APPROXIMATE ONLY AND SUBJECT TO SURVEY

REV	REVISION	DATE	CHECKED
A		24-04-2024	DE

edwards environmental
11 MATCHETT DRIVE STRATHDALE, VICTORIA, 3550.
PH: (03) 5406 0522 admin@edwardsenvironmental.com.au

Client: **REBECCA EDWARDS**
Project: #971
Location: 765 MARYBOROUGH-DUNOLLY ROAD, HAVELOCK VICTORIA

Drawing Title: **SITE MAP**
Drawn: LC
Project - Drawing No. #971-01
Date: 24-04-2024
Figure No. 1 Rev. A

Appendix 3

Site Photographs

1. Location of BH02 – looking west

2. Proposed effluent field facing south – current dwelling onsite

3. Proposed effluent field looking North.

4. Location of BH01

5. BH01 – soil sampling

6. BH02 – soil sampling

Appendix 4

Soil Bore Logs

SOIL BORE LOG		FIELD ID: BH01	
Client:	Rebecca Edwards	**Logged by**	Luke Collins
Location:	765 Maryborough-Dunolly Road,	**Drilling Method:**	Direct Push
Date:	19 April 2024	**Bore Diameter:**	50mm
Notes:	Refer to Appendix 2 Site Map for Borehole Locations		

Depth (m)	Sample	Mottles	Coarse Fragments	Description: Structure & Colour Moisture
				SILTY CLAY brown dry
0.25	X	No	No	LIGHT CLAY orange-brown dry, hard
0.5				
0.75				
1.0				
				LIGHT CLAY / extremely weathered bedrock White- yellow Dry, hard
1.25				
1.50				

SOIL BORE LOG		FIELD ID: BH02	
Client:	Rebecca Edwards	**Logged by**	Luke Collins
Location:	765 Maryborough-Dunolly Road,	**Drilling Method:**	Direct Push
Date:	19 April 2024	**Bore Diameter:**	50mm
Notes:	Refer to Appendix 2 Site Map for Borehole Locations		

Depth (m)	Sample	Mottles	Coarse Fragments	Description: Structure & Colour Moisture
				SILTY CLAY brown dry
0.25	X	No	No	LIGHT CLAY orange-brown dry, hard
0.5				
0.75				
1.0				
				LIGHT CLAY / extremely weathered bedrock White- yellow Dry, hard
1.25				
1.50				

Appendix 5

Chain of Custody,

Sample Receipt Advice,

Nata Laboratory Results

Groundswell Laboratories

" A New Force in Analytical Testing"

CERTIFICATE OF ANALYSIS

Client Name :	Edwards Environmental	**Groundswell Batch # :**	GS24258
Client Address :	11 Matchett Drive, East Bendigo VIC	**Project Name :**	Havelock LCA
Client Phone # :		**Project # :**	LCA Suite
Client Mobile # :	0413 066 065	**Date Samples Received :**	26/04/2024
Project Manager :	Dean Edwards	**Sample Matrix :**	Soil
E-mail :	reports@edwardsenvironmental.com.au	**Sample # Submitted :**	2
Project Sample Manager :	Luke Collins	**Groundswell Quote # :**	Not Applicable
E-mail :	admin@edwardsenvironmental.com.au	**Date CofA Issued :**	5/05/2024

[redacted]

Paul Woodward

Managing Director

paul@groundswelllabs.com.au

Reference AF56.Rev4 Date Issued : 19/5/2014

Soil Analysis Results

Client Sample ID			BH01 - Havelock	BH02 - Havelock			
Laboratory Sample Number			GS24258-1	GS24258-2			
Date Sampled			19/04/2024	19/04/2024			
Analytes	**Units**	**LOR**					
pH	pH Units	0.1	6.3	6.0			
Electrical Conductivity @ 25°C	dS/m	0.005	0.266	0.256			
Exchangeable Calcium	mg/Kg	1	397	450			
Exchangeable Magnesium	mg/Kg	1	905	1110			
Exchangeable Potassium	mg/Kg	1	270	317			
Exchangeable Sodium	mg/Kg	1	661	1080			
CEC	MEQ%	0.1	13.0	16.9			
ESP	%	0.1	22.1	27.8			
Sodicity Rating	---	---	Strongly Sodic	Strongly Sodic			
SAR		0.01	0.94	1.39			

Reference AF56.Rev4 Date Issued : 19/5/2014

Comments :

1- pH & electrical conductivity determined & reported on a 1:5 soil:water extraction

2- CEC determined by soil chemical method 15B1 'Exchangeable bases and cation exchange capacity - 1M amonium chloride at pH 7.0, no pre-treatment for soluble salts'

3- ESP, sodicity rating & SAR determined by calculation using the exchangeable cation results

4- Measurement Uncertainty available upon request

Soil Analysis Results

Client Sample ID			BH01 - Havelock	BH01 - Havelock		BH02 - Havelock	BH02 - Havelock
Laboratory Sample Number			GS24258-1	GS24258-1		GS24258-2	GS24258-2
Date Sampled			19/04/2024	19/04/2024		19/04/2024	19/04/2024
Analytes	**Units**	**LOR**					
Sample Type	---	---	Air Dried Aggregates	Re-moulded Ped		Air Dried Aggregates	Re-moulded Ped
Emerson Aggregate Class - 2 Hours	---	---	Slaking / Some Dispersion	Slaking / Some Dispersion		Slaking / Some Dispersion	Slaking / Some Dispersion
Emerson Class Number	---	---	Class 2	Class 2		Class 2	Class 2
Emerson Aggregate Class - 20 Hours	---	---	Slaking / Complete Dispersion	Slaking / Complete Dispersion		Slaking / Complete Dispersion	Slaking / Complete Dispersion
Emerson Class Number	---	---	Class 1	Class 1		Class 1	Class 1
Addition of 1M HCl	---	---	---	---		---	---
1:5 Soil:Water 10 minute extraction	---	---	---	---		---	---
Emerson Class Number	---	---	---	---		---	---

Reference AF56.Rev4 Date Issued : 19/5/2014

Comments :

1- Classification conducted in accordance with Emmerson 'A classification of soil aggregates based on their coherence in water', 1967 & AS1289.C8.1-1980

Inorganics Quality Control Report

Client Sample ID							
Laboratory Sample Number							
QC Parameter			Method Blank		Laboratory Control Standard (LCS)		
			Method Blank	Within GSL Acceptance Criteria (<LOR) (Pass/Fail)	LCS (%R)	LCS (%R) Acceptance Criteria	Within GSL Acceptance Criteria (Pass/Fail)
Analyte	**Units**	**LOR**					
pH	pH units	0.1	NA	NA	6.99	7.00 ± 0.1 pH Unit	Pass
Conductivity	dS/m	0.005	<0.005	Pass	99%	80-120%	Pass
Exchangeable Calcium	mg/Kg	1	<1	Pass	92%	70-130%	Pass
Exchangeable Magnesium	mg/Kg	1	<1	Pass	103%	70-130%	Pass
Exchangeable Potassium	mg/Kg	1	<1	Pass	113%	70-130%	Pass
Exchangeable Sodium	mg/Kg	1	<	Pass	104%	70-130%	Pass
CEC	MEQ%	0.1	NA	NA	NA	NA	NA
ESP	%	0.1	NA	NA	NA	NA	NA
SAR	---	0.01	NA	NA	NA	NA	NA

Reference AF56.Rev4 Date Issued : 3/11/2010

Comments :

1- Exchangeable cations LCS values based on independent water standards

2- NA = Not Applicable

GS24258

Page 1 of 1

CHAIN OF CUSTODY

Reference : AF06.Rev1

Date Issued : 11/3/2011

COC Reference :

Groundswell Laboratories
NATA Accreditation # 17067
116 Moray Street
SOUTH MELBOURNE VIC 3205
Ph (03) 8669 1450
Fax (03) 8669 1451
e-mail : admin@groundswelllabs.com.au

CLIENT / PROJECT DETAILS		Groundswell Quote #:
Company Name : EDWARDS ENVIRONMENTAL		Ph : 0429594020
Company Address : 11 Matchett Drive, East Bendigo Vic		Fax :
Project Manager : Luke Collins	Contact E-mail: admin@edwardsenvironmental.com.au	
Project Name : HAVELOCK LCA.	Project Number :	
Project Sample Manager : Luke Collins		Mobile : 0429594020
TAT : 1day / 2 days / 7 days / Date Required :	Report Format :	

Lab ID	Sample ID	Sample Date	Sample Type: Soil	Water	Paint, Filter	Other	# Sample Jars / Bottles	Volatile Organic Analytes: vTPH C6-9	BTEX	VOC	VHC	VAC	Semi-Volatile Organic Analytes: svTPH C10-36	SVOC	PAH / Phenols	OCP / OPP / PCB	SVCHC	Metals*: Soil	Water - Filtered	Water - Total	IWRG 621 Screen	SA Waste Screen	Other Analytes: LCA Screen	Comments
GS24258-1	SHOT HAVELOCK.	19.4.24	✓																				✓	
-2	SHOT-HAVELOCK	"	✓																				✓	

*Metals (circle) : As, Cd, Cr, Cu, Ni, Pb, Zn, Hg (M8) Ag, Mo, Se, Sn, CrVI (EPA 448.3 Metals), Mn, Ca, K, Mg, Na, Be, B, Co, V, Fe

VOC=Volatile Organic Compounds (USEPA 8260) VHC=Volatile Halogenated Compounds VAC=Volatile Aromatic Compounds SVOC=Semi-volatile Organic Compounds (USEPA 8270)

Comments : [redacted]

Relinquished By : Luke Coll	ate / Time: 19-4-24	Received By : P. McLeod	Date / Time : 26/4/24
Relinquished By :	ate / Time :	Received By :	Date / Time :

Appendix 6

Irrigation Sizing Calculations

Victorian Land Capability Assessment Framework

Trench & Bed Sizing

FORMULA FOR TRENCH AND BED SIZING			
L = Q/DLR x W			From AS/NZS 1547:2012
Where:	Units		
L = Trench or bed length	m		Total trench or bed length required
Q = Design Wastewater Flow	L/day		Based on maximum potential occupancy and derived from Table 4 in the EPA Code of Practice (2013)
DLR = Design Loading Rate	mm/day		Based on soil texture class/permeability and derived from Table 9 in the EPA Code of Practice (2013)
W = Trench or bed width	m		As selected by designer/installer

INPUT DATA				
Design Wastewater Flow	Q	750	L/day	Based on maximum potential occupancy and derived from Table 4 in the EPA Code of Practice (2013
Design Loading Rate	DLR	5.0	mm/day	Based on soil texture class/permeability and derived from Table 9 in the EPA Code of Practice (2013)
Trench basal area required	B	150.0	m^2	
Selected trench or bed width	W	1.0	m	As selected by designer/installer

OUTPUT			
Required trench or bed length	L	150.0	m

CELLS

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

Appendix 7

Glossary

SELECTED GLOSSARY *(Source: EPA 891.4, July 2016)*	
Term	**Meaning**
Absorption trench system	The area of land utilised for the disposal of partially treated sewage to ground via a soil absorption trench. The base of the trench is typically dug 400 mm below the ground surface. The trench is built or filled in to a height of 250 mm and then a layer of 150 mm of native soil is backfilled on top to bring the soil up to the original ground level. The trench location and design will include setback distances from existing and proposed buildings, patios, drains, driveways, fences etc.
Aerobic	Organisms and processes that require oxygen (i.e. microbiological digestion and assimilation of organic matter by using oxygen).
Anaerobic	Living or occurring without oxygen (i.e. microbiological digestion and assimilation of organic matter in the absence of oxygen).
Biochemical Oxygen Demand (BOD_5)	The amount of oxygen consumed by chemical processes and micro-organisms to break down organic matter in water over a 5-day period, measured in milligrams per litre (mg/L).
Blackwater	Wastewater from toilets containing faeces and urine.
Declared Water Supply Protection Area	Applicable to groundwater as defined in section 27 of the Water Act (as amended).
Design Loading Rate	The long-term acceptance rate (LTAR) expressed in Litres/m^2/day or mm/day as applied to a land-application area.
Desludging (pump-out)	The removal of biological sludge and inert sediment from a septic tank, including the surface crust (scum) material. A pump-out should not drain tanks dry, because some residual sewage is needed to provide a seed source of digesting microorganisms.
Dispersal field	The distribution of treated effluent through the biologically-active topsoil layer.
Disposal field	The area of land utilised for the disposal of partially treated sewage to ground via a soil absorption trench
Drinking water	Water suitable for human consumption or for purposes connected with human consumption, such as preparation of food or making ice for consumption or for the preservation of unpackaged food.
E. coli	Escherichia coli: a species of bacteria in the faecal coliform group found in large numbers in the intestines of animals and humans. Its presence in freshwater indicates recent faecal contamination and is measured in 'colony-forming units' (cfu) per 100 mL of water.
Evapo-transpiration	Transfer of water from the soil to the atmosphere through evaporation and plant transpiration.
Greywater	Domestic wastewater from sources other than the toilet, urinal or bidet (e.g. from showers, baths, spas, hand basins, clothes washing machines, laundry troughs, dishwashers and kitchen sinks).
Groundwater	All underground water contained in the void spaces within and between the rocks and soil, excluding water travelling between the ground surface and the water table (Oxford Dictionary of Earth Sciences).
Infiltration	The gradual movement of water into the pore spaces between soil particles.
Irrigation	The artificial supply of water to land and vegetation.
LPED irrigation	Shallow sub-surface irrigation of primary or secondary effluent into high quality loamy topsoil through low pressure effluent distribution (LPED) lines. The pressurised line is a twin construction consisting of a perforated pipe with drilled squirt holes inside a rigid slotted PVC pipe or aggie pipe.
Micro-organism	An organism that is invisible or barely visible to the unaided eye (e.g. bacteria, viruses, protozoa).
Nutrients	Organic and inorganic substances used in an organism's metabolism which must be taken in from the environment (e.g. carbohydrates, fats, such as proteins and vitamins). Nutrients are molecules that include elements such as carbon, nitrogen, phosphorus, potassium, calcium, magnesium and a range of trace elements.
Onsite wastewater management system	Onsite wastewater management system. It is the same as a 'septic tank system' as defined in the Environment Protection Act,1970. It includes an onsite wastewater treatment system (primary or secondary standard) plus the subsequent disposal/recycling system.

SELECTED GLOSSARY *(Source: EPA 891.4, July 2016)*	
Term	**Meaning**
Onsite wastewater treatment system	A treatment system that treats up to 5,000 L/day of wastewater on the allotment where it was generated
Pathogen	A disease-causing micro-organism.
Permeability	The ability of water to move, through soil which depends upon the soil particle sizes, pore space sizes, soil texture, soil structure and water content.
Pollution	Any harmful or undesirable change in the physical, chemical or biological quality of air, water or soil as a result of the release of chemicals, heat, radioactivity or organic matter.
Potable water supply catchment	An area declared as a Special Water Supply Catchment under Schedule 5 of the Catchment and Land Protection Act 1994 and used as a source of drinking water by a Water Corporations.
Primary treatment of wastewater	The physical processes of screening, filtration, sedimentation, flocculation and flotation to remove organic and inorganic matter from wastewater.
Recycling	Using treated wastewater for an appropriate use (e.g. 10/10/10 greywater used for toilet flushing or 20/30 effluent used for sub-surface irrigation).
Reserve area	A duplicate land disposal area reserved for use when the original land disposal area needs to be rested.
Reuse	Using a waste product in its present form for another purpose, e.g. diverting (reusing) untreated greywater to water the garden.
SAR	see Sodium Adsorption Ratio.
Scum	Material that floats on top of the liquid in an anaerobic sewage treatment tank (i.e. septic tank).
Septic tank	A tank that temporarily holds wastewater. In a septic tank, wastewater is primarily treated through filtration, sedimentation, flocculation and flotation to remove organic and inorganic matter from wastewater in combination with anaerobic microbiological digestion.
Sewage	As defined within the Environment Protection Act 1970 (section 53J) "means any waste containing human excreta or domestic wastewater".
Sludge	The material that rests on the bottom of a septic tank. It can include inert matter (such as sand, glass and plastics) and biosolids (organic material produced by biological processes).
Soil Absorption Trench	An infiltration or soak-away trench installed generally at a depth of 300 to 600 mm below ground level, which facilitates the disposal of primary treated sewage.
Special Water Supply Catchment	One of the areas listed in Schedule 5 of the Catchment and Land Protection Act 1994.
STEP/STEG	Septic Tank Effluent Pump/Septic Tank Effluent Gravity: an effluent sewer system utilising both gravity and pumps to discharge effluent from septic tanks to a reticulated sewer system.
Sullage	Household greywater that does not contain human excreta, but may still contain pathogens, nutrients and potentially harmful chemicals.
Suspended solids (SS)	A measure of the solids in water, expressed in milligrams per litre (mg/L).
Sustainable	Able to continue indefinitely without any significant negative impact on the environment or its inhabitants.
Treatment	A process or series of processes that remove contaminants from wastewater, whereby the physical, chemical and biological characteristics of wastewater are altered.
Topsoil	The top layer of the soil, typically containing plant roots, organic material and an active microbiological ecosystem, which is usually more fertile than the underlying layers.
Total suspended solids (TSS)	A measure of the solids in water, expresses in milligrams per litre (mg/L).
Turbidity	The cloudy appearance of water that is an indication of fine solids suspended in the water, measured by a light penetration test and expressed in nephelometric turbidity units (NTU).
Unsewered area	Land where no sewer pipes are adjacent to the allotment boundaries.
Urine-diversion toilet (UDT)	A toilet bowl designed to separate urine from solid excrement. The UDT may be attached to a dry composting toilet chamber or a water-flush blackwater treatment system or sewer system. A 'dam' wall, which extends between the two side of the toilet bowl, creates a front and back well from which the excrement drains or is flushed away.
Watertable	The upper surface of groundwater or the level below which an unconfined aquifer is permanently saturated with water.
Waterway	As defined by the Water Act 1989 (as amended):
WELS	Water Efficiency Labelling and Standards scheme www.waterrating.gov.au

Appendix 8

EPA 891.4 – **Application Process**

Factors to Consider

Set back Distances

Soil Categories and Recommended Maximum Design Loading/Irrigation Rates (DLR/DIR) for Land Irrigation Systems

Septic tanks

COUNCIL SEPTIC TANK PERMIT APPLICATION PROCESS	
(Source: EPA Code of Practice – Onsite Wastewater Management (Appendix B))	
Overview of the main steps in applying for a Council Septic Tank Permit:	
1.	The property owner contacts the local *Council Planning Department* to determine whether a Planning Permit is required or whether planning conditions apply.
2.	The property owner contacts the local **Council Environmental Health Unit** to collect a **Septic Tank Permit application form**, to determine which documents are required to accompany the application form and what level of detail is required for the land capability assessment (if applicable).
3.	The property owner engages a land capability assessor, wastewater consultant and/or plumber to carry out the required investigations and write a report which will include maps and plans.
4.	The property owner applies for their **Planning Permit**.
5.	The property owner engages a land capability assessor (where applicable) to undertake the land capability assessment (LCA) and create a report for Council. The completed Septic Tank Permit, **LCA report**, any other required documents and the prescribed fee can be submitted to the Environmental Health Unit by the owner, builder or plumber.
6.	The Planning Department refers the Planning Permit application to the relevant Water Corporations, the Environmental Health Unit and other agencies as required under the Planning and Environment Act.
7.	Where the Planning Permit application is satisfactory the Planning Department issues the property owner with a Planning Permit, with the condition that the property owner must apply for a Septic Tank Permit.
8.	**The Planning Permit and LCA report are attached to the Septic Tank Permit application to ensure that all conditions on the Planning Permit are included in the Septic Tank Permit.**
9.	When the Environmental Health Unit is satisfied the application meets all requirements it issues a Septic Tank Permit to Install or Septic Tank Permit to Alter.
10.	When the treatment system and indoor recycling and/or land application system are installed but not buried, **the installer contacts Council to arrange an inspection of the installation.**
11.	When the Council Environmental Health Unit has received:
a.	the **Plumbing Compliance Certificate**
b.	the **'As Laid Plan'**, and
c.	**the commissioning form** from the plumber and is satisfied the system is installed correctly in accordance with the manufacturer's **Installation Manual** and the **Council Permit to Install/Alter**, Council issues a ***Certificate to Use*** to the property owner.

USEFUL FACTORS TO CONSIDER WHEN SELECTING AN EPA-APPROVED ONSITE WASTEWATER TREATMENT SYSTEM
(Source: EPA Code of Practice – Onsite Wastewater Management (Appendix C))
Physical features
Dimensions of the treatment plant
Location of treatment unit – above-ground or below-ground
Number and power of pumps, aerators and other electrical components
Size of effluent storage tank
Type of treatment processes
Type of disinfection used if applicable
Chemicals used
Capital and installation costs
Council Permits – e.g. Permit to Install, Permit to Alter and Certificate to Use
Capital and delivery charge for the treatment system components including the septic tank, sump and sump pump (if applicable) and effluent storage tank
Cost of manoeuvring the treatment unit into the back yard (i.e. is vehicular access or is a crane required or can it be carried by several people?)
Cost of digging the hole and removing the debris (if applicable)
Concrete pad (if required)
Cost of electrician's work to lay power cords to connect the treatment plant to the house, including a dedicated weather-proof power point and any modifications required to the switch board)
For greywater systems – cost of internal plumbing for toilet flushing, washing machine, backflow prevention device and automatic diversion valve to sewer
Cost of the plumber/drainer digging trenches and laying pipes to connect the treatment system to the house
Cost of land application/irrigation system including ancillary equipment (e.g. effluent pump, disc or mesh filter, vacuum breakers, scour valves, soil moisture sensors or rain gauges)
Cost of the audio-visual alarm system and/or remote monitoring system
Performance
Minimum and maximum daily volumes that can be effectively treated
Effluent quality (primary, secondary 10/10/10, 10/10, 20/30/10 or 20/30)
Commissioning time to achieve approved effluent quality
Total pump run time per day
How does the system cope with: large shock loads or surge flows? toxic substances like bleach, oil, paint thinners etc.? 24-hour power failure? 72-hour power failure? being switched off for 1 week, 1 month, 3 months? no inflow for 1 week, 1 month, 3 months?
kWh of electricity per kilogram of BOD removed
Estimated lifetime of the treatment systems and its component parts
Sustainability features of the treatment system
Maintenance
Desludging frequency or what is the fate of the biosolids?
Number of service visits per year
Number of hours of maintenance per year
Expected maintenance tasks during each service call
Qualifications and training of service technicians
Ongoing costs
Electricity usage per day; electricity cost per kL of wastewater; electricity cost per year
Service fees per year (labour and travel costs)
Annual cost of chemicals used
Annual cost of replacing the UV lamp, membranes
Annual cost of testing any backflow prevention devices
Average annual cost of consumables, spare parts, pumps and desludging per year (annualised over 30 years)
Annual effluent monitoring cost
Cost of desludging the system every 3 to 5 years
Total annual cost to run the treatment plant (including annualised spare parts and desludging)

SETBACK DISTANCES FOR PRIMARY & SECONDARY TREATMENT PLANTS & EFFLUENT DISPOSAL/IRRIGATION AREAS IN SEWERED & UNSEWERED AREAS (WHERE APPLICABLE) *(Source: EPA Code of Practice – Onsite Wastewater Management (Table 5))*			
Landscape Feature or Structure	**Setback distances (m)**		
	Primary Sewage & Greywater Systems	**Secondary Sewage & Greywater Systems**	**Advanced Sewage & Greywater Systems**
Building			
Wastewater field up-slope of building[7]	6	3	3
Wastewater field down-slope of building	3	1.5	1.5
Wastewater field 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 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
Stormwqter 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 watertable[18]	NA	1.5	1.5

NOTES: SETBACK DISTANCES FOR PRIMARY & SECONDARY TREATMENT PLANTS & EFFLUENT DISPOSAL/IRRIGATION AREAS IN SEWERED & UNSEWERED AREAS (WHERE APPLICABLE)

(Source: EPA Code of Practice – Onsite Wastewater Management (Table 5))

1. Distances must be measured horizontally from the external wall of the treatment system and the boundary of the disposal/irrigation area, except for the 'Watertable' category which is measured vertically through the soil profile. For surface waters, the measuring point shall be from the 'bank-full level'.
2. Primary water-based sewerage systems must only be installed in unsewered areas; secondary sewerage systems must only be installed and managed in sewered areas by Water Corporations; secondary greywater systems can be installed in sewered and unsewered areas (see Section 3.12.3).
3. Advanced secondary greywater systems treating effluent to =10/10/10 standard.
4. The setback distance in a Special Water Supply Catchment area may be reduced by up to a maximum of 50% conditional on the following requirements (otherwise the setback distances for primary treatment systems apply):
   - effluent is secondary treated to 20/30 standard as a minimum
   - a maintenance and service contract, with a service technician accredited by the manufacturer, is in place to ensure the system is regularly serviced in accordance with Council Septic Tank Permit conditions and
   - Council is satisfied the reduction in set-back distance is necessary to permit the appropriate development of the site and that risks to public health and the environment are minimised.
5. Effluent typically contains high levels of nutrients that may have a negative impact on native vegetation and promote the growth of weeds. When determining setbacks, Council should consider not only the potential impact of nutrients from the proposed onsite wastewater management system, but the cumulative impact of the existing onsite wastewater management systems in the area.
6. Establishing an effluent disposal/irrigation area upslope of a building may have implications for the structural integrity of the building. This issue is beyond the scope of this Code and should be examined by a building professional on a site-by-site
   basis.
7. Does not apply to dams, lakes and reservoirs located above ground-level which cannot receive run-off.
8. Means a waterway as defined in the Water Act 1989.
9. The setback distances for flat land are equivalent to 'down-slope' setback distances.
10. See Table 9 for other land application options for Category 1 and 2a soils.
11. A cutting or escarpment from which water is likely to emanate.
12. Applies to land, adjacent to a dam, lake, reservoir or waterway that provides water for a public potable water supply, which is:
    a. subject to a Planning Scheme Environmental Significant Overlay (ESO) that designates maintenance of water quality as the environmental objective to be achieved (contact the relevant Water Authority to determine whether the ESO is in a potable water supply catchment) and/or
    b. within a Special Water Supply Catchment Area listed in Schedule 5 of the Catchment and Land Protection Act 1994.
14. It is recommended that any primary or secondary treatment system and its associated land application system are installed downslope of an in-ground water tank.
15. Means a school, council, community or other children's grassed playground managed by an organisation which may contain play equipment (but does not mean a sports field).
16. Sub-surface irrigation only.
17. Where an intermittent stream on a topographic or orthographic map is found through ground-truthing to be a drainage line (drainage depression) with no defined banks and the bed is not incised, the setback distance is 40 m (SCA 2010). The topography of the drainage line must be visually inspected and photographed during the LCA site inspection and reported upon in writing and photographs in the LCA report.
18. The highest seasonal watertable occurs when the watertable has risen up through the soil profile and is closest to the ground surface. This usually occurs in the wettest months of the year.
19. The setback distance to a groundwater bore in Category 1 and 2a soils can be reduced to 20 m where treated and disinfected greywater or sewage (20/30/10 or better standard) is applied and the property owner has a service contract with an appropriately qualified technician to regularly maintain the treatment system.
20. See Section 3.9 of EPA 891.4 for more details on setback distances from treatment tanks and land application areas.

SOIL CATEGORIES AND RECOMMENDED MAXIMUM DESIGN LOADING/IRRIGATION RATES (DLR/DIR) FOR LAND APPLICATION SYSTEMS

(Source: EPA Code of Practice – Onsite Wastewater Management (Table 9))

Soil Texture	Soil Structure	Soil Category	Indicative permeability (Ksat) (m/d)	Design Loading Rates and Design Irrigation Rates (DLR / DIR) (mm/day)					
				Absorption trenches/beds and Wick Trench & Bed Systems 6 for primary effluent (see Table L1 in AS/NZS 1547:2012)	(ETA) Evapotranspiration absorption beds and trenches (see Table L1 in AS/NZS 1547: 2012)	Secondary treated effluent applied to Wick Trench & Bed System 4	Sub-surface and surface irrigation (see Table M1 in AS/NZS 1547: 2012)	LPED (see Table M1 in AS/NZS 1547: 2012)	Mounds (basal area) (see Table N1 in AS/NZS 1547: 2012)
Gravels and sands	Structureless (massive)	1	>3.0	NA[3]	NA[3]	25	5 [6] (see Note 2 in Table M1)	NA[3]	24
Sandy loams	Weakly structured	2a	>3.0						24
	Massive	2b	1.4 - 3.0	15	15	30		4	24
Loams	High / moderate structured	3a	1.5 – 3.0	15	15	30	4 (see Note 1 in Table M1)	3.5	24
	Weakly structured or massive	3b	0.5 – 1.5	10	10	30			16
Clay loams	High / moderate structured	4a	0.5 – 1.5	10	12	30	3.5 (see Note 1 in Table M1)	3	16
	Weakly structured	4b	0.12 – 0.5	6	8	20			8
	Massive	4c	0.06 – 0.12	4	5	10			5(see Note 1 in Table N1)
Light clays	Strongly structured	5a	0.12 – 0.5	5	8	12	3 (see Note 1 in Table M1)	2.5 (see Note 4 in Table M1)	8
	Moderately structured	5b	0.06 – 0.12	(see Notes 2 and 3 in Table L1)	5 (see Notes 2 and 3 in Table L1)	10			5
	Weakly structured or massive	5c	<0.06			8			
Medium to heavy clays	Strongly structured	6a	0.06 – 0.5			5 (see Note 2 in Table M1)	2 (see Note 1 in Table M1)	NA	
	Moderately structured	6b	<0.06						
	Weakly structured or massive	6c	<0.06						

Notes:

1. Adapted from Australian Standard AS/NZS 1547: 2012 – On-site domestic wastewater management.
2. The DIR and DLR are recommended maximum application rates for treated effluent. A water balance may indicate that a reduced application rate is required for a specific site.
3. The exception is where the soil does not have a high perched or high seasonal (winter) watertable (see AS/NZS 1547).
4. See Appendix E for design, installation and maintenance details.
5. Lower application rates may be required for reduced soil permeability in sodic and dispersive soils, soils with a perched or seasonally high watertable or soils with a limiting layer.
6. The application rate may be increased in sandy soils with a high watertable where an advanced secondary treatment system with disinfection replaces a primary treatment system on an existing lot that is too small to accommodate the maximum DIR for category 1 to 2b soils.

SEPTIC TANKS

(Source: EPA Code of Practice – Onsite Wastewater Management (Appendix D: Septic Tanks))

Commissioning

After installation or desludging, and before use, a septic tank must be two-thirds filled with clean water to:

- provide ballast in the tank to prevent groundwater lifting the tank out of the ground
- reduce odours
- enable any subsequent secondary treatment plant to be switched on, commissioned and used immediately.

When domestic wastewater from the dwelling flows into the septic tank it contains sufficient microbiological organisms to start and continue the treatment process. There is no need to 'feed' or dose a new or desludged septic tank with starter material or micro-organisms. If odour occurs after the commissioning of a system, a cup of garden lime can be flushed down the toilet each day until the odour disappears. If the odour persists, the property should seek professional advice from a
plumber.

Sludge and scum

As organic matter from the wastewater and inert material, such as sand, settle to the bottom of the tank a layer of sludge forms. This layer contains an active ecosystem of mainly anaerobic micro-organisms which digest the organic matter and reduce the volume of sludge. Scum forms as a mixture of fats, oils, grease and other light material floats on top of the clarified liquid that has separated from the solids. When the clarified liquid flows out of the septic tank it is called 'primary treated effluent'.

It is not necessary or recommended that householders pour commercial products that are reputed to dissolve sludge build-up, down the toilet or sink. A teaspoon of granulated yeast flushed down the toilet once a fortnight may assist with microbial activity, though such a procedure is not an alternative to regular sludge and scum pump-out (Lord 1989).

Desludging septic tanks

Over time, the sludge and scum layers build up and need to be removed for the tank to function properly. The level of solids accumulation in the tank cannot be accurately predicted, and will depend on the waste load to the tank. Therefore, the sludge and scum depth should be checked annually by a contractor. If a septic tank is under a maintenance contract, regular assessment (every 1 to 3 years) of the sludge and scum layers must be part of the maintenance agreement.

The sludge and scum need to be pumped-out with a vacuum suction system when their combined thickness equals 50% of the operational depth of the tank. The frequency of pump-out depends on:

- whether the tank is an adequate size for the daily wastewater flow
- the composition of the household and personal care products
- the amount of organic matter, fat, oil and grease washed down the sinks
- the use of harsh chemicals such as degreasers
- overuse of disinfectants and bleaches
- the use of antibiotics and other drugs, especially dialysis and chemotherapy drugs
- whether any plastic or other non-organic items are flushed into the tank.

A well-functioning septic tank – one that is not overloaded with liquid, organic matter or synthetic material – typically only needs to be desludged once every 3 to 8 years (depending on the size of the tank). A septic tank connected to a home with a frequently used dishwasher will need to be pumped out more frequently (typically every 3 to 4 years) than a home with no dishwasher connected (typically every 5 to 6 years). A holiday home will need to be pumped out less frequently. Large (6,000 L) domestic septic tanks which are common in New Zealand and the USA and have started to be installed in Victoria, have been proven to require desludging only once every 10 to 15 years (Bounds, 1994).

After pump-out, tanks must not be washed out or disinfected. They should be refilled with water to reduce odours and ensure stability of plumbing fixtures. A small residue of sludge will always remain and will assist in the immediate re-establishment
of bacterial action in the tank.

Householders should keep a record of their septic tank pump-outs and notify the local Council that a pump-out was undertaken in accordance with the Council Permit.

Septic tank failure

It is critical that a septic tank is not used as a rubbish receptacle. Septic tanks are designed solely for the treatment of water and organic materials. Items such as sanitary napkins, tampons, disposable nappies, cotton buds, condoms, plastic bags, stockings, clothing and plastic bottles will cause the septic tank to fail and require costly removal of these items. If a tank is contaminated or poisoned by household materials it should be pumped out immediately to enable the microbiological ecosystem to re-start. Without the removal of the scum and sludge, sewage biosolids will increasingly be discharged into the soil absorption
trenches and will eventually cause them to fail. This can force untreated sewage onto the ground surface and cause:

- noxious odours
- a boggy backyard
- a health hazard to the family, pets, visitors and neighbours from the pathogens in the sewage
- environmental degradation of the property, surrounding area and waterways from the nutrients, organic matter and
- other pollutants in the discoloured water, and
- a public health risk to drinking water supplies in potable water supply catchments.

Positive actions a property owner can take to help a septic tank function well:

- Use soapy water (made from natural unscented soap), vinegar and water or bi-carbonate of soda and water to clean toilets and other water fixtures and fittings.

SEPTIC TANKS

(Source: EPA Code of Practice – Onsite Wastewater Management (Appendix D: Septic Tanks))

- Read labels to learn which bathroom and laundry products are suitable for septic tanks. Generally plain, noncoloured, unscented and unbleached products will contribute to a well-functioning septic tank.
- Use detergents with low levels of salts (e.g. liquid detergents), sodium absorption ratio, phosphorus and chlorine (see www.lanfaxlabs.com.au).
- Wipe oils and fats off plates and saucepans with a paper towel and dispose of in the kitchen compost bin.
- Use a sink strainer to restrict food scraps entering the septic system.
- Ensure no structures such as pavements, driveways, patios, sheds or playgrounds are constructed over the tank or absorption trench area.
- Ensure the absorption trench area is not disturbed by vehicles or machinery.
- Engage a service technician to check the sludge and scum levels, pumps and alarms annually.
- Keep a record of the location of the tank and the trenches and all maintenance reports (including the dates of tank pump-outs, tank inspections and access openings) and ensure the service technician sends a copy of the maintenance report to the local Council
- Have the tank desludged when the combined depth of the scum and sludge is equal to the depth of the middle clarified layer.

Indications of failing septic tanks and soil absorption trenches

- Seepage along effluent absorption trench lines in the soil
- Lush green growth down-slope of the soil absorption trench lines
- Lush green growth down-slope of the septic tank
- Inspection pits and/or the soil absorption trenches consistently exhibiting high water levels
- Soil absorption trench lines become waterlogged after storms
- General waterlogging around the land disposal area
- Presence of dead and dying vegetation (often native vegetation) around and down-slope of the land disposal areas
- A noxious odour near the tank and the land disposal area
- Blocked water fixtures inside the house, with sewage overflowing from the relief point
- High sludge levels within the primary tank (within about 150 mm of inlet pipe)
- Flow obstructed and not able to pass the baffle in the tank
- The scum layer blocking the effluent outflow.

Decommissioning treatment systems

Septic tanks

When a septic tank is no longer required it may be removed, rendered unusable or reused to store stormwater. The contents of the tank must first be pumped out by a sewage sludge contractor. The contractor must also hose down all inside surfaces of the tank and extract the resultant wastewater. Where the tank will no longer be used but will remain in the ground, the contractor must first disinfect the tank by spreading (broadcasting) hydrated lime over all internal surfaces in accordance with the WorkSafe safety precautions associated with using lime (i.e. wearing gloves, safety goggles and not using lime on a windy day).

Under no circumstances should anyone enter the tank to spread the lime or for any other reason, as vapours in confined spaces can be toxic.

A licensed plumbing practitioner must disconnect the tank from the premises and from the absorption trench system. The inlet and outlet pipes on the tank must be permanently sealed or plugged. To demolish a tank, the bottom of the tank is broken and then the lid and those parts of the walls that are above ground are collapsed into the tank. The tank is then filled with clean earth or sand.

Before a tank may be used to store stormwater a licensed plumbing practitioner must disconnect it from the premises and the trench system and connect an overflow pipe from the tank to the stormwater legal point of discharge. Before disinfecting the tank, it must be pumped out, the inside walls hosed down and then pumped out again. The tank is to be filled with fresh water and disinfected, generally with 100 mg/L of pool chlorine (calcium hypochlorite or sodium hypochlorite) to provide a resultant minimum 5 mg/L of free residual chlorine after a contact time of 30 minutes. However, advice should be obtained from a chemical supplier about safety precautions, dosage and concentrations to provide adequate disinfection for any tank. The chlorine is not to be neutralised, but be allowed to dissipate naturally for at least 1 week, during which time the water must not be used. Pumps may be installed to connect the tank to the irrigation system. The contents of the tank must not be used for any internal household purposes or to top-up a swimming pool. The water may only be used for garden irrigation. The tank and associated irrigation system must be labelled to indicate the water is unfit for human consumption in accordance with AS/NZS 3500: Plumbing and Drainage (Blue Mountains City Council 2008).

Secondary treatment systems

All treatment systems must be decommissioned by a licensed plumbing practitioner.

Appendix 9

Suitable Plants

SUITABLE INDIGENOUS PLANTS AND GRASSES *(Source: City of Greater Bendigo)*	
Botanical Name	**Common Name**
Large Shrubs	
Acacia dealbata*	Silver Wattle
Acacia mearnii*	Late Black Wattle
Acacia melanoxylon*	Blackwood
Acacia retinodes	Wirilda
Callistemon sieberi	River Bottlebrush
Dodonaea viscosa	Sticky Hop Bush
Hymenanthera dentata	Tree Violet
Melaleuca decussata	Totem Poles
Melaleuca lanceolata	Moonah
Melaleuca parvistamina*	Rough-barked Honey-myrtle
Melaleuca uncinata	Broom Honey-myrtle
Melaleuca wilsonii	Violet Honey-myrtle
Small Shrubs	
Indigofera australis	Austral Indigo
Goodenia varia	Sticky Goodenia
Grasses, Sedges and Rushes	
Carex appressa	Tall Sedge
Carex tereticaulis	Basket Sedge
Dianella longifolia	Smooth Flax-lily
Dianella revoluta	Black-anther Flax-lily
Eleocharis acuta	Common Spike-rush
Juncus pallidus	Pale Rush
Lomandra longifolia	Spiny-headed Mat-rush
Microlaena stipoides	Weeping Grass
Poa labillardierei	Common Tussock-grass

PLANTS AND GRASSESS *(Source: EPA Code of Practice – Septic Tanks (1996))*	
Botanical Name	**Common Name**
Phragmites australis	---
Canna x generalis	Canna Lily, Calla Lily, ginger Lily
Acacia Howittii	Sticky Wattle
Callistemon citrinus	Crimson Bottlebrush
Callistemon macropunctatus	Scarlet Bottlebrush
Leptospermum lanigerum	Wooley Tea - tree
Melaleuca decussata	Cross-leaf Honey Myrtle
Melaleuca ericifolia	Swamp Paperbark
Melaleuca halmaturorum	Salt paperbark
Tamarix juniperina	Flowering Tamarisk
Eleocharis acuta	Cannas
	Common spike rush
	Buffalo
	Kikuyu
	Geranium
	Hydrangeas
	Tall wheat grass
	Strawberry clover
	White clover

Appendix 10

Use of Lime or Gypsum

USE OF LIME OR GYPSUM (Source: *Soils their properties and management (1994) & AS/NZS1547:2012.*)

Indications

Calcium compounds are used to improve soil structure.

Gypsum is effective at any soil pH < 8 but lime is preferred for soils with pH <5.5 as lime has additional benefits for plant growth.

Lime should not be used with soils of pH >6 as it is no longer soluble (making it ineffective).

Gypsum

A naturally occurring hydrated from of calcium sulphate: $CaSO_4 2H_2O$. It is also available as 'dump gypsum', a by-product of the manufacture of phosphoric acid.

Application rates of up to **5 tonne/hectare = 5kg/10 m² = 0.5kg/1 m²**. Ensure the product has been tested for flocculating potential as quality varies.

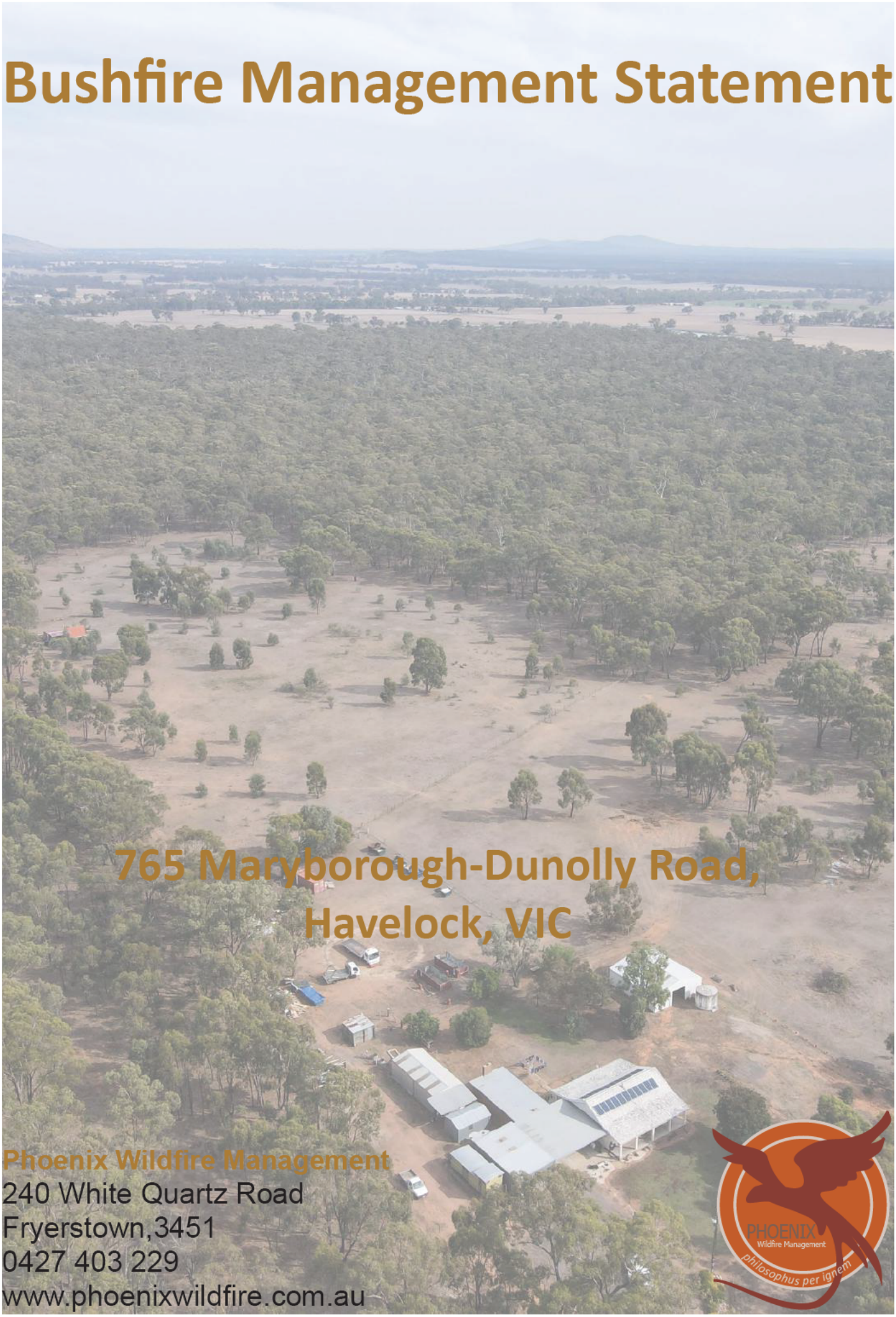
AS/NZS 1547:2012 - In dispersive soils, apply **gypsum at the rate of 1kg/m² to the bottom of the trench or bed** (L7.2). It is suggested gypsum will need to be applied again in 5 to 10 years (CL7.2).

Lime

A naturally occurring calcareous material: $CaCO_3$. Processed forms include hydrated lime, $Ca(OH)_2$ and burnt lime, CaO. Lime is used to improve soil structure in soils of pH <5.5 and may reduce soil acidity and associated manganese toxicity, aluminium toxicity, and improve molybdenum availability.

When the primary purpose is to reduce soil acidity a 'Lime Requirement Test' should be performed as the rate of lime required varies greatly depending on the soil type **from as little as 0.5 t/ha to over 10 t/ha**. Use a grade of lime with a fine particle size as it is more 'active' and incorporate lime into the top few centimetres of soil for best effect.

Bushfire Management Statement



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Bushfire Management Statement

765 Maryborough-Dunolly Road

Havelock, VIC 3465

Version Control			
Report Version	Name	Date Completed	Comments
1	Hamish MacCallum	11/04/2025	Version 1 (issued to client)
2			

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Hamish MacCallum
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Contents

1. Introduction

This Bushfire Management Report has been prepared on behalf of B.F & R. Douglas Building Consultants to demonstrate how the proposed development of an extension to the existing dwelling at 765 Maryborough-Dunolly Rad, Havelock can respond to the bushfire risk and comply with the Victorian planning and building controls that relate to bushfire, specifically the requirements of, Clause 44.06 Bushfire Management Overlay (BMO) and associated Clause 53.02 Bushfire Planning in the Central Goldfields Planning Scheme. The site is within the declared Bushfire Prone Area and is covered by the BMO.

The purpose of the Bushfire Management Overlay is:

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

The Bushfire Management Statement contains three components:

A **bushfire hazard landscape assessment** including a plan that describes the bushfire hazard of the general locality more than 150 metres from the site.

A **bushfire hazard site assessment** including a plan that describes the bushfire hazard within 150 metres of the proposed development. The description of the hazard must be prepared in accordance with Section 2.2.3 to 2.2.5 of AS 3959-2018 Construction of buildings in bushfire prone areas (Standards Australia) excluding paragraph (a) of section 2.2.3.2.

A **bushfire management statement** describing how the proposed development responds to the requirements of Clause 44.06 and 53.02.

This report also includes a **Bushfire Management Plan** (BMP) consistent with the CFA's standard permit conditions and BMP guidance (CFA, 2017).

1.1 Application Details

Municipality:	Central Goldfields
Title description:	Allot. 28 Sec. 1A PARISH OF BET BET
Overlays:	Bushfire Management Overlay
Zoning:	Farming Zone

2. Site Description

Site shape:	Trapezoid
Site Dimensions:	See Below
Site Area	See Below
Existing use and siting of buildings and works on and near the land:	An existing dwelling, carport and ancillary shedding sits close to the southern boundary of the property (see site plan).
Existing vehicle arrangements:	Driveway access is via Maryborough-Dunolly Road.
Location of nearest fire hydrant:	N/A
Any other features of the site relevant to bushfire considerations:	The site is relatively flat and cleared of bushfire vegetation. A stand of Box Eucalyptus woodland is adjacent to the southern boundary. Driveways, shedding and managed land around the house add some additional bushfire exposure mitigation. The grassland areas on the property appear to be grazed.

Fig.1 Site area and dimensions.

2.1 Site Details

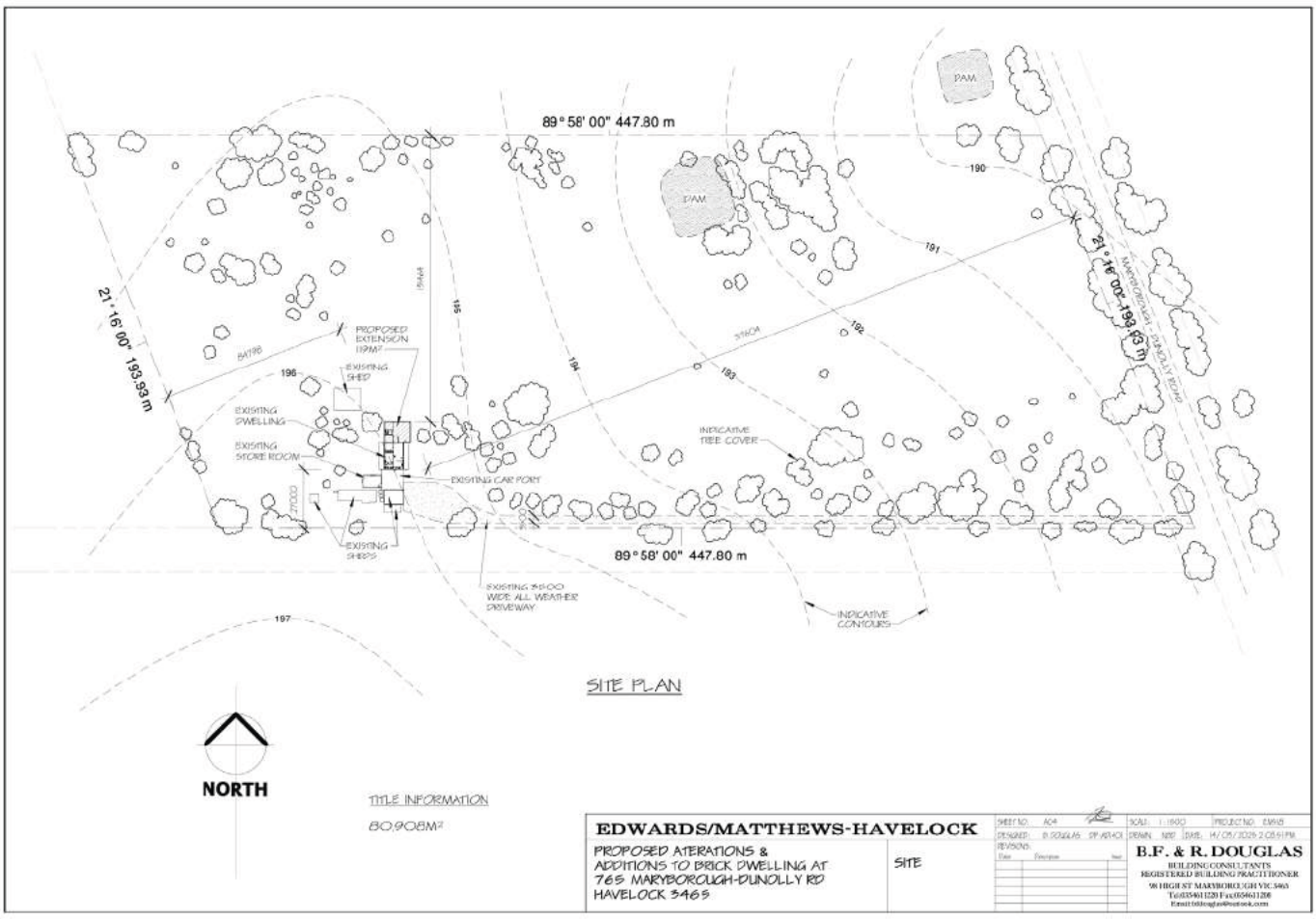


Fig.2 Site existing conditions and extension concept plan.

Fig.3 View of the property and existing infrastructure.

3. Bushfire Landscape Assessment

The landscape hazard identification is used to identify the hazards posed by surrounding vegetation, topographic and climatic conditions. It typically looks at the broader variations in the conditions (within 20km surrounding the site) and conditions more local to the site (within 150m). The table below (DELWP technical guide 'Planning Applications in the Bushfire Management Overlay' 2017) describes four broader landscape types representing different landscape risk levels that inform more consistent decision making based on the overall risk.

Landscape Risk Typologies

The landscape scenario that represents this is Broader Landscape **Type 3.**

Uncontrolled fire within the Box-Ironbark woodland beyond the property could result in neighbourhood-scale destruction and could approach the site from multiple directions. Although access to places that can offer shelter from bushfire are possible, rapid fire spread may impact the site with smoke and spotfires, making safe egress uncertain.

Broader Landscape Type 1	Broader Landscape Type 2	Broader Landscape Type 3	Broader Landscape Type 4
• *There is little vegetation beyond 150 metres of the site (except grasslands and low-threat vegetation).* • *Extreme bushfire behaviour is not possible.* • *The type and extent of vegetation is unlikely to result in neighbourhood- scale destruction of property.* • *Immediate access is available to a place that provides shelter from bushfire.*	• *The type and extent of vegetation located more than 150 metres from the site may result in neighbourhood-scale destruction as it interacts with the bushfire hazard on and close to a site.* • *Bushfire can only approach from one aspect and the site is located in a suburban, township or urban area managed in a minimum fuel condition.* • *Access is readily available to a place that provides shelter from bushfire. This will often be the surrounding developed area.*	• *The type and extent of vegetation located more than 150 metres from the site may result in neighbourhood-scale destruction as it interacts with the bushfire hazard on and close to a site.* • *Bushfire can approach from more than one aspect.* • *The site is located in an area that is not managed in a minimum fuel condition.* • *Access to an appropriate place that provides shelter from bushfire is not certain.*	• *The broader landscape presents an extreme risk.* • *Fires have hours or days to grow and develop before impacting.* • *Evacuation options are limited or not available.*
I N C R E A S I N G R I S K			

3.1 Likely Fire Behaviour Affecting the Site

As with most of Central Victoria, the predominant fire weather and intense fire behaviour is driven from weather patterns from the northwest, often followed by a change in wind direction that can drive fire from the southwest. This change is associated with the potential for large, uncontrollable fire fronts.

Fire travelling from the northwestern sector could develop a fire run towards the site in woodland vegetation for up to 1.3km, however the forest continuity is broken by open grassland paddocks before reaching the property. Similarly, fire travelling from the southwestern sector could develop runs of up to 3km before being fragmented by open grassland paddocks. The surrounding topography is relatively gentle and undulating and would not be expected to increase fire behaviour beyond that modelled in AS 3959-2018.

The site fire history would suggest that although larger fires are possible, uncontrolled fire is infrequent. There are considerable fuel management programs currently proposed for the surrounding landscape that would reduce fire intensity and could increase the chance of successful suppression tactics.

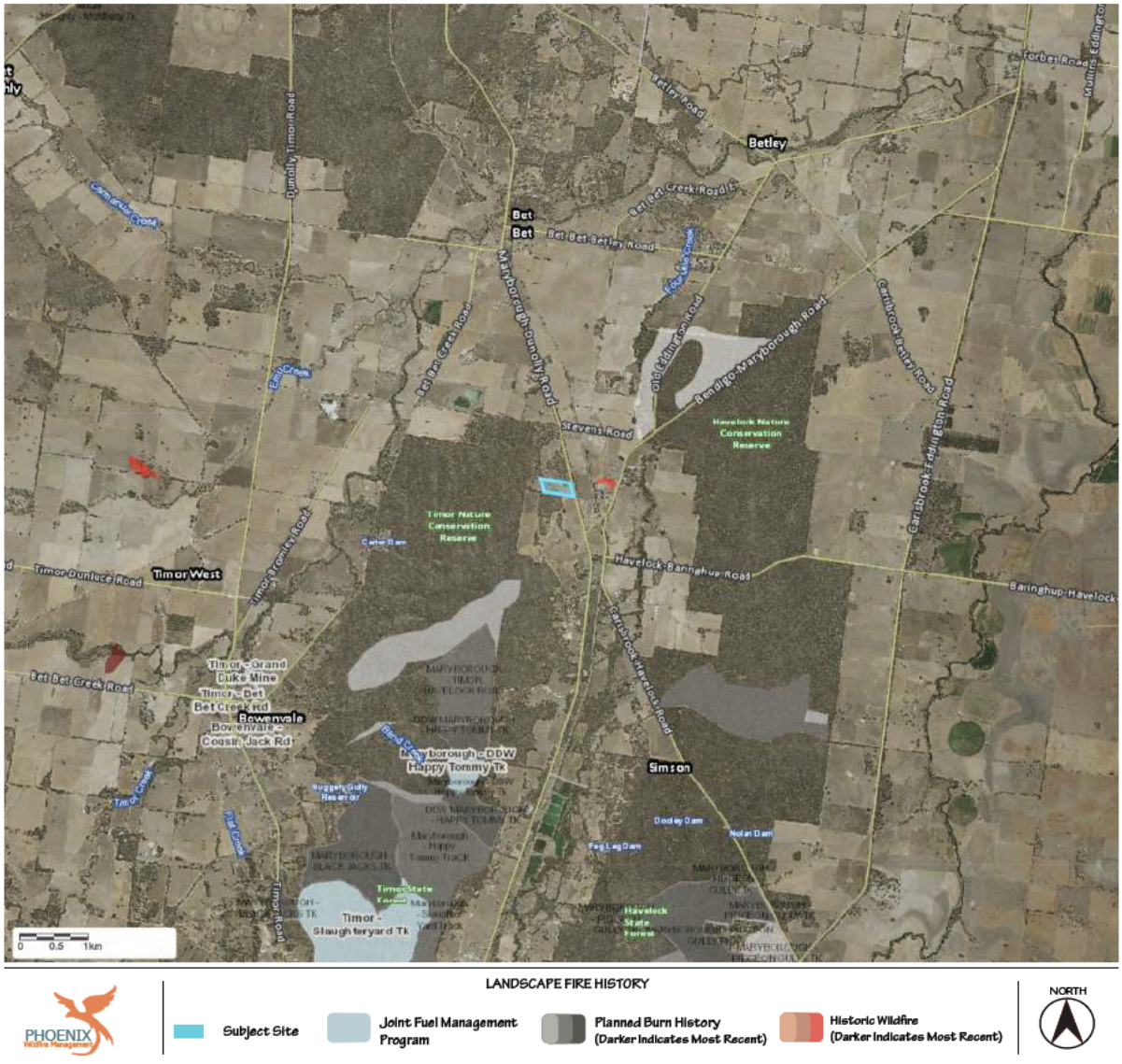


Fig.4 Fire history for the site, showing historic wildfire, planned burns and future Joint Fuel Management Program works.

3.2 Bushfire Landscape Assessment Plan

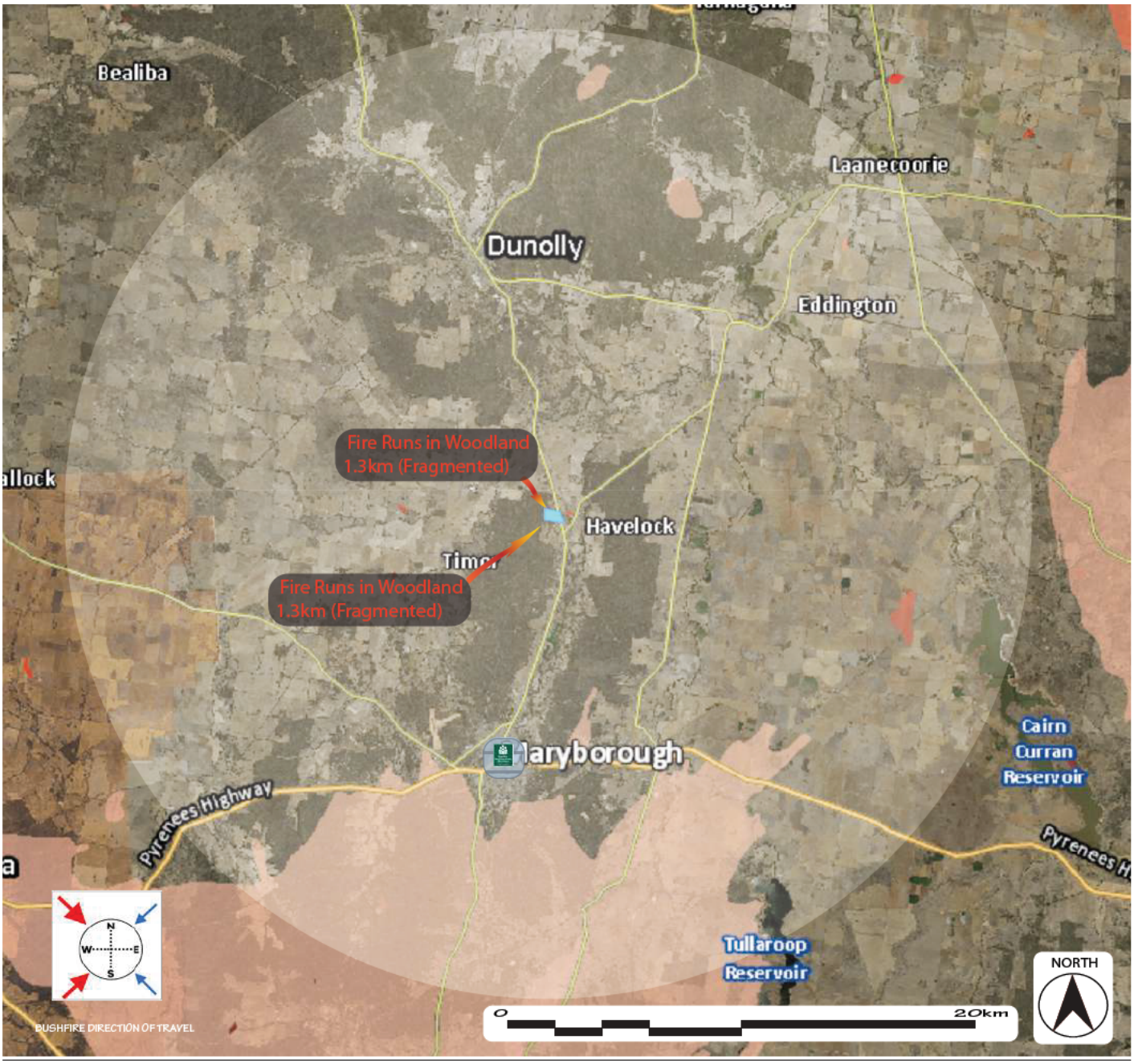


Fig.5 Broader landscape hazard assessment plan.

3.3 Bushfire Place of Last Resort

A 'Neighbourhood Safer Place' (also known as a 'Bushfire Place of Last Resort' or NSP-BPLR) is a place of last resort when all other bushfire plans have failed. BPLR's are:

- Locations that may provide some protection from direct flame and heat from a fire, but they do not guarantee safety.
- Not an alternative to planning to leave early or to stay and defend your property; they are a place of last resort if all other fire plans have failed.
- An existing location and not a purpose-built, fire-proof structure. It is important to know that many NSP-BPLRs are simply a clearing that provides separation distance from the bushfire hazard (e.g. forest).
- Not to be confused with Community Fire Refuges, Relief Centres, Recovery Centres or Assembly Areas, each of which have a different and specific purpose.
- Not an appropriate destination when leaving the area early.
- Not a place of shelter from other types of emergencies (e.g. to escape rising floodwaters or severe weather events).

The nearest BPLR is Princess Park Oval, 40 Park Road, Maryborough (between Nightingale Street and Wills Street). The oval is an 11 minute drive in relatively open country. Alternatively, Gordon Gardens, Dunolly is a similar distance, offering an alternative destination depending on the location of the bushfire threat and the prevailing weather.

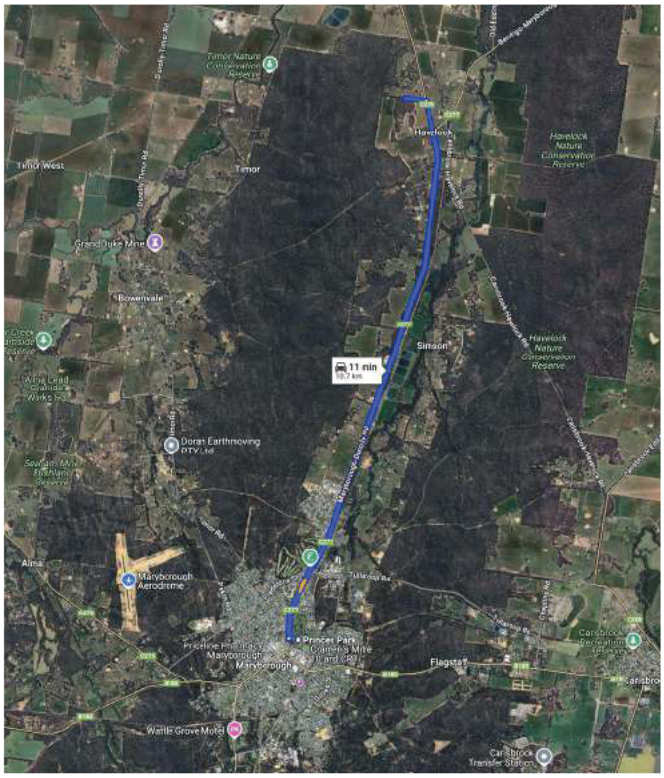


Fig.6 Route to nearest NPLR, Princess Park, Maryborough.

4. Bushfire Hazard Assessment

Classify the vegetation within 150 metres of the proposed development in accordance with AS3959:2018 Construction of buildings in bushfire prone areas.

Classified vegetation is the vegetation considered to be hazardous and prone to bushfire. The 'Effective slope' under the vegetation will increase fire severity and forward rate of spread, fire moving over flat land or downhill will generally burn and move with less intensity. Fire moving uphill (downslope from the site) will have significantly faster rate of spread and increased intensity increasing with the increase in slope.

	Direction (Aspect)			
	Northern	**Southern**	**Eastern**	**Western**
Vegetation (within 150 metres of proposed building / works)	Excludable / Low Threat ☐	Excludable / Low Threat ☐	Excludable / Low Threat ☐	Excludable / Low Threat ☐
	Modified ☐	Modified ☐	Modified ☐	Modified ☐
	Forest ☐	Forest ☐	Forest ☐	Forest ☐
	Woodland ☑	Woodland ☑	Woodland ☐	Woodland ☐
	Scrub (tall) ☐	Scrub (tall) ☐	Scrub (tall) ☐	Scrub (tall) ☐
	Shrubland (short) ☐	Shrubland (short) ☐	Shrubland (short) ☐	Shrubland (short) ☐
	Mallee ☐	Mallee ☐	Mallee ☐	Mallee ☐
	Rainforest ☐	Rainforest ☐	Rainforest ☐	Rainforest ☐
	Grassland ☐	Grassland ☐	Grassland ☑	Grassland ☑
Effective Slope (under the classifiable vegetation within 150 metres)	Upslope / Flat	Upslope / Flat ☐	Upslope / Flat ☐	Upslope / Flat ☐
	DOWNSLOPE	**DOWNSLOPE**	**DOWNSLOPE**	**DOWNSLOPE**
	>0 to 5 ° ☐	>0 to 5 ° ☐	>0 to 5 ° ☐	>0 to 5 ° ☐
	>5 to 10° ☐	>5 to 10° ☐	>5 to 10° ☐	>5 to 10° ☐
	>10° to 15° ☐	>10° to 15° ☐	>10° to 15° ☐	>10° to 15° ☐
	>15 to 20° ☐	>15 to 20° ☐	>15 to 20° ☐	>15 to 20° ☐
	>20° ☐	>20° ☐	>20° ☐	>20° ☐
Distance (m) to Classifiable Vegetation	100m	19m	22m	35m

4.1 Surrounding Vegetation

In accordance with AS 3959-2018 Construction of buildings in bushfire prone areas, the classifiable vegetation types identified on the site are as follows:

- **Woodland Vegetation:** Trees 10–30 metres high; 10–30% foliage cover dominated by eucalypts; understorey of low trees to tall shrubs typically dominated by Acacia, Callitris or Casuarina.

The neighbouring property is covered in Box woodland, primarily Grey Box. There is no understorey vegetation present and the Box Eucalyptus has limited bark fuel (tightly bound bark). Although some patches of this woodland may exceed 30% canopy, it is not expected that fire behaviour would be greater than that expected within woodland vegetation. This woodland is either on flat land or upslope of the site.

Fig.7 View to the woodland vegetation on the adjoining property to the south.

- **Grassland Vegetation:** All open grasslands or cropping and pasture where tree cover does not exceed 10% cover.

The surrounding grassland vegetation is typical of grazed pasture paddocks. There is little fuel load due to continuous grazing. A few Eucalypt trees are present within the grass paddocks.

Fig.8 View to the surrounding grassland vegetation.

4.2 Bushfire Site Hazard Plan

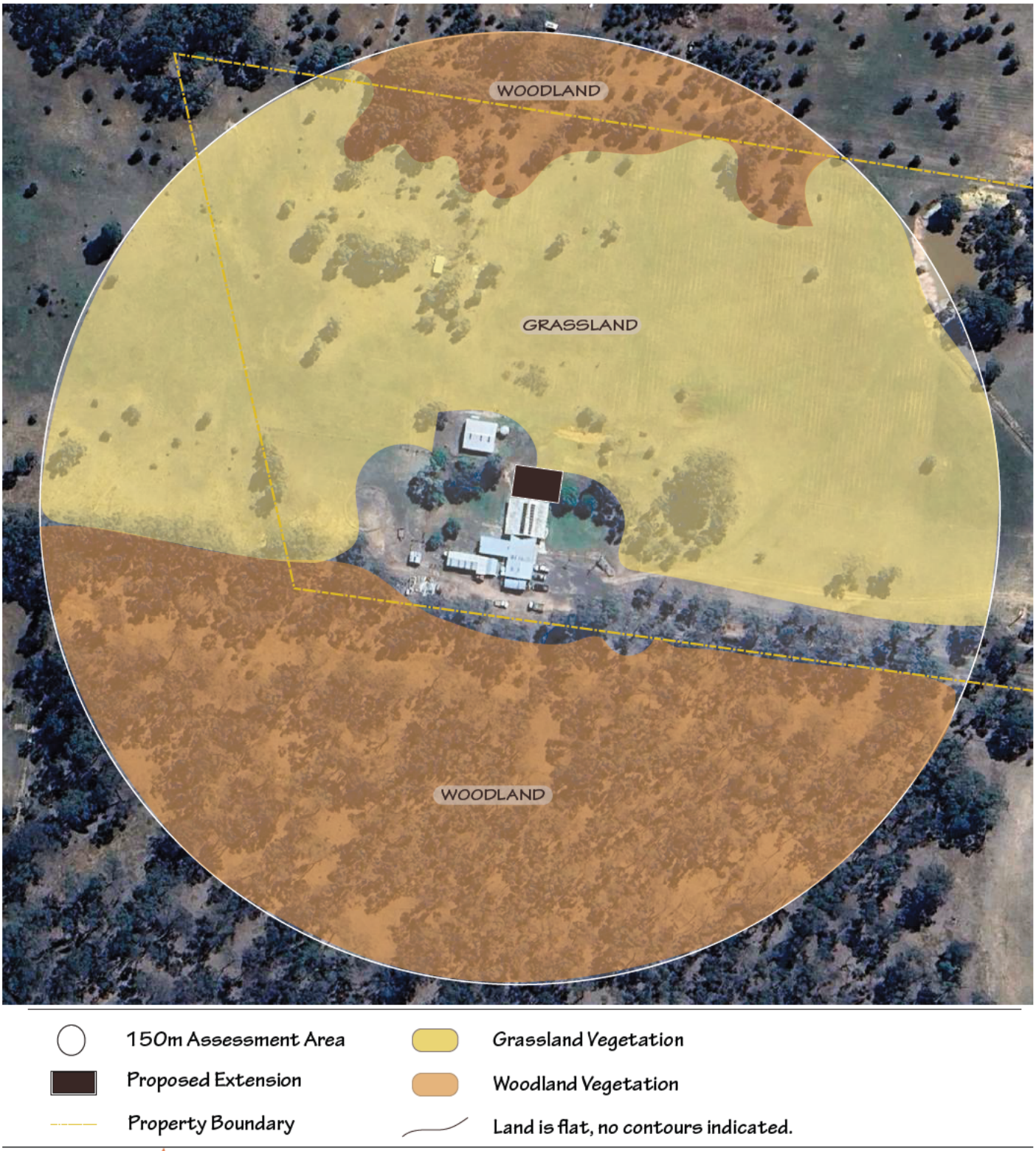


Fig.7 Site hazard assessment plan.

5. Bushfire Management Statement

This section how the proposed development will respond to the identified bushfire risk in accordance with the requirements of Clause 44.06 and Clause 53.02 of the Central Goldfields Planning Scheme.

5.1 53.02-4.1 Landscape, Siting and design objectives

- Development is appropriate having regard to the nature of the bushfire risk arising from the surrounding landscape.
- Development is sited to minimise the risk from bushfire.
- Development is sited to provide safe access for vehicles, including emergency vehicles.
- Building design minimises vulnerability to bushfire attack.

5.1.1 Approved Measure (AM) 2.1 - Landscape

Requirement

The bushfire risk to the development from the landscape beyond the site can be mitigated to an acceptable level.

The benign topography and fragmentation of potential fire runs from the primary northwestern and southwestern fire sectors are not expected to increase fire behaviour beyond the expectations for bushfire in this landscape. As there is deemed to be moderate to high overall landscape risk (being landscape type 3), a minimum BAL-29 construction standard should be applied to the development. The broader landscape risk to the development can be mitigated to an acceptable level by applying the relevant identified approved measures in this report.

5.1.2 Approved Measure (AM) 2.2 - Siting

Requirement

A building is sited to ensure the site best achieves the following:

- **The maximum separation distance between the building and the bushfire hazard**

The proposed extension to the existing dwelling is on the northern side of the building, this is the aspect furthest from the primary bushfire risk to the south.

- **The building is in close proximity to a public road**

The proposed extension development is approximately 360 metres from Maryborough-Havelock Road. It would be necessary to provide a passing bay to meet access requirements.

- **Access can be provided to the building for emergency service vehicles**

The existing driveway is approximately 360 metres long and appears to meet the necessary requirements for emergency vehicle access, however due to the driveway length being greater than 200 metres, a passing bay with a minimum of 20 metres length with a minimum trafficable width of six metres must be provided.

5.1.3 Approved Measure (AM) 2.3 – Building Design

Requirement

A building is designed to be responsive to the landscape risk and reduce the impact of bushfire on the building.

The proposed extension to the existing dwelling is a simple rectangular design with a moderately pitched gable roofline. The design is in-keeping with the existing dwelling and should not pose an increased risk to the site.

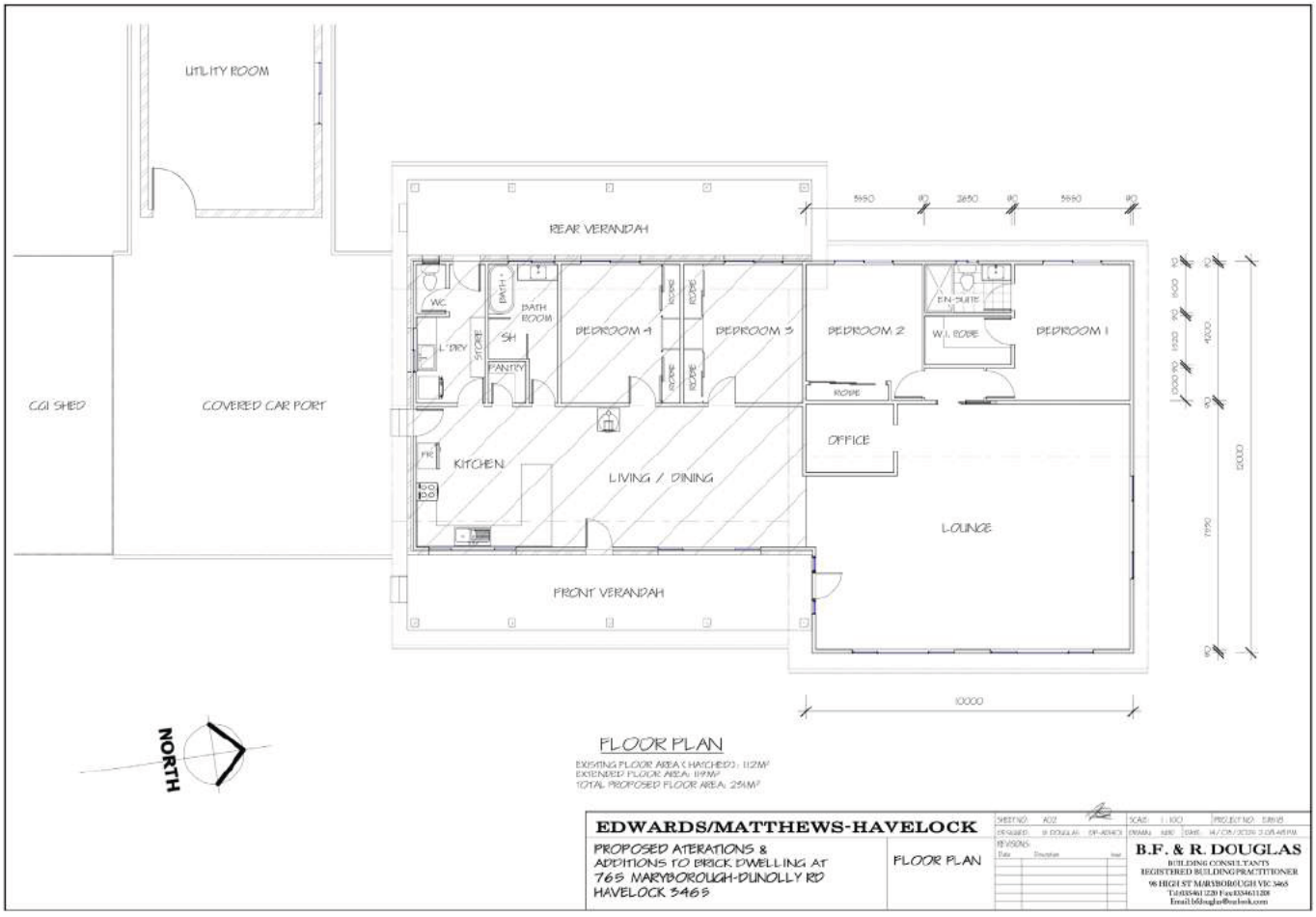


Fig.8 Floor plan of proposed dwelling and extension.

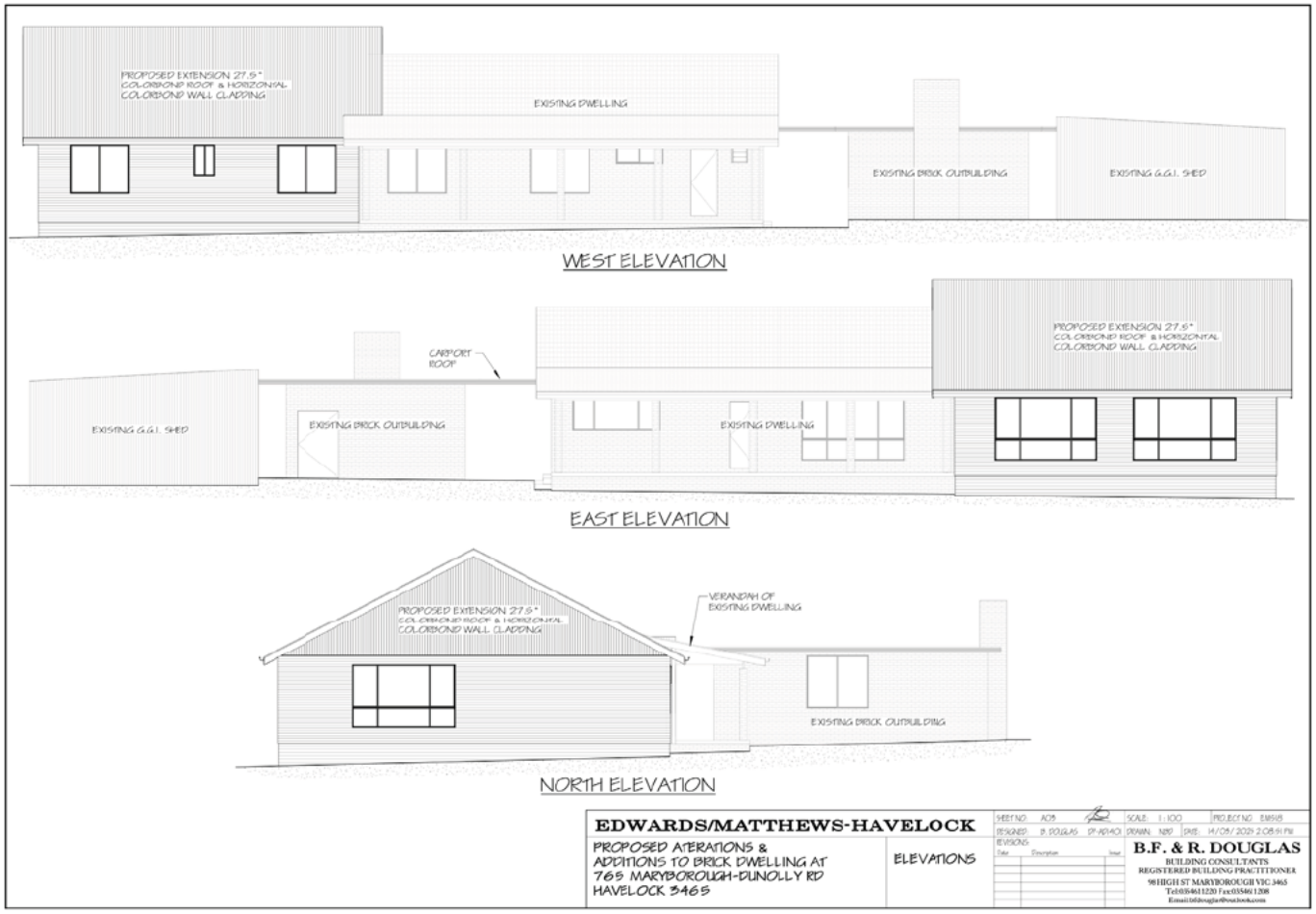


Fig.9 Elevation plan of proposed dwelling extension.

6. 53.02-4.2 – Defendable Space and Construction Objective

Defendable space and building construction mitigate the effect of flame contact, radiant heat and embers on the building.

In this section it will be demonstrated how the proposed development will respond to the identified bushfire risk.

6.1 Approved Measure (AM) 3.1 – Bushfire Construction and Defendable Space

Requirement:

A building used for a dwelling (including an extension or alteration to a dwelling), a dependant person's unit, industry, office, retail premises, service station or warehouse provides the defendable space in accordance with:

- *Column A, B, C of Table 2 to Clause 53.02-5 and is managed in accordance with Table 6 to Clause 53.02-5 wholly within the title boundaries of the land; or*
- *If there are significant siting constraints, Table 2 Column D and Table 6 to Clause 53.02-5.*

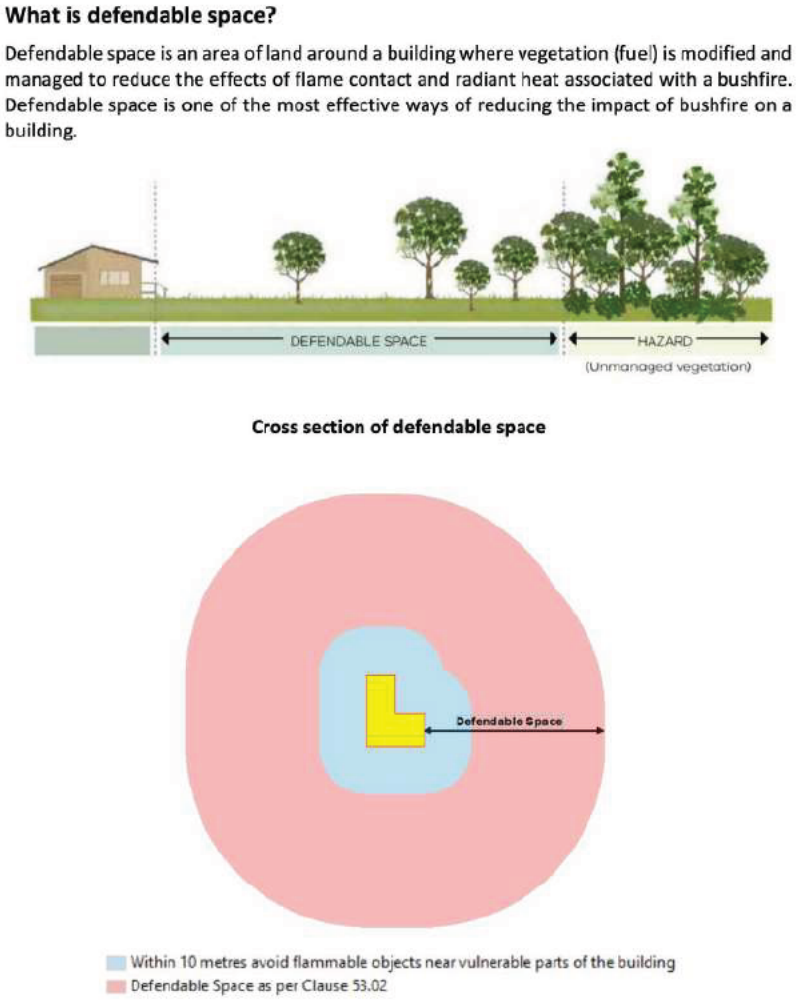


Fig.10 Defendable space detail (CFA 2024)

BAL construction standards and defendable space distances (from Table 2 to Clause 53.02-5)				
Vegetation	**Slope**	**Direction**	**BAL construction standard**	**Defendable space distance (m)**
Woodland	Flat	South	BAL-29	16m

Defendable Space

The building will be provided with defendable space in accordance with **Column C.** The defendable space distance required is **16** metres and is wholly contained within the property boundary.

Bushfire Attack Level (BAL)

The residential building standard for bushfire protection aims to improve the ability of a building to withstand a bushfire attack. This provides greater protection for the occupants who may be sheltering inside while the fire front passes.
The BAL takes into consideration a number of factors, including the Fire Danger Index, the slope of the land, types of surrounding vegetation and its proximity to any building. (VBA, 2023)

A building is constructed to the bushfire attack level:

- That corresponds to the defendable space provided in accordance with Table 2 to Clause 53.02-5. The building will be constructed to BAL-29

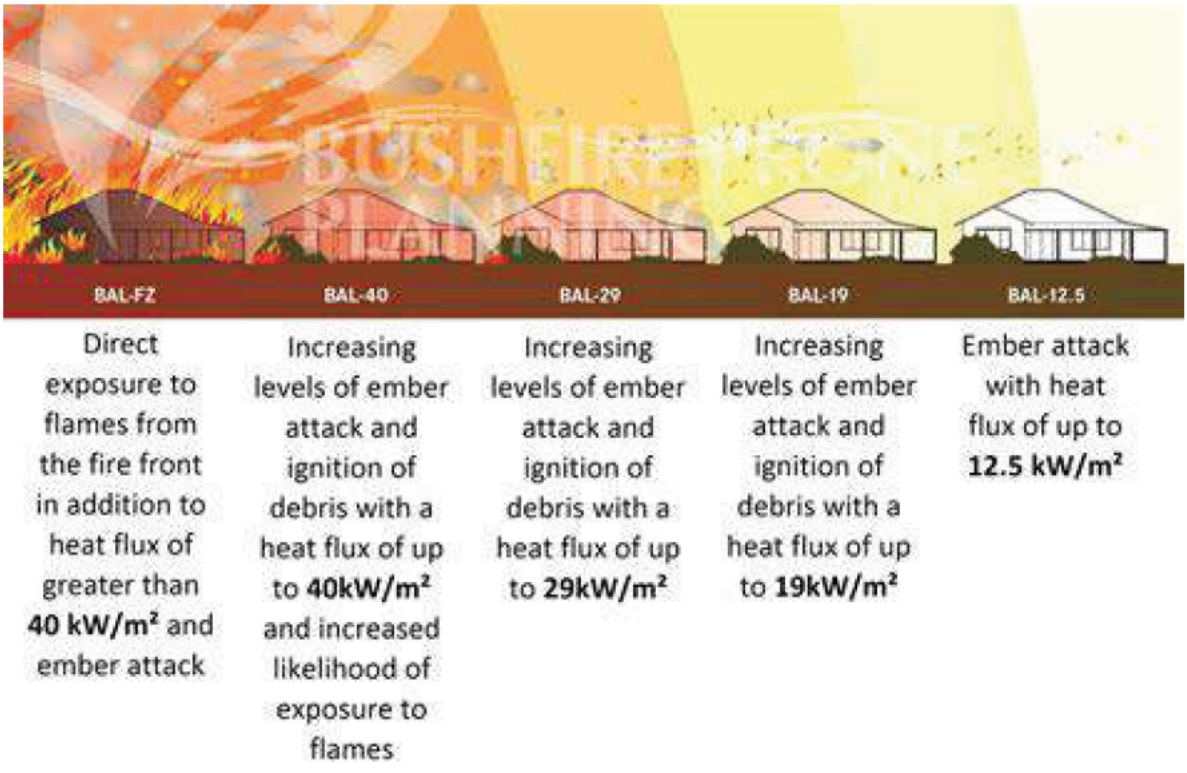


Fig.11 Chart showing radiant heat intensity in relation to BAL construction standards. (CFA 2025)

Table 6 of Clause 53.02-5 - Vegetation management requirement:

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

Source: Prepare. Act. Survive. – Fire Ready Kit available - www.cfa.vic.gov.au

6.2 Defendable Space Plan

Fig.12 Defendable space plan showing 16 metres of defendable space around the existing dwelling and proposed extension.

7. 53.02-4.3 – Water Supply and Access Objectives

7.1 Approved Measure (AM) 4.1 – Water Supply and Access

7.1.1 Water Supply Requirement

A building used for a dwelling (including an extension or alteration to a dwelling), a dependant person's unit, industry, office, retail premises service station or warehouse is provided with a static water supply for fire fighting and property protection purposes as specified in Table 4 to Clause 53.02-5.

The water supply may be in the same tank as other water supplies provided that a separate outlet is reserved for fire fighting water supplies.

Lot Size (m^2)	Hydrant Available	Capacity (litres)	Fire Authority Fittings & Access Required	Response
Less than 500	Not Applicable	2,500	No	☐
500 – 1000	Yes	5,000	No	☐
500 – 1000	No	10,000	Yes	☐
1001 and above	Not Applicable	10,000	Yes	☑

Note: a hydrant is available if it is located within 120 metres of the rear of the building

Confirm Static Water Supply meets the following requirements	☑ Is stored in an above ground water tank constructed of concrete or metal ☑ All fixed above ground water pipes and fittings for fire fighting purposes must be made of corrosive resistant metal. ☑ Include a separate outlet for occupant use **The following additional requirements apply when 10,000 litres of static water is required:** ☑ Be readily identifiable from the building or appropriate identification signage to the satisfaction of CFA must be provided. ☑ Be located within 60 metres of the outer edge of the approved building. ☑ The outlet/s of the water tank must by within 4 metres of the accessway and unobstructed ☑ Incorporate a ball or gate valve (British Standard Pipe (BSP 65mm) and coupling (64mm CFA 3 thread per inch male fitting) ☑ Any pipework and fittings must be a minimum of 65mm (excluding the CFA coupling)

Water tank requirements

Table 4 of Clause 52.47 sets out the capacity, fittings and access requirements for water supply in the BMO.

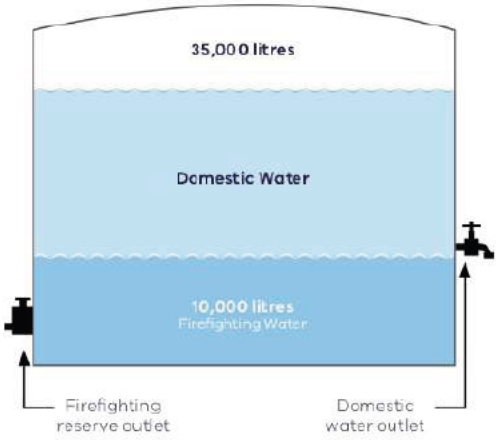
The water supply must:

- be stored in an above ground water tank constructed of concrete or metal
- have all fixed above ground water pipes and fittings required for firefighting purposes made of corrosive material, and
- include a separate outlet for occupant use.

Where a 10,000 litre water supply is required the following fire authority fittings apply:

- the water supply must be readily identifiable from the building or appropriate identification signage to the satisfaction of the relevant fire authority.
- the water supply must be located within 60 metres of the outer edge of the approved building.
- The outlet/s of the water tank must be within 4 metres of the accessway and unobstructed.
- the water supply must incorporate a separate ball or gate valve (British Standard Pipe (BSP 65 millimetre) and coupling (64 millimetre CFA 3 thread per inch male fitting).
- Any pipework and fittings must be a minimum of 65 millimetres (excluding the CFA coupling).

Shared water tank



Water supply identification

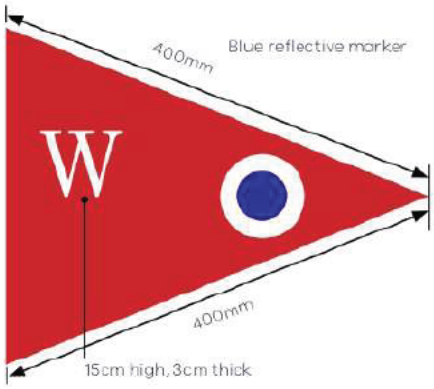


Fig.13 Water supply requirements (Technical Guide | Planning Permit Applications – Bushfire Management Overlay DELWP 2017).

7.1.2 Access Requirement

A building used for a dwelling (including an extension or alteration to a dwelling), a dependant person's unit, industry, office, retail premises, service station or warehouse is provided with vehicle access designed and constructed as specified in Table 5 to Clause 53.02-5.

The current access complies with the construction specifications provided in Table 5 to Clause 53.02-5 (see below). The total length from the public road to the development is approximately 360 metres. A passing bay will be required (see below) as the driveway length is over 200 metres.

Column A	Column B
Length of access is less than 30 metres	☐ There are no design and construction requirements if fire authority access to water supply is not required under AM 4.1
Length of access is less than 30 metres	☐ Where fire authority access to the water supply is required under AM 4.1 fire authority vehicles must be able to get within 4 metres of the water supply outlet
Length of access is greater than 30 metres	The following design and construction requirements apply: ☑ All weather construction ☑ A load limit of at least 15 tonnes ☑ Provide a minimum trafficable width of 3.5 metres ☑ Be clear of encroachments for at least 0.5 metres on each side and at least 4 metres vertically ☑ Curves must have a minimum inner radius of 10 metres ☑ The average grade must be no more than 1 in 7 (14.4%)(8.1°) with a maximum grade of no more than 1 in 5 (20%)(11.3°) for no more than 50 metres ☑ Dips must have no more than a 1 in 8 (12.5 per cent) (7.1 degrees) entry and exit angle.
Length of access is greater than 100 metres	A turning area for fire fighting vehicles must be provided close to the building by one of the following: ☑ A turning circle with a minimum radius of eight metres ☑ A driveway encircling the dwelling ☑ The provision of other vehicle turning heads such as a T head or Y Head – which meet the specification of Austroad Design for an 8.8 metre service vehicle.
Length of access is greater than 200 metres	☑ Passing bays must be provided at least every 200 metres. ☑ Passing bays must be a minimum of 20 metres long with a minimum trafficable width of six metres.

Access

Where the length of access is greater than 30 metres the following design and construction requirements apply:

- Curves must have a minimum inner radius of 10 metres.
- The average grade must be no more than 1 in 7 (14.4%) (8.1°) with a maximum of no more than 1 in 5 (20%) (11.3°) for no more than 50 metres.
- Dips must have no more than a 1 in 8 (12.5%) (7.1°) entry and exit angle.
- A load limit of at least 15 tonnes and be of all-weather construction.
- Provide a minimum trafficable width of 3.5 metres.
- Be clear of encroachments for at least 0.5 metres on each side and at least 4 metres vertically.
- A cleared area of 0.5 metres is required to allow for the opening of vehicle doors along driveways.
- Dips must have no more than a 1 in 8 (12.5 per cent) (7.1 degrees) entry and exit angle.

Width

Dips and gradients

Encroachments

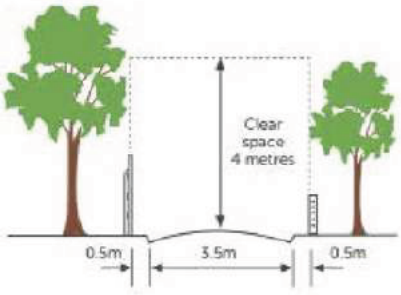


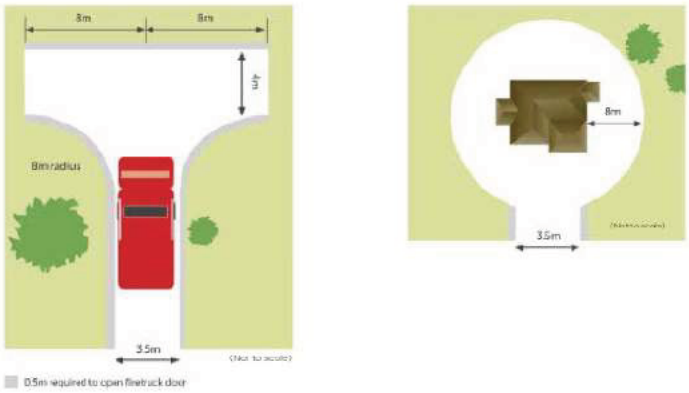
Fig.14 Access requirements (Technical Guide | Planning Permit Applications – Bushfire Management Overlay DELWP 2017).

Access between 100 metres to 200 metres in length

In addition to the above:

A turning area for fire fighting vehicles must be provided close to the building by one of the following:

- a turning circle with a minimum radius of 8 metres
- a driveway encircling the dwelling
- other vehicle turning heads such as a T or Y head which meet the specification of Austroad Design for an 8.8 metre service vehicle.



Access greater than 200 metres in length

In addition to the above, passing bays are required at least every 200 metres that are:

- a minimum of 20 metres long
- with a minimum trafficable width of 6 metres.

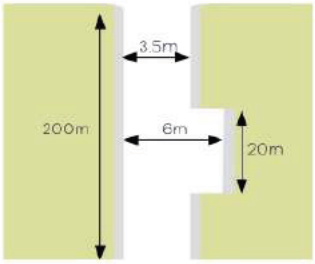


Fig.15 Access requirements (Technical Guide | Planning Permit Applications – Bushfire Management Overlay DELWP 2017).

8. Attachment 1 – Site Photos

Fig.16 Looking over the proposed site, towards the North.

Fig.17 Looking over the proposed site, towards the north.

Fig.18 Looking over the proposed site, towards the northwest.

Fig.19 Looking over the proposed site, towards the west.

Fig.20 Looking over the proposed site, towards the southwest.

Fig.21 Looking over the proposed site, towards the south.

Fig.22 Looking over the proposed site, towards the southeast.

Fig.23 Looking over the proposed site, towards the east.

Fig.24 Looking over the proposed site, towards the northeast.

Fig.25 Looking over the woodland vegetation to the south of the development site.

Fig.26 Looking from directly above the development site.

Fig.27 View to the east from the site.

Fig.28 Looking to the southwest at the woodland vegetation.

Fig.29 Looking west from the site.

Fig.30 View to the west.

Fig.31 Looking towards the dwelling from the west.

7 Conclusion

The proposed dwelling has been assessed against the relevant bushfire policies contained in the planning scheme.

This report has concluded:

- The overall broader bushfire risk would not pose a significant threat to future development beyond the expected risks identified using the methodology of AS 3959-2018.
- Fire history suggests that impact from bushfire in the surrounding landscape is generally localised, however larger conflagrations can occur under extreme fire weather conditions. The resultant fire behaviour in this landscape could produce radiant heat exposure, significant ember attack and impact from smoke.
- Applying the appropriate setbacks of **16 metres** from hazardous vegetation will reduce modelled radiant heat exposure to levels deemed to be less than 29 Kw/m². This is considered to be effectively mitigated when building to **BAL-29** construction standards.
- Fuel loads should be kept in a minimum fuel condition by applying the appropriate bushfire protection measures, specifically defendable space vegetation management requirements of 16 metres around the development (as per Table 6, Cl.53.02) to ensure setbacks from hazardous vegetation is maintained.

Bushfire Management Plan, 765 Maryborough-Dunolly Road, Havelock

Proposed Dwelling Extension

Boundary

WT Firefighting Water Supply (10,000lt.)

Driveway Access

Defendable Space Zone 16m, or to the property boundary.

PHOENIX Wildfire Management

BUSHFIRE MANAGEMENT PLAN

BAL-29

0 10 20 30 50 100m

NORTH

Prepared By Hamish MacCallum
Phoenix Wildfire Management
Version 2 04/02/2026

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

a) Defendable space
Defendable space for a distance of **16** metres around the proposed buildings to the north, east and west **19** metres to the south (or to the property boundary, whichever is the lesser distance) must be provided where vegetation (and other flammable materials) will be modified and managed in accordance with the following requirements:

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

b) Construction standard
Dwelling designed and constructed to a minimum Bushfire Attack Level of BAL- **29**

c) Water Supply
The following requirements apply:

- An effective capacity of **10,000 lt.**
- Be stored in an above ground water tank constructed of concrete or metal.
- Have all fixed above ground water pipes and fittings required for firefighting purposes made of corrosive resistant metal.
- Include a separate outlet for occupant use.

Where a 10,000 litre water supply is required, the following fire authority access and fittings must be provided:

- Be readily identifiable from the building or appropriate identification signage to the satisfaction of the relevant authority.
- Be located within 60 metres of the outer edge of the approved building.
- The outlet/s of the water tank must be within 4 metres of the accessway and unobstructed.
- Incorporate a separate ball or gate valve (British Standard Pipe, BSP 65mm) and coupling (64mm CFA 3 Thread per inch male fitting).
- Any pipework and fittings must be a minimum of 65mm (excluding the CFA coupling).

d) Access
Access required: **Yes**
The following design and construction requirements apply:

- All-weather construction
- A load limit of at least 15 tonnes
- Provide a minimum trafficable width of at least 3.5 metres
- Be clear of encroachments for at least 0.5 metres on each side and at least 4 metres vertically.
- Curves must have a minimum inner radius of 10 metres.
- The average grade must be no more than 1 in 7 (14.4%) (8.1°) with a maximum grade of no more than 1 in 5 (20%) (7.1°) entry and exit angle.

Length of access is greater than 100 metres: Yes
Where length of access is greater than 100 metres the following design and construction requirements apply:

- A turning circle with a minimum radius of 8 metres, or
- A driveway encircling the building, or
- The provision of other vehicle turning heads-such as a T or Y Head- which meet the specification of Austroad Design for an 8.8 metre service vehicle.

Length of access is greater than 200 metres: Yes
Where length of access is greater than 200 metres the following design and construction requirements apply:

- Passing bays must be provided at least every 200 metres.
- Passing bays must be a minimum of 20 metres long with a minimum trafficable width of 6 metres.

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

VOLUME 05097 FOLIO 292

Security no : 124122727506Q
Produced 11/03/2025 07:22 PM

CROWN GRANT

LAND DESCRIPTION

Crown Allotment 28 Section 1A Parish of Bet Bet.

REGISTERED PROPRIETOR

[redacted]

ENCUMBRANCES, CAVEATS AND NOTICES

MORTGAGE AV108076L 08/12/2021
COMMONWEALTH BANK OF AUSTRALIA

Any crown grant reservations exceptions conditions limitations and powers noted on the plan or imaged folio set out under DIAGRAM LOCATION below. For details of any other encumbrances see the plan or imaged folio set out under DIAGRAM LOCATION below.

DIAGRAM LOCATION

SEE TP280964E FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NIL

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

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

Street Address: 765 MARYBOROUGH-DUNOLLY ROAD HAVELOCK VIC 3465

ADMINISTRATIVE NOTICES

NIL

[redacted]

DOCUMENT END

Imaged Document Cover Sheet

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Document Type	**Plan**
Document Identification	**TP280964E**
Number of Pages (excluding this cover sheet)	**2**
Document Assembled	**11/03/2025 19:22**

TITLE PLAN		EDITION 1	TP 280964E

Location of Land

Parish: BET BET
Township:
Section: 1A
Crown Allotment: 28
Crown Portion:

Last Plan Reference:
Derived From: VOL 5097 FOL 292
Depth Limitation: 50 FEET

Notations

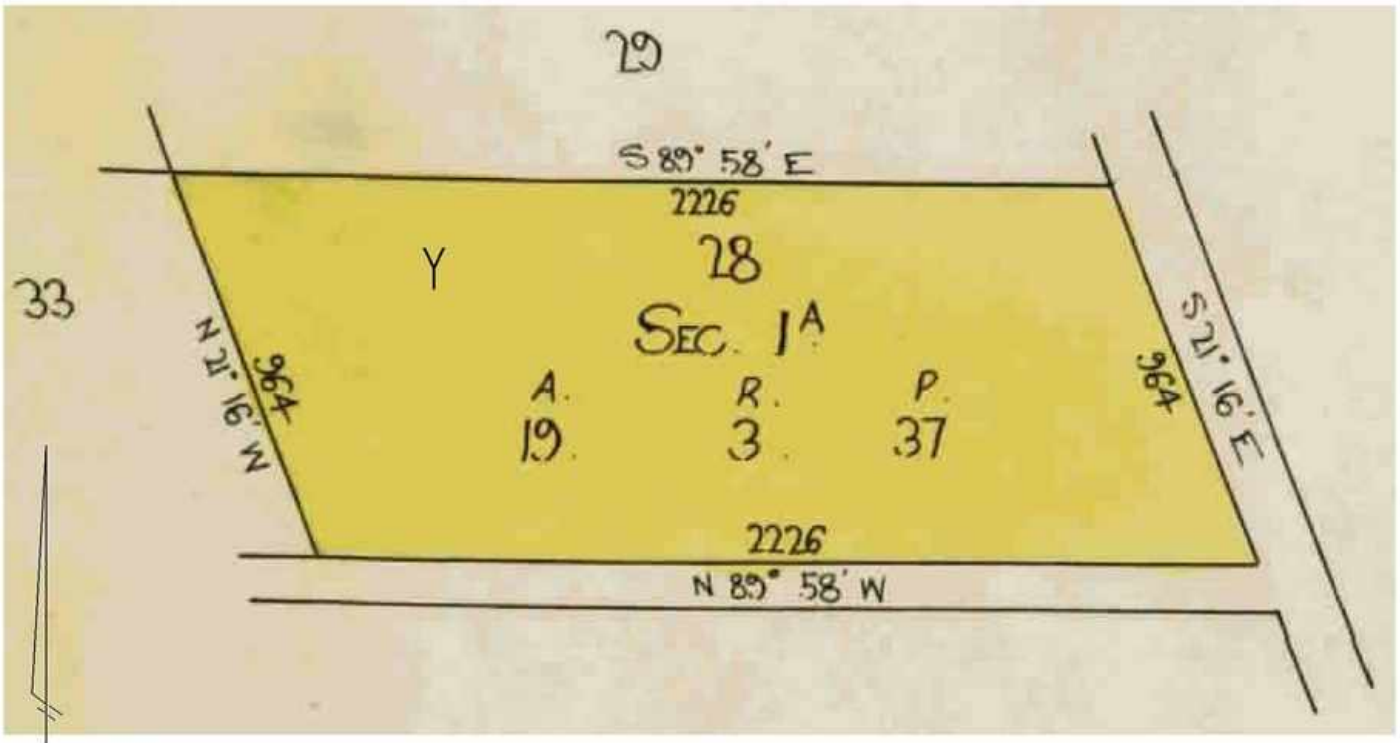
SUBJECT TO THE RESERVATIONS EXCEPTIONS CONDITIONS AND POWERS CONTAINED IN CROWN GRANT VOL. 5097 FOL. 292 AND NOTED ON SHEET 2 OF THIS PLAN

ANY REFERENCE TO MAP IN THE TEXT MEANS THE DIAGRAM SHOWN ON THIS TITLE PLAN

Description of Land / Easement Information

THIS PLAN HAS BEEN PREPARED FOR THE LAND REGISTRY, LAND VICTORIA, FOR TITLE DIAGRAM PURPOSES AS PART OF THE LAND TITLES AUTOMATION PROJECT
COMPILED: 21/01/2000
VERIFIED: SO'C

COLOUR CODE
Y = YELLOW



LENGTHS ARE IN LINKS	Metres = 0.3048 x Feet Metres = 0.201168 x Links		Sheet 1 of 2 sheets

TITLE PLAN		TP 280964E

LAND DESCRIPTION INCLUDING RESERVATIONS EXCEPTIONS CONDITIONS AND POWERS SHOWN ON THE CROWN GRANT

ALL THAT PIECE OF LAND in the said State containing nineteen acres three roods and thirty seven perches more or less being Allotment twenty eight of Section one A in the Parish of Bet Bet County of Talbot

delineated with the measurements and abuttals thereof in the map drawn in the margin of these presents and therein coloured yellow PROVIDED nevertheless that the grantee shall be entitled to sink wells for water and to the use and enjoyment of any wells or springs of water upon or within the boundaries of the said land for any and for all purposes as though he held the land without limitation as to depth EXCEPTING nevertheless unto Us Our heirs and successors all gold and silver and auriferous and argentiferous earth and stone and all mines seams lodes and deposits containing gold silver copper tin antimony coal and other metals and minerals and mineral ores in upon or under or within the boundaries of the land hereby granted AND ALSO reserving to Us Our heirs and successors free liberty and authority for Us Our heirs and successors and Our and their licensees agents and servants at any time or times hereafter to enter upon the said land and to search and mine therein for gold silver copper tin antimony coal and all other metals and minerals and mineral ores and to extract and remove therefrom any gold silver and any auriferous and argentiferous earth or stone copper tin antimony coal and other metals and minerals and mineral ores and to search for and work dispose of and carry away the gold silver copper tin antimony coal metals minerals and their ores lying in upon or under the land hereby granted and for the purposes aforesaid to sink shafts make drives erect machinery and to carry on any works and do any other things which may be necessary or usual in mining and with all other incidents that are necessary to be used for the getting of the said gold silver copper tin antimony coal and other metals and minerals and mineral ores and the working of all mines seams lodes and deposits containing gold silver copper tin antimony coal and other metals and minerals and mineral ores in upon or under the land hereby granted

PROVIDED ALWAYS that the said land is and shall be subject to be resumed for mining purposes under Section 168 of the *Land Act* 1915.

AND PROVIDED also that the said land is and shall be subject to the right of any person being the holder of a miner's right or of a licence to search for metals or minerals or of a mining or mineral lease to enter therein and to mine for gold silver copper tin antimony coal and other metals and minerals and mineral ores and to erect and to occupy mining plant or machinery thereon in the same manner and under the same conditions and provisions as those on which the holder of a miner's right or of a mining or mineral lease had at the date of these presents the right to mine for gold and silver in and upon Crown lands.

PROVIDED FURTHER and this grant is upon this express condition that neither the grantee nor any one claiming from through or under him shall claim or be entitled to any compensation in respect of damage to be done to the land hereby granted or to any part thereof or to any improvements thereon by mining therein or thereon within the meaning of the *Mines Act* 1915 or of any Act for the time being in force relating to mining or by the cutting or removing of any live or dead timber thereon or therefrom for mining purposes within the meaning of the said Act or for any purpose authorized by the said Act.

LENGTHS ARE IN LINKS	Metres = 0.3048 x Feet Metres = 0.201168 x Links		Sheet 2 of 2 sheets