Scheduled Council Meeting - 5 December 2022 Attachments

ADVISORY BODY/EXTERNAL COMMITTEE	MEETING FREQUENCY	COUNCILLOR REPRESENTATIVE(S) 2022/23	OFFICER MEMBERSHIP/ ATTENDANCE
NATIONAL / STATE /REGIONAL BODIES			
a) SouthWest Victoria Alliance	Bi-monthly	**Mayor**	CEO
b) Municipal Association of Victoria	Twice yearly	**Mayor**	CEO
c) Regional Cities Victoria	Bi-monthly	**Mayor**	CEO
d) Regional Capitals Australia	Monthly	**Mayor**	CEO
CORPORATE / GOVERNANCE COMMITTEES			
a) Audit & Risk Committee	Quarterly	**Cr. Blain** **Cr. Paspaliaris**	CEO, DCS, MFS, Internal Auditor
b) Chief Executive's Employment Matters Committee	As required	**All Councillors**	CEO MGPP
c) Closed Additional Meetings of Council	As required	**All Councillors**	Senior Officers
COUNCIL LOCAL ADVISORY COMMITTEES			
a) Community & International Relations Advisory Committee	Quarterly	**Cr. Akoch**	DCG, MEDE
b) Economic Development and Tourism Advisory Committee	Quarterly	**Cr. Taylor** **Cr. Jellie**	DCG, MEDE
c) Environment & Sustainability Advisory Committee	Quarterly	**Cr. Ziegeler**	DCG, MCS
d) Planning Advisory Committee	Quarterly	**Cr. Paspaliaris**	DCG, MCS&D
OTHER COMMITTEES – COUNCIL FACILITIES/SERVICES			
b) Bicycle Users Reference Group	Quarterly	**Cr. Paspaliaris**	DCI
c) Warrnambool Airport Reference Group	Quarterly	**Cr. Taylor**	DCI
d) Middle Island Reference Committee		**Cr. Ziegeler**	DCG
e) CCTV Steering Committee		**Cr. Arnott** **Cr .Paspaliaris**	DCI

Notes:

1. Whenever a Council representative fulfils a role of a director of a company or member of the executive committee for an incorporated association, the relevant articles of association should be obtained to ascertain the duties/responsibilities involved, also to ensure there is not likely to be any possible conflict of interest.
2. This schedule does not necessarily include all project steering committees or working groups (however named) which typically operate on a "sunset" basis. In addition, this schedule does not show the names of community members on various advisory bodies or committees; such appointments typically do not correlate with the Council year and are the subject of separate, specific Council decisions.
3. Legend, Officer Titles-CE (Chief Executive), DCS (Director Corporate Strategies), DCD (Director Community Development), DCG (Director City Growth), DCI (Director City Infrastructure),MHLL (Manager Health & Local Laws), MFS (Manager Financial Services), MIS (Manager Infrastructure Services), MCS&D (Manager City Strategy and Development), MCA (Manager City Amenity), MR&C (Manager Recreation & Culture), MOD (Manager Organisation Development), MCD (Manager Community Support), MFS (Manager Family Services), Manager Economic Development& Events (MEDE).

WARRNAMBOOL
CITY COUNCIL

Grants Policy

POLICY TYPE: COUNCIL

APPROVAL DATE: December 2022

REVIEW DATE: December 2026

GRANTS POLICY

DOCUMENT CONTROL

Document Title:	*Grants Policy*
Policy Type:	*Council Policy*
Responsible Branch:	*Executive Services*
Responsible Officer:	*Manager Governance, Property, Projects and Legal*
Document Status:	*Active*
Approved By:	*Council Resolution*
Adopted Date:	*5 December 2022*
Review Date:	*December 2026*

GRANTS POLICY

TABLE OF CONTENTS

GRANTS POLICY

1. INTRODUCTION

1.1. Purpose

This policy provides a framework, guiding principles and outlines requirements of Council administered grant programs.

This policy is designed to support effective governance of Council grant program development and administration.

This policy will:

- Guide the effective administration and assessment of Council grant programs
- Provide acquittal processes to ensure Council grant money is being used in accordance with the policy and any relevant grants program guideline.
- Seek to deliver best practice principles and good governance to grants including accountability, transparency, inclusiveness, and equitability.

1.2. Scope

This policy applies to Council administrated grants programs.

This policy applies to the role and responsibilities of Council Officers, Councillors and Contractors involved in grants, or grants processes administrated by Council.
The policy applies to all funding requests made to Council by third parties that fall within the definition of 'grant' as detailed in section 1.3 of this policy.

This policy does not apply to items such as:

- Transactions where Council is making a payment for goods and/or services rendered.
- Reimbursements
- Financial assistance requests made to Council that are of an emergent or abnormal nature and that do not fall within any criteria set as part of any Council grant program.

1.3. Definitions

Term	Definition
Acquittal	Means information provided by a grant recipient that provides sufficient evidence that funds have been administered responsibly and in line with approved application and conditions of the grant program
Council	Means Warrnambool City Council
Grant	Means a sum of money given by Council to an organisation or individual with an expectation that the money will be used for an agreed and particular purpose

1.4. Related Documents

Local Government Act 2020
Privacy and Data Protection Act 2014
VAGO Report – Fraud Control over Local Government Grants – May 2022

Council Strategic Documents:
- Council Plan
- Health & Wellbeing Plan
- Warrnambool 2040

Council Policies and Procedures:
- Fraud Prevention and Control Policy
- Fraud Prevention and Control Procedure
- Privacy Policy
- Governance Rules
- Grants Procedure
- Grants Program Guidelines Template
- Staff Code of Conduct
- Councillor Code of Conduct

2. POLICY

In seeking to achieve the objectives of the Council Plan and the responsibilities of Council in accordance with the Local Government Act 2020, Council will from time to time offer grant programs to inter alia:

- promote economic, social and environmental sustainability of the municipal district;
- deliver innovation and continuous improvement;
- achieve the best outcomes for the municipal community, including future generations; and
- ensure the ongoing financial viability of the Council.

Grants programs are to be approved by Council via a Council Resolution, and are to be reviewed at least every two years.

2.1. Policy Principles

The principles of this policy are:

- Enhance the community as well as contributing to the local economy
- Align with the Council's values, policies, plans and strategies
- Ensure the relationship established by virtue of the grant application will be transparent, produce outcomes of integrity and delivery tangible benefits to the community
- Minimise the risk of the approval of a grant entangling Council in controversial issues such as political or cultural sensitivities, or exposure to adverse criticism
- Encourage cooperation to ensure that all residents and organisations benefit from common resources
- Increase the range of, and access to, recreational, social, cultural and environmental activities, programs and services
- Support community development initiatives and socially responsible community activities
- Give particular consideration to those community groups that can give the greatest benefit back to the community
- Encourage and supports the principles of access and equity
- Ensure due diligence is applied to all grant applications seeking financial support

2.2. Development of Grants

Grants must take into account the principles and conditions set out in this policy.

A new grant program must have a guideline developed which is to include:

- Grant description/purpose
- Eligibility conditions
- Assessment criteria
- Funding conditions
- Officer(s) or service teams responsible for management and administering the grant
- Responsible officer(s) or panel/committee for assessment of applications
- Who is able to approve the award of the grant (grants up to and including $5,000 can be approved by department manager)
- Rounds and assessment frequency

Once a grant program guideline has been developed it must then be submitted to EMT for assessment against this policy.

The final draft of the grants program guideline must be issued to Council for approval by Council Resolution.

All new grants must:

- align with existing Council plans and/or strategies
- not duplicate or conflict with an existing grant
- contain grant names that reflect the grant purpose
- be developed in consultation with key internal stakeholders and external stakeholders (when required)
- be endorsed by Council

2.3. Application Process

All applications must meet the grant's eligibility criteria as outlined on each grant's guidelines.

All applications must be completed in full on closure of applications. Where not completed by the closure date, the application must be deemed non-compliant and will not be considered as part of the assessment process.

Council may request additional information from applicants when required. All supporting documentation requested must be provided to Council Officers within the specified timeframe. Applicants that do not provide all the additionally requested information will be deemed non-compliant and will not be accepted.

All eligible applications will be checked for eligibility by the Grants Officer or nominated Council officer.

Applicants should note that receipt of previous grants in any one year does not guarantee funding in future years.

2.4. Funding Pool

The funding pool for distribution across the nominated grant categories will be determined as part of the annual Council budget.

Recommended funding pool will be provided in a report at a Council Meeting where not set as part of the budget adoption or the overall approval by Council for the grant at its inception.

From time to time, when a specific community need arises, Council may provide additional funding for nominated grant categories.

A review of any Grants Program and allocated budgets to determine appropriate funding levels will be conducted as required.

2.5. Assessment and Approval Process

Grant applications will be assessed in accordance with the criteria and weighting as outlined in each Council grant's application guidelines by the nominated person(s)/Panel.

Eligible applicants with the strongest alignment with the grant criteria will be awarded the grant up to the limit where the fund allocation is expended, or as otherwise detailed in the specific grant guidelines.

Persons involved in the assessment or approval of applications must complete a probity form prior to completing any assessments, and adhere to Council's Conflict of Interest requirements set out in the Governance Rules and in this policy, and complete any available fraud training related to grants.

Assessment of grant applications must include the following conditions:

- Persons involved in assessment must not be the same as persons approving the grant application.
- Councillors are to be excluded in assessing and making grant recommendations.
- The Panels assessing grants will be determined and governed by the relevant Terms of Reference.
- Specific grant amount allocations will be approved in accordance with the grant guidelines and criteria.

2.6. Grant Payments and Conditions

Recipients of grants programs will:

- Provide Council with an invoice for the awarded amount (plus GST if applicable).
- Spend funds for the agreed purpose and report on the spending of funding received within 12 months after funding was received, or as required by the grants guidelines (see section 2.7).
- Council may accept extension for the above requirement on a case by case basis. Request for extension must be sent in writing to the applicable Council officer, outlining the reason for the extension and any substantial changes to their funding activity.
- Notify Council of any substantial changes to their funding activity throughout the funding period. Any significant variation of funding spend must be approved in writing by the Council.
- Return to Council any unspent or contractually uncommitted funds by the completion of the financial year (of grant round period in accordance with the grants program guidelines) for which the grant was given or any funds identified that were not utilised for the approved purpose.

2.7. Verification and Acquittal

All grant recipients must verify that grants funds were used for their intended and approved purposes.

Grants verification processes are to be outlined in the grants program guidelines for each grants program and are to be managed by the Grants Officer, or nominated council officer

Where a grant provided to an applicant is in excess of $20,000, an acquittal process must be undertaken. The acquittal process is to be outlined in the grants program guidelines for that grant. Acquittal reports must provide information that the grant was expended in line with the requested expenditure.

2.8. Grant Program Evaluation

At least every 2 years, each grants program guidelines needs to be reviewed in line with this policy and the Council Plan and any other related Council strategies, plans and policies.

The Grants Officer, or nominated Council Officer responsible for the grants program is responsible for ensuring reviews are undertaken.

The Executive Management Team (EMT) are responsible for notifying the Grants Officer, or nominated Council officers responsible for grants about any change to the organisation, budget, Council Plan or other strategic document that may impact on any Council administrated grants as soon as is reasonably practicable.

EMT should, as part of the budget development process each year, consider the ongoing value of any grants program and its alignment to Council objectives that are currently under operation by Council.

2.9. Grants Promotion

All public grants will be promoted on the Council website including key dates, application link and relevant information about the grant such as eligibility criteria.

Grant recipients must seek and gain approval for the use of Council logos on any promotional material.

Grant recipients for all grant categories will be approved by Council and this process will abide by the Privacy and Data Protection Act 2014.

3. GRANT PROGRAM CONDITIONS

3.1. General Ineligibility

Council will not enter into grants with parties who:

- Involve activities or programs that are the responsibility of another level of government (such as education, health); or are the responsibility of a group under their incorporation or lease/license agreement (including recurrent expenses and capital works);
- Are requesting funding that would otherwise be covered by insurance;
- Are unable to provide required documents as per the application guidelines.
- Do not support diversity, tolerance and inclusivity within the community;
- Support programs that create or may present hazards to the community;

- Contravene State and Commonwealth legislation, Local Laws or the Planning Scheme;
- Are seeking retrospective funding activities, programs and projects that have already started or have been completed;
- Submit applications not made through the official Council application process;
- Have outstanding grant acquittals;
- Are commercial and/or profit making organisations, political party or hosting a political event;
- Are currently involved in a tendering or procurement process with the Council;
- Are submitting an application for something that is an obligation under a lease agreement between Council and the organisation
- Do not have approval from the property owner (where not Council) included as part of their application.

3.2. Conflicts of interest

A conflict of interest occurs where there is a conflict between a person's private interests and their obligations as an officer, volunteer, contractor or Councillor.

All Councillors, officers and community members involved in funding assessment and approval processes are required to declare their interests prior to assessing and/or approving any applications or reviewing project evaluations and reports. This process ensures that any potential, actual or perceived conflict of interest is promptly identified and managed appropriately.

In the event of a conflict of interest, the relevant person must decline to participate in any discussion or decision about the application or report and have this declaration noted as per of the grants assessment process and in accordance with Council's conflict of interest processes as detailed in the Governance Rules.

3.3. Policy non-compliance

Failure to comply with this Policy could result in legislative non-compliance, adverse impacts on the reputation of Council, and poorer outcomes for the community.

Council reserves the right to withdraw grant funding with the External Party when they are considered to have not complied with the spirit of the policy and any written agreement entered into as a grant arrangements

3.4. Administrative Updates

It is recognised that, from time to time, circumstances may change leading to the need for minor administrative changes to this document. Where an update does not materially alter this document, such a change may be made administratively. Examples include a change to the name of a Council department and a minor update to legislation which does not have a material impact. However, any change or update which materially alters this document must be by resolution of Council.

3.5. Risk Management

Council have established fraud controls and anti-money laundering and counter-terrorism financial protocols which will extend to any payment made as part of a grants program.

Screening of applications is to take place by the Grants Officer and the nominated officer on receipt of all applications to ensure their validity and accuracy of the information provided in the applications. A documented screening process is to be undertaken where applications exceed $50,000.00.

4. GOVERNANCE

4.1. Owner

Manager Governance, Property, Projects and Legal

4.2. Review

The Manager Governance, will review the policy for any necessary amendments no later than 4 years after its formulation or after the last review.

4.3. Audit

Individual grant programs should be reviewed annually at the end of each grant round to ensure best practice and continuous improvement.

Community grants may be subjected to an independent review by Council's internal audit committee or external auditors. Any changes to community grants arising from the auditor's recommendations are to be reflected in subsequent funding rounds.

4.4. Compliance Responsibility

4.4.1. Management Executive Group (Chief Executive and Directors)
4.4.2. Managers and Supervisors
4.4.3. *All Employees*

4.5. Charter of Human Rights Compliance

It is considered that this policy does not impact negatively on any rights identified in the Charter of Human Rights and Responsibilities Act (2006).

Warrnambool City Council is committed to consultation and cooperation between management and employees. The Council will formally involve elected employee health and safety representatives in any workplace change that may affect the health and safety of any of its employees.

4.6. Gender Equity

In accordance with the Gender Equality Act 2020 the following will be undertaken in accordance with the legislation where possible:

- Any new grants program will undergo a Gender Impact Assessment during the development phase prior to being put to Council for adoption.
- Grants programs will undergo regular reviews against relevant equity and equality measures and available assessment tools. This can coincide with the full program review requirements which are to be undertaken at least every two years.
- Where possible, individual grant applications should be reviewed in consideration of intersectionality.

5. APPENDICES

Nil.

GRANTS POLICY

WARRNAMBOOL
CITY COUNCIL

DRAFT

Customer Service Charter

DRAFT

WARRNAMBOOL
CITY COUNCIL

The Council vision

Warrnambool is a thriving city at the heart of coast and country.

Purpose

Council is committed to providing high quality customer services that are accessible, responsive and inclusive.

Council strives for the fairest and best possible outcomes in customer interactions. Understanding our customers and providing excellent customer service is essential in helping us meet the needs of our community.

Our organisational values

Our customer service is guided by our values of respect, accountability, collaboration, progressiveness and wellbeing. These guide our conduct and interactions with our customers.

Our commitment to you

We commit to:

- act with integrity;
- respond in a timely fashion to inquiries;
- accept accountability for results;
- act on a basis of mutual respect; and
- aim for excellence.

What you can expect?

When you call us

When you call us we will answer your call promptly and identify ourselves by name. If the person answering the phone is unable to help you, you will be referred to the most appropriate staff member or agency should the matter fall outside of Council's service areas.

Please note however, there are times when the person or department you need to speak to may not be available, in these cases your enquiry will be recorded for the appropriate officer to respond to.
When referring your call internally or externally, the staff member will explain the situation to the person receiving your call, so you do not have to repeat yourself.

When you visit us

We will attend to you in a timely manner, and not leave you waiting unnecessarily. If we are unable to answer or resolve your matter in the first instance we will take the necessary steps to ensure a satisfactory response.

When you send us an email

Your email enquiry will be forwarded to the most appropriate staff member. We will acknowledge receipt of your email within one working day and will endeavour to respond to your email within five working days.
If the email relates to a request for services, you will be provided with a reference number with which to track the progress of the request, and referred to the appropriate staff member.
If the email relates to a dispute or complaint the email will be referred to the relevant service and handled within our complaint handling procedure.

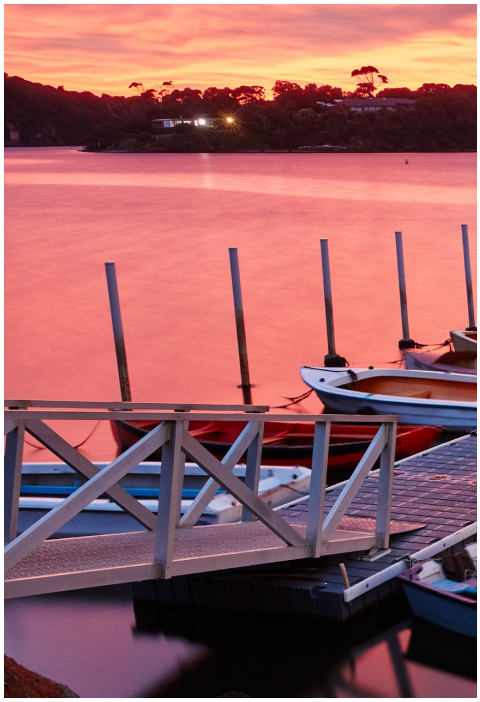
When you contact us via our website

If you lodge a customer request via our website you will be provided with acknowledgement and your request will be forwarded to the appropriate staff member to respond to.
If the inquiry relates to a request for services, you will be provided with a reference number with which to track the progress of the request, and referred to the appropriate staff member.
Customers can also engage directly with Council's City Assist team using the live chat function on the website.

When you write us a letter

We will respond to your written correspondence within 10 working days. If the letter relates to a request for services, you will be provided with a reference number with which to track the progress of the request, and referred to the appropriate staff member.

Service Standards



Responsiveness

We will attend to you, as our valued customer, in an efficient and timely manner.

We will communicate respectfully and will not discriminate on the basis of age, gender, cultural background or sexuality.

We will endeavour to resolve your enquiry at the first point of contact, or direct you to the most appropriate officer to help you

We will make contacting us easy, enabling you to talk to us in person, via phone or through our website.

We will acknowledge your electronic correspondence within five working days.

We will respond to phone messages within three working days.

We will respond to a letter within 10 working days. If the letter relates to a request for services, you will be provided with a reference number with which to track the progress of the request, and referred to the appropriate staff member.

As customers you will be provided with reference information to enable you to follow up on your enquiries.

We will inform you of expected response times and processes for further contact, with all your enquiries and be realistic about what we can do.

We will identify ourselves by name and unit responsible for action on your enquiry.

Conduct and knowledge

We will treat you in a courteous and professional manner.

We will act with integrity and respect.

We will be attentive to your needs & expectations, and provide an explanation when your needs & expectations are not able to be met.

You will be provided with accurate and consistent information in your liaison with Council.
We will ensure that front line customer service employees are identifiable with a name badge for ease of communication and identification.

We will endeavour to provide you with a single point of contact for updates on your issue.

We will ensure all relevant communication is captured and recorded in our corporate systems.

We will respect your privacy.

Equity and accessibility

General information on council services will be available to you, with access to this information, 24 hours per day via telephone and/or internet.

We will readily provide information in a variety of formats to increase accessibility (print, digital, audio)

We will accept payments on a variety of platforms to meet your needs – EFTPOS, credit card, B-Pay or bank transfer.

We will provide and maintain Council's website with up-to-date information Interpreters and other communication aids will be made available upon request.

We understand many people in the community have special needs. We will support the use of the National Relay Service which aids in accessibility to Council services.

We will maintain our social media platforms that encourage interaction and feedback, and provide timely responses as required. Information obtained from you will be treated in accordance with the provisions of the Privacy & Data Protection Act 2014.

Service quality and improvements

Warrnambool City Council will measure and improve the quality of our services by:

- Providing online and office based customer service feedback mechanisms for all stakeholder to provide feedback
- Actively seeking customer feedback via telephone, online surveys and in person.
- Actively seeking staff feedback to improve service delivery and support teamwork
- Use a variety of means, including new technology, to enhance our ability to engage with and connect to our community and customers.
- Communicating with you in a clear and concise language.
- Providing annual training and coaching for customer service staff.
- Ensuring Council maintains a defined system for managing complaints.
- Evaluating our performance and identifying opportunities for improvement.
- Striving for excellence and establishing key performance measures with results against these measures to be published annually.

Customer feedback

We will treat all compliments, complaints or requests received by you in a professional manner.

In every case we will explain the resolution process and provide assistance in an appropriate format.

We will share customer feedback regularly with staff, and develop and implement improvements.

Freedom of Information requests will be treated in accordance with the Victorian Freedom of Information Act 1982.

Expectations of our customers

When you contact us we expect you to:

- Treat our staff with dignity and respect; aggressive or abusive behaviour will not be tolerated.
- Provide as much information as possible including supporting documentation when making an enquiry.
- Ensure all required information is provided including contact details and signatures when submitting forms or applications.
- Provide up-to-date contact details and to let us know when your circumstances change.
- Provide us with open and honest feedback on our performance so we can continue to improve our service to our community.

Your rights to resolution

We are a large and diverse organization and endeavour to resolve issues at first point of contact. This is not always possible. If you are not satisfied with the response or action you have received, you may wish to lodge a formal complaint.

Complaints are handled in accordance with Council's Complaints Policy which can be found at **www.warrnambool.vic.gov.au**

Contacting Council

Whether you have a compliment, complaint or a request we would like to hear from you.

Visit
Civic Centre at **25 Liebig St Warrnambool**. Opening hours are 8.30am to 5pm Monday to Friday.

Telephone
(03) 5559 4800
1300 003 280 (local call charges apply)

After hours
(03) 5559 4800
Council provides a contracted after hours service for emergency Council services only. The nature of these calls will be assessed by this service to determine the best course of action. All messages to this service are recorded for Council review.

In writing
Warrnambool City Council
PO Box 198
Warrnambool VIC 3280

Email
contact@warrnambool.vic.gov.au

Website
www.warrnambool.vic.gov.au
The Warrnambool City Council website is a comprehensive source of information and will be able to assist with many of your queries in the first instance. This system allows you to submit a Customer Request online for our staff to action on your behalf.

Live Chat
You can contact us for an online chat via our website. Simply press the Live Chat – online option found in the top right hand corner of the homepage.
In writing
PO Box 198 Warrnambool VIC 3280

TTY/voice calls
If you have a hearing or speech impairment you can call through the National Relay Service (NRS)

- TTY users can phone **133677** then ask for **03)55594800** or **1300 003 280**
- Speak & Listen (speech to speech) users can phone **1300 555 727**, then ask for
- **(03) 5559 4800** or **1300 003 280**
- Internet relay users can connect to NRS on **www.relayservice.gov.au** then ask for **(03) 5559 4800** or **1300 003 280**

Templates and resources

to support gender impact assessments

Contents

How to use these supporting templates and resources

These templates are designed to support your work in Section 3 of the **Gender impact assessment toolkit** ('the toolkit').

There is a template aligned to each of the 4 steps involved in conducting a gender impact assessment. Each template provides a useful record for reporting and can assist with demonstrating your compliance with the Gender Equality Act.

These templates are also available to download on the Commission for Gender Equality in the Public Sector website.

The use of inclusive language in this document

When this document refers to 'woman/ women' or 'man/men' it refers to female or male identifying people; this includes transgender people, cisgender people, and others who identify themselves within the spectrum of the gender identity of woman or man. This document also uses the term 'gender diverse people', who may identify as non-binary, trans, agender, qenderqueer, genderfluid or with any other term. For more information see the Victorian Government Inclusive Language Guide.

Template 1: Define the issues and challenge assumptions

This template is designed to support your analysis for Step 1 of the gender impact assessment process. You can read more on pages 18 to 20 of the toolkit.

A. What issue is the policy, program or service trying to address?

See page 18 of the toolkit. Think about why this policy, program or service is needed.

The Customer Service Charter sets out Council's customer service commitments to the whole community. It describes what the community can expect of Council when interacting with Councillors and Council staff, including basic standards of service. The charter also sets out the expectations Council has of its customers.

This document informs other key Council documents including the Customer Service Strategy and Communications Strategy.

B. Key questions

See page 19 of the toolkit – summarise the key points of your discussion for each question. Remember this is an opportunity to critically analyse the issue. If you feel you need more information to answer the question, note this down and you can come back to this in Step 2.

1. Are the people who are targeted and impacted by the policy, program or service included in the decision-making?

Council staff have been consulted in the re-drafting of the Customer Service Charter. It is proposed that the Draft Customer Service Charter be presented at an open Council meeting at which the Council then approves the Charter for community consultation in line with Council's Community Engagement Policy.

Is more information needed? Yes ☒ No ☐

2. Do you think that people of different genders access this policy, program or service at the same rate?

The charter is a foundation document for customer service across Council, therefore the commitments made in in the Charter have the capacity to be positively influential in terms of enabling access to Council services and programs.

So while the Charter is not a program or service in itself, it has the capacity to inform staff and customers about their rights and obligations which in turn should ensure equality of access for all people to Council programs and services.

Is more information needed? Yes ☐ No ☐

3. Do you think that everyone who accesses this policy, program or service has the same needs from it?

Think through in a practical sense how people of different genders might benefit from this.

Fundamentally, Council exists to help and support people. The Charter describes how Council will do this and needs to ensure that it does so in a way that does not discriminate.

The charter contains explicit direction that Council staff will not discriminate against people based on their gender, cultural background, age, religion or sexuality.

Is more information needed? Yes ☐ No ☒

4. Do the different social roles and responsibilities that people take on affect the way people access and use this policy, program or service?

The delivery of customer service is practised by every Council staff member, whether internally or externally, in-person or online. The charter applies to all Council staff and because of this seeks to ensure that there is no discrimination when it comes to accessing or using Council policies, programs or services.

Is more information needed? Yes ☐ No ☒

5. What additional needs might there be for people with disabilities, or from different cultural identities, ages, gender identities, sexual orientations or religions?

Cultural identity – the charter states that no person will be discriminated against on the basis of cultural identity.

Age – the charter references that no person will be discriminated on the basis of their age. (It is important to note that Council does run age-based celebrations eg Celebrage.)

Sexual identity – the charter states that no person will be discriminated against on the basis of their sexual orientation.

Religion – the charter states that no person will be discriminated against on the basis if their religion.

Is more information needed? Yes ☐ No ☒

C. What will you focus on in your assessment so that you consider how gender shapes the issue?

Feedback from colleagues of different genders has shaped the charter so far and a further opportunity exists for the broader community to do so when the charter is released for community consultation.

Template 2: Understand the policy context

This template is designed to support Step 2 in the gender impact assessment process and should be used in conjunction with pages 22 to 28 of the toolkit.

1. What information is available to understand who is likely to be affected by the policy, program or service? List available information.

Council customers include primarily all residents of the Warrnambool municipality but also visitors to the city.

Council has access to comprehensive census information from the Australian Bureau of Statistics which describes the demographic composition of the population.

Council has a range of other more specific information about the community through the services it provides ranging from early years learning through to home support, participation in sport and recreation programs etc.

Do you already have this information? If yes, list sources.

☐ Yes ☒ No

ABS

How will you find the further information you need? List useful sources.

☒ Internal data

☒ Desktop research

☒ Stakeholder consultations

☐ Other

Click or tap here to enter text.

What did the research and evidence tell you?

Make sure to reference the sources you used. List the key points below or include a link to a document summarising the evidence.

Internally most Council staff are identified as female (through our mandatory reporting requirements e.g. annual report human resources data).

Have you consulted with affected stakeholders on this aspect?

This could be formal or informal consultation. If yes, please give details. If no, please explain why not.

☒ Yes ☐ No

Councillors and key staff have been consulted. It is proposed that the draft Customer Service Charter be put before the community for comment.

2. What information is available to understand the lived experiences of the diverse groups who will be affected? List available information.

Council regularly consults with the community in relation to "big picture" projects such as the Council Plan, annual budgets. It also consults with the community on other projects such as beach access and significant policy changes.

Do you already have this information? If yes, list sources.

☒ Yes ☐ No

Council reports made on individual projects include sections on feedback received through community consultation and through these processes Council is able to build a picture on the experiences of people using or seeking to use Council services.

A number of Council services do post-event surveys to gauge the experience of participants eg immunisation service, holiday parks.

How will you find the further information you need? List useful sources.

☒ Internal data

☒ Desktop research

☒ Stakeholder consultations

☐ Other

Click or tap here to enter text.

What did the research and evidence tell you?

Make sure to reference the sources you used. List the key points below or include a link to a document summarising the evidence.

This is not relevant to include in the Customer Service Charter.

Have you consulted with affected stakeholders on this aspect?

This could be formal or informal consultation. If yes, please give details. If no, please explain why not.

☐ Yes ☒ No

Click or tap here to enter text.

3. How is this policy, program or service likely to have different impacts for different people? List available information.

The Customer Service Charter provides our commitment to the community around the standards of service we will provide which can have a fundamental influence over how welcome people feel, whether they know they are eligible for a service and/or whether they have access to the

information from Council that they require e.g. aware that they can appeal a parking fine, whether they are eligible for pensioner discounts etc.

Do you already have this information? If yes, list sources.

☒ Yes ☐ No

Key Council staff including the City Assist team are trained on ensuring that people have access to the information they need to access service and support.

How will you find the further information you need? List useful sources.

☒ Internal data

☒ Desktop research

☒ Stakeholder consultations

☐ Other

Click or tap here to enter text.

What did the research and evidence tell you?

Make sure to reference the sources you used. List the key points below or include a link to a document summarising the evidence.

City Assist team members as a "front of house" service are thoroughly trained in the diverse operations of Council and are well placed to provide help and advice.

Have you consulted with affected stakeholders on this aspect?

This could be formal or informal consultation. If yes, please give details. If no, please explain why not.

☒ Yes ☐ No

It is proposed that the draft Customer Service Charter be released to the wider community for comment.

Template 3: Options analysis

This template is designed to be used in conjunction with pages 30 to 33 of the toolkit to support you to undertake an options analysis to consider the gendered benefits and costs and overall gendered impact of your proposed policy, service or program design. This step pulls together all the analysis you have undertaken in Steps 1 and 2. There is an example at page 33 of the toolkit which may assist in completing this template.

A. Proposed Option 1

For each option describe the proposed policy solution, or design of the program or service you are working on. See page 30 for what you should include.

There are some costs incurred in delivering the charter and they can include translation costs, hiring of venues.

B. Gendered costs and benefits

Use your analysis in Steps 1 and 2 to identify the potential benefits and costs of your proposed policy, program or service. See page 31 for some guiding questions.

Benefits

Benefits ensure the provision of equitable access to information about services, support and advice available through Council.

Costs and risks

In not meeting the standards set out in the Charter Council may discriminate against some members of the community.

C. Overall gender impact

Assess the overall gender impact. Do the benefits outweigh the costs or vice versa? Figure 6 on page 32 provides some examples of negative and positive outcomes. See also the examples on page 33.

The charter is largely about attitudes and behaviour and ensuring that Council treats all people fairly and equitably is a non-negotiable expectation.

A. Proposed Option 2

For each option describe the proposed policy solution, or design of the program or service you are working on. See page 30 for what you should include.

N/A

B. Gendered costs and benefits

Use your analysis in Steps 1 and 2 to identify the potential benefits and costs of your proposed policy, program or service. See page 31 for some guiding questions.

Benefits

N/A

Costs and risks

Click or tap here to enter text.

C. Overall gender impact

Assess the overall gender impact. Do the benefits outweigh the costs or vice versa? Figure 6 on page 32 provides some examples of negative and positive outcomes. See also the examples on page 33.

Previously answered

Template 4: Making recommendations

The final step in the gender impact assessment process is to make a final recommendation based on your analysis. Provide a rationale for the proposed recommendation and include any mitigation strategies that could be used to avoid any harmful unintended outcomes

Recommendation

See page 34 of the toolkit for an example of a recommendation.

Click or tap here to enter text.

Description

Include here the rationale for your recommendation as well as any mitigation strategies needed. In line with the Gender Equality Act, explain how your recommendation meets the needs of persons of different genders; addresses gender inequality; and promotes gender equality.

It is recommended that the draft Customer Service Charter, which includes revisions suggested by several Council staff, proceed to an open Council meeting in order to obtain feedback from the general community.

The Customer Service Charter is fundamental to the shaping of behaviour and attitudes towards people of all genders and will promote gender equality in the provision of information and in access to Council services and programs.

Warrnambool City Council
Short Stay Accommodation (SSA) Research

There are currently a number of Short Stay Accommodation (SSA) properties available for rent in Warrnambool. It is difficult to determine the exact number, but current estimations would be approximately 100 properties within WCC are solely being used for this purpose.

The questions are because SSA is providing a source of income should their contribution to Council be greater and does the Council need to do more to ensure the community is not negatively impacted by SSA? Warrnambool City Council welcomes visitors to the region, but must also ensure that the local communities continue to enjoy the benefits the area has to offer.

One point we need to keep in mind, drawn from the rating strategy is ensuring WCC is applying the fairest and most equitable method of distributing rates across WCC. It also states there is no limit on the number, or type of differential rates, but the highest differential rate can be no more than four times the lowest.

If the Council believes that this is an important issue to address, how can this be achieved? Options include applying a differential rate – either Commercial or SSA specific, via a registration process, governed via Local Laws, or a combination of both. There is currently no uniform approach to this issue with Councils adopting various different systems.

Options

1. **Local Law and Fee** — example – Mornington, Frankston
2. **Differential Rates – Commercial** — example – Mildura, Alpine Shire, Glenelg
3. **Differential Rates – Specified Short-Stay Rate Code** — example – Queenscliffe, Colac
4. **Differential Rates – Specified SSRC + Registration Fee** — example – Noosa

1. Local Law and Fee

Council Benefits

- Additional income for council (Income will go towards ensuring compliance by Local Laws).
- The Local Law places the responsibility of the occupant behaviour on the owner of the property.
- Responsibility is placed on the owners to register their SSA.
- Ability to set the annual registration fee amount (Can be set to incorporate costs).
- Annual fee – no pro-rata required.

Community Benefits

- Regulate and control the use of SSA.
- Ensure an appropriate standard of management and presentation of such accommodation.
- Minimise the risk of such accommodation affecting the amenity of the neighbours.
- Provides rules about noise expectations, property presentation, parking requirements, a designated contact person (available within 2 hours).
- Complaints investigated (possibility to have registration cancelled).

Problems

- Additional work for Local Laws.
    - Required to set, ensure compliance and collect penalties.
    - Time consuming process to locate, confirm and monitor SSA properties. Will need to be done at least quarterly to ensure equity.
- Process to introduce a new local law is involved.
- Compliance from community.
- Expecting people to self-register.
- Creating/managing online environment for registration.

2. Differential Rates - Commercial

Council Benefits

- Responding to community appeal.
- Providing a fair and equitable rating system.

Community Benefits

- Additional rate payers added to the Commercial pool. Distributing Commercial rates between businesses and those providing SSA, which can be quite lucrative.

Problems

- Doesn't draw additional income.
- Past councils have encountered some resistance when moving straight to a Commercial rate.
- Administratively cumbersome.
    - Additional administrative resources required with no additional income source.
    - Time consuming process to locate, confirm and monitor SSA properties. Will need to be done at least quarterly to ensure equity.
    - Time required to change properties between the differential rates if there is a change of use.
- Difficult to identify and determine which properties are SSA.
- Council's responsibility to determine SSA.
- Difficult to determine and administer pro-rata SSA.
- Need to create rules around SSA time-frame.
- Envisage future issues with people sourcing rate refunds. Hard to prove category.

3. Differential Rates – Specified Short Stay

Council Benefits

- Responding to community appeal.
- Providing a fair and equitable rating system.
- Can set the amount deemed appropriate for SSA.
- SSA properties on system are easily identifiable.

Community Benefits

- Community will be pleased SSA owners are paying more than residential, given the income they are sourcing from these properties.
- SSA owners may be more satisfied that the individual differential rate is reflective of the benefit they receive (as opposed to the general Commercial rate).

Problems

- Doesn't draw additional income.
- Administratively cumbersome.
    - Additional administrative resources required with no additional income source.
    - Time consuming process to locate, confirm and monitor SSA properties. Will need to be done at least quarterly to ensure equity.
    - Time required to change properties between the differential rates if there is a change of use.
    - Another differential rate to be created in TechOne.
- Difficult to identify and determine which properties are SSA.
- Council's responsibility to determine SSA.
- Difficult to determine and administer pro-rata SSA.
- Need to create rules around SSA time-frame.
- Envisage future issues with people sourcing rate refunds. Hard to prove category.

4. Differential Rates – Specified SSA Rate Classification + Local Law Registration Fee

Council Benefits

- Responding to community appeal.
- Providing a fair and equitable rating system.
- Can set the amount deemed appropriate for SSA.
- SSA properties on system are easily identifiable.
- Additional income for council via registration fee (Income will go towards ensuring compliance by Local Laws).
- The Local Law places the responsibility of the occupant behaviour on the owner of the property.
- Responsibility is placed on the owners to register their SSA.
- Ability to set the annual registration fee amount (Can set to incorporate costs).

Community Benefits

- Additional rate payers added to rate pool, paying more than general but less than Commercial.
- Community will be pleased SSA owners are paying more than residential, given the income they are sourcing from these properties.
- SSA owners will be pleased they don't have to pay full Commercial rate. Need to ensure differential rate + fee would be less than Commercial rate.
- Regulate and control the use of SSA.
- Ensure an appropriate standard of management and presentation of such accommodation.
- Minimise the risk of such accommodation affecting the amenity of the neighbours.
- Provides rules about noise expectations, property presentation, parking requirements, a designated contact person (available within 2 hours).
- Complaints investigated (possibility to have registration cancelled).

Problems

- Administratively cumbersome for both Revenue and Local Laws:
    - Time consuming process to locate, confirm and monitor SSA properties. Will need to be done at least quarterly to ensure equity.
    - Time required to change properties between the differential rates if there is a change of use.

    - Another differential rate to be created in TechOne.
    - Local laws required to set, ensure compliance and collect penalties.
    - Process to introduce a new local law is involved.
- Difficult to identify and determine which properties are SSA.
- Difficult to determine and administer pro-rata SSA.
- Need to create rules around SSA time-frame.
- Envisage future issues with people sourcing rate refunds. Hard to prove category.
- Additional work for Local Laws.
- Compliance from community.
- Expecting people to self-register.
- Creating/managing online environment for registration.

State Direction

Bree Ryan, General Counsel, Strategy & Procurement, is currently involved in discussions with MAV around the possibility of uniform Short Stay Accommodation requirements being state directed. These discussions are expected to be ongoing and a resolution on a State based approach may not be available in the short-term. Councillors will need to be aware of the possibility of a State based approach into the future as they make decisions on Short Stay Accommodation.

Examples

1. Local Law and Fee

Mornington Peninsula Shire
Website - https://www.mornpen.vic.gov.au/Online-Forms-and-Services/Short-Stay-Rental-Accommodation-Local-Law?BestBetMatch=airbnb|d13b95b2-5146-4b00-9e3e-a80c73739a64|4f05f368-ecaa-4a93-b749-7ad6c4867c1f|en-AU

- Short Stay Rental Accommodation Law. The local law places the responsibility for occupant behaviour on the owner of the property.
- Can Register a New Short Stay Rental online via website.
- $300 annual fee.
- Penalty – Is between 5 and 10 units. 1 penalty unit is $181.74 (Monetary Units Act 2004)

Website includes:

- Short Stay Rental Accommodation Local Law
- Short Stay Rental Accommodation Code of Conduct
- Information for Property Owners, including document templates for Letter to Neighbours and Code of Conduct for display.
- Information for Neighbours and details on how to report issues. Contact – Council – Police
- Registration Portal

Mornington have provided feedback that their SSA LL has a lot of legal gaps and will be revamped over the next year two – based closely on Noosa's SSA LL.

Frankston City Council
Very similar to Mornington
https://www.frankston.vic.gov.au/Our-Community/Community-Safety/Short-Stay-Rental-Accommodation-Registration

- Short Stay Rental Accommodation Law. The Short Stay Rental Accommodation Local law 2020 came into operation on 10 April 2020.
- Compulsory for owners to register the property and renew the registration each financial year.
- The definition of a Short Stay Rental Accommodation is "accommodation provided by the owner of a property, for fee or reward, to another person, for no more than 30 consecutive days on that property.
- $150 annual fee (fee is calculated on a quarterly pro rata basis, quarterly at the time of application).
- Can register online via website.
- Non-compliance is stated as – may result in enforcement action being taken including Infringement Notices or Court Action.
- Penalty – 5 penalty units.

2. Differential Rates – Commercial

Mildura Rural City Council
https://www.mildura.vic.gov.au/Mildura-Rural-City-Council

- Contact - Craig McErvale

- Differential (Business)
- Haven't experienced any resistance
- Only revert back when somebody declares in writing that the property is no longer used for SSA.
- They spend some time determining if a property is SSA – searching websites Stayz, Airbnb, checking out signage, checking with local tourist office.
- Don't have a policy or documented process.
- If they determine SSA then it is up to the owner to contest.

Alpine Shire Council
https://www.alpineshire.vic.gov.au/

- Contact – Kate Davie
- Differential Commercial/Industrial Rate – 43% higher than general
- Do pro-rata for year
- Don't charge if principle place of residence
- Send a letter to new owners when a property sells asking them to advise if it is not going to be used as holiday rental anymore, otherwise it continues.
- Do audits to try and find new holiday rentals – then send letters out to these owners
- Details outlined budget document – via rates section

Glenelg Shire
https://www.glenelg.vic.gov.au/page/HomePage.aspx
Revenue and Rating Plan https://www.glenelg.vic.gov.au/Page/Download.aspx?c=15395

- Contact – Shelly
- Commercial/Industrial rate is the same as General rate.

3. Differential Rates - Specified Short-Stay Rate Code

Colac Otway Shire
https://www.colacotway.vic.gov.au/Home

- Contact - Paul Carmichael
- Differential (Specified - Holiday Rental – 15% higher than residential)
- Main issues
    - They charge for the entire year, and people complain that they only let the property out for some of the year. They say it's the same as a shop that is still rated at the Commercial rate even when the shop is closed. They don't intend to provide pro-rata rate for letting the property out for some of the year.
    - Spend a lot of time identifying properties.
- Tip – Don't forget to get the AVPC code changed from residential to the appropriate code.

Borough of Queenscliffe
https://www.queenscliffe.vic.gov.au/Home

- Contact - Fiona Kerney
- Differential Rate – Tourist Accommodation – 110% of the General Rate – since 2013/14. Also have a commercial rate set at 130% for properties with 6 or more bedrooms, guest houses, hotels, large B&Bs etc.
- From 2004/2013 they were classified as Commercial.

- The Tourist rate is never applied pro-rata – once the property is identified it is applied whether it is for a whole house, bungalow, unit or just a room on Airbnb – review definition from current 2019 rating strategy.
- Have 338 properties listed as SSA – only 3112 in total.
- Spend a lot of time finding SSA properties/writing to them to inform they have been changed. Don't seem to receive much resistance – generally only questioned by new owners.
- Include a statement and the definition on LICs, stating the property is currently classified as Tourist Accommodation and if the purchaser is not going to use it for this purpose they should notify Council.
- Definition:
  - Tourist accommodation land is any land, which:
  - contains a dwelling, unit, cabin or house or part of a house; and
  - with five or less bedrooms; and
  - used, whether primarily or otherwise, to provide holiday accommodation for the purpose of generating income from the provision of such holiday accommodation; and
  - where "any part" of the property is used for tourist accommodation; and
  - for "any period of time" during the financial year (no matter how seldom); and
  - currently being used, or advertised as being available for use, as tourist accommodation.

4. Differential Rates – Specified SSA Rate Classification + Local Law Registration Fee

Noosa Council
https://www.noosa.qld.gov.au/short-stay-letting-home-hosted-accommodation-local-law

This law regulates the ongoing operation of short stay letting and home hosted accommodation and manages the impacts on permanent residents and guest safety.

- On commencement of the new local law on **1 February 2022,** complaints will be managed through a centralised 24/7 complaints hotline. Short stay let properties are required to display an approval notice at the front of the property, including the 24/7 complaints hotline number and approval number. Complaints will be made directly to the complaints hotline, which will then notify the property's nominated contact person of the complaint. The contact person must respond to a complaint within 30 minutes of being notified.
- The local law regulates and manages the ongoing use of short stay letting to reduce the impacts on permanent residents and A residential amenity through a local management framework and code of conduct for guest behaviour
- Haven't determined fees yet – to be determined early 2022. The new fees will commence from 1 July 2022.
- Every rateable property in the Noosa region is levied a general rate. As Noosa Council uses a system of differential general rates all properties in the Noosa region are classified into one of 38 general rate categories, each with its own rate in the dollar and minimum general rate.

Estimations – Warrnambool City Council
- Airbnb 80
- Stayz 40
  May be some double ups

Recommendation

1. Local Law and Fee

Initially it has been recommended WCC will proceed with the implementation of a Short Stay Accommodation Local Law and Registration Fee. In future the introduction of a differential rate may be investigated.

Registration Fee Amount
The amount of $500 is suggested for the registration fee. The comparison registration fees found are between $150 and $389, but these councils have a larger proportion of Short Stay Accommodation properties to support the fixed administration fees. This registration fee will contribute to covering administrative costs with the balance being invested to undertake visitor information services, promotion and tourism strategies.

Short Stay Accommodation Definition Examples

Hepburn Shire Council
Includes rateable land which is used for short term accommodation which does not qualify as Residential under the Residential Tenancies Act 1997 characterised by stays of greater than 60 days and the existence of a tenancy agreement to which the Residential Tenancy Act 1997 applies.
https://www.hepburn.vic.gov.au/wp-content/uploads/2021/06/Hepburn-Shire-Council-Budget-2021-2022.pdf

Mornington Peninsula Shire
Short Stay Rental Accommodation means accommodation for no more than 30 consecutive days or 1 month in a dwelling for commercial gain, excluding other accommodation premises required to be registered under alternate legislation.
https://www.mornpen.vic.gov.au/Online-Forms-and-Services/Short-Stay-Rental-Accommodation-Local-Law?BestBetMatch=airbnb|d13b95b2-5146-4b00-9e3e-a80c73739a64|4f05f368-ecaa-4a93-b749-7ad6c4867c1f|en-AU

Frankston City Council
The definition of a Short Stay Rental Accommodation is “accommodation provided by the owner of a property, for fee or reward, to another person, for no more than 30 consecutive days on that property, but does not include any property that is required to be registered under any other Act or regulation”.
https://www.frankston.vic.gov.au/Our-Community/Community-Safety/Short-Stay-Rental-Accommodation-Registration

Definition Recommendation

Our recommendation is to follow the Hepburn Shire Council definition as at links to the Residential Tenancies Act and expand further to include requirement only for separate residences, including adjoining dwellings with separate entries.

Result
Definition: Short Stay Rental Accommodation includes rateable land which is used for short term accommodation which does not qualify as Residential under the Residential Tenancies Act 1997 characterised by stays of greater than 60 days and the existence of a tenancy agreement to which the Residential Tenancy Act 1997 applies. Registration will be required for each separate residence, including adjoining dwellings with separate entries. Individual rooms within a principle place of residence are excluded.

Penalty Examples

Mornington Peninsula shire
Between 5 and 10 penalty units depending on the infringement.
1 penalty unit = 1 penalty unit is $181.74 (Monetary Units Act 2004), therefore being between $908.70 and $1817.40

Frankston City Council
All infringements are 5 penalty units totaling $908.70.

Yarra Ranges Council
Where a Council Officer has found three or more complaints with supporting evidence have been made against the Short Stay Accommodation property, the property owner may be issued an Infringement to the value of $1,000 or the matter may proceed to court

Penalty Recommendation
Our recommendation is to apply the 5 penalty unit fine across all infringements relating to the Short Stay Rental Accommodation Local Law.

Warrnambool City Council

Local Law Community Impact Statement

Short Stay Rental Accommodation Local Law 2022

Council provides the following information to the community in respect of the proposed Local Law.

Warrnambool City Council (**Council**) is proposing to create a Short Stay Rental Accommodation Local Law (**Short Stay Local Law**), to be adopted in 2022.

This Community Impact Statement has been prepared to inform the community about the proposed Short Stay Local Law and to assist any member of the public who may wish to make a submission to Council during the public consultation process required under the *Local Government Act 2020* (**Act**).

PART A – General comments

Background

Local Laws enable Council to impose legislative controls that reflect the unique circumstances of each municipality. The *Local Government Act 2020* outlines the powers of councils to implement local laws, the legislative requirements that councils must follow, and requirements for councils to follow when engaging with the community about new or changing local laws.

Warrnambool is a vibrant and dynamic municipality that is home to approximately 35,000 people. It boasts an enviable mix of seaside location, tourism and family appeal. Council has historically, and continues to, invest heavily in our City's tourism sector. The work of Council directly and indirectly impacts the visitor experience and short stay accommodation providers benefit from this investment.

The proposed Short Stay Local Law will include the implementation of a registration fee for short stay accommodation providers, which include properties being advertised on accommodation websites.

The Short Stay Local Law registration fee will ensure that this section of the market contributes to Warrnambool's visitor economy, which includes the cost of providing:

- Visitor Information Centres;
- events and festivals;
- Flagstaff Hill Maritime Village;
- The Lighthouse Theatre;
- The Warrnambool Art Gallery;
- destination marketing and regional tourism initiatives;
- coastal and open space preservation; and
- visitor infrastructure (airport, port, public toilets, aquatic centre, playgrounds, and public waste management).

While some of the services above are principally for visitors, many are used by both locals and visitors.

Council welcomes visitors to the region, but must also ensure the local community continues to enjoy the benefits the area has to offer and those owners impacted by the Short Stay Local Law act responsibly and properties are managed appropriately. With this in mind, Council has decided to introduce the Short Stay Local Law to ensure both equity and community protection.

Council has previously considered different measures to mitigate the need for the Short Stay Local Law

including the application of differential rating, however, Council has determined that the most appropriate method to ensure appropriate contribution to the visitor economy is implementing the Short Sty Local Law.

Overview of Proposed Local Law

The Short Stay Local Law is being made under s71 of the Act and will operate throughout Council's municipal district.

The Short Stay Local law, to be known as *Local Law No.2 Short Stay Rental Accommodation 2022*, will commence on the day following the day on which notice of the making of this Local Law is published in the Victorian Government Gazette and will expire on the tenth anniversary of its commencement.

Objectives

The objectives of the proposed Local Law are to:

- provide clear guidelines on the required standards for the operation of this type of accommodation;
- ensure equity within the municipal tourism sector by Short Stay Rental Accommodation providers contributing to the tourism sector;
- enhance neighbourhood amenity;
- provide for the administration of this Local Law and of Council's powers and functions; and
- assist with the Peace, order and good governance of the municipal district.

Under section 223 of the Act, Council is required to give public notice of the Short Stay Local Law and invite submissions for a period of at least 28 days.

The statutory consultation period will run from 6 December 2022 to 31 December 2022.

Anyone who makes a written submission can request to be heard in support of their submission at the Ordinary Council Meeting which considers the making of the proposed Local Law, details of which will be provided.

The proposed Local Law has been reviewed by Council's lawyers who confirm that it complies with all regulatory requirements.

A copy of the proposed Short Stay Local Law is attached (**Attachment A**) to this Community Impact Statement.

PART B – Comments on proposed Local Law overall

Measures of success of proposed Local Law	The success of the Short Stay Local Law will be measured by the extent to which it: • regulates and controls the use of short stay rental accommodation; • ensures an appropriate standard of management of the accommodation; • requires fines to be issued (aiming for zero fines); and • implements a registration requirement (aiming for $20,000 in income to contribute to the tourism sector).
Existing legislation that might be used instead	The proposed Short Stay Local Law addresses matters within Council's broad functions and powers under the Act. In preparing the Short Stay Local Law, Council has taken care to ensure that no clauses are included that relate to matters addressed under existing State or Commonwealth legislation.
Overlap with existing legislation	In developing the proposed Short Stay Local Law, Council has not sought to address any issues which it feels are best addressed at the State or Commonwealth level. Existing State legislation also deals with: • unreasonable noise (*Environmental Protection Act 2017*); and

	• nuisance (*Public Health and Wellbeing Act 2008*). Council believes that the Short Stay Local Law supplements the State legislation without duplicating, overlapping or creating inconsistencies.
Overlap of planning scheme	The proposed Short Stay Local Law does not overlap with, duplicate or create any inconsistency with the Warrnambool City Council Planning Scheme.
Risk assessment	No formal risk assessment has been undertaken. Council does not consider that there are any risks associated with the proposed Local Law.
Legislative approach adopted	The proposed Short Stay Local Law seeks to place the minimum imposition on the municipality. This approach is evidenced by: • where possible, adopting a performance based, rather than prescriptive, approach in the Short Stay Local Law; • reasonable penalties and allowing a period of compliance prior to enforcement action; and • creating minimum possible provisions creating offences. All provisions of the proposed Short Stay Local Law are open to public scrutiny and comment. This approach is similar to those adopted in other holiday destination Council locations.
Restriction of competition	Council has conducted a review of the proposed Short Stay Local Law in accordance with National Competition Principles and believes that and considers the Short Stay Local Law is consistent with these.
Penalties	In line with other State councils our recommendation is for all offences created under the proposed Short Stay Local law to apply the five penalty unit fine. Council is satisfied that these penalties are sufficient to act as a deterrent for most offences while also reflecting the seriousness of those offences.
Permits	The proposed Short Stay Local Law makes provision for: • the issue of registrations for Short Stay Rental Accommodation properties.
Fees	The proposed Short Stay Local Law provides for Council to determine the prescribed fees and charges. This will occur annually as part of Council's Budget process. Council's recommendation is to apply a $400 registration fee for the 22/23 financial year noting that fees will not be applicable until [7 February 2023]. Fees will be for a period of 12 months and will apply from registration.
Comparison with neighbouring and like Councils	Councils whose Local Laws have been compared in relation to the annual registration fee include: • Mornington Peninsula Shire –a $300 fee; and • Frankston City Council –a $150 fee. Each Council listed below charge a differential rate for short term rental accommodation which may amount to more than the existing Council recommended

	registration fee in the proposed Local Law: • Mildura Rural City Council; • Alpine Shire Council; • Colac Otway Shire; • Borough of Queenscliffe; and • Hepburn Shire Council, For example: *Alpine-Shire Council charge short-term accommodation providers the commercial/industrial rate:* *General Rate Residential - 0.00275 x $600,000 = $1650.00* *Commercial and Industrial Rate – 0.003933 x $600,000 = $2359.80* *Variance between residential and rate for an accommodation provider = $709.80* *Borough of Queenscliffe has a specified Tourism accommodation differential rate:* *22/23 Tourist Accommodation – 0.0016406875 x $600,000 = $984.41* *22/23 Residential – 0.0014915340 x $600,000 = $894.92* *Variance between residential and rate for an accommodation provider = $89.49* *Hepburn Shire Council charge the Commercial and Industrial Rate for short-term accommodation providers.* *General Rate Residential - 0.002927 x $600,000 = $1756.20* *Commercial and Industrial Rate – 0.003395 x $600,000 = $2037.00* *Variance between residential and rate for an accommodation provider = $280.80* Council has previously considered charging a differential rate which is charged to a commercial accommodation provider (for example a motel). This would equate to a significant impact to the owner of the short stay accommodation but would not meet the economic benefits of the proposed Local Law. For example, *Other Land Rate - 0.00264 x $600,000 = $1584* *Commercial Rate – 0.006162 x $600,000 = $3697.20* *Variance between residential and rate for an accommodation provider = $2113.20. Under the proposed Local Law, a short stay accommodation provider would be required to pay, for example $1584 + $400 registration fee = $1984.*
Charter of Human Rights	The proposed Short Stay Local Law has been reviewed for compatibility with the *Charter of Human Rights and Responsibilities Act 2006* and is considered no incompatibility arises.
Consultation meetings	The proposed Short Stay Local Law has been reviewed in consultation with Councilors, members of Council staff and Council's external legal advisers.
Submissions	A community consultation process will be conducted in accordance with sections 119(2) and 223 of the Act. This will require council to give public notice of its intention to make the proposed Short Stay Local law and provide members of the public with an opportunity to make a written submission to Council in relation to the proposed Short Stay Local law. Council will consider submissions received before making a final decision.

	A person who makes a written submission is entitled to request (in the submission) to be heard by Council in support of the submission. This Community Impact Statement has been prepared to inform the community about the proposed Short Stay Local Law and to assist any member of the public who may wish to make a submission to Council.

Part C – Comments on specific parts or provisions of the proposed Local Law[1]

Clause(s), section or part of Local Law	Clause 2 – Objectives of this Local Law The objectives of this Local Law are to: a) provide clear guidelines on the required standards for the operation of this type of accommodation; b) ensure equity within the municipal tourism sector by Short Stay Rental Accommodation providers contributing to the tourism sector; c) enhance neighbourhood amenity; d) provide for the administration of this Local Law and of Council's powers and functions; and e) assist with the Peace, order and good governance of the municipal district. Clause 9 – Registration Requirements The Owner of any Dwelling must not use, or allow to be used, or Advertise, or accept a rental booking for, the Dwelling for Short Stay Rental Accommodation unless: a) the Dwelling is Registered under this Local Law; and b) the conditions of Registration and this Local Law are complied with. c) Registration does not affect the requirement of a Dwelling Owner or any other person to comply with any relevant law. d) Registration will not be granted where the Dwelling breaches any legislation that has an impact on the safety of the Owner or Occupants. e) Registration will not be granted for tents, caravans, campervans, moveable structures or similar facilities to be used as Short Stay Rental Accommodation. Clause 14 – Standard of Management The Owner must: a) ensure that the use of the Registered Short Stay Accommodation: i. complies with the Code of Conduct; and ii. does not impact on the Peace expected to be enjoyed by surrounding residents; b) provide adjoining neighbours on all boundaries and any neighbours immediately across the road from the Dwelling with the current contact details of the designated person required in clause **Error! Reference source not found.**; c) notify Council in writing within 14 days of any change to the details submitted in clause **Error! Reference source not found.**; d) ensure that the designated person responds within 2 hours of being notified of any matter or complaint relating to the dwelling; and e) comply with all conditions of Registration.
Description or heading(s)	The Local Law Community Impact Statement will be read in conjunction with the draft Local Law. The purpose of this listing is to identify the relevant provision, not reiterate it.

[1] This part appears on a separate page because a page will be required for each part or provision of the proposed Local Law addressed.

The problem the provision is intended to address	The aim of the Local Law is to ensure financial contribution to the visitor economy from the providers of Short Stay Accommodation. It impacts those who are making commercial benefit from Short Stay Accommodation without contribution to the visitor economy.
Description of the problem	Council believes it is equitable that Short Stay Rental Accommodation providers contribute to the city's tourism sector as they can draw a substantial income from this form of accommodation. The current estimation is approximately 100 properties providing Short Stay Rental Accommodation in the municipality. Our research indicates the average per night rate in Warrnambool is $150 and at an estimated 50% occupancy rate this would yield $27,300 annually, suggesting the fee proposed would not be considered excessive. Council believe the Short Stay Local Law can contribute to protecting neighbourhoods from anti-social behaviours and amenity issues by putting the onus back onto the property owner and specifying standards.
Council objective	The objectives of the proposed Local Law are to: • provide clear guidelines on the required standards for the operation of this type of accommodation; • ensure equity within the municipal tourism sector by Short Stay Rental Accommodation providers contributing to the tourism sector; • enhance neighbourhood amenity; • provide for the administration of this Local Law and of Council's powers and functions; and • assist with the Peace, order and good governance of the municipal district.
Where is Council's objective set out?	Council believes this new Local Law can contribute directly to our existing Council Plan, specifically to the objective to building a strong economy (3), in particular increasing visitor growth (3.3), but Council is also responsible for managing this growth.
How does proposed Local Law provision help achieve objectives?	The Local Law is a direct solution to the objective set and will enable benefit to be provided directly to the relevant visitor economy requirements for the region from those who are benefiting from it. It will also create an offence and enable enforcement action.

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Warrnambool City Council

WARRNAMBOOL
CITY COUNCIL

Local Law Number 2

Short Stay Accommodation

Code of Conduct

Adopted by Council [insert]

PART 1 - INTRODUCTION

1. TITLE

This is the Warrnambool City Council Local Short Stay Accommodation Code of Conduct.

2. OBJECTIVES OF THIS CODE OF CONDUCT

The objectives of this Code of Conduct are to:

(1) provide clear guidelines on the required standards for Short Stay Rental Accommodation within the Warrnambool City Council municipal district;

(2) assist with the peace, order and good governance of the municipal district; and

(3) include all Short Stay Rental Accommodation as defined by the Local Law.

3. POWER TO MAKE THIS CODE OF CONDUCT

The Council's power to make this Code of Conduct is contained in the provisions of the Short Stay Accommodation Local Law Number 2 which is made under section 71 of the *Local Government Act 2020*.

4. DATE THIS CODE OF CONDUCT COMMENCES OPERATION

This Code of Conduct commences operation on 7 February 2023.

5. DATE THIS CODE OF CONDUCT CEASES OPERATION

Unless this Code of Conduct is revoked sooner, its operation will cease on the day prior to the 10th anniversary of the date specified under clause 4.

6. SCOPE OF THIS CODE OF CONDUCT

This Code of Conduct applies to the whole of the municipal district save where the provisions thereof specifically provide to the contrary.

7. INTERPRETATION

(1) In this Local Law:

(a) **Act** means the *Local Government Act 1989* (Vic) *and Local Government Act 2020* (as the context requires);

(b) **Code of Conduct** means the Short Stay Rental Accommodation Code of Conduct issued by Council for the purposes of the Local Law;

(c) **Council** means the Warrnambool City Council;

(d) **Dwelling** means any building or portion of a building which is used, intended, adapted or designed for use for living;

(e) **Motor Vehicle** has the same meaning as in the *Road Safety Act 1986*;

(f) **Municipal District** has the same meaning as in the Act;

(g) **Occupant m**eans a person who occupies Short Stay Rental Accommodation for short stay purposes;

(h) **Owner** means the owner of the Dwelling or any appointed agent or property manager;

(i) **Short Stay Rental Accommodation** means accommodation for no more than 30 consecutive days in a Dwelling for commercial gain, excluding other accommodation premises required to be registered under alternate legislation.

PART 2 - STANDARD OF MANAGEMENT

8. STANDARD OF MANAGEMENT

(1) The Owner must display and make the Code of Conduct available to all Occupants and visitors to the Dwelling including availability on any website used by the Owner to promote the Short Stay Rental Accommodation, and must incorporate the Code of Conduct provisions into the rental terms and conditions.

(2) The Owner must control and be responsible for the behaviour of Occupants and residents at the Dwelling.

(3) Unacceptable behaviour includes loud:

(a) aggressive behaviour;

(b) yelling, screaming and arguing; and

(c) cheering, clapping and singing.

(4) The Owner must inform Occupants of waste disposal arrangements and remove any excess waste left by Occupants.

(5) Off street parking must be provided for all Occupants' Motor Vehicles. The Owner must provide information to Occupants on parking arrangements prior to arrival.

(6) Additional accommodation is not allowed on site by way of tents, caravans, campervans or similar facilities.

(7) Outdoor areas including swimming pools, spas, outdoor decking and balconies are not to be used between 11.00 pm to 7.00 am.

(8) The Owner must maintain any land connected to the Dwelling in good condition.

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Warrnambool City Council

WARRNAMBOOL
CITY COUNCIL

Local Law Number 2

Short Stay Accommodation Local Law

Adopted by Council [insert]

[6160651:35728195_1]

Table of Contents

PART 1 - ADMINISTRATION OF LOCAL LAW

DIVISION 1 PRELIMINARY

1. TITLE

This Local Law is the Warrnambool City Council Local Law No. 2 – Short Stay Accommodation Local Law and referred to below as this Local Law.

2. OBJECTIVES OF THIS LOCAL LAW

The objectives of this Local Law are to:

(1) provide clear guidelines on the required standards for the operation of this type of accommodation;

(2) ensure equity within the municipal tourism sector by Short Stay Rental Accommodation providers contributing to the tourism sector;

(3) enhance neighbourhood amenity;

(4) provide for the administration of this Local Law and of Council's powers and functions; and

(5) assist with the Peace, order and good governance of the municipal district.

3. POWER TO MAKE THIS LOCAL LAW

The Council's power to make this Local Law is contained in section 71 of the *Local Government Act 2020*.

4. DATE THIS LOCAL LAW COMMENCES OPERATION

This Local Law commences operation on 7th of February, 2023

5. DATE THIS LOCAL LAW CEASES OPERATION

Unless this Local Law is revoked sooner, its operation will cease on the day prior to the 10th anniversary of the date specified under clause 4.

6. SCOPE OF THIS LOCAL LAW

This Local Law applies to the whole of the municipal district save where the provisions thereof specifically provide to the contrary.

7. INTERPRETATION

(1) In this Local Law:

(a) **Act** means the *Local Government Act 1989* (Vic) *and Local Government Act 2020* (as the context requires;

(b) **Advertise** means the use of any words (written or spoken), pictorial representation or design, or any other representation in any and all means, to publically promote that a Dwelling is to be used as a Short Stay Rental Accommodation;

(c) **Authorised Officer** means a person appointed as an authorised officer under section 224 of the Act;

(d) **Code of Conduct** means the Short Stay Rental Accommodation Code of Conduct adopted by Council on [insert] as amended from time to time and which is applied by this Local Law;

(e) **Council** means the Warrnambool City Council;

(f) **Dwelling** means any building or portion of a building which is used, intended, adapted or designed for use for living;

(g) **Municipal District** has the same meaning as in the Act;

(h) **Notice to Comply** means a notice served under clause PART 1 - Division 415;

(i) **Occupant** means a person who occupies short stay rental accommodation for short stay purposes;

(j) **Owner** means the owner of the Dwelling or any appointed agent or property manager;

(k) **Peace** means freedom from disturbance; the state of not being annoyed by noise or unwanted actions;

(l) **Penalty Unit** has the same meaning as in section 110 of the *Sentencing Act 1991*;

(m) **Registration** means registration under and for the purposes of this Local Law;

(n) **Registration Fee** means the fee for registration that is imposed by the Council under the Council's fees and charges at the time;

(o) Registration Term means the time for which each Registration is issued.

(p) **Short Stay Rental Accommodation** means accommodation for no more than 30 consecutive days in a Dwelling for commercial gain, excluding other accommodation premises required to be registered under alternate legislation; and

(q) **Substantiated Complaint** means a breach of this Local Law or Code of Conduct that has been investigated by Council or an Authorised Officer and Council or an Authorised Officer determines that there are reasonable grounds for suspecting that an offence has been committed.

(2) In this Local Law, unless the context otherwise requires:

(a) words denoting the singular number shall include the plural and vice versa;

(b) words denoting any gender shall include all genders;

(c) where a word or phrase is defined, other parts of speech and grammatical forms of that word or phrase shall have corresponding meanings;

(d) words denoting natural persons shall include corporations and vice versa;

(e) headings are for convenience only and do not affect interpretation;

(f) references to any legislation or to any provision of any legislation shall include any modification or re-enactment of that legislation and any legislative provision substituted for, and all regulations and statutory instruments issued under, such legislative provision; and

(g) references to dollars and "$" shall be taken as referring to amounts in Australian Currency.

DIVISION 2 ADMINISTRATION OF THIS LOCAL LAW

8. EXERCISE OF DISCRETIONS

In exercising any discretion given by this Local Law the Council will have regard to:

(1) the objectives of this Local Law; and

(2) any guidelines prepared by the Council.

9. REGISTRATION REQUIREMENTS

(1) The Owner of any Dwelling must not use, or allow to be used, or Advertise, or accept a rental booking for, the Dwelling for Short Stay Rental Accommodation unless:

(a) the Dwelling is Registered under this Local Law; and

(b) the conditions of Registration and this Local Law are complied with.

(2) Registration does not affect the requirement of a Dwelling Owner or any other person to comply with any relevant law.

(3) Registration will not be granted where the Dwelling breaches any legislation that has an impact on the safety of the Owner or Occupants.

(4) Registration will not be granted for tents, caravans, campervans, moveable structures or similar facilities to be used as Short Stay Rental Accommodation.

10. APPLICATION FOR REGISTRATION

(1) An application for Registration in respect of a Short Stay Rental Accommodation Dwelling must:

(a) be in writing and in the form specified by Council;

(b) be made by the Owner of the Short Stay Rental Accommodation Dwelling;

(c) contain the details specified and required in Council's application form; and

(d) be forwarded with the Registration Fee to Council.

(2) The details referred to in clause PART 1 - Division 210(1) must be completed in full before the application will be accepted by Council for consideration.

11. DETERMINING AN APPLICATION

(1) If an application for Registration of a Short Stay Rental Accommodation complies with the requirements of clause PART 1 - Division 210(1), Council may issue to the applicant a certificate of Registration.

(2) A Registration may be refused or issued with or without conditions.

(3) The conditions of Registration are that the Owner must at all times:

(a) comply with the Code of Conduct;

(b) ensure the Owner has provided Council with the contact details for a designated person(s) for the dwelling who can be contacted at any time of the day or night and that person must respond within 2 hours to any matter relating to the Dwelling;

(c) inform Council in writing of any change to the details submitted with the application for Registration; and

(d) display any registration details provided on all online platforms that advertise the property for Short Stay Rental Accommodation.

(4) Council may also impose additional conditions on a Registration which may include, but are not limited to, conditions concerning:

(a) the payment of a fee or charge;

(b) a standard to be applied;

(c) the rectification, remedying or restoration of a situation or circumstance; and

(d) such other matters as the Council or an authorised officer thinks fit.

(5) Registration is valid for 12 months unless it is cancelled under this Local Law.

12. CANCELLATION

(1) Registration may be cancelled when:

(a) any material change occurs to the application details provided to Council;

(b) Council receives three or more Substantiated Complaints concerning the activities taking place at the Dwelling from residents located within the proximity of the Dwelling during a single Registration Term;

(c) a Substantiated Complaint is of such severity that immediate cancellation is warranted; or

(d) an Owner has been found guilty in a Court of any offence under this Local Law or Code of Conduct; or

(e) there is a breach of other legislation that has an impact on the safety of the Owner or Occupants.

(2) Clause PART 1 - Division 212(1) does not apply where there is a change of the Owner and the details are given to Council within 14 days of the change.

(3) Council is not required to refund any part of the Registration Fee if a Registration is cancelled.

13. RIGHTS OF APPEAL

(1) An applicant to the refusal, cancelling or issuing of a Registration may lodge an appeal in writing to Council or an Authorised Officer against the decision of Council or an Authorised Officer to refuse, cancel or issue a Registration within 28 days of being notified of the decision.

(2) The Council will appoint a committee to consider any written appeal lodged with Council.

(3) A person may make written and oral representations to the committee.

(4) The committee will inform all parties to an appeal of its decision in writing.

(5) The decision of the committee is final and binding on all parties.

DIVISION 3 PART 3 STANDARD OF MANAGEMENT

14. STANDARD OF MANAGEMENT

(1) The Owner must:

(a) ensure that the use of the Registered Short Stay Accommodation:

(i) complies with the Code of Conduct; and

(ii) does not impact on the Peace expected to be enjoyed by surrounding residents;

(b) provide adjoining neighbours on all boundaries and any neighbours immediately across the road from the Dwelling with the current contact details of the designated person required in clause PART 1 - Division 211(3)(b);

(c) notify Council in writing within 14 days of any change to the details submitted in clause PART 1 - Division 210;

(d) ensure that the designated person responds within 2 hours of being notified of any matter or complaint relating to the dwelling; and

(e) comply with all conditions of Registration.

DIVISION 4 PART 4 ENFORCEMENT

15. OFFENCES

(1) A person who contravenes or fails to comply with this Local Law or the Code of Conduct or contravenes or fails to comply with any condition of Registration is guilty of an offence and liable to a penalty not exceeding 20 penalty units and in the case of a continuing offence is liable to a penalty not exceeding 2 penalty units for each day during which the contravention continues after a finding of guilt by a court of law for an offence.

(2) Where there is a breach of this Local Law an Authorised Officer may serve a notice to comply on the person who is in breach of the Local Law or Code of Conduct by either:

(a) ordinary post;

(b) email; or

(c) in person to the designated person under clause PART 1 - Division 211(3)(b).

(3) A person must comply with a direction or a Notice to Comply issued by an Authorised Officer or a member of Victoria Police.

(4) A person who fails to comply with a direction or a Notice to Comply issued by an Authorised Officer or a member of the Victoria Police is guilty of an offence under this Local Law.

(5) The Council or an Authorised Officer may, by serving a Notice to Comply, direct any Owner or other relevant person to remedy any thing which constitutes a breach of this Local Law.

(6) A Notice to Comply issued under this Local Law must state the:

(a) thing which contravenes this Local Law;

(b) clause of this Local Law which the thing contravenes; and

(c) date and time by which the contravention the subject of the Notice to Comply must be remedied.

(7) The time by which a contravention must be remedied must be reasonable and, in determining what is reasonable, the Council or the Authorised Officer, as the case may be, will have regard to:

(a) the amount of work involved;

(b) the degree of difficulty;

(c) the other items necessary for compliance;

(d) the degree of risk or potential risk; and

(e) any other relevant matter.

(8) Any person who fails to comply with a Notice to Comply is guilty of an offence.

16. INFRINGEMENT NOTICES

(1) Where an Authorised Officer has reason to believe that a person is guilty of an offence or offences for which an infringement notice may be issued under this Local Law, the Authorised Officer may serve on that person an infringement notice.

(2) The penalty fixed for an infringement notice is the fixed penalty stated in Schedule 1 of the Local Law or, if no penalty is stated in Schedule 1 of the Local Law, 3 penalty units.

(3) Infringement notices are to be served as per the provisions of the *Infringements Act 2006*.

DIVISION 5 FEES AND CHARGES

17. SETTING FEES AND CHARGES

(1) The Council may from time to time by resolution determine the fees and charges to apply under this Local Law.

(2) Notice of fees and charges fixed under this clause will be given annually in the Council's Fees and Charges Register included in the Budget.

18. PENALTIES

(1) Unless otherwise specified in this Local Law, the:

(a) maximum penalty for an offence is 5 penalty units; and

(b) infringement penalty for an offence is:

(i) two fifths of the relevant maximum penalty; or

(ii) such other amount determined by the Council from time to time.

SCHEDULE 1 SPECIFIC PENALTIES FOR INFRINGEMENT NOTICE PURPOSES

Provision	**Penalty Unit**
PART 1 - Division 29(1)	5 units
PART 1 - Division 314(1)(a)(i)	3 units
PART 1 - Division 314(1)(a)(ii)	3 units
PART 1 - Division 314(1)(b)	3 units
Clause PART 1 - Division 314(1)(c)	3 units
PART 1 - Division 314(1)(d)	3 units
PART 1 - Division 314(1)(e)	3 units
Clause PART 1 - Division 415(3)	5 units

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Solicitor's Certificate – Section 74(1) *Local Government Act 2020*

Warrnambool City Council
Local Law Number 2 – Short Stay Accommodation Local Law

The Warrnambool City Council (**Council**) is proposing to make Local Law Number 2 – Short Stay Accommodation Local Law (**proposed Local Law**).

I have been asked to provide a certificate under s 74(1) of the *Local Government Act 2020* (**Act**) in respect of the proposed Local Law.

In accordance with s 74(1) of the Act, I have assessed the proposed Local Law for consistency with the local law requirements, as outlined in the following table.

Local Law Requirement	Consistent
A local law must not be inconsistent with any Act (including the *Charter of Human Rights and Responsibilities Act 2006*) or regulations.	Yes. As at the date of this certificate, the proposed Local Law does not conflict with, or duplicate, existing legislation. The proposed Local Law is therefore not inconsistent with any Act or regulations. Nor, with respect to the *Sex Work Decriminalisation Act 2022* does it undermine the objectives of that Act. The proposed Local Law has been reviewed for compatibility with the *Charter of Human Rights and Responsibilities Act 2006* (**Charter**) including the rights to: • recognition and equality before the law; • freedom of expression; • peaceful assembly and freedom of association; and • not be deprived of property. Each of the activities sought to be regulated or limited by the proposed Local Law has been assessed and it has been determined that any: • activity which might be said to engage the Charter can be conducted subject to rights of review to, or exemptions granted by, Council or an authorised officer of Council; and • regulation of, or limitation upon, any activity is proportionate and can be demonstrably justified in a free and democratic society taking into account the matters set out in s 7 of the Charter The proposed Local Law, having been reviewed for compatibility with the Charter, is therefore considered to be compatible with the Charter.
A local law must not duplicate or be inconsistent with a planning scheme that is in force in the municipal district.	Yes. The proposed Local Law as drafted does not concern matters which are otherwise addressed under the Warrnambool Planning Scheme.
A local law for or with respect to the issuing of film permits must not be inconsistent with the film friendly principles.	Yes. Not applicable – the proposed Local Law does not address film permits.

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Local Law Requirement	Consistent
A local law must not exceed the power to make local laws conferred by this Act or any other authorising Act.	Yes. I consider the activities sought to be regulated by the proposed Local Law to be matters for or with respect to acts, matters and things in respect of which Council has a function or power under the Act and other Acts. The proposed Local Law is therefore consistent with, and does not exceed, the scope of Council's powers to make Local Laws under the Act.
A local law must be consistent with the objectives of this Act or any other authorising Act.	Yes. I consider the activities sought to be regulated by the proposed Local Law to be matters of municipal concern and matters that have been reasonably understood to be within the province of municipal government because they affect the amenity and good government of the municipal district and its inhabitants and are consistent with the overarching governance principles set out in section 9 of the Act
A local law must be expressed as clearly and unambiguously as is reasonably possible.	Yes. The proposed Local Law is as clear and unambiguous as is reasonably possible. The purpose of each of its provisions and the means adopted to implement that purpose is discernible from the provision itself. This certificate has not sought to interrogate Council as to whether the purpose of each of the proposed Local Law provisions as drafted and the manner in which the proposed Local Law seeks to implement those purposes is as Council had intended them to be when enacting the proposed Local Law. This certificate assumes that Council is aware of the purpose behind each provision and has familiarised itself with, and accepts the manner in which, that purpose is implemented by the proposed Local Law.

Unless there is clear and express power to do so under this Act or any other authorising Act, a local law must not—
(i) seek to have a retrospective effect; or
(ii) impose any tax, fee, fine, imprisonment or other penalty; or
(iii) authorise the sub-delegation of powers delegated under the local law.
	Yes.
	The proposed Local Law:
	• does not seek to have retrospective effect;
	• makes provision for the imposition of penalties in respect of offences that are created, which penalties are:
	  ○ consistent with s 79 of the Act;
	  ○ similar in nature when compared to like councils; and
	  ○ sufficient to act as a deterrent for most offences while also reflecting the seriousness of those offences;
	• makes provision for the setting and imposition of application fees in a manner that is consistent with s 77 of the Act; and
	• does not authorise, or otherwise provide for, the sub-delegation of any powers.

A local law must comply with any details prescribed in the regulations relating to the preparation and content of local laws.	Yes. No regulations relating to the preparation and content of local laws have, at the time of preparing this certificate, been made.

Maddocks

QUALIFICATIONS

This certificate is only valid as at the date below. I cannot predict what may occur in future with respect to:

a) other legislation that may be made or amended which gives rise to a conflict, or which will overlap, with the proposed Local Law (including future regulations);
b) a decision of a Superior Court which fundamentally changes the accepted principles or precedents regarding the inconsistency of laws;
c) amendments to the Warrnambool Planning Scheme which gives rise to a conflict, or which will overlap, with the proposed Local Law; or
d) the manner in which Council administers or makes decisions with respect to the granting of permits or exemptions under the proposed Local Law which may bring the proposed Local Law into conflict with other legislation.

I, Kate Oliver, Partner at Maddocks, certify that I:

- am an Australian lawyer who has been admitted to the legal profession for at least 5 years;
- am not a Councillor of Council;
- have reviewed the proposed Local Law against the local law requirements; and
- am of the opinion that the proposed Local Law is consistent with the local law requirements set out in s 72 of the Act.

Signed by Kate Oliver)
in Victoria on 25 November 2022)
)

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GREAT SOUTH COAST REGIONAL DIGITAL STRATEGY

OCTOBER 2022

WARRNAMBOOL CITY COUNCIL

MOYNE SHIRE

CORANGAMITE SHIRE

Acknowledgement of Country

Moyne Shire Council, Corangamite Shire Council and Warrnambool City Council acknowledge the traditional owners and custodians of the lands, waterways and country, the Gunditj Mara, Eastern Maar, and Wadawurrung people. We recognise and respect their diversity, resilience, and the ongoing place that Aboriginal and Torres Strait Islander people hold in our communities.

We pay our respects to the Elders past, present and emerging, and commit to working together in the spirit of mutual understanding, respect and reconciliation.

CONTENTS

FOREWORD

A WORD FROM THE GREAT SOUTH COAST REGIONAL ALLIANCE

TBC

David Latina
Deputy Secretary Great South Coast Regional Alliance, Department of Jobs, Precincts and Regions

A WORD FROM WARRNAMBOOL SHIRE COUNCIL

Going digital is inevitable! Through this strategy, Warrnambool and the whole region will be better placed to exploit opportunities and reap the benefits of the new digital world. As a regional centre we aim to be an educational hub that serves the whole region. We also aim to attract new investments and more tourists. Digital enablement is one of the most important levers that supports business, education, tourism, and other economic sectors.

We have heard from our community, business representatives and council staff. We can comfortably say that we all look forward to a balanced digital transformation, a transformation that respects our identity, but which adds new perspectives and possibilities.

Warrnambool City Council will work in partnership with Corangamite Shire and Moyne Shire councils to bring this ambitious strategy to reality. The success of the strategy will be shared not only by councils but more importantly with our communities.

Cr Debbie Arnott
Mayor, Warrnambool City Council

A WORD FROM MOYNE SHIRE COUNCIL

We are looking to the future and unlocking the digital potential of our Region.

Drawing on the ideas and expertise of our individual communities, industries and stakeholders, this Strategy will ensure the Great South Coast and our partners at Corangamite and Warrnambool are ready and open to emerging opportunities.

This Regional Digital Strategy is our way forward and will help us enhance liveability, productivity and promote sustainability. Working together we are ensuring a unified and integrated approach across the Great South Coast Region.

Through this joint approach we aren't being guided by a line on a map. We are working together to ensure our activities, funding and programs are reaching the Region as a whole.

Cr Ian Smith
Mayor, Moyne Shire Council

A WORD FROM CORANGAMITE SHIRE COUNCIL

Our region is home to one of the most productive dairying regions in Australia and an international visitor icon in the Twelve Apostles.

Digital technology is not bound by physical municipal borders, which is why it makes perfect sense to work with our neighbours Moyne and Warrnambool on a collective digital vision for the region. We share common aspirations and face similar challenges.

What does a Regional Digital Strategy mean for us? It's a strategic statement that supports our vision for a connected and thriving community. This includes better mobile service and access to smart technologies for our agricultural industry, high-grade connectivity for our businesses, and more digital service offerings for our residents and visitors.

This strategy will allow us to seize opportunities to become a digitally enabled region that is progressive, thriving, inclusive and liveable. I want to thank all businesses and residents who contributed to the development of this strategy and I look forward to seeing the benefits.

Cr Ruth Gstrein
Mayor, Corangamite Shire Council

INTRODUCTION

Together, Moyne, Corangamite and Warrnambool Councils are creating a Region that embraces digital transformation, innovation, and smart technology solutions to improve liveability, sustainability, collaboration, and economic opportunities.

The Great South Coast Region (GSC) has a unique opportunity to address today's issues and aspire for tomorrow's opportunities through the delivery of this *Regional Digital Strategy*.

Our regional approach to digital opportunities will focus on:

People
Inclusion
Sustainability
Safety & security
Accessibility
Transparency
Future-proofing
Collaboration

OUR STRATEGY

This *Regional Digital Strategy* was developed in collaboration with our community, industry representatives and stakeholders to ensure the benefits are far-reaching and tangible for our diverse region.

The Strategy aims to coordinate digital technologies to better serve, respond and interact with residents, businesses and visitors, going beyond simply embedding new technology.

The Great South Coast is already witnessing ongoing digital transformation across our region in response to COVID-19. In the past a transition to digital services could take years, however, a rapid approach has seen the benefits of activities such as working from home and remote learning, telehealth and digital access to Council services remain in our post-covid world. However with this there is also a renewed focus and need for reliable connectivity, digital skills and opportunities to connect.

If it is already happening, why do we need a strategy?

The convenience and potential of digital technologies make a move towards digital regions and services unavoidable.

We are getting on the front foot through the delivery of this Strategy – developing a tailored, targeted, and strategic approach to ensure our community have the skills, access, and confidence to reap the benefits of digital transformations. The essence of this Strategy is to set our vision and aspirations; to optimise our effort, maximise the benefits, and mitigate any risks.

THE PUSH-PULL APPROACH

As a community focused strategy, our *Regional Digital Strategy* balances both the supply and demand sides of digital transformation. While this Strategy 'pushes' towards supplying ubiquitous connectivity and digital services across the Great South Coast, it equally ensures all community members have the capability to 'pull' or demand these services. Our Strategy aims to operate at an 'equilibrium', where we have both digital infrastructure and services as well as desire, awareness and ability to use them. Using this approach, our Strategy has the potential to realise the full benefit of digital transformation.

PUSH → STRATEGY ← PULL


Our Regional Digital Strategy will foster...
A DIGITALLY ENABLED
REGION; PROGRESSIVE,
THRIVING, INCLUSIVE,
AND LIVEABLE.
Great South Coast Regional Digital Strategy | 5

TOGETHER IS BETTER

Our *Regional Digital Strategy* encourages collaboration across the Region, joining Warrnambool City Council, Moyne Shire Council and Corangamite Shire Council towards a shared goal.

All three communities aspire to create a digital region that is:

- INCLUSIVE
- PEOPLE-FOCUSED
- SUSTAINABLE
- SAFE AND SECURE
- ACCESSIBLE
- TRANSPARENT
- FUTURE-PROOFED
- COLLABORATIVE

It is important to note, however, that local government remains the engine driver of digital change within the Region. The unique complexities, opportunities, and strengths of each Council area are considered in depth throughout the Strategy. Where Warrnambool City can leverage its regional capabilities in healthcare, education and tourism, Moyne Shire can connect its environment to support its economy. Similarly, Corangamite Shire continue to support the visitor economy and projects, such as the Camperdown Theatre Complex Master Plan to drive positive growth.

Our *Regional Digital Strategy* also ensures each community's voices are heard. The Strategy acknowledges the unique priorities laid out by each respective community and its members. A snapshot of these priorities include:

Warrnambool City

- Making digital tools accessible and affordable for all
- Developing an innovation ecosystem

Moyne Shire

- Supporting the agriculture industry through innovative practices
- Building partnerships in the digital space

Corangamite Shire

- Building foundational infrastructure and connectivity networks
- Encouraging digital innovation and improving digital skills

By coordinating on a single Strategy, the three partnering Councils can:

- Pool resources,
- Develop shared actions based off individual and collective goals; and
- Act decisively in a way that is greater for the broader community than the sum of their respective parts.

BUILDING ON OUR IDENTITY

The Regional Digital Strategy sets a collective vision, based not only on shared goals, but also on the unique requirements by each community.

As a Region and individually we have started to set the foundations for a digital region. Highlights of these foundations include:

Business Adaptation Service

The Moyne Shire Council are offering support to new and existing business to promote business growth and expansion in the community. The Business Adaptation Service (BAS) program provides mentoring and business support by offering access to professional services, across a broad range of areas including financial advice, business planning, strategic advice, digital solutions, marketing, succession planning and information technology.

Smart Parking

The City of Warrnambool have installed smart parking options in major activity areas to allow residents and visitors to pay by plate or application for their parking. Ultimately this system aims to increase convenience and value by only charging customers for the time that they've used the carpark when pay via application and avoiding printed tickets.

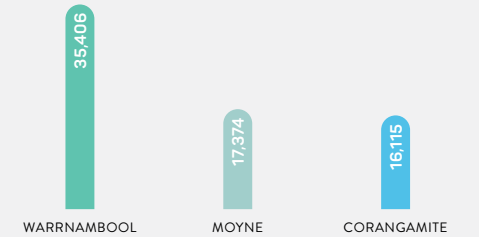
Visitor Inspiration Project

Corangamite Shire Council continues to use technology and connectivity to deliver bespoke services and experiences for visitors. Recent innovations including an under the sea VR experience are underpinned by a digital and social footprint that offers real time information and interaction.

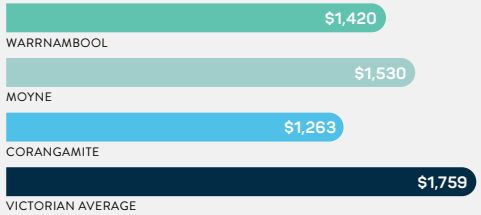
OUR CURRENT STATE

Our Strategy starts by acknowledging our current state – where we sit as a region, what we will continue to build up, and where we need to focus our attention. The snapshot below provides an insight into where we are now.

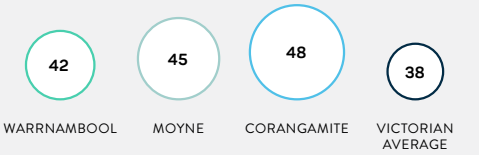
Population (2021)[1]



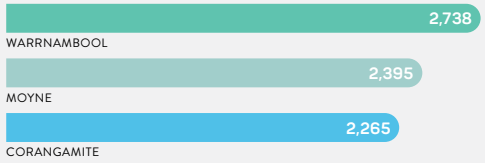
Meadian Weekly Household Income (2021)[1]



Median Age (2021)[1]



Total Local Businesses (June, 2021)[1]



Internet Connectivity (2016)[1]

78.0% WARRNAMBOOL
78.2% MOYNE
73.3% CORANGAMITE
83.7% VICTORIAN AVERAGE

Bachelor's Degree or Higher (2021)[1]

19.4% WARRNAMBOOL
17.6% MOYNE
12.9% CORANGAMITE
29.2% VICTORIAN AVERAGE

1. Australian Bureau of Statistics

STRENGTHS

As a Region we have the opportunity to leverage an enviable number of distinct strengths to our advantage. This Strategy builds on these strengths to support future longevity and new opportunities.

Tourism

Tourism is a key economic input for the Region and supports a variety of local small businesses. Intelligent wayfinding, information on points of interest, or innovative technology such as VR or immersive experiences could assist to further grow the tourism industry by attracting visitors with unique offerings.

Agriculture

The Region has a strong agricultural industry which dominates economic output. This sector has an opportunity to be further enhanced through industry trends of digital, data and connectivity usage and Agtech, which has strong support from the community.

Education

Existing education facilities in the region could be leveraged to encourage innovation in industries, either through research or digital hub opportunities. In turn, the increase in further education opportunities and the resulting diverse employment opportunities could be leveraged to encourage retention of youth and attract highly skilled workers to the Region. .

Community

The strong sense of community in the Region can drive digital change, whilst being enhanced and strengthened through digital connection.

The Region has established community hubs, which foster strong collaborative community groups. These locations could be developed into digital hubs, providing a location for digital training and upskilling.

OPPORTUNITIES

The opportunities open to the Region are unlimited. We are committed to making the most of these opportunities by leveraging the best of digital technologies to deliver better outcomes to our residents. Key areas of focus across the region include:

- Technology skilled workforce
- High level of education
- Regional education hub
- Events and festivals
- Digital health
- Tourism and visitor capability
- Business and innovation attraction
- Existing digital and innovation projects
- Linking smaller towns and villages
- Relatively low levels of economic disadvantage
- Agricultural industry
- Regional library
- Upcoming innovation projects
- Digital business promotion
- Digital skill-building

CHALLENGES

While our Region has a range of compelling strengths there are challenges we need to address head on both collectively and individually. Our approach to a digital region will focus closely on:

- Rail frequency and accessibility
- Digital connectivity
- Skilled worker availability
- Ageing population
- Transport and freight routes
- Climate change
- Digital accessibility
- Digital inclusion
- Housing availability
- Facilitating remote working opportunities
- Access to public transport
- Awareness of digital opportunities

ADDRESSING DIGITAL CONNECTIVITY

A major challenge to the development of the Great South Coast is the accessibility, affordability and reliability of digital connectivity. Developed in parallel to the *Regional Digital Strategy* as a part of the Victorian Government's Connecting Regional Communities Program, the Great South Coast Regional Partnership have also developed a *Regional Digital Plan*.

The Plan aims to address the connectivity challenges faced across the Region. Particular focus is given to supporting adequate mobile coverage, improving the low up-take on IoT devices, and fixing the Region's lack of NBN business-grade services.

The Plan was launched as an evidence-based, place-based analysis of the supply of and demand for digital services and skills and identifies gaps and critical actions required across five categories.

- Fixed Access 'broadband'
- Mobile Access
- Internet of Things (IoT) Access
- Digital Skills and Affordability
- Public Wi-Fi

The opportunities and priority actions identified in the *Regional Digital Plan* overlap considerably with the priorities of this Strategy. The 5 categories listed above will be at the forefront of implementation considerations throughout our Strategy. As such, the *Regional Digital Plan* will support implementation, and provide a foundation for advocacy and partnerships across all levels of government, industry and the private sector.

OUR DIGITAL FUTURE

To ensure our Region is getting value from our digital approach we need to dream big and consider the technologies, projects, innovations and lessons from around the world.

DIGITAL TRENDS & INITIATIVES

There are a range of digital trends to consider as we progress our digital region aspirations. Emerging opportunities or areas of focus could include:

	Future of Connectivity	Artificial Intelligence (AI)	Big Data
DESCRIPTION	The combination of 5G broadband mobile networks, fibre networks and the Internet of Things (IoT) connectivity are currently being rolled out enabling faster connection.	The duplication of human processes or intelligence such as, visual perception, speech recognition, learning, decision-making, and natural language processing by computers.	A large collection of a diverse range of data sets used to analyse trends and patterns. Today, data is acquired in new ways and in far greater quantities than ever before. This allows for a greater application of big data, real-time analytics, machine learning and smart sensors.
EXAMPLE	Regions are collaborating to install high-speed fibre cables, to provide digital access to disadvantaged communities and improve mobile coverage.	AI is currently used by cities to better understand usage patterns, maximise availability, and maintain sports fields and facilities. The technology can recognise when a space is being used and provide analysis of this information to decision-makers.	Local governments are place portions of their big data collections such as environmental data or parking availability online for the community and industry to access, visualise, use or analyse.

Disconnection & Polarisation

Integration of digital technology is not without risk. In an era of fast-paced growth, cities without supportive community services and proactive engagement channels can foster polarised, disconnected, or isolated pockets of their population.

Local governments are offering a range of workshops aimed at developing digital literacy for target communities to support uptake and confidence in digital technologies.

Growing Environmental Concern and Advocacy

New technologies are addressing the rapidly growing need for clean-energy generation, sustainable resource use and waste management. Alongside an increasing concern for natural disasters, digital technologies can enable communication and resilience against these events.

IoT sensors and environmental monitoring networks are designed to provide early warning of natural disasters.

DIGITAL REGION FUTURE PLAYBOOK

What does a digital region look like? The scenarios below bring together our regional opportunities with activities from across the globe to provide us with a picture of what improved use of digital technologies, connectivity options and innovation could look like in the future.

Remote Working

Jen runs a small graphic design business and recently decided to make a tree change by moving to the region. The high speed internet connectivity in the region has meant she can run her business remotely from her new home. Jen is able to enjoy the laid-back lifestyle of the region, but also ensure her business is running efficiently and she is connected at all times.

Digital Tourism

A family decide to spend their school holidays in the Region. A tourism mobile application enables them to plan their trip across the Region, including booking accommodation, pushing geolocated information about points of interest, and directing them to EV charging locations. The app also provides them with real time data about environmental metrics. The family is credited 10,000 points for sharing pictures from the attraction sites they have visited. The credit points can be used on their next visit or gifted to a friend.

Digital Engagement

Emmy is a 71-year-old woman who wants to enjoy her retirement out of big cities and reside in a regional area. The online information about the Region and its liveability help Emmy make her decision. Emmy is particularly interested in targeted digital inclusion programs that focus on elderly community needs. The digital awareness programs will guide Emmy through the many Council services that she can access digitally, including the library and community events.

Digital Government

Moyne Shire, Corangamite Shire and Warrnambool City are collecting a range of local data sets. Together, the three Councils can make more informed decisions based on real time information from a desktop and mobile based dashboard. Productivity and efficiency benefit from the powers of newly deployed technologies such as Artificial Intelligence and Big Data Analytics. Digital processes also increase the communities' ability to participate and interact with their elected representatives.

Investment Friendly Environment

A reputable international investor in the agriculture sector has identified the Region as an investment destination. Through a digital investment portal, the investor is able to get all the information related to potential opportunities in the Region. The portal is a one-stop shop, facilitating all necessary digital transactions. A proposed living lab, Agtech centre and digital learning opportunities also provide the investor with specialised digital and technology skills.

Environmental Monitoring

George is a local construction worker. He would like to understand if his activities are impacting certain environmental conditions. Data collected from environmental IoT sensors give him and his team real time data about weather, air quality, water quality, pollutants and other indicators. The team leverages data analytics to get instant reports that help them to monitor and adapt their processes to best protect their immediate environment.

TOWARDS A DIGITAL REGION

Our *Regional Digital Strategy*, considers both the commonalities between Corangamite, Moyne and Warrnambool Council as well as the unique characteristics of each.

It is comprised of:

- A vision statement that sets our aspirations towards a digital region
- Principles that collectively represent the values of this Strategy and our approach digital technology across the Region
- Strategic themes that direct our goals as a Region
- Area-specific objectives that guide individual Council priorities and initiatives

As such, Warrnambool, Moyne and Corangamite all share a common vision, themes and goals for our Region, while also pursuing initiatives that support their individual needs. While each Council has specified objectives and initiatives, there are always opportunities to collaborate and create synergies if priorities align.

This approach ensures each Council is working towards the Region's collective vision and goals, whilst also addressing elements critical to their communities.

PRINCIPLES

Our principles form the foundation of our *Regional Digital Strategy*. They will steer all themes, goals, objectives and will act as reference to our communities expectations during the implementation of the Strategy.

Inclusive
All citizens benefit from digitalisation and digital transformation, where no one is left behind

People-focused
Technology is primarily used to address community needs, improve liveability and create new job opportunities

Sustainable
Strategic outcomes incorporate environmental best practice and promote nature preservation, while balancing economic and social considerations

Safe & Secure
Digital solutions ensure personal privacy and security in the physical and digital worlds

Accessible
All community members are able to use digital services in a convenient and affordable way

Transparent
Council's decisions are data led and relevant information is publicly available

VISION

Our vision is derived from the collective input from community members, key stakeholders and Council staff across the Region. It aligns to and supports each of our communities' visions for 2040 in addition to the state aspirations of the Victorian Government Digital Strategy.

Our vision for a Digital Region is:

A DIGITALLY ENABLED REGION; PROGRESSIVE, THRIVING, INCLUSIVE, AND LIVEABLE.

Future-proofed
Strategic outcomes incorporate principles of interoperability and agility, and promote positive future for the region

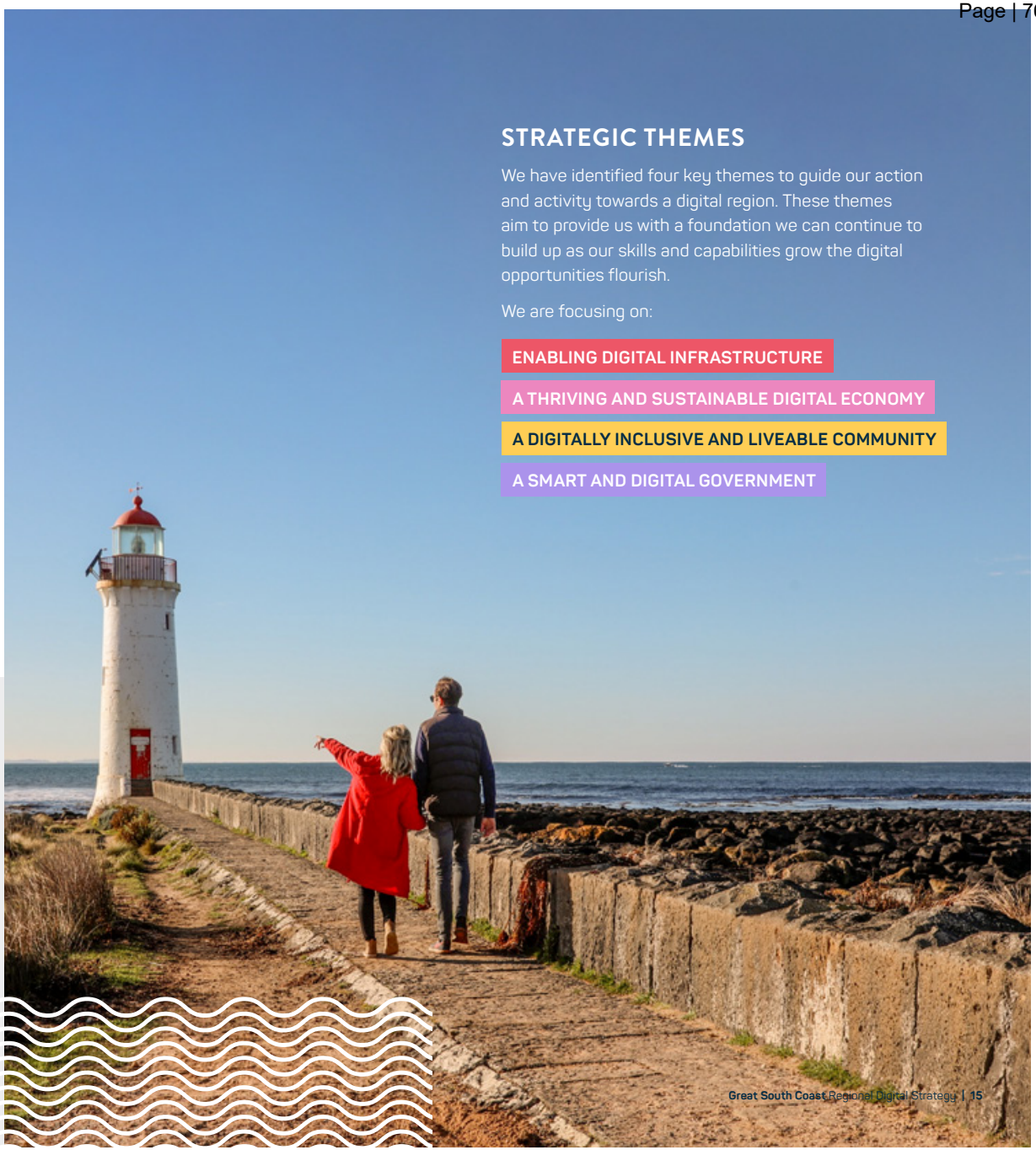
Collaborative
Key stakeholders and community members are actively participating and engaging as we further our digital region.

STRATEGIC THEMES

We have identified four key themes to guide our action and activity towards a digital region. These themes aim to provide us with a foundation we can continue to build up as our skills and capabilities grow the digital opportunities flourish.

We are focusing on:

- ENABLING DIGITAL INFRASTRUCTURE
- A THRIVING AND SUSTAINABLE DIGITAL ECONOMY
- A DIGITALLY INCLUSIVE AND LIVEABLE COMMUNITY
- A SMART AND DIGITAL GOVERNMENT



ENABLING DIGITAL INFRASTRUCTURE

A digital region involves connecting the physical world with the digital. To do this we need the right foundations in place. Infrastructure such as fibre and Wi-Fi are responsible for helping connect people with the services and information they need.

Our community provided clear feedback on this issue. A critical challenge to our digital region aspirations is the reach and reliability of our connectivity options. We are working to deliver, partner and advocate for the digital infrastructure we need to support our Region open new opportunities, including digital learning, remote working and digital business activities.

REGIONAL GOALS AND ACTIVITIES

To improve digital connectivity to consistently meet the Australian average standard

Leverage the Regional Digital Plan to:

- Improve digital connectivity
- Increase fibre network coverage
- Enhance 5G/4G coverage

To expand our Internet of Things (IoT) network to capture high-priority real time data sets

- Develop an integrated plan to expand IoT coverage to selected areas
- Identify mutually beneficial data sets

To improve asset and resource management using digital smart technologies

- Explore opportunities to leverage digital asset management technologies such as smart meters and sensors to monitor water, electricity, energy and other resources and facilities usage, leaks and maintenance issues
- Investigate partnership opportunities with public and private sector bodies such as Digital Twin Victoria to further resource and asset management, analysis and utilisation

To support data sharing and exchange across the region and with local partners

Leverage the Shared ICT Strategy to:

- Ensure standardised data management and integration
- Establish a common data exchange platform that aggregates data from different data sources and applies open data rules

LOCAL OBJECTIVES

Warrnambool

Enhancing resident and visitor digital connectivity

- Provide free public Wi-Fi services in selected hot spots to attract tourist activities and regional events to the City

Stimulating professional digital workplaces

- Support digital workplaces with high-speed connectivity to promote Warrnambool as a place to work and live

Moyne

Supporting digital integrations in high-value sectors

- Develop an advocacy approach to support the integration of critical infrastructure and technologies in our health and transport sectors

Promoting heritage and culture preservation

- Explore opportunities to preserve and share our local heritage, culture and history using innovative digital technologies

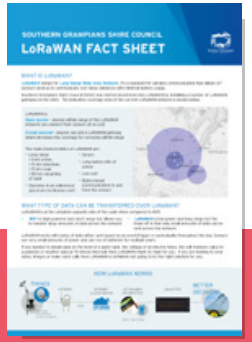
Corangamite

Addressing blackspots and connectivity speeds

- Work with government and the telecommunications industry to enhance connectivity and support housing, tourism and business growth in high priority areas

Leveraging and expanding existing networks

- Increase local use of IoT networks and digital infrastructure applications



DIGITAL OPPORTUNITY – EXAMPLE

Southern Grampians Shire Council have rolled out a public Wi-Fi and LoRaWAN network to connect a range of sensors across the Region. This web of connectivity collects data which is presented to the community via an online dashboard. Data sets available include local weather, water levels, parking trends, waste collection information, and Council facility details.

A THRIVING AND SUSTAINABLE DIGITAL ECONOMY

A digital economy opens new avenues for growth in the Region. Through transformation of conventional economic activities, the digital economy forms an important instrument which will support local businesses and attract new investments.

The Great South Coast Region is well known for its industries that foster economic growth, such as tourism and agriculture, both of which can benefit from digital technologies. Corangamite, Moyne and Warrnambool are committed to supporting existing and new businesses to leverage the skills, data and new business models of the digital age.

REGIONAL GOALS AND ACTIVITIES

To enable local economic activities and attract external direct investment

- Create a regional digital investment portal to showcase local innovation and promote investment opportunities
- Investigate enablers to position the Region as a hub for professional services

To create a Regional Digital Hub that enables innovation

- Facilitate the development of local innovation start-up and digital ecosystem
- Explore opportunities to establish a regional living lab to test and trial regional digital solutions

To continue to build our visitor economy using digital technologies

- Create a seamless digital tourist experience across the Region
- Explore digital signage to engage visitors in points of interest
- Design digital virtual tours for high-value locations

To support economic recovery from the impacts of COVID-19

- Integrate digital solutions in our COVID-19 recovery plans including acknowledging new dynamics including remote working and digital service delivery

LOCAL OBJECTIVES

Warrnambool

Providing digital focused educational programs and attracting new students

- Partner with Deakin University, TAFE, and other providers to promote and tailor education pathways to the emerging digital skills market and encourage innovation and start-ups
- Work with local schools to engage students in digital opportunities such as robotics, data collection and IoT in a local context

Advancing the renewable energy sector, leveraging digital technologies

- Exploring innovative energy options including virtual power plants within the municipality and energy trading

Moyne

Supporting the farming sector with smart technologies and IoT sensors

- Support pathways for local farmers use IoT technology
- Work with research institutions and industry to explore the use of digital smart technologies to improve farm productivity

Facilitating investment opportunities in new domains

- Explore digitalisation of services that would benefit the business sector by being available digitally

Corangamite

Encouraging and promoting agricultural innovation

- Develop an advocacy approach to support Agtech uptake and advancement

Enhancing local digital opportunities

- Identify opportunities to incorporate a digital hub in the Camperdown Theatre Complex Masterplan including education and skill development and access to high-grade connectivity.

DIGITAL OPPORTUNITY – EXAMPLE

Bundaberg Regional Council have established an Agtech Hub to allow the region's agricultural sector to network with Council, university research and development teams, natural resource management professionals and the private sector. Bundaberg has a vibrant agricultural sector, and the Hub aims to support the emerging Agtech ecosystem by providing a dedicated space for collaboration and promoting the Region as a leader in agricultural innovation.

A DIGITALLY INCLUSIVE LIVEABLE COMMUNITY

Our region is one that prides itself on our sense of community, liveability and openness to new ideas. We will leverage digital approaches to enhance these qualities and continue to be a benchmark destination to live, work and play.

Digital means working collaboratively – enhancing accessibility, service delivery and community connection together. We are focused on supporting an inclusive approach to the digital world, encouraging the pathways and opportunities to build skills, confidence and digital connection.

REGIONAL GOALS AND ACTIVITIES

To enhance community engagement using digital technologies

- Develop a regional digital community engagement plan to encourage regional participation and connection
- Promote digital democracy and increase e-participation

To maintain digital inclusion and build community digital capacity

- Assess digital literacy and facilitate digital awareness and targeted training campaigns
- Identify digital capacity and skill requirements for Council
- Work with libraries and local community groups to identify and overcome barriers to digital inclusion, accessibility, affordability, and skills

To improve liveability through enhanced community services

- Deploy digital technologies that support the optimisation of public space planning, utilisation, and maintenance
- Support health and wellbeing programs through digital promotion
- Pilot and experiment the use of smart benches and smart poles in selected public areas
- Study the use of new innovative solutions (e.g., 3D printing) to address housing affordability issues.

To improve the sense of physical and cyber-safety

- Explore innovative urban design techniques and digital integrations in public areas to improve public safety
- Increase awareness about online safety and personal information protection

LOCAL OBJECTIVES

Warrnambool

Increasing liveability for target cohorts including youth, elderly and culturally and linguistically diverse communities

- Explore how digital opportunities can enhance youth retention and attraction
- Develop a digital inclusion framework

Supporting local initiatives and policies to address affordability issues

- Work with industry to explore how digital solutions can optimise supply chains and reduce the cost of living

Moyne

Supporting community health services, leveraging digital technologies

- Promote the use of telehealth systems

Promoting the culture of heritage preservation

- Explore how local culture and heritage can be shared through digital mechanisms in partnership with Traditional Owners

Corangamite

Empowering digital skills within the community

- Work with local businesses and community groups to demonstrate the benefits of the digital economy

Leveraging digital applications to enhance our visitor economy

- Explore the benefit of virtual or augmented reality to expand local tourism offerings

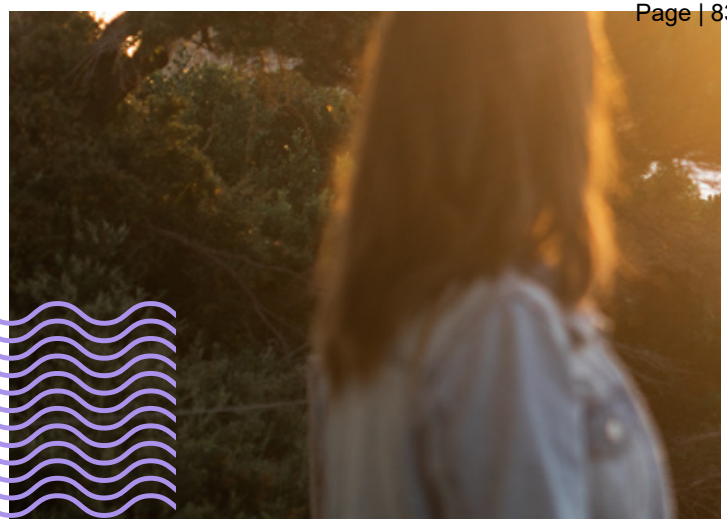
DIGITAL OPPORTUNITY – EXAMPLE

The City of Casey has developed a Digital Equity Framework to support fair access to digital technology and the internet across the region. Developed in collaboration with target audiences across the city, the Framework outlines specific resources and infrastructure required to improve online access and literacy. Activities include the installation of additional public Wi-Fi points, and a Digital Activation Program to combat social isolation and digital exclusion as a result of COVID-19.

A SMART DIGITAL GOVERNMENT

We will lead by example. Corangamite, Moyne and Warrnambool Councils will drive internal change by implementing digital technologies, processes and decision making, including data management.

This digital transformation will increase the level of transparency and accountability towards the community through explicit goals and measurement. It will also enable us to reach out to the community and establish smart partnerships to deliver community benefit and grow individual and regional digital economy.



REGIONAL GOALS AND ACTIVITIES

To promote digital council services that are efficient and productive

- Leverage data-driven capabilities to improve council planning
- Enable digital identity/ authentication to ensure end-to-end digital transactions of council services

To improve inter/ intra-council collaboration

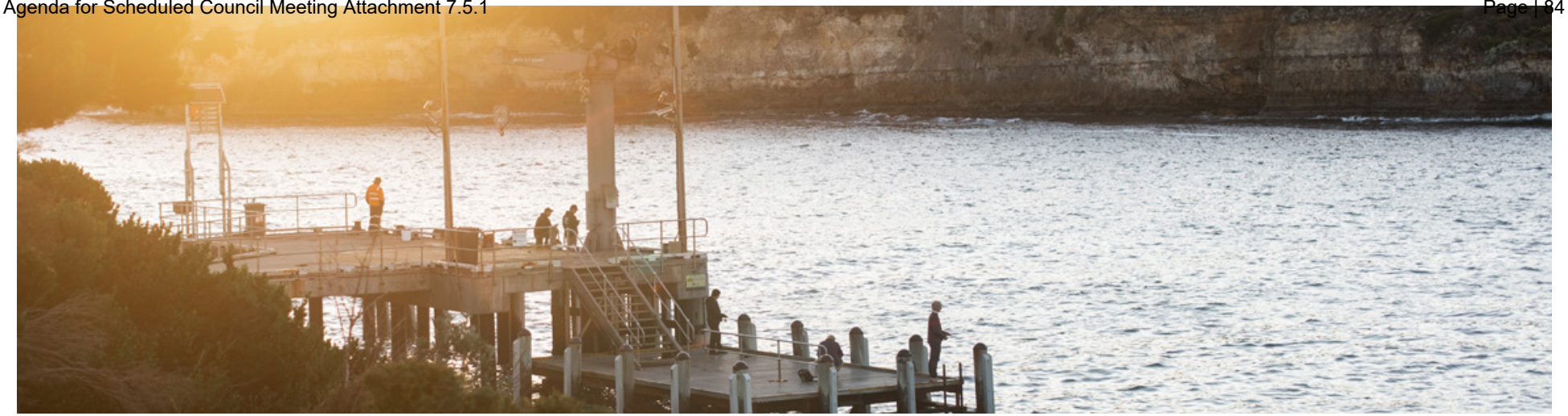
- Improve digital capability and capacity of staff
- Develop open data policy to maximise benefit of data within the Council, community and business
- Continue to deliver the integrated ICT strategy

To enhance decision making process through access to real-time data

- Establish regional and prioritisation processes for digital activities, considering individual governance pathways
- Investigate the option of creating a digital dashboard to monitor the progress of Council projects

To build an innovation culture within Council

- Develop an organisational innovation strategy
- Organise innovation practice/ culture workshops for staff



LOCAL OBJECTIVES

Warrnambool

Facilitating access to funding for start-ups, innovation and digital technologies

- Promote funding opportunities at a local, regional and national levels
- Leverage public private partnerships to drive innovative funding models

Optimising Council spending on digital systems and solutions

- Review procurement policies to support digital transformation and innovation
- Improve the procurement cycle using digital means, where possible

Moyne

Promoting Moyne as a green Council

- Commit all digital transformation projects to be carbon neutral
- Investigate the use of digital technologies to monitor compliance to sustainability metrics
- Incorporate data and research to make sustainable decisions

Corangamite

Enhancing local service delivery through digital applications

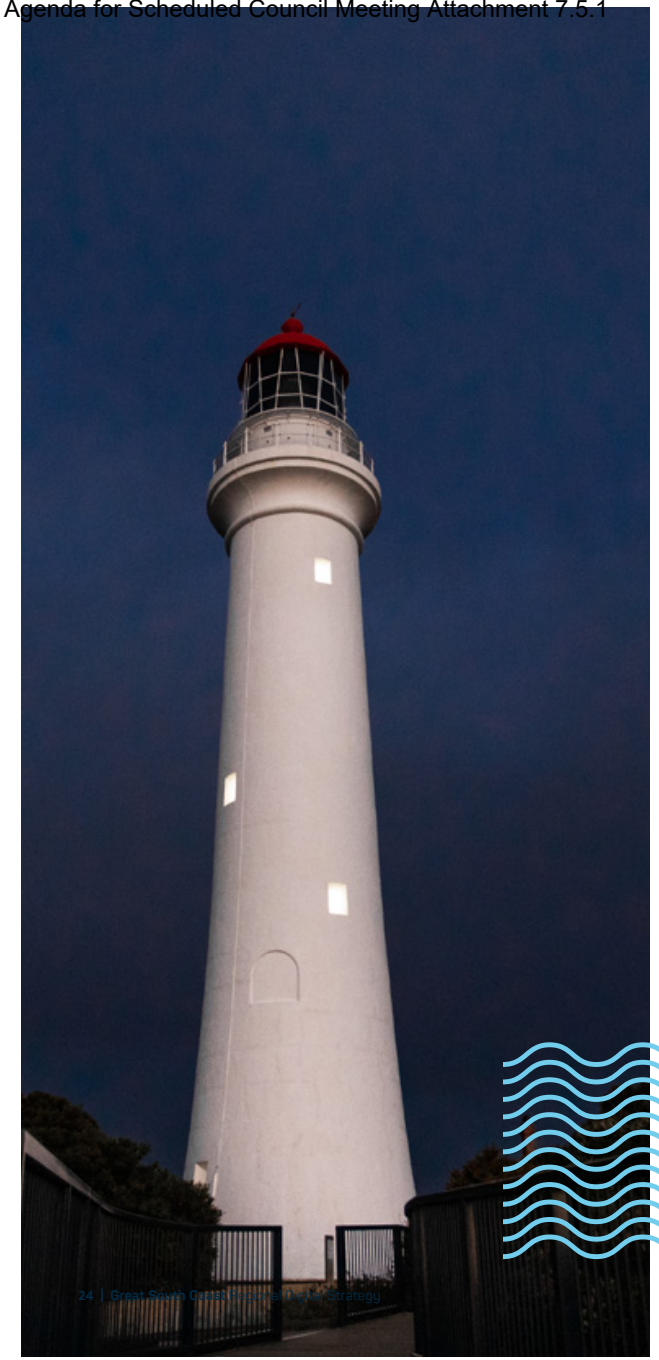
- Identify opportunities to expand digital service offerings

Improving environmental and emergency decision-making

- Increase real-time data collection to support efficient and consistent decision-making

DIGITAL OPPORTUNITY – EXAMPLE

Hume City Council have integrated a Single Customer View approach to their customer interactions. This digital system allows Council staff to have a real-time view of customer service requests and support rapid response to these requests



PARTNERSHIPS & PARTICIPATION

Our Digital Region will only be successful through collaborative partnerships and a collective sense of ownership. Community, government, industry, academia, and other sectors are all partners in this Strategy during development and realisation. Each party has a role in influencing and guiding our Strategy.

FOSTERING PARTNERSHIPS

Our *Regional Digital Strategy* will create a Region that connects a network of ideas, data, experiences and people. These networks facilitate knowledge sharing, codesign and sector partnerships to identify new opportunities and address localised challenges throughout the Region.

Collectively we understand the importance of continuing to build and foster partnerships that not only continue the momentum of our digital region but deliver benefit and new opportunities to our Region. In delivering this Strategy we will embrace this role.

Role	Benefit
> Support community awareness events for the Strategy	> Builds excitement for the Digital Region
> Facilitate networking and digital ecosystems	> Promotes regional investment and collaboration opportunities
> Investigate partnerships with research and academic institutions	> Encourages new skills and innovative solutions
> Collaborate with other governments	> Share knoweldge, lessons and resourcing across the Region

SECTOR PARTICPATION

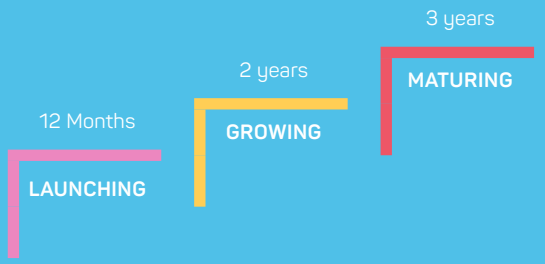
The engagement process identified several key stakeholders in different sectors. The table below identifies these sectors, and the role they can play to translate their energy, ideas, and skills into building a digital region.

Community groups	> Participate in community related activities, engage in co-design initiatives and provide feedback to Council. > The Strategy encourages the community to share ideas and participate. Targeted workshops and events will also ensure no one is left behind.
Businesses	> Participate in digital transformation, build a digital presence and help grow the digital economy. > The Strategy encourages businesses to leverage data analytics and tools to facilitate business processes and outputs.
Agriculture	> Share innovations, support advocacy approaches and drive cross-sector collaboration > The Strategy encourages the broader agriculture industry to maximise the use of digital technologies to increase efficiency and improve productivity
Tourism	> Engage in digital activations, participate in the local digital economy, share experiences and ideas. > The Strategy promotes the Region as a tourist destination and supports the visitor economy using digital technologies
Sustainability	> Position the Region as a role model in environment preservation through digital means. > The Strategy encourages environment champions to leverage data to improve efficiencies in environmental monitoring and analysis

MATURITY ROADMAP

We are on a journey towards a digital region. As such to support a sustainable approach to technologies building maturity, capabilities, infrastructure and awareness are at the core of this Strategy.

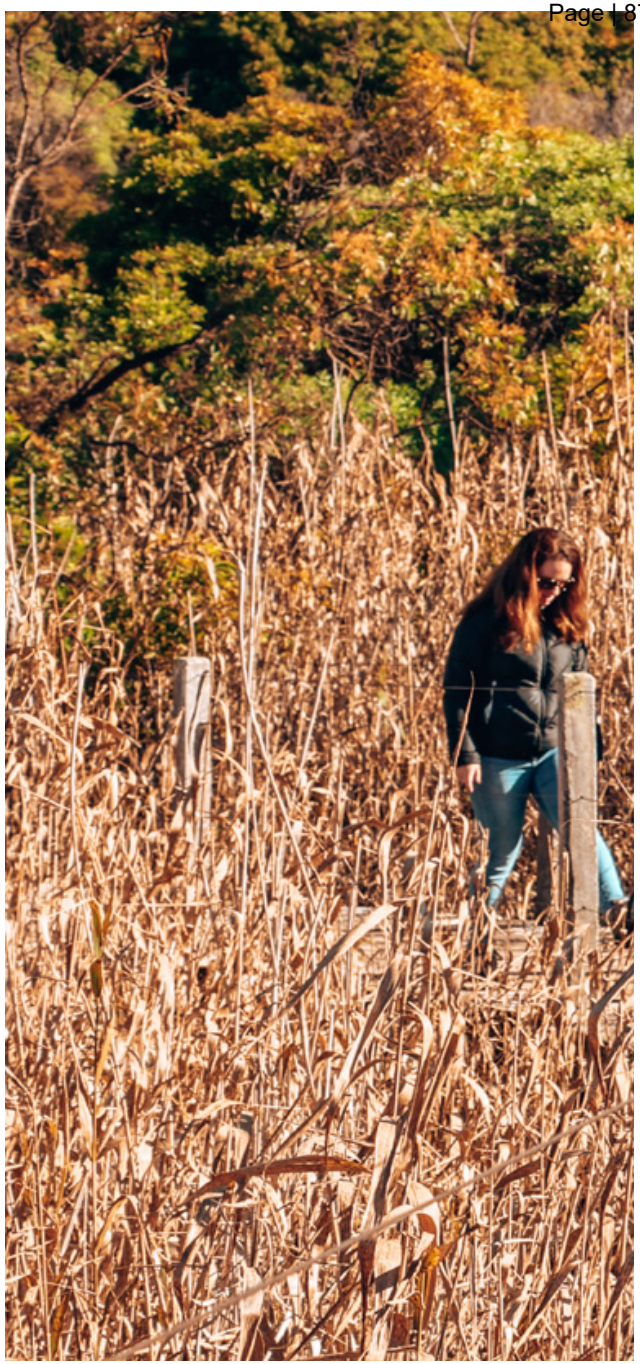
As we implement this Strategy, we will go through three core phases that will support our vision and aspirations as a region:

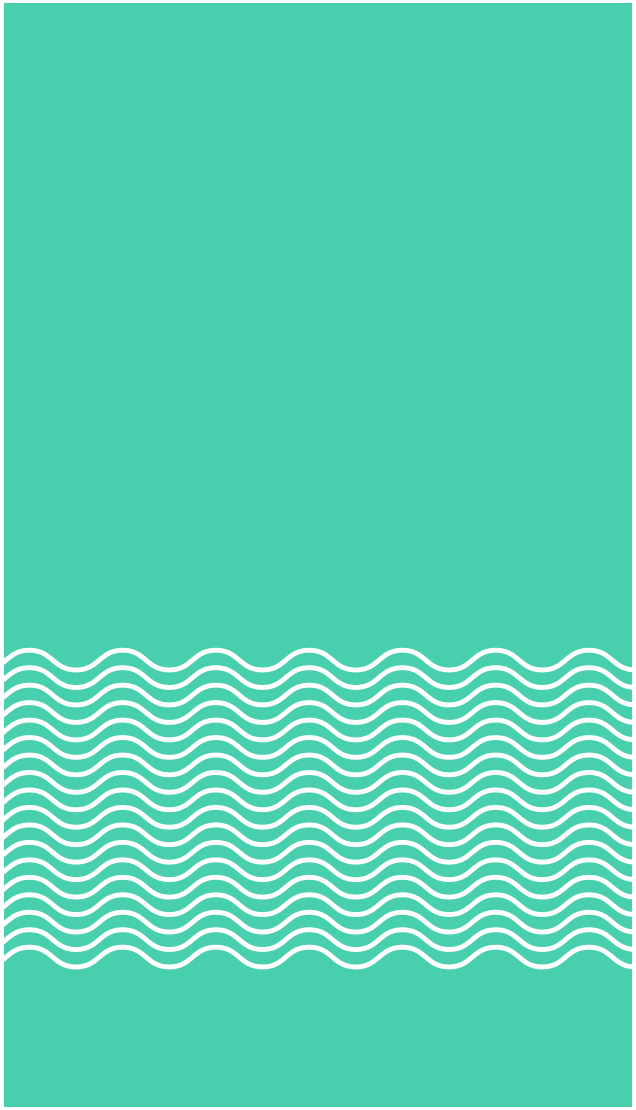


We understand that becoming a digital region takes time, investment, advocacy and effort and cannot be achieved overnight. As we launch and grow we will focus on building strong foundations on which we can continue to mature, adapt and innovate.

NEXT STEPS

Implementation Plan	A plan to support action and activity across the region and in individual local government areas.
Marketing & Communications Plan	Ongoing communications and engagement for the Strategy/ Implementation Plan
Resources	Councils will develop project business cases, funding plans and revenue goals to support the long-term sustainability of the Digital Strategy.
Capability Plan	A plan to increase internal capability through training, knowledge sharing and hiring.
Advocacy	A combined effort by the three partner councils to leverage this Strategy to get state and federal government support.
Partnership	A partnership model to guide, support and improve future collaboration.





Delegate Planning Assessment Report

Application Details:

Application is for:	Amendment to facilitate extended hours of operation of the waste transfer facility
Applicant's/Owner's Name:	Myers Planning Group PO Box 207 WARRNAMBOOL VIC 3280
Date Received:	14 April 2022, amended under Section 57a 25 August 2022
Statutory Days:	76 from receipt of amendment to 9 November
Application Number:	PP2000-0135.04
Planner:	Rob Wandell
Land/Address:	Lot 43L SEC 70 CA PSH WAN TSH WARR 355 Koroit St WARRNAMBOOL VIC 3280
Zoning:	Industrial 1 (IN1Z)
Overlays:	None
Under what clause(s) is a permit required?	Section 72(1) of the P & E Act 1987 - A person who is entitled to use or develop land in accordance with a permit may apply to the responsible authority for an amendment to the permit.
Restrictive covenants on the title?	None
Current use and development:	Industry (waste transfer station)

Proposal

The proposal originally sought to delete existing conditions on a planning permit which allows the use of the land as Industry (waste transfer station) in the Industrial 1 zone. The proposal was then amended under Section 57a to revert to amending the same conditions originally proposed to be deleted. Specifically, the applicant is now seeking to amend permit conditions 13 and 14, where the current conditions read as follows:

> *13. The hours of operation of the waste transfer station are restricted to:*
>
> *a. Monday to Friday 8.00am to 5.30pm*
>
> *b. Saturday 9.00am to 4.00pm*
>
> *c. Sunday 10.00am to 4.00pm except as limited by condition 14.*
>
> *14. Putrescible wastes must not be stored on site after 6.00pm on a Saturday or prior to a public holiday. Nor is any putrescible waste permitted to be received by the facility on a Sunday or public holiday – unless with the prior written consent of the Responsible Authority.*

The overall intent of amended conditions would be to allow the facility to receive and store general waste at any time, but continue to require controls around the receipt of putrescible waste partially in line with the original permit conditions required by VCAT. Subsequently, the amended conditions are proposed as follows:

> *13. The hours of operation of the waste transfer station can operate at any time, except as limited by condition 14.*
>
> *14. No putrescible waste is permitted to be received by the facility on the following occasions:*
>
> - *On a Sunday, unless with the prior written consent of the Responsible Authority.*
> - *Between 10pm-2am (inclusive) on any day.*

Justification for the proposed changes has not expressly been provided in the application, simply that the amendment is sought to allow the facility to receive waste outside of currently approved hours. It is assumed this is sought on the basis that the current permit for the facility is restricted in ways that other similar waste transfer stations are not restricted, and the operators of the facility are aiming to reduce competitive (dis)advantage.

An Environmental Management Plan (EMP) has previously been endorsed in accordance with permit condition 19, where the existing EMP suggests putrescible waste is not stored for more than 24 hours, and will not be stored on site beyond 1800hrs on a Saturday or day prior to a public holiday. Consequently, the EMP would need to be updated, where an amended version has been provided with the application.

In respect to other operating procedures, site layout, or associated development, the application does not propose to change anything previously approved.

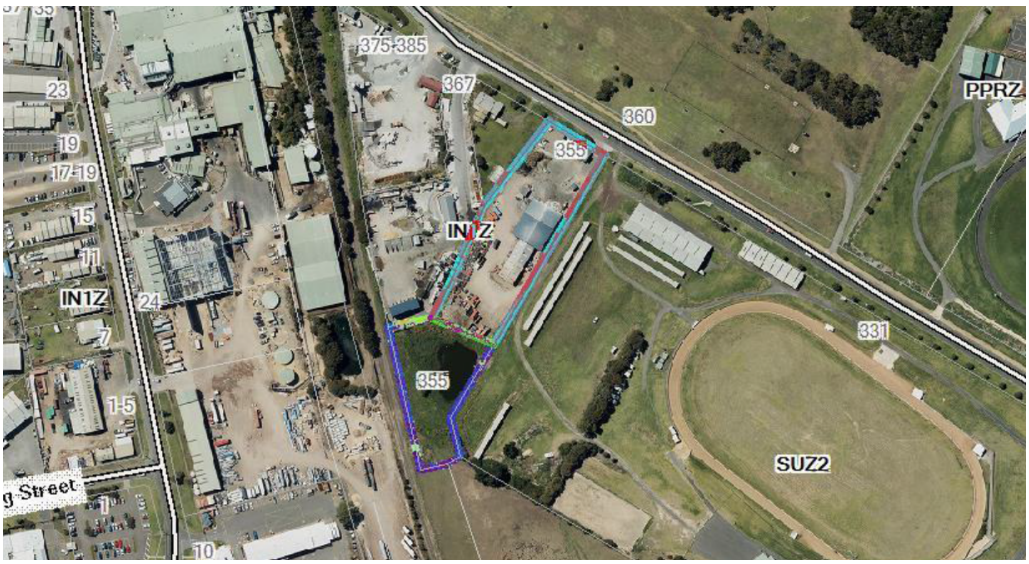
Subject site & locality

The land known as 355 Koroit is in fact 2 separate parcels of land (CA 43L and CA43M), however the subject site in question is contained wholly on CA43L, which fronts onto Koroit Street and totals approximately 8360m2. The lot is in an irregular rectangular shape with approximately 47m of frontage onto the road, where the bulk of the site stretches between the Warrnambool Showgrounds to the east, and other industrially zoned uses to the west.

The site currently operates as a waste transfer station, accommodating the disposal of household, commercial, and green waste, as well as a range of recyclables. The site is improved by a number of structures, including a double storey site office, weighbridge and inspection office. Waste bins are located under cover, and set back approximately 50 metres from the street frontage. The bins are set below ground level, with a concrete apron at ground level which is accessible to the public and on which waste is set down and sorted before being transferred to the bins by staff.

Situated behind the bins are additional sheds, which pre-date the current use of the land. The sheds are used for storage of bins and miscellaneous equipment. Currently these sheds are mostly open-sided and without any sealed flooring. The combined roof area of the waste drop-off and storage sheds is approximately 1200 square metres. To the rear of the structure and towards the rear setback is an open unsealed area used for what appears to be bin storage.

Figure 1: Aerial photograph showing site context (source: Exponare, 2022)



The land is zoned Industrial 1 (IN1Z) and is on the fringe of the Western Industrial Precinct. Nearest sensitive uses (dwellings) are approximately 250m to the north (GR1Z), however it can

also be observed that directly across the site is a large open space reserve where a fenced area has been recently used as an off-leash dog park. It is also noted that the shed on the northwest corner of the showgrounds has long been used as a Sunday market, where the market caters to a range of agricultural and artisan goods and services.

Permit/Site History

There is a lengthy planning permit and enforcement history relating to the site.

Planning Permit PP2000-135

The permit was granted on 3 January 2001, and allowed the use of the land for a waste transfer station for solid inert waste and green waste only. Prior to the approval of the permit, the site was used as a garden centre.

Planning Permit P2004-231

The permit was granted on 12 November 2004 and allows the operator "to construct and carry out buildings and works associated with site layout alterations and construction of two new buildings and a first floor addition to an existing building".

The specific works include:

- Surfacing car parking areas and driveways.
- Altering vehicle access and exit points.
- Installing storage and sorting bins.
- Defining 12 car parking spaces.
- Installation of a weighbridge.
- New landscaping.

Amendment to Planning Permit PP2000-135.01

An amendment was granted by VCAT on 17 May 2007 which affected the permit description, and deleted the words "for solid and inert green waste only" and replaced with "excluding prescribed waste" with the intention of receiving putrescible waste.

Additional conditions were placed on the permit, relating to:

- Vermin control
- Leachate collection
- Storage requirements for putrescible waste.
- Submission of an Environmental Management Plan.

This amendment, as directed by VCAT, included the current versions of permit conditions 13 and 14, as well as condition 18 which restricted the storage of putrescible wastes for no more than 24 hours.

Amendment PP2000-0135.02

The changes to the permit under the second amendment comprise:

- Construction of a new shed, fully open along one side, to function as the drop-off location for household chemical disposal (Tox-free collection service).
- Ground floor extension to the existing site office.
- Inclusion within endorsed plans, of buildings that were previously proposed to be demolished. Also proposed is construction of concrete slab to these buildings.

- Rectification of inaccuracies in the endorsed plans, such as locations of building, car parks and access ways.
- Alterations to the car parking layout, to accommodate the changes that are needed to the whole site layout.
- Amendments to the Environmental Management Plan, to allow receipt of hazardous materials through the proposed Tox-free service.
- Changes to site layout, including relocating and formalising the green waste storage area.

The application for this amendment was made at the recommendation of Council.

Amendment PP2000-0135.03

Approved in December of 2021, the amendment altered the wording of Condition 14 to include "unless with the written consent of the responsible authority". In the application, it was contended that the December 2021 calendar dates for public holidays presented a circumstance that was potentially unintended by the previous wording, in that the facility would not be allowed to accept putrescible waste for four consecutive days. The amendment was therefore intended to allow the service to operate if reasonable over particularly busy holiday times (between December 24 and 28th). Given the EMP was also worded in such a way as to prevent this from occurring, condition 19 was also modified to include the possibility for change via written request.

Enforcement

There is also an established enforcement history at the site, relating to the treatment and storage of waste at the site, as well as the appearance of the site. The following is a summary of issues:

- Putrescible waste being stored for longer than 24 hours or being received on a Sunday/public holiday.
- Green waste being stored for longer than recommended, causing odour and combustion hazard. Excessive amounts of green waste stored at the site, so as to hinder parking and manoeuvring of vehicles within the site.
- Waste being stockpiled in areas of the site that are set aside for other purposes.
- Litter accumulating within and around the site.
- Presence of vermin, rodents etc.
- General appearance of the site, buildings, car parks and waste disposal areas.

It is currently understood that the site is operating in compliance with existing permit conditions.

Public Notification

The application has been advertised pursuant to Section 52 of the *Planning and Environment Act 1987*, by:

- Sending notices to the owners and occupiers of adjoining land.
- Posting a sign on site

The notification has been carried out correctly, and a statutory declaration was received.

Council has received thirty-three (33) objections to date, where one objector subsequently withdrew their objection in writing, leading to thirty-two (32) sustained objections. Despite the relatively large number of objections received, it would be fair to conclude that there is a consistent and repeated range of grounds of objection, where the following themes emerge:

- Noise – primarily relating to the impact of vehicle noise, the specific impact of noise after hours was seen as unsuitable in a location with proximity to both private residential and public space.
- Odour – the vast majority of objectors cited odour as a concern, and although it was conceded that odour is already an issue relating to the existing use (which is already approved and not being re-considered under this amendment), it was often specified that the underlying assumption must be that increased hours necessarily equates with increased input/output, and that there would therefore be an additional or marginal impact on the odour issues that already exist.
- Traffic – The impact of increased traffic movements was seen as having a negative impact on an already busy portion of the road.
- Property Value – The amendment was construed as having a negative influence on surrounding values.

Across all themes, it could be said that although many objectors were opposed to the original use, the specific grounds of objection in relation to the amendment were identifying that the marginal impact of the amendment would result in a negative amenity outcome.

The application was then amended under Section 57a as described above, and subject to re-notification. Notification was conducted via notices only, and two additional submissions were received from parties who had already objected to the original proposal. As per Section 57a(7)(b), all objections made in relation to the original application are to be taken to be objections to the amended application, therefore the application continues to have 32 submissions in objection.

Consultation

The applicant was forwarded a copy of all objections, and in the first instance opted to provide a written response. The response was received by Council on 28 June 2022 and circulated to all objectors. The response also identified the three main themes of odour, noise, and traffic as outlined above. The applicant pointed to the various reports submitted with the application to re-confirm their belief that impacts from these three issues are reasonable in their context.

In line with Council's delegation instrument, any application that receives more than 4 objections is decided via Council meeting, and therefore a consultation meeting with councillors in attendance was organised on site. The meeting was held 5 July 2022, and based on a response from the applicant citing concern for holding the meeting directly on grounds during operating hours, the meeting was held on the northern side of Koroit Street opposite the subject site. The meeting was attended by a quorum of councillors, approximately 18 objectors, and the applicant.

As a result of various consultation, one objection was withdrawn, two were formally upheld, and Council considers the remaining thirty to also be upheld.

Given the amended proposal, a second consultation meeting was offered, and held at Council offices 25 October 2022. This second meeting was attended by a quorum of councillors, 4 objectors, and the applicant.

Referrals

Given the operation does not require any amendment to existing licenses, and does not involve any use for a purpose listed under Clause 53.10, the Environmental Protection Authority is not a determining referral; notwithstanding, a recommending referral request was sent under Section 52, and a response provided 8 June 2022. The response confirms that the EPA would typically only provide advice as a recommending referral, and that technical reviews of individual reports were not undertaken. The following comments were offered in relation to noise and odour, both of which would relate to EPA regulations:

Noise

Noise emission is identified as a main concern for the proposed amendment. With proposed extended hours of operation, it is likely that the facility will emit noise throughout the night and early morning. The proponent has provided an Environmental Noise Assessment (prepared by Telemetrix; dated 9 February 2022) to support the proposed permit amendment. The noise assessment was assessed against EPA Publication 1826.4 Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues. While no technical review of the report was undertaken, the noise assessment concluded that 'based on the measured and predicted noise levels, the noise emission levels for the proposed 24-hour operation will meet the required noise criteria and will not increase the ambient levels in the area'.

Odour
Another concern for the proposed amendment is odour related risks. There have been multiple pollution reports relating to odour emitting from the facility. The proposed amendment will likely increase the facility's waste intake which could lead to more odour emissions. The proponent has provided a Warrnambool Waste Transfer Station Odour Assessment (prepared by GHD; dated 17 March 2022) to support the proposed permit amendment. The odour assessment identified the existing and potential odour related risks for the facility and offered mitigation measures to minimise the odour emissions. The mitigation measures provided by the odour assessment is to be implemented through the Environmental Management Plan (prepared by Cleanaway; dated March 2022).

However, If the proposed use of the land is not managed properly, it could have detrimental effects on human amenities and the environment. Thus, if the amendment to the permit is approved, EPA expects the permit holder to take a preventative approach in the minimisation of all potential emissions and pollutions from all operations within the site in line with the General Environmental Duty.

The response does not specify that EPA objects to the proposal, and a proposed note is suggested to be added to the amended permit should it be issued. It can therefore be concluded that EPA as recommending referral does not directly object to the proposal.

Internal Referrals

The application was also referred internally to Council's Health department. A response was provided 14 July 2022 with no comments and a number of suggested conditions. The conditions primarily related to ensuring the use complied with EPA regulations.

It is also noted that the amended proposal was not re-referred to either party, based on the underlying reports remaining unchanged, and an assumption that the change to amend conditions versus delete them would not lead to a change in advice already provided.

Assessment

PLANNING POLICY

Clause 02.04 contains Warrnambool's Strategic Framework Plan, where the subject site is shown as within the 'Merrivale and South Warrnambool' Industrial Precinct, and specifically marked as a waste transfer station. The plan also shows that given the subject site is on the eastern extent of that precinct, it is directly across from significant areas of public open space.

Clause 02.03-3 (Environmental risks and amenity) discusses land use conflicts. Specifically, that the historical development of Warrnambool has resulted in some industrial and residential areas being located adjacent to each other including the Merrivale area. Subsequently, the Warrnambool Livestock Exchange, Wannon Water Water Reclamation Plant, Fonterra Milk Processing Plant in Dennington, Midfield Rendering Plant in Swinton Street, the Warrnambool Regional Airport, the Premier Speedway and the Lake Gillear sporting area are important regional assets that need to be protected from residential encroachment. The Eastern Industrial Precinct on Horne Road also needs to minimise conflicts between the industrial area and the existing rural residential area to the east.

Council's strategic directions for land use conflicts are:

- *Prioritising separation distances to assist in the retention of existing employment generating activities.*
- *Protecting communities close to established industries from off-site impacts such as dust, odour, noise and air pollution.*
- *Managing land use conflicts at the urban/rural interface and development pressures at the edge of Warrnambool's settlement boundary.*

Clause 02.03-7 (Economic development) specifically addresses industry. Here, Warrnambool is identified as the industrial service centre for the South West region, and the West Warrnambool Industrial Precinct as one of the City's key employment precincts featuring a wide range of manufacturing, warehousing, transport logistics and service industries. Again, the development of the West Warrnambool Industrial Precinct has resulted in some industrial and residential uses being located within proximity to each other.

Council's strategic directions for industry are:

- *Providing an adequate supply of land for industry.*
- *Managing the industrial/residential interface to ensure any off-site amenity impacts are minimised.*
- *Ensuring that industrial development meets standards for amenity and urban design that promotes the attractiveness of the municipality*

The amended proposal is no longer considering whether the use itself is warranted, given that this has been debated by Tribunal and approved. However, the location of the use continues to be directly at the interface between industry and residential areas, where the marginal impact of the amended proposal must be (re)considered in relation to the policy direction. With this in mind, policy directs to simply consider that development "meets standards" and minimises amenity impacts, and does not suggest that land use conflict is unavoidable. The applicant has provided a range of reports that conclude amenity impacts are reasonable in their context, and for this reason it cannot be concluded that the proposal is at odds with underlying policy. The nature of adverse impacts to certain areas must be balanced against potential positive outcomes in other areas.

Turning to Planning Policy Framework (PPF), Clause 13 (Environmental Risks and Amenity) addresses noise abatement (13.05-5-1S), air quality management (13.06-1S), and land use compatibility (13.07-1S). The overall objective is to protect community amenity, human health and safety while facilitating appropriate commercial, industrial, infrastructure or other uses with potential adverse off-site impacts. Individual strategies include:

- *Ensure that use or development of land is compatible with adjoining and nearby land uses.*
- *Avoid locating incompatible uses in areas that may be impacted by adverse off-site impacts from commercial, industrial and other uses.*
- *Avoid or otherwise minimise adverse off-site impacts from commercial, industrial and other uses through land use separation, siting, building design and operational measures.*
- *Protect existing commercial, industrial and other uses from encroachment by use or development that would compromise the ability of those uses to function safely and effectively.*

Under Clause 13.07-1L-02 (Land use conflict - Industrial and residential interface), suggested strategies include:

- *Provide buffers between new industrial and residential areas in the form of public open space, roads, substantially landscaped areas of private land or similar means intended to limit visual and acoustic impacts.*
- *Minimise heavy vehicle traffic, industrial emissions, noise and visual impacts between industrial and residential activities.*

- *Buffer industrial development from residential zoned land and provide an attractive landscaped setting.*

Clause 13.07-1L-03 (Land use conflict - Waste transfer stations) also recommends providing 250m separation between waste transfer stations and sensitive uses, which would have been considered during the original assessment.

Finally, Clause 17.03-1L (Industry) directs to support opportunities for the expansion of industry and the provision of related infrastructure.

In summary, underlying policy specifically addresses the local issues prevalent in any regional city with competing demands on strategically located land. On one hand, appropriate industrial development is to be supported, while it is simultaneously acknowledged that the potential exists for adverse amenity impacts. Despite the documented evidence from objectors that there are negative amenity impacts resultant from the proposed amendment, the existence of professional reports to suggest that impacts are in line with regulations suggests that the proposal should not be refused out of hand based on policy guidance, and requires further assessment in relation to other provisions.

ZONE

Industrial 1 (33.01 and Schedule)

Pursuant to Clause 33.01-1, a permit is required to use land for a transfer station, where the use is existing.

The purpose of the zone is:

- *To implement the Municipal Planning Strategy and the Planning Policy Framework.*
- *To provide for manufacturing industry, the storage and distribution of goods and associated uses in a manner which does not affect the safety and amenity of local communities.*

The decision guidelines are:

- *The Municipal Planning Strategy and the Planning Policy Framework.*
- *The effect that the use may have on nearby existing or proposed residential areas or other uses which are sensitive to industrial off-site effects, having regard to any comments or directions of the referral authorities.*
- *The effect that nearby industries may have on the proposed use.*
- *The drainage of the land.*
- *The availability of and connection to services.*
- *The effect of traffic to be generated on roads.*
- *The interim use of those parts of the land not required for the proposed use*

The decision guidelines of the zone were considered under the original proposal, where it was concluded that the underlying use was appropriate, and should be supported in its location. The marginal impact of the amendment no doubt has a relationship with a number of decision guidelines, most notably the effect on nearby existing residential areas, while continuing to have regard to directions from referral authorities. As the impact on surrounding amenity has been confirmed as the central point of debate, and that the debate is elaborated upon further in sections below, it can be concluded here that the decision guideline relating to off-site impacts should form the basis of any recommendation.

PARTICULAR PROVISIONS

Resource Recovery (Clause 53.14)

The purpose of the provision is “to facilitate the establishment and expansion of a Transfer station and/or a Materials recycling facility in appropriate locations with minimal impact on the environment and amenity of the area”.

Under Clause 53.14-3, before deciding on an application, in addition to the Decision Guidelines of Clause 65, the responsible authority must consider:

- *The contribution of the proposal to achieving resource recovery targets established by the Victorian Government.*
- *The impact of the proposal on the amenity of the surrounding area.*
- *The Statewide Waste and Resource Recovery Infrastructure Plan (Sustainability Victoria, 2015).*
- *Any Regional Waste and Resource Recovery Implementation Plan including the Metropolitan Waste and Resource Recovery Implementation Plan (Metropolitan Waste and Resource Recovery Group, 2016).*
- *Relevant guidelines applicable to the application including the guideline for Designing, Constructing and Operating Composting Facilities (Environmental Protection Authority, 2015), the Guide to Best Practice for Organics Recovery (Sustainability Victoria, 2009) and the Guide to Best Practice at Resource Recovery Centres (Sustainability Victoria, 2009).*

The impact of the proposal on the amenity of the surrounding area is contentious, but again the current assessment must look at the marginal impact of the proposal, in that the use is existing and long-established. The specific amenity considerations are explored in more detail in the objections section below, however it will be concluded that although there are demonstrable amenity impacts on certain surrounding residents, Council is directed to consider the proposal on its overall merits, where there is simultaneous justification for supporting a transfer station in performing its core function.

GENERAL PROVISIONS

Clause 65 – Decision Guidelines

The following decision guidelines are relevant to the application:

- *The orderly planning of the area*
- *The effect on the amenity of the area*

PERMIT HISTORY AND CURRENT OBJECTIONS

The original permit was amended in 2007 to allow receipt of putrescible waste following a review at VCAT in *Statewide Waste Pty Ltd v Warrnambool CC [2007] VCAT 798* (9 May 2007). Although the review was prompted by Council's failure to make a decision within the prescribed time and ultimately VCAT directed Council to issue a permit subject to conditions, a recommendation was taken to a Council meeting at the time where councillors voted in favour of refusing the amended permit. In the Tribunal's decision particular consideration was given to the off-site effects, mainly as a result of odour to the neighbouring showgrounds:

> 35 The area of the Showgrounds impacted by the one ODU contour is occupied by the horse stables, which themselves are a potential odour source. However, given the uncertainties and the modelling and the statistical probability that the one ODU level would be exceeded on 7 hourly occasions on any one year, it was acknowledged by Mr White that it was appropriate that no putrescible waste be stored on site beyond 6:00pm on a Saturday.
>
> 36 Mr Tweedie argued that the restriction should not prevent putrescible waste being delivered to the site on a Sunday. It is however our view that such deliveries should be prohibited to ensure no negative impact on the operation of the Sunday market occurs, particularly as such a Market would involve the offering for sale of foodstuffs of various sorts.

The discussion provides insight as to why there are restrictions on the receipt and storage of putrescible waste (condition 14).

A subsequent correction of the decision in *Statewide Waste Pty Ltd v Warrnambool CC [2007] VCAT 954* (30 May 2007) related to hours of operation.

> 13. The hours of operation of the waste transfer station are restricted to:-
>
> Monday to Friday 8:00am to 5:30pm
>
> Saturday 9:00am to 4:00pm
>
> Sunday 10:00am to 4:00pm except as limited by condition 14

Condition 14 seeks to prevent the receipt and storage of putrescible waste when the odour impacts would be greatest. In this instance the odour units (reported in the VCAT hearing) would be most felt by the showgrounds and during their Sunday markets. It is unclear why the Tribunal felt that those specific impacts were worth protecting via condition (and not, for example, to the surrounding residential areas), and equally curious that a relatively short written decision would contain two dedicated paragraphs on the protection of the specific Sunday event, however it would seem fairly clear that the Member believed the condition was appropriate.

The current amendment, then, could be interpreted as seeking to overturn that portion of the Tribunal's decision. The conditions which were considered at the time versus those relating to the current application are relatively unchanged. The market continues to operate, and a review of online marketing material suggests that the market continues to involve various elements of food and consumables for sale. As previously discussed, it is noted that other industries in the local area would normally operate on Sundays and public holidays; however, the original permit condition prevents this particular operation, where the condition was specifically directed to be included by way of a Tribunal order.

Through consultation with the applicant, Council officers prompted whether the proposal could rely on amending (versus deleting) conditions 13 and 14, in order to provide a compromise between the need for the operator to extend hours, and the acknowledgement that simply allowing 24-7 access creates amenity conflict. The applicant has now formalised that amendment under Section 57a, however the proposed conditions continue to disagree with the original VCAT direction to limit putrescible intake after 6pm on Saturday. Indeed, it was specifically stated by the expert witness that "it was appropriate that no putrescible waste be stored on site beyond 6pm on Saturday".

Under Section 73(2) of the *Planning and Environment Act 1987*, if the responsible authority decides to grant an amendment to a permit subject to conditions, the conditions must relate to the amendment of the permit. In other words, Council could be in a position to modify suggested conditions, or place additional conditions should it deem them applicable to the proposed amendment. The addition or modification of conditions outside of what is put forward by the applicant, however, cannot become transformational, or change the underlying nature of what is being applied for to an outcome more suitable for Council. With that in mind, it is appropriate in this instance to assess the proposal against the provisions of the Planning Scheme and arrive at a decision, where that decision could involve a slightly modified version of the amended condition as proposed.

Objections

As previously summarised, objections mainly related to 4 distinct categories, including noise, odour, traffic, and property value. The Tribunal has consistently ruled that the effect on property value (real or perceived) is not a planning matter, and should not typically be considered.

Consistent with *Melton CC v Landfill Operations Pty Ltd (Red Dot) [2019] VCAT 882*, assessment of odour management should include an understanding of "whether the interests of the [objectors] will be unreasonably and adversely affected by odour emissions". Specifically, it was ruled that occasional detection of odours was insufficient, and that loss of amenity arises where "offensive odours are experienced to such an extent that the environment becomes unsuitable for its intended use". Additionally, in *All Vet Waste Pty Ltd v Golden Plains SC [2011] VCAT 758* it was ruled that the baseline assumption should be that the assessment of a facility's ability to comply with the technical requirements of various regulations lies with the EPA, and therefore Council has no basis to assume non-compliance. Odour was discussed in

paragraph 37 of the original *Statewide Waste* decision, and it was concluded that "there will be effectively no odour impact on any residential area", where the amendment does not suggest that this would be subject to change based on extended hours.

Traffic was discussed in *Statewide*, but really only in regards to the management of traffic, and not with particular address for noise concerns. Indeed, the possibility of this noise outside of standard daylight hours would not have been considered originally, and is a new amenity impact. However, the updated noise report (Telemetrix, February 2022) deals with three distinct time periods over 24 hours, and has concluded that potential noise is in line with regulations.

Amenity impacts across a variety of different applications of the Planning Scheme have often been assessed using a holistic approach. For example, an assessment of a Home Based Business was provided in *Lagas v Brimbank CC (Red Dot) [2009] VCAT 658*, where it was found that an assessment should factor both positive and negative amenity impacts. Subsequently, as both positive and negative impacts are being realised, the operation cannot be concluded to only adversely affect the amenity of the neighbourhood. In *Lagas,* it was concluded that the provision of take away coffee for some represented a negative amenity impact based on the increase of traffic and difficulty in finding a parking space, whereas for others it represented a positive amenity impact as they valued quick access to coffee. In this case, many objectors have documented the negative amenity impacts that they associate with the approval of the amended proposal. Although no one has cared to make a submission relating to a positive impact, it is entirely plausible that some residents might value the services provided, and appreciate the expedient service offering bolstered by the ability to operate without any restrictive hours. As a result, while marginal impacts on odour, traffic, and noise should be considered, they should be balanced against the overall impact on amenity.

While the amenity impacts in question are shown to be contained within levels that are deemed reasonable relating to various regulations, it continues to stand that this entire debate has already been waged in *Statewide*, and the Tribunal has already decided that the conditions were appropriate. While the planning system in Victoria is built on the ability to amend and adapt over time and in different circumstances, it has not been demonstrated that circumstances have changed in line with the suitability to simply delete the conditions. With the assistance of the various amenity reports as submitted can lead to the conclusion that operating hours on the whole should not be restricted, Condition 14 was created in relation to the sensitivity of the Sunday market, where the market continues to operate in much the same way as it would have previously. As a result, it would be unusual for Council to reverse a decision taken at Tribunal without sufficient cause, and there is consequently no cause to modify Condition 14 in any way. A review of other transfer stations across the City reveals that this same condition has been employed in other circumstances, and while each situation must be assessed using its own unique context, it can be concluded that a competitive disadvantage is not apparent in the context of receipt and storage of putrescible waste. Crucially, this point was already concluded at Tribunal, and circumstances have not been shown to be any different.

The assessment then turns to Condition 13, and whether or not it is reasonable to restrict general operations. Again, the written application posits that standard business hours (ie. access for the general public) will remain consistent, but that the loosening of restrictions will allow greater operational flexibility for the business to continue logistics after hours. In the context of the findings of the submitted reports, this would seem reasonable, however there are a wide range of objectors who are contending the results of the reports do not align with their lived experience. Again, it is not appropriate to solely model the outcome in this case with other transfer stations, however a review of recent approved permits relating to waste transfer stations reveals that other facilities do in fact conduct general operations over 24 hours, 7 days a week. Conversely, while this is the case, other permits have required both Environmental Management Plans (which outline procedures to control amenity impacts) and Site Management Plans (which outline operational procedures, including operating hours), where the endorsement of both plans helps Council regulate and understand operational intention. In this case, the applicant has submitted an EMP which includes a section on operating hours, but the section simply lists the hours as regulated by the permit, where that condition is now sought to be amended to remove reference to general hours. Accordingly, although it is reasonable to amend the condition (both on account of the evidence provided in associated reports, and on account of other similar transfer stations also not having restrictive conditions), it is also reasonable to require amendment to the EMP to establish intended hours, and strategies that

will be employed to ensure that the scenarios described in the submitted reports can in fact be employed.

In summary, it is concluded reasonable to amend Condition 13 in line with the application's original intent, on the basis that Condition 19 require an amended EMP that embeds an understanding of how the site will be managed. Conversely, it is concluded unreasonable to make any change to Condition 14 as it was employed by Tribunal for a specific purpose, where it has not been demonstrated that circumstances have changed in any meaningful way to rule against that intent. Accordingly, the recommendation below has been made.

Recommendation

That council, having caused notice of Planning Application No. PP2000-0135.04 to be given under Section 52 of the *Planning and Environment Act 1987* and having considered all the matters required under Section 60 of *the Planning and Environment Act 1987* should issue a Notice of Decision to indicate an intent to issue a permit under the provisions of the Warrnambool Planning Scheme in respect of the land known and described as Lot 43L SEC 70 CA PSH WAN TSH WARR, 355 Koroit St WARRNAMBOOL VIC 3280, for the Amendment to facilitate extended operating hours of the waste transfer facility in accordance with the endorsed plans, subject to the following conditions:

1. ***(Amended 16/3/2015)*** Prior to the commencement of the works approved by the amended permit, a storm water management plan must be submitted to and endorsed by the Responsible Authority. The plan must be in accordance with the current Responsible Authority's Design Guidelines, and provide for the following:

   a) Details and measures to enhance storm water discharge quality from the site and prevent the stormwater runoff onto neighbouring land as stated under the section Stormwater and Leachate Management under heading "Objectives" of the Environmental Management Plan.
   b) The measures stated in the stormwater management plan must confirm the actions stated under the section Stormwater and Leachate Management under heading "Actions" in the Environmental Management Plan.
   c) Levelling and paving of all waste storage areas with an impermeable surface.

   The endorsed storm water management plan is to be implemented prior to the use or occupation of the approved development.

2. The use and/or development as shown on the endorsed plans must not be altered without the written consent of the Responsible Authority.

3. The vehicular crossing is to be constructed in accordance with Warrnambool City Council specifications, to the satisfaction of the Responsible Authority. In this regard a permit is required from the Responsible Authority.

4. The amenity of the area must not be detrimentally affected by the use or development through the:

    a. Transport of materials, goods or commodities to or from the land;

    b. Appearance of any building, works or materials;

    c. Emission of noise, artificial light, vibration, smell, fumes, smoke, vapour, steam, soot, ash, dust, waste water, waste products, grit or oil;

    d. Presence of vermin;

    e. The site including all buildings, works and landscaping shall be maintained in a neat, tidy and safe condition in accordance with the endorsed plan to the satisfaction of the Responsible Authority.

5. ***(Amended 16/3/2014)*** Before the use and/or development starts, areas set aside for parked vehicles and/or storage of skips and equipment, and access lanes as shown on the endorsed plans (as amended) must be:

    a. Constructed to the satisfaction of the Responsible Authority.

    b. Properly formed to such levels that they can be used in accordance with the endorsed plans.

    c. Surfaced with an all-weather seal coat to the satisfaction of the Responsible Authority.

    d. Drained and maintained to the satisfaction of the Responsible Authority.

    e. Line-marked to indicate each car space and all access lanes to the satisfaction of the Responsible Authority.

6. ***(Amended 16/3/2014)*** Parking areas and access lanes must be kept available for these purposes at all times. The car parking area is to be set aside for the parking of passenger vehicles only. All other vehicles are to be parked at the rear of the site.

7. A sign(s) to the satisfaction of the Responsible Authority must be provided directing drivers to the area set aside for car parking and must be located and maintained to the satisfaction of the Responsible Authority. The sign must not exceed 0.3 square metres.

8. The site shall be drained to the satisfaction of the Responsible Authority, and no stormwater, sullage, sewerage or polluted drainage shall drain or discharge from the land to adjoining properties. Collected leachate is to be removed from the site at regular intervals in accordance with the provisions of the Environmental Management Plan.

9. All surface run-off must be contained and treated within the site.

10. Prior to the commencement of the development/use hereby permitted, a landscaping plan shall be submitted to the Responsible Authority and when endorsed will form part of this permit. Such plan shall show the following to the satisfaction of the Responsible Authority:

    a. All surface treatments

    b. The botanical name, height and width at maturity, and location of all vegetation to be used

    c. Details of proposed perimeter fencing of the site.

11. The area set aside for landscaping shall be used for no other purpose.

12. Before the use allowed by this permit starts, landscaping works as shown on the endorsed plans must be completed to the satisfaction of the Responsible Authority.

13. ***(Amended)*** The hours of operation of the waste transfer station can operate at any time, except as limited by condition 14.

14. ***(Amended 22/12/2021)*** Putrescible wastes must not be stored on site after 6.00pm on a Saturday or prior to a public holiday. Nor is any putrescible waste permitted to be received by the facility on a Sunday or public holiday - unless with the prior written consent of the Responsible Authority.

15. ***(Amended 16/3/2015)*** Loading and unloading of all goods, materials and items shall be carried out on the site. All waste entering the site is to be treated as follows, to the satisfaction of the Responsible Authority:

    a. All rubbish and recycling waste is to be set down, sorted and contained within the perimeter of the “Recycle Sorting Centre” building, including the part of the concrete pavement overhung by the roof. Rubbish and recycling materials must not be set down or stored in areas open to the sky, unless contained securely within a skip bin or approved receptacle.

b. All green waste must be set down, and stored within the area marked “Green waste disposal area” on the endorsed plans. There is to be no storage of green waste outside this area.

c. All areas for the storage of waste, including the household chemical collection point and storage area, are to be levelled and provided with an impermeable surface. All surfaces are to be maintained in a serviceable condition to the satisfaction of the Responsible Authority.

d. A secondary containment system must be provided for liquids which if spilt are likely to cause pollution or pose an environmental hazard, in accordance with the EPA Publication 347 Bunding Guidelines 1992 or as amended.

16. The external fabric including the roofing of the building/s shall be in muted tonings of non-reflective material and/or paint to the satisfaction of the Responsible Authority.

17. The operation of the site must be in compliance with the requirements of the Environmental Protection Authority. In this respect the permit holder is to:

a. Comply with the Guide to Best Practice at Transfer Stations, published by Eco Recycle Victoria.

b. Comply with the South West Regional Waste Management Plan.

18. ***(Amended 16/3/2015)*** No putrescible wastes shall remain on the premises for more than 24 hours. Green waste must not be stored longer than 7 days.

19. ***(Amended)*** Prior to operating outside of previously approved business hours, an amended environmental management plan to the satisfaction of the Responsible Authority must be submitted to and approved by the Responsible Authority. When approved, the plan will be endorsed and will then form part of the permit. The Environmental Management Plan must include, interalia:

a. Employee and contractor responsibilities;

b. Use of chemicals, such as herbicides and rodenticides;

c. Covering of all bins retained on site overnight;

d. Cleaning, sanitation and housekeeping procedures;

e. Vermin control and rodent baiting, insect control and spraying;

f. Monitoring processes and corrective action;

g. Procedures for odour, stormwater, noise and dust management;

h. Procedures for the collecting and removal of leachate from the site;

i. Emergency response procedures;

j. Traffic management;

k. Use and maintenance for all plant and equipment;

l. Procedures for monitoring and reporting;

m. A timetable for the review of the management plan.

n. An amended section on Operating Hours that no longer refers to permit conditions, and explains how the site will be managed at all parts of the day and week.

SOUTH WEST WATER AUTHORITY CONDITIONS

20. The provision at the developer's cost of the required sewerage works necessary to serve the proposed development. The works are to be constructed in accordance with the plans and specifications approved by, and under the supervision of the South West Water Authority.

21. The provision at the developer's cost of the required water supply works necessary to serve the proposed development. The works are to be constructed in accordance with the plans and specifications approved by, and under the supervision of the South West Water Authority.

22. The developer entering into an agreement with the Authority for contribution of the present day costs of any works that are used or will be able to be used for the provision of services to the proposed development.

23. The developer obtaining the necessary consents and approvals for:

a. Alteration to or connection of on-site plumbing.

b. Building over or within 1 metre horizontally of any water or sewerage works whether within or beyond the boundary of the property.

c. The discharge of trade waste (other than domestic sewerage) from the property.

d. Any changes to the natural surface levels that result in a portion of the building not being able to be provided with gravity sewerage services

THIS PERMIT HAS BEEN AMENDED AS FOLLOWS:

Date of amendment	Brief description of amendment
17 May 2007	• Permit amended under direction of VCAT to allow receipt of putrescible materials. • Permit format altered to new format.
23 March 2015	• Endorsed plans are superseded • Environmental Management Plan is amended • Selected conditions of the permit are amended

22 December 2021	• Pursuant to Section 74 of the *Planning and Environment Act* 1987 condition 14 of the permit has been amended to allow discretion in approving receipt and storage of putrescible waste. • Pursuant to Section 71 of the *Planning and Environment Act* 1987 the permit issue date has been corrected to that of the original permit issued 3 January 2001 (previous reference 135/00)
10 November 2022	• Condition 13 is deleted • Condition 19 is amended

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Expiry of permit:

In accordance with section 68 of the *Planning and Environment Act 1987*, this permit will expire if one of the following circumstances applies:

- The development and use are not started before two (2) years of the date of this permit.
- The development is not completed within four (4) years of the date of this permit.

In accordance with section 69 of the *Planning and Environment Act 1987*, the responsible authority may extend the periods referred to if a request is made in writing before the permit expires, or within three months afterwards.

Note:

1. This permit is not an EPA permission/approval. Before the use or development authorised under this permit starts, the permit holder must ensure that any obligations or duties that arise under the *Environment Protection Act 2017* are met. This may include obtaining an EPA permission, approval or exemption, in accordance with the Environment Protection Regulations 2021.

2. The amended *Environment Protection Act 2017* came into effect on 1 July 2021. The amended *Environment Protection Act 2017* imposes new duties on individuals and/or businesses undertaking the activity permitted by this permit. If your business engages in activities that may give rise to a risk to human health or the environment from pollution or waste, you must understand those risks and take action to minimise them as far as reasonably practicable.

   For further information on what the new laws will mean for Victorian businesses go to https://www.epa.vic.gov.au/for-business/new-laws-and-your-business

   For further information on what the new laws will mean for individuals and the community go to https://www.epa.vic.gov.au/about-epa/laws/new-laws/the-new-act-for-the-community

Planner Responsible:		Delegate:	Rob Wandell
Signature:		Signature:	
Date:		Date:	10 November 2022

MYERS PLANNING GROUP

Building Design
Town Planning
Project Management

Planning Permit Application

355 Koroit Street, Warrnambool

Prepared for Cleanaway Pty Ltd

Issued
24 August 2022

182B Lava Street
Warrnambool VIC 3280

(03) 5562 9443
www.myersplanninggroup.com.au

Overview

Background	
Applicant / Owner	Cleanaway Pty Ltd
Address	355 Koroit Street, Warrnambool
Lot Description	Crown Allotment 43L Section 70 Township of Warrnambool Parish of Wangoom
Relevant Planning Controls	
Municipal Planning Strategy	Clause 02.01 - Context Clause 02.02 - Vision Clause 02.03 - Strategic directions Clause 02.03-3 – Environmental Risks and amenity – Land use conflict Clause 02.03-7 – Economic development - Industry Clause 02.04 - Warrnambool Strategic Framework Plan.
Planning Policy Framework	Clause 11 Settlement Clause 13 Environmental Risks and Amenity Clause 17 Economic Development
Zone	Industrial 1 Zone
Overlays	None
Particular Provisions	Clause 53.10 Uses with Adverse Amenity Potential Clause 53.14 Resource Recovery
Strategic Planning Documents	Warrnambool Planning Scheme
Permit Application Details	
Description of Proposal	Amendment to Planning Permit PP2000-0135.03 to amend Condition 13 and 14

Acknowledgement of Country

We acknowledge the Traditional Owners of the Country on which this application applies and recognise their continuing connection to land, waters and culture. We pay our respects to their Elders past, present and emerging.

We care about our community

We donate a fixed percentage of our income each year to local organisations that work towards a better world. We also advise and represent a select group of clients on a reduced cost or pro bono basis.

Quality assurance

Town Planning Report
355 Koroit Street, Warrnambool
Prepared for Cleanaway Pty Ltd

Project Number
21-690

Revision
02

Prepared By
CL/AP

Reviewed By
DP

Project Lead
DP

Issued
24 August 2022

Revision	Date	Issue
00	8 April 2022	Draft issue to client
01	13 April 2022	Final issue to Council
02	24 August 2022	Amended application to Council

Contents

Figures

1 Introduction

1.1 Purpose

This report has been prepared by Myers Planning Group on behalf of Cleanaway Pty Ltd in support of an amendment to a planning permit associated with the existing refuse transfer facility at 355 Koroit Street.

The proposal seeks to allow the transfer facility to operate on an extended basis. To facilitate this, Condition 13 and 14 of Planning Permit PP2000-0135.03 are proposed to be amended.

Having considered the proposal with respect to the Warrnambool Planning Scheme, it is the conclusion of this report that proposal is consistent with both state and local planning policy. As such, this report recommends, and requests Council issues a permit for the proposal.

The following documents should be read in conjunction with this report and are provided as part of the application:

- Certificate of Title
- OneMap Report
- Site Photo Montage
- Environmental Noise Assessment (prepared by Telemetrix dated 9 February 2022);
- Warrnambool Waste Transfer Station Odour Assessment (prepared by GHD dated 17 March 2022);
- Environmental Management Plan (prepared by Cleanaway dated March 2022);
- Planning Permit PP2000-0135.03.

1.2 Limitations

This report has considered the following documents:

- Warrnambool Planning Scheme (as of 8 March 2022);
- Certificate of Title (dated 25 August 2022);
- Environmental Noise Assessment (prepared by Telemetrix dated 9 February 2022);
- Warrnambool Waste Transfer Station Odour Assessment (prepared by GHD dated 17 March 2022);
- Environmental Management Plan (prepared by Cleanaway dated March 2022);
- Planning Permit PP2000-0135.03.

2 Site and surrounds

2.1 Site description and title particulars

Site address	355 Koroit Street, Warrnambool
Title details	Crown Allotment 43L Section 70 Township of Warrnambool Parish of Wangoom
Site description	The Site is an irregular but generally rectangular (with its west boundary split in two at an angle) with an area of approximately 8366 metres squared and a frontage of approximately 46.7 metres.
Landowners	For the purposes of Section 48 of the Planning and Environment Act 1987, Cleanaway Pty Ltd are the registered landowners.
Easements, restrictions or covenants	The site is a Crown Grant and is burdened by Crown rights for minerals, petroleum, pipelines and mining, including exploration for these purposes. The site is also subject to easements for sewer, stormwater and carriageway for Council, generally located along the western boundary. The site is not subject to any restrictions pursuant to Section 173 of the Planning and Environment Act 1987.

Refer to **Appendix A** - Certificate of Title.

2.2 Site analysis

The Site comprises one allotment known as 355 Koroit Street, Warrnambool. The Site has an area of approximately 8,366 square metres and is currently being used as a refuse transfer station operated by Cleanaway Pty Ltd, in accordance with the existing planning permit see **Appendix G** – Planning Permit PP2000.0135.03.

The Site contains a reception/office building fronting Koroit Street, with a staff carpark to its west. The Site also comprises a weigh bridge, a 746 square metre waste transfer shed to the south of the office buildings, green waste stockpiles, workshop, heavy vehicle parking and waste unloading areas. The Site is predominantly covered by all weather bituminous surface and is bordered by a 1.8 metre high colorbond perimeter fence, planted 300mm deep as a vermin barrier.

The site services between 10 to 20 heavy vehicles (waste trucks) per day. which include Cleanaway trucks, municipal waste trucks from local shires and/or commercial waste trucks from other companies. Public customers utilise the site intermittently. All vehicles enter and exit the site through the northern entrance and via the weighbridge located north of the main shed. The Site processes a range of materials including:

- General waste including putrescible waste
- Mattresses
- Furniture
- Tyres (all sizes)
- Oil
- Polystyrene
- Glass
- Cardboard & paper
- E-waste (TV's, computers and monitors)
- Fluro Lights
- Clean fill (any combination of soil, sand, bricks, concrete, tiles and rocks)
- Greenwaste
- Timber
- Plaster.

The site currently operates within the following operational hours:

- Monday – Friday: 8:30 am to 5:00 pm
- Saturday: 9:00 am to 4:00 pm
- Sunday: 10:00 am to 4:00 pm.

Putrescible waste can only be stored on site in accordance with Condition 14 of the current permit, which restricts the storage of such waste after 6.00pm on a Saturday, prior to a public holiday, and the receival of such waste on a Sunday or public holiday, unless with the prior written consent of the Responsible Authority.

Refer to Figure 1 - Aerial Plan.

Figure 1: Aerial Plan

2.3 Site context

The Site is located in Warrnambool, surrounded by industrial and recreational land.

The Site is located:

- Approximately 300 metres south from the nearest residential property on Atkins Road
- Approximately 900 metres north from the Merri River
- Approximately 1.9 kilometres west from the City Centre of Warrnambool
- Approximately 2 kilometres north from the coastline.

The Site is within the Industrial 1 Zone (IN1Z), as is the adjoining property to the south and west. North of the Site is Koroit Street which is a Significant Municipal Road (TRZ3) and bordering that is Victoria Park which is within a Public Park and Recreation Zone (PPRZ), and used as a football ground, dog park, and informal outdoor recreation. To the east of the Site is the Warrnambool Showgrounds which is within a Special Use Zone (SUZ2). The Showgrounds are used for weekly markets, along with large events such as greyhound racing and the annual Warrnambool Show.

The Site's key interfaces are as follows:

North – Koroit Street	Land to the north is Koroit Street, and beyond that is Victoria Park.
East – Warrnambool Showgrounds	Land to the east comprises land used for the Warrnambool Showgrounds (Wannon Park), consisting of sheds and a racecourse.
South – Dam (43M\70\PP5841)	Land to the south is a stormwater dam within the Industrial 1 Zone.
West – 328 & 367 Koroit Street	Land to the west comprises land used for industrial uses including concrete batching plant, ashplant plant, and an abattoir.

Refer to Figure 2 - Context Plan.

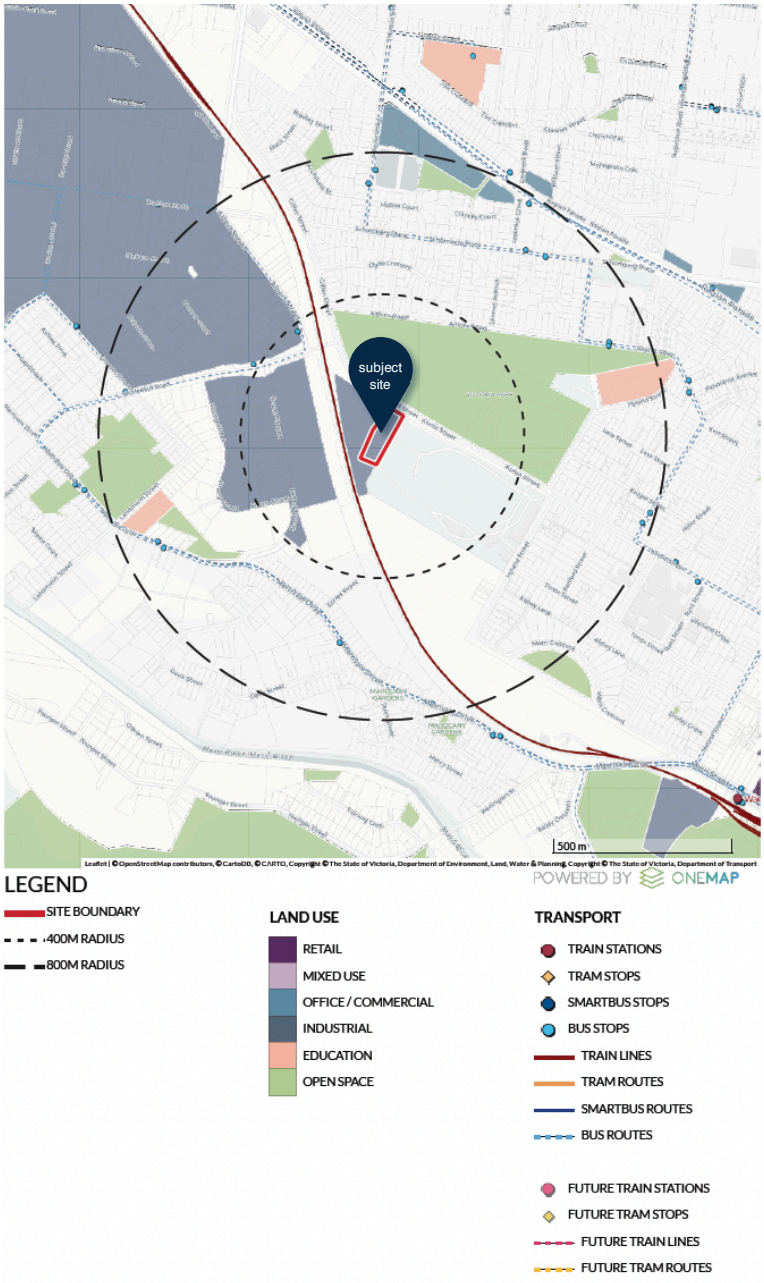

Figure 2: Context Plan

3 Proposal

3.1 Proposed amendments

The proposal seeks to amend the conditions of PP2000-0135.03 to allow the facility to receive and store waste on an extended basis, with the exception of putrescible waste, which is to be limited by amended Condition 14. This amendment would allow the transfer station to receive waste during hours currently prohibited by the existing conditions of the permit.

To facilitate increased hours of the facility, it is proposed to amend Permit Conditions 13 and 14 of Planning Permit PP2000-0135.03, which state as follows:

13. The hours of operation of the waste transfer station are restricted to:

- *Monday – Friday: 8:30 am to 5:00 pm*
- *Saturday: 9:00 am to 4:00 pm*
- *Sunday: 10:00 am to 4:00 pm except as limited by condition 14.*

14. Putrescible wastes must not be stored on site after 6.00pm on a Saturday or prior to a public holiday. Nor is nay putrescible waste permitted to be received by the facility on a Sunday or public holiday, unless with the prior written consent of the Responsible Authority.

The conditions are proposed to be amended as follows:

13. The hours of operation of the waste transfer station can operate at any time, except as limited by condition 14.

14. No putrescible waste is permitted to be received by the facility on the following occasions:

- *On a Sunday, unless with the prior written consent of the Responsible Authority.*
- *Between 10pm-2am (inclusive) on any day.*

To support the proposal, an Environmental Noise Assessment, and Odour Assessment have been prepared. Refer to **Appendix D** and **E**.

4 Planning policies and controls

4.1 Municipal Planning Strategy (MPS)

The Municipal Planning Strategy (MPS) sets out the City's context, municipal vision, and strategic planning directions, with a focus on specific areas and issues within Warrnambool. The Municipal Strategic Statement (MSS) clauses relevant to the proposal are detailed below.

- **Clause 02.01 - Context -** identifies Warrnambool as Victoria's largest coastal regional city and the fastest growing economy and population centre in South West Victoria. Warrnambool has a steadily growing population of about 35,200 in 2019 (ABS) that is expected to increase to 43,000 people by 2031. The majority of the population is in Warrnambool, Dennington, Allansford, Bushfield and Woodford. Warrnambool has a diversity of land uses including residential, industrial and commercial. Much of the rural area (approximately 60 per cent of the land area) is used for agriculture, particularly dairy farming.
- **Clause 02.02 - Vision -** The Council Plan (2017-2021) sets out the following vision for Warrnambool:
    - A cosmopolitan city by the sea

  The Council Plan identifies four objectives relevant to land use planning:
    - Sustain, enhance and protect the natural environment.
    - Foster a healthy, welcoming city that is socially and culturally rich.
    - Maintain and improve the physical places and visual appeal of the city.
    - Develop a smarter economy with diverse and sustainable employment.
- **Clause 02.03 - Strategic directions -** this Clause outlines the Council's strategic directions across key issues including settlement, environmental and landscape values, built environment and heritage, and housing.
- **Clause 02.03-3 – Environmental Risks and amenity – Land use conflict -** Council seeks to protect communities close to established industries from off-site impacts such as dust, odour, noise and air pollution; and to manage land use conflicts at the urban/rural interface and development pressures at the edge of Warrnambool's settlement boundary.
- **Clause 02.03-7 – Economic development - Industry -** Council seeks manage the industrial/residential interface to ensure any off-site amenity impacts are minimised.
- **Clause 02.04 - Warrnambool Strategic Framework Plan**

4.2 Planning Policy Framework (PPF)

To ensure the overarching objectives of planning in Victoria are met, policies contained within the Planning Policy Framework (PPF) must be considered. The PPF clauses of most relevance the Site and the proposal are set out below.

Clause 11 Settlement

- **Clause 11.01-1S – Settlement –** seeks to promote the sustainable growth and development of Victoria and deliver choice and opportunity for all Victorians through a network of settlements.
- **Clause 11.01-1R – Settlement - Great South Coast -** aims to attract more people to the region.

Clause 13 Environmental Risks and Amenity

- **Clause 13.05-1S – Noise abatement –** seeks to assist the control of noise effects on sensitive land uses.
- **Clause 13.06-1S – Air quality management –** seeks to assist the protection and improvement of air quality.
- **Clause 13.07-1S – Land use compatibility –** seeks to protect community amenity, human health and safety while facilitating appropriate commercial, industrial, infrastructure or other uses with potential adverse off-site impacts.
- **Clause 13.07-1L-02 – Land use conflict – Industrial and residential interface –** seeks to minimise conflict between industrial and residential areas.

- **Clause 13.07-1L-03 – Land use conflict – Waste transfer stations –** seeks to protect and maintain separation distances between waste transfer stations and sensitive uses.

Clause 17 Economic Development

- **Clause 17.03-1L – Industry –** seeks to support opportunities for the expansion of industry and the provision of related infrastructure.
- **Clause 17.03-2S – Sustainable industry –** seeks to facilitate the sustainable operation of industry.

4.3 Industrial 1 Zone

The Site is located within the Industrial 1 Zone (Clause 33.01). The purposes of the Industrial 1 Zone include:

- To provide for manufacturing industry, the storage and distribution of goods and associated uses in a manner which does not affect the safety and amenity of local communities.

There are no specific matters identified in the zone which are not appropriately addressed elsewhere in this report, and in the Appendices.

4.4 Particular Provisions

4.4.1 Clause 53.10 Uses and Activities with Potential Impacts

The purpose of Clause 53.10 is to identify those types of uses and activities, which if not appropriately designed and located, may cause offence or unacceptable risk to the neighbourhood.

Clause 53.10 is intended for proposed facilities and is to be implemented during the planning phase. Given the site is currently in operation, Clause 53.10 does not apply to this assessment and, as per the recommendations of the Odour Assessment, EPA Victoria *Recommended separation distances for industrial residual air emissions*, 2013, Publication 1518 should be used instead.

4.4.2 Clause 53.14 Resource Recovery

The purpose of Clause 53.14 is to facilitate the establishment and expansion of a Transfer station and/or a Materials recycling facility in appropriate locations with minimal impact on the environment and amenity of the area.

The application requirements of Clause 53.14-2 are appropriately addressed in this report and in the Appendices.

4.5 Other planning considerations

4.5.1 Environmental Management Plan

The Environmental Management Plan applying to the Site has been updated in accordance with the recommendations of the Odour Assessment (Section 8.4.3, Appendix E). A copy of the Environmental Management Plan is included at **Appendix F**.

A condition is invited on any permit requiring an updated Environmental Management Plan to be submitted, generally in accordance with the updated Plan, but including the new hours of operation, should a permit be issued.

5 Planning assessment

5.1 Overview

The following chapter outlines the key planning considerations of the proposal in response to relevant policy and the provisions of the Moyne Planning Scheme. In summary, the following key considerations are relevant to the assessment of the proposal:

- Is the proposal consistent with the Municipal Planning Strategy?
- Is the proposal consistent with the Planning Policy Framework?
- Does the proposal result in unacceptable amenity impacts associated with increased hours of operations?

5.2 Key considerations

5.2.1 Is the proposal consistent with the Municipal Planning Strategy?

The Site is located within the Warrnambool West Industrial Precinct, as identified in the Warrnambool Strategic Framework Plan (**Clause 02.04**).

The proposal to operate the existing transfer facility for further hours, whilst limiting the receipt of putrescible waste, has appropriately considered the off-site amenity impacts of the proposal, including the proximity to residential communities and community uses. The amenity of these areas will not be affected by the proposal, as described in the Environmental Noise Assessment (Appendix D) and Odour Assessment (Appendix E). The amended hours of operation will be consistent with nearby industrial uses including the abattoir and asphalt plant, and there are no land use conflict issues anticipated In association with the proposal (**Clause 02.03-3 – Environmental Risks and amenity – Land use conflict, Clause 02.03-7 – Economic development - Industry**). The proposal appropriately responds to the MPS.

5.2.2 Is the proposal consistent with the Planning Policy Framework (PPF)?

The proposed amended conditions will support the waste management needs of Warrnambool as the key population and employment centre for the Great South Coast Region (**Clause 11.01-1S – Settlement, Clause 11.01-1R – Settlement - Great South Coast**).

The proposal has given consideration to the provisions of Clause 13 Environmental Risks and Amenity, which seeks to prevent and minimise the risk of harm to the environment, human health and amenity through land use and development compatibility, and effective controls to prevent or mitigate significant impacts. As outlined in Section 5.2.3 below, the proposal has appropriately considered the off-site amenity impacts, and does not result in any noise, air quality, or land use compatibility issues associated with the proposed hours of operation. The proposal appropriately responds to the requirements of Clause 13 (**Clause 13.05-1S – Noise abatement, Clause 13.06-1S – Air quality management, Clause 13.07-1S – Land use compatibility, Clause 13.07-1L-02 – Land use conflict – Industrial and residential interface, Clause 13.07-1L-03 – Land use conflict – Waste transfer stations**).

The proposal is well supported by Clause 17 Economic development. The proposal supports the expansion of the existing industry, in order to provide a service consistent with the general operations of waste transfer stations within Warrnambool and through the appropriate disposal of waste (**Clause 17.03-1L Industry**). The proposal is appropriately located within an existing industrial area and provides appropriate separation to nearby residential areas. The proposed amended hours of operation will align the operation of the Site with nearby industrial uses (including the abattoir and asphalt plant), as well as similar transfer stations throughout Warrnambool City. The proposal supports the ongoing operation of the existing industrial use (**Clause 17.03-2S Sustainable industry**).

The proposal is therefore considered appropriate having regard to the PPF.

5.2.3 Does the proposal result in unacceptable amenity impacts associated with increased hours of operation?

The Environmental Noise Assessment (**Appendix D**) undertaken to support the proposal included site observations and measurements, where it was observed that the noise contribution from the transfer station could not be isolated over the existing background noise levels at the rearrest residential locations on Atkins Road. Based on the measured results, and predicted noise levels associated with a 24 hour operation, the transfer station would comply with the required noise criteria of the *Noise limit and assessment protocol for the control of noise from commercial, industrial land trade premises and entertainment venues (Noise Protocol), Publication1826.4, May 2021*, which is incorporated into the Environment Protection Act and Regulations.

The Odour Assessment (**Appendix E**) has provided a detailed assessment of the likely impact in terms of odour associated with a 24 hour operation of the Site. The Assessment identified the sensitive receptors closest to the Site, including residential areas, and the public recreation spaces of Wannon Park / the showgrounds and Victoria Park. Using the EPA buffer guidelines, the default buffer distance of 250 metres for a transfer station would apply. The Odour Assessment concludes that the 250 metre buffer does not affect any residential land, and in the event of an upset event, there are no expected impacts to nearby residents.

In addition to the above, the Odour Assessment includes a method to 'derate' separation distances to account for the reduced scale of operations compared to the threshold throughput used to define each separation. The aim of derating a separation distance is to provide an equivalent degree of protection in the event of a process upset/malfunction. Significantly smaller operations (compared to a larger example) would likely generate correspondingly smaller odour/dust emissions during an 'upset' and also have a reduced risk of an 'upset' occurring. Therefore, the derated separation distance, while providing a smaller separation distance, would still deliver the same degree of protection from adverse amenity. Based on the methodology outlined in the Odour Assessment, the derated separation distance is reduced to 144 metres, which provides a greater separation distance to the existing residential areas, and also reduces the impact on the nearby land used for recreation purposes. The Odour Assessment concludes that given the small size of the Site, the results of the derated separation distance analysis indicates the risk of odour emissions impacting nearby residents in the event of an upset is further reduced.

A directional buffer assessment was also undertaken, having regard to the local meteorological conditions for a 24 hour operation. The results indicate that the risk to odour amenity impact at the nearby sensitive receptors is further reduced due to meteorology given neither the original 250 metre nor the de-rated 144 metre directional buffers extend to the identified residential area in either scenario.

The Odour Assessment also provides a Level 2 and Level 3 Source-Pathway-Receptor Assessment as referred to in the draft Guidance for Assessing Odour (EPA Publication 1883). This Assessment included two odour surveys. The odour detected during the two odour surveys was identified as being almost always subtle and transient, with it being attributed to the site during the surveys and considered not unpleasant. The results indicate that no adverse amenity impact was observed during the two surveys.

The Odour Assessment concludes that risk of odour from the site operating 24 hours would be low.

Based on the information provided in the Environmental Noise Assessment and Odour Assessment, the proposal is unlikely to result in unacceptable off-site amenity impacts associated with any increase in hours of operation.

Notwithstanding these recommendations, the receipt of putrescible waste on a Sunday is to be limited to provide protection of nearby community uses. On balance, this is considered to provide an appropriate balance between exiting uses and the intent to provide waste services of benefit to the wider community.

6 Conclusion

This report has described the proposed amendments required to facilitate the extended hours of operation of the premises. This report has assessed the proposal against the relevant policy and planning controls of the Warrnambool Planning Scheme, and it is the conclusion of this report that the application is consistent with the purposes and intent of the planning controls and policy framework of the Warrnambool Planning Scheme.

It follows as the recommendation and request of this report that Council amend the planning permit for the proposal.

We look forward to working with Council during the assessment of the application.

Myers Planning Group

August 2022

Appendices

Appendix A	Certificate of Title
Appendix B	OneMap Site Report
Appendix C	Site Photos
Appendix D	Environmental Noise Assessment
Appendix E	Warrnambool Waste Transfer Station Odour Assessment
Appendix F	Environmental Management Plan
Appendix G	Existing Planning Permit

Appendix D Environmental Noise Assessment

Confidential **FINAL**

Warrnambool Transfer Station
355 Koroit Street, Warrnambool, Victoria

Environmental Noise Assessment

Prepared for:
Cleanaway Pty Ltd t/a
Statewide Recycling Services

Prepared by:
TELEMETRIX Pty Ltd

Date:
9 February 2022

Project Number:
20060201J

Disclaimer

This Report has been prepared by Telemetrix Pty Ltd on behalf of and for the exclusive use of Cleanaway Pty Ltd t/a Statewide Recycling Services ("Client") and is subject to and issued in connection with the provisions of the agreement between Telemetrix Pty Ltd and its Client.

This Report is based on a specific scope, conditions, and limitations, as agreed between Telemetrix Pty Ltd and the Client. This Report has been produced from information relating to dates and periods referred to in this document. The Report does not imply that any information is not subject to change.

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DOCUMENT CONTROL

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Project Name	Warrnambool Transfer Station 355 Koroit Street, Warrnambool, Victoria Environmental Noise Assessment
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		Name	**Signature**	**Name**	**Signature**	**Date**
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2	Vlado Pavasovic	Slavica Praporski		Vlado Pavasovic		9/2/2022

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GLOSSARY

dB	Units used to measure sound pressure levels on a logarithmic scale.
dB(A)	A measure of sound levels as experienced by humans, calculated using a spectral sensitivity factor (A-filter) that weights sound pressure levels by frequency to correspond to the sensitivity of the human ear. Decibel is equal to 20 times the logarithm (base 10) of the ratio of a given sound pressure to a reference sound pressure. The reference sound pressure used is 20 micropascals, which is the lowest audible sound.
Ambient noise	Ambient noise is the total of all noise within a given environment, comprising a composite of sounds from sources near and far.
L_{Aeq}	Equivalent continuous A-weighted sound pressure level of a noise energy-averaged over time. When sound levels fluctuate in time, which is often the case for occupational noise, the equivalent sound level is determined over a specific time period. In this guide, the A-weighted sound level is averaged over a period of time (T) and is designated by $L_{Aeq,T}$.
L_{A90}	The value of 'A'-weighted sound pressure level which is exceeded 90 per cent of time during a given measuring period. L_{90} sound pressure level is commonly used to represent Background noise level.

1 INTRODUCTION

Telemetrix Pty Ltd (Telemetrix) has undertaken a noise assessment for the Warrnambool transfer station located at 355 Koroit Street, Warrnambool, Victoria.

The transfer facility is seeking to amend their current planning approval from daytime operation only to 24-hour operation.

With the introduction and changes to the Environmental Protection Act on 1 July 2021, the site needs to re-establish Effective Noise Levels (ENL's) for the range of activities and comply with the new EPA regulations, outlined in the Noise Protocol.

2 SITE DESCRIPTION/PROPOSED DEVELOPMENT

The transfer station is located at 355 Koroit Street, Warrnambool, Victoria. The site is currently zoned IN1Z (Industrial 1 Zone) as shown in Figure 1 and is bounded by the following:

- Road to the north (Koroit Street)
- Industrial Zone 1 to the north
- Public Use - Transport to the south and west of the transfer station site
- Special Use Zone to the east of the transfer station site

An aerial photograph of the site is shown in Figure 2.

Figure 1 Planning map

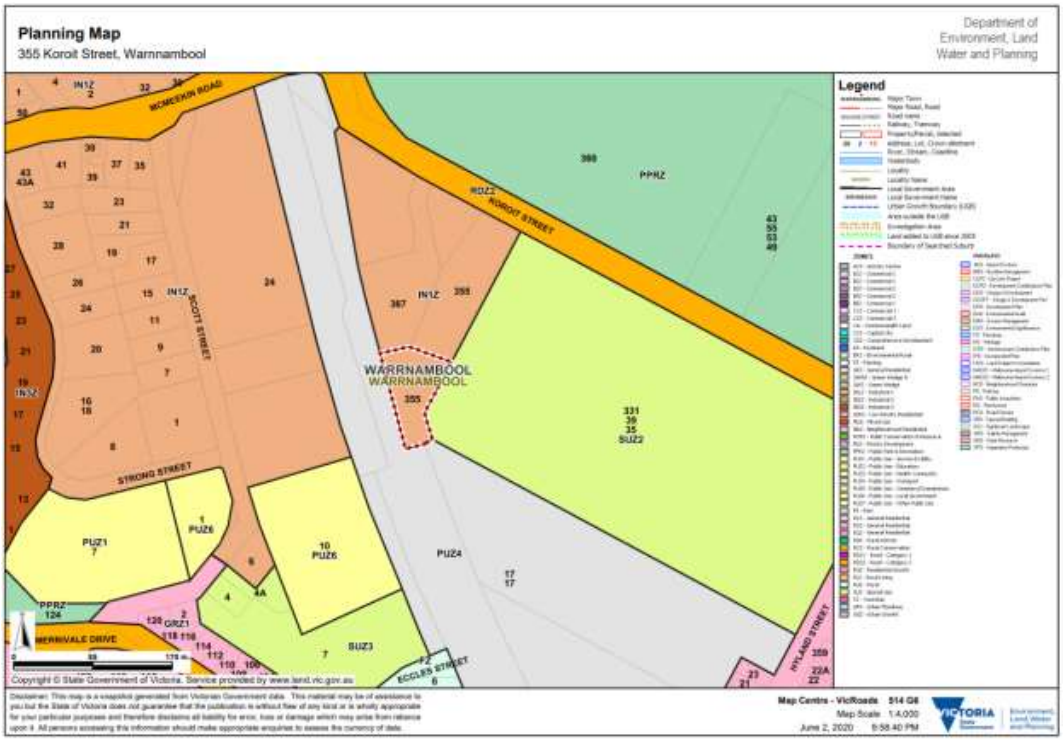


Figure 2 Site location

Transfer station site

Nearest residential receivers to the north - Aitkins Road

Nearest residential receivers to the east - Hyland Street

Nearest residential receivers to the south - Merrivale Drive

Nearest receivers are located to the north and are approximately 300 m away from the site's north boundary. The line of sight is partially blocked by the terrain. The measurements were performed at the only point of clear line of sight at the 74 Atkins Road.

Other potential sensitive receivers are to the east and south and are 470 m and 380 m away respectively.

Nearest affected residences

The affected residences nearest to the transfer station site are shown in Figure 2 and Table 1.

Table 1 Closest noise-sensitive receivers to the transfer station

Address	Location
Aitkins Road, Warrnambool	Approximately 300 m to the north of the site's boundary
Merrivale Drive, Warrnambool	Approximately 490 m to the east of the site's east boundary
Hyland Street, Warrnambool	Approximately 380 m to the south of the site's south boundary

3 NOISE LEGISLATION & GUIDELINES

The *Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues* (Noise Protocol), Publication1826.4, May 2021, is incorporated into the Environment Protection Regulations (the Regulations) without modification.

The Noise Protocol provides a procedure for the purpose of determining noise limits for new and existing commercial, industrial and trade premises and entertainment venues as defined by the Regulations. It sets the methodology for assessing the effective noise level to determine unreasonable noise under Regulations 118, 125 and 130.

The measurement procedures of this Noise Protocol are also used to determine aggravated noise under Regulations 121, 127 and 131.

3.1 Noise limits in rural areas for commercial, industrial and trade premises other than utilities and earth resources

Noise limits are determined based on the zone level and distance-adjusted level for each period using the method in clauses 19 and 20 of the Noise Protocol.

For each period, the noise limit is the greater of the distance-adjusted level and base noise level in Regulation 118(2)(b), unless a background level assessment has been conducted in accordance with clauses 21 to 23 of the Noise Protocol.

Zone levels and distance-adjusted levels

The distance-adjusted zone levels for each of the day, evening and night periods using Annex B to this Noise Protocol are outlined below.

Generating Zone ↓ / Receiving zone →	Green Wedge A GWAZ, Rural Conservation RCZ, Rural Living RLZ Group E CDZ, BUZ & UGZ (*)	Low Density Residential LDRZ Public Conservation and Resource PCRZ Public Park and Conservation PPCZ Public Use 2,5 PUZ2 & PUZ5 Urban Floodway UFZ	Farming Zone FZ Green Wedge GW General Residential Zone GRZ Neighbour Residential Zone NRZ Residential Growth Zone RGZ, Rural Activity Zone RAZ, Township Zone TZ Urban Growth Zone before an incorporated precinct structure plan UGZ Group B CDZ, BUZ & UGZ (*)	Commercial 1 Zone C1Z B1Z B2Z B3Z Commercial 3 Zone C3Z Mixed use Zone MUZ Activity Centre Zone ACZ Public Use Zone 1,3,4,6&7 PUZ1 PUZ3 PUZ4 PUZ6 & PUZ7 Road RDZ1 RDZ2 Group A CDZ, BUZ & UGZ (*)	Industrial 3 IN3Z Group C CDZ, BUZ & UGZ (*)	Commercial 2 Zone C2Z B3Z B4Z	Industrial 2 Zone IN2Z Industrial 1 Zone IN1Z Group D CDZ, BUZ, UGZ (*)
Low Density Residential LDRZ Public Conservation and Resource PCRZ Public Park and Conservation PPCZ Public Use 2,5 PUZ2 & PUZ5 Urban Floodway UFZ Group E CDZ, BUZ & UGZ (*)	Day 45 Evening 37 Night 32	Day 45 Evening 39 Night 34	Day 45 Evening 40 Night 35	Day 47 Evening 42 Night 37	Day 48 Evening 43 Night 38	Day 50 Evening 45 Night 40	Day 53 Evening 48 Day 43
Farming FZ (*) Green Wedge GWZ Green Wedge A GWAZ Public Use 2 & 5 PUZ2, PUZ5 Rural Activity RAZ Rural Conservation RCZ Rural Living RLZ Urban Growth Zone before an incorporated precinct structure plan (UGZ) Group B CDZ, BUZ & UGZ (*)	Day 45 Evening 38 Night 33	Day 45 Evening 40 Night 35	Day 46 Evening 41 Night 36	Day 48 Evening 43 Night 38	Day 50 Evening 45 Night 40	Day 52 Evening 47 Night 42	Day 54 Evening 49 Night 44
Commercial 1 C1Z B1Z B2Z B3Z Mixed Use MUZ Activity Centre Zone ACZ Public Use 1,3,3,4,6 & 7 PUZ1 PUZ3 PUZ4 PUZ6 PUZ7 Group A CDZ, BUZ & UGZ (*)	Day 45 Evening 40 Night 35	Day 47 Evening 42 Night 37	Day 48 Evening 43 Night 38	Day 50 Evening 45 Night 40	Day 52 Evening 47 Night 42	Day 53 Evening 48 Night 43	Day 55 Evening 50 Night 45
Industrial 3 IN3Z Group C CDZ, BUZ & UGZ (*)	Day 46 Evening 41 Night 36	Day 49 Evening 44 Night 39	Day 50 Evening 45 Night 40	Day 52 Evening 47 Night 42	Day 53 Evening 48 Night 43	Day 55 Evening 50 Night 45	Day 56 Evening 51 Night 46
Commercial 2 C2Z, B3Z, B4Z Commercial 3 C3Z	Day 46 Evening 43 Day 38	Day 50 Evening 45 Night 40	Day 52 Evening 47 Night 42	Day 54 Evening 49 Night 44	Day 55 Evening 50 Night 45	Day 58 Evening 51 Night 46	Day 57 Evening 52 Night 47
Industrial 1, 2 IN1Z IN2Z Group D CDZ, BUZ & UGZ (*)	Day 50 Evening 45 Night 40	Day 52 Evening 47 Night 42	Day 53 Evening 48 Night 43	Day 55 Evening 50 Night 45	Day 56 Evening 51 Night 46	Day 57 Evening 52 Night 47	Day 58 Evening 53 Night 48

The applicable noise limits are:

- Day – 50 dB(A)
- Evening – 45 dB(A)
- Night – 40 dB(A)

If the noise sensitive area is located within a background relevant area, an assessment of the background level must be made in accordance with clauses 39 to 55 of the Noise Protocol, unless clause 23 applies.

Noise limits based on background level assessment

Unless clauses 25 to 28 of the Noise Protocol applies, where a background level assessment has been conducted in accordance with clauses 21 and 22:

a) for the day period, the noise limit is the greater of:

   i. the distance-adjusted level or base noise level; or

   ii. the day background level plus 8 dB.

b) for the evening period, the noise limit is the greater of:

   i. the distance-adjusted level or base noise level; or

   ii. the evening background level plus 5 dB.

c) for the night period,

i. the noise limit is the greater of:

- the distance-adjusted level or base noise level; or
- the night background level plus 5 dB.

ii. must not be greater than 55 dB(A)

Effective noise levels

The effective noise level is determined, for noise from commercial, industrial and trade premises, as a 30-minute equivalent sound pressure level LAeq,30min adjusted, where relevant for:

a) duration (A_{dur})

b) noise character

iii. tonality (Atone)

iv. impulse (A_{imp})

v. intermittency (A_{int})

c) measurement position i. reflection (A_{refl}) ii. indoor (A_{ind})

The effective noise level is calculated using Equation 1:

$$ENL = L_{Aeq} + A_{dur} + A_{tone} + A_{imp} + A_{int} + A_{refl} + A_{ind}$$

3.2 Assessment of the background level to set noise limits for the urban area method or the rural area method

Measurements of the background levels

The background noise levels were measured in accordance with the Noise Protocol and the Australian Standard AS 1055.1-1977 “Acoustics—Description and measurement of environmental noise Part 1: General procedures” (AS 1055.1).

The background levels were measured during dry conditions with wind conditions satisfying the Noise Protocol.

To determine the background level, the L_{A90} was measured continuously over each hour of the day, evening, and night period that the landfill normally operates.

Where the hourly L_{A90} levels ($L_{A90,1\ hour}$) have been measured, the background level was determined for each period as the arithmetic average of the $L_{A90,1\ hour}$ for each hour of that period for which the landfill normally operates.

The Regulations define the various operating periods, in relation to noise emitted from commercial, industrial and trade premises as set out below:

- Day Period – Monday to Saturday (except public holidays), from 7 am to 6 pm
- Evening Period:
  - Monday to Saturday, from 6 pm to 10 pm
  - Sunday and public holidays, from 7 am to 10 pm
- Night Period – 10 pm to 7 am (Monday to Sunday)

Measurement equipment

Details of the acoustic equipment used to conduct the measurements are provided in Table 3.

Table 2 Equipment details

Type of Instrument	Manufacturer	Model	Serial Number
Type 1 Sound level analyser	Larson Davies	831	02850
Calibrator	Casella	Cel-120	49111184
Type 1 Sound level analyser	Svantek	958	45592

The measuring equipment was calibrated before and after the measurements using a Casella Cel -120 Sound Level Calibrator. No significant drift was recorded.

Measured background noise levels

Long term noise logging was performed from 20/3/2020 to 23/3/2020. Logger was deployed on the northern site's boundary, as access to residential properties on Aitkins Road was not available for the logger deployment. The data was analysed for adverse weather conditions as per relevant standard.

The local noise environment is dominated by traffic noise from Koroit Street.

The measured background noise levels captured during the monitoring period are shown in Table 3.

Table 3 Background noise levels

Period	Day of week	Time period	Measured background noise level, L_{A90}
Daytime	Friday	7 am to 6 pm	51
	Saturday	7 am to 1 pm	47
Evening	Friday	6 pm to 10 pm	46
	Saturday	1 pm to 10 pm	42
	Sunday	7 am to 10 pm	45
Night	Friday	10 pm to 7 am	43
	Saturday	10 pm to 7 am	44
	Sunday	10 pm to 7 am	41

Applicable Project Noise Criteria

The time periods and derived noise limits for the nearest receivers are detailed in Table 4.

Table 4 Operating time periods and limit derivation for nearby receivers, dB(A)

Operating Period	Day of week	Time period	Noise limit, L_{eff}
Daytime	Monday-Saturday (except public holidays)	7 am to 6 pm	55
Evening	Monday to Saturday	6 pm to 10 pm	47
	Sunday and Public Holidays	7 am to 6 pm	47
Night	Monday to Sunday	10 pm to 7 am	46

The above criteria will apply to mechanical plant associated with the transfer station as well as noise from the site excavator and truck movements whilst on the site.

It is noted that the proposed extension of hours are within the Night Period as defined by the EPA.

4 NOISE IMPACT ASSESSMENT - IMPACT OF TRANSFER STATION ON SURROUNDING RECEIVERS

Short term logging and the attended measurements were performed on 17/05/2020.

Weather was fine during the measurement time with light winds < 10m/s, and dry roads.

Attended measurements were performed with two scenarios considered to create most noise on site during the operation:

- The site excavator operation, and
- Heavy truck entering, exiting, and operating on site.

The locations of the noise measurements are shown in Figure 3.

Figure 3 Measurement locations


Transfer station site


Noise source on the site - Excavator

Transfer station boundary - Svantek logger (long term) location


Excavator measurement - 20 m from site boundary


Excavator measurement - 60 m from the site boundary


Excavator measurement - 170 m from site boundary


Measurement at the nearest receiver - Residential site boundary, 74 Aitkins Road

Measured noise levels

It was difficult to isolate and measure noise contribution from the transfer station operation at the nearest residential receivers due to background noise that was dominated by the traffic on Koroit Street and Aitkins Road. During the attended measurements effort was made to isolate the traffic noise intrusions. The results of these measurements are summarized in Table 5.

Table 5 Measured noise levels

Measurement location	Measured Activity, L_{eff}, dB(A) Level adjusted for duration	Comments
74 Aitkins Road Nearest receiver boundary	40 - 41	Measurement of the truck operating on site and then exiting /entering the site onto Koroit Street. Excavator not operating. Truck visible but not audible over local and distant traffic background levels.
	39 - 47	Measurement of the excavator operation. Excavator not audible over the background levels.
Approximately 170 m from site's northern boundary	44 - 45	Measurement of the truck operating on site and then exiting/entering the site onto Koroit Street. Excavator not operating. Truck is audible only when entering/exiting the site. Not audible when operating on the site.
	42 - 44	Measurement of the excavator operation.
Approximately 60 m from site's northern boundary	53 - 57	Measurement of the truck operating on site and then exiting/entering the site onto Koroit Street. Excavator not operating. Truck is audible only when entering/exiting the site. Not audible when operating on the site.
	48 - 49	Measurement of the excavator operation.

Measurement location	Measured Activity, L_{eff}, dB(A) Level adjusted for duration	Comments
Approximately 20 m from site's northern boundary	62 - 68	Measurement of the truck operating on site and then exiting/entering the site onto Koroit Street. Excavator not operating. Truck is audible only when entering/exiting the site. Not audible when operating on the site.
	50 - 55	Measurement of the excavator operation.
Transfer station site Truck measurements	67 - 92	Measurement of the truck operating on site, measurement approximately 1 - 2 m from the truck. Excavator not operating.
Transfer station site Excavator measurements	75 - 78	Measurement of the excavator operation, at 1 m distance.
Transfer station site Excavator measurements	75	Measurement of the excavator operation at 5 m distance. Excavator in normal operation.
Transfer station site Excavator measurements	68 - 70	Measurement of the excavator engine at 10 m distance. Excavator in normal operation, revving the engine.
Transfer station site Excavator measurements	61	Measurement of the excavator engine at 30 m distance. Excavator in normal operation, revving the engine.
  		

Based on site observations and measurements, it was observed that the noise contribution from the transfer station operation could not be quantifiable over existing ambient noise levels at nearest residential locations on Atkins Road.

Therefore, in addition to measured results, site noise predictions were made using on-site close-up measurements of the equipment in operation. The adopted calculation method for the operations accounts for measured sound power levels (at source), distance from sources to receivers, air absorption and any shielding effects from terrain.

Based on the measured and predicted noise levels, the operation of the transfer station will comply with the night-time criteria if it is to operate on 24-hour.

5 CONCLUSION

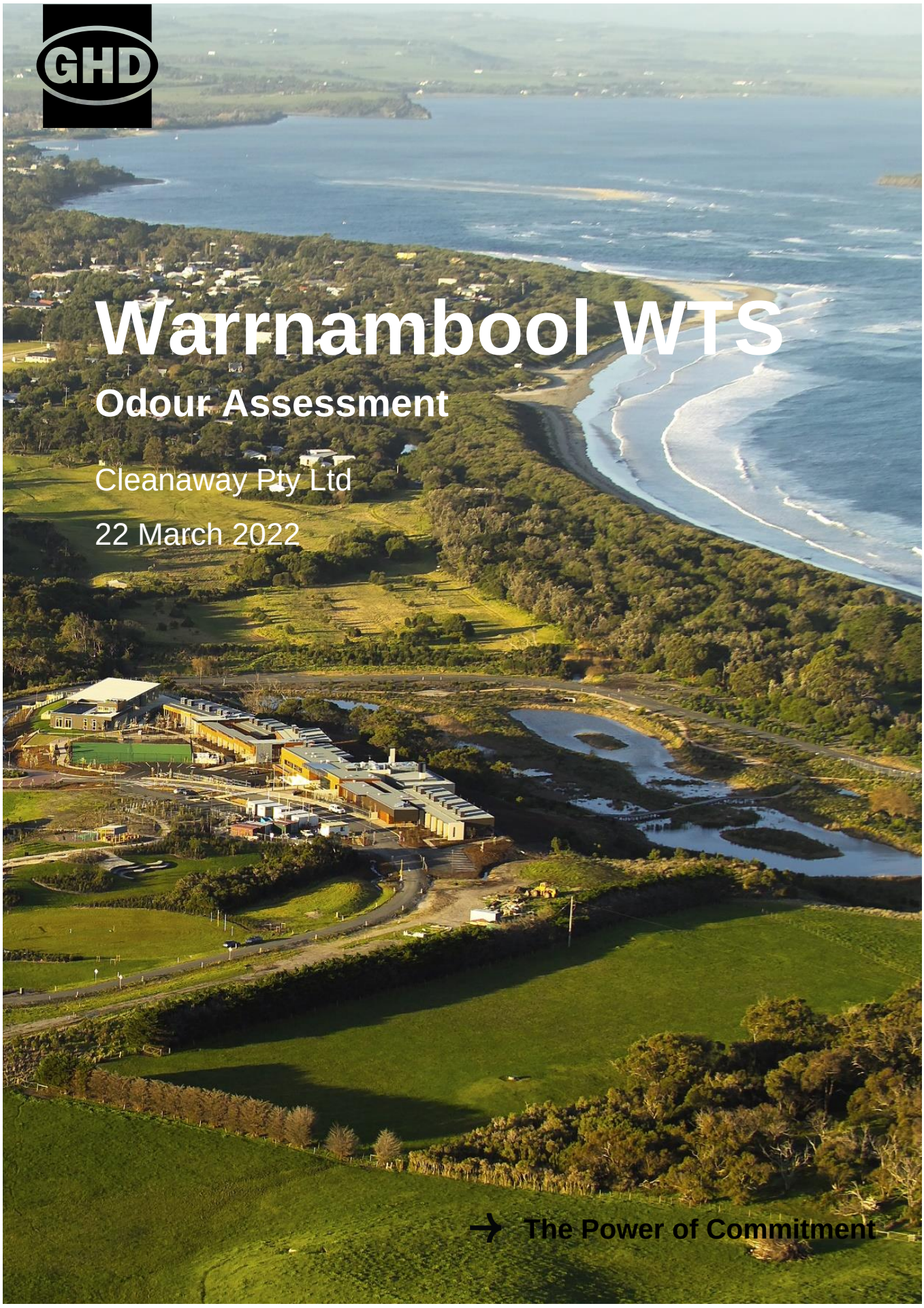
Telemetrix Pty Ltd (Telemetrix) has undertaken a noise assessment for the Warrnambool transfer station located at 355 Koroit Street, Warrnambool, Victoria.

The transfer facility is seeking to amend their current planning approval from daytime operation only to 24-hour operation.

With the introduction and changes to the Environmental Protection Act on 1 July 2021, the site needs to comply with the new EPA regulations, outlined in the Noise Protocol.

Based on the measured and predicted noise levels, The noise emission levels for the proposed 24-hour operation will meet the required noise criteria and will not increase the ambient levels in the area. Therefore, the noise is not considered excessive, unreasonable or a nuisance when using the Public Health and Wellbeing Act or Environment Protection Act.

Appendix E Warrnambool WTS Odour Assessment



Warrnambool WTS

Odour Assessment

Cleanaway Pty Ltd

22 March 2022

The Power of Commitment

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[Status code]							

→ The Power of Commitment

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Appendices

1. Introduction

GHD has been engaged by Cleanaway Pty Ltd (Cleanaway) to update GHD's Odour Assessment Report undertaken for the waste transfer station (WTS) located at 355 Koroit Street, Warrnambool (herein after 'the site') in 2020 (GHD 2020[1]).

GHD understands that Cleanaway are seeking to amend their current planning permit PP2000-0135.03, to include additional operating hours beyond those currently permitted. GHD understands that Cleanaway are seeking a 24-hour operation, for receiving waste (greenwaste and putrescible) and holding/storing putrescible waste. This amendment would allow the WTS to receive additional greenwaste and putrescible waste from Warrnambool City Council (WCC).

GHD understands an odour assessment will be required to support the planning permit amendment application. This report updates GHD 2020 to assess the impact of odour on the surrounding land if operations at the site were to occur under 24-hour operations. In addition, this report provides advice regarding odour mitigation measures including a review of the odour controls outlined within the Cleanaway Environmental Management Plan (EMP[2]).

This updated report also considers the legislative changes since GHD 2020 associated with the Environment Protection Act 2017 (as amended by the Environment Protection Amendment Act 2018) (the new EP Act), which came into effect from 1 July 2021. Draft EPA Publication 1883 *Guidance for Assessing Odour* has also been considered.

1.1 Purpose of this report

The purpose of this report is to assess the potential risk of odour impacts on the surrounding land should the site's operating hours increase to 24-hour operations.

The findings, conclusions and recommendations of this assessment should be read in conjunction with the limitations presented in section 1.3.

1.2 Scope of works

The scope of works for this report included the following:

- Initial review of project information including the site layout, operational sequence and Cleanaway's Environmental Management Plan (EMP).
- Provide an overview of relevant legislation and guidelines.
- Develop the default separation distance utilising EPA guidelines.
- Consider whether the default separation distance can be de-rated based on a reduced throughput compared to the larger examples of waste transfer stations.
- Undertake an assessment of local meteorology from the Bureau of Meteorology (BoM) station located at Warrnambool Airport.
- Characterise the meteorology at the site by means of wind roses and stability roses. This enables directions of good and poor dispersion to be developed.
- Develop a directional buffer based on local meteorology.
- Undertake a risk assessment of potential odour generation utilising Draft EPA Publication 1883.
- Conduct an odour survey to establish existing odour impact at the nearest sensitive receptors during representative operations.
- Review proposed odour controls and provide recommendations for further odour mitigation measures, if required.

[1] GHD Report for Cleanaway Pty Ltd, Warrnambool WTS – Odour Assessment, Odour Assessment Report, June 2020
[2] Cleanaway Environmental Management Plan for Warrnambool Transfer station, May 2021

1.3 Limitations

This report has been prepared by GHD for Cleanaway Pty Ltd and may only be used and relied on by Cleanaway Pty Ltd for the purpose agreed between GHD and Cleanaway Pty Ltd as set out in section 1.1 of this report.

GHD otherwise disclaims responsibility to any person other than Cleanaway Pty Ltd arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer section(s) 1.4 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by Cleanaway Pty Ltd and others who provided information to GHD (including Government authorities)], which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

The opinions, conclusions and any recommendations in this report are based on information obtained from, and testing undertaken at or in connection with, specific sample points. Site conditions at other parts of the site may be different from the site conditions found at the specific sample points.

Investigations undertaken in respect of this report are constrained by the particular site conditions, such as the location of buildings, services, vegetation, and site boundaries. As a result, not all relevant site features and conditions may have been identified in this report.

Site conditions (including the presence of hazardous substances and/or site contamination or odour) may change after the date of this Report. GHD does not accept responsibility arising from, or in connection with, any change to the site conditions. GHD is also not responsible for updating this report if the site conditions change.

1.4 Assumptions

The following assumptions were utilised in the preparation of this report:

- Odour is the primary emission of concern from the WTS
- Odour generated from the WTS is linearly proportional to the throughput of the facility
- All information provided is correct and representative of the proposed operations at the site
- Data obtained from the Warrnambool Airport Bureau of Meteorology Automatic Weather Station (AWS) is deemed to be representative of the meteorology at the subject site
- The site activity boundary used for dispersion modelling is based on the site process areas provided by the client, which GHD assume are correct
- The site conditions of the existing site observed by GHD on 7 June 2020, during the site visit are representative of worst case operations
- Given the odour controls outlined in section 8.4 to minimise emissions from putrescible waste, GHD assumes the greenwaste to be the main source of odour and therefore the odour surveys to be reflective of 24 hour operations

2. Site overview

2.1 Location and land use

The site is located at 355 Koroit Street, Warrnambool, Victoria and situated on the edge of an industrial precinct as shown in Figure 2-1. Adjacent to the east and north of the facility are recreational areas, namely Victoria Park and Wannon Park. The southern perimeter of the site is adjacent to a single track railway line.

2.2 Land zoning

The site is located in an Industrial 1 Zone, which is land designated for "manufacturing industry, the storage and distribution of goods and associated land uses in a manner which does not affect the safety and amenity of local communities"[3]. Industrial facilities to the northwest are a combination of Industrial 1 and Industrial 3 zones. Nearby parks and recreation reserves are zoned for Public Use, Public Park and Recreation and Special Use. General Residential zoned land is scattered throughout the surrounding area.

2.3 Surrounding Industries

A number of industries located immediately west of the site were identified to have the potential to emit air emissions (odour or dust). The industries included:

– Asphalt plant (operated by Fulton Hogan)
– Concrete batching plants (operated by Rapidmix Concrete and Hanson)
– Abattoir (operated by The Midfield Group)

The abattoir and the asphalt plant are both likely to discharge odours that could be noticed beyond their site boundaries. These two sites also currently operate 24 hours. The likely odour from the two sites are very different and not likely to be confused with each other. Further, the character of odour discharged from the transfer station is also very different to that from an abattoir and asphalt plant, particularly to those familiar with both types of activities.

It is also noted that all the facilities are required to comply with their individual planning permit requirements with regards to odour management such as the general EPA requirements of '*Offensive odours must not be discharged beyond the boundaries of the premises'*.

The two concrete batching plants are not expected to generate odour emissions, dust is the primary emission of concern.

2.4 Sensitive receptors

The definition of a sensitive receptor or sensitive land use is defined by the EPA[4] as:

'any land uses which require a particular focus on protecting the beneficial uses of the air environment relating to human health and well-being, local amenity and aesthetic enjoyment, for example residential premises, child care centres, pre-schools, primary schools, education centres or informal outdoor recreation sites'.

The nearest sensitive receptors to the site are the residential areas located approximately 280 m north, 300 m south, 430 m west and 470 m east of the site boundary, as shown in Figure 2-1. Other receptors for consideration are the public recreation spaces Wannon Park and Victoria Park.

[3] Department of Environment, Land, Water and Planning (DELWP), 2019. Victorian Planning Provisions
[4] EPAV 2013 "Recommended separation distances for industrial residual air emissions" Publication. 1518, March 2013

Legend

Site boundary

Sensitive receptors

Paper Size ISO A4

0 0.075 0.15 km

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 55

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Warrnabool WTS Odour Assessment

Site location

Project No. 12575306
Revision No. -
Date. 09/03/2022

FIGURE 2-1

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Print Date: 09/03/2022

Data Source: Google Earth Imagery 2022.
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2.5 Site operations

The site processes a range of materials and currently accepts the following waste types:

- General waste including putrescible waste
- Mattresses
- Furniture
- Tyres (all sizes)
- Oil
- Polystyrene
- Glass
- Cardboard & paper
- E-waste (TV's, computers and monitors)
- Fluro Lights
- Clean fill (any combination of soil, sand, bricks, concrete, tiles and rocks)
- Greenwaste
- Timber
- Plaster

The site services between 10 to 20 heavy vehicles (waste trucks) per day, which include Cleanaway trucks, municipal waste trucks from local shires and/or commercial waste trucks from other companies. Public customers utilise the site intermittently. All vehicles enter and exit the site through the northern entrance and via the weighbridge located north of the WTS main shed.

The site currently operates within the following operational hours:

- Monday – Friday: 8:30 am to 5:00 pm
- Saturday: 9:00 am to 4:00 pm
- Sunday: 10:00 am to 4:00 pm

The site layout is presented in Figure 2-2 and consists of the following features:

- Staff carpark at the north of the site
- Weighbridge at the site entrance
- Greenwaste stockpile area at the north of the site
- WTS Main Shed in the site centre
- Workshop in the site centre
- Heavy vehicle parking area at the west and at the rear of the site
- Waste unloading area on the northern side of the WTS Main Shed

A greenwaste stockpile area is located towards the north of the site. Fresh greenwaste is unloaded on the eastern side of the stockpile and is then mixed with older material towards the centre of the stockpile. The greenwaste stockpile drains to the south. Greenwaste is stored at the site temporarily before it is transferred to a local composting company.

When other waste types are brought into the site including putrescible waste, they are unloaded at the waste unloading area. The waste is then transferred into bins located inside the WTS main shed. The waste is then loaded onto heavy vehicles and removed from the site. Mobile equipment including a front end loader and excavator with a grab mechanism are located within the workshop.

Legend

Site boundary Site features

Paper Size ISO A4
0 0.01 0.02 km
Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 55

N

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Warrnabool WTS Odour Assessment

Site layout

Project No. 12575306
Revision No. -
Date. 09/03/2022

FIGURE 2-2

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Print Date: 09/03/2022
Data Source: Google Earth Imagery 2022.
Created By: ylim

2.5.1 Future operations

Cleanaway is currently applying to amend their current planning permit PP2000-0135.03, to allow the WTS to receive and store waste 24 hours a day. This amendment would allow the WTS to receive additional greenwaste and putrescible waste from WCC.

Table 2-1 lists the total volume of general and greenwaste received at the site in 2021, as well as the anticipated total waste for 2022 (with and without 24 hour operations)[5].an additional 250 tonnes of general waste is anticipated with 24 hour operations, while greenwaste is expected to increase by 1,000 tonnes with 24 hour operations.

Table 2-1 Waste volumes received at the WTS

Waste type	Total mass received FY2021 (tpa)	Total mass anticipated for 2022 without 24-hr operations (tpa)	Total mass anticipated for 2022 with 24-hr operations (tpa)
General	9,750	9,750	10,000
Green	4,400	9,000	10,000
Total	**14,150**	**18,750**	**20,000**

2.6 Potential odour sources

The main odour sources from the site are likely to be the receival and storage of greenwaste and putrescible waste due to its high composition of organic waste such as food waste. The handling of such waste is likely to generate odour which will build up as waste is stored over the day. The odour controls implemented at the site are discussed in section 8.4.

2.7 Site visit

GHD conducted a site visit of the site on 7 June 2020. Table 2-2 outlines the observations with regards to odour that were made during the site visit. The only odour detected during the visit was attributed to the greenwaste stockpile from the site. Photos of the site visit are provided in Appendix A.

Table 2-2 GHD site visit observations

Location in the WTS	GHD observation
Greenwaste stockpile	The greenwaste stockpile was approximately 3 m tall, 5 m wide and 10 m long and contained by large concrete blocks. Fresh greenwaste is received to the east of the stockpile. Fresh greenwaste (trees, leafy) odour was detected in this area. The fresh greenwaste is then mixed with older material throughout the rest of the stockpile. When standing to the north of the stockpile, greenwaste odour was detected. The greenwaste stockpile drains to the south. When standing in this area GHD noted a secondary stockpile that consisted of soil and old building material (bricks). A mild rubbish odour was detected in this area. The odour from the greenwaste stockpile was unable to be detected at any other areas in the WTS.
Bin/heavy vehicle laydown	No odour detected
Workshop	No odour detected
WTS main shed	GHD observed bins filled with waste (boxes, pallets, bedframes, chairs), awaiting to be collected. No odour was detected in this area.
Waste unloading area	GHD observed waste (similar contents to that in the main shed) which had been unloaded from drop offs. No odour was detected in this area.
Weighbridge	No odour detected
Office building	No odour detected
Staff carpark	No odour detected

[5] Email from Ramya Gowda of Cleanaway dated 3 March 2022

3. Relevant legislation and guidelines

3.1 Environment Protection Act 2018

EPA Victoria released a new legal framework on 1 July 2021, with the intention for this framework to drive environmental improvements in industrial operations. The cornerstone of the Environment Protection Amendment Act 2018 (EPA Act) is the general environmental duty (GED), which requires Victorians to understand and minimise their risks of harm to human health and the environment, from pollution and waste. EPA will work with industry to help them understand how to fulfil their obligations, by providing guidance, advice and other support.

Complying with the GED is about taking reasonable proactive steps and employing good environmental work practices. Compliance with the GED can be through following responsibilities under OHS laws, meeting industry standards, adopting industry better management practices, and following other relevant legislation related to the environment. In effect, the GED makes it clear that it is the individual businesses' responsibility to reduce risk to the environment and to protect it.

3.1.1 Odour

Odour is a key environmental issue set out in the Act. It is included as a key definition for "environment": "*the physical factors of the surroundings of human beings including … odours*".

Odour is also clearly defined as a form of *"pollution" – "any emission, discharge, deposit, disturbance or escape of – a solid, liquid or gas, or combination of a solid, liquid or gas, including but not limited to smoke, dust, fumes or odour".*

Offensive odour constitutes a harm in accordance with the Act. The Environment Protection Act 2017, s.4(1)(a) & (b) define harm as

- *"an adverse effect on the amenity of a place or premises that unreasonably interferes with or is likely to unreasonably interfere with enjoyment of the place or premises; or*
- *"a change to the condition of the environment to make it offensive to the senses of human beings".*

Odour is also included in the environment reference standard (ERS) under section 93 of the Act. The ERS has been created for assessing and reporting on environmental conditions in Victoria. The ERS for odour is qualitative in nature. The ERS objective is *"an air environment that is free from offensive odours from commercial, industrial, trade and domestic activities".*

Under the Act, the risk of harm from odour that is offensive to the senses of human beings must be reduced as far as reasonably practicable, with the overall objective of an air environment that is free from offensive odours.

3.2 Threshold distances – Victoria Planning Provisions

The purpose of Clause 53.10 is to define those types of industries and warehouses which if not appropriately designed and located may cause offence or unacceptable risk to the neighbourhood. If the industry is specified in the Table to Clause 53.10, then the corresponding threshold distance to the nearest Residential Zone, Business 5 Zone, Capital City Zone or Docklands Zone must be met, otherwise a planning permit must be sought.

Clause 53.10 is intended for proposed facilities and is to be implemented during the planning phase. Given the site is currently in operation, Clause 53.10 does not apply to this assessment and GHD recommends the use of EPA Publication 1518 as detailed below.

3.3 Separation distances - EPA Publication 1518

The EPA Victoria *Recommended separation distances for industrial residual air emissions*, 2013, Publication 1518 (EPA buffer guideline) provides advice on recommended separation distances between industrial land uses that emit odour or dust, and sensitive land uses.

The purposes of the guideline can be summarised as:

– Provide clear direction on which land uses require separation
– Inform and support strategic land use planning decisions and the consideration of planning permit applications
– Prevent new sensitive land uses from impacting on existing industrial land uses
– Prevent new or expanded industrial land uses from impacting on existing sensitive land uses
– Identify compatible land uses that can be established within a separation distance area

In the case of an existing industrial use, EPA recommends buffer distances should be considered when preparing a planning scheme, planning scheme amendment, or planning permit application. Therefore, this is the relevant guideline for this assessment.

The buffers are to be scribed as per Publication 1518 Method 1 (Urban method). This method requires that the separation distance be measured from the activity boundary of the industry to the property boundary of the sensitive land use, i.e. the activity boundary of the industry is a convex polygon containing the activities of the industry.

3.3.1.1 Agent of change principle

The EPA buffer guideline (Section 9) discusses the agent of change principle and identifies six criteria to consider in Table 4 of the guideline (reproduced in Figure 3-1) that allow for a site-specific variation to the default buffer distances.

Criteria	Explanation
Transitioning of the industry	Existing industry has formally indicated that it will transition out of an area and over a specified timeframe.
Plant equipment and operation	The industrial plant and equipment have an exceptionally high standard of emission control technology.
Environmental risk assessment	An environmental risk assessment of IRAEs has been completed that demonstrates a variation is justified.
Size of the plant	The plant is significantly smaller or larger than comparable industries.
Topography or meteorology	There are exceptional topographic or meteorological characteristics which will affect dispersion of IRAEs.
Likelihood of IRAEs	Particular IRAEs are either highly likely or highly unlikely to occur.

Figure 3-1 Table 4 from EPA Publication 1518; agent of change criteria

GHD has utilised the following criteria from the above table within this assessment to assess the likely risk of odour emission impacts from the site:

Meteorology

When site-representative meteorology is available, the directions of good and poor dispersion can be assessed (in the form of a 'directional buffer') to determine the directions associated with increased and decreased risk of emission impacts from the site (section 6).

Size of the plant

If the size of the transfer station is significantly smaller than comparable transfer stations then the separation distance can be varied (section 5).

3.4 Draft EPA Publication 1883: Guidance for Assessing Odour

Publication 1883 supports industries to achieve the General Environmental Duty under the EPA Act, specifically in relation to odour. The publication provides a framework for three levels of risk assessment, according to the odour impact potential of an industry or site. The publication seeks to provide:

– *Guidance on methods for assessing the impacts of odour pollution on human health and wellbeing, including site specific risk assessment methods, and*
– *Recommendations on what to include in assessment reports.*

An assessment may include the following:

– Source/Pathway/Receptor approach (section 7)
– Relative dispersion modelling (section 8)
– Comparison with similar facilities/ best practice (section 8)
– Odour surveillance (section 8)
– Review of complaint history (section 8)

4. EPA Separation distance

The EPA buffer guideline includes a default buffer distance of 250 m for a ‘transfer station’, which includes activities such as “collecting, consolidating, temporarily storing, sorting or recovering refuse or used materials before transfer for disposal or use elsewhere” (EPA Victoria, 2013, p. 11).

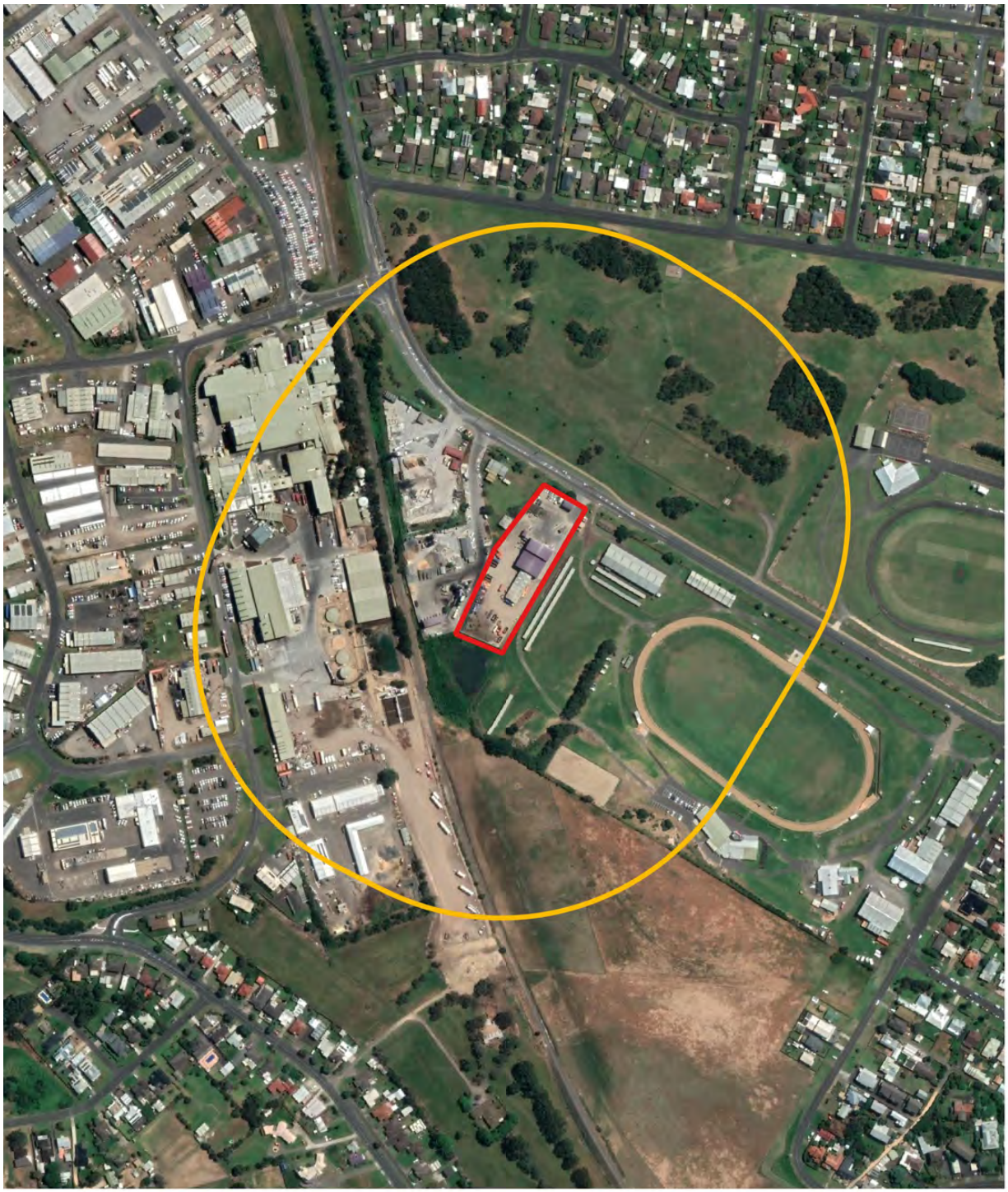
In the Sustainability Victoria publication, the Guide to Better Practice at Resource Recovery Centres (SV Guide), it is stated that an appropriate buffer distance should be kept between the site and residential areas with reference to EPA’s Publication 1518. Therefore, GHD has utilised the 250 m buffer distance as the basis for this assessment.

GHD has plotted the default buffer distance of 250 m from the site boundary, as opposed to specific envelope of sources. This allows for the movement of waste vehicles throughout the site to be included within the boundary. From the site layout in Figure 2-2, it can be seen that 15 m into the north of the site includes a staff car park and office building, and no waste collection areas or facilities. It should therefore be noted that the extension of the buffer to the north of the site is conservative.

The 250 m default buffer distance is plotted in Figure 4-1. From the figure it can be seen that the buffer distance does not extend to any residential areas. The buffer distance is located approximately 10 m from the residential zone to the north and approximately 20 m from of the residential zone to the south. The buffer does not extend to the residential zone to the east of the site.

Summary

The results from applying the conservative default buffer from the site boundary indicates that odour emissions in the event of an upset event are not expected to impact any nearby residents.



Legend

Site boundary

250m buffer

Paper Size ISO A4

0 0.075 0.15 km

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 55

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Warrnabool WTS Odour Assessment

Default buffer

Project No. 12575306
Revision No. -
Date. 09/03/2022

FIGURE 4-1

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Print Date: 09/03/2022

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5. De-rated separation distance

GHD has developed a method to derate separation distances to account for the reduced scale of operations compared to the threshold throughput used to define each separation distance – a similar method is used in the current EPA guideline to determine separation distances for wastewater treatment plants as a function of equivalent population.

The aim of derating a separation distance is to provide an equivalent degree of protection in the event of a process upset/malfunction. Significantly smaller operations (compared to a larger example) would likely generate correspondingly smaller odour/dust emissions during an upset and also have a reduced risk of an upset occurring. Therefore, the derated separation distance while providing a smaller separation distance would still deliver the same degree of protection from adverse amenity.

5.1 Transfer station throughput

In the SV Guide, transfer stations are categorised into three levels depending on annual throughput. The rates as tonnes per annum (tpa) are presented in Table 5-1.

Table 5-1 Classification of WTS on throughput

Class	Throughput range, tpa
1	0 – 1000
2	1001 – 30,000
3	> 30,000

Table 5-2 outlines the annual throughput for a number of transfer stations within Victoria, including the Cleanaway Warrnambool WTS site. As stated in section 2.5, the site is anticipated to receive 20,000 tpa of waste. This places the facility within the second classification, between 1,001 to 30,000 tpa. Hence, given that the 250 m buffer for transfer stations is sized to provide amenity protection for Class 3 transfer stations, there is scope to allow for a reduction in buffer distance. A graded scale for buffer distance proportional to throughput is common practice (e.g. Victorian Broiler Code, EPA Composting Guidelines) though has not yet been incorporated into the SV Guide.

Table 5-2 Classification of WTS throughout Victoria

WTS	Classification	Throughput tonnes per annum (tpa)
Corangamite (Naroghid)	2	1,200
Horsham (Kenny Rd)	2	1,400
Baw Baw (Lardner)	2	1,800
Wonthaggi	2	5,000
Zaks Bin Hire (Coolaroo)	2	6,240
Cleanaway Warrnambool WTS	2	20,000
Morwell	2	20,000
Wodonga	2	20,000
Banyule (Bellfield)	2	20,000
Hume (Bolinda Road, Campbellfield)	2	23,000
Portland	2	27,000
Stonnington (Malvern)	2	28,000
Whitehorse (Vermont South)	3	34,000
Wyndham RDF (Werribee)	3	60,000

WTS	Classification	Throughput tonnes per annum (tpa)
Boroondara (Camberwell)	3	60,000
Melbourne (Citywide, West Melbourne)	3	400,000
Cleanaway South East Melbourne	3	400,000

5.2 Development of de-rated separation distance

As shown above, the size of transfer stations in Victoria can range from large metropolitan facilities with throughputs in excess of 100,000 tpa, down to much smaller rural facilities with throughputs as low as 1,200 tpa.

In this case, the site (including proposed 24 hour operations) is a small example of a transfer station and the 250 m buffer can be reasonably and conservatively derated in comparison to the larger (but not largest) examples in Metropolitan Melbourne at 60,000 tpa.

From Table 5-2 a large transfer station can be considered to be above 60,000 tpa, and a very large WTS would be even higher such as the 400,000 tpa examples in the table above, while a small standard transfer station can be considered to have a throughput of approximately 1,000 tpa. Then using the derating method, the derating factor is given by the approximate square root of the capacity ratio. For the proposed throughput at the site, the derated separation distance is calculated as follows:

Derating factor: $$\left[\frac{20{,}000}{60{,}000}\right]^{0.5} = \mathbf{0.58}$$

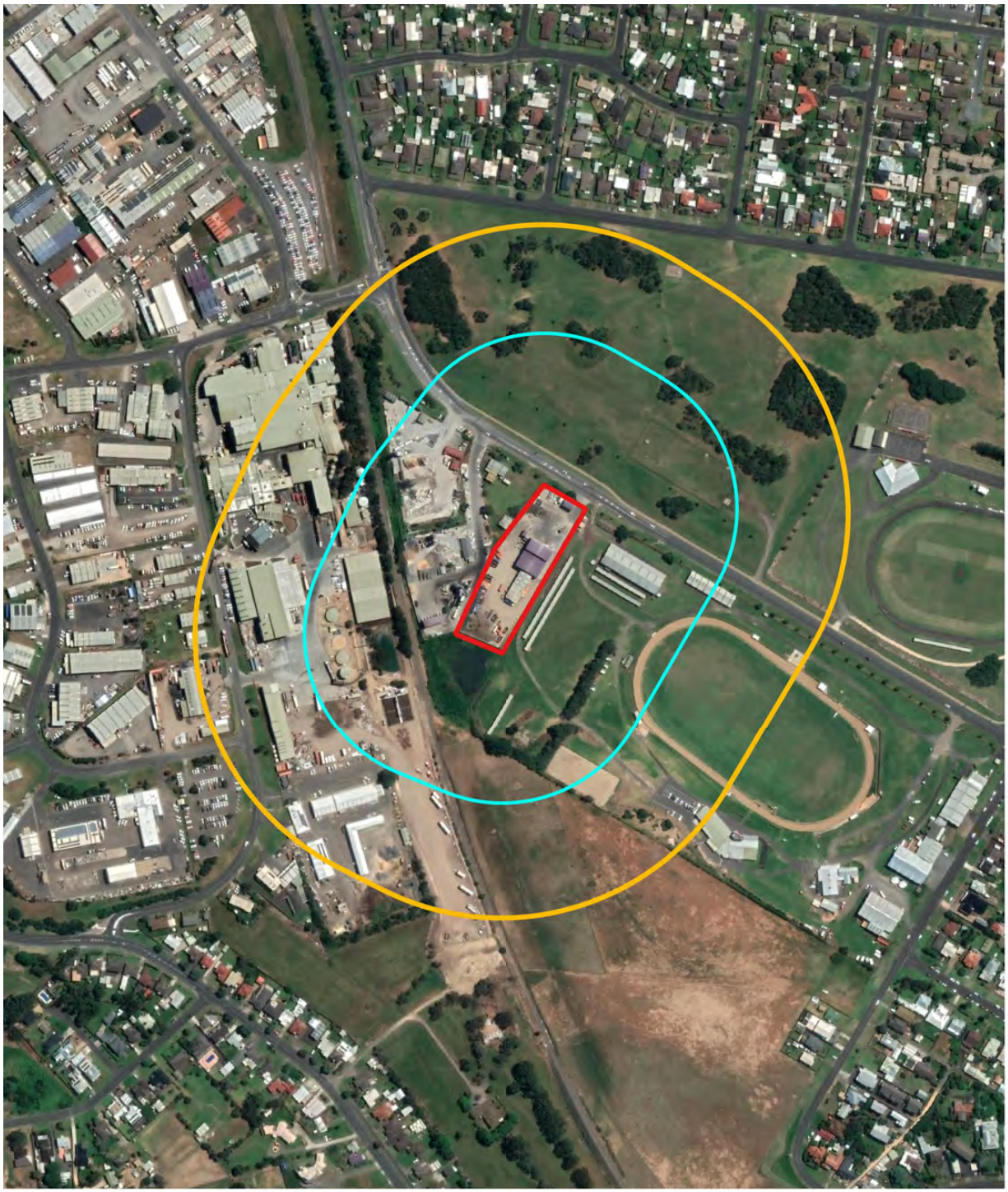
So, applying the derating factor to the default 250 m buffer gives a reduced separation distance, after rounding to the nearest metre, of:

$$\mathbf{0.58} * \mathbf{250}\ \boldsymbol{m} = \mathbf{144}$$

This de-rated separation distance is plotted with the default separation distance in Figure 5-1 and shows that the de-rated 144 m separation distance is slightly greater than half the size of the default 250 m separation distance. The de-rated separation distance provides an even greater separation distance to the existing residential areas.

Summary

Given the small size of the site, the results of the de-rated separation distance analysis indicate that the risk of odour emissions impacting nearby residents in the event of an upset is further reduced.



Legend

Site boundary

144m de-rated buffer

250m buffer

Paper Size ISO A4

0 0.075 0.15 km

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 55

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Warrnabool WTS Odour Assessment

De-rated and deault buffer

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FIGURE 5-1

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Print Date: 09/03/2022

Data Source: Google Earth Imagery 2022.
Created By: ylim

6. Directional buffer

6.1 Methodology

Section 9.2 of the EPA Publication 1518 allows for site-specific variation on the basis of topographical or meteorological features which will affect dispersion of industrial residual air emissions. Draft EPA Publication 1883 allows for relative dispersion modelling in the form of meteorological modelling to help understand dispersion patterns from sources, such as the shape of emission contours. EPA states that such a tool may be applied using the minimum separation distance as an input to determine its shape by keeping the total area contained by the separation distance constant.

GHD has developed an approach to provide directionally-dependent buffers on the basis of the dispersive ability of the atmosphere, as assessed using atmospheric dispersion modelling (Clarey & Pollock, 2004).

Where site-representative meteorological data is available, the direction of good and poor dispersion can be identified. Further, if the dataset is configured into the dispersion modelling format then dispersion modelling (using the EPA regulatory model AERMOD) can be conducted using a nominal air source emission rate to assess the directional change in the buffer extent from a default radial buffer[6]. The directional buffer adapts the default radial buffer to take account of the directions of good and poor dispersion – sourced from the meteorological data representative of local conditions.

In the directions of poor dispersion, the buffer is extended and in the directions of good dispersion the buffer is retracted. The effect is to produce the same degree of protection from exposure to impact as the default buffer but shaped by the local meteorology to represent a more realistic site specific buffer in the event of a process upset.

This analysis further assists in assessing the likely risk of odour impact from the site.

6.2 Local meteorology

The local meteorology largely determines the pattern of off-site impact. The characterisation of local wind patterns requires accurate site-representative hourly recordings of wind speed and direction over a period of at least 12 months (one year).

GHD has access to high quality meteorological data (four years at 30-minute intervals) from the Warrnambool Airport AWS operated by the Australian Bureau of Meteorology (BoM). The Warrnambool Airport AWS has been in operation since 1998 and is located approximately 10 km from the subject site. GHD has also accessed this automatic weather station (AWS) for cloud data.

GHD selected the years 2015 – 2018 as it was the most recent period with a complete record from the Warrnambool Airport AWS.

6.2.1 Long term pattern in wind

The effect of wind on dispersion patterns can be examined using the general wind climate and atmospheric stability class distributions. The general wind climate at a site is most readily displayed by means of wind rose plots, giving the incidence of winds from different directions for various wind speed ranges.

The features of particular interest in this assessment are: (i) the prevailing wind directions and (ii) the relative incidence of more stable light wind conditions under 2 m/s and (iii) good dispersion condition winds over 5 m/s.

[6] Clarey P, Pollock T “Integrating Separation Distances with Dispersion Modelling” Enviro 04, 28 Mar – 1 April 2004, Darling Harbour, Sydney

A wind rose representing trends over the entire data period is shown in Figure 6-1 and shows the following features:

- The average measured wind speed over the entire monitoring period was 5.33 m/s
- Wind speeds greater than 6 m/s occur 36% of the time
- Calm winds comprised 0.34% of the monitoring period
- The predominant wind direction is from the north-west to north
- Easterly winds were less frequent than other wind directions, occurring approximately 7% of the monitoring period. In contrast, westerly winds occur approximately 16% of the monitoring period
- High wind speeds (>6 m/s) are relatively evenly distributed between south and north wind directions
- Low wind speeds (less than 2 m/s) predominantly occur from the east and north

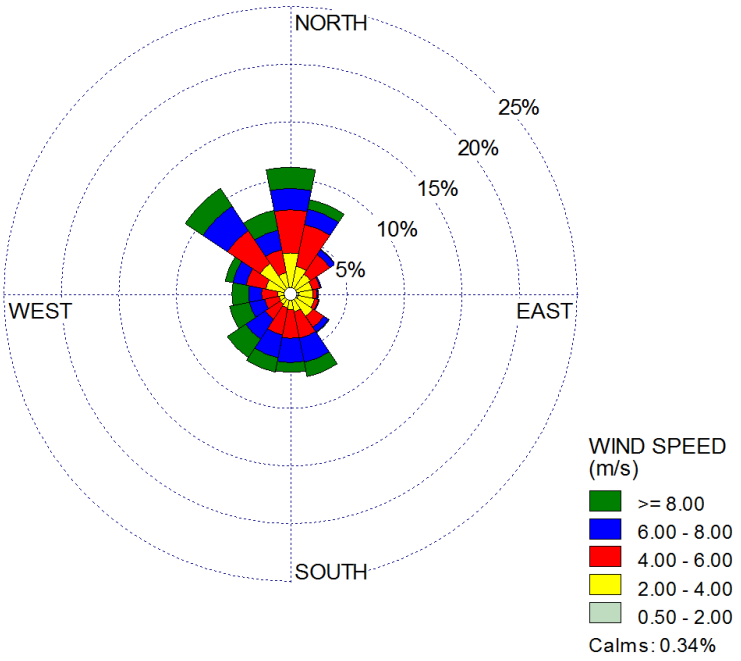


Figure 6-1 *Annual wind rose for Warrnambool Airport*

6.2.2 Seasonal pattern in wind

Seasonal variations in wind direction and wind speed are shown in Figure 6-2 and demonstrate the following:

- There is a strong contrast in wind direction between summer and winter, with winds predominantly southerly in summer reflecting sea breeze effects and predominantly northerly in winter
- The incidence of light (0.5-2 m/s) winds is greatest in Autumn
- The incidence of high (>6 m/s) wind speeds is greatest in summer and winter at similar frequencies
- Spring and autumn receive similar wind direction and wind speed patterns. Both have a relatively high frequency of northerly and north-westerly winds

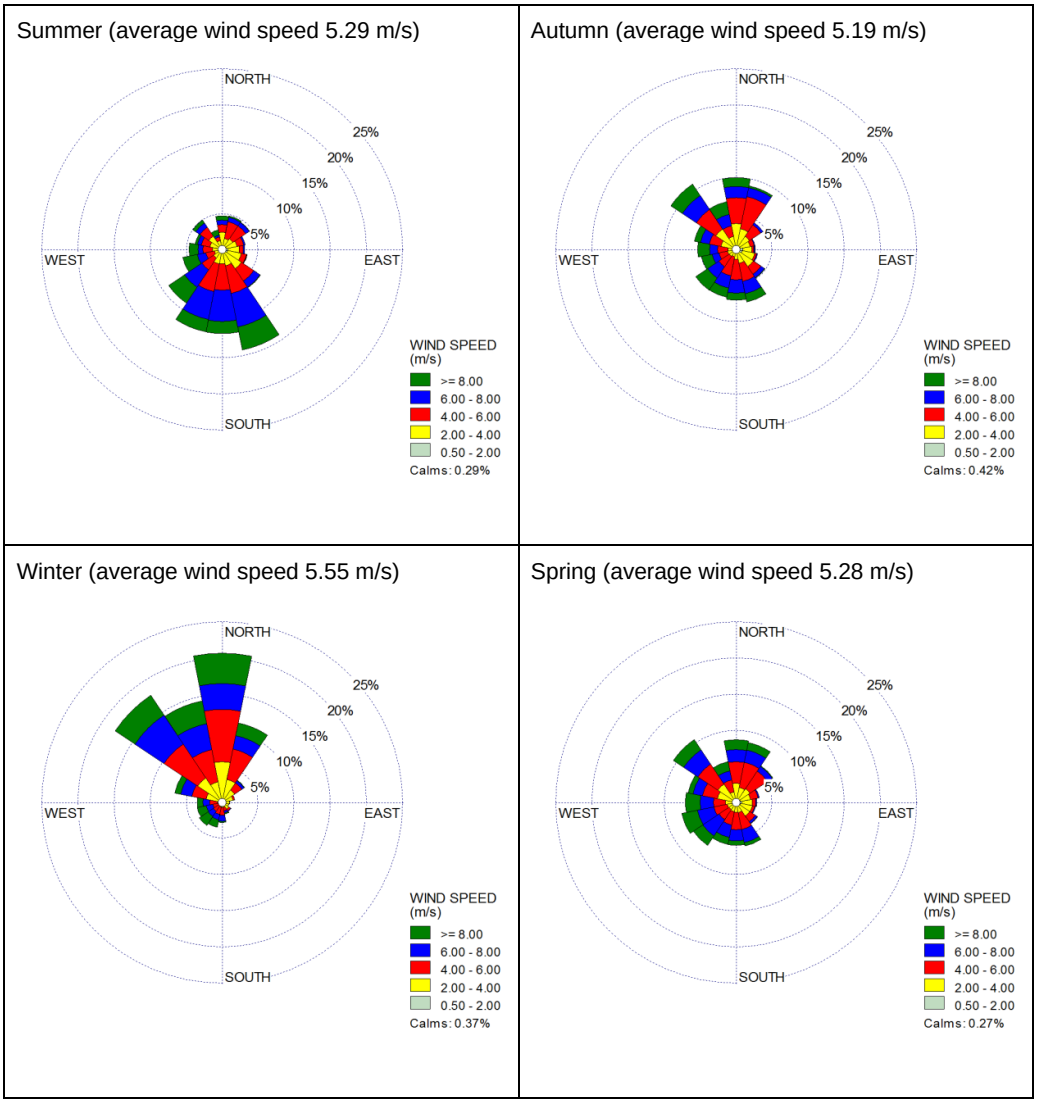


Figure 6-2 Seasonal wind roses for Warrnambool Airport

6.3 Application to the site

Two model scenarios were developed for the site; one for the current operational hours and one for the future operational hours as listed below:

1. Current operations: Daytime hours only (8:00 am to 5:00 pm)[7]
2. Future conditions: 24 hours

The modelled pattern of dispersion was applied to both the default and de-rated buffer distances, resulting in the directional buffers as shown in Figure 6-3.

From Figure 6-3 it can be seen that the pattern of dispersion differs between the current (left) and future (right) operation scenarios, as described below.

Current operations

The directional buffers for the current (8:00 am to 5:00 pm) scenario contracts to northeast through to the southwest, with an extension to the south and south-southeast. The directional buffer largely covers the same area as the default buffer, likely due to the absence of night time stable atmospheric conditions in the model.

The original 250 m directional buffer is located approximately 35 m from the nearest resident to the north and 190 m from the nearest resident to the west.

The de-rated 144 m directional buffer is located approximately 140 m from the nearest resident to the north and 300 m from the nearest resident to the west.

Neither directional buffer extends to the residential areas.

Future operations

The directional buffers for the future (24 hours) scenario contracts to the northwest through to the southeast with an extension from the south through to the west, towards the industrial estate.

The original 250 m directional buffer is located approximately 90 m from the nearest resident to the north and 140 m from the nearest resident to the west.

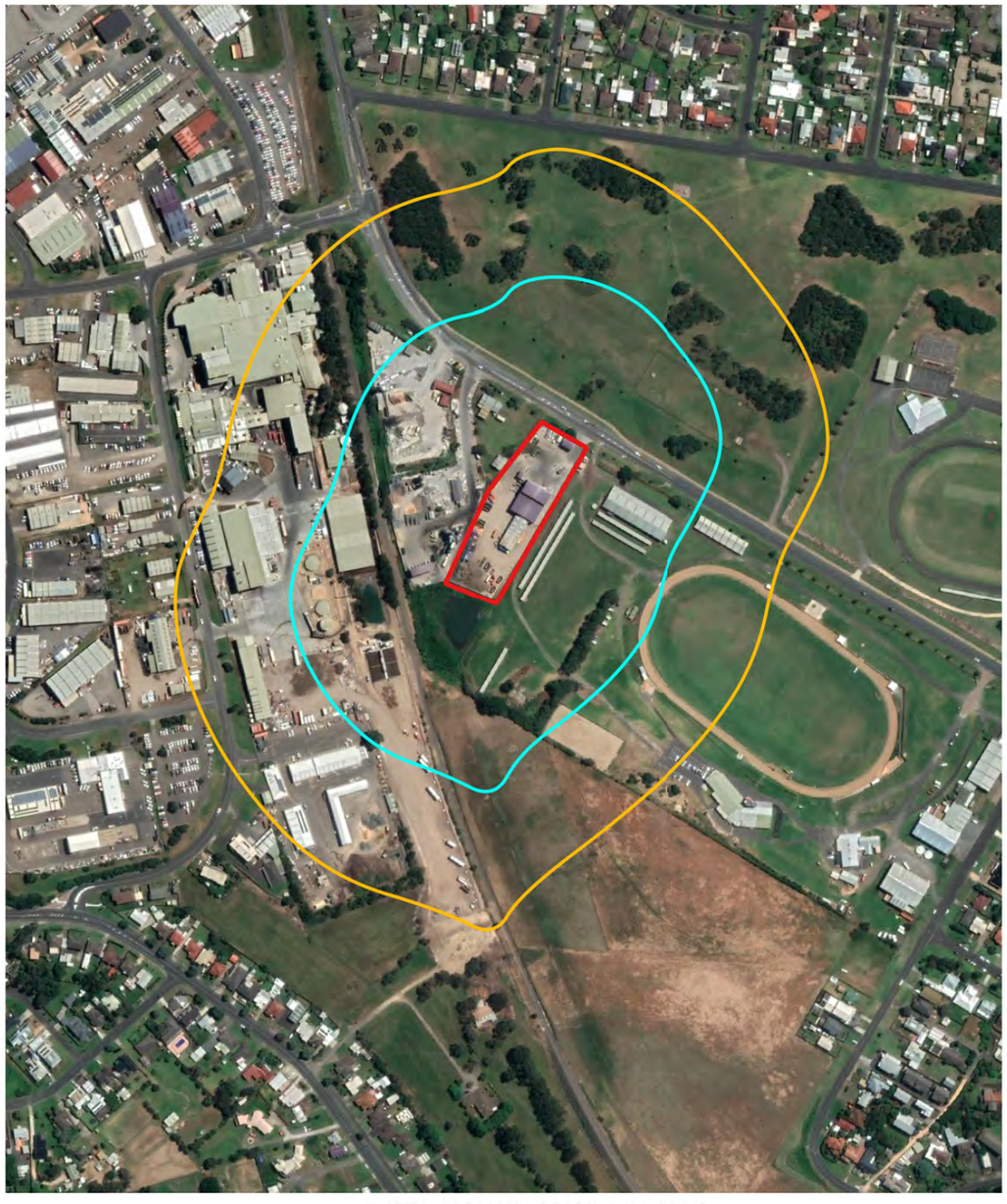
The de-rated 144 m directional buffer is located approximately 175 m from the nearest resident to the north and 270 m from the nearest resident to the west.

Neither directional buffer extends to the residential areas.

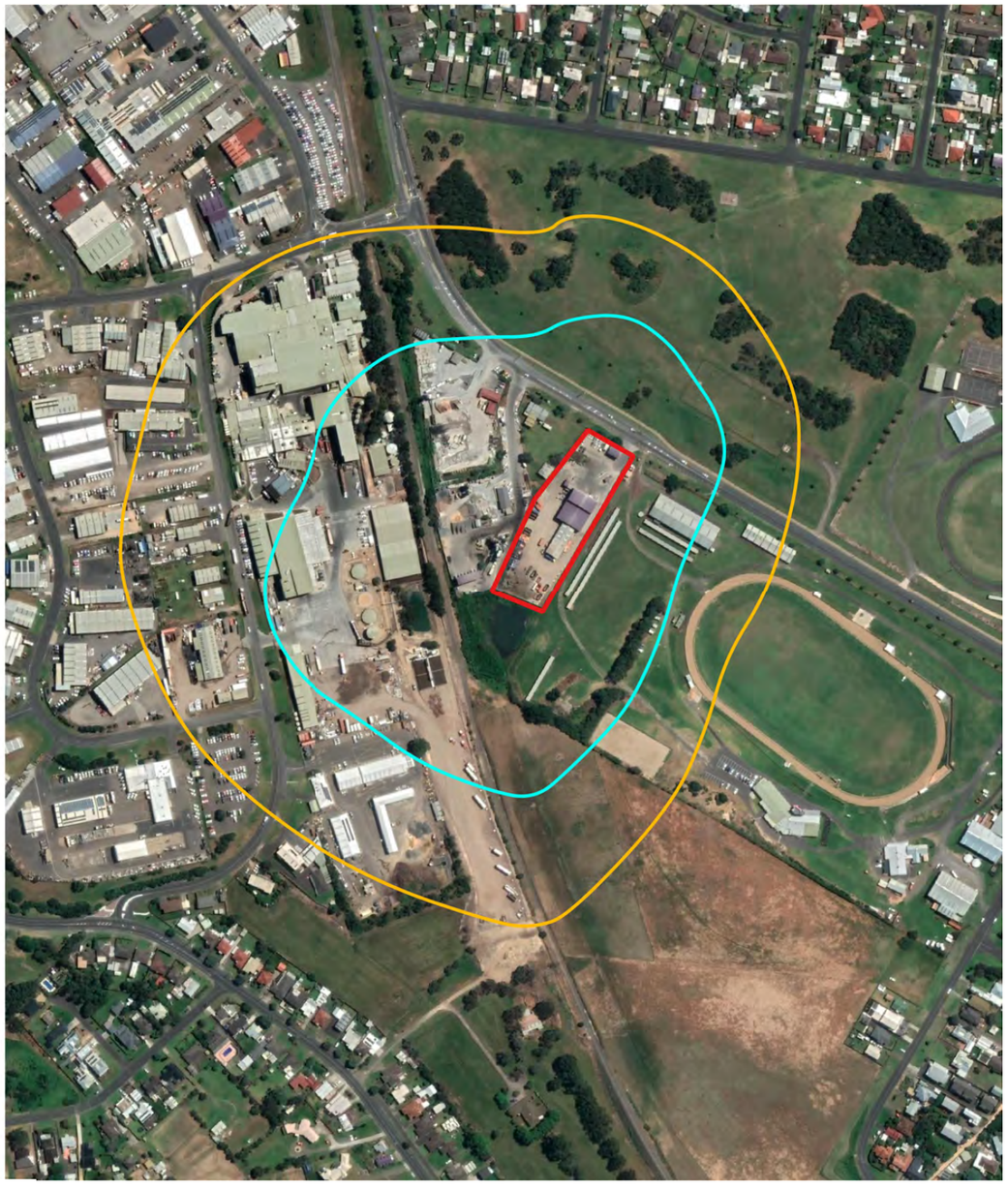
Summary

When a comparison is made between the current and future operation directional buffers, different dispersion patterns can be seen due to the different dispersion characteristics between day time and night-time. Should Cleanaway increase operational hours to 24 hour operations, the likely dispersion would be greater towards to west than current operations, away from the residential areas and towards the industrial estate. The directional buffer results indicate that the risk of an odour amenity impact at the nearby sensitive receptors is further reduced due to the local meteorology, and given that neither the original 250 m nor the de-rated 144 m directional buffers extend to the identified residential area in either scenario.

[7] It is noted that the site operates for reduced hours on Saturday's and Sundays, however these hours have been applied to all days of the week to allow for all meteorological conditions within the model to be captured.



Current operations (day time hours)



Future operations (all hours)

Paper Size A3
0 50 100 m

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 55

N

LEGEND

- Site boundary
- De-rated 144 m buffer
- Original 250 m buffer

Cleanaway Pty Ltd
Warrnabool WTS Odour Assessment
Directional buffers

Project No. **12575306**
Revision No. **-**
Date. **17/03/2022**

FIGURE 6-3

Document Path: \\ghdnet\ghd\AU\Melbourne\Projects\31\12575306\GIS\Maps\Working\Cleanaway.qgz
Data Source: Google Earth Imagery 2022.
Created By: ylim

7. Level 2 Assessment - Source-Pathway-Receptor Assessment

GHD has referred to the draft Guidance for Assessing Odour (EPA Publication 1883). Draft EPA Publication 1883 offers three levels of risk assessment to examine the potential for odour impacts to occur from industries. The guideline directs the user to proceed directly to a level 2 or 3 assessment unless the following conditions for a level 1 assessment are met:

– The assessment is for a proposed new industry, **and**
  - The odour source has a low odour potential
  - Surrounding industries have a medium or higher odour potential

The WTS is existing and has a high odour potential (Appendix A of EPA Publication 1883). Of the relevant surrounding industries identified in 2.3, the classifications under Publication 1883 are as follows:

– Asphalt plant: Moderate odour potential
– Abattoir: High odour potential

As the WTS is classified under similar odour potential as the identified surrounding industries (high odour potential), this assessment proceeds to level 2.

The level 2 assessment uses a source/pathway/receiving environment tool to assess the level of risk from the odour source. This is a qualitative method, however the outcome of the assessment is quantified with the use of scores determined by the EPA. The scoring of the assessment outcome is based on three attributes:

– Hazard potential of the source (odour source score – OSS)
– Exposure pathway between the source and sensitive locations (odour pathway score – OPS)
– Sensitivity of the receiving environment (odour receiving environment score – ORS)

GHD has applied the steps and tools in the level 2 assessment as outlined below:

7.1.1 Odour Source Score (OSS)

To determine the odour potential of the source, the guideline refers the reviewer to Appendix A: Industrial odour sources by odour potential. The WTS would fall under the classification of the Transfer station with organics, which has a high odour potential.

A weighting is then applied for the effectiveness of odour controls at the site. Based on the site visit undertaken by GHD, a moderate weighting has been selected as some odour mitigation measures have been identified in the EMP as outlined in Section 8.4.1.

Applying the ratings from Table 1 and 2, the OSS score is 3 + 0 = 3.

7.1.2 Odour Pathway Score (OPS)

To determine the effectiveness of the transmission of odour from the potential source to receiving environment, the following categories are considered:

– Distance of receiving environment to the source
– Meteorology of receiving environment to the source
– Terrain and built form within the area
– Hours of operation of odour generating activities

Table 7-1 presents the selected categories to assess the OPS.

Table 7-1 Derivation of scores for odour exposure pathway effectiveness

Score	Category			
	Distance	**Meteorology**	**Terrain & Built From**	**Hours of Operation**
1	**Long distance:** Receiving environment is kilometres or hundreds of metres from source.	**Favourable:** Winds rarely (<10%) blow from source away from receiving environment.	**Favourable:** Highly built-up intervening zone with multiple non-sensitive uses that have no emissions of their own. Densely forested. Source is downslope of receiving environment (or located in a valley or quarry hole).	**Low frequency:** Emissions are rare and only occur if there is a significant upset or multiple lines of failure. Emissions related to specific infrequent planned (monthly or annual) activities).
2	**Medium distance:** Receiving environment is tens to hundreds of metres from source. Separation distance has not been met or only just met at the threshold distances.	**Neutral:** Even distribution of winds (10-20%) from source to receiving environment.	**Neutral:** Moderate vegetation, source is on same altitude as receiving environment. Intervening land use zone contains other non odorous industry or smaller businesses.	**Moderate frequency:** Emissions or operations not continuous, typically confined to business hours during the day. Reasonably regular in frequency (once per day to several times per week).
3	**Short distance:** Receiving environment is adjacent to the source/ site. Distance well below (less than half) separation distance).	**Unfavourable** High frequency (>20%) of winds from source to receiving environment.	**Unfavourable:** Flat cleared land. Source is upslope of receiving environment, with isolated dwellings or structures in pathway. Receiving environment abuts source.	**High frequency:** Emissions continuously occurring 24/7 or for long periods at a time (eg. Landfills, oil refineries, sewage treatment plants etc.

– Distance: A score of one was determined as both the default 250 m separation distance along with the directional buffer (250 m) and the de-rated directional buffer (144 m) to the sensitive receptors has been met.
– Meteorology: The incidence of light winds (<2 m/s) from the WTS to sensitive receptors identified in Section 2.4 is less than 1% therefore a score of one has been allocated.
– Terrain & built form: A score of two was determined for the rural area with both the site and sensitive receptors having approximately the same elevation.
– Hours of operation: As Cleanaway intends to extend to 24 hour operations for the holding and storing of putrescible waste, a score of three was determined for hours of operations.

Applying rating from Table 7-1, the OPS score is 3 (taken as the maximum score of all the categories)

7.1.3 Odour Receiving Environment Score (ORS)

The sensitivity of the receiving environment has two aspects: the overall land use in the receiving environment and the compliance history, social or historical context experienced by people in the receiving environment (where a +1 is added to the odour receiving environment score (ORS).

Land use is based on the land use terms and nesting diagrams in the Victoria Planning Provisions (VPP) land use terms. These are grouped into three categories, which are fully detailed in Table 7-2 below. Assessment is based on the most sensitive land-use within (or proposed to be within) the separation distance or two kilometres, whichever is closest.

Table 7-2 Derivation of scores receiving environment sensitivity

Score	Sensitivity	VPP Land use term or nesting group (number in bold)	Existing Uses
1	Low	– 73.04-3 Agriculture group (sub-group animal production) – 73.04-2 Agriculture group – 73.04-10 Recreational boat facility group – 73.04-15 Warehouse group – 73.04-5 Industry group – 73.04-7 Earth and energy resources group – 73.04-13 Transport terminal group – 73.04-14 Utility installation group – 73.04-16 Renewable energy group – Car park – Saleyard – Tramway – Natural systems – Freeway service centre – Service station	– Industrial use or equivalent rural use (in the case of agricultural odours). No population nearby or uses are transient (e.g., state parks etc.). – Exposure to odours can easily be avoided.
2	Medium	– Research centre – Winery – Cemetery – Crematorium – Emergency services facility – 73.04-8 Office group – 73.04-6 Leisure and recreation group – 73.04-9 Place of assembly group – 73.04-11 Retail premises group – 73.04-12 Retail Premises group (sub-group of shop) – Brothel – Art and craft centre – 73.04-4 Education centre group	– Business areas: exposure can typically be controlled by mitigation at the receptor (incorporated health ventilation and air conditioning systems etc.). – Receptors that are single dwelling or isolated rural dwellings receptor is business/commercial. – Enjoyment of the outdoors: recreational activities, playing sport, populations can move on or plan around exposure.
3	High	– Rural living zones – Hotels/motels – Hospital – Prison – Mixed use zones with residential apartments (at ground or 2 to 3 storeys). – 73.04-1 Accommodation group – Residential areas	– Built up area, towns, many dwellings with backyards and outdoor living areas. – Rural residential, schools, childcare or apartments. – Permanent populations where avoiding exposure is not possible.

In this case, the most sensitive land-use would be that of the nearby residential area located 280 north of the site. GHD is unaware of any compliance, social or historical issues experienced by people in the receiving environment, therefore the additional (+1) is not required to be added.

Applying rating from Table 7-2, the ORS score is 3

7.1.4 Overall level 2 score

A level 2 source pathway receiving environment score (SPR) is achieved by adding the ORS, OSS and OPS together. Therefore, based on the above:

– OSS = 3
– OPS = 3
– ORS = 3

The overall level 2 assessment score = 9, meaning activity is medium risk. In accordance with the Level 2 assessment, a medium risk is categorised as a “borderline case” where one element may influence the risk to be categorised as a low or high score. A level 3 assessment is recommended to fully understand risk.

8. Level 3 Assessment

8.1 Overview

A level 3 assessment is defined by EPA in Draft Publication 1883 as "*a detailed risk assessment for issues that are complex or where the other levels of assessment have been exhausted because there is not enough evidence to establish what the odour risk is".* Given the level 2 assessment undertaken by GHD resulted in medium risk, a level 3 assessment has been undertaken to fully understand risk.

EPA recommends that an assessment includes multiple tools in the risk assessment for applications or proposals for new developments where there may be potentially significant odour impacts. This should include the use of site-specific data where possible. The level of detail provided in the detailed assessment should be commensurate with the potential for odour impacts. Table 5 of Draft EPA Publication 1883 (provided as Figure 8-1) provides an overview of the level 3 assessment tools and their applicable scenarios

Level 3 assessment	Description	When the tool is applicable
Comparison with similar operations	Analysis of data from facilities of similar size, throughput, operational conditions, technology, processes, topography, meteorology and emission sources. This should incorporate assessments from a literature review.	• A new facility is proposed. • Best used in conjunction with odour field assessment.
Risk assessment using field odour surveillance data	Survey of odour levels in the field provide an indication of odour frequency, intensity, and character (FIC) from: • existing premises • odour surveillance of a reference facility • surveillance that includes other odour generating premises or sources in the area.	• For most scenarios where there are existing odour sources. • Rezoning or precinct structure planning. • Characterising odour sources impacting a community. • Assessment of a reference facility or scenario that has similar attributes to the development proposal in question.
Complaints data analysis	Analysis of odour complaint histories to provide an indication of odour frequency, intensity, and character (FIC) from: • existing premises • other odour generating premises or sources in the area • complaint histories from a reference site.	• Sensitive use proposals around existing facilities where there are already sensitive uses. • Assessment of odour reports around similar industries in the absence of the above.
Community surveys	Survey of community members to identify current or past odour issues related to the existing premises and other premises/sources in the area.	• A proposed sensitive use in an area where there is existing industry. • To aid in verifying complaints data. • To compliment surveillance data.
Relative dispersion modelling	• Computer modelling to compare different emissions scenarios through the analysis of the relative variations in predicted ground level odour concentrations. • Recommended for point sources or active emissions sources only. • Odour modelling cannot be used as the only evidence of an assessment and modelled results need to be validated against field assessment results.	• A proposed change or upgrade to premises to look at expected. change in emission pattern. • To understand the relative contribution of multiple sources to a subject site. • To understand the dispersion pattern of a proposed industry based on a reference site. • This approach uses field surveillance data (where available) to verify modelling at the reference site.

Figure 8-1 Level 3 assessment tolls and applicable scenarios (Reproduced from Table 5 of Publication 1883)

From the above, GHD has undertaken the following activities in the following sections below:

– Risk assessment using field odour surveillance
– Complaints data analysis
– Comparison with similar operations and industry best practice
– Relative dispersion modelling

8.2 Odour surveillance

Draft EPA Publication 1883 nominates field odour surveillance to determine odour levels in the field to provide an indication of odour frequency, intensity and character from an existing facility. As a medium risk was determined in the Level 2 assessment, GHD has undertaken two odour surveys to further assess the odour impact and subsequent risk at the nearest sensitive receptors during representative operations. It is noted that only greenwaste was stored on site at the time the odour survey was undertaken. Given the odour controls outlined in section 8.4.1 to minimise emissions from putrescible waste, GHD considers the greenwaste to be the main source of odour and therefore the odour surveys to be reflective of 24 hour operations.

8.2.1 Survey methodology – Dynamic downwind surveillance

GHD utilised the draft EPA guidance, *Odour surveillance*[8]*,* in order to conduct the additional odour surveys. GHD conducted the odour surveys in line with the methodology for a Dynamic Downwind Surveillance Assessment. The plume is assessed by:

– "Starting downwind from the odour source at a predetermined maximum distance. This distance will be based on odour complaint data (where available), or case studies and scientific papers where similar industries have been examined. The assessor should track the odour plume back to the source by crossing the plume. EPA recommends this technique is used for sources with elevated emissions or mixtures of sources.
– Starting at the source and then crossing the plume until the end of the plume is reached. EPA recommends this technique is used for large, ground-based areas sources (e.g. landfills, composters etc.)."

Of particular importance in the surveys was identifying any odour likely attributable to the site. As the predominant odour source observed during the site visit was the greenwaste stockpile (i.e. a large, ground-based source), GHD started at the source (site boundary) towards the end of the plume, as suggested by EPA. During the field surveys, any detectable odours likely attributable to the WTS were noted and the following details were recorded and described further below:

– Time
– Location
– Odour intensity
– Odour duration
– Odour characteristic
– Meteorological conditions (wind speed, wind direction, temperature)

[8] EPA Victoria, *Odour surveillance,* CONSULTATION DRAFT, 2019

Odour intensity

The intensity of the odour provides some understanding of the ambient concentration of odours in the environment. Odour intensity was characterised using the methodology outlined in the EPA Victoria guidance, reproduced in Table 8-1.

Table 8-1 Odour intensity descriptors

Odour strength	Description
Obvious	Odour is easy to smell and always noticeable. Odour is also easily recognisable, can be described and may be attributed to a source.
Subtle	Odour can be smelt only when focusing, e.g. by standing still and inhaling slowly into the wind. Odour can be recognised but with some difficulty.
No odour	No odour, or no recognised odour.

Odour duration

If an odour potentially related to the WTS was detected during the survey, the duration of this odour was also noted, in line with EPA Victorian guidance, reproduced in Table 8-2.

Table 8-2 Odour duration descriptors

Description	Duration of odour
Constant (C)	Can smell it constantly (> 80%)
Frequent/Repetitive (F)	On and off with significant/noticeable periods with recognised odour (10–80%)
Transient (T)	On and off (intermittent) with significant / noticeable periods with no odour or no recognised odour (< 10%)

8.2.2 Surveillance results

Two odour surveys were conducted on 7 June 2020 outside the current operational hours of the site (after 4:00 pm). The aim of the odour surveys was to provide an indication of the existing odour impact at the nearest sensitive receptors, accounting for representative operations and night time dispersion. Cleanaway informed GHD that the size of the greenwaste stockpile at the WTS during the odour surveys was considered 'worst case', indicating that a reduced quantity of greenwaste is typically stored at the WTS. GHD notes that only greenwaste was stored on site at the time the odour survey was undertaken.

The wind conditions during the two surveys were considered to be light (2 m/s or less), which often leads to greater offsite odour impacts due to minimal mixing of the atmosphere.

The surveys were conducted on Aitkins Road, Bruce Street, Clyde Crescent, Westmore Street and in Victoria Park in order to be downwind of the site based on the predominant wind direction. It was found the off-site odour characteristic (fresh greenwaste) remained relatively unchanged, despite different odour characteristics surrounding the greenwaste stockpile during the site visit being observed.

Fresh greenwaste odour was observed a maximum distance of 300 m from the WTS site boundary during both odour surveys, outside residential properties on Bruce Street and Aitkins Road. This maximum distance was located in Bruce Street, outside residential properties. It was noted that the odour detected during the surveys was almost always subtle and transient, with only a few instances of frequent odour being detected. The odour attributed to the WTS during the surveys was not considered unpleasant.

No other odours attributed to other industries were observed during the odour surveys.

A summary of the two surveys is provided below.

8.2.2.1 Survey 1 (4:00 pm – 5:00 pm)

At the beginning of the survey, a fresh greenwaste odour was detected downwind of the greenwaste stockpile. Typically, the odour detected was subtle and transient in nature. However, at locations 5 and 6, the odour duration became frequent. At locations 11 to 14 no odour was detected, likely due to a shift in the wind direction from southwest to south, resulting in these locations no longer being downwind of the stockpile. Directly north of the greenwaste pile (i.e. downwind under a wind from the south), subtle, transient fresh greenwaste odour was detected at locations 15 and 17, outside residential properties. No odour was able to be detected at locations 18 onwards, making 300 m (location 17) the maximum odour detection distance.

The winds were from the southwest at the beginning of the survey before shifting to southerly at the end of the survey. The odour survey route is provided in Figure 8-2.

8.2.2.2 Survey 2 (6:00 pm – 7:00 pm)

Subtle, transient, fresh greenwaste odour was first observed downwind of the greenwaste stockpile. When odour was observed at a location, no difference in the intensity, duration, or characteristic were noted between these locations. This indicates that, when detected, the odour is relatively uniform. This is likely a result of the calm wind conditions and therefore lack of atmospheric mixing (stable conditions) occurring during this survey. As the odour plume travelled away from the site it is likely that minimal dilution/dispersion was occurring.

As the survey progressed, no odour was detected at locations 12, 15, 16, 18 and 19, likely due to these locations not being downwind of the stockpile. Subtle, transient odour was detected at locations 14, 15, 17, 20 and 21 (directly north of the stockpile), which were downwind of the stockpile under a southerly wind and outside/adjacent to residential properties. No odour was able to be detected at locations 22 onwards, making 300 m (location 21) the maximum odour detection distance.

The winds were calm (less than 0.5 m/s) throughout the survey. When there was a wind gust, the direction was typically from the south. The odour survey route is provided in Figure 8-3.

ID	Time	Odour Intensity	Odour Duration	Odour Character	Wind Speed (m/s)	Wind Direction	Temp (°C)	Comment
1	16:12	Subtle	Transient	Fresh waste	CALM	-	12	-
2	16:17	Subtle	Transient	Fresh waste	CALM	-	14	Not longer detectable
3	16:20	-	-	-	CALM	-	13	-
4	16:22	Subtle	Transient	Fresh waste	0.5	SW	13	Odour intensity reduction when moving
5	16:24	Subtle	Frequent	Fresh waste	1.2	SW	12	-
6	16:26	Subtle	Frequent	Fresh waste	1.2	SW	12	-
7	16:32	Subtle	Transient	Fresh waste	1.6	WSW	12	-
8	16:35	Subtle	Transient	Fresh waste	2.2	WSW	12	-
9	16:36	-	-	-	2.2	WSW	12	Not longer detectable
10	16:38	Subtle	Transient	Fresh waste	1.8	WSW	12	Not longer detectable
11	16:41	-	-	-	CALM	-	12	Not longer detectable
12	16:46	-	-	-	2	SW	12	Not longer detectable
13	16:50	-	-	-	2.5	WSW	12	Not longer detectable
14	16:53	-	-	-	2.4	WSW	12	Not longer detectable
15	16:57	Subtle	Transient	Fresh waste	2.1	WSW	11	Not longer detectable
16	16:59	Subtle	Transient	Fresh waste	0.6	WSW	11	Not longer detectable
17	17:01	Subtle	Transient	Fresh waste	1	WSW	11	Not longer detectable
18	17:05	-	-	-	1.2	WSW	11	Not longer detectable
19	17:06	-	-	-	1.2	WSW	11	Not longer detectable
20	17:08	-	-	-	1.2	WSW	11	Not longer detectable
21	17:10	-	-	-	1.2	WSW	11	Not longer detectable

Paper Size A2
0 20 40 m
Map Projection: Universal Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia 1994
Grid: Map Grid Of Australia, Zone 54

LEGEND

Odour intensity
- Obvious
- Subtle
- No odour

Odour duration:
- C Constant
- F Frequent/Repetitive
- T Transient

- Survey route
- Segments
- Site boundary

Cleanaway Pty Ltd
Warrnambool WTS Odour Assessment
Odour survey 1

Project No. 12576
Revision No. -
Date. 09/06/2

FIGURE 8-3

LEGEND

Odour intensity
- Obvious
- Subtle
- No odour

Odour duration:
- C Constant
- F Frequent/Repetitive
- T Transient

- Survey route
- Segments
- Site boundary

Paper Size A2
0 20 40 m
Map Projection: Universal Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia 1994
Grid: Map Grid Of Australia, Zone 54

Cleanaway Pty Ltd
Warrnambool WTS Odour Assessment
Odour survey 2

Project No. 12575306
Revision No. -
Date. 09/06/2020

FIGURE 8-4

8.2.3 Summary

The odour detected during the surveys was almost always subtle and transient, with it being attributed to the WTS during the two surveys and considered not unpleasant. The results indicate that no adverse amenity impact was observed during the two surveys.

Although no adverse amenity impact from the WTS was detected surrounding the site, this is not directly related to the WTS's separation distance, however it is an encouraging result that suggests that odour is currently not of sufficient strength or an issue under routine operations and the WTS is complying with their permit conditions. As stated in section 3.3, the EPA buffer guideline aims to minimise odour amenity impacts offsite during an upset, however it is unlikely that any upset conditions were captured during the odour surveys, however the amount of greenwaste on site was considered to be a worst case amount.

8.3 Complaints data analysis

Past performance is a good indicator as to whether the default separation distance is appropriate and whether there is potential for emissions to impact on local amenity.

GHD is aware of three potential odour complaints regarding the site. One was from a resident to the south of the site while the other two are unknown. GHD is unaware of the exact details of the complaints and it appears that they never investigated or confirmed to be attributed to the site. This suggests that the risk of an offsite odour impact from the site is low.

8.4 Comparison with similar operations and best practice

8.4.1 Review of EMP

GHD has undertaken a review of the EMP in relation to odour controls. The EMP (updated in 2021[9]) outlines a number of odour management measures to minimise odour emissions from impacting on sensitive receptors.

The following measures outlined within the EMP are implemented at the site to minimise odour:

– Storage of putrescible waste to be no more than 24 hours
– Prompt removal of waste to landfill during working day
– The greenwaste stockpile is transported regularly offsite
– The size and height of temporary stockpiles is kept to a minimum in line with EPA guideline 1667.3, *Management and storage of combustible recyclable and waste materials*
– The storage of temporary stockpiles is located at the main shed for putrescible waste and at the greenwaste area for greenwaste
– The storage of temporary stockpiles occurs on ground that is sealed with concrete
– Temporary stockpile areas are regularly cleaned and hosed down
– Overnight storage of putrescible waste to be placed in a bin and covered by tarpaulin/temporary lid
– Bins are swept and hosed down with water after being emptied

A daily site inspection by an environmental team member is undertaken

Fortnightly field odour observations at three monitoring sites is also undertaken at:

- Two sites at the northern extent of Victoria Park
- One site within the site

– Discussion with management about significance of odour and any further actions
– Implementation of corrective actions to manage any odour issues
– Weekly observational reports from site inspection with corrective actions to manage any odour issues recorded and acted upon

[9] Cleanaway EMP for Warrnambool Transfer Station, May 2021

8.4.2 SV Guide

Section 5.2.6 of the SV Guide provides an overview of better practice odour management for site operations and management in relation to odour. Table 24 of the SV Guide (reproduced in Table 8-3) lists a number of factors for consideration when managing odour at a Resource Recovery Centres such as a transfer station. Based on the odour control measures outlined in section 8.4.1, GHD has included in the table the relevant odour controls implemented at the site for each of the factors identified in the SV Guide. From the table, it can be seen that site has adopted better practice odour management in accordance with the SV Guide. The regular odour monitoring outlined by Cleanaway is also in consistent with the SV Guide with respect to better practice environmental risk management (Table 23 of the SV Guide).

Table 8-3 Better practice odour managements at Resource Recovery Centres - Table 24 of the SV Guide

Factors	Consider	Warrnambool WTS
Odour at boundaries	Keep odour-generating activities and storage piles away from the boundaries of the site where this may cause offence.	Odour generating activities associated with greenwaste/putrescible waste are located in the northern and centre portion of the site. The storage of temporary stockpiles is located at the main shed for putrescible waste and at the greenwaste area for greenwaste.
Putrescible waste	Where practical, clear putrescible waste (e.g. residual waste or organics containing food waste) within 24 hours of receival to prevent odour generation. Clean skips and pits that receive putrescible waste on a regular basis using disinfectant as needed to control/prevent issues from arising.	Storage of putrescible waste to be no more than 24 hours. Prompt removal of waste to landfill during working day. Overnight storage of putrescible waste to be placed in a bin and covered by tarpaulin/temporary lid. Temporary stockpile areas are regularly cleaned and hosed down Bins are swept and hosed down with water after being emptied.
Wastewater	Treat wastewater from cleaning activities as leachate. If the site contains a leachate pond, adopt control measures and practices to avoid odour generation. Note: washing the site with water may add to the weight of litter and other disposal materials. Wastewater treatment can also be an expensive activity	Putrescible waste is housed temporarily undercover in the main shed. This ensures no leachate is created from rainfall coming into contact with the waste. All wastewater is captured and sent direct to the existing trade waste system. Any accumulated leachate is collected in a compliant leachate pit capture system and then removed fortnightly from the site by pump truck.
Sweep	Sweep up litter and other materials where practical rather than washing the site down with water as an alternative and potentially cheaper cleaning method.	Regular cleaning of temporary stockpile areas includes sweeping.
Garden organics	Put appropriate controls in place to minimise odour during all stages of collection, storage and processing. This is best achieved by ensuring that materials are kept aerobic by having well-aerated piles or turning materials as required.	The greenwaste stockpile is transported regularly offsite every seven days. The stockpile is regularly pushed back and therefore moved and kept aerobic. There is stockpile management in place to maintain the stockpile to no more than 800 m^3. If stockpile exceeds this then the greenwaste is removed offsite sooner.

8.4.3 Recommended updates to EMP

GHD recommends that the following controls be included in the EMP:

Wastewater

- Putrescible waste is housed temporarily undercover in the main shed. This ensures no leachate is created from rainfall coming into contact with the waste.
- All wastewater is captured and sent direct to the existing trade waste system.
- Any accumulated leachate is collected in a compliant leachate pit capture system and then removed fortnightly from the site by pump truck.

Greenwaste

- The greenwaste stockpile is transported regularly offsite every seven days.
- The stockpile is regularly pushed back and therefore moved and kept aerobic.
- There is stockpile management in place to maintain the stockpile to no more than 800 m^3. If stockpile exceeds this then the greenwaste is removed offsite sooner.

Monitoring

- The odour monitoring frequency within the EMP should be updated in line with Section 8.4.1.

8.5 Relative dispersion modelling

GHD has undertaken relative dispersion modelling in accordance with Draft EPA Publication 1883 to better understand the dispersion pattern from the site. As outlined in section 6, Draft EPA Publication 1883 allows for relative dispersion modelling in the form of meteorological modelling to help understand dispersion patterns from sources, such as the shape of emission contours. Such a tool may be applied using the minimum separation distance as an input to determine its shape by keeping the total area contained by the separation distance constant. This has been undertaken by GHD in section 6 in the form of a directional buffer. The directional buffer results indicate that local meteorology does not extend to buffer to the nearby residential areas.

8.6 Summary

The following can be concluded from the Level 3 assessment:

- The odour detected during the two odour surveys was almost always subtle and transient, with it being attributed to the site during the surveys and considered not unpleasant. The results indicate that no adverse amenity impact was observed during the two surveys.
- The lack of complaint data related to the site suggests that current operations is not generating odour impacts to surrounding sensitive receptors.
- Based on the odour control measures outlined, the site has adopted better practice odour management in accordance with the SV Guide.
- Relative dispersion modelling has been undertaken by GHD in the form of directional buffers. The directional buffer results indicate that the risk to odour amenity impact at the nearby sensitive receptors is further reduced due to meteorology given neither the original 250 m nor the de-rated 144 m directional buffers extend to the identified residential areas.

Based on the above, GHD concludes that the risk of odour from the site operating 24 hours to be low.

9. Conclusion

The findings of each component of the odour assessment are summarised below.

Default EPA separation distance

A default separation distance was plotted in accordance with the EPA buffer guideline to a radius of 250 m from the site boundary. The default separation distance does not impact on any of the surrounding residential receptors.

De-rated separation distance

The outcome of the de-rated separation distance assessment suggests that a buffer distance of 144 m should be sufficient to avoid odour impact to sensitive receptors. This takes into account the throughput of the site, anticipated at 20,000 tpa in the future, which is relatively small in comparison to metropolitan facilities (>60,000 tpa) in the same class.

Directional buffer

The directional buffer assessment indicates that meteorological conditions are likely to result in:

– The current operations (8:00 am to 5:00 pm) directional buffer covering largely the same area as the default buffer, likely due to the absence of night time stable atmospheric conditions in the model.
– The future operations (24 hours) directional buffer extends away from sensitive receptors located north and east of the site and more towards the west and south, with the largest buffer distance extension occurring toward the industrial precinct to the west of the site.

The directional buffer results indicate that the risk to odour amenity impact at the nearby sensitive receptors is further reduced due to meteorology given neither the original 250 m nor the de-rated 144 m directional buffers extend to the identified residential area in either scenario.

Assessment of Odour Risk

A level 2 assessment (source/pathway/receiving environment tool) undertaken by GHD in accordance with Draft EPA Publication 1883 assesses the level of risk from the site to be medium. A medium risk is categorised as a “borderline case” where one element may influence the risk to be categorised as a low or high score. A level 3 assessment is recommended to fully understand risk.

The Level 3 assessment concluded that the risk of odour from site reduces to low due to the following:

– From a review of similar operations and best practice, GHD is of the opinion that the site has adopted better practice or current industry practice with respect to odour management.
– From the odour surveys it was noted that the odour detected during the surveys was almost always subtle and transient, with only a few instances of frequent odour being detected. The odour attributed to the site during the surveys was not considered unpleasant. The results indicate that no adverse amenity impact was observed during the two surveys.
– The lack of complaint data related to the site suggests that current operations is not generating odour impacts to surrounding sensitive receptors.
– The relative dispersion modelling has been undertaken by GHD in the form of directional buffers. The directional buffer results indicate that the risk to odour amenity impact at the nearby sensitive receptors is further reduced due to meteorology given neither the original 250 m nor the de-rated 144 m directional buffers extend to the identified residential areas.

Conclusion

Based on the above findings, GHD concludes that the WTS poses a low risk of odour impact with an increase in operating hours to 24-hour operations.

Appendices

Appendix A

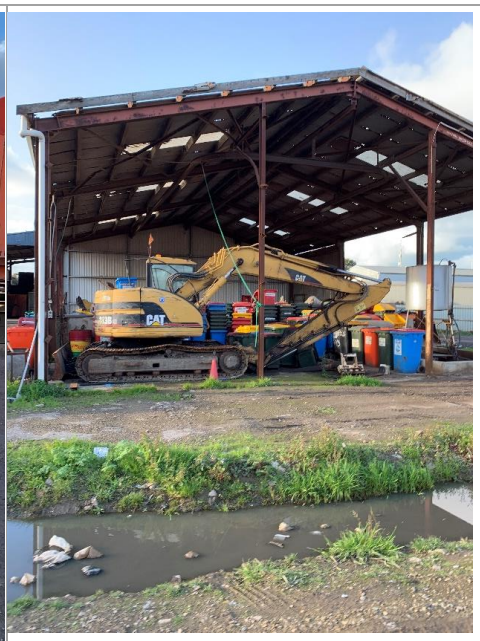
Site visit photos

Fresh greenwaste material (eastern side of stockpile)

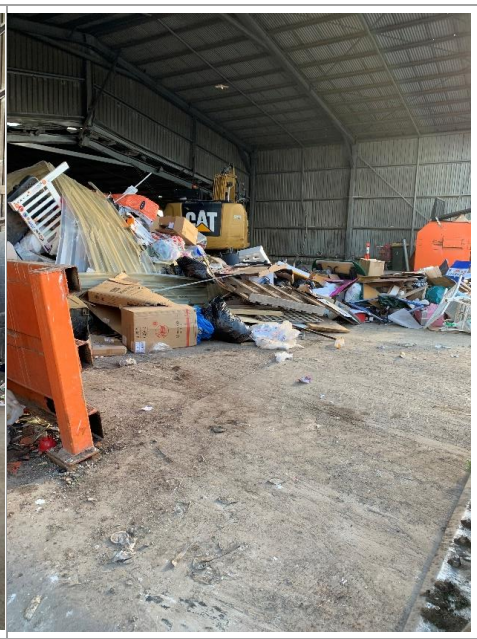
Old and new greenwaste – mixed (northern side of stockpile)

Drainage area (southern side of stockpile)

Bin/heavy vehicle laydown



Workshop

	
WTS main shed	Waste unloading area

ghd.com

→ The Power of Commitment

Appendix F Environmental Management Plan

Warrnambool Transfer Station

CLEANAWAY
Making a sustainable future possible

Environmental Management Plan

Warrnambool Transfer Station

Date: March 2022
Prepared by: Ramya Gowda
Approved by: Ronda. Clark
Version: 02

Contents

1. Introduction

1.1 Introduction

Cleanaway Pty Ltd owns and operates the Warrnambool Waste Transfer Station (WWTS). The WWTS is located at 355 Koroit Street, Warrnambool. The WWTS operates in accordance with planning permit PP2000-0135.02, issued by the Warrnambool City Council on 23 March 2015. A copy of the signed planning permit can be found in *Attachment A*.

Figure 1: Site Location

2. Site Location

2.1 Site Location

The WWTS site is located in the city of Warrnambool, in South Western Victoria. The site is bound by Koroit Street and Victoria Park to the North, Midfield Group to the South, the Warrnambool showgrounds to the East and Fulton Hogan to the West. The Victorian Planning Permit property report has determined that the parcel of land at 355 Koroit Street is zoned Industrial 1. A copy of the Victorian Planning Property Report for the WWTS site can be found in *Attachment B.*

Figure 2: Site Layout

3. Site Description

3.1 Site Description

The WWTS consists of a public weighbridge, waste transfer station main shed, office building, employee car park and workshop building at the rear of the WWTS main shed. The WWTS operates as a waste transfer station where public, commercial/municipal customers deposit various waste streams. The primary function of the WWTS is to temporarily house various waste streams before they are transferred or recycled. Cleanaway facilitate and foster recycling practices that minimise waste generation and reduce waste that is normally destined for landfill. Cleanaway offers recycling services for the following waste products listed below:

- Metal
- Plastic wrap
- Disposable Batteries
- Fluorescent lights
- Paint Tins
- Glass
- Paper & cardboard
- Rubber Tyres
- Clean fill
- Oil
- Green waste (becomes compost)

General waste is regularly transferred from the WWTS site to the Cleanaway Stawell landfill where this waste is deposited into EPA licenced landfill cells and compacted. Cleanaway also work in partnership with local companies who re-use and recycle the above products. This is beneficial by investing and supporting a local economy and fostering good business relationships with other local companies. Cleanaway is also constantly searching for future recycling opportunities to minimise waste generation and looking at alternatives that reduce environmental impacts from landfilling activities.

4. Hours of Operation

4.1 Hours of Operation

As part of the existing planning permit requirements, the WWTS business operates within the following operational hours:

- Monday to Friday between 8:00 am to 5:30 pm.
- Saturday between 9:00 am to 4:00 pm.
- Putrescible waste will not be received on a Sunday or as limited by Condition 13 and Condition 14 of PP2000-0135-04

5. Existing Site Conditions

5.1 Topography/Surface Water Drainage

The topography of the site falls from the northern end to the rear of the site, or southern end. Surface water from rainfall is directed to drains and stormwater pits at the rear of the site, which capture and control the flow of surface water across the site. There is an internal capture system for the truck wash water which includes an oil water separator, and a trade waste agreement is in place with Wannon Water for the wastewater to be directed to the sewer. All other surface water is directed into the stormwater drainage network managed by WCC. The WWTS site is comprised of a sealed concrete surface and a gravel compacted surface, the sealed concrete surface allows for water to flow into the drains as required. The leachate from the green waste pile is collected in the leachate pit and is emptied on a regular basis. The Stormwater Management Plan has further details on the management of stormwater at the WWTS site and is found in *Attachment C.*

5.2 Groundwater

The Victorian Groundwater Atlas confirms the groundwater level beneath the site is approximately 24-25m below the ground surface, according to data from monitoring station 141316, which is a government groundwater monitoring bore located approximately 200m to the north from the WWTS site. Considering there is no waste deposition at the WWTS site, the risk to site activities impacting on the groundwater resources is regarded as being very low.

6. Environmental Policy, Legislation, Guidelines & Regulation

6.1 Environmental Policy

Cleanaway is committed to operating a business that aims to protect and preserve the natural environment and foster sustainable business practices such as recycling that minimise the amount of waste being deposited into landfill. A copy of the Cleanaway Environmental Policy can be found in *Attachment D*.

6.2 Environmental Legislation & Guidelines

There are a number of guidelines and legislation relevant to the environmental management and operational considerations when operating the WWTS site, with these listed below:

- Environment Protection Act 2021 (Victoria)
- Environment Protection (Industrial Waste Resource Guidelines) 2009 (Victoria)
- Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues, Publication1826.4, 2021
- Planning and Environment Act – 1987
- EPA Publication IWRG822.4 – Waste Codes (JUNE 2021)
- Warrnambool City Council – Resource Recovery, Waste Minimisation and Management Strategy, 2017-2021

7. Purpose of EMP

7.1 EMP purpose

This Environmental Management Plan (EMP) has been prepared to ensure that environmental aspects outlined in the planning permit are suitably addressed and managed. This 2022 update to the EMP has also been implemented as Cleanaway wish to operate the WWTS on a 24-hour basis and to be able to receive green and putrescible waste on this basis.

WWTS will be open to the public/private customer within the following hours:

- Monday to Friday between 8:00 am to 5:30 pm.
- Saturday between 9:00 am to 4:00 pm.
- Sundays and Public Holidays between 10:00 am and 4:00 pm.
- Putrescible waste will not be received on a Sunday, or as limited bu condition 13 and condition 14 of PP2000-0135.04

This EMP has been prepared to manage the following environmental aspects that are outlined in the planning permit:

- Noise
- Dust
- Odour
- Amenity
- Stormwater & Wastewater Management
- Weeds, pests, and vermin animal species
- Waste Storage/Management
- Chemical Storage/Management

8. Employee and Contractor Responsibilities

8.1 Responsibilities

Cleanaway through its core values recognise employee and contractor safety as being paramount when operating the WWTS site. An integral part of this is that all employers and contractors are aware of their responsibilities with regards to OH&S when visiting or working at the WWTS Site. Cleanaway is committed to providing a safe workplace for all workers and contractors with the following management measures implemented at the WWTS Site:

- All new employees undertake a site induction to become familiar with site and OH&S requirements.
- All drivers and operators of waste vehicles and mobile plant such as loaders and excavators must be fully licenced, ticketed and complete the relevant SOP for each plant/vehicle.
- All drivers must complete site inductions for external Cleanaway customers and be familiar with any site requirements when visiting these sites.
- Drivers must attend each working day fit for work and report any defects or maintenance of vehicles or plant to the site manager. Safe Truck and Safe Operator Checklists to be completed.
- External contractors that work on the WWTS site on major projects must undertake a site induction and become familiar with the Cleanaway site and OH&S requirements.
- All employees become familiar with the requirements of the document “Lifesaving Rules and Environmental Absolutes”
- All vehicles that travel within the WWTS site follow the site speed limit of 5km/h.

9. Environmental Management Aspects

9.1 Noise Management

The noise associated with operating the WWTS site is managed in accordance with the *Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues* (Noise Protocol), Publication1826.4, May 2021. With the introduction and changes to the Environmental Protection Act on 1 July 2021, the Noise Protocol is incorporated into the Environment Protection Regulations (the Regulations).

Cleanaway has implemented the following management measures to ensure that public amenity is not impacted by noise emissions from the operation of the WWTS Site:

- Operate in accordance with the operational hours listed on the current approved planning permit.
- Ensure all site vehicles and plant are regularly maintained to minimise noise generation.
- The main WWTS waste processing area is towards the middle of the site, away from sensitive receptors. In this area, the main WWTS shed is an area with a roof and walls – this limits the distance noise can travel.
- Smart reversing beepers are used on site plant to lessen noise in general.
- Site speed limit of 15kmh minimises vehicle noise emissions from operational activities.

9.2 Noise Assessment

A recent acoustic assessment conducted by Telemetrix in February 2022, found that noise generated at the site was below the required levels of the Noise Protocol at the nearest sensitive receptor. A copy of that 2022 Noise Assessment can be found in *Attachment E*.

9.3 Artificial Light

Cleanaway implements the following measures to ensure the generation of artificial light does not impact on sensitive receptors:

- All sensors connected to security lights are set on timers. This ensures that lights are not constantly emitting a light source during the sensitive night period.
- The site does not operate after 5pm, this ensures there are no vehicles, plant or equipment emitting light, or lights activated in buildings because people are working in these areas.

9.4 Odour

The operation of the WWTS site involves the temporary storage of green and putrescible waste, prior to this waste being transferred to external facilities. This waste may generate odours that may impact on sensitive outside receptors and to manage potential odour sources from waste, the following measures are implemented at the WWTS site:

- Ensure that putrescible waste is not stored for more than 24 hours.
- Transfer putrescible waste to the landfill site regularly during the working day to minimise any potential odour sources generated by the temporary storage of waste.
- Putrescible waste is housed temporarily undercover in the main shed. This ensures no leachate is created from rainfall coming into contact with the waste.

- All wastewater is captured and sent direct to the existing trade waste system.
- The bins that transport the putrescible waste are covered with tarpaulins, with each full bin constantly rotated with an empty bin to minimise potential odour generation.
- Each bin is swept clean and hosed down when emptied at the landfill.
- Ensure that the size and height of temporary stockpiles (including green waste) is kept to a minimum and the dimensions of stockpiles is in accordance with the requirements of the EPA guideline 1667, "Management and storage of combustible recyclable and waste materials".
- The storage of temporary stockpiles is located at the main WWTS shed and Green Waste area, where the ground surface is sealed concrete, this provides opportunities for regular cleaning and hosing down.
- Any accumulated leachate is collected in a compliant leachate pit capture system and then removed fortnightly from the site by pump truck.
- The greenwaste stockpile is transported regularly offsite every seven days.
- The stockpile is regularly pushed back and therefore moved and kept aerobic.
- There is a stockpile management is in place to maintain the stockpile to a certain size (800m3). If stockpile exceeds this, then the greenwaste is removed offsite sooner.

Field monitoring of odour sources is conducted on a weekly basis, where an environmental team member conducts a field odour assessment during the weekly observational monitoring program for the WWTS. The odour assessment consists of the following actions:

- Daily and fortnightly field odour observations at 2 monitoring sites that are located north of the WWTS site at the northern extent of Victoria Park and 1 site within the WWTS site.
- Recording of field odour observations from these 3 sites (odour absence/presence, source of odour)
- Discussion with management about significance of odour assessment results & further actions
- Actions implemented by management to rectify any concerns with odour issues, such as removal of odour sources from waste and any other corrective actions.
- Produce daily and fortnightly observational report from the site inspections which is internally distributed, and any corrective actions or improvements recorded and acted upon.

9.5 Odour Assessment

Statewide Recycling (former site owner) engaged an environmental consultant to undertake an odour survey in October 2019 and is updated with the new draft regulation in March 2022. The results of the survey concluded that the operation of the WWTS site does not generate any excessive odour that would impact on external sensitive receptors. A copy of the odour assessment can be found in *Attachment F.*

9.6 Amenity and Appearance

To ensure that public amenity is not impacted by the operation of the WWTS, the following management actions are implemented that mitigate any potential impacts on public amenity:

- Daily litter patrols are conducted; where the frequency of the litter patrol is increased during unfavourable windy conditions and where wind-blown litter is removed from public recreation areas, roadside and verge areas and fence-lines that connect to neighbouring land or property. The litter patrol is also conducted within the WWTS, to maintain visual amenity
- Waste piles are kept to a minimum in the main waste processing area, so that visual amenity is maintained and where waste piles are transferred into transport bins as soon as practicable. This reduces the size/height of waste piles and helps to minimise wind-blown litter.

- The construction of the main WWTS shed includes a roof and high walls, this helps to protect general waste from becoming windblown while it is being processed in this area.
- Results of the litter patrol are recorded on the weekly observational checklist and discussion of these results occurs in a weekly management meeting.
- During windy conditions, litter patrols may be conducted on a daily basis to ensure that all windblown litter from the WWTS site is removed to maintain public amenity.
- The colour of the WWTS main shed, workshop and roof of both the office building and weighbridge are in muted tones of non-reflective material. This ensures that these buildings blend in with the surrounding landscapes.
- At the end of the working day, the size of waste stockpiles is kept to a minimum, this ensures that available habitat for pests and rodents is limited.

9.7 Stormwater Management

A table containing updated actions for ongoing storm water management has been prepared for this EMP. The main objective of the storm water management plan is to ensure that all storm water run-off from operations is captured and no wastewater or sediment laden water leaves the WWTS site and enters surrounding water storages, neighbouring businesses, and any recreational areas. To ensure that storm water is appropriately managed, the following actions are implemented at the WWTS site:

- Regular inspections are implemented to ensure that existing internal surface water infrastructure is working and in good general order & condition.
- Sufficient roof drainage and infrastructure has been installed to collect surface water from rainfall and direct this into the existing stormwater system.
- An ongoing maintenance program exists for cleaning of roof gutters and ensuring that the stormwater drains, grates are clean so that surface water from rainfall is directed into the stormwater system.
- Ensure there is no cross contamination of potentially contaminated water with clean water.
- Potentially hazardous wastes such as batteries and oils are stored and collected in an area at the WWTS with bunding and in a structure with a roof to prevent water infiltration.
- The main WWTS shed where waste is processed has a roof and sealed concrete floor to prevent rainwater carrying litter and transporting waste contaminants into the surface water.

A copy of this updated action list is found in *Attachment C.*

9.8 Weed, Pest and Vermin Management

The control of weeds and pest/vermin species is managed at the WWTS site, with the following measures to prevent, manage and control pests or vermin and pest plant species:

- Storage and transportation of waste is undertaken in covered bins and bins are regularly transferred to the landfill facility to minimise potential rodent habitat, or attraction.
- Regular and ongoing baiting for rodents is conducted every two months, where baits are distributed by a pest contractor across the site to manage these vermin species.
- Regular cleaning and maintenance of the main WWTS shed is undertaken on a daily basis to maintain good housekeeping and maintain a level of sanitisation and cleanliness.
- Daily and fortnightly observational inspections of the site for pests and vermin species (rodents, feral animals) is conducted and results recorded on weekly checklists and discussed in management meetings.

- The size of the temporary stockpiles is kept to a minimum (800 m3) and where general waste is constantly processed and turned over by being transported to the landfill. This reduces available habitat for pest rodent species.
- Regular monitoring and removal/control of weed species is undertaken on regular basis. This ensures that weed species do not become established on site. Control may involve hand removal or spraying of weed species.
- Storage of 'Detox your home' waste products such as metal, disposable batteries, fluorescent lights, paint tins are in secure metal bins, with these bins stored undercover in a building with a sealed concrete floor.
- A loader and excavator are deployed at the main WWTS shed, to process general waste products.
- A steel perimeter fence is located around the boundary of the site to prevent access from external and neighbouring properties.
- The litter patrol that is conducted regularly during the working week removes wind-blown litter and any litter that may be found across the site from the movement and transfer of waste.

9.9 Waste Placement and Management

The management of waste streams at the WWTS site is undertaken with the following measures to ensure waste streams are stored appropriately and managed:

- General waste is housed temporarily undercover in the main WWTS Shed. This ensures no leachate is created from rainfall coming into contact with the waste.
- The smaller shed to the west of the main shed, houses the waste streams for 'detox your home', which includes disposable batteries, fluorescent lights, and paint tins; this shed also has a roof and walls to protect these waste streams while being stored, before they are collected and reused-recycled.
- The size of general waste stockpiles is kept to a minimum and this type of waste is constantly transferred to the landfill.
- General waste is transferred to bins at the main WWTS shed, before being transported to the landfill site. The waste is covered with a tarpaulin during this temporary housing of waste.
- There is CCTV that monitors waste placement at the main WWTS shed. This can be used for after-hours monitoring to ensure compliance with the requirements of this EMP.
- General waste and green waste are kept separate. The green waste is stored in the northern part of the site and is also transported regularly (7 days) to a local south-west company where it becomes compost.
- The greenwaste stockpile is regularly pushed back and therefore moved and kept aerobic.
- If greenwaste pile exceeds 800m3 it will be removed offsite sooner.
- All the waste placements are on concreted area and the leachate generated from this area is diverted to leachate pit which is sent offsite on a regular basis.

9.10 Chemical Storage Management

The storage and management of chemicals used on the WWTS site is subject to the following management measures to ensure these products are stored and handled correctly:

- A hard copy SDS for each chemical used at the WWTS site is made available in a folder on site.
- An SDS register for all chemicals on site has been created which lists each SDS for all chemical products used on site.

- Specific PPE & engineering controls for all chemicals on site is made available for all site workers using these products.
- Employees must have the correct PPE for each chemical to be used and the employee must be made aware of the risks using each chemical and that all available controls are in place to mitigate this risk.
- Employees must read the SDS of each chemical used and be made aware of all potential risks from the storage and handling of these chemicals.
- Only suitable trained and experienced personnel are to use any chemical on the WWTS site.
- Approval from the site manager must be received before any new chemical is used on site.
- The fuel storage cell is located in a sealed concrete bund, with concrete floors and sides, this ensures that any potential spill or leak is contained with the system and does not impact on bare soil or ground.

9.11 Daily and Fortnightly Site Observational Checklist

Cleanaway conducts weekly observational inspections of the WWTS site, this ensures that the environmental aspects mentioned earlier in this EMP are suitably managed and controlled. The following information is recorded on the weekly observational checklist:

- Details of litter picked in areas adjacent to the site
- Victoria Park, east, west, north
- WWTS & showgrounds fence
- Friendly Societies Park Fence
- WWTS front nature strip and neighbouring properties
- Details of litter picked up in all areas within the WTS site
- Details of previous litter patrols conducted during the week (daily during windy conditions)
- Status of amenity across the WWTS site
- Presence of odour & suspected origin of odour (animal processing/waste etc)
- Observations of dust and origin of dust and whether this impacts on public amenity
- Presence/absence of vermin species observed during inspection
- Observations on presence/absence of hazards across the site
- A summary of recommendations & improvements from current or previous weekly inspections.

A copy of the Daily and fortnightly observational checklist can be found in *Attachment G* at the rear of this document.

10. EMP Review

This document may be subject to review every 12 months. A review will consider any changes in environmental management requirements, alteration of permits, licences, legislation, guidelines, and any regulatory requirements.

11. Attachments

11.1 Attachment A – Current Planning Permit PP2000-0135.02

Our Ref: PP2000-0135.02

23/03/2015

WARRNAMBOOL
CITY COUNCIL

Statewide Holdings Pty Ltd
Po Box 1488
WARRNAMBOOL VIC 3280

Dear Sir/Madam

Planning Permit Application Number: PP2000-0135.02
Waste Transfer Station: Alterations to building and environmental management plan.
355 Koroit St WARRNAMBOOL VIC 3280

I refer to the above Planning Permit application and advise that Council has approved the application and has issued a Planning Permit. Your copy of the Planning Permit is enclosed.

Please note, prior to any buildings and works commencing it is your responsibility to check if a Building Permit is required. If so your appointed Building Surveyor will require a copy of the enclosed documentation.

Your attention is drawn to the conditions of the Permit. Please read these conditions carefully, and check whether there are any actions you need to take prior to acting on the Permit.

Please note that failure to comply with the conditions on the Permit may result in penalties and/or enforcement action being initiated by Council.

The reverse side of the Permit advises you of your appeal rights should you be dissatisfied with any of the Permit conditions.

If you have any queries regarding this matter, please contact Planning Support on telephone 55594800.

Yours faithfully,

Per.

Erin Sonego
Town Planner
CITY DEVELOPMENT

Encl:

Planning and Environment Regulations 2005 Form 4

AMENDED PLANNING PERMIT

Permit No.: PP2000-0135.02

Planning Scheme: Warrnambool

Responsible Authority: Warrnambool City Council

ADDRESS OF THE LAND: Lot 43L CA PSH WAN TSH WARR
355 Koroit St WARRNAMBOOL VIC 3280

WHAT WILL THE PERMIT ALLOW: **Use and Development of the land as a Refuse Transfer Station including receipt of putrescible wastes and for materials recycling in accordance with the endorsed plans**

THE FOLLOWING CONDITIONS APPLY TO THIS PERMIT

1. ***(Amended 16/3/2015)*** Prior to the commencement of the works approved by the amended permit, a storm water management plan must be submitted to and endorsed by the Responsible Authority. The plan must be in accordance with the current Responsible Authority's Design Guidelines, and provide for the following:

   a) Details and measures to enhance storm water discharge quality from the site and prevent the stormwater runoff onto neighbouring land as stated under the section Stormwater and Leachate Management under heading "Objectives" of the Environmental Management Plan.
   b) The measures stated in the stormwater management plan must confirm the actions stated under the section Stormwater and Leachate Management under heading "Actions" in the Environmental Management Plan.
   c) Levelling and paving of all waste storage areas with an impermeable surface.

   The endorsed storm water management plan is to be implemented prior to the use or occupation of the approved development.

2. The use and/or development as shown on the endorsed plans must not be altered without the written consent of the Responsible Authority.

Date Issued: 23/3/2015	**Signature for the Responsible Authority:**
Note: Under Part 4, Division 1A of the Planning and Environment Act 1987, a permit may be amended. Please check with the responsible authority that this permit is the current permit and can be acted upon.	

3. The vehicular crossing is to be constructed in accordance with Warrnambool City Council specifications, to the satisfaction of the Responsible Authority. In this regard a permit is required from the Responsible Authority.

4. The amenity of the area must not be detrimentally affected by the use or development through the:

   a. Transport of materials, goods or commodities to or from the land;

   b. Appearance of any building, works or materials;

   c. Emission of noise, artificial light, vibration, smell, fumes, smoke, vapour, steam, soot, ash, dust, waste water, waste products, grit or oil;

   d. Presence of vermin;

   e. The site including all buildings, works and landscaping shall be maintained in a neat, tidy and safe condition in accordance with the endorsed plan to the satisfaction of the Responsible Authority.

5. ***(Amended 16/3/2014)*** Before the use and/or development starts, areas set aside for parked vehicles and/or storage of skips and equipment, and access lanes as shown on the endorsed plans (as amended) must be:

   a. Constructed to the satisfaction of the Responsible Authority.

   b. Properly formed to such levels that they can be used in accordance with the endorsed plans.

   c. Surfaced with an all-weather seal coat to the satisfaction of the Responsible Authority.

   d. Drained and maintained to the satisfaction of the Responsible Authority.

   e. Line-marked to indicate each car space and all access lanes to the satisfaction of the Responsible Authority.

6. ***(Amended 16/3/2014)*** Parking areas and access lanes must be kept available for these purposes at all times. The car parking area is to be set aside for the parking of passenger vehicles only. All other vehicles are to be parked at the rear of the site.

7. A sign(s) to the satisfaction of the Responsible Authority must be provided directing drivers to the area set aside for car parking and must be located and maintained to the satisfaction of the Responsible Authority. The sign must not exceed 0.3 square metres.

Date Issued: 23/3/2015	**Signature for the Responsible Authority:**
Note: Under Part 4, Division 1A of the Planning and Environment Act 1987, a permit may be amended. Please check with the responsible authority that this permit is the current permit and can be acted upon.	

8. The site shall be drained to the satisfaction of the Responsible Authority, and no stormwater, sullage, sewerage or polluted drainage shall drain or discharge from the land to adjoining properties. Collected leachate is to be removed from the site at regular intervals in accordance with the provisions of the Environmental Management Plan.

9. All surface run-off must be contained and treated within the site.

10. Prior to the commencement of the development/use hereby permitted, a landscaping plan shall be submitted to the Responsible Authority and when endorsed will form part of this permit. Such plan shall show the following to the satisfaction of the Responsible Authority:

    a. All surface treatments

    b. The botanical name, height and width at maturity, and location of all vegetation to be used

    c. Details of proposed perimeter fencing of the site.

11. The area set aside for landscaping shall be used for no other purpose.

12. Before the use allowed by this permit starts, landscaping works as shown on the endorsed plans must be completed to the satisfaction of the Responsible Authority.

13. The hours of operation of the waste transfer station are restricted to:

    a. Monday to Friday 8.00am to 5.30pm

    b. Saturday 9.00am to 4.00pm

    c. Sunday 10.00am to 4.00pm except as limited by condition 14.

14. Putrescible wastes must not be stored on site after 6.00pm on a Saturday or prior to a public holiday. Nor is any putrescible waste permitted to be received by the facility on a Sunday or public holiday.

15. ***(Amended 16/3/2015)*** Loading and unloading of all goods, materials and items shall be carried out on the site. All waste entering the site is to be treated as follows, to the satisfaction of the Responsible Authority:

    a. All rubbish and recycling waste is to be set down, sorted and contained within the perimeter of the "Recycle Sorting Centre" building, including the part of the concrete pavement overhung by the roof. Rubbish and recycling materials must not be set down or stored in areas open to the sky, unless contained securely within a skip bin or approved receptacle.

Date Issued: 23/3/2015	**Signature for the Responsible Authority:**
Note: Under Part 4, Division 1A of the Planning and Environment Act 1987, a permit may be amended. Please check with the responsible authority that this permit is the current permit and can be acted upon.	

b. All green waste must be set down, and stored within the area marked "Green waste disposal area" on the endorsed plans. There is to be no storage of green waste outside this area.

c. All areas for the storage of waste, including the household chemical collection point and storage area, are to be levelled and provided with an impermeable surface. All surfaces are to be maintained in a serviceable condition to the satisfaction of the Responsible Authority.

d. A secondary containment system must be provided for liquids which if spilt are likely to cause pollution or pose an environmental hazard, in accordance with the EPA Publication 347 Bunding Guidelines 1992 or as amended.

16. The external fabric including the roofing of the building/s shall be in muted tonings of non-reflective material and/or paint to the satisfaction of the Responsible Authority.

17. The operation of the site must be in compliance with the requirements of the Environmental Protection Authority. In this respect the permit holder is to:

a. Comply with the Guide to Best Practice at Transfer Stations, published by Eco Recycle Victoria.

b. Comply with the South West Regional Waste Management Plan.

18. ***(Amended 16/3/2015)*** No putrescible wastes shall remain on the premises for more than 24 hours. Green waste must not be stored longer than 7 days.

19. Prior to the receipt of putrescible wastes, an environmental management plan to the satisfaction of the Responsible Authority must be submitted to and approved by the Responsible Authority. When approved, the plan will be endorsed and will then form part of the permit. The Environmental Management Plan must include, interalia:

a. Employee and contractor responsibilities;

b. Use of chemicals, such as herbicides and rodenticides;

c. Covering of all bins retained on site overnight;

d. Cleaning, sanitation and housekeeping procedures;

e. Vermin control and rodent baiting, insect control and spraying;

f. Monitoring processes and corrective action;

g. Procedures for odour, stormwater, noise and dust management;

Date Issued: 23/3/2015	**Signature for the Responsible Authority:**
Note: Under Part 4, Division 1A of the Planning and Environment Act 1987, a permit may be amended. Please check with the responsible authority that this permit is the current permit and can be acted upon.	

h. Procedures for the collecting and removal of leachate from the site;

i. Emergency response procedures;

j. Traffic management;

k. Use and maintenance for all plant and equipment;

l. Procedures for monitoring and reporting;

m. A timetable for the review of the management plan.

SOUTH WEST WATER AUTHORITY CONDITIONS

20. The provision at the developer's cost of the required sewerage works necessary to serve the proposed development. The works are to be constructed in accordance with the plans and specifications approved by, and under the supervision of the South West Water Authority.

21. The provision at the developer's cost of the required water supply works necessary to serve the proposed development. The works are to be constructed in accordance with the plans and specifications approved by, and under the supervision of the South West Water Authority.

22. The developer entering into an agreement with the Authority for contribution of the present day costs of any works that are used or will be able to be used for the provision of services to the proposed development.

23. The developer obtaining the necessary consents and approvals for:

a. Alteration to or connection of on-site plumbing.

b. Building over or within 1 metre horizontally of any water or sewerage works whether within or beyond the boundary of the property.

c. The discharge of trade waste (other than domestic sewerage) from the property.

d. Any changes to the natural surface levels that result in a portion of the building not being able to be provided with gravity sewerage services.

Date Issued: 23/3/2015	**Signature for the Responsible Authority:**
Note: Under Part 4, Division 1A of the Planning and Environment Act 1987, a permit may be amended. Please check with the responsible authority that this permit is the current permit and can be acted upon.	

THIS PERMIT HAS BEEN AMENDED AS FOLLOWS:

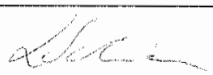
Date of amendment	Brief description of amendment
17 May 2007	• Permit amended under direction of VCAT to allow receipt of putrescible materials. • Permit format altered to new format.
23 March 2015	• Endorsed plans are superseded • Environmental Management Plan is amended • Selected conditions of the permit are amended

Expiry of permit:

In accordance with section 68 of the *Planning and Environment Act 1987*, this permit will expire if one of the following circumstances applies:

- The development and use are not started before two (2) years of the date of this permit.
- The development is not completed within four (4) years of the date of this permit.

In accordance with section 69 of the *Planning and Environment Act 1987*, the responsible authority may extend the periods referred to if a request is made in writing before the permit expires, or within three months afterwards.

Date Issued: 23/3/2015	**Signature for the Responsible Authority:**
Note: Under Part 4, Division 1A of the Planning and Environment Act 1987, a permit may be amended. Please check with the responsible authority that this permit is the current permit and can be acted upon.	

IMPORTANT INFORMATION ABOUT THIS NOTICE

WHAT HAS BEEN DECIDED?

The Responsible Authority has issued a permit.

(Note: This is not a permit granted under Division 5 or 6 of Part 4 of the **Planning and Environment Act 1987**)

WHEN DOES A PERMIT BEGIN?

A permit operates

* From the date specified in the permit; or
* If no date is specified, from –
  (i) The date of the decision of the Victorian Civil and Administrative Tribunal, if the permit was issued at the direction of the tribunal; or
  (ii) The date on which it was issued, in any other case

WHEN DOES A PERMIT EXPIRE?

1. A permit for the development of land expires if—

* the development or any stage of it does not start within the time specified in the permit; or
* the development requires the certification of a plan of subdivision or consolidation under the **Subdivision Act 1988** and the plan is not certified within two years of the issue of the permit, unless the permit contains a different provision; or
* the development or any stage is not completed within the time specified in the permit, or, if no time is specified, within two years after the issue of the permit or in the case of a subdivision or consolidation within 5 years of the certification of the plan of subdivision or consolidation under the **Subdivision Act 1988**.

2. A permit for the use of land expires if—

* the use does not start within the time specified in the permit, or if no time is specified, within two years after the issue of the permit; or
* the use is discontinued for a period of two years.

3. A permit for the development and use of land expires if—

* the development or any stage of it does not start within the time specified in the permit; or
* the development or any stage of it is not completed within the time specified in the permit, or, if no time is specified, within two years after the issue of the permit; or
* the use does not start within the time specified in the permit, or, if no time is specified, within two years after the completion of the development; or
* the use is discontinued for a period of two years.

4. If a permit for the use of land or the development and use of land or relating to any of the circumstances mentioned in section 6A(2) of the **Planning and Environment Act 1987**, or to any combination of use, development or any of those circumstances requires the certification of a plan under the **Subdivision Act 1988**, unless the permit contains a different provision—

* the use or development of any stage is to be taken to have started when the plan is certified; and
* the permit expires if the plan is not certified within two years of the issue of the permit.

5. The expiry of a permit does not affect the validity of anything done under that permit before the expiry.

WHAT ABOUT APPEALS?

* The person who applied for the permit may apply for a review of any condition in the permit unless it was granted at the direction of the Victorian Civil and Administrative Tribunal, in which case no right of review exists.
* An application for review must be lodged within 60 days after the permit was issued, unless a notice of decision to grant a permit has been issued previously, in which case the application for review must be lodged within 60 days after the giving of that notice.
* An application for review is lodged with the Victorian Civil and Administrative Tribunal.
* An application for review must be made on an Application for Review form which can be obtained from the Victorian Civil and Administrative Tribunal, and be accompanied by the applicable fee.
* An application for review must state the grounds upon which it is based.
* An application for review must also be served on the Responsible Authority.
* Details about applications for review and the fees payable can be obtained from the Victorian Civil and Administrative Tribunal.
* The address of the Victorian Civil and Administrative Tribunal is 55 King Street, Melbourne 3000. The telephone number is 03 9628 9777.

11.2 Attachment B – Planning Property Report

PLANNING PROPERTY REPORT

Environment, Land, Water and Planning

From www.planning.vic.gov.au at 22 March 2022 05:01 PM

PROPERTY DETAILS

Address:	**355 KOROIT STREET WARRNAMBOOL 3280**
Crown Description:	**Allot. 43L Sec. 70 TOWNSHIP OF WARRNAMBOOL**
Standard Parcel Identifier (SPI):	**43L~70\PP5841**
Local Government Area (Council):	**WARRNAMBOOL** www.warrnambool.vic.gov.au
Council Property Number:	**129360**
Planning Scheme:	**Warrnambool** Planning Scheme - Warrnambool
Directory Reference:	**Vicroads 514 G6**

UTILITIES

Rural Water Corporation:	**Southern Rural Water**
Urban Water Corporation:	**Wannon Water**
Melbourne Water:	**Outside drainage boundary**
Power Distributor:	**POWERCOR**

STATE ELECTORATES

Legislative Council:	**WESTERN VICTORIA**
Legislative Assembly:	**SOUTH-WEST COAST**

OTHER

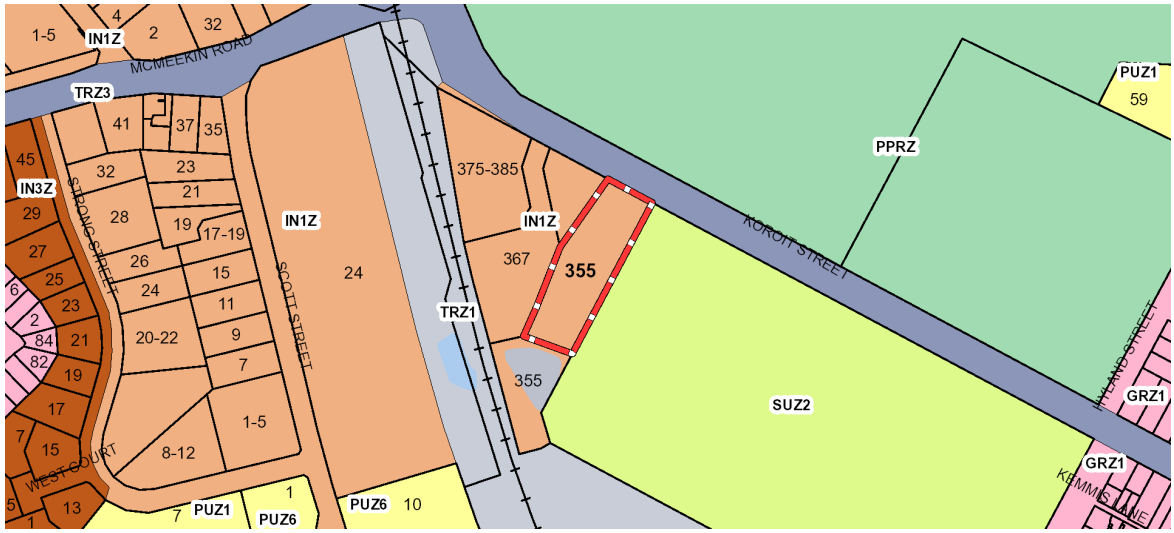
Registered Aboriginal Party:	**Eastern Maar Aboriginal Corporation**

View location in VicPlan

Planning Zones

INDUSTRIAL 1 ZONE (IN1Z)

SCHEDULE TO THE INDUSTRIAL 1 ZONE (IN1Z)



GRZ - General Residential	IN1Z - Industrial 1	IN3Z - Industrial 3
PPRZ - Public Park and Recreation	PUZ1 - Public Use-Service and Utility	PUZ6 - Public Use-Local Government
SUZ - Special Use	TRZ1 - State Transport Infrastructure	TRZ3 - Significant Municipal Road
Railway line	Water area	

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

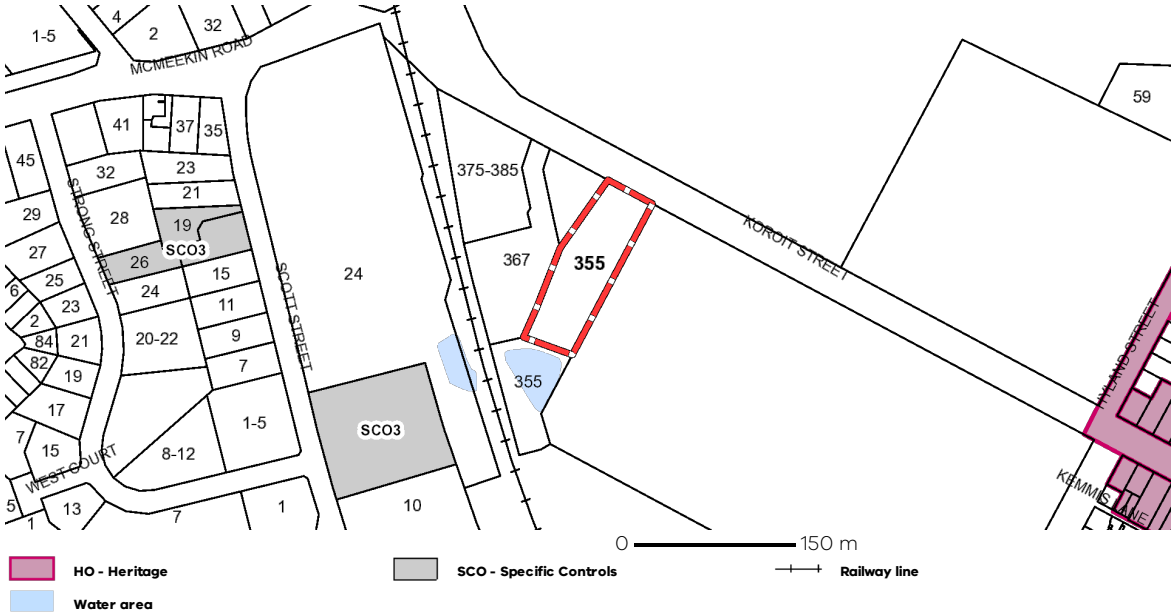
PLANNING PROPERTY REPORT

Environment, Land, Water and Planning

Planning Overlay

None affecting this land - there are overlays in the vicinity

HERITAGE OVERLAY (HO)
SPECIFIC CONTROLS OVERLAY (SCO)



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

Areas of Aboriginal Cultural Heritage Sensitivity

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

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

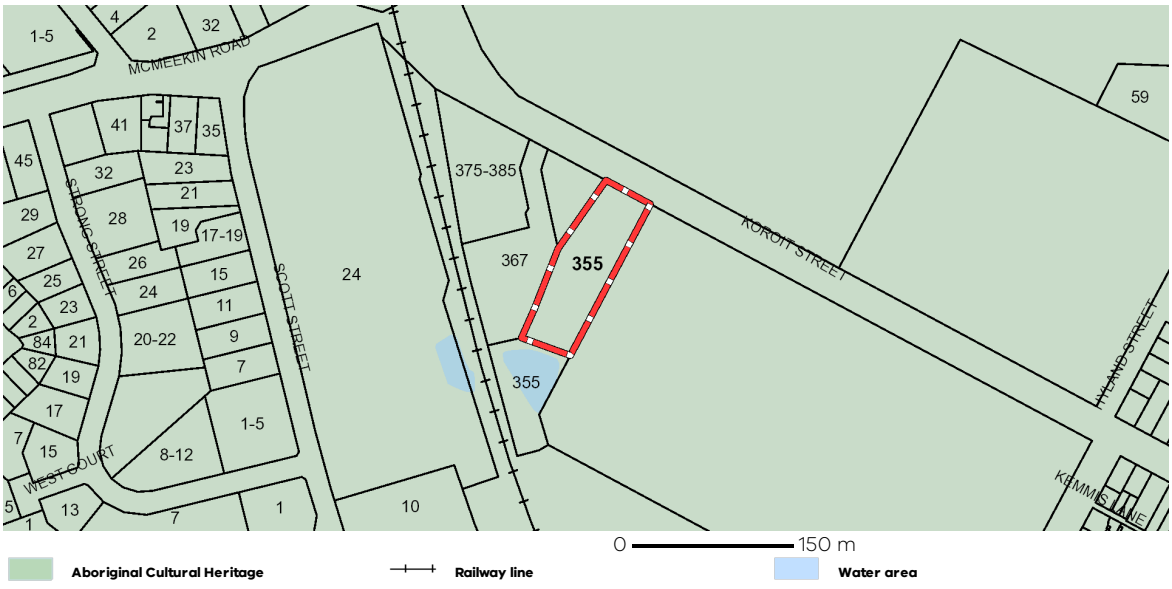
Under the Aboriginal Heritage Regulations 2018, 'areas of cultural heritage sensitivity' are one part of a two part trigger which require a 'cultural heritage management plan' be prepared where a listed 'high impact activity' is proposed.

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

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

For further information about whether a Cultural Heritage Management Plan is required go to
http://www.aav.nrms.net.au/aavQuestion1.aspx

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



PLANNING PROPERTY REPORT

Further Planning Information

Planning scheme data last updated on 17 March 2022.

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

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

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

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

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

PLANNING PROPERTY REPORT

Environment, Land, Water and Planning

Designated Bushfire Prone Areas

This property is not in a designated bushfire prone area.
No special bushfire construction requirements apply. Planning provisions may apply.

Designated bushfire prone areas as determined by the Minister for Planning are in effect from 8 September 2011 and amended from time to time.

The Building Regulations 2018 through application of the Building Code of Australia, apply bushfire protection standards for building works in designated bushfire prone areas.

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

Note: prior to 8 September 2011, the whole of Victoria was designated as bushfire prone area for the purposes of the building control system.

Further information about the building control system and building in bushfire prone areas can be found on the Victorian Building Authority website https://www.vba.vic.gov.au

Copies of the Building Act and Building Regulations are available from http://www.legislation.vic.gov.au

For Planning Scheme Provisions in bushfire areas visit https://www.planning.vic.gov.au

Native Vegetation

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

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

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

11.3 Attachment C – Updated action plan for Storm water and leachate Management

STORMWATER AND LEACHATE MANAGEMENT

Surface waters must be protected from pollution caused by contaminated storm water and leachate.

All the storm water from the Transfer Station Facility area is directed to a compliant constructed storm water system that allows for any gathered surface water to be directed from the site. Any accumulated leachate is collected in a compliant pit leachate is then removed from the site by pump truck for use at a composting facility.

OBJECTIVES

To ensure all stormwater and leachate runoff from operations is captured and no contaminated water ingress into surrounding water storage area, neighbouring businesses and recreational areas

ACTIONS	MEASURES (Measures undertaken to confirm the Actions and our proposed additional management measures / enhancements)
Regular monitoring to ensure the existing stormwater and leachate capture system is reliable and maintained in good order.	Since the Environmental Management Plan (EMP) was implemented in 2007, monitoring and subsequent maintenance of the stormwater and leachate capture system has been undertaken from time to time. The most recent monitoring and maintenance works undertaken at the site are outlined below.
The facility design should employ the following to prevent stormwater runoff from the site becoming contaminated with waste or leachate:	
• Divert off-site stormwater around the site.	Historically, there have been no issues with respect to the diversion of off-site stormwater around the site, however measures were implemented in early 2013 to prevent the ingress of stormwater from the site onto neighbouring land as outlined below.
• Include sufficient drainage to collect stormwater at the site.	Historically, the stormwater management system at the site has provided sufficient drainage to collect stormwater at the site when maintained in good order. Maintenance of the stormwater drainage system was most recently undertaken in early 2013 to address the requirements of the amended EPA Pollution Abatement Notice (PAN) no. 90003280 which was issued on 12 February 2013. The PAN was issued primarily to address issues with the ingress of the site stormwater onto neighbouring land and issues associated with the storage of chemicals at the site. In order to address these issues, a clay bund wall was constructed along the internal wall of the northern, eastern and southern boundaries at the site in early 2013 and a concrete bund was constructed around the site fuel storage tank. The remedial measures were approved by EPA and the PAN was revoked on 9 March 2013. Recent monitoring of the site stormwater drainage system indicates that several downpipes from the Rubbish and Recycle Drop Off shed have been damaged and require repair. These damaged pipes appear to have resulted in blockages in the stormwater drainage towards the rear of the site. Brad Dews Plumbing & Gasfitting has been engaged to undertake repair works to the site drainage system as shown on the attached plan.
• Ensure that potentially contaminated stormwater is kept separate from non-contaminated stormwater.	The site is currently compliant with this Action where potentially contaminated water generated at the site is kept separate from non-contaminated stormwater via appropriate storage of wastes and chemicals and via the collection of potentially contaminated waste water via a leachate collection pit. Continued regular monitoring will be undertaken to ensure ongoing compliance with this Action.
• Bund and roof hazardous waste (e.g. waste oil, batteries) collection areas to prevent stormwater infiltration and contain potential spills.	The site is currently compliant with this Action. Continued regular monitoring will be undertaken to ensure ongoing compliance with this Action.
• Roof areas where waste is unloaded, stored, loaded into transport vehicles or processed to prevent rainwater from carrying litter and contaminants from the waste.	The site is currently compliant with this Action. Continued regular monitoring will be undertaken to ensure ongoing compliance with this Action.
• Manage all run-off collected from the receival, storage, unloading and processing areas as leachate.	The site is currently compliant with this Action where run-off collected from the receival, storage, unloading and processing areas is managed via a leachate collection pit. Continued regular monitoring will be undertaken to ensure ongoing compliance with this Action.
• Use stormwater pre-treatment systems where feasible.	Potentially contaminated water generated at the site is kept separate from non-contaminated stormwater. On this basis, pre-treatment of stormwater is not required.
• Structures should be designed to minimise water absorption.	All current waste storage areas are concrete paved. Concrete paving of the greater site is progressively being undertaken on a staged approach. Four areas have been concrete paved since February 2015 with one new area scheduled to be paved every two to four weeks over the coming year. As part of these works, the concrete surface underlying the green waste storage area is proposed to be resurfaced.

11.4 Attachment D – Environment Policy

Environment Policy

CLEANAWAY
Making a sustainable future possible

Policy Owner: ***Head of Environment and Regulatory Compliance***
Reviewed and Approved: *16 February 2022*

1. Application

This policy applies to all employees, contractors and joint ventures engaged in activities under the operational control of Cleanaway Waste Management Ltd and its subsidiaries (**Cleanaway**).

2. Policy objectives

Our mission is to make a sustainable future possible. We see all waste as a resource and use our facilities and processes to transform it into valuable commodities for every sector, industry and community.

Our approach to Environment is aligned to the Cleanaway Way and the toolkits which are aligned to it. This includes compliance with all environmental regulations, standards, and requirements.

We are committed to achieving our mission, and to continually improve our environmental standards for the benefit of the environment, our employees, stakeholders and the community.

We believe that upholding the highest standards in environmental performance is crucial to the success and sustainability of our business.

Operating principles

Cleanaway achieves these objectives by:

- Complying with all legal requirements and standards applicable to our activities; and where adequate regulation does not exist, adopting practices that reflect our commitment to environmental compliance.
- Identifying opportunities for the prevention and reduction of pollution to air, water and soil, in accordance with our Environment Absolutes, including climate-modifying emissions, and implementing energy efficiency programs throughout the business.
- Developing ways to reduce, recover, recycle, or re-use waste in all aspects of our business, including considering and integrating environmental factors in our decision-making process.
- Providing resources to implement and maintain an effective system of environmental management.
- Identifying and understanding the environmental hazards inherent to the activities we undertake and effectively assessing, controlling and managing those risks.
- Setting objectives, targets and key performance indicators which continually drive us to improve our environmental performance.
- Providing employees with training and information necessary for them to understand what the impacts of their activities are; and to enable them to work in an environmentally responsible and competent manner.
- Liaising, consulting and building relationships with our employees, regulators, local community and other key stakeholders to develop mutual respect for one another and the environment.
- Ensuring that incidents are investigated, specifically identifying the causal and contributing factors, so that remedial actions may be taken.
- Regularly undertaking audits and inspections of our operations.
- Communicating this policy to employees and interested stakeholders; and reporting on our environmental performance openly and transparently.

3. Responsibilities

All employees and contractors are required to:

- Carry out their work in accordance with Cleanaway's Environment Policy, Environment Absolutes, Standards and Procedures.
- Assess and manage the environmental hazards and risks associated with the activities they are undertaking.
- Report any incident which generates any actual or potential harm to the environment.

Reviewed and approved by the Board of Directors on 16 February 2022

Version control table

Document description	Environment Policy
Document owner	Head of Environment and Regulatory Compliance
Document approved by	Cleanaway Board of Directors
Version number	7
Last review date	18 February 2021
Approval date	16 February 2022
Next review date	February 2023

11.5 Attachment E – Noise Assessment Report

Confidential **FINAL**

telemetrix
Acoustic & Vibration Solutions

Warrnambool Transfer Station
355 Koroit Street, Warrnambool, Victoria

Environmental Noise Assessment

Prepared for:
Cleanaway Pty Ltd t/a
Statewide Recycling Services

Prepared by:
TELEMETRIX Pty Ltd

Date:
9 February 2022

Project Number:
20060201J

Disclaimer

This Report has been prepared by Telemetrix Pty Ltd on behalf of and for the exclusive use of Cleanaway Pty Ltd t/a Statewide Recycling Services ("Client") and is subject to and issued in connection with the provisions of the agreement between Telemetrix Pty Ltd and its Client.

This Report is based on a specific scope, conditions, and limitations, as agreed between Telemetrix Pty Ltd and the Client. This Report has been produced from information relating to dates and periods referred to in this document. The Report does not imply that any information is not subject to change.

The Report which follows is intended only for use by the Client as it may contain confidential and/or privileged material. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Any unauthorized review, retransmission, dissemination, or other use of, or taking any action in reliance on, this Report by persons or entities other than the Client is prohibited.

DOCUMENT CONTROL

Project Number	20060201J
Project Name	Warrnambool Transfer Station 355 Koroit Street, Warrnambool, Victoria Environmental Noise Assessment
Document Reference	20060201J_R2

Rev No.	**Author**	**Reviewer**		**Approved for Issue**		
		Name	**Signature**	**Name**	**Signature**	**Date**
0	Vlado Pavasovic	Slavica Praporski		Vlado Pavasovic		2/6/2020
1	Vlado Pavasovic	Slavica Praporski		Vlado Pavasovic		3/6/2020
2	Vlado Pavasovic	Slavica Praporski		Vlado Pavasovic		9/2/2022

CONTENTS

Table Index

GLOSSARY

dB	Units used to measure sound pressure levels on a logarithmic scale.
dB(A)	A measure of sound levels as experienced by humans, calculated using a spectral sensitivity factor (A-filter) that weights sound pressure levels by frequency to correspond to the sensitivity of the human ear. Decibel is equal to 20 times the logarithm (base 10) of the ratio of a given sound pressure to a reference sound pressure. The reference sound pressure used is 20 micropascals, which is the lowest audible sound.
Ambient noise	Ambient noise is the total of all noise within a given environment, comprising a composite of sounds from sources near and far.
L_{Aeq}	Equivalent continuous A-weighted sound pressure level of a noise energy-averaged over time. When sound levels fluctuate in time, which is often the case for occupational noise, the equivalent sound level is determined over a specific time period. In this guide, the A-weighted sound level is averaged over a period of time (T) and is designated by $L_{Aeq,T}$.
L_{A90}	The value of 'A'-weighted sound pressure level which is exceeded 90 per cent of time during a given measuring period. L_{90} sound pressure level is commonly used to represent Background noise level.

1 INTRODUCTION

Telemetrix Pty Ltd (Telemetrix) has undertaken a noise assessment for the Warrnambool transfer station located at 355 Koroit Street, Warrnambool, Victoria.

The transfer facility is seeking to amend their current planning approval from daytime operation only to 24-hour operation.

With the introduction and changes to the Environmental Protection Act on 1 July 2021, the site needs to re-establish Effective Noise Levels (ENL's) for the range of activities and comply with the new EPA regulations, outlined in the Noise Protocol.

2 SITE DESCRIPTION/PROPOSED DEVELOPMENT

The transfer station is located at 355 Koroit Street, Warrnambool, Victoria. The site is currently zoned IN1Z (Industrial 1 Zone) as shown in Figure 1 and is bounded by the following:

- Road to the north (Koroit Street)
- Industrial Zone 1 to the north
- Public Use - Transport to the south and west of the transfer station site
- Special Use Zone to the east of the transfer station site

An aerial photograph of the site is shown in Figure 2.

Figure 1 Planning map

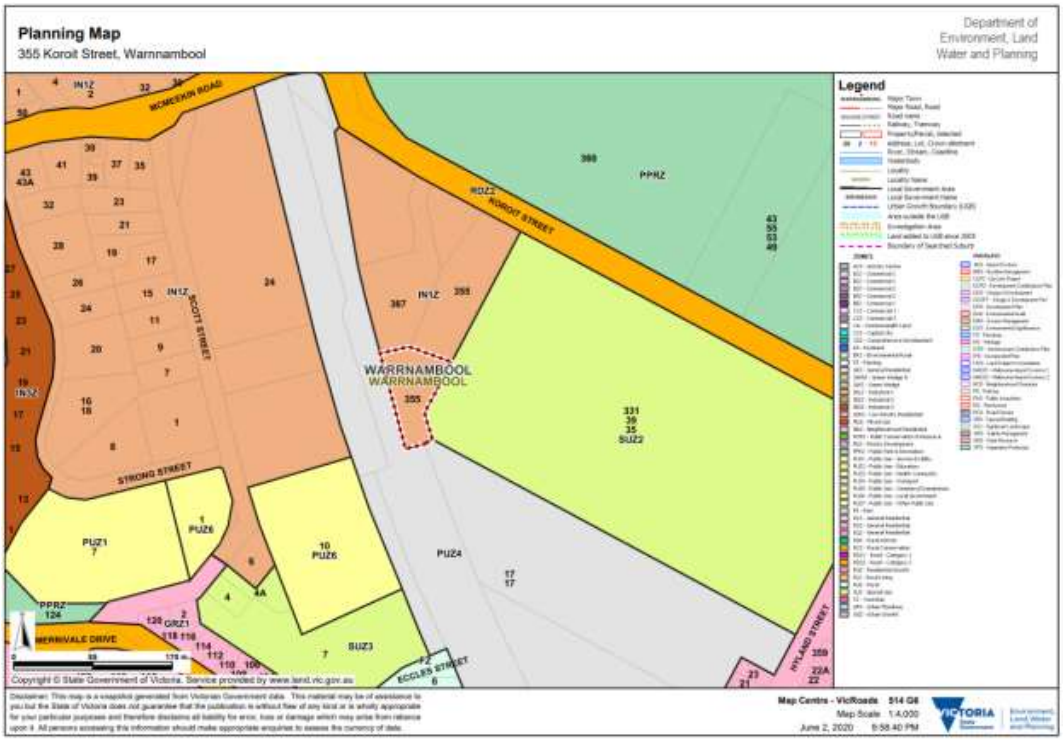


Figure 2 Site location

Transfer station site

Nearest residential receivers to the north - Aitkins Road

Nearest residential receivers to the east - Hyland Street

Nearest residential receivers to the south - Merrivale Drive

Nearest receivers are located to the north and are approximately 300 m away from the site's north boundary. The line of sight is partially blocked by the terrain. The measurements were performed at the only point of clear line of sight at the 74 Atkins Road.

Other potential sensitive receivers are to the east and south and are 470 m and 380 m away respectively.

Nearest affected residences

The affected residences nearest to the transfer station site are shown in Figure 2 and Table 1.

Table 1 Closest noise-sensitive receivers to the transfer station

Address	Location
Aitkins Road, Warrnambool	Approximately 300 m to the north of the site's boundary
Merrivale Drive, Warrnambool	Approximately 490 m to the east of the site's east boundary
Hyland Street, Warrnambool	Approximately 380 m to the south of the site's south boundary

3 NOISE LEGISLATION & GUIDELINES

The *Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues* (Noise Protocol), Publication1826.4, May 2021, is incorporated into the Environment Protection Regulations (the Regulations) without modification.

The Noise Protocol provides a procedure for the purpose of determining noise limits for new and existing commercial, industrial and trade premises and entertainment venues as defined by the Regulations. It sets the methodology for assessing the effective noise level to determine unreasonable noise under Regulations 118, 125 and 130.

The measurement procedures of this Noise Protocol are also used to determine aggravated noise under Regulations 121, 127 and 131.

3.1 Noise limits in rural areas for commercial, industrial and trade premises other than utilities and earth resources

Noise limits are determined based on the zone level and distance-adjusted level for each period using the method in clauses 19 and 20 of the Noise Protocol.

For each period, the noise limit is the greater of the distance-adjusted level and base noise level in Regulation 118(2)(b), unless a background level assessment has been conducted in accordance with clauses 21 to 23 of the Noise Protocol.

Zone levels and distance-adjusted levels

The distance-adjusted zone levels for each of the day, evening and night periods using Annex B to this Noise Protocol are outlined below.

Generating Zone ↓ / Receiving zone →	Green Wedge A GWAZ, Rural Conservation RCZ, Rural Living RLZ Group E CDZ, BUZ & UGZ (*)	Low Density Residential LDRZ Public Conservation and Resource PCRZ Public Park and Conservation PPCZ Public Use 2,5 PUZ2 & PUZ5 Urban Floodway UFZ	Farming Zone FZ Green Wedge GW General Residential Zone GRZ Neighbour Residential Zone NRZ Residential Growth Zone RGZ, Rural Activity Zone RAZ, Township Zone TZ Urban Growth Zone before an incorporated precinct structure plan UGZ Group B CDZ, BUZ & UGZ (*)	Commercial 1 Zone C1Z B1Z B2Z B3Z Commercial 3 Zone C3Z Mixed use Zone MUZ Activity Centre Zone ACZ Public Use Zone 1,3,4,6&7 PUZ1 PUZ3 PUZ4 PUZ6 & PUZ7 Road RDZ1 RDZ2 Group A CDZ, BUZ & UGZ (*)	Industrial 3 IN3Z Group C CDZ, BUZ & UGZ (*)	Commercial 2 Zone C2Z B3Z B4Z	Industrial 2 Zone IN2Z Industrial 1 Zone IN1Z Group D CDZ, BUZ, UGZ (*)
Low Density Residential LDRZ Public Conservation and Resource PCRZ Public Park and Conservation PPCZ Public Use 2,5 PUZ2 & PUZ5 Urban Floodway UFZ Group E CDZ, BUZ & UGZ (*)	Day 45 Evening 37 Night 32	Day 45 Evening 39 Night 34	Day 45 Evening 40 Night 35	Day 47 Evening 42 Night 37	Day 48 Evening 43 Night 38	Day 50 Evening 45 Night 40	Day 53 Evening 48 Day 43
Farming FZ (*) Green Wedge GWZ Green Wedge A GWAZ Public Use 2 & 5 PUZ2, PUZ5 Rural Activity RAZ Rural Conservation RCZ Rural Living RLZ Urban Growth Zone before an incorporated precinct structure plan (UGZ) Group B CDZ, BUZ & UGZ (*)	Day 45 Evening 38 Night 33	Day 45 Evening 40 Night 35	Day 46 Evening 41 Night 36	Day 48 Evening 43 Night 38	Day 50 Evening 45 Night 40	Day 52 Evening 47 Night 42	Day 54 Evening 49 Night 44
Commercial 1 C1Z B1Z B2Z B3Z Mixed Use MUZ Activity Centre Zone ACZ Public Use 1,3,3,4,6 & 7 PUZ1 PUZ3 PUZ4 PUZ6 PUZ7 Group A CDZ, BUZ & UGZ (*)	Day 45 Evening 40 Night 35	Day 47 Evening 42 Night 37	Day 48 Evening 43 Night 38	Day 50 Evening 45 Night 40	Day 52 Evening 47 Night 42	Day 53 Evening 48 Night 43	Day 55 Evening 50 Night 45
Industrial 3 IN3Z Group C CDZ, BUZ & UGZ (*)	Day 46 Evening 41 Night 36	Day 49 Evening 44 Night 39	Day 50 Evening 45 Night 40	Day 52 Evening 47 Night 42	Day 53 Evening 48 Night 43	Day 55 Evening 50 Night 45	Day 56 Evening 51 Night 46
Commercial 2 C2Z, B3Z, B4Z Commercial 3 C3Z	Day 46 Evening 43 Day 38	Day 50 Evening 45 Night 40	Day 52 Evening 47 Night 42	Day 54 Evening 49 Night 44	Day 55 Evening 50 Night 45	Day 58 Evening 51 Night 46	Day 57 Evening 52 Night 47
Industrial 1, 2 IN1Z IN2Z Group D CDZ, BUZ & UGZ (*)	Day 50 Evening 45 Night 40	Day 52 Evening 47 Night 42	Day 53 Evening 48 Night 43	Day 55 Evening 50 Night 45	Day 56 Evening 51 Night 46	Day 57 Evening 52 Night 47	Day 58 Evening 53 Night 48

The applicable noise limits are:

- Day – 50 dB(A)
- Evening – 45 dB(A)
- Night – 40 dB(A)

If the noise sensitive area is located within a background relevant area, an assessment of the background level must be made in accordance with clauses 39 to 55 of the Noise Protocol, unless clause 23 applies.

Noise limits based on background level assessment

Unless clauses 25 to 28 of the Noise Protocol applies, where a background level assessment has been conducted in accordance with clauses 21 and 22:

a) for the day period, the noise limit is the greater of:

   i. the distance-adjusted level or base noise level; or

   ii. the day background level plus 8 dB.

b) for the evening period, the noise limit is the greater of:

   i. the distance-adjusted level or base noise level; or

   ii. the evening background level plus 5 dB.

c) for the night period,

i. the noise limit is the greater of:

- the distance-adjusted level or base noise level; or
- the night background level plus 5 dB.

ii. must not be greater than 55 dB(A)

Effective noise levels

The effective noise level is determined, for noise from commercial, industrial and trade premises, as a 30-minute equivalent sound pressure level LAeq,30min adjusted, where relevant for:

a) duration (A_{dur})

b) noise character

iii. tonality (Atone)

iv. impulse (A_{imp})

v. intermittency (A_{int})

c) measurement position i. reflection (A_{refl}) ii. indoor (A_{ind})

The effective noise level is calculated using Equation 1:

$$ENL = L_{Aeq} + A_{dur} + A_{tone} + A_{imp} + A_{int} + A_{refl} + A_{ind}$$

3.2 Assessment of the background level to set noise limits for the urban area method or the rural area method

Measurements of the background levels

The background noise levels were measured in accordance with the Noise Protocol and the Australian Standard AS 1055.1-1977 “Acoustics—Description and measurement of environmental noise Part 1: General procedures” (AS 1055.1).

The background levels were measured during dry conditions with wind conditions satisfying the Noise Protocol.

To determine the background level, the L_{A90} was measured continuously over each hour of the day, evening, and night period that the landfill normally operates.

Where the hourly L_{A90} levels ($L_{A90,1\ hour}$) have been measured, the background level was determined for each period as the arithmetic average of the $L_{A90,1\ hour}$ for each hour of that period for which the landfill normally operates.

The Regulations define the various operating periods, in relation to noise emitted from commercial, industrial and trade premises as set out below:

- Day Period – Monday to Saturday (except public holidays), from 7 am to 6 pm
- Evening Period:
  - Monday to Saturday, from 6 pm to 10 pm
  - Sunday and public holidays, from 7 am to 10 pm
- Night Period – 10 pm to 7 am (Monday to Sunday)

Measurement equipment

Details of the acoustic equipment used to conduct the measurements are provided in Table 3.

Table 2 Equipment details

Type of Instrument	Manufacturer	Model	Serial Number
Type 1 Sound level analyser	Larson Davies	831	02850
Calibrator	Casella	Cel-120	49111184
Type 1 Sound level analyser	Svantek	958	45592

The measuring equipment was calibrated before and after the measurements using a Casella Cel -120 Sound Level Calibrator. No significant drift was recorded.

Measured background noise levels

Long term noise logging was performed from 20/3/2020 to 23/3/2020. Logger was deployed on the northern site's boundary, as access to residential properties on Aitkins Road was not available for the logger deployment. The data was analysed for adverse weather conditions as per relevant standard.

The local noise environment is dominated by traffic noise from Koroit Street.

The measured background noise levels captured during the monitoring period are shown in Table 3.

Table 3 Background noise levels

Period	Day of week	Time period	Measured background noise level, L_{A90}
Daytime	Friday	7 am to 6 pm	51
	Saturday	7 am to 1 pm	47
Evening	Friday	6 pm to 10 pm	46
	Saturday	1 pm to 10 pm	42
	Sunday	7 am to 10 pm	45
Night	Friday	10 pm to 7 am	43
	Saturday	10 pm to 7 am	44
	Sunday	10 pm to 7 am	41

Applicable Project Noise Criteria

The time periods and derived noise limits for the nearest receivers are detailed in Table 4.

Table 4 Operating time periods and limit derivation for nearby receivers, dB(A)

Operating Period	Day of week	Time period	Noise limit, L_{eff}
Daytime	Monday-Saturday (except public holidays)	7 am to 6 pm	55
Evening	Monday to Saturday	6 pm to 10 pm	47
	Sunday and Public Holidays	7 am to 6 pm	47
Night	Monday to Sunday	10 pm to 7 am	46

The above criteria will apply to mechanical plant associated with the transfer station as well as noise from the site excavator and truck movements whilst on the site.

It is noted that the proposed extension of hours are within the Night Period as defined by the EPA.

4 NOISE IMPACT ASSESSMENT - IMPACT OF TRANSFER STATION ON SURROUNDING RECEIVERS

Short term logging and the attended measurements were performed on 17/05/2020.

Weather was fine during the measurement time with light winds < 10m/s, and dry roads.

Attended measurements were performed with two scenarios considered to create most noise on site during the operation:

- The site excavator operation, and
- Heavy truck entering, exiting, and operating on site.

The locations of the noise measurements are shown in Figure 3.

Figure 3 Measurement locations

Transfer station site

Noise source on the site - Excavator

Transfer station boundary - Svantek logger (long term) location

Excavator measurement - 20 m from site boundary

Excavator measurement - 60 m from the site boundary

Excavator measurement - 170 m from site boundary

Measurement at the nearest receiver - Residential site boundary, 74 Aitkins Road

Measured noise levels

It was difficult to isolate and measure noise contribution from the transfer station operation at the nearest residential receivers due to background noise that was dominated by the traffic on Koroit Street and Aitkins Road. During the attended measurements effort was made to isolate the traffic noise intrusions. The results of these measurements are summarized in Table 5.

Table 5 Measured noise levels

Measurement location	Measured Activity, L_{eff}, dB(A) Level adjusted for duration	Comments
74 Aitkins Road Nearest receiver boundary	40 - 41	Measurement of the truck operating on site and then exiting /entering the site onto Koroit Street. Excavator not operating. Truck visible but not audible over local and distant traffic background levels.
	39 - 47	Measurement of the excavator operation. Excavator not audible over the background levels.
Approximately 170 m from site's northern boundary	44 - 45	Measurement of the truck operating on site and then exiting/entering the site onto Koroit Street. Excavator not operating. Truck is audible only when entering/exiting the site. Not audible when operating on the site.
	42 - 44	Measurement of the excavator operation.
Approximately 60 m from site's northern boundary	53 - 57	Measurement of the truck operating on site and then exiting/entering the site onto Koroit Street. Excavator not operating. Truck is audible only when entering/exiting the site. Not audible when operating on the site.
	48 - 49	Measurement of the excavator operation.

Measurement location	Measured Activity, L_{eff}, dB(A) Level adjusted for duration	Comments
Approximately 20 m from site's northern boundary	62 - 68	Measurement of the truck operating on site and then exiting/entering the site onto Koroit Street. Excavator not operating. Truck is audible only when entering/exiting the site. Not audible when operating on the site.
	50 - 55	Measurement of the excavator operation.
Transfer station site Truck measurements	67 - 92	Measurement of the truck operating on site, measurement approximately 1 - 2 m from the truck. Excavator not operating.
Transfer station site Excavator measurements	75 - 78	Measurement of the excavator operation, at 1 m distance.
Transfer station site Excavator measurements	75	Measurement of the excavator operation at 5 m distance. Excavator in normal operation.
Transfer station site Excavator measurements	68 - 70	Measurement of the excavator engine at 10 m distance. Excavator in normal operation, revving the engine.
Transfer station site Excavator measurements	61	Measurement of the excavator engine at 30 m distance. Excavator in normal operation, revving the engine.
  		

Based on site observations and measurements, it was observed that the noise contribution from the transfer station operation could not be quantifiable over existing ambient noise levels at nearest residential locations on Atkins Road.

Therefore, in addition to measured results, site noise predictions were made using on-site close-up measurements of the equipment in operation. The adopted calculation method for the operations accounts for measured sound power levels (at source), distance from sources to receivers, air absorption and any shielding effects from terrain.

Based on the measured and predicted noise levels, the operation of the transfer station will comply with the night-time criteria if it is to operate on 24-hour.

5 CONCLUSION

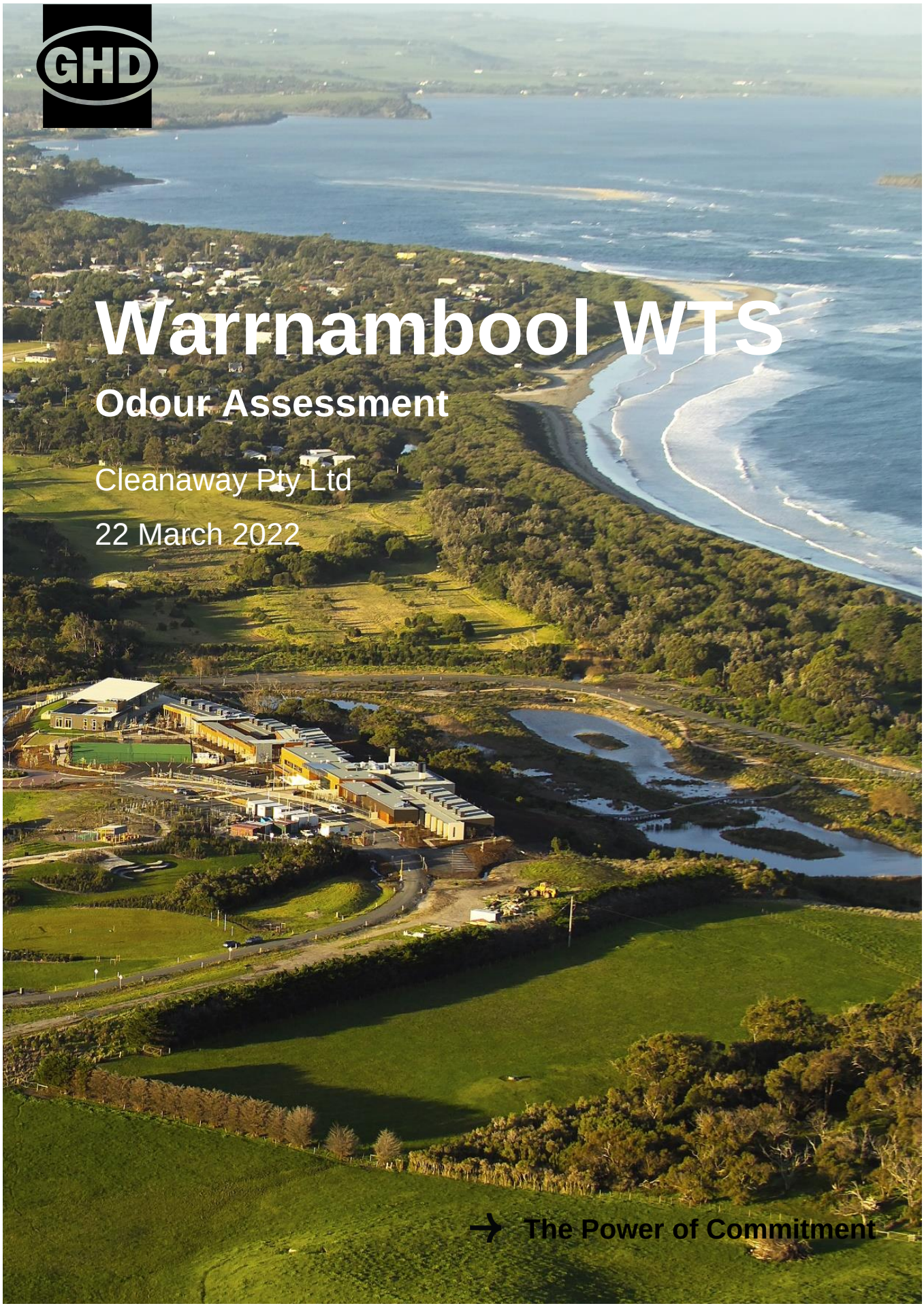
Telemetrix Pty Ltd (Telemetrix) has undertaken a noise assessment for the Warrnambool transfer station located at 355 Koroit Street, Warrnambool, Victoria.

The transfer facility is seeking to amend their current planning approval from daytime operation only to 24-hour operation.

With the introduction and changes to the Environmental Protection Act on 1 July 2021, the site needs to comply with the new EPA regulations, outlined in the Noise Protocol.

Based on the measured and predicted noise levels, The noise emission levels for the proposed 24-hour operation will meet the required noise criteria and will not increase the ambient levels in the area. Therefore, the noise is not considered excessive, unreasonable or a nuisance when using the Public Health and Wellbeing Act or Environment Protection Act.

11.6 Attachment F – Odour Assessment Report



Warrnambool WTS

Odour Assessment

Cleanaway Pty Ltd

22 March 2022

The Power of Commitment

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[Status code]							
[Status code]							

→ The Power of Commitment

Contents

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Appendices

1. Introduction

GHD has been engaged by Cleanaway Pty Ltd (Cleanaway) to update GHD's Odour Assessment Report undertaken for the waste transfer station (WTS) located at 355 Koroit Street, Warrnambool (herein after 'the site') in 2020 (GHD 2020[1]).

GHD understands that Cleanaway are seeking to amend their current planning permit PP2000-0135.03, to include additional operating hours beyond those currently permitted. GHD understands that Cleanaway are seeking a 24-hour operation, for receiving waste (greenwaste and putrescible) and holding/storing putrescible waste. This amendment would allow the WTS to receive additional greenwaste and putrescible waste from Warrnambool City Council (WCC).

GHD understands an odour assessment will be required to support the planning permit amendment application. This report updates GHD 2020 to assess the impact of odour on the surrounding land if operations at the site were to occur under 24-hour operations. In addition, this report provides advice regarding odour mitigation measures including a review of the odour controls outlined within the Cleanaway Environmental Management Plan (EMP[2]).

This updated report also considers the legislative changes since GHD 2020 associated with the Environment Protection Act 2017 (as amended by the Environment Protection Amendment Act 2018) (the new EP Act), which came into effect from 1 July 2021. Draft EPA Publication 1883 *Guidance for Assessing Odour* has also been considered.

1.1 Purpose of this report

The purpose of this report is to assess the potential risk of odour impacts on the surrounding land should the site's operating hours increase to 24-hour operations.

The findings, conclusions and recommendations of this assessment should be read in conjunction with the limitations presented in section 1.3.

1.2 Scope of works

The scope of works for this report included the following:

- Initial review of project information including the site layout, operational sequence and Cleanaway's Environmental Management Plan (EMP).
- Provide an overview of relevant legislation and guidelines.
- Develop the default separation distance utilising EPA guidelines.
- Consider whether the default separation distance can be de-rated based on a reduced throughput compared to the larger examples of waste transfer stations.
- Undertake an assessment of local meteorology from the Bureau of Meteorology (BoM) station located at Warrnambool Airport.
- Characterise the meteorology at the site by means of wind roses and stability roses. This enables directions of good and poor dispersion to be developed.
- Develop a directional buffer based on local meteorology.
- Undertake a risk assessment of potential odour generation utilising Draft EPA Publication 1883.
- Conduct an odour survey to establish existing odour impact at the nearest sensitive receptors during representative operations.
- Review proposed odour controls and provide recommendations for further odour mitigation measures, if required.

[1] GHD Report for Cleanaway Pty Ltd, Warrnambool WTS – Odour Assessment, Odour Assessment Report, June 2020
[2] Cleanaway Environmental Management Plan for Warrnambool Transfer station, May 2021

1.3 Limitations

This report has been prepared by GHD for Cleanaway Pty Ltd and may only be used and relied on by Cleanaway Pty Ltd for the purpose agreed between GHD and Cleanaway Pty Ltd as set out in section 1.1 of this report.

GHD otherwise disclaims responsibility to any person other than Cleanaway Pty Ltd arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer section(s) 1.4 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by Cleanaway Pty Ltd and others who provided information to GHD (including Government authorities)], which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

The opinions, conclusions and any recommendations in this report are based on information obtained from, and testing undertaken at or in connection with, specific sample points. Site conditions at other parts of the site may be different from the site conditions found at the specific sample points.

Investigations undertaken in respect of this report are constrained by the particular site conditions, such as the location of buildings, services, vegetation, and site boundaries. As a result, not all relevant site features and conditions may have been identified in this report.

Site conditions (including the presence of hazardous substances and/or site contamination or odour) may change after the date of this Report. GHD does not accept responsibility arising from, or in connection with, any change to the site conditions. GHD is also not responsible for updating this report if the site conditions change.

1.4 Assumptions

The following assumptions were utilised in the preparation of this report:

– Odour is the primary emission of concern from the WTS
– Odour generated from the WTS is linearly proportional to the throughput of the facility
– All information provided is correct and representative of the proposed operations at the site
– Data obtained from the Warrnambool Airport Bureau of Meteorology Automatic Weather Station (AWS) is deemed to be representative of the meteorology at the subject site
– The site activity boundary used for dispersion modelling is based on the site process areas provided by the client, which GHD assume are correct
– The site conditions of the existing site observed by GHD on 7 June 2020, during the site visit are representative of worst case operations
– Given the odour controls outlined in section 8.4 to minimise emissions from putrescible waste, GHD assumes the greenwaste to be the main source of odour and therefore the odour surveys to be reflective of 24 hour operations

2. Site overview

2.1 Location and land use

The site is located at 355 Koroit Street, Warrnambool, Victoria and situated on the edge of an industrial precinct as shown in Figure 2-1. Adjacent to the east and north of the facility are recreational areas, namely Victoria Park and Wannon Park. The southern perimeter of the site is adjacent to a single track railway line.

2.2 Land zoning

The site is located in an Industrial 1 Zone, which is land designated for "manufacturing industry, the storage and distribution of goods and associated land uses in a manner which does not affect the safety and amenity of local communities"[3]. Industrial facilities to the northwest are a combination of Industrial 1 and Industrial 3 zones. Nearby parks and recreation reserves are zoned for Public Use, Public Park and Recreation and Special Use. General Residential zoned land is scattered throughout the surrounding area.

2.3 Surrounding Industries

A number of industries located immediately west of the site were identified to have the potential to emit air emissions (odour or dust). The industries included:

– Asphalt plant (operated by Fulton Hogan)
– Concrete batching plants (operated by Rapidmix Concrete and Hanson)
– Abattoir (operated by The Midfield Group)

The abattoir and the asphalt plant are both likely to discharge odours that could be noticed beyond their site boundaries. These two sites also currently operate 24 hours. The likely odour from the two sites are very different and not likely to be confused with each other. Further, the character of odour discharged from the transfer station is also very different to that from an abattoir and asphalt plant, particularly to those familiar with both types of activities.

It is also noted that all the facilities are required to comply with their individual planning permit requirements with regards to odour management such as the general EPA requirements of '*Offensive odours must not be discharged beyond the boundaries of the premises'*.

The two concrete batching plants are not expected to generate odour emissions, dust is the primary emission of concern.

2.4 Sensitive receptors

The definition of a sensitive receptor or sensitive land use is defined by the EPA[4] as:

'any land uses which require a particular focus on protecting the beneficial uses of the air environment relating to human health and well-being, local amenity and aesthetic enjoyment, for example residential premises, child care centres, pre-schools, primary schools, education centres or informal outdoor recreation sites'.

The nearest sensitive receptors to the site are the residential areas located approximately 280 m north, 300 m south, 430 m west and 470 m east of the site boundary, as shown in Figure 2-1. Other receptors for consideration are the public recreation spaces Wannon Park and Victoria Park.

[3] Department of Environment, Land, Water and Planning (DELWP), 2019. Victorian Planning Provisions
[4] EPAV 2013 "Recommended separation distances for industrial residual air emissions" Publication. 1518, March 2013

Legend

Site boundary

Sensitive receptors

Paper Size ISO A4

0 0.075 0.15 km

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 55

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GHD

Cleanaway Pty Ltd

Warrnabool WTS Odour Assessment

Site location

Project No. 12575306
Revision No. -
Date. 09/03/2022

FIGURE 2-1

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Print Date: 09/03/2022

Data Source: Google Earth Imagery 2022.
Created By: ylim

2.5 Site operations

The site processes a range of materials and currently accepts the following waste types:

- General waste including putrescible waste
- Mattresses
- Furniture
- Tyres (all sizes)
- Oil
- Polystyrene
- Glass
- Cardboard & paper
- E-waste (TV's, computers and monitors)
- Fluro Lights
- Clean fill (any combination of soil, sand, bricks, concrete, tiles and rocks)
- Greenwaste
- Timber
- Plaster

The site services between 10 to 20 heavy vehicles (waste trucks) per day, which include Cleanaway trucks, municipal waste trucks from local shires and/or commercial waste trucks from other companies. Public customers utilise the site intermittently. All vehicles enter and exit the site through the northern entrance and via the weighbridge located north of the WTS main shed.

The site currently operates within the following operational hours:

- Monday – Friday: 8:30 am to 5:00 pm
- Saturday: 9:00 am to 4:00 pm
- Sunday: 10:00 am to 4:00 pm

The site layout is presented in Figure 2-2 and consists of the following features:

- Staff carpark at the north of the site
- Weighbridge at the site entrance
- Greenwaste stockpile area at the north of the site
- WTS Main Shed in the site centre
- Workshop in the site centre
- Heavy vehicle parking area at the west and at the rear of the site
- Waste unloading area on the northern side of the WTS Main Shed

A greenwaste stockpile area is located towards the north of the site. Fresh greenwaste is unloaded on the eastern side of the stockpile and is then mixed with older material towards the centre of the stockpile. The greenwaste stockpile drains to the south. Greenwaste is stored at the site temporarily before it is transferred to a local composting company.

When other waste types are brought into the site including putrescible waste, they are unloaded at the waste unloading area. The waste is then transferred into bins located inside the WTS main shed. The waste is then loaded onto heavy vehicles and removed from the site. Mobile equipment including a front end loader and excavator with a grab mechanism are located within the workshop.

Legend

Site boundary Site features

Paper Size ISO A4
0 0.01 0.02 km
Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 55

N

GHD

Cleanaway Pty Ltd
Warrnabool WTS Odour Assessment

Site layout

Project No. 12575306
Revision No. -
Date. 09/03/2022

FIGURE 2-2

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Print Date: 09/03/2022
Data Source: Google Earth Imagery 2022.
Created By: ylim

2.5.1 Future operations

Cleanaway is currently applying to amend their current planning permit PP2000-0135.03, to allow the WTS to receive and store waste 24 hours a day. This amendment would allow the WTS to receive additional greenwaste and putrescible waste from WCC.

Table 2-1 lists the total volume of general and greenwaste received at the site in 2021, as well as the anticipated total waste for 2022 (with and without 24 hour operations)[5].an additional 250 tonnes of general waste is anticipated with 24 hour operations, while greenwaste is expected to increase by 1,000 tonnes with 24 hour operations.

Table 2-1 Waste volumes received at the WTS

Waste type	Total mass received FY2021 (tpa)	Total mass anticipated for 2022 without 24-hr operations (tpa)	Total mass anticipated for 2022 with 24-hr operations (tpa)
General	9,750	9,750	10,000
Green	4,400	9,000	10,000
Total	**14,150**	**18,750**	**20,000**

2.6 Potential odour sources

The main odour sources from the site are likely to be the receival and storage of greenwaste and putrescible waste due to its high composition of organic waste such as food waste. The handling of such waste is likely to generate odour which will build up as waste is stored over the day. The odour controls implemented at the site are discussed in section 8.4.

2.7 Site visit

GHD conducted a site visit of the site on 7 June 2020. Table 2-2 outlines the observations with regards to odour that were made during the site visit. The only odour detected during the visit was attributed to the greenwaste stockpile from the site. Photos of the site visit are provided in Appendix A.

Table 2-2 GHD site visit observations

Location in the WTS	GHD observation
Greenwaste stockpile	The greenwaste stockpile was approximately 3 m tall, 5 m wide and 10 m long and contained by large concrete blocks. Fresh greenwaste is received to the east of the stockpile. Fresh greenwaste (trees, leafy) odour was detected in this area. The fresh greenwaste is then mixed with older material throughout the rest of the stockpile. When standing to the north of the stockpile, greenwaste odour was detected. The greenwaste stockpile drains to the south. When standing in this area GHD noted a secondary stockpile that consisted of soil and old building material (bricks). A mild rubbish odour was detected in this area. The odour from the greenwaste stockpile was unable to be detected at any other areas in the WTS.
Bin/heavy vehicle laydown	No odour detected
Workshop	No odour detected
WTS main shed	GHD observed bins filled with waste (boxes, pallets, bedframes, chairs), awaiting to be collected. No odour was detected in this area.
Waste unloading area	GHD observed waste (similar contents to that in the main shed) which had been unloaded from drop offs. No odour was detected in this area.
Weighbridge	No odour detected
Office building	No odour detected
Staff carpark	No odour detected

[5] Email from Ramya Gowda of Cleanaway dated 3 March 2022

3. Relevant legislation and guidelines

3.1 Environment Protection Act 2018

EPA Victoria released a new legal framework on 1 July 2021, with the intention for this framework to drive environmental improvements in industrial operations. The cornerstone of the Environment Protection Amendment Act 2018 (EPA Act) is the general environmental duty (GED), which requires Victorians to understand and minimise their risks of harm to human health and the environment, from pollution and waste. EPA will work with industry to help them understand how to fulfil their obligations, by providing guidance, advice and other support.

Complying with the GED is about taking reasonable proactive steps and employing good environmental work practices. Compliance with the GED can be through following responsibilities under OHS laws, meeting industry standards, adopting industry better management practices, and following other relevant legislation related to the environment. In effect, the GED makes it clear that it is the individual businesses' responsibility to reduce risk to the environment and to protect it.

3.1.1 Odour

Odour is a key environmental issue set out in the Act. It is included as a key definition for "environment": "*the physical factors of the surroundings of human beings including … odours*".

Odour is also clearly defined as a form of *"pollution" – "any emission, discharge, deposit, disturbance or escape of – a solid, liquid or gas, or combination of a solid, liquid or gas, including but not limited to smoke, dust, fumes or odour".*

Offensive odour constitutes a harm in accordance with the Act. The Environment Protection Act 2017, s.4(1)(a) & (b) define harm as

- *"an adverse effect on the amenity of a place or premises that unreasonably interferes with or is likely to unreasonably interfere with enjoyment of the place or premises; or*
- *"a change to the condition of the environment to make it offensive to the senses of human beings".*

Odour is also included in the environment reference standard (ERS) under section 93 of the Act. The ERS has been created for assessing and reporting on environmental conditions in Victoria. The ERS for odour is qualitative in nature. The ERS objective is *"an air environment that is free from offensive odours from commercial, industrial, trade and domestic activities".*

Under the Act, the risk of harm from odour that is offensive to the senses of human beings must be reduced as far as reasonably practicable, with the overall objective of an air environment that is free from offensive odours.

3.2 Threshold distances – Victoria Planning Provisions

The purpose of Clause 53.10 is to define those types of industries and warehouses which if not appropriately designed and located may cause offence or unacceptable risk to the neighbourhood. If the industry is specified in the Table to Clause 53.10, then the corresponding threshold distance to the nearest Residential Zone, Business 5 Zone, Capital City Zone or Docklands Zone must be met, otherwise a planning permit must be sought.

Clause 53.10 is intended for proposed facilities and is to be implemented during the planning phase. Given the site is currently in operation, Clause 53.10 does not apply to this assessment and GHD recommends the use of EPA Publication 1518 as detailed below.

3.3 Separation distances - EPA Publication 1518

The EPA Victoria *Recommended separation distances for industrial residual air emissions*, 2013, Publication 1518 (EPA buffer guideline) provides advice on recommended separation distances between industrial land uses that emit odour or dust, and sensitive land uses.

The purposes of the guideline can be summarised as:

– Provide clear direction on which land uses require separation
– Inform and support strategic land use planning decisions and the consideration of planning permit applications
– Prevent new sensitive land uses from impacting on existing industrial land uses
– Prevent new or expanded industrial land uses from impacting on existing sensitive land uses
– Identify compatible land uses that can be established within a separation distance area

In the case of an existing industrial use, EPA recommends buffer distances should be considered when preparing a planning scheme, planning scheme amendment, or planning permit application. Therefore, this is the relevant guideline for this assessment.

The buffers are to be scribed as per Publication 1518 Method 1 (Urban method). This method requires that the separation distance be measured from the activity boundary of the industry to the property boundary of the sensitive land use, i.e. the activity boundary of the industry is a convex polygon containing the activities of the industry.

3.3.1.1 Agent of change principle

The EPA buffer guideline (Section 9) discusses the agent of change principle and identifies six criteria to consider in Table 4 of the guideline (reproduced in Figure 3-1) that allow for a site-specific variation to the default buffer distances.

Criteria	Explanation
Transitioning of the industry	Existing industry has formally indicated that it will transition out of an area and over a specified timeframe.
Plant equipment and operation	The industrial plant and equipment have an exceptionally high standard of emission control technology.
Environmental risk assessment	An environmental risk assessment of IRAEs has been completed that demonstrates a variation is justified.
Size of the plant	The plant is significantly smaller or larger than comparable industries.
Topography or meteorology	There are exceptional topographic or meteorological characteristics which will affect dispersion of IRAEs.
Likelihood of IRAEs	Particular IRAEs are either highly likely or highly unlikely to occur.

Figure 3-1 Table 4 from EPA Publication 1518; agent of change criteria

GHD has utilised the following criteria from the above table within this assessment to assess the likely risk of odour emission impacts from the site:

Meteorology

When site-representative meteorology is available, the directions of good and poor dispersion can be assessed (in the form of a 'directional buffer') to determine the directions associated with increased and decreased risk of emission impacts from the site (section 6).

Size of the plant

If the size of the transfer station is significantly smaller than comparable transfer stations then the separation distance can be varied (section 5).

3.4 Draft EPA Publication 1883: Guidance for Assessing Odour

Publication 1883 supports industries to achieve the General Environmental Duty under the EPA Act, specifically in relation to odour. The publication provides a framework for three levels of risk assessment, according to the odour impact potential of an industry or site. The publication seeks to provide:

– *Guidance on methods for assessing the impacts of odour pollution on human health and wellbeing, including site specific risk assessment methods, and*
– *Recommendations on what to include in assessment reports.*

An assessment may include the following:

– Source/Pathway/Receptor approach (section 7)
– Relative dispersion modelling (section 8)
– Comparison with similar facilities/ best practice (section 8)
– Odour surveillance (section 8)
– Review of complaint history (section 8)

4. EPA Separation distance

The EPA buffer guideline includes a default buffer distance of 250 m for a ‘transfer station’, which includes activities such as “collecting, consolidating, temporarily storing, sorting or recovering refuse or used materials before transfer for disposal or use elsewhere” (EPA Victoria, 2013, p. 11).

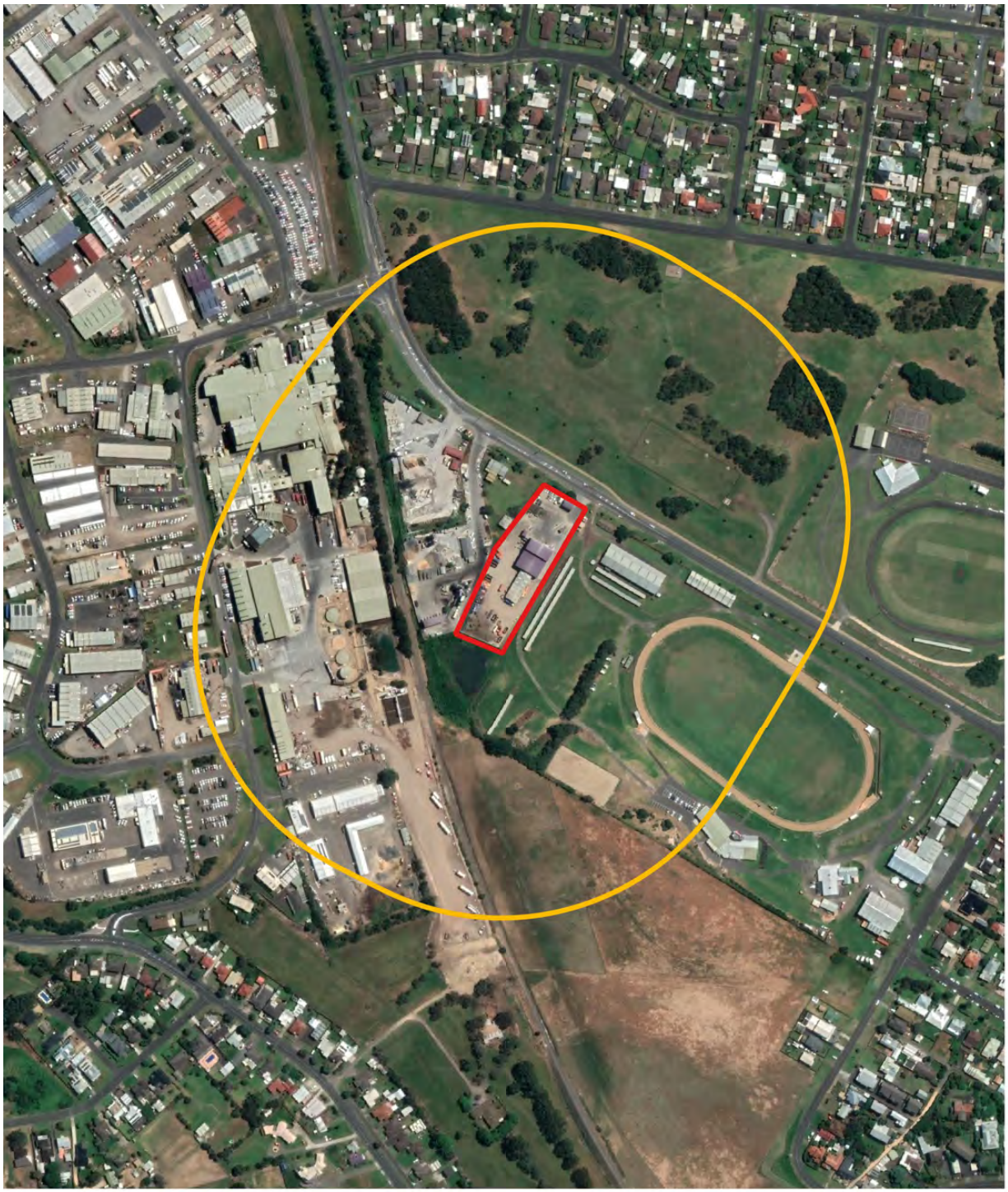
In the Sustainability Victoria publication, the Guide to Better Practice at Resource Recovery Centres (SV Guide), it is stated that an appropriate buffer distance should be kept between the site and residential areas with reference to EPA’s Publication 1518. Therefore, GHD has utilised the 250 m buffer distance as the basis for this assessment.

GHD has plotted the default buffer distance of 250 m from the site boundary, as opposed to specific envelope of sources. This allows for the movement of waste vehicles throughout the site to be included within the boundary. From the site layout in Figure 2-2, it can be seen that 15 m into the north of the site includes a staff car park and office building, and no waste collection areas or facilities. It should therefore be noted that the extension of the buffer to the north of the site is conservative.

The 250 m default buffer distance is plotted in Figure 4-1. From the figure it can be seen that the buffer distance does not extend to any residential areas. The buffer distance is located approximately 10 m from the residential zone to the north and approximately 20 m from of the residential zone to the south. The buffer does not extend to the residential zone to the east of the site.

Summary

The results from applying the conservative default buffer from the site boundary indicates that odour emissions in the event of an upset event are not expected to impact any nearby residents.



Legend

Site boundary

250m buffer

Paper Size ISO A4

0 0.075 0.15 km

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 55

N

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Cleanaway Pty Ltd

Warrnabool WTS Odour Assessment

Default buffer

Project No. 12575306
Revision No. -
Date. 09/03/2022

FIGURE 4-1

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Print Date: 09/03/2022

Data Source: Google Earth Imagery 2022.
Created By: ylim

5. De-rated separation distance

GHD has developed a method to derate separation distances to account for the reduced scale of operations compared to the threshold throughput used to define each separation distance – a similar method is used in the current EPA guideline to determine separation distances for wastewater treatment plants as a function of equivalent population.

The aim of derating a separation distance is to provide an equivalent degree of protection in the event of a process upset/malfunction. Significantly smaller operations (compared to a larger example) would likely generate correspondingly smaller odour/dust emissions during an upset and also have a reduced risk of an upset occurring. Therefore, the derated separation distance while providing a smaller separation distance would still deliver the same degree of protection from adverse amenity.

5.1 Transfer station throughput

In the SV Guide, transfer stations are categorised into three levels depending on annual throughput. The rates as tonnes per annum (tpa) are presented in Table 5-1.

Table 5-1 Classification of WTS on throughput

Class	Throughput range, tpa
1	0 – 1000
2	1001 – 30,000
3	> 30,000

Table 5-2 outlines the annual throughput for a number of transfer stations within Victoria, including the Cleanaway Warrnambool WTS site. As stated in section 2.5, the site is anticipated to receive 20,000 tpa of waste. This places the facility within the second classification, between 1,001 to 30,000 tpa. Hence, given that the 250 m buffer for transfer stations is sized to provide amenity protection for Class 3 transfer stations, there is scope to allow for a reduction in buffer distance. A graded scale for buffer distance proportional to throughput is common practice (e.g. Victorian Broiler Code, EPA Composting Guidelines) though has not yet been incorporated into the SV Guide.

Table 5-2 Classification of WTS throughout Victoria

WTS	Classification	Throughput tonnes per annum (tpa)
Corangamite (Naroghid)	2	1,200
Horsham (Kenny Rd)	2	1,400
Baw Baw (Lardner)	2	1,800
Wonthaggi	2	5,000
Zaks Bin Hire (Coolaroo)	2	6,240
Cleanaway Warrnambool WTS	2	20,000
Morwell	2	20,000
Wodonga	2	20,000
Banyule (Bellfield)	2	20,000
Hume (Bolinda Road, Campbellfield)	2	23,000
Portland	2	27,000
Stonnington (Malvern)	2	28,000
Whitehorse (Vermont South)	3	34,000
Wyndham RDF (Werribee)	3	60,000

WTS	Classification	Throughput tonnes per annum (tpa)
Boroondara (Camberwell)	3	60,000
Melbourne (Citywide, West Melbourne)	3	400,000
Cleanaway South East Melbourne	3	400,000

5.2 Development of de-rated separation distance

As shown above, the size of transfer stations in Victoria can range from large metropolitan facilities with throughputs in excess of 100,000 tpa, down to much smaller rural facilities with throughputs as low as 1,200 tpa.

In this case, the site (including proposed 24 hour operations) is a small example of a transfer station and the 250 m buffer can be reasonably and conservatively derated in comparison to the larger (but not largest) examples in Metropolitan Melbourne at 60,000 tpa.

From Table 5-2 a large transfer station can be considered to be above 60,000 tpa, and a very large WTS would be even higher such as the 400,000 tpa examples in the table above, while a small standard transfer station can be considered to have a throughput of approximately 1,000 tpa. Then using the derating method, the derating factor is given by the approximate square root of the capacity ratio. For the proposed throughput at the site, the derated separation distance is calculated as follows:

Derating factor: $$\left[\frac{20{,}000}{60{,}000}\right]^{0.5} = \mathbf{0.58}$$

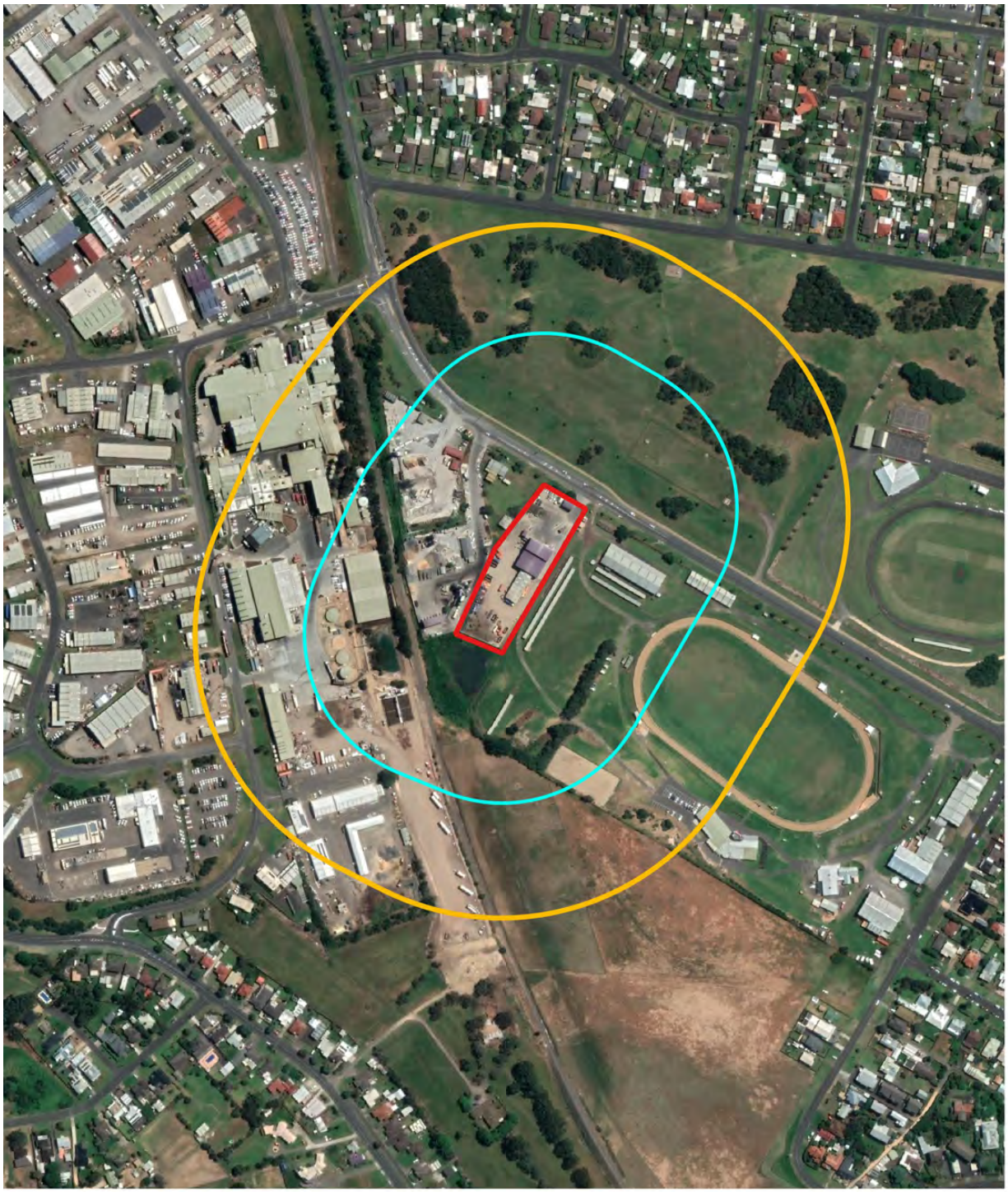
So, applying the derating factor to the default 250 m buffer gives a reduced separation distance, after rounding to the nearest metre, of:

$$\mathbf{0.58} * \mathbf{250}\ \boldsymbol{m} = \mathbf{144}$$

This de-rated separation distance is plotted with the default separation distance in Figure 5-1 and shows that the de-rated 144 m separation distance is slightly greater than half the size of the default 250 m separation distance. The de-rated separation distance provides an even greater separation distance to the existing residential areas.

Summary

Given the small size of the site, the results of the de-rated separation distance analysis indicate that the risk of odour emissions impacting nearby residents in the event of an upset is further reduced.



Legend

Site boundary

144m de-rated buffer

250m buffer

Paper Size ISO A4

0 0.075 0.15 km

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 55

N

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Cleanaway Pty Ltd

Warrnabool WTS Odour Assessment

De-rated and deault buffer

Project No. 12575306
Revision No. -
Date. 09/03/2022

FIGURE 5-1

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Print Date: 09/03/2022

Data Source: Google Earth Imagery 2022.
Created By: ylim

6. Directional buffer

6.1 Methodology

Section 9.2 of the EPA Publication 1518 allows for site-specific variation on the basis of topographical or meteorological features which will affect dispersion of industrial residual air emissions. Draft EPA Publication 1883 allows for relative dispersion modelling in the form of meteorological modelling to help understand dispersion patterns from sources, such as the shape of emission contours. EPA states that such a tool may be applied using the minimum separation distance as an input to determine its shape by keeping the total area contained by the separation distance constant.

GHD has developed an approach to provide directionally-dependent buffers on the basis of the dispersive ability of the atmosphere, as assessed using atmospheric dispersion modelling (Clarey & Pollock, 2004).

Where site-representative meteorological data is available, the direction of good and poor dispersion can be identified. Further, if the dataset is configured into the dispersion modelling format then dispersion modelling (using the EPA regulatory model AERMOD) can be conducted using a nominal air source emission rate to assess the directional change in the buffer extent from a default radial buffer[6]. The directional buffer adapts the default radial buffer to take account of the directions of good and poor dispersion – sourced from the meteorological data representative of local conditions.

In the directions of poor dispersion, the buffer is extended and in the directions of good dispersion the buffer is retracted. The effect is to produce the same degree of protection from exposure to impact as the default buffer but shaped by the local meteorology to represent a more realistic site specific buffer in the event of a process upset.

This analysis further assists in assessing the likely risk of odour impact from the site.

6.2 Local meteorology

The local meteorology largely determines the pattern of off-site impact. The characterisation of local wind patterns requires accurate site-representative hourly recordings of wind speed and direction over a period of at least 12 months (one year).

GHD has access to high quality meteorological data (four years at 30-minute intervals) from the Warrnambool Airport AWS operated by the Australian Bureau of Meteorology (BoM). The Warrnambool Airport AWS has been in operation since 1998 and is located approximately 10 km from the subject site. GHD has also accessed this automatic weather station (AWS) for cloud data.

GHD selected the years 2015 – 2018 as it was the most recent period with a complete record from the Warrnambool Airport AWS.

6.2.1 Long term pattern in wind

The effect of wind on dispersion patterns can be examined using the general wind climate and atmospheric stability class distributions. The general wind climate at a site is most readily displayed by means of wind rose plots, giving the incidence of winds from different directions for various wind speed ranges.

The features of particular interest in this assessment are: (i) the prevailing wind directions and (ii) the relative incidence of more stable light wind conditions under 2 m/s and (iii) good dispersion condition winds over 5 m/s.

[6] Clarey P, Pollock T “Integrating Separation Distances with Dispersion Modelling” Enviro 04, 28 Mar – 1 April 2004, Darling Harbour, Sydney

A wind rose representing trends over the entire data period is shown in Figure 6-1 and shows the following features:

- The average measured wind speed over the entire monitoring period was 5.33 m/s
- Wind speeds greater than 6 m/s occur 36% of the time
- Calm winds comprised 0.34% of the monitoring period
- The predominant wind direction is from the north-west to north
- Easterly winds were less frequent than other wind directions, occurring approximately 7% of the monitoring period. In contrast, westerly winds occur approximately 16% of the monitoring period
- High wind speeds (>6 m/s) are relatively evenly distributed between south and north wind directions
- Low wind speeds (less than 2 m/s) predominantly occur from the east and north

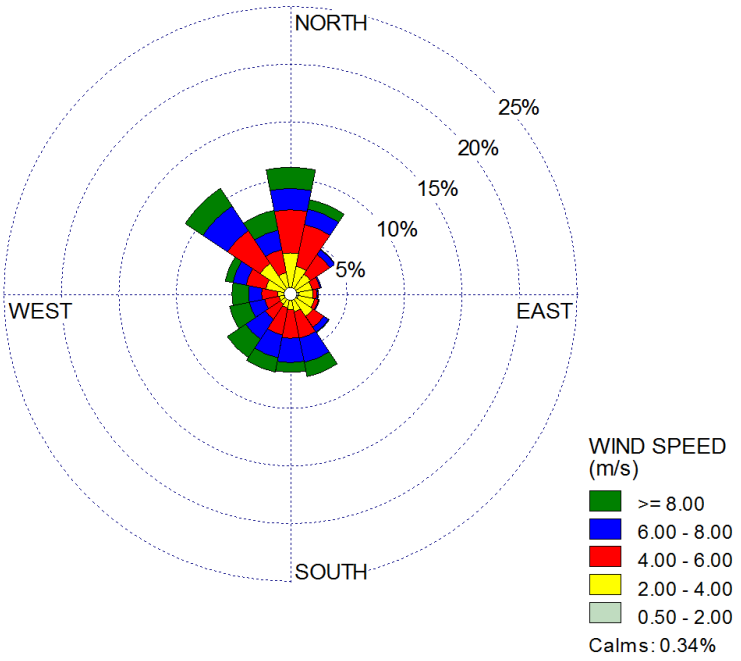


Figure 6-1 *Annual wind rose for Warrnambool Airport*

6.2.2 Seasonal pattern in wind

Seasonal variations in wind direction and wind speed are shown in Figure 6-2 and demonstrate the following:

- There is a strong contrast in wind direction between summer and winter, with winds predominantly southerly in summer reflecting sea breeze effects and predominantly northerly in winter
- The incidence of light (0.5-2 m/s) winds is greatest in Autumn
- The incidence of high (>6 m/s) wind speeds is greatest in summer and winter at similar frequencies
- Spring and autumn receive similar wind direction and wind speed patterns. Both have a relatively high frequency of northerly and north-westerly winds

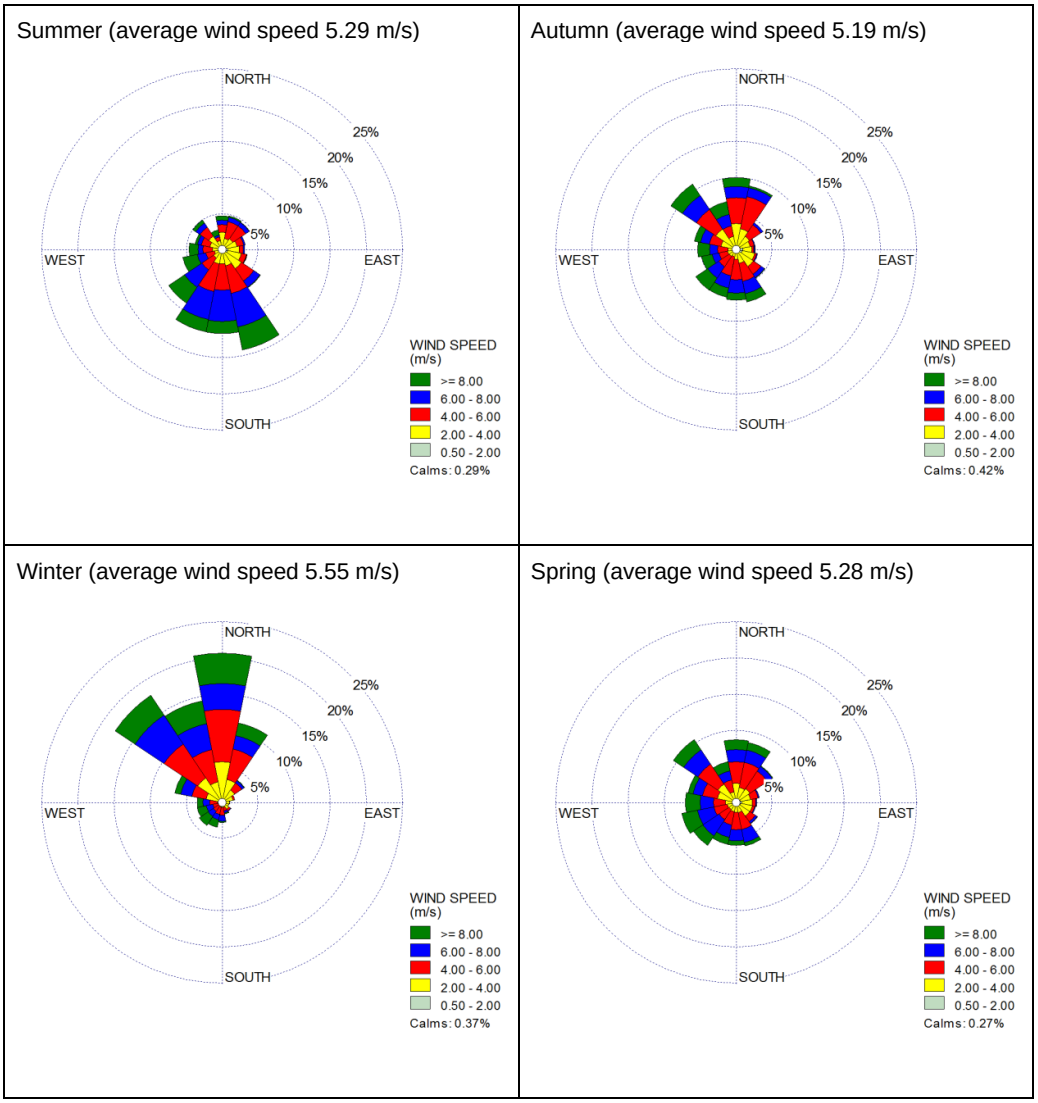


Figure 6-2 Seasonal wind roses for Warrnambool Airport

6.3 Application to the site

Two model scenarios were developed for the site; one for the current operational hours and one for the future operational hours as listed below:

1. Current operations: Daytime hours only (8:00 am to 5:00 pm)[7]
2. Future conditions: 24 hours

The modelled pattern of dispersion was applied to both the default and de-rated buffer distances, resulting in the directional buffers as shown in Figure 6-3.

From Figure 6-3 it can be seen that the pattern of dispersion differs between the current (left) and future (right) operation scenarios, as described below.

Current operations

The directional buffers for the current (8:00 am to 5:00 pm) scenario contracts to northeast through to the southwest, with an extension to the south and south-southeast. The directional buffer largely covers the same area as the default buffer, likely due to the absence of night time stable atmospheric conditions in the model.

The original 250 m directional buffer is located approximately 35 m from the nearest resident to the north and 190 m from the nearest resident to the west.

The de-rated 144 m directional buffer is located approximately 140 m from the nearest resident to the north and 300 m from the nearest resident to the west.

Neither directional buffer extends to the residential areas.

Future operations

The directional buffers for the future (24 hours) scenario contracts to the northwest through to the southeast with an extension from the south through to the west, towards the industrial estate.

The original 250 m directional buffer is located approximately 90 m from the nearest resident to the north and 140 m from the nearest resident to the west.

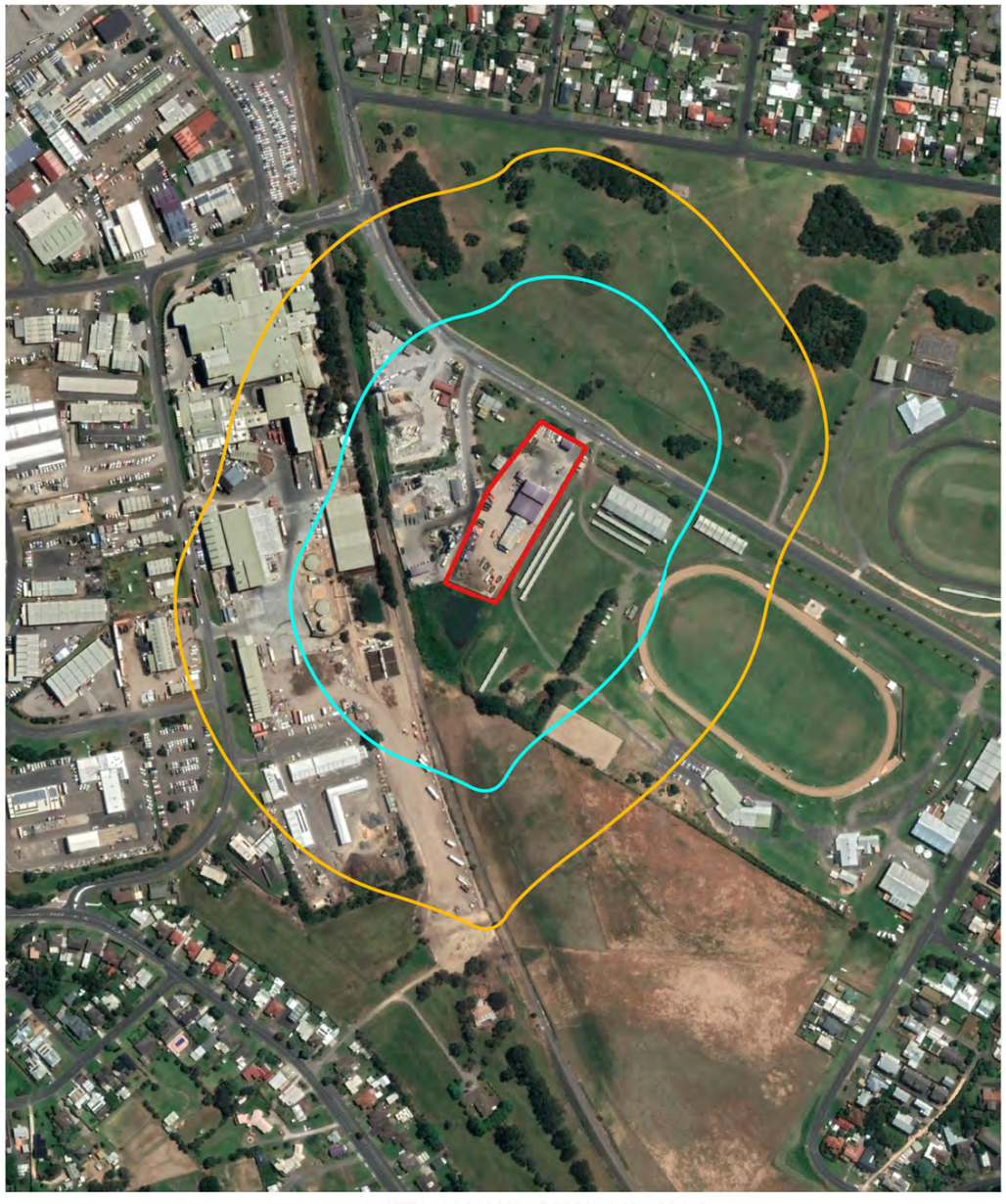
The de-rated 144 m directional buffer is located approximately 175 m from the nearest resident to the north and 270 m from the nearest resident to the west.

Neither directional buffer extends to the residential areas.

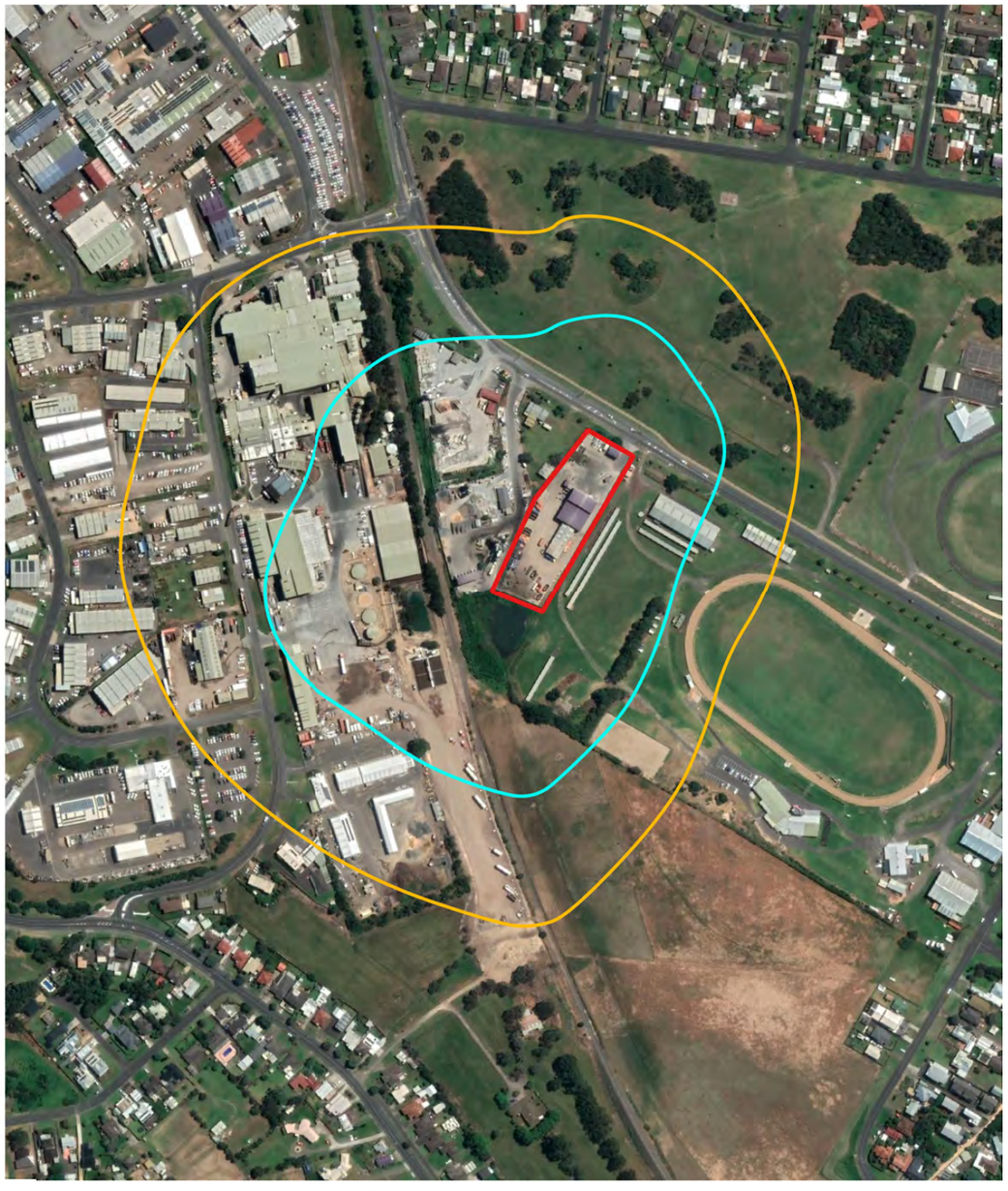
Summary

When a comparison is made between the current and future operation directional buffers, different dispersion patterns can be seen due to the different dispersion characteristics between day time and night-time. Should Cleanaway increase operational hours to 24 hour operations, the likely dispersion would be greater towards to west than current operations, away from the residential areas and towards the industrial estate. The directional buffer results indicate that the risk of an odour amenity impact at the nearby sensitive receptors is further reduced due to the local meteorology, and given that neither the original 250 m nor the de-rated 144 m directional buffers extend to the identified residential area in either scenario.

[7] It is noted that the site operates for reduced hours on Saturday's and Sundays, however these hours have been applied to all days of the week to allow for all meteorological conditions within the model to be captured.



Current operations (day time hours)



Future operations (all hours)

Paper Size A3
0 50 100 m

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 55

N

LEGEND
- Site boundary
- De-rated 144 m buffer
- Original 250 m buffer

Cleanaway Pty Ltd
Warrnabool WTS Odour Assessment
Directional buffers

Project No. **12575306**
Revision No. **-**
Date. **17/03/2022**

FIGURE 6-3

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Data Source: Google Earth Imagery 2022.
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7. Level 2 Assessment - Source-Pathway-Receptor Assessment

GHD has referred to the draft Guidance for Assessing Odour (EPA Publication 1883). Draft EPA Publication 1883 offers three levels of risk assessment to examine the potential for odour impacts to occur from industries. The guideline directs the user to proceed directly to a level 2 or 3 assessment unless the following conditions for a level 1 assessment are met:

– The assessment is for a proposed new industry, **and**
  - The odour source has a low odour potential
  - Surrounding industries have a medium or higher odour potential

The WTS is existing and has a high odour potential (Appendix A of EPA Publication 1883). Of the relevant surrounding industries identified in 2.3, the classifications under Publication 1883 are as follows:

– Asphalt plant: Moderate odour potential
– Abattoir: High odour potential

As the WTS is classified under similar odour potential as the identified surrounding industries (high odour potential), this assessment proceeds to level 2.

The level 2 assessment uses a source/pathway/receiving environment tool to assess the level of risk from the odour source. This is a qualitative method, however the outcome of the assessment is quantified with the use of scores determined by the EPA. The scoring of the assessment outcome is based on three attributes:

– Hazard potential of the source (odour source score – OSS)
– Exposure pathway between the source and sensitive locations (odour pathway score – OPS)
– Sensitivity of the receiving environment (odour receiving environment score – ORS)

GHD has applied the steps and tools in the level 2 assessment as outlined below:

7.1.1 Odour Source Score (OSS)

To determine the odour potential of the source, the guideline refers the reviewer to Appendix A: Industrial odour sources by odour potential. The WTS would fall under the classification of the Transfer station with organics, which has a high odour potential.

A weighting is then applied for the effectiveness of odour controls at the site. Based on the site visit undertaken by GHD, a moderate weighting has been selected as some odour mitigation measures have been identified in the EMP as outlined in Section 8.4.1.

Applying the ratings from Table 1 and 2, the OSS score is 3 + 0 = 3.

7.1.2 Odour Pathway Score (OPS)

To determine the effectiveness of the transmission of odour from the potential source to receiving environment, the following categories are considered:

– Distance of receiving environment to the source
– Meteorology of receiving environment to the source
– Terrain and built form within the area
– Hours of operation of odour generating activities

Table 7-1 presents the selected categories to assess the OPS.

Table 7-1 Derivation of scores for odour exposure pathway effectiveness

Score	Category			
	Distance	**Meteorology**	**Terrain & Built From**	**Hours of Operation**
1	**Long distance:** Receiving environment is kilometres or hundreds of metres from source.	**Favourable:** Winds rarely (<10%) blow from source away from receiving environment.	**Favourable:** Highly built-up intervening zone with multiple non-sensitive uses that have no emissions of their own. Densely forested. Source is downslope of receiving environment (or located in a valley or quarry hole).	**Low frequency:** Emissions are rare and only occur if there is a significant upset or multiple lines of failure. Emissions related to specific infrequent planned (monthly or annual) activities).
2	**Medium distance:** Receiving environment is tens to hundreds of metres from source. Separation distance has not been met or only just met at the threshold distances.	**Neutral:** Even distribution of winds (10-20%) from source to receiving environment.	**Neutral:** Moderate vegetation, source is on same altitude as receiving environment. Intervening land use zone contains other non odorous industry or smaller businesses.	**Moderate frequency:** Emissions or operations not continuous, typically confined to business hours during the day. Reasonably regular in frequency (once per day to several times per week).
3	**Short distance:** Receiving environment is adjacent to the source/ site. Distance well below (less than half) separation distance).	**Unfavourable** High frequency (>20%) of winds from source to receiving environment.	**Unfavourable:** Flat cleared land. Source is upslope of receiving environment, with isolated dwellings or structures in pathway. Receiving environment abuts source.	**High frequency:** Emissions continuously occurring 24/7 or for long periods at a time (eg. Landfills, oil refineries, sewage treatment plants etc.

– Distance: A score of one was determined as both the default 250 m separation distance along with the directional buffer (250 m) and the de-rated directional buffer (144 m) to the sensitive receptors has been met.
– Meteorology: The incidence of light winds (<2 m/s) from the WTS to sensitive receptors identified in Section 2.4 is less than 1% therefore a score of one has been allocated.
– Terrain & built form: A score of two was determined for the rural area with both the site and sensitive receptors having approximately the same elevation.
– Hours of operation: As Cleanaway intends to extend to 24 hour operations for the holding and storing of putrescible waste, a score of three was determined for hours of operations.

Applying rating from Table 7-1, the OPS score is 3 (taken as the maximum score of all the categories)

7.1.3 Odour Receiving Environment Score (ORS)

The sensitivity of the receiving environment has two aspects: the overall land use in the receiving environment and the compliance history, social or historical context experienced by people in the receiving environment (where a +1 is added to the odour receiving environment score (ORS).

Land use is based on the land use terms and nesting diagrams in the Victoria Planning Provisions (VPP) land use terms. These are grouped into three categories, which are fully detailed in Table 7-2 below. Assessment is based on the most sensitive land-use within (or proposed to be within) the separation distance or two kilometres, whichever is closest.

Table 7-2 Derivation of scores receiving environment sensitivity

Score	Sensitivity	VPP Land use term or nesting group (number in bold)	Existing Uses
1	Low	– 73.04-3 Agriculture group (sub-group animal production) – 73.04-2 Agriculture group – 73.04-10 Recreational boat facility group – 73.04-15 Warehouse group – 73.04-5 Industry group – 73.04-7 Earth and energy resources group – 73.04-13 Transport terminal group – 73.04-14 Utility installation group – 73.04-16 Renewable energy group – Car park – Saleyard – Tramway – Natural systems – Freeway service centre – Service station	– Industrial use or equivalent rural use (in the case of agricultural odours). No population nearby or uses are transient (e.g., state parks etc.). – Exposure to odours can easily be avoided.
2	Medium	– Research centre – Winery – Cemetery – Crematorium – Emergency services facility – 73.04-8 Office group – 73.04-6 Leisure and recreation group – 73.04-9 Place of assembly group – 73.04-11 Retail premises group – 73.04-12 Retail Premises group (sub-group of shop) – Brothel – Art and craft centre – 73.04-4 Education centre group	– Business areas: exposure can typically be controlled by mitigation at the receptor (incorporated health ventilation and air conditioning systems etc.). – Receptors that are single dwelling or isolated rural dwellings receptor is business/commercial. – Enjoyment of the outdoors: recreational activities, playing sport, populations can move on or plan around exposure.
3	High	– Rural living zones – Hotels/motels – Hospital – Prison – Mixed use zones with residential apartments (at ground or 2 to 3 storeys). – 73.04-1 Accommodation group – Residential areas	– Built up area, towns, many dwellings with backyards and outdoor living areas. – Rural residential, schools, childcare or apartments. – Permanent populations where avoiding exposure is not possible.

In this case, the most sensitive land-use would be that of the nearby residential area located 280 north of the site. GHD is unaware of any compliance, social or historical issues experienced by people in the receiving environment, therefore the additional (+1) is not required to be added.

Applying rating from Table 7-2, the ORS score is 3

7.1.4 Overall level 2 score

A level 2 source pathway receiving environment score (SPR) is achieved by adding the ORS, OSS and OPS together. Therefore, based on the above:

– OSS = 3
– OPS = 3
– ORS = 3

The overall level 2 assessment score = 9, meaning activity is medium risk. In accordance with the Level 2 assessment, a medium risk is categorised as a “borderline case” where one element may influence the risk to be categorised as a low or high score. A level 3 assessment is recommended to fully understand risk.

8. Level 3 Assessment

8.1 Overview

A level 3 assessment is defined by EPA in Draft Publication 1883 as "*a detailed risk assessment for issues that are complex or where the other levels of assessment have been exhausted because there is not enough evidence to establish what the odour risk is".* Given the level 2 assessment undertaken by GHD resulted in medium risk, a level 3 assessment has been undertaken to fully understand risk.

EPA recommends that an assessment includes multiple tools in the risk assessment for applications or proposals for new developments where there may be potentially significant odour impacts. This should include the use of site-specific data where possible. The level of detail provided in the detailed assessment should be commensurate with the potential for odour impacts. Table 5 of Draft EPA Publication 1883 (provided as Figure 8-1) provides an overview of the level 3 assessment tools and their applicable scenarios

Level 3 assessment	Description	When the tool is applicable
Comparison with similar operations	Analysis of data from facilities of similar size, throughput, operational conditions, technology, processes, topography, meteorology and emission sources. This should incorporate assessments from a literature review.	• A new facility is proposed. • Best used in conjunction with odour field assessment.
Risk assessment using field odour surveillance data	Survey of odour levels in the field provide an indication of odour frequency, intensity, and character (FIC) from: • existing premises • odour surveillance of a reference facility • surveillance that includes other odour generating premises or sources in the area.	• For most scenarios where there are existing odour sources. • Rezoning or precinct structure planning. • Characterising odour sources impacting a community. • Assessment of a reference facility or scenario that has similar attributes to the development proposal in question.
Complaints data analysis	Analysis of odour complaint histories to provide an indication of odour frequency, intensity, and character (FIC) from: • existing premises • other odour generating premises or sources in the area • complaint histories from a reference site.	• Sensitive use proposals around existing facilities where there are already sensitive uses. • Assessment of odour reports around similar industries in the absence of the above.
Community surveys	Survey of community members to identify current or past odour issues related to the existing premises and other premises/sources in the area.	• A proposed sensitive use in an area where there is existing industry. • To aid in verifying complaints data. • To compliment surveillance data.
Relative dispersion modelling	• Computer modelling to compare different emissions scenarios through the analysis of the relative variations in predicted ground level odour concentrations. • Recommended for point sources or active emissions sources only. • Odour modelling cannot be used as the only evidence of an assessment and modelled results need to be validated against field assessment results.	• A proposed change or upgrade to premises to look at expected. change in emission pattern. • To understand the relative contribution of multiple sources to a subject site. • To understand the dispersion pattern of a proposed industry based on a reference site. • This approach uses field surveillance data (where available) to verify modelling at the reference site.

Figure 8-1 Level 3 assessment tolls and applicable scenarios (Reproduced from Table 5 of Publication 1883)

From the above, GHD has undertaken the following activities in the following sections below:

– Risk assessment using field odour surveillance
– Complaints data analysis
– Comparison with similar operations and industry best practice
– Relative dispersion modelling

8.2 Odour surveillance

Draft EPA Publication 1883 nominates field odour surveillance to determine odour levels in the field to provide an indication of odour frequency, intensity and character from an existing facility. As a medium risk was determined in the Level 2 assessment, GHD has undertaken two odour surveys to further assess the odour impact and subsequent risk at the nearest sensitive receptors during representative operations. It is noted that only greenwaste was stored on site at the time the odour survey was undertaken. Given the odour controls outlined in section 8.4.1 to minimise emissions from putrescible waste, GHD considers the greenwaste to be the main source of odour and therefore the odour surveys to be reflective of 24 hour operations.

8.2.1 Survey methodology – Dynamic downwind surveillance

GHD utilised the draft EPA guidance, *Odour surveillance*[8]*,* in order to conduct the additional odour surveys. GHD conducted the odour surveys in line with the methodology for a Dynamic Downwind Surveillance Assessment. The plume is assessed by:

– "Starting downwind from the odour source at a predetermined maximum distance. This distance will be based on odour complaint data (where available), or case studies and scientific papers where similar industries have been examined. The assessor should track the odour plume back to the source by crossing the plume. EPA recommends this technique is used for sources with elevated emissions or mixtures of sources.
– Starting at the source and then crossing the plume until the end of the plume is reached. EPA recommends this technique is used for large, ground-based areas sources (e.g. landfills, composters etc.)."

Of particular importance in the surveys was identifying any odour likely attributable to the site. As the predominant odour source observed during the site visit was the greenwaste stockpile (i.e. a large, ground-based source), GHD started at the source (site boundary) towards the end of the plume, as suggested by EPA. During the field surveys, any detectable odours likely attributable to the WTS were noted and the following details were recorded and described further below:

– Time
– Location
– Odour intensity
– Odour duration
– Odour characteristic
– Meteorological conditions (wind speed, wind direction, temperature)

[8] EPA Victoria, *Odour surveillance,* CONSULTATION DRAFT, 2019

Odour intensity

The intensity of the odour provides some understanding of the ambient concentration of odours in the environment. Odour intensity was characterised using the methodology outlined in the EPA Victoria guidance, reproduced in Table 8-1.

Table 8-1 Odour intensity descriptors

Odour strength	Description
Obvious	Odour is easy to smell and always noticeable. Odour is also easily recognisable, can be described and may be attributed to a source.
Subtle	Odour can be smelt only when focusing, e.g. by standing still and inhaling slowly into the wind. Odour can be recognised but with some difficulty.
No odour	No odour, or no recognised odour.

Odour duration

If an odour potentially related to the WTS was detected during the survey, the duration of this odour was also noted, in line with EPA Victorian guidance, reproduced in Table 8-2.

Table 8-2 Odour duration descriptors

Description	Duration of odour
Constant (C)	Can smell it constantly (> 80%)
Frequent/Repetitive (F)	On and off with significant/noticeable periods with recognised odour (10–80%)
Transient (T)	On and off (intermittent) with significant / noticeable periods with no odour or no recognised odour (< 10%)

8.2.2 Surveillance results

Two odour surveys were conducted on 7 June 2020 outside the current operational hours of the site (after 4:00 pm). The aim of the odour surveys was to provide an indication of the existing odour impact at the nearest sensitive receptors, accounting for representative operations and night time dispersion. Cleanaway informed GHD that the size of the greenwaste stockpile at the WTS during the odour surveys was considered 'worst case', indicating that a reduced quantity of greenwaste is typically stored at the WTS. GHD notes that only greenwaste was stored on site at the time the odour survey was undertaken.

The wind conditions during the two surveys were considered to be light (2 m/s or less), which often leads to greater offsite odour impacts due to minimal mixing of the atmosphere.

The surveys were conducted on Aitkins Road, Bruce Street, Clyde Crescent, Westmore Street and in Victoria Park in order to be downwind of the site based on the predominant wind direction. It was found the off-site odour characteristic (fresh greenwaste) remained relatively unchanged, despite different odour characteristics surrounding the greenwaste stockpile during the site visit being observed.

Fresh greenwaste odour was observed a maximum distance of 300 m from the WTS site boundary during both odour surveys, outside residential properties on Bruce Street and Aitkins Road. This maximum distance was located in Bruce Street, outside residential properties. It was noted that the odour detected during the surveys was almost always subtle and transient, with only a few instances of frequent odour being detected. The odour attributed to the WTS during the surveys was not considered unpleasant.

No other odours attributed to other industries were observed during the odour surveys.

A summary of the two surveys is provided below.

8.2.2.1 Survey 1 (4:00 pm – 5:00 pm)

At the beginning of the survey, a fresh greenwaste odour was detected downwind of the greenwaste stockpile. Typically, the odour detected was subtle and transient in nature. However, at locations 5 and 6, the odour duration became frequent. At locations 11 to 14 no odour was detected, likely due to a shift in the wind direction from southwest to south, resulting in these locations no longer being downwind of the stockpile. Directly north of the greenwaste pile (i.e. downwind under a wind from the south), subtle, transient fresh greenwaste odour was detected at locations 15 and 17, outside residential properties. No odour was able to be detected at locations 18 onwards, making 300 m (location 17) the maximum odour detection distance.

The winds were from the southwest at the beginning of the survey before shifting to southerly at the end of the survey. The odour survey route is provided in Figure 8-2.

8.2.2.2 Survey 2 (6:00 pm – 7:00 pm)

Subtle, transient, fresh greenwaste odour was first observed downwind of the greenwaste stockpile. When odour was observed at a location, no difference in the intensity, duration, or characteristic were noted between these locations. This indicates that, when detected, the odour is relatively uniform. This is likely a result of the calm wind conditions and therefore lack of atmospheric mixing (stable conditions) occurring during this survey. As the odour plume travelled away from the site it is likely that minimal dilution/dispersion was occurring.

As the survey progressed, no odour was detected at locations 12, 15, 16, 18 and 19, likely due to these locations not being downwind of the stockpile. Subtle, transient odour was detected at locations 14, 15, 17, 20 and 21 (directly north of the stockpile), which were downwind of the stockpile under a southerly wind and outside/adjacent to residential properties. No odour was able to be detected at locations 22 onwards, making 300 m (location 21) the maximum odour detection distance.

The winds were calm (less than 0.5 m/s) throughout the survey. When there was a wind gust, the direction was typically from the south. The odour survey route is provided in Figure 8-3.

ID	Time	Odour Intensity	Odour Duration	Colour	Texture	Wind Speed (km/h)	Wind Direction	Temperature (°C)	Comment
1	16:12	Subtle	Transient	Fresh waste	Fresh waste	CALM	CALM	14	-
2	16:17	Subtle	Transient	Fresh waste	Fresh waste	CALM	CALM	13	Faecal odour detected
3	16:20	-	-	-	-	0.5	SW	13	-
4	16:22	Subtle	Transient	Fresh waste	Fresh waste	CALM	CALM	13	Odour intensity decreased further
5	16:24	Subtle	Frequent	Fresh waste	Fresh waste	1.2	SW	12	-
6	16:26	Subtle	Frequent	Fresh waste	Fresh waste	1.2	SW	12	-
7	16:32	Subtle	Transient	Fresh waste	Fresh waste	1.6	WSW	12	-
8	16:35	Subtle	Transient	Fresh waste	Fresh waste	2.2	WSW	12	-
9	16:36	-	-	-	-	2.2	WSW	12	No longer detected
10	16:38	Subtle	Transient	Fresh waste	Fresh waste	1.8	WSW	12	No longer detected
11	16:41	-	-	-	-	CALM	CALM	12	No longer detected
12	16:46	-	-	-	-	2	SW	12	No longer detected
13	16:50	-	-	-	-	2.5	WSW	12	No longer detected
14	16:53	-	-	-	-	2.4	SW	12	No longer detected
15	16:57	Subtle	Transient	Fresh waste	Fresh waste	2.1	SW	12	No longer detected
16	16:59	Subtle	Transient	Fresh waste	Fresh waste	0.6	SW	11	No longer detected
17	17:01	Subtle	Transient	Fresh waste	Fresh waste	1	S	11	No longer detected
18	17:05	-	-	-	-	1.2	S	11	Weak odour detected
19	17:06	-	-	-	-	1.2	S	11	Weak odour detected
20	17:08	-	-	-	-	1.2	S	11	Weak odour detected
21	17:10	-	-	-	-	1.2	S	11	No longer detected

LEGEND

Odour intensity
- Obvious
- Subtle
- No odour

Odour duration:
- C Constant
- F Frequent/Repetitive
- T Transient

- Survey route
- Segments
- Site boundary

Paper Size A2
0 20 40 m
Map Projection: Universal Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia 1994
Grid: Map Grid Of Australia, Zone 54

Cleanaway Pty Ltd
Warrnambool WTS Odour Assessment
Odour survey 1

Project No. 12576
Revision No. -
Date. 09/06/2

FIGURE 8-3

Cleanaway Pty Ltd
Warrnambool WTS Odour Assessment
Odour survey 2

Project No. 12575306
Revision No. -
Date. 09/06/2020

FIGURE 8-4

8.2.3 Summary

The odour detected during the surveys was almost always subtle and transient, with it being attributed to the WTS during the two surveys and considered not unpleasant. The results indicate that no adverse amenity impact was observed during the two surveys.

Although no adverse amenity impact from the WTS was detected surrounding the site, this is not directly related to the WTS's separation distance, however it is an encouraging result that suggests that odour is currently not of sufficient strength or an issue under routine operations and the WTS is complying with their permit conditions. As stated in section 3.3, the EPA buffer guideline aims to minimise odour amenity impacts offsite during an upset, however it is unlikely that any upset conditions were captured during the odour surveys, however the amount of greenwaste on site was considered to be a worst case amount.

8.3 Complaints data analysis

Past performance is a good indicator as to whether the default separation distance is appropriate and whether there is potential for emissions to impact on local amenity.

GHD is aware of three potential odour complaints regarding the site. One was from a resident to the south of the site while the other two are unknown. GHD is unaware of the exact details of the complaints and it appears that they never investigated or confirmed to be attributed to the site. This suggests that the risk of an offsite odour impact from the site is low.

8.4 Comparison with similar operations and best practice

8.4.1 Review of EMP

GHD has undertaken a review of the EMP in relation to odour controls. The EMP (updated in 2021[9]) outlines a number of odour management measures to minimise odour emissions from impacting on sensitive receptors.

The following measures outlined within the EMP are implemented at the site to minimise odour:

– Storage of putrescible waste to be no more than 24 hours
– Prompt removal of waste to landfill during working day
– The greenwaste stockpile is transported regularly offsite
– The size and height of temporary stockpiles is kept to a minimum in line with EPA guideline 1667.3, *Management and storage of combustible recyclable and waste materials*
– The storage of temporary stockpiles is located at the main shed for putrescible waste and at the greenwaste area for greenwaste
– The storage of temporary stockpiles occurs on ground that is sealed with concrete
– Temporary stockpile areas are regularly cleaned and hosed down
– Overnight storage of putrescible waste to be placed in a bin and covered by tarpaulin/temporary lid
– Bins are swept and hosed down with water after being emptied

A daily site inspection by an environmental team member is undertaken

Fortnightly field odour observations at three monitoring sites is also undertaken at:

- Two sites at the northern extent of Victoria Park
- One site within the site

– Discussion with management about significance of odour and any further actions
– Implementation of corrective actions to manage any odour issues
– Weekly observational reports from site inspection with corrective actions to manage any odour issues recorded and acted upon

[9] Cleanaway EMP for Warrnambool Transfer Station, May 2021

8.4.2 SV Guide

Section 5.2.6 of the SV Guide provides an overview of better practice odour management for site operations and management in relation to odour. Table 24 of the SV Guide (reproduced in Table 8-3) lists a number of factors for consideration when managing odour at a Resource Recovery Centres such as a transfer station. Based on the odour control measures outlined in section 8.4.1, GHD has included in the table the relevant odour controls implemented at the site for each of the factors identified in the SV Guide. From the table, it can be seen that site has adopted better practice odour management in accordance with the SV Guide. The regular odour monitoring outlined by Cleanaway is also in consistent with the SV Guide with respect to better practice environmental risk management (Table 23 of the SV Guide).

Table 8-3 Better practice odour managements at Resource Recovery Centres - Table 24 of the SV Guide

Factors	Consider	Warrnambool WTS
Odour at boundaries	Keep odour-generating activities and storage piles away from the boundaries of the site where this may cause offence.	Odour generating activities associated with greenwaste/putrescible waste are located in the northern and centre portion of the site. The storage of temporary stockpiles is located at the main shed for putrescible waste and at the greenwaste area for greenwaste.
Putrescible waste	Where practical, clear putrescible waste (e.g. residual waste or organics containing food waste) within 24 hours of receival to prevent odour generation. Clean skips and pits that receive putrescible waste on a regular basis using disinfectant as needed to control/prevent issues from arising.	Storage of putrescible waste to be no more than 24 hours. Prompt removal of waste to landfill during working day. Overnight storage of putrescible waste to be placed in a bin and covered by tarpaulin/temporary lid. Temporary stockpile areas are regularly cleaned and hosed down Bins are swept and hosed down with water after being emptied.
Wastewater	Treat wastewater from cleaning activities as leachate. If the site contains a leachate pond, adopt control measures and practices to avoid odour generation. Note: washing the site with water may add to the weight of litter and other disposal materials. Wastewater treatment can also be an expensive activity	Putrescible waste is housed temporarily undercover in the main shed. This ensures no leachate is created from rainfall coming into contact with the waste. All wastewater is captured and sent direct to the existing trade waste system. Any accumulated leachate is collected in a compliant leachate pit capture system and then removed fortnightly from the site by pump truck.
Sweep	Sweep up litter and other materials where practical rather than washing the site down with water as an alternative and potentially cheaper cleaning method.	Regular cleaning of temporary stockpile areas includes sweeping.
Garden organics	Put appropriate controls in place to minimise odour during all stages of collection, storage and processing. This is best achieved by ensuring that materials are kept aerobic by having well-aerated piles or turning materials as required.	The greenwaste stockpile is transported regularly offsite every seven days. The stockpile is regularly pushed back and therefore moved and kept aerobic. There is stockpile management in place to maintain the stockpile to no more than 800 m^3. If stockpile exceeds this then the greenwaste is removed offsite sooner.

8.4.3 Recommended updates to EMP

GHD recommends that the following controls be included in the EMP:

Wastewater

– Putrescible waste is housed temporarily undercover in the main shed. This ensures no leachate is created from rainfall coming into contact with the waste.
– All wastewater is captured and sent direct to the existing trade waste system.
– Any accumulated leachate is collected in a compliant leachate pit capture system and then removed fortnightly from the site by pump truck.

Greenwaste

– The greenwaste stockpile is transported regularly offsite every seven days.
– The stockpile is regularly pushed back and therefore moved and kept aerobic.
– There is stockpile management in place to maintain the stockpile to no more than 800 m^3. If stockpile exceeds this then the greenwaste is removed offsite sooner.

Monitoring

– The odour monitoring frequency within the EMP should be updated in line with Section 8.4.1.

8.5 Relative dispersion modelling

GHD has undertaken relative dispersion modelling in accordance with Draft EPA Publication 1883 to better understand the dispersion pattern from the site. As outlined in section 6, Draft EPA Publication 1883 allows for relative dispersion modelling in the form of meteorological modelling to help understand dispersion patterns from sources, such as the shape of emission contours. Such a tool may be applied using the minimum separation distance as an input to determine its shape by keeping the total area contained by the separation distance constant. This has been undertaken by GHD in section 6 in the form of a directional buffer. The directional buffer results indicate that local meteorology does not extend to buffer to the nearby residential areas.

8.6 Summary

The following can be concluded from the Level 3 assessment:

– The odour detected during the two odour surveys was almost always subtle and transient, with it being attributed to the site during the surveys and considered not unpleasant. The results indicate that no adverse amenity impact was observed during the two surveys.
– The lack of complaint data related to the site suggests that current operations is not generating odour impacts to surrounding sensitive receptors.
– Based on the odour control measures outlined, the site has adopted better practice odour management in accordance with the SV Guide.
– Relative dispersion modelling has been undertaken by GHD in the form of directional buffers. The directional buffer results indicate that the risk to odour amenity impact at the nearby sensitive receptors is further reduced due to meteorology given neither the original 250 m nor the de-rated 144 m directional buffers extend to the identified residential areas.

Based on the above, GHD concludes that the risk of odour from the site operating 24 hours to be low.

9. Conclusion

The findings of each component of the odour assessment are summarised below.

Default EPA separation distance

A default separation distance was plotted in accordance with the EPA buffer guideline to a radius of 250 m from the site boundary. The default separation distance does not impact on any of the surrounding residential receptors.

De-rated separation distance

The outcome of the de-rated separation distance assessment suggests that a buffer distance of 144 m should be sufficient to avoid odour impact to sensitive receptors. This takes into account the throughput of the site, anticipated at 20,000 tpa in the future, which is relatively small in comparison to metropolitan facilities (>60,000 tpa) in the same class.

Directional buffer

The directional buffer assessment indicates that meteorological conditions are likely to result in:

– The current operations (8:00 am to 5:00 pm) directional buffer covering largely the same area as the default buffer, likely due to the absence of night time stable atmospheric conditions in the model.
– The future operations (24 hours) directional buffer extends away from sensitive receptors located north and east of the site and more towards the west and south, with the largest buffer distance extension occurring toward the industrial precinct to the west of the site.

The directional buffer results indicate that the risk to odour amenity impact at the nearby sensitive receptors is further reduced due to meteorology given neither the original 250 m nor the de-rated 144 m directional buffers extend to the identified residential area in either scenario.

Assessment of Odour Risk

A level 2 assessment (source/pathway/receiving environment tool) undertaken by GHD in accordance with Draft EPA Publication 1883 assesses the level of risk from the site to be medium. A medium risk is categorised as a “borderline case” where one element may influence the risk to be categorised as a low or high score. A level 3 assessment is recommended to fully understand risk.

The Level 3 assessment concluded that the risk of odour from site reduces to low due to the following:

– From a review of similar operations and best practice, GHD is of the opinion that the site has adopted better practice or current industry practice with respect to odour management.
– From the odour surveys it was noted that the odour detected during the surveys was almost always subtle and transient, with only a few instances of frequent odour being detected. The odour attributed to the site during the surveys was not considered unpleasant. The results indicate that no adverse amenity impact was observed during the two surveys.
– The lack of complaint data related to the site suggests that current operations is not generating odour impacts to surrounding sensitive receptors.
– The relative dispersion modelling has been undertaken by GHD in the form of directional buffers. The directional buffer results indicate that the risk to odour amenity impact at the nearby sensitive receptors is further reduced due to meteorology given neither the original 250 m nor the de-rated 144 m directional buffers extend to the identified residential areas.

Conclusion

Based on the above findings, GHD concludes that the WTS poses a low risk of odour impact with an increase in operating hours to 24-hour operations.

Appendices

Appendix A

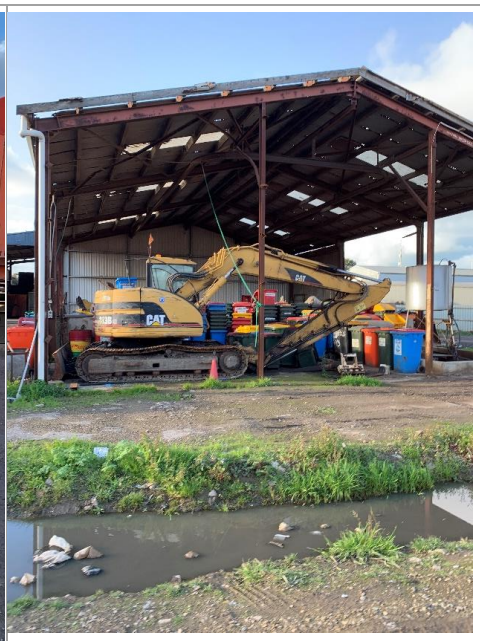
Site visit photos

Fresh greenwaste material (eastern side of stockpile)

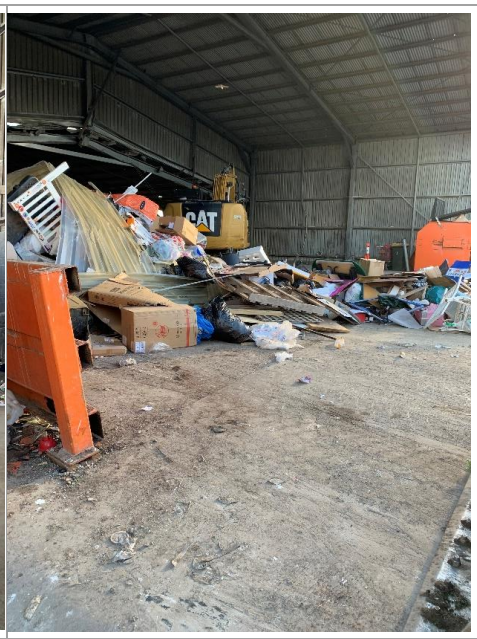
Old and new greenwaste – mixed (northern side of stockpile)

Drainage area (southern side of stockpile)

Bin/heavy vehicle laydown



Workshop

	
WTS main shed	Waste unloading area

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→ The Power of Commitment

11.7 Attachment G – Daily and Fortnightly observation report

Daily Inspection Report - Warrnambool Transfer Station

Date: 12/10/2021

Day: Tuesday

Employee Name: Frank Milroy

Pre-start checklist completed for yellow gear today? ☐ Yes ☐ No

Wind Speed (km/hr):

Wind Direction:

Rainfall (mm): mm Click or tap here to enter text.

Temperature: degrees

Has the daily litter patrol been completed & inspected? ☐ Y ☐ N

☐ Morning ☐ Afternoon ☐ Additional litter picking

Visual check for litter around the site: ☐ Y ☐ N

Action taken:

Litter found offsite across at the dog park or in the showgrounds: ☐ Y ☐ N

Action taken:

Is there excess dust onsite and beyond our boundary? ☐ Y ☐ N

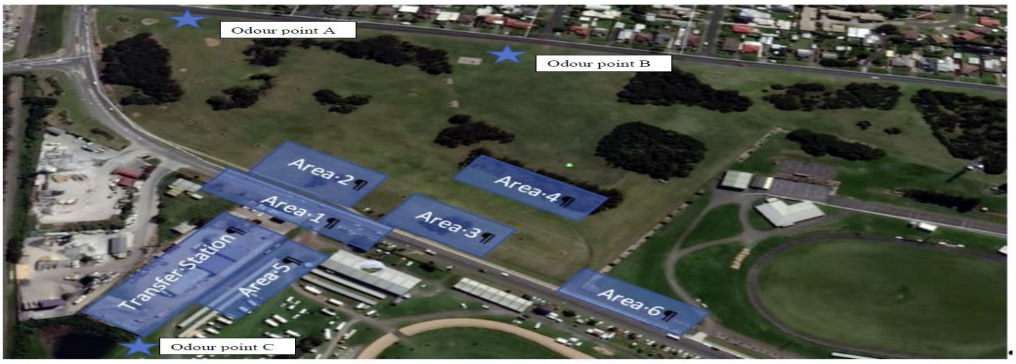
Action taken:

Any odour being emitted beyond the boundaries of the premises? ☐ Y ☐ N

Action taken:

Any odour observed at A, B and C monitoring points? ☐ Y ☐ N

Action taken:



Operations outside licensed hour	☐ Y	☐ N
Any pest or vermin onsite	☐ Y	☐ N
All leachate been contained from green waste area	☐ Y	☐ N
Action Taken:		
All leachates been contained from workshop and truck wash area	☐ Y	☐ N
Action Taken:		
Was there Runoff from waste loading area/ workshop/bund leaking	☐ Y	☐ N
Action Taken:		
Any oil spills	☐ Y	☐ N
Action taken:		
Leaky bins onsite	☐ Y	☐ N
Are all full bins covered	☐ Y	☐ N
Is green waste contained in licensed area	☐ Y	☐ N
Action Taken:		
Are all chemicals/paint can in the site stored in a bunded area/chemical cabinet.	☐ Y	☐ N
Action Taken:		
Is Leachate Pit full	☐ Y	☐ N
Action Taken:		

General Housekeeping comments:

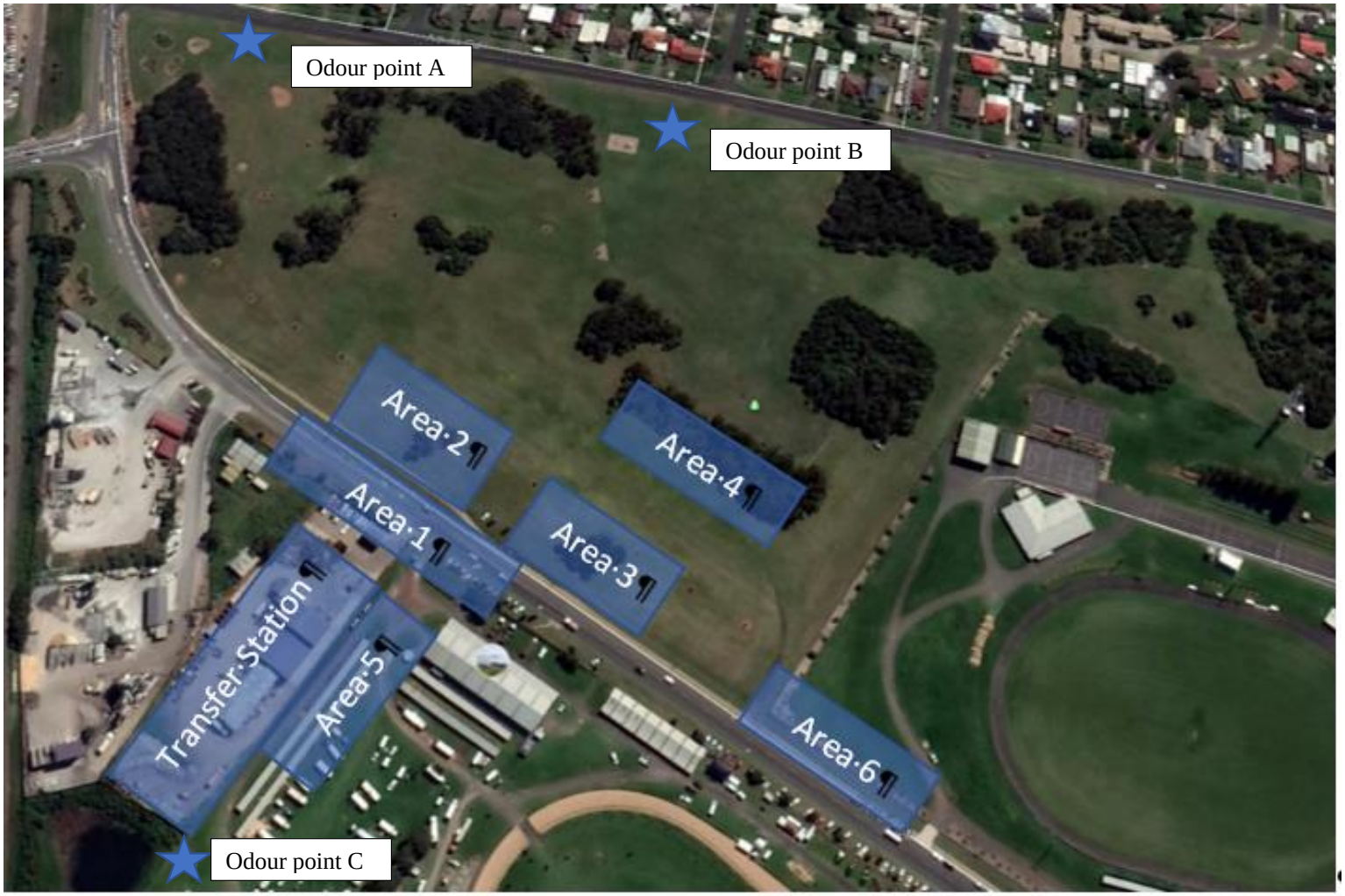
Safety issues identified:

Other comments:

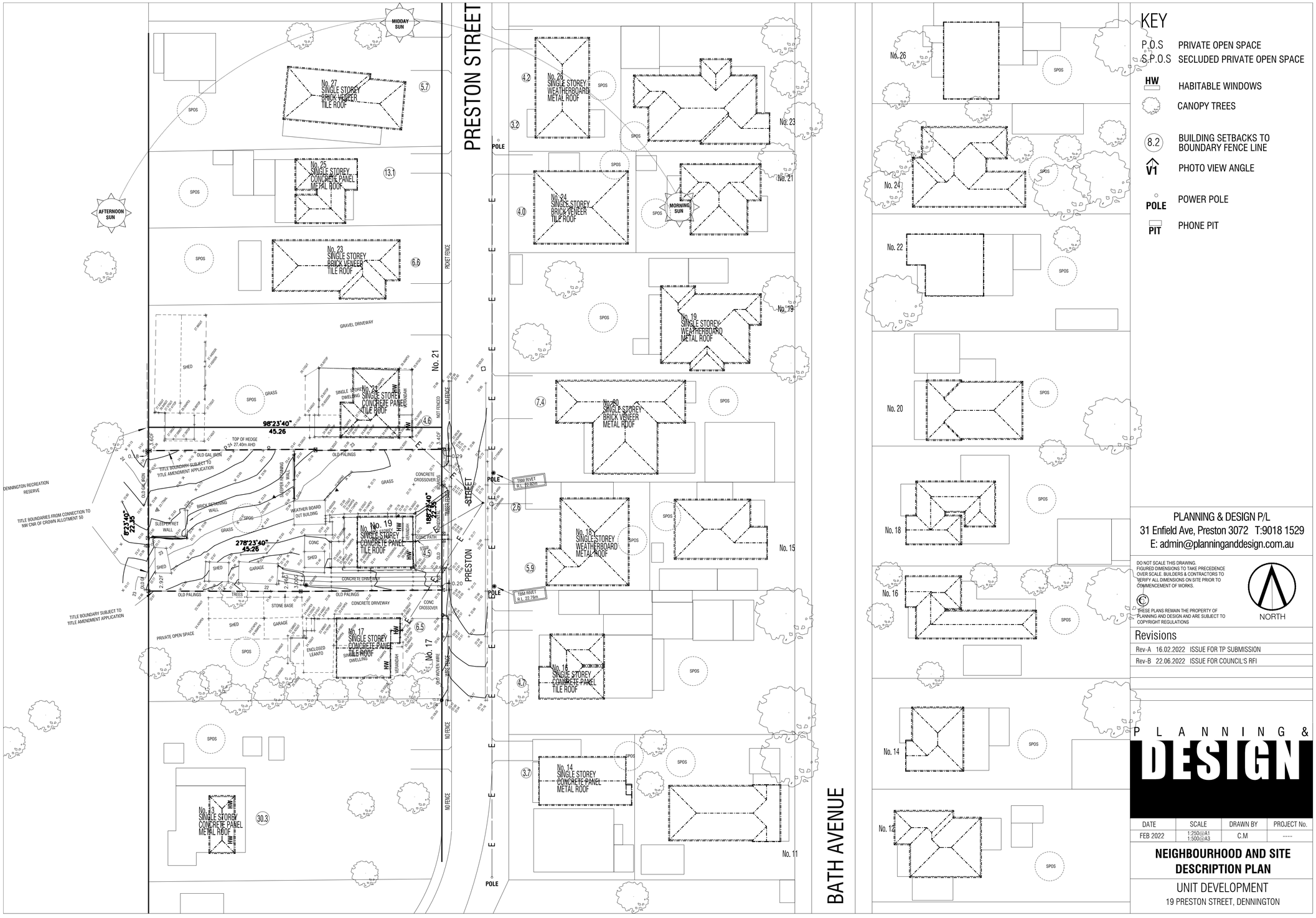
Warrnambool Transfer Station – Date……. Time……... Completed by……..... Wind Dir/Speed……..….km/hr**. Temp….C**

Sector	Aspect	Location	Frequency	Response (Yes or No)	Compliant/actions taken to rectify issue
Litter/Rubbish	Ensure all windblown litter within and surround the transfer station has been removed. Is litter present?	Area1 – WTS entrance & nature strip	Weekly random inspections (management to go through checklist each time a site visit is conducted)		
		Area 2 – Victoria Park Western shrubs			
		Area 3 – Victoria Park Eastern shrubs			
		Area 4 – Victoria Park Northern shrubs			
		Area 5 – WTS & showgrounds fence			
		Area 6 – Friendly Societies Park fence			
		WTS Yard			
Amenity	Is the amenity around the Warrnambool transfer station improving?	All areas around the Warrnambool transfer station.			
Odour	Is there a noticeable odour present and what is the suspected origin i.e. rubbish, compost, animal processing/wastes etc.	A			
		B			
		C			
Dust	Is Dust generated by site activities impacting on external amenity	All areas around the Warrnambool transfer station.			
Vermin	Have any pests or vermin been sighted during the week	All areas around the Warrnambool transfer station.			
Litter patrol	Has a litter patrol occurred before this inspection	All areas around the Warrnambool transfer station.			
Safety & Site Hazards	Are there any hazards identified during the site inspection	All areas around the Warrnambool transfer station.			Summary Improvements

General Site Notes:


Odour point A
Odour point B
Area 2
Area 4
Area 1
Area 3
Transfer Station
Area 5
Area 6
Odour point C

End of Document



KEY

P.O.S	PRIVATE OPEN SPACE
S.P.O.S	SECLUDED PRIVATE OPEN SPACE
HW	HABITABLE WINDOWS
	CANOPY TREES
8.2	BUILDING SETBACKS TO BOUNDARY FENCE LINE
V1	PHOTO VIEW ANGLE
POLE	POWER POLE
PIT	PHONE PIT

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NORTH

Revisions

Rev-A	16.02.2022 ISSUE FOR TP SUBMISSION
Rev-B	22.06.2022 ISSUE FOR COUNCIL'S RFI

PLANNING & DESIGN

DATE	SCALE	DRAWN BY	PROJECT No.
FEB 2022	1:250@A1 1:500@A3	C.M	----

NEIGHBOURHOOD AND SITE DESCRIPTION PLAN

UNIT DEVELOPMENT
19 PRESTON STREET, DENNINGTON

DESIGN RESPONSE

1. EXISTING CROSSOVER TO THE LEFT OF THE SITE TO BE MODIFIED TO SERVICE UNIT 2 & 3.
2. PROPOSED VEHICLE STORAGE FOR ALL UNITS ARE LOCATED BEHIND THE LINE OF THE FRONT DWELLING TO HIDE THE DOMINANCE OF CAR PARKING STRUCTURES FROM THE STREET-SCAPE.
3. NEW MAILBOXES FOR ALL UNITS.
4. PROPOSED FRONT STREET SETBACK TO DEVELOPMENT IS SYMPATHETIC TO THE ADJOINING NEIGHBOURS.
5. LARGE LAWN AREA PROVIDES SPACE FOR LANDSCAPING.
6. OPEN SPACES TO UNITS ARE ORIENTED TOWARDS NORTH PROVIDING FUTURE RESIDENCES WITH EXCELLENT SOLAR ACCESS AND NORTH LIGHT. OPEN SPACE ON SITE FOR EACH DWELLING IS DISTRIBUTED TO THE REAR AND THROUGHOUT THE SITE. THE DEVELOPMENT WILL PROVIDE SUFFICIENT PRIVATE OPEN SPACE FOR THE REASONABLE RECREATION, SERVICE AND STORAGE NEEDS OF RESIDENTS. THE PRIVATE OPEN SPACES FOR ALL DWELLINGS ARE LOCATED OFF LIVING AREAS.
7. LANDSCAPING LOCATION TO PROVIDE SOFT BUFFER AND SCREENING BETWEEN THE ADJOINING PROPERTIES.
8. SETBACKS BETWEEN UNITS AIMS TO RETAIN EXISTING SIGHT LINES WITHIN AND THROUGH THE SITE. THIS WILL ALSO REDUCE VISUAL BULK OF THE NEW DEVELOPMENT.
9. ANY PROPOSED WALLS TO BE BUILT TO THE BOUNDARY ARE LOCATED AWAY FROM EXISTING HABITABLE ROOM WINDOWS AND OPEN SPACES.
10. DRIVEWAYS HAVE BEEN DESIGNED WITH A TURNING CIRCLE TO ALLOW VEHICLES TO EXIT THE SITE IN A FORWARD DIRECTION.
11. EXISTING CROSSOVER TO THE RIGHT OF THE SITE TO BE MODIFIED TO PROVIDE VEHICLE ACCESS TO UNIT 1.

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DO NOT SCALE THIS DRAWING.
FIGURED DIMENSIONS TO TAKE PRECEDENCE OVER SCALE. BUILDERS & CONTRACTORS TO VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCEMENT OF WORKS.

NORTH

Revisions

Rev-A	16.02.2022 ISSUE FOR TP SUBMISSION
Rev-B	22.06.2022 ISSUE FOR COUNCIL'S RFI

PLANNING & DESIGN

DATE	SCALE	DRAWN BY	PROJECT No.
FEB 2022	1:250@A1 1:500@A3	C.M	----

DESIGN RESPONSE

UNIT DEVELOPMENT
19 PRESTON STREET, DENNINGTON


LEGEND
1M² RAINGARDEN
2000L SLIMLINE
2000L WATERTANK TO TREAT SELECTED ROOF AREA. CONNECT WATER TANK TO ALL SANITARY FLUSHING
ELECTRICITY METER
LIGHTING SENSOR ABOVE
TAP
GAS AND WATER METER
HWS HOT WATER SYSTEM
AC AIR-CONDITIONER
CL CLOTH LINE
TP 1.8m HIGH TIMBER PAILING FENCE
R/W RETAINING WALL
dp PROPOSE DOWN PIPE LOCATION
dpS DOWN PIPE WITH SPREADER
AREA SCHEDULE:
UNIT 1
GROUND FLOOR AREA: 144.0 m²
GARAGE: 26.4 m²
PORCH: 2.5 m²
TOTAL AREA: 18.6 SQ 172.9 m²
TOTAL POS: 150.5 m²
TOTAL SPOS: 47.1 m²
UNIT 2
GROUND FLOOR AREA: 99.3 m²
GARAGE: 35.4 m²
PORCH: 1.1 m²
TOTAL AREA: 14.6 SQ 135.8 m²
TOTAL POS: 59.5 m²
TOTAL SPOS: 45.6 m²
UNIT 3
GROUND FLOOR AREA: 112.7 m²
GARAGE: 35.3 m²
PORCH: 2.6 m²
TOTAL AREA: 16.2 SQ 150.6 m²
TOTAL POS: 101.3 m²
TOTAL SPOS: 51.0 m²
SITE
SITE AREA: 1011.6 m²
SITE COVERAGE: 45.3% 458.4 m²
SITE PERMEABILITY: 42.4% 429.7 m²
GARDEN AREA REQ: 35.2% 356.5 m²
No. 21
No. 17
PRESTON STREET
NOT FENCED
OLD WOVEN WIRE
TBM RIVET R.L. 22.82m
TBM RIVET R.L. 22.76m
TOP OF HEDGE 24 27.40m AHD
98°23'40" 45.26
8°23'40" 22.35
SHED
GRASS
POS
SINGLE STOREY DWELLING
VERANDAH
PROPOSED R / W
EXISTING PALINGS 1.8H TO BE RETAINED
TREES
STONE BASE
SHED
GARAGE
CONCRETE DRIVEWAY
CONC CROSSOVER
PRIVATE OPEN SPACE
ENCLOSED LEANTO
SINGLE STOREY DWELLING
VERANDAH
PERMEABLE PAVINGS
CONCRETE DRIVEWAY
TITLE BOUNDARY SUBJECT TO TITLE AMENDMENT APPLICATION
RECREATION RESERVE
NORTH
ALL LEVELS SHOWN ARE TO AHD.
Revisions
Rev A 16.02.2022 ISSUE FOR TP SUBMISSION
Rev B 22.06.2022 ISSUE FOR COUNCILS RFI
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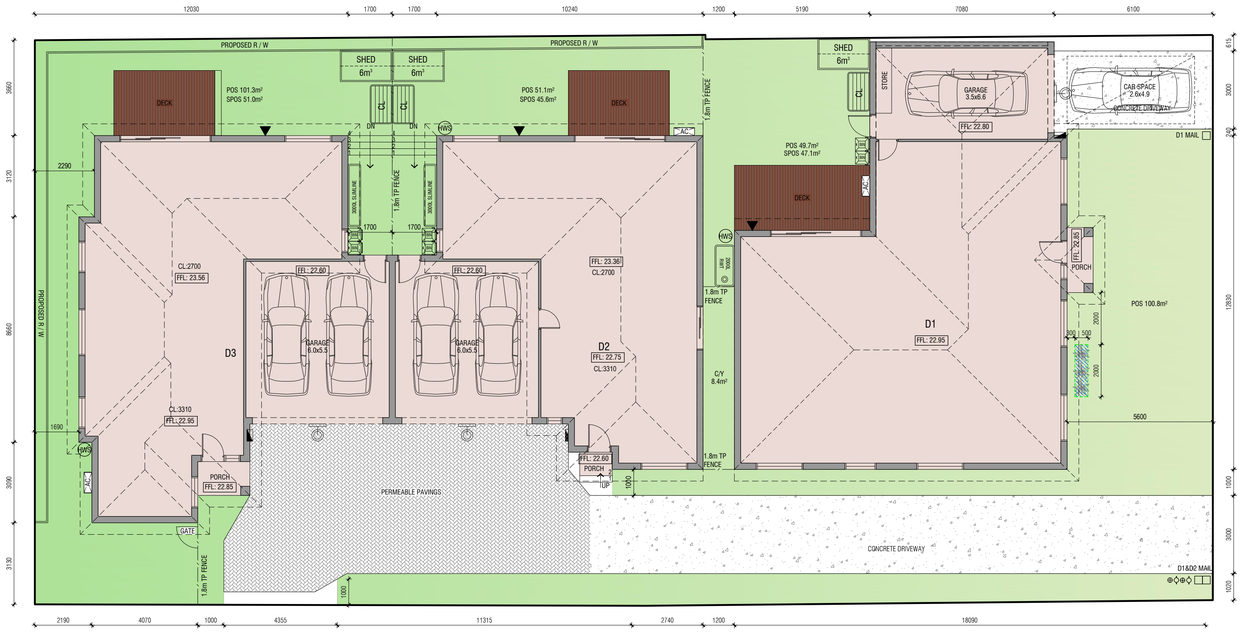
DRWN CM
CHK ----
PROJECT No. ----
GROUND FLOOR PLAN
UNIT DEVELOPMENT
19 PRESTON STREET,
DENNINGTON
TP01
REV_B



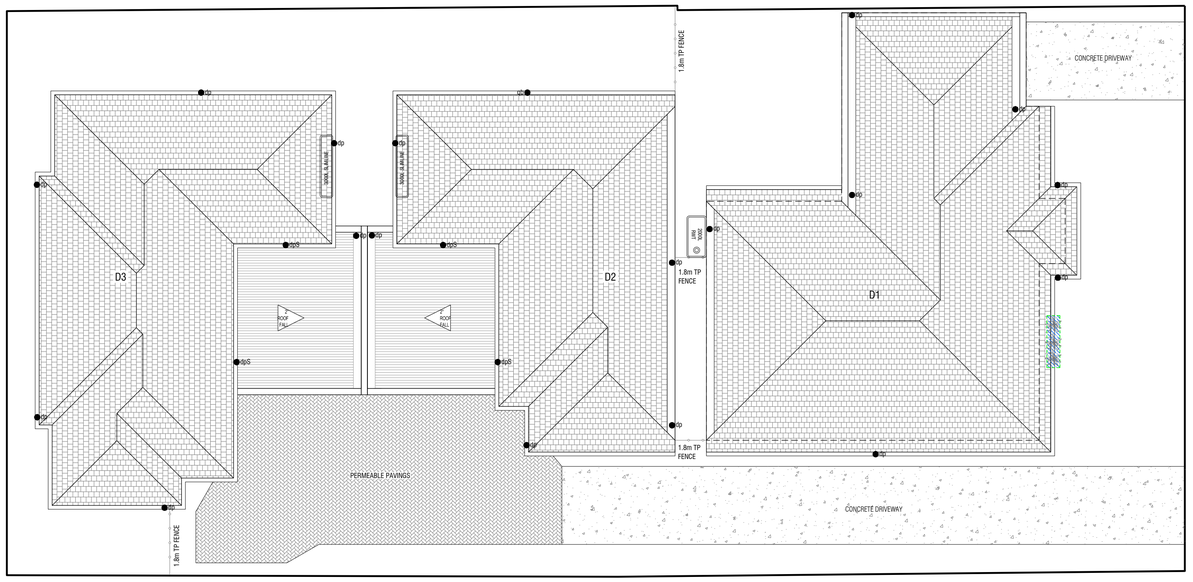
GARDEN PLAN

LEGEND

- 1M² RAINGARDEN
- 2000L SLIMLINE — 2000L WATERTANK TO TREAT SELECTED ROOF AREA. CONNECT WATER TANK TO ALL SANITARY FLUSHING
- ELECTRICITY METER
- LIGHTING SENSOR ABOVE
- TAP
- GAS AND WATER METER
- HWS — HOT WATER SYSTEM
- AC — AIR-CONDITIONER
- CL — CLOTH LINE
- TP — 1.8m HIGH TIMBER PAILING FENCE
- R/W — RETAINING WALL
- dp — PROPOSE DOWN PIPE LOCATION
- dpS — DOWN PIPE WITH SPREADER

GARDEN AREA

TOTAL GARDEN AREA: 356.5m²
GARDEN PERCENTAGE: 35.2%
SITE AREA: 1011.6m²



ROOF PLAN

NORTH

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Revisions

Rev A 16.02.2022 ISSUE FOR TP SUBMISSION
Rev B 22.06.2022 ISSUE FOR COUNCILS RFI

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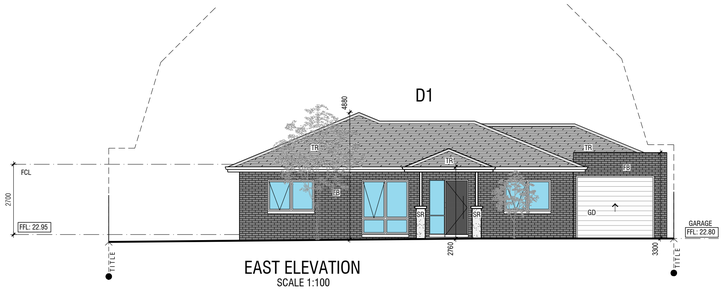
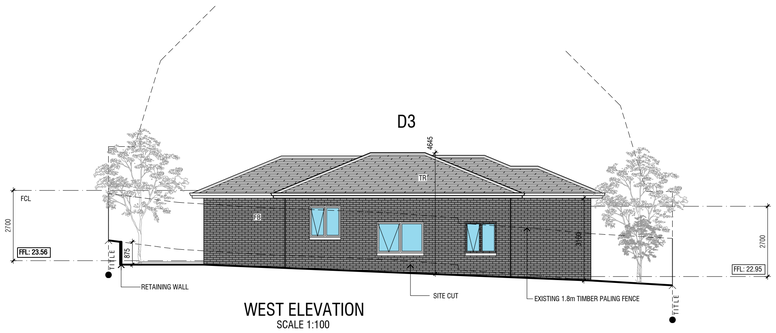
GARDEN AREA & ROOF PLAN

UNIT DEVELOPMENT
19 PRESTON STREET,
DENNINGTON

TP02
REV_B





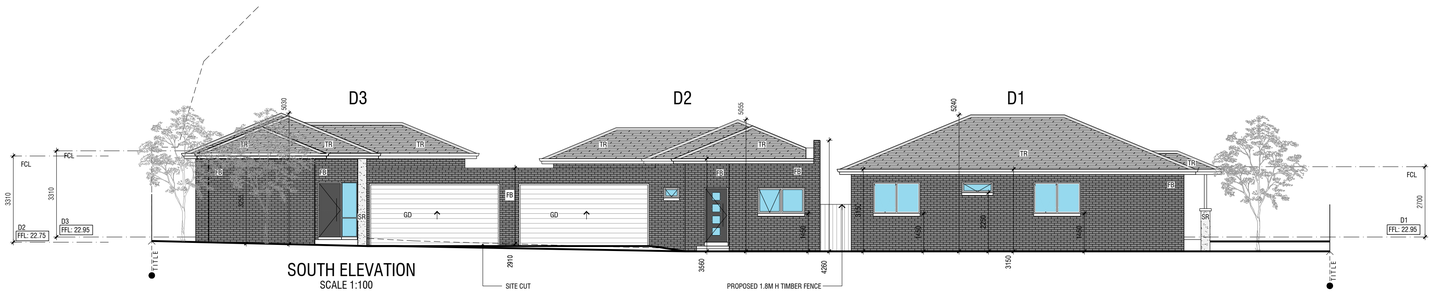
MATERIAL SCHEDULE:

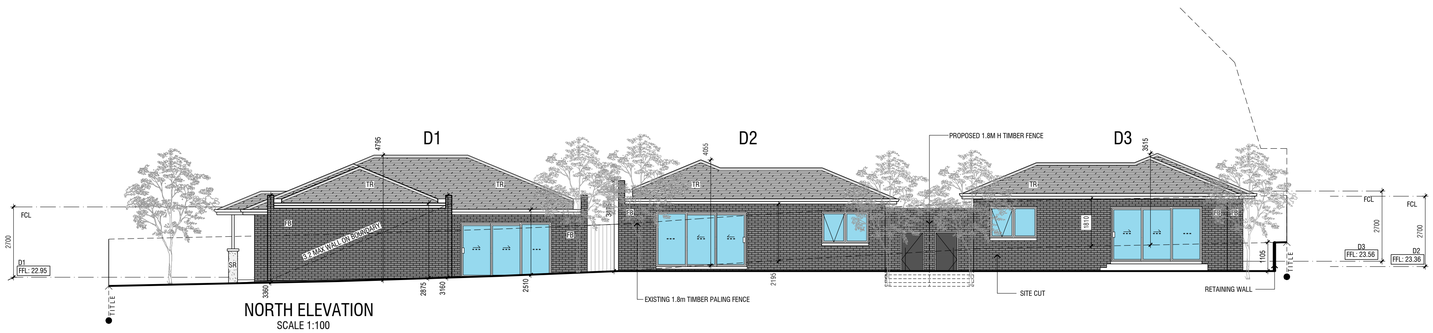
SR	SMOOTH RENDER FINISH
FB	FACEBRICK WALL
GD	SELECTED GARAGE DOOR
G1	OBS GLASS - 150mm RESTRICTED AWNING
G2	FIXED OBSCURE GLAZING (NOT FILM) WITH A MAXIMUM TRANSPARENCY OF 25% TO A MINIMUM HEIGHT OF 1.7m ABOVE FINISHED FLOOR LEVEL
TP	1.8m HIGH TIMBER PAILING FENCE
TR	SELECTED TILED ROOF AT 22.5 DEGREE PITCH
TS	1.7m HIGH SELECTED TIMBER SCREEN

ALUMINIUM WINDOWS THROUGH-OUT

COLORBOND GUTTERS, FASCIA'S AND DOWNPIPES

DG	ALL HABITABLE WINDOWS TO BE DOUBLE GLAZED





FACE BRICKWORK: (FB)
CHARCOAL OR SIMILAR

WINDOWS:
ALUMINIUM: MONUMENT FRAME WITH CLEAR GLASS OR SIMILAR

GARAGE DOOR: (GD)
SELECTED GARAGE DOOR OR SIMILAR

SMOOTH RENDER: (SR)
DULUX COLOURBOND WALLABY OR SIMILAR

TIMBER PALING (TP):
1.8m HIGH TIMBER PALING FENCE

TILED ROOF: (TR)
CHARCOAL TILE ROOF OR SIMILAR

DRIVEWAY:
CHARCOAL COLOURED CONCRETE OR SIMILAR

FASCIA:
ALUMINIUM: MONUMENT GUTTER & DOWNPIPES OR SIMILAR

NORTH

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Revisions

Rev A	16.02.2022 ISSUE FOR TP SUBMISSION
Rev B	22.06.2022 ISSUE FOR COUNCILS RFI

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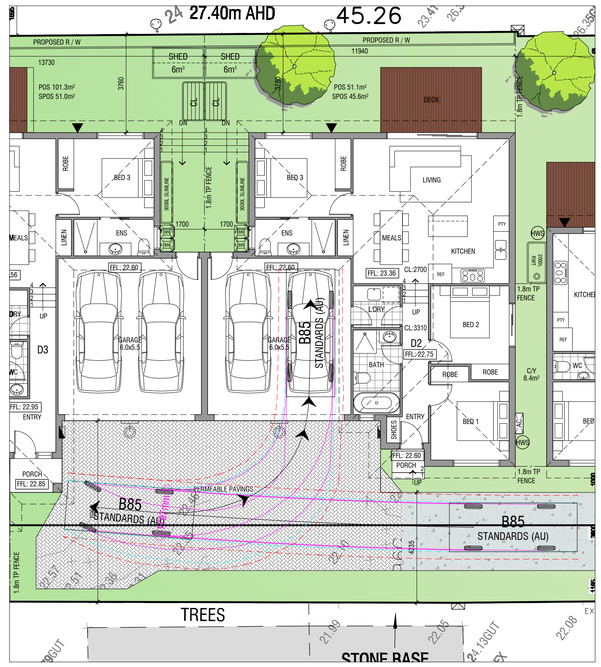
ELEVATIONS

UNIT DEVELOPMENT
19 PRESTON STREET,
DENNINGTON

TP03
REV_B

D1 CAR ENTRY
SCALE 1:100

D1 CAR 2 ENTRY
SCALE 1:100



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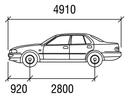

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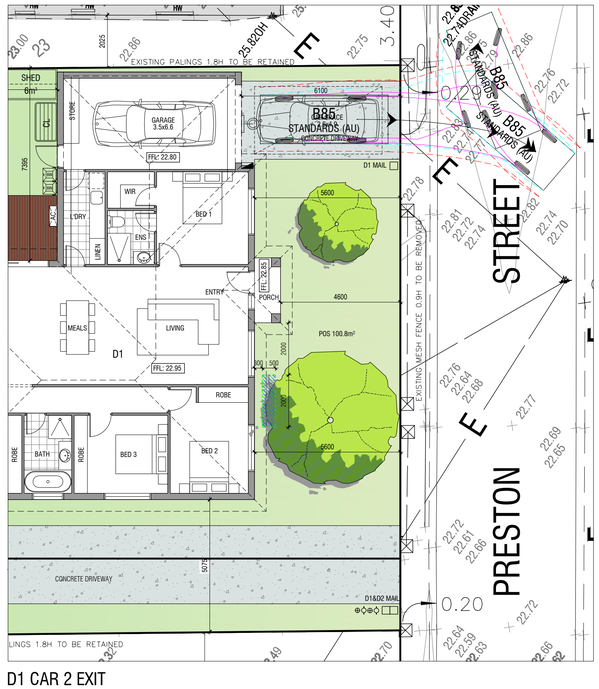
Width	: 1900
Track	: 1550
Lock to Lock Time	: 6.0
Steering Angle	: 24.0

300mm CLEARANCE
VEHICLE OVERHANG
WHEEL PATH

D1 CAR EXIT
SCALE 1:100



D1 CAR 2 EXIT
SCALE 1:100

D2 CAR 1 EXIT
SCALE 1:100

NORTH

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Revisions

Rev A	16.02.2022 ISSUE FOR TP SUBMISSION
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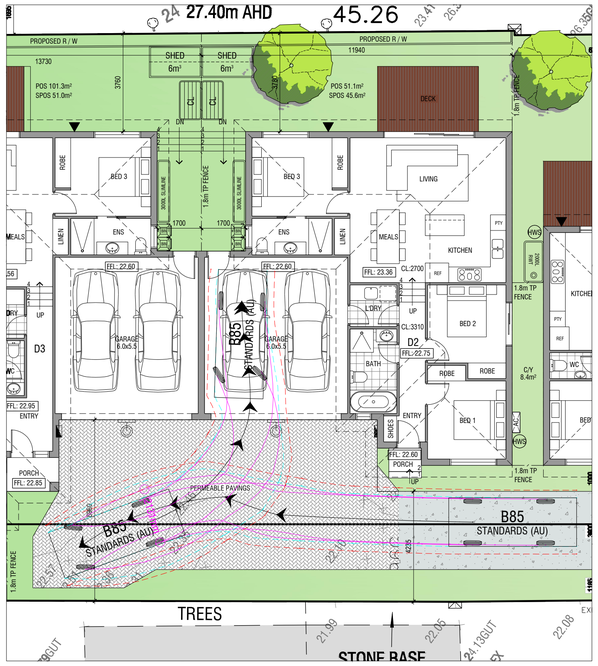
SWEPT PATH DIAGRAMS

UNIT DEVELOPMENT
19 PRESTON STREET,
DENNINGTON

TP04
REV_B



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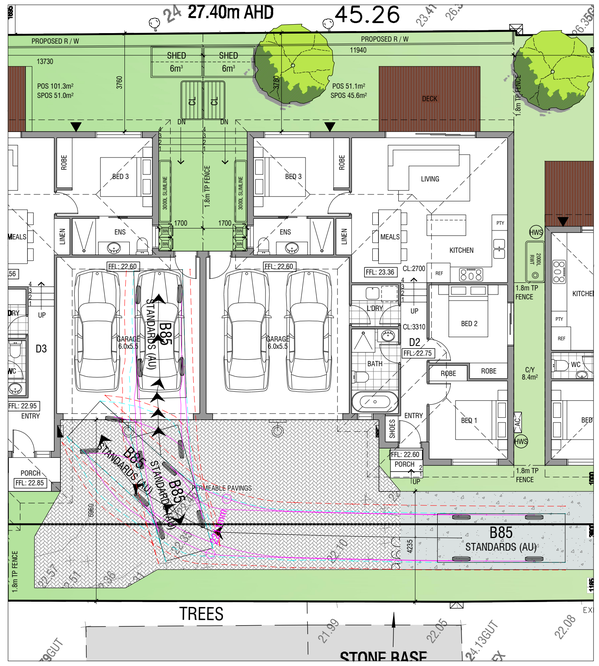

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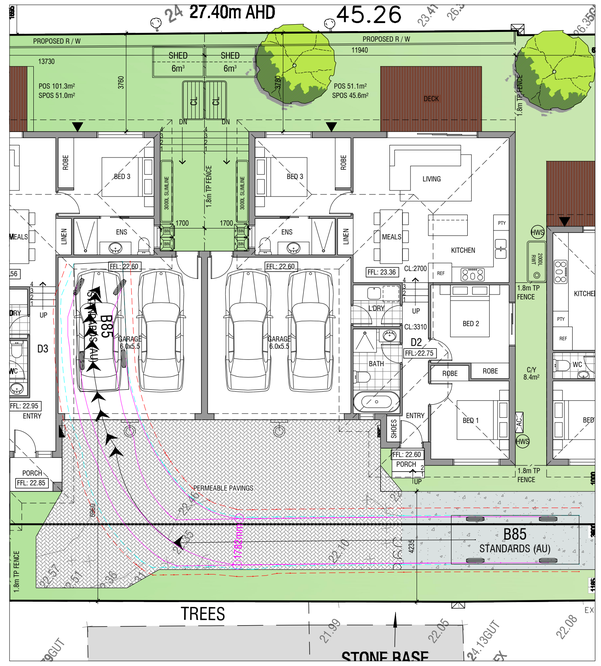

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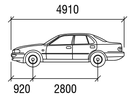
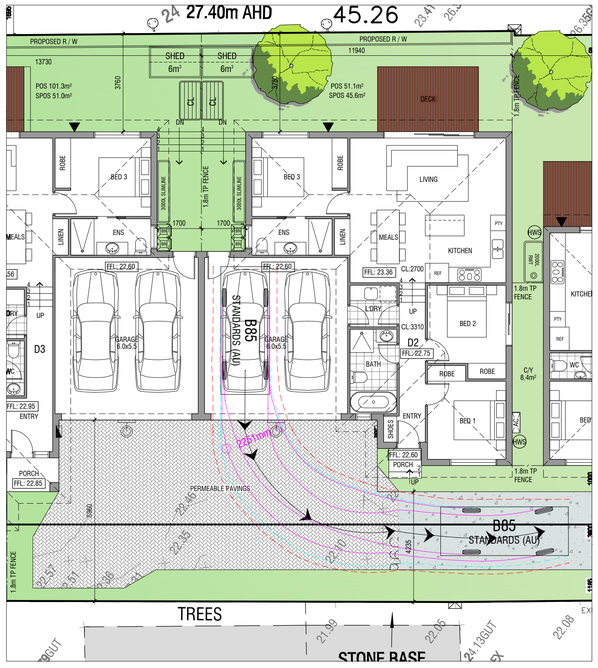


B85	mm
Width	: 1900
Track	: 1550
Lock to Lock Time	: 6.0
Steering Angle	: 24.0

300mm CLEARANCE
VEHICLE OVERHANG
WHEEL PATH



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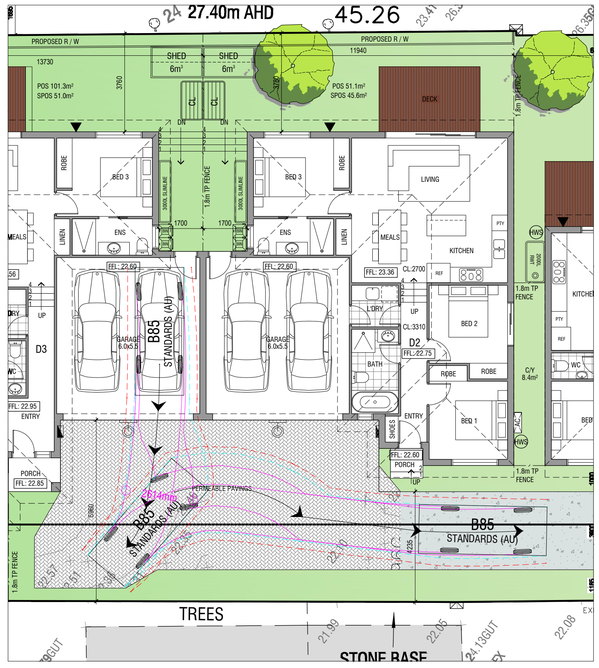

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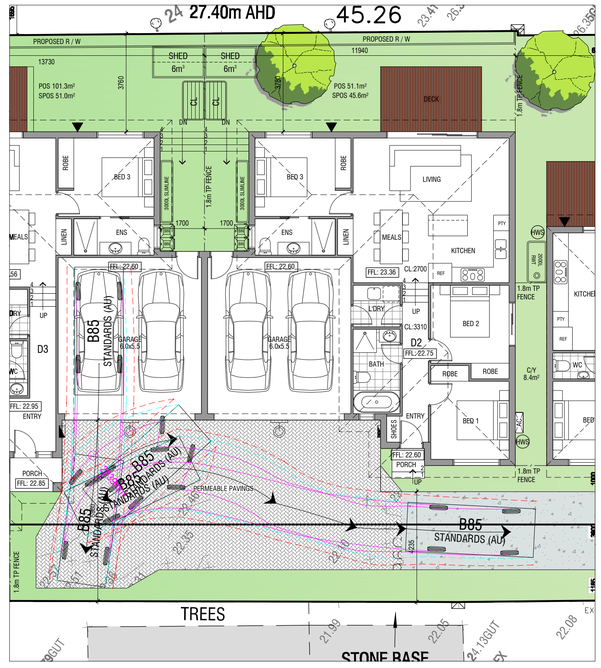
SCALE 1:100



D4 CAR 2 EXIT
SCALE 1:100

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Revisions

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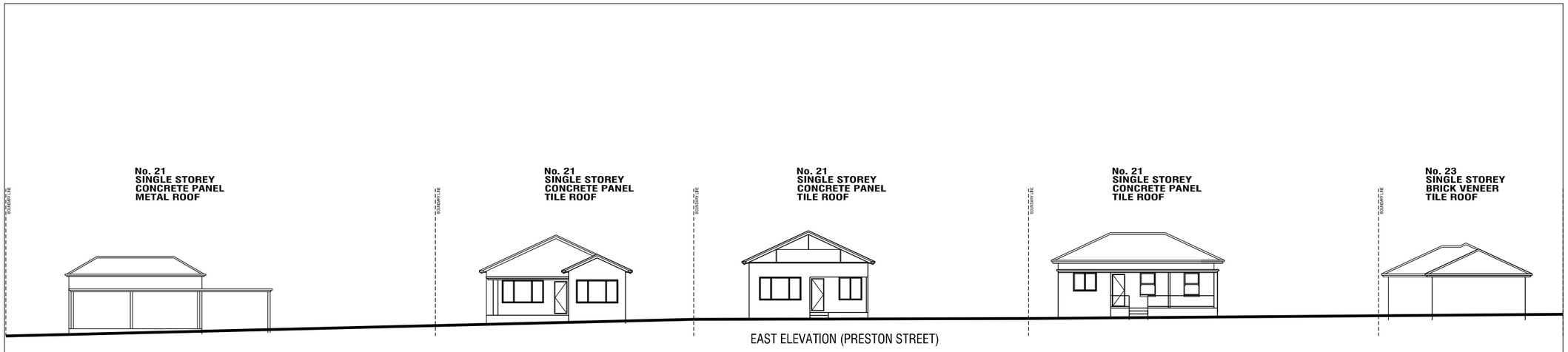
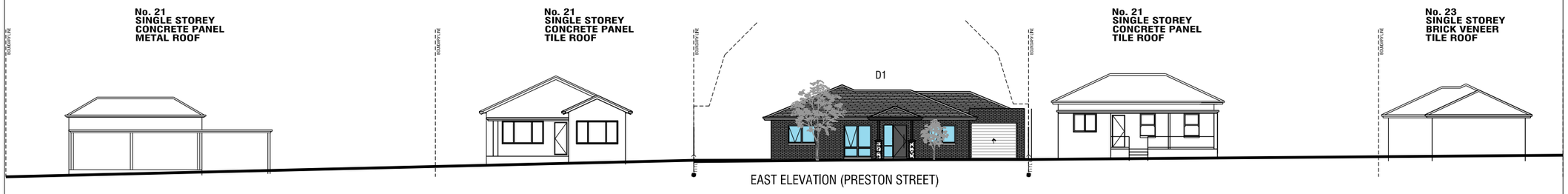
SWEPT PATH DIAGRAMS

UNIT DEVELOPMENT
19 PRESTON STREET,
DENNINGTON

TP05
REV_B



EXISTING ELEVATIONS



PROPOSED ELEVATIONS

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Rev-B	22.06.2022 ISSUE FOR COUNCIL'S RFI

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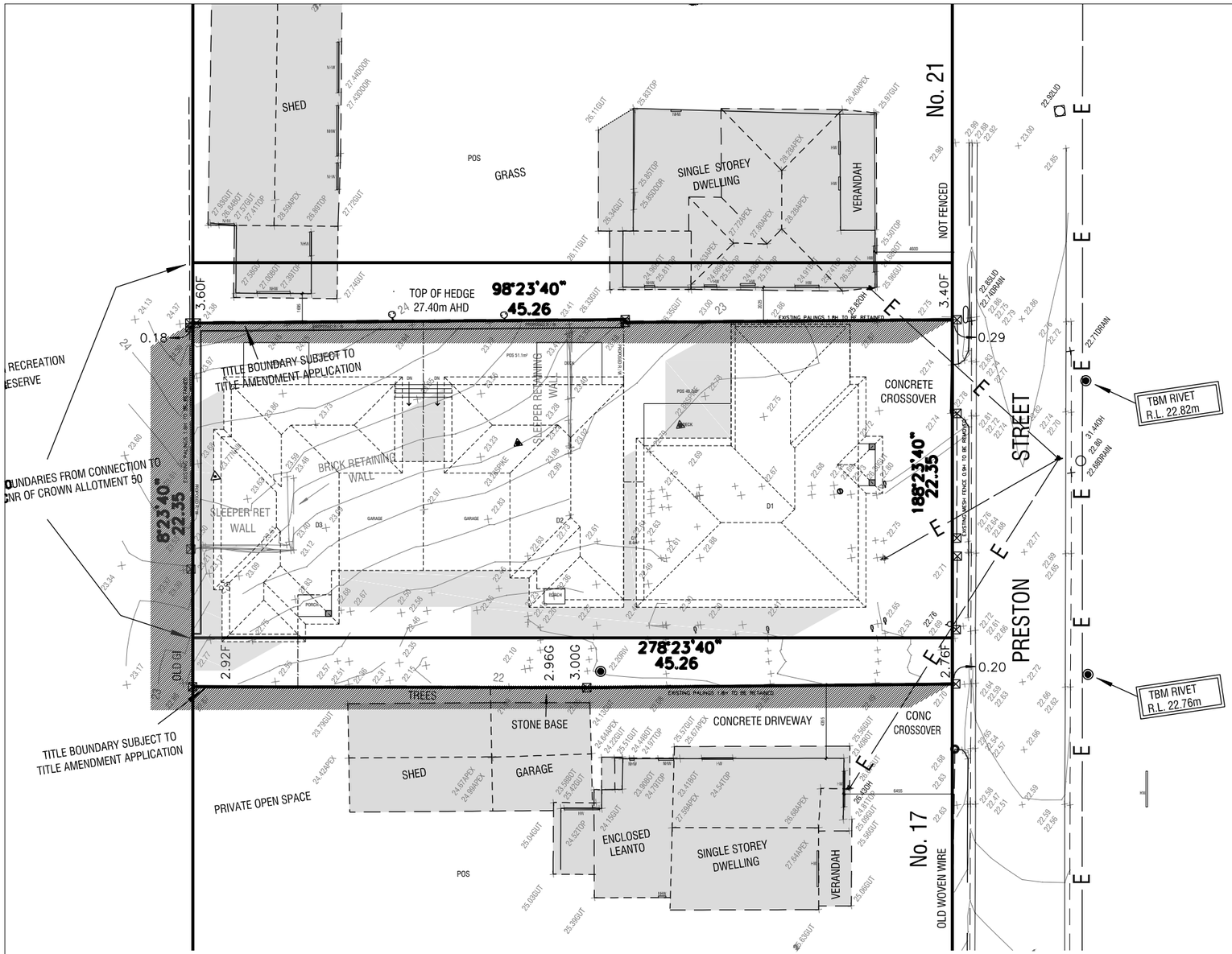
STREET ELEVATIONS

UNIT DEVELOPMENT
19 PRESTON STREET, DENNINGTON

SE
REV-B



LEGEND

PROPOSED SHADOWS

EXISTING SHADOWS

NORTH

SHADOW DIAGRAM 9AM

22nd OF SEPTEMBER

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Rev

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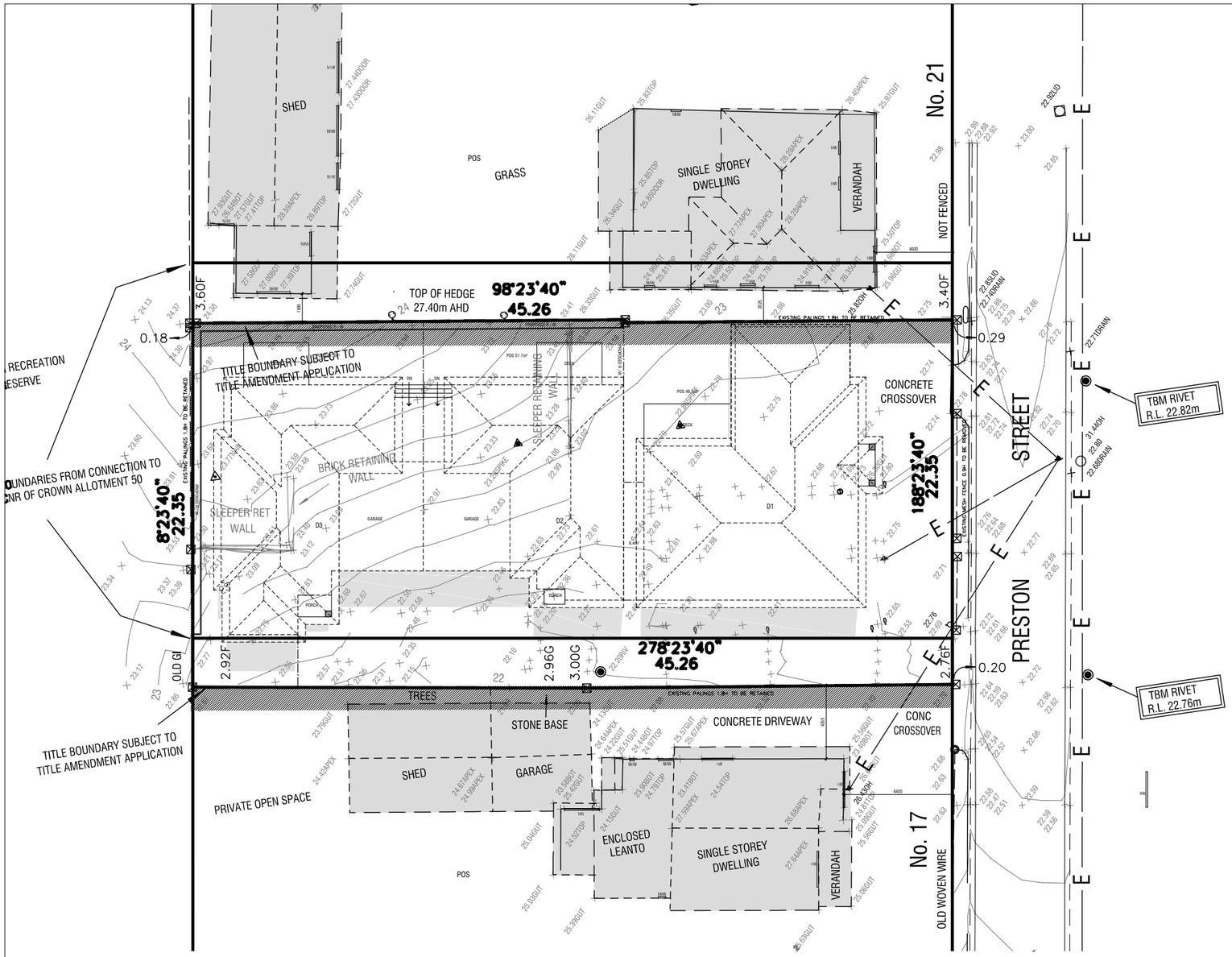
PROPOSED SHADOW DIAGRAM

UNIT DEVELOPMENT
19 PRESTON STREET, DENNINGTON

SD01
REV-



LEGEND

PROPOSED SHADOWS

EXISTING SHADOWS

NORTH

SHADOW DIAGRAM12PM

22nd OF SEPTEMBER

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Revisions

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DATE	SCALE	DRAWN BY	PROJECT No.
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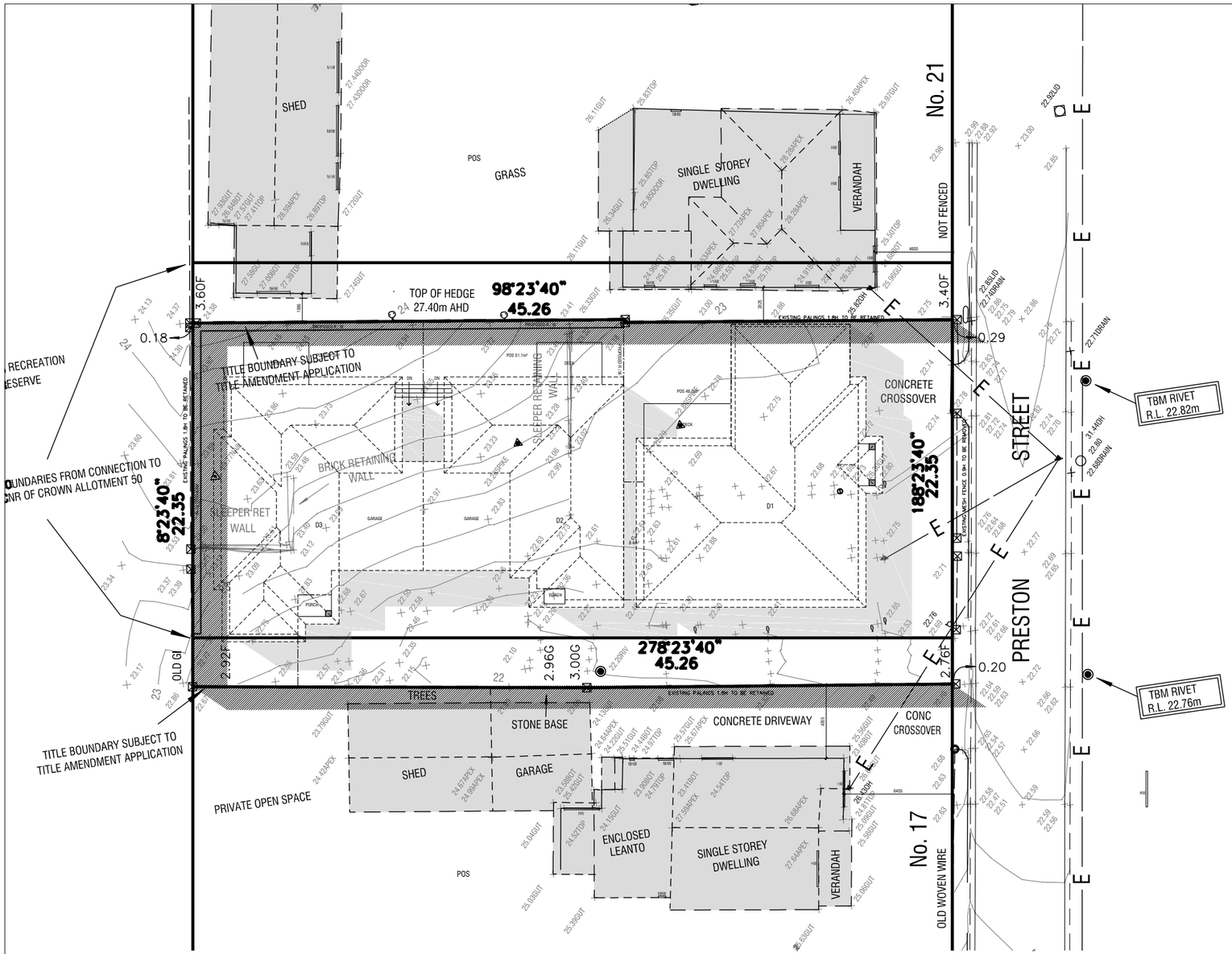
PROPOSED SHADOW DIAGRAM

UNIT DEVELOPMENT
19 PRESTON STREET, DENNINGTON

SD02
REV-



LEGEND

PROPOSED SHADOWS

EXISTING SHADOWS

NORTH

SHADOW DIAGRAM 3PM

22nd OF SEPTEMBER

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PROPOSED SHADOW DIAGRAM

UNIT DEVELOPMENT
19 PRESTON STREET, DENNINGTON

SD03
REV-

SPECIFICATIONS

SUBGRADE PREPARATION
SITE TO BE PREPARED IN ACCORDANCE WITH BEST HORTICULTURAL PRACTICE AND UNDER APPROPRIATE CONDITIONS. DISTURBANCE TO NATIVE SOIL STRUCTURE IS TO BE MINIMISED. THE USE OF MACHINERY THAT MAY DAMAGE SOIL STRUCTURE OR PROFILE IS NOT ACCEPTABLE. ALL LAWN AND PLANTED AREAS SUB-GRADE TO IS TO BE CULTIVATED TO A MINIMUM DEPTH OF 150MM. DRAINAGE FALLS TO BE SHAPED PRIOR TO TOP SOILING. TEST SUB GRADE TO BE TO DETERMINE PH, SALINITY AND GYPSUM REQUIREMENT PRIOR TO PREPARATION AND CONDITIONING. ANY GYPSUM REQUIRED IS TO BE DISTRIBUTED ACCORDING TO MANUFACTURERS RECOMMENDED RATE AND CULTIVATED INTO THE SUB-GRADE AT A MINIMUM DEPTH OF 150MM. TOPPING AREAS TO BE GRADED / DRAINED TO AVOID WATER DISCHARGE INTO ADJOINING PROPERTIES.

WEED CONTROL
ENVIRONMENTAL WEEDS TO BE REMOVED AND DISPOSED OFF OF SITE PRIOR TO SUB GRADE PREPARATION, TOPSOILING AND PLANTING WORKS.

SOIL PREPARATION
SPREAD TOPSOIL IN MAXIMUM 150MM LAYERS, LIGHTLY COMPACTED BY USE OF A 150 - 200KG ROLLER, OR BY CAREFULLY WALKING UNTIL IT IS SETTLED AT FINISHED KERB LEVELS OR TO WITHIN 75MM BELOW EDGING LEVELS TO ACCOMMODATE MULCH. IMPORTED TOPSOIL FOR GARDEN BEDS IS TO BE MEDIUM TEXTURE GENERAL PURPOSE GARDEN SOIL AND LIGHTLY COMPACTED TO MINIMUM 300MM DEPTH TO GARDEN BEDS. SOIL IS TO COMPLY WITH AS 2223-1978, AND AS FOLLOWS:
- FREE FROM PERENNIAL WEEDS AND THEIR ROOTS, BULBS AND RHIZOMES
- FREE FROM BUILDING RUBBLE AND ANY OTHER MATTER DELETERIOUS TO PLANT GROWTH
- PH TO BE 6.0-7.0
- TEXTURE TO BE LIGHT TO MEDIUM FRIABLE LOAM
- FREE FROM SILT MATERIAL

IMPORTED TOPSOIL FOR LAWN REJUVENATION / ESTABLISHMENT SHALL HAVE THE ABOVE CHARACTERISTICS, BUT SHALL BE A FREE DRAINING SANDY LOAM. LIGHTLY COMPACT TO MINIMUM DEPTH OF 100MM.

MULCH
MULCH FOR GARDEN BEDS IS TO BE AN AGED ORGANIC MATERIAL WITH 60 - 80 PERCENT WOOD CHIPS PARTICLES IN A SIZE RANGE OF 25 - 50 MM MAXIMUM BY VOLUME. SPREAD MULCH AT A CONSOLIDATED DEPTH OF 75MM.

PLANTING PROCEDURE
FILL PLANTING HOLE WITH WATER AND ALLOW TO DRAIN COMPLETELY IF SOIL IS DRY. TREE ROOTS ARE TO BE TEASED OUTWARDS IF MATTED OR CIRCLING OCCURS PRIOR TO BACKFILLING. PLACE TREE IN CENTRE OF HOLE ON FIRM SOIL TO PREVENT SINKING, ENSURING TOP OF THE ROOTBALL IS FLUSH WITH THE SURROUNDING SOIL SURFACE AND THE TRUNK IS VERTICAL. BACKFILL MATERIAL IS TO BE IN A LOOSE, FRIABLE STATE, WITH NO BRICKS, ROCKS OR FOREIGN MATERIAL - IF SUFFICIENT MATERIAL IS NOT AVAILABLE FORM THE ORIGINAL HOLE TO BACKFILL, A SIMILAR SOIL TYPE MUST BE SOURCED AND USED. PREVENT LARGE AIR POCKETS IN SOIL FROM OCCURRING BY FIRMLY BACKFILLING SOIL IN LAYERS THEN THOROUGHLY WATERED IN. TREES TO BE STAKED WITH TWO 2250MM X 70MM HARDWOOD STAKES DRIVEN FIRMLY INTO THE GROUND. DO NOT BE PLACE STAKE THROUGH THE ROOTBALL AREA. TREES ARE TO BE SECURED TO EACH STAKE WITH A STRONG, SOFT AND FLEXIBLE MATERIAL, TIGHT ENOUGH TO SUPPORT THE TREE IN WINDY CONDITIONS BUT FLEXIBLE ENOUGH TO STIMULATE DEVELOPMENT OF A GOOD SUPPORTIVE ROOT SYSTEM. TREE TIE MATERIAL MUST NOT DAMAGE TREE BARK OR RESTRICT TRUNK GROWTH FOR A MINIMUM PERIOD OF THREE YEARS. SLOW RELEASE FERTILISER (3/6 MONTH FORMULATION) SUCH AS 'OSMOCOTE' IS TO BE APPLIED TO THE TOP OF THE ROOTBALL AREA AWAY FROM THE TRUNK / STEM TO MANUFACTURERS SPECIFICATIONS AND WATERED IN IMMEDIATELY. ALL TREES TO BE MULCHED TO A DIAMETER OF 1200MM WIDE AND TO A DEPTH OF 100MM BUT MUST NOT BE IN CONTACT WITH THE TREE TRUNK. MULCH IS TO BE AN AGED ORGANIC MATERIAL WITH 60 - 80 PERCENT OF ITS VOLUME BEING WOOD CHIP PARTICLES IN A SIZE RANGE OF 25 -50MM MAXIMUM. MULCH IS TO BE SPREAD AT A CONSOLIDATED DEPTH OF 75MM. THE PLANTING HOLE SURFACE IS TO BE SHAPED TO MINIMISE WATERLOGGING/EXCESSIVE WATER RETENTION BUT RETAIN THE MULCH MATERIAL NEATLY. THE SITE MUST BE LEFT IN A CLEAN AND SAFE CONDITION.

PLANT ESTABLISHMENT PERIOD
THE LANDSCAPE IS TO BE MAINTAINED BY APPLYING BEST HORTICULTURAL PRACTICE TO PROMOTE HEALTHY PLANT PERFORMANCE FOR A 13 WEEK ESTABLISHMENT PERIOD FOLLOWING THE APPROVAL OF PRACTICAL COMPLETION BY THE RESPONSIBLE AUTHORITY INCLUDING (BUT NOT LIMITED TO) THE FOLLOWING TASKS - PRUNING AS NECESSARY TO MAINTAIN PLANTS IN A HEALTHY AND STRUCTURALLY SOUND MANNER, PEST AND DISEASES - VEGETATION TO BE PEST AND DISEASE FREE, MULCHING, STAKING AND TYING. MAINTAINED 75MM MULCH DEPTH AROUND TREE BASES THROUGHOUT MAINTENANCE PERIOD, WATER AS OFTEN AS NECESSARY TO ENSURE HEALTHY AND VIGOROUS GROWTH IN ACCORDANCE WITH CURRENT LOCAL WATERING REGULATIONS, MAINTAIN WEED FREE STATE OVER THE ENTIRE MULCH AREA BY SPRAYING OR MECHANICAL WEEDING, FERTILISING - 3/6 X MONTHLY SLOW RELEASE FERTILISER IN ACCORDANCE WITH MANUFACTURERS RECOMMENDED APPLICATION RATES, REPLACEMENT OF DECEASED, STOLEN OR VANDALISED PLANTS BEYOND REPAIR OR REGROWTH WITH THE SAME SPECIES AS SPECIFIED IN THE PLANT SCHEDULE WITHIN THE ASSIGNED MAINTENANCE PERIOD

IRRIGATION
IF APPLICABLE, INSTALL IN-GROUND AUTOMATIC DRIP IRRIGATION SYSTEM TO ALL GARDEN AREAS AND PLANTER BOXESIN ACCORDANCE WITH CURRENT LOCAL WATERING REGULATIONS

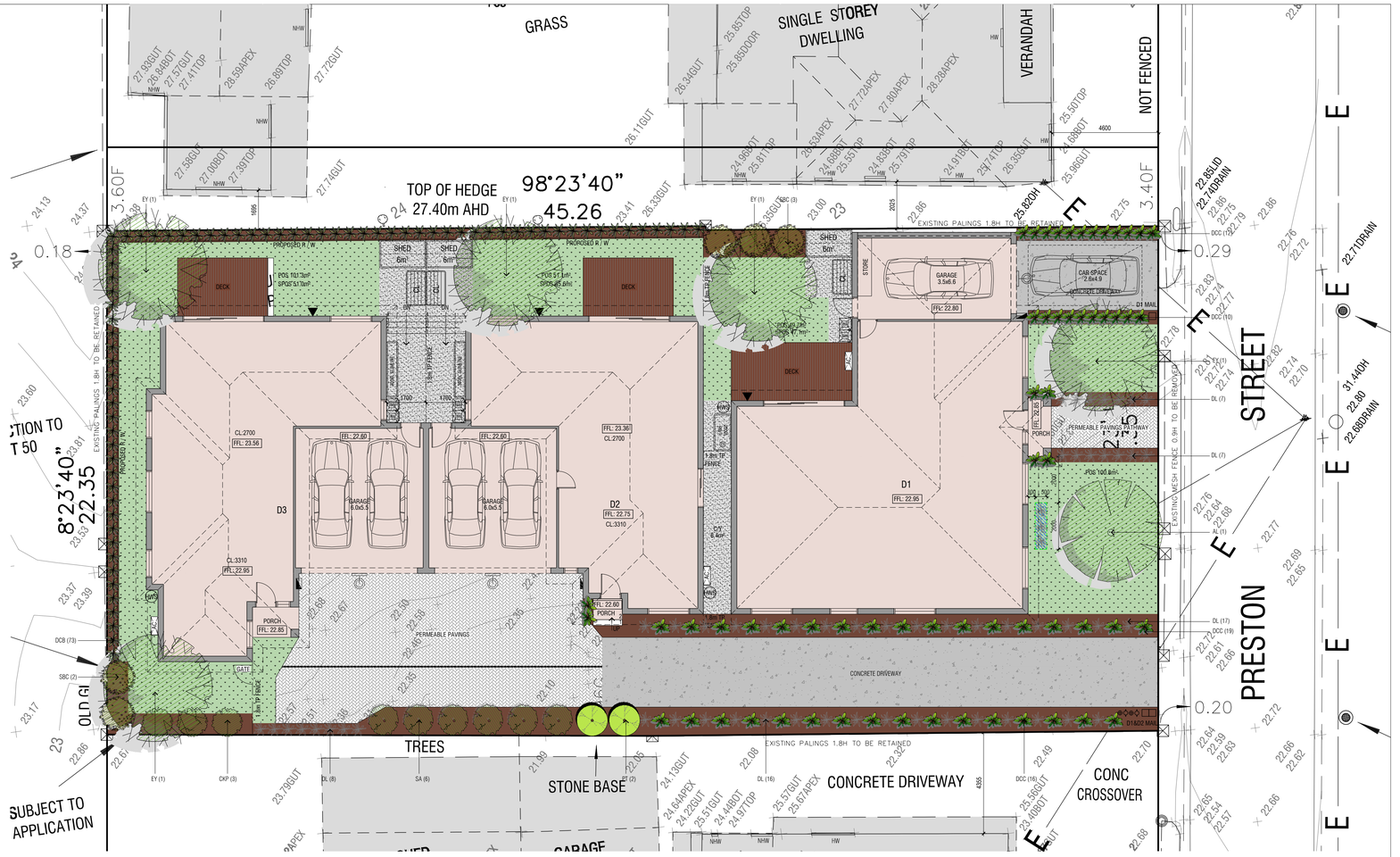
TIMBER EDGING
TIMBER EDGING TO BE 75MM X 25MM TREATED PINE SECURED TO 300MM LONG TREATED PINE STAKES AT NOM. MIN 1000MM SPACINGS WITH GALVANISED SCREWS AND INSTALLED TO ALL JUNCTIONS BETWEEN GARDEN BEDS, LAWN AND TOPPING / PEBBLE AREAS

DRAINAGE
LANDSCAPE AND / OR BUILDING CONTRACTOR(S) ARE RESPONSIBLE FOR CIVIL AND HYDRAULIC COMPUTATIONS FOR LANDSCAPE BUILDING WORKS INCLUDING, BUT NOT LIMITED TO SURFACE AND SUB SURFACE DRAINAGE FOR ALL LANDSCAPE AREAS PRIOR TO COMMENCEMENT OF WORKS

GENERAL
WHILE CARE HAS BEEN TAKEN TO SELECT TREE SPECIES WITH NON-INVASIVE ROOT SYSTEMS IT IS RECOMMENDED THAT ROOT CONTROL BARRIERS BE INSTALLED FOR ANY TREES LOCATED WITHIN TWO METRES OF ANY BUILDING LINES.
CLIMBING PLANTS (IF APPLICABLE) ARE TO BE TRAINED TO SUPPORTIVE MESH, WIRE OR LATTICE FIXED OVER ENTIRE FENCE SECTION FROM BASE TO TOP
DO NOT SCALE FROM PLAN - CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCING CONSTRUCTION

PLANTS - QUALITY OF TREES AND SHRUBS
PROVIDE PLANTS AT SPECIFIED PLANT HEIGHTS AND POT SIZES, AT MINIMUM. PROVIDE LARGER STOCK IF PLANT MATERIAL IS UNAVAILABLE IN THESE SIZES. TREES AND SHRUBS SHALL BE HEALTHY NURSERY STOCK FREE FROM PESTS, INSECTS, DISEASES AND WEEDS. SUBSTITUTE PLANS ARE NOT ACCEPTABLE UNLESS DEEMED ACCEPTABLE BY THE RESPONSIBLE AUTHORITY IN WRITING. SEMI MATURE TREES TO BE SUPPLIED TO MEET THE FOLLOWING CRITERIA: HAVE A MINIMUM PLANTED HEIGHT TO SIZES AS INDICATED IN THE PLANT SCHEDULE, HAVE A MINIMUM TRUNK CALLIPER OF 50MM AT GROUND LEVEL, BE UNDAMAGED AND FREE OF DISEASES AND INSECT PESTS, NOT BE ROOT BOUND OR HAVE CIRCLING OR GIRDLING ROOTS BUT HAVE ROOTS GROWN TO THE EDGE OF - THE CONTAINER, SHOULD BEAR A SINGLE STRAIGHT TRUNK, STRONG BRANCHING PATTERN, AND FULL CANOPY, SHOW HEALTHY, VIGOROUS GROWTH

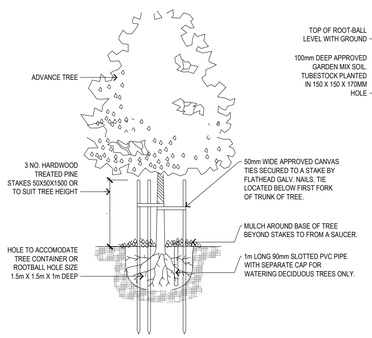
PROTECTION OF EXISTING TREES
ALL EXISTING VEGETATION SHOWN ON THE ENDORSED PLAN ON BOTH SUBJECT SITE AND NEIGHBOURING PROPERTIES TO BE RETAINED MUST BE SUITABLY MARKED AND PROTECTED (IF REQUIRED) PRIOR TO COMMENCEMENT OF DEVELOPMENT ON SITE INCLUDING DEMOLITION. VEGETATION MUST NOT BE REMOVED, DESTROYED OR LOPPED WITHOUT THE WRITTEN CONSENT OF THE RESPONSIBLE AUTHORITY. BEFORE THE COMMENCEMENT OF WORKS INCLUDING DEMOLITION, TREE PROTECTION BARRIERS MUST BE ERECTED AROUND TREES ON BOTH SUBJECT SITE AND ADJOINING PROPERTIES TO FORM A DEFINED TREE PROTECTION ZONE DURING DEMOLITION AND CONSTRUCTION IN ACCORDANCE WITH TREE PROTECTION MEASURES AS PER AS 4970-2009. ANY REQUIRED PRUNING MUST BE CARRIED OUT BY A TRAINED AND COMPETENT ARBORIST WITH A THOROUGH KNOWLEDGE OF TREE PHYSIOLOGY AND PRUNING METHODS. PRUNING TO BE CARRIED OUT AS PER AS 4373-2007. ALL TREE PROTECTION PRACTICES MUST MEET THE REQUIREMENTS OF A CONSULTING ARBORIST AND / OR TO THE SATISFACTION OF THE RESPONSIBLE AUTHORITY.



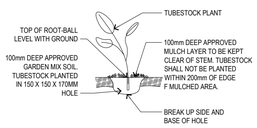
LEGEND

- PROPOSED DECIDIOUS TREES
- PROPOSED EVERGREEN TREES
- PROPOSED EVERGREEN SHRUBS
- PROPOSED CLIMBERS
- EXISTING TREES TO BE RETAINED AND PROTECTED
- EXISTING TREES TO REMOVED
- PROPOSED LAWN AREAS
- PROPOSED CONCRETE DRIVEWAY
- PROPOSED TOPPINGS AREAS
- PROPOSED GARDEN BEDS
- PROPOSED TILES AREAS
- PROPOSED PERMEABLE PAVED AREAS
- PROPOSED LAWN AREAS
- PROPOSED WASHING LINE (CL)
- PROPOSED PAVER STEP-STONES
- PROPOSED 6m² STORAGE SHED (SHED 6m²)
- PROPOSED BIN STORAGE AREA
- FENCE WITH HEIGHTS AND MATERIALS AS NOMINATED
- SELECTED UNDERGROUND RAIN WATER TANK (RWT)

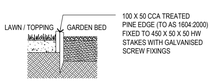
ADVANCE TREE PLANTING
DETAIL NOT DRAWN TO SCALE



SHRUB PLANTING
DETAIL NOT DRAWN TO SCALE



TYPICAL TIMBER EDGE DETAIL
TO ALL GARDEN BEDS AND LAWN / TOPPINGS EDGE



SURFACE FINISH DETAIL

GARDEN BEDS
- 75mm ORGANIC PINE BARK MULCH
- 400mm APPROVED MEDIUM LOAM SOIL
- MIN 150mm DEEP ROTARY HOED SUBGRADE

TOPPINGS AREAS
- 40mm COMPACTED SELECTED TOPPINGS
- 75mm COMPACTED FCR BASE (NO COMPACTED BASE AROUND BASE OF EXISTING TREES)
- SUBGRADE

LAWN AREAS
- STRATHAYAR WALTER SOFT LEAF BUFFALO OR SIMILAR INSTANT LAWN
- 100mm APPROVED SANDY LOAM SOIL
- MIN 150mm DEEP ROTARY HOED SUBGRADE

PERMEABLE PAVING AREAS
- 50-80mm SELECTED PERMEABLE PAVERS
- 2-5mm BEDDING COURSE. BASA,T AGGREGATE
- 20mm NO FINE AGGREGATE COMPACTED FCR BASE (NO COMPACTED BASE AROUND BASE OF EXISTING TREES)
- SUBGRADE

PLANT SCHEDULE

	CODE	BOTANICAL NAME	COMMON NAME	QTY	SUPPLY SIZE	MATURE H x W
TREES						
	EY	EUCALYPTUS POLYANTHEMOS	RED BOX	5	40ltr / MIN 1.8m HIGH	15m X 8m
	AL	ACACIA IMPLEXA	LIGHTWOOD	1	40ltr / MIN 1.8m HIGH	10m X 5m
SHRUBS						
	CKP	CALLISTEMON 'KING PARK'	BOTTLEBRUSH	3	20cm POT	4m X 2m
	SA	SUYZYGIUM AUSTRALE 'BIACKYARD BLISS'	LILY PILY	6	20cm POT	3-5m X 1-2m
	SBC	S.AUSTRAL 'BUSH CHRISTMAS'	HEDGING LILLY PILLY	5	20cm POT	4-6m X 2-3m
	PT	PITTOSPORUM TENUIFOLIUM	PITTOSPORUM JAME STIRLING	2	20cm POT	3-5m X 1.5m
TUSSOCKS/ GRASSES/ EVERGREEN PERENNIALS						
	DL	DIANELLA LONGIFOLIA	SMOOTH FLAX LILY	55	14cm POT	.8m X .6m
	DCC	DIANELLA CAERULA "CASSA BLUE"	CASSA BLUE FLAX LILLY	57	14cm POT	0.4m X 0.4m
	DCB	DIANELLA CAERULA 'BREEZE'	BREEZE FLAX LILY	73	14cm POT	.7m X .65m

NORTH

ALL LEVELS SHOWN ARE TO AHD.

Revisions

Rev A	16.02.2022 ISSUE FOR TP SUBMISSION
Rev B	22.06.2022 ISSUE FOR COUNCIL'S RFI

P L A N N I N G &
DESIGN
PLANNING & DESIGN P/L
31 Enfield Ave, Preston 3072 Ph:9018 1529
E: admin@planninganddesign.com.au

DATE	SCALE	DRWN	CHK	PROJECT No.
JAN 2022	1:100@A1	CM	---	----

LANDSCAPE PLAN

UNIT DEVELOPMENT
19 PRESTON STREET,
DENNINGTON

LP
REV_B

WATER SENSITIVE URBAN DESIGN NOTES:

ALL DRAINAGE TO BE DESIGNED AND CERTIFIED BY AUTHORIZED DRAINAGE ENGINEER

EACH RAINWATER TANK IS TO BE CONNECTED TO ALL TOILETS IN EACH DWELLING

GRAVITY FED OR FULLY CHARGED SYSTEM IS NECESSARY TO ACHIEVE THE MINIMUM ROOF CATCHMENT AREA IN ACCORDANCE WITH STORM REQUIREMENTS.

TANK OVERFLOW MUST BE TAKEN TO L.P.D.

RAINWATER TANKS ARE EXCLUDE AND INDEPENDENT OF ANY DETENTION REQUIREMENTS.

GRAVITY FED SYSTEM TO BE USED WHEN HARVESTING STORMWATER FROM ROOF TO RAIN GARDEN.

RAINGARDENS TO BE BUILT MINIMUM 300MM FROM ADJOINING FOOTINGS

BUILD THE RAIN GARDEN CLOSE TO THE WATER SOURCE. THIS WILL HELP MINIMISE THE ADDITIONAL PLUMBING NEEDED TO BRING WATER TO THE RAIN GARDEN.

RAINGARDEN MUST BE FULLY LINED AND HAVE OVERFLOW PLUMBED INTO THE STORMWATER SYSTEM.

FOR EXCAVATION AND CLEARANCE REFER TO BUILDING A RAINGARDEN INSTRUCTION SHEET, RAINGARDENS MUST BE BUILT TO MELBOURNE WATER REQUIREMENTS

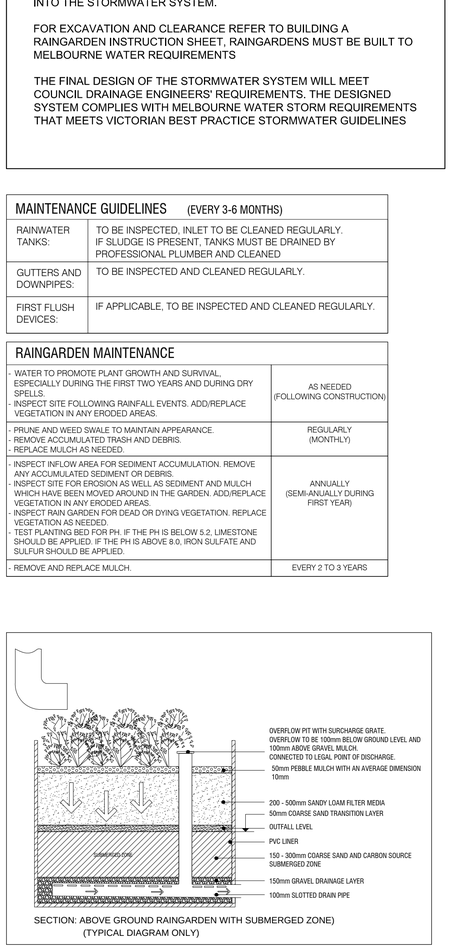
THE FINAL DESIGN OF THE STORMWATER SYSTEM WILL MEET COUNCIL DRAINAGE ENGINEERS' REQUIREMENTS. THE DESIGNED SYSTEM COMPLIES WITH MELBOURNE WATER STORM REQUIREMENTS THAT MEETS VICTORIAN BEST PRACTICE STORMWATER GUIDELINES

MAINTENANCE GUIDELINES (EVERY 3-6 MONTHS)

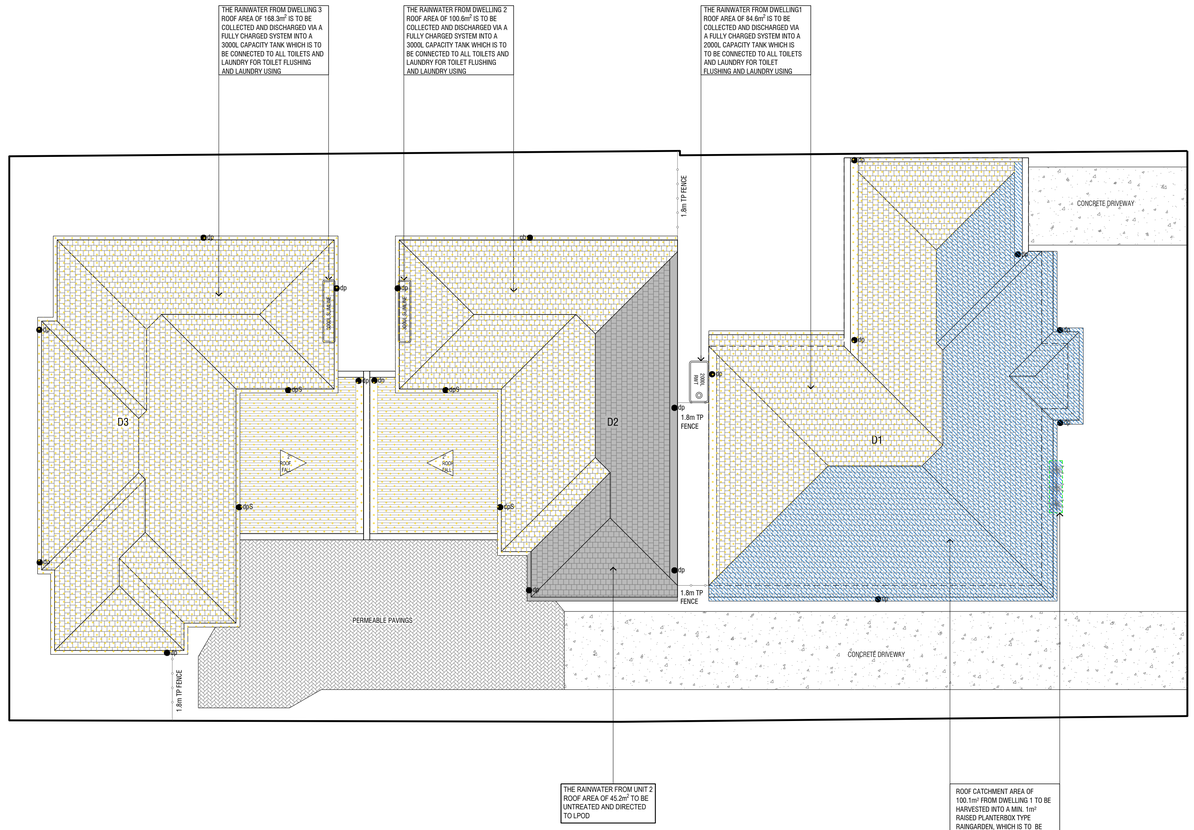
RAINWATER TANKS:	TO BE INSPECTED, INLET TO BE CLEANED REGULARLY. IF SLUDGE IS PRESENT, TANKS MUST BE DRAINED BY PROFESSIONAL PLUMBER AND CLEANED
GUTTERS AND DOWNPIPES:	TO BE INSPECTED AND CLEANED REGULARLY.
FIRST FLUSH DEVICES:	IF APPLICABLE, TO BE INSPECTED AND CLEANED REGULARLY.

RAINGARDEN MAINTENANCE

- WATER TO PROMOTE PLANT GROWTH AND SURVIVAL, ESPECIALLY DURING THE FIRST TWO YEARS AND DURING DRY SPELLS. - INSPECT SITE FOLLOWING RAINFALL EVENTS. ADD/REPLACE VEGETATION IN ANY ERODED AREAS.	AS NEEDED (FOLLOWING CONSTRUCTION)
- PRUNE AND WEED SWALE TO MAINTAIN APPEARANCE. - REMOVE ACCUMULATED TRASH AND DEBRIS. - REPLACE MULCH AS NEEDED.	REGULARLY (MONTHLY)
- INSPECT INFLOW AREA FOR SEDIMENT ACCUMULATION. REMOVE ANY ACCUMULATED SEDIMENT OR DEBRIS. - INSPECT SITE FOR EROSION AS WELL AS SEDIMENT AND MULCH WHICH HAVE BEEN MOVED AROUND IN THE GARDEN. ADD/REPLACE VEGETATION IN ANY ERODED AREAS. - INSPECT RAIN GARDEN FOR DEAD OR DYING VEGETATION. REPLACE VEGETATION AS NEEDED. - TEST PLANTING BED FOR PH. IF THE PH IS BELOW 5.2, LIMESTONE SHOULD BE APPLIED. IF THE PH IS ABOVE 8.0, IRON SULFATE AND SULFUR SHOULD BE APPLIED.	ANNUALLY (SEMI-ANUALLY DURING FIRST YEAR)
- REMOVE AND REPLACE MULCH.	EVERY 2 TO 3 YEARS



SECTION: ABOVE GROUND RAINGARDEN WITH SUBMERGED ZONE)
(TYPICAL DIAGRAM ONLY)

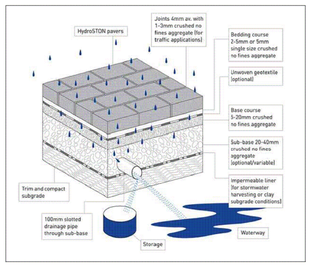


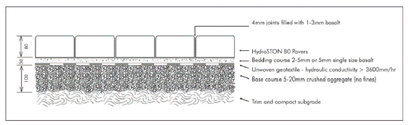
LEGEND

- CONCRETE DRIVEWAY
- ROOF AREA TO RAINGARDEN
- UNTREATED AREA
- PERMEABLE SURFACE
- ROOF AREA TO RAINWATER TANK
- 2000L SLIMLINE — 2000L WATERTANK TO TREAT SELECTED ROOF AREA, CONNECT WATER TANK TO ALL SANITARY FLUSHING
- VEGETATED AREA
- RAINGARDEN LOCATION
- dp — PROPOSE DOWN PIPE LOCATION
- dps — PROPOSE DOWN PIPE WITH SPREADER

PERMEABLE PAVER DETAILS

REFER TO HYDROSTON FOR SPECS AND INSTALLATION DETAILS





Melbourne Water STORM Rating Report

TransactionID:	1391902					
Municipality:	WARRNAMBOOL					
Rainfall Station:	WARRNAMBOOL					
Address:	19 PRESTON STREET					
	DENNINGTON					
	VIC	3280				
Assessor:	AARON WU					
Development Type:	Residential - Multiunit					
Allotment Site (m2):	1,011.60					
STORM Rating %:	100					

Description	Impervious Area (m2)	Treatment Type	Treatment Area/Volume (m2 or L)	Occupants / Number Of Bedrooms	Treatment %	Tank Water Supply Reliability (%)
D1 ROOF - TANK	84.60	Rainwater Tank	2,000.00	5	158.50	82.00
D1 ROOF - UNTREATED	100.10	Raingarden 100mm	1.00	0	120.75	0.00
D2 ROOF - TANK	100.60	Rainwater Tank	3,000.00	4	151.10	86.00
D2 ROOF - UNTREATED	45.20	None	0.00	0	0.00	0.00
D3 ROOF - TANK	168.30	Rainwater Tank	3,000.00	4	106.60	94.60
DRIVEWAY - UNTREATED	90.20	None	0.00	0	0.00	0.00

Date Generated:	14-Jun-2022	Program Version:	1.0.0

NORTH

ALL LEVELS SHOWN ARE TO AHD.

Revisions

Rev A 16.02.2022 ISSUE FOR TP SUBMISSION
Rev B 22.06.2022 ISSUE FOR COUNCIL'S RFI

DO NOT SCALE THIS DRAWING
FIGURED DIMENSIONS TO TAKE PRECEDENCE OVER SCALE. BUILDERS & CONTRACTORS TO VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCEMENT OF WORKS.

P L A N N I N G &
DESIGN

PLANNING & DESIGN P/L
31 Enfield Ave, Preston 3072 Ph:9018 1529
E: admin@planninganddesign.com.au

DATE	SCALE	DRWN	CHK	PROJECT No.
JAN 2022	1:100@A1	CM	---	----

WATER SENSITIVE URBAN DESIGN

UNIT DEVELOPMENT
19 PRESTON STREET,
DENNINGTON

WSUD
REV_B

From: Aaron Wu
To: Town Planning
Cc: Daniel
Subject: 19 PRESTON STREET, DENNINGTON (APP NO.: PP2022-0052)
Date: Wednesday, 10 August 2022 1:09:25 PM
Attachments: 19 PRESTON STREET, DENNINGTON - Respond to OB - 20220810-Model.pdf

Dear Salman,

I hope you are doing well.

We reviewed the objections and understood that the major concerns raised by the objectors could be concluded as follow:

- Car Parking spaces concerns
- Safety/Increased local traffic, in terms of an additional crossover proposed
- Change of streetscape
- Rubbish picks up

Kindly see our response to the above-mentioned concerns below:

- **Insufficient car parking spaces within the development**

Each proposed dwelling equipped with two car parking spaces which complies with the Planning Scheme Clause 52.06-5 requirements - to each three or more bedrooms dwelling. 2 car parking spaces must be provided. We thus believe that the proposed development has sufficient car parking spaces.

- **Safety/Increased local traffic - in terms of an additional crossover proposed**

The proposed development has taken into account the safety impact of the proposed additional crossing to the northern boundary. The additional crossing that only serves Dwelling 1. Hence, both crossing incorporate a sight triangle to ensure there is no obstruction of view to the pedestrian footpath when exiting the site. Thus, we believe that the proposed development will not impose any threat to local traffic.

- **On-street parking**

In terms of on-street parking, this is irrelevant to be the town planning application, however, there are adequate car parking spaces within the proposed development that is complied with Clause 52.06 under the Planning Scheme.
The distance between the additional crossover and the existing crossover at Preston Street is at 14.07 metres, it allows sufficient space for off-street parking (2 cars).

- **Change of streetscape/neighbourhood character**

The subject site is within a General Residential Zone Schedule 1, where the council encourage diversity of housing type and housing growth particularly in locations offering good services and transport. The subject site locates whin close proximity to the Woolworths as well as the Princes Hwy, therefore, 3 Units development on a lot that is over 1000sqm is considered appropriate under the General Residential Zone Schedule. The proposal will provide a diverse housing type (3- or 4-bedroom single dwelling) to the neighbourhood that will meet the need of the growing population in Dennington and provide affordable housing within the local community. Hence the proposed built form, in terms of careful selection of materials - the use of brick and rendered finished as well as the pitched roof form will help the proposed development blend well into the streetscape. The orientation of the townhouses with the presentation of one house to the street front while the other two units will be hidden behind will help in keeping the street rhythm as well. Therefore, we believe that the proposed development fits well into the streetscape.

- **Rubbish picks up**

Please refer to the Ground Floor Plan, we show the collection bins spaces along the frontage(1 meter between the bins). Therefore, we believe that it is not affected the council bins collection.

Last but not least, a drainage plan will be provided for this development to ensure that the proposed development will not impose any negative impact over the existing drainage system.

We believe that the above-mentioned response addresses the concerns raised across the objections.

Should you have any questions, please do not hesitate to contact us.

Appreciate your help.

Kind Regards,

Aaron Wu

Ph: 9018 1529
E-mail: Aaron@planninganddesign.com.au
Address: 31 Enfield Avenue, Preston 3072

Office Opening Hours: 9:00am – 5:30pm Monday to Friday


LEGEND
1M² RAINGARDEN
2000L SLIMLINE
2000L WATERTANK TO TREAT SELECTED ROOF AREA. CONNECT WATER TANK TO ALL SANITARY FLUSHING
ELECTRICITY METER
LIGHTING SENSOR ABOVE
TAP
GAS AND WATER METER
HWS HOT WATER SYSTEM
AC AIR-CONDITIONER
CL CLOTH LINE
TP 1.8m HIGH TIMBER PAILING FENCE
R/W RETAINING WALL
dp PROPOSE DOWN PIPE LOCATION
dpS DOWN PIPE WITH SPREADER
AREA SCHEDULE:
UNIT 1
GROUND FLOOR AREA: 144.0 m²
GARAGE: 26.4 m²
PORCH: 2.5 m²
TOTAL AREA: 18.6 SQ 172.9 m²
TOTAL POS: 150.5 m²
TOTAL SPOS: 47.1 m²
UNIT 2
GROUND FLOOR AREA: 99.3 m²
GARAGE: 35.4 m²
PORCH: 1.1 m²
TOTAL AREA: 14.6 SQ 135.8 m²
TOTAL POS: 59.5 m²
TOTAL SPOS: 45.6 m²
UNIT 3
GROUND FLOOR AREA: 112.7 m²
GARAGE: 35.3 m²
PORCH: 2.6 m²
TOTAL AREA: 16.2 SQ 150.6 m²
TOTAL POS: 101.3 m²
TOTAL SPOS: 51.0 m²
SITE
SITE AREA: 1011.6 m²
SITE COVERAGE: 45.3% 458.4 m²
SITE PERMEABILITY: 42.4% 429.7 m²
GARDEN AREA REQ: 35.2% 356.5 m²
No. 21
No. 17
NOT FENCED
OLD WOVEN WIRE
PRESTON STREET
SHED
GRASS
POS
SINGLE STOREY DWELLING
VERANDAH
TOP OF HEDGE
24 27.40m AHD
98°23'40"
45.26
8°23'40"
22.35
EXISTING PALINGS 1.8H TO BE RETAINED
PROPOSED R / W
DECK
POS 101.3m²
SPOS 51.0m²
POS 51.1m²
SPOS 45.6m²
POS 49.7m²
SPOS 47.1m²
POS 100.8m²
GARAGE 3.5x6.6
CAB SPACE 2.6x4.9
CROSSOVER BY COUNCIL
LIVING
MEALS
KITCHEN
BED 1
BED 2
BED 3
BED 4
ROBE
ENS
LAUN
LDRY
WIR
ENTRY
PORCH
D1
D2
D3
GARAGE 6.0x5.5
CONCRETE DRIVEWAY
PERMEABLE PAVINGS
1.8m TP FENCE
GATE
TREES
STONE BASE
SHED
GARAGE
ENCLOSED LEANTO
SINGLE STOREY DWELLING
VERANDAH
CONCRETE DRIVEWAY
CONC CROSSOVER
PRIVATE OPEN SPACE
OLD GI
RECREATION RESERVE
TBM RIVET R.L. 22.82m
TBM RIVET R.L. 22.76m
TITLE BOUNDARY SUBJECT TO TITLE AMENDMENT APPLICATION
BOUNDARIES FROM CONNECTION TO CNR OF CROWN ALLOTMENT 50
NORTH
ALL LEVELS SHOWN ARE TO AHD.
Revisions
Rev A 16.02.2022 ISSUE FOR TP SUBMISSION
Rev B 22.06.2022 ISSUE FOR COUNCILS RFI
DO NOT SCALE THIS DRAWING
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THESE PLANS REMAIN THE PROPERTY OF PLANNING AND DESIGN AND ARE SUBJECT TO COPYRIGHT REGULATIONS
PLANNING & DESIGN
PLANNING & DESIGN P/L
31 Enfield Ave, Preston 3072 Ph:9018 1529
E: admin@planninganddesign.com.au
DATE JAN 2022
SCALE 1:100@A1
DRWN CM
CHK ----
PROJECT No. ----
GROUND FLOOR PLAN
UNIT DEVELOPMENT
19 PRESTON STREET,
DENNINGTON
TP01
REV_B

Delegate Planning Assessment Report

Application Details:

Application is for:	Construction of three (3) dwellings (following demolition of existing)
Applicant's/Owner's Name:	Planning and Design Pty Ltd 31 Enfield Ave PRESTON VIC 3072
Date Received:	10 March 2022
Statutory Days:	147 @ 16 November 2022
Application Number:	PP2022-0052
Planner:	Nick Legoe – Senior Statutory Planner
Land/Address:	ALLOT Lot 1 TP 961744Y PSH WAN TSH DENN 19 Preston St DENNINGTON VIC 3280
Zoning:	General Residential Zone – Schedule 1
Overlays:	Nil
Under what clause(s) is a permit required?	Clause 32.08-6 – Construction of two or more dwellings on a lot.
Restrictive covenants on the title?	Nil
Current use and development:	Single Dwelling

Proposal

The proposal is for the construction of three single storey dwellings on the site. Details of the development are as follows.

- Three single storey dwelling sited in a one behind the other layout.
- Two, three bedroom dwelling and one, four bedroom dwelling.
- The development will have the following minimum setbacks.
  - 5.6 metres from the front property boundary.
  - On boundary construction to the northern (side) boundary.
  - 3.13 metres from the southern (side) boundary.
  - 1.69 metres from the western (rear) boundary.
- The development will have a site coverage of 45.3 percent.
- 42.4 percent of the site will be permeable.
- 35.2 percent Garden Area will be provided.
- Vehicle access will be via two crossovers. The northern crossover will provided access to Dwelling 1 while the southern crossover (existing) will provide access to dwelling 2 and dwelling 3 via a common driveway extending along the southern side of the site.

- Each dwelling will be provided with two dedicated parking spaces. Dwelling 1 includes a single garage and second tandem space in the driveway, while Dwelling 2 and dwelling 3 are both provided with double garages.
- The dwellings are all traditional in style with pitched tiled roofs and a combination of brick and render walls.
- Landscaping is proposed throughout the site including within areas of secluded private open space and the common driveway area and includes six new canopy trees.

Subject site & locality

An inspection of the site and the surrounding area has been undertaken.

The subject site is located on the western side of Preston Street, three lots north of the intersection of Preston Street and Station Street. The site has a frontage to Preston Street of 22.35 metres, a depth of 45.26 metres and a total site area of 1,011.5 square metres. The site has a fall of approximately 1.3 metres from the rear to the front.

The site currently contains a single storey concrete panel tiled roof dwelling. The dwelling is setback 4.5 metres from Preston Street, 3.65 metres from the southern (side) boundary, 10.5 metres from the northern (side) boundary and 28 metres from the western (rear) boundary.

There are five small outbuilding located to the rear of the dwelling. Two outbuildings are immediately behind the dwelling with the other three located towards the south western corner of the site.

Vehicle access is via a single width crossover located to the south of the frontage. It is also noted that there is a second crossover located to the norther side of the frontage.

Landscaping is minimal consisting predominantly of lawn with the occasional small shrub.

The front boundary is defined by a 0.9 metre high timber fence.

There is no infrastructure within the verge in front of the site with it noted that the street kerb is located approximately 1 metre from the property boundary. There are also no parking restrictions on either side of Preston Street.

Image 1: View of subject site from Preston Street – looking south west.

Image 2: View of subject site from Preston Street – looking north west.

Image 3: Aerial image of subject site and immediate adjoining properties. Source: Exponare.

Preston Street is a no through road with access being from the south. The road reserve is relatively narrow with minimal verge on the western side of the road pavement and a footpath and grass strip located on the eastern side. There are no parking restrictions on either side of the street however on street parking is challenging due to the narrow width of the overall road reserve.

The wider locality consists of predominantly residential development with key characteristic including the following.

- Single storey dwelling with pitched roofs.

- The majority of the dwelling are original housing stock however there newer builds are beginning to become more prevalent particularly to the east of the site where there are newer subdivisions.
- Infill development is not common however evidence of it does exits and will become more common as approved developments in the area are constructed.
- Street setback are generally in the vicinity of between 4 and 6.5 metres.
- Lot sizes vary greatly ranging from 350 to over 1000 square metres.
- Wall materials include concrete panel, weatherboard and brick veneer with roof materials including concrete tiles as well as galvanised or Colorbond metal sheeting.
- Onsite parking is generally consists of garages and/or carport located to the side or rear of the associated dwelling.
- The style of front fencing varies greatly however it is generally low, 1.5 metres or lower.

Other notable features within the locality include the following.

- Dennington Recreation Reserve is located to the immediate west of the subject site which provides a substantial area of public open space in the form of two ovals.
- The Dennington Shopping centre is located approximately 350 metres south of the site which proves access to a variety of shops and services.
- St John's Primary School is located 250 metres north however it is noted it is approximately 880 metres drive/walk as there is no direct access from the northern end Preston Street.
- Public transport is available within a 500 metre walk (south west) from the site with a bus stop located near the intersection Drummond Street and Tylden Street.

Permit/Site History

Permit History

A search of council's electronic register identified that there have no previous planning permit applications considered on the site.

Aboriginal Cultural Heritage

The site is located within an area of Aboriginal Cultural Sensitivity however as the site is less than 0.1 hectares in size and not within 200 metres of the coast or the Murray River a Cultural Heritage Management Plan is not required.

Public Notification

The application has been advertised pursuant to Section 52 of the *Planning and Environment Act 1987*, by:

- Sending notices to the owners and occupiers of adjoining land.
- Placing one sign at the front of the property.

The notification has been carried out correctly.

Council has received 10 objections to date. A summary of the comments received in the objections are:

- Density of the development is too great and is considered an overdevelopment.
- The development is not consistent with the existing neighbourhood character of the area.
- Narrowness of Preston Street does not allow for on street parking.
- The development will result in extra traffic within the already busy narrow street.
- The development has a combined 10 bedrooms which could result in 20 residents and therefore 20 cars needing to be parked on site/in the street which is not possible.
- The location of crossovers and potential on street parking will block access to neighbouring properties.
- Current infrastructure within the street such as stormwater are already at capacity and cannot support further development.
- Noise generated as a result of the development will be excessive with the potential for 20 residents to be living on the site.
- Waste collection is already an issue due narrowness of Preston Street and extra bins will make more of an issue.

Having regard to the above the following key areas of concern come through in the objections.

- Neighbourhood character/Overdevelopment.
- Traffic and car parking.
- Waste Collection
- Infrastructure.

Further discussion will be made in relation to these matters in a later section of this report.

It is also noted that the objections made reference to matters such as decreasing property values and disruptions during construction however as these are not planning issues they have not been given consideration during the assessment of the application nor are they discussed any further throughout this report.

Consultation

The following consultation occurred during the processing of the application.

- Following the completion of the Public Notification period a copy of all objections was provided to the permit applicant so they could review and provide a response should they choose.
- The permit applicant provided a response to Council on 10 August 2022 with responded to what they identified as the major concerns which were:
    - *Car Parking spaces concerns*
    - *Safety/Increased local traffic, in terms of an additional*
    - *Crossover proposed*
    - *Change of streetscape*
    - *Rubbish picks up*

The response from the applicant also provided an amended site plan which depicted a bin collection area in front of the site.

It is noted that Council Officers were of the view that this plan was submitted for information purposes only and did not constitute a formal plan amendment.

- The response from the permit applicant was forwarded to all of the objectors for their consideration. The objectors were advised that if the response had resolved their concerns they had the ability to formally withdraw their objection. It is noted that no objections were withdrawn.
- A Councillor Consultation Meeting was held on 18 October 2022 which was attended by five objectors and two members of Planning and Design (permit applicant). At the meeting the permit applicant provided a summary of the proposal and response to issues raised in the objections.

  The objectors collectively spoke and reiterated areas of concerns in relation to car parking/traffic management, waste collection and the site not being suitable for three dwelling (noted two would be better).
- No further consultation occurred following the Councillor Consultation Meeting with the application proceeding to a decision being made.

Referrals

Section 55 Referrals:

None required.

Section 52 Referrals:

The application was referred to the Department of Environment, Land, Water and Planning as they are the owner of Dennington Reserve which is located to the rear of the subject site. To date no response has been received.

Internal Referrals:

The following internal referrals were undertaken.

Engineering Department

Council's Engineering Department expressed no concerns with the application subject to conditions being placed on the permit should on be issued.

Building Department

Council's Municipal Building Surveyor originally noted that fire separation between dwelling 1 & 2 does not comply with Part 3.7 of NCC BCA as 1.8m separation between Class 1 buildings on same allotment is required. Further clarification was sought given it is intended that the property will be subdivided in line with the development and it was noted that a wall needs to be a minimum of 1 metre from a boundary (unless constructed on the boundary).

Assessment

Planning Policy:

The following Clauses found within the Municipal Planning Strategy and Planning Policy Framework are relevant to the proposal and have been considered as part of the assessment of the application.

- Clause 02.01 (Context).
- Clause 02.02 (Vision).
- Clause 02.03 (Strategic Directions).
- Clause 02.04 (Strategic Framework Plan).
- Clause 11.01-1S (Settlement).
- Clause 11.01-1R (Settlement – Great South Coast).
- Clause 11.02-1S (Supply of Urban Land).
- Clause 11.02-2S (Structure Planning).
- Clause 11.03-4S (Coastal Settlement).
- Clause 11.03-5R (The Great Ocean Road Region).
- Clause 11.03-6S (Regional and Local Places).
- Clause 15.01-1S (Urban Design).
- Clause 15.01-1L-01 (Urban Design).
- Clause 15.01-2S (Building Design).
- Clause 15.01-3S (Subdivision Design).
- Clause 15.01-4S (Healthy Neighbourhoods).
- Clause 15.01-5S (Neighbourhood Character).
- Clause 16.01-1S (Housing Supply).
- Clause 16.01-1R (Housing of Older People – Great South Coast).
- Clause 16.01-1L (Housing Supply).
- Clause 16.01-2S (Housing Affordability).

Having regards to the above Clauses the following key elements in relation to the proposal are noted.

- The development will provide additional housing stock on a site located in an established residential area and considered to be capable of supporting an increased density. Furthermore, the development will assist with meeting the growing demand for housing within the areas consistent with Clause 02.03, Clause 16.01-1S and Clause 16.01-1L.
- The Strategic Framework Plan found within Clause 02.04 identifies the subject site as being located within an established area, between the Dennington Neighbourhood Centre and the North Dennington Growth Area making it evident that the site is well located and could support an increase to the existing residential density.
- The proposal provides additional housing on smaller land sizes which should result in a more affordable product on the housing market consistent with Clause 16.01-2S.

- Clause 15.01-5S seeks to ensure that development responds to and appropriately reflect either the existing or preferred neighbourhood character of the area. The proposed built form will be single storey in scale and include pitched roof profiles and the use of brick and render construction materials which is consistent with the surrounding built form. While it is noted that there are no other sites with the area that consist of three dwellings, the average lot size (333 square metres) is a similar size to existing smaller lots throughout the area.

Zoning:

Clause 32.08 – General Residential Zone Schedule 1 (GRZ1)

The subject site is located within the General Residential Zone – Schedule 1(GRZ1). The purpose of the GRZ1 is:

- *To implement the Municipal Planning strategy and the Planning Policy Framework.*
- *To encourage development that respects the neighbourhood character of the area.*
- *To encourage a diversity of housing types and housing growth particularly in locations offering good access to services and transport.*
- *To allow educational, recreational, religious, community and a limited range of other non-residential uses to serve local community needs in appropriate locations.*

Clause 32.08-4 outlines that an application to construct or extend a dwelling or residential building must provide a minimum garden area dependent on the size of the lot. In this instance the lot is 1011.5 square metres in size so 35 percent Garden Areas must be provided.

Clause 32.08-6 outlines the permit requirements relating to the construction and extension of two or more dwelling on a lot with a permit required to.

- Construct a dwelling if there is at least one other dwelling existing on the lot.
- Construct two or more dwellings on a lot.
- Extend a dwelling if there are two or more dwellings on the lot.
- Construct or extend a dwelling if it on common property.
- Construct or extend a residential building.

Based on the above, a permit is required for the proposal pursuant to Clause 32.08-6 as it involves the construction of two or more dwellings on the lot.

Clause 32.08-7 outlines that a schedule to the zone may vary some of the Standards within the clause. It is noted that Schedule 1 to the GRZ does not vary any ResCode Standards.

Clause 32.08-13 outlines the decision guidelines by which an application must consider. The relevant decision guidelines in this instance which the application needs to be considered against are.

- *The Municipal Planning Strategy and the Planning Policy Framework.*
- *The purpose of the zone.*
- *The Objectives set out in a schedule to this zone.*

- *Any other decision guidelines specified in a schedule to this zone.*
- *The impact of overshadowing on existing rooftop solar energy systems on dwellings on adjoining lots in a General Residential Zone, Mixed Use Zone, Neighbourhood Residential Zone, Residential Growth Zone or Township Zone.*
- *The pattern of subdivision and its effect on the spacing of buildings.*
- *For subdivision of land for residential development, the objectives and standards of Clause 56.*
- *For the construction and extension of two or more dwellings on a lot, dwellings on common property and residential buildings, the objectives, standards and decision guidelines of Clause 55. This does not apply to an apartment development of five or more storeys, excluding a basement.*

Having regard to the above policies, objectives and decision guidelines within GRZ1, the following is noted in relation to the proposal.

- As outlined in an earlier section of this report the proposed development is considered to align with the relevant policies and objectives found within the Municipal Planning strategy and Planning Policy Framework particularly in relation to growth and increasing residential densities.
- The development will result in additional housing stock within an area that is considered capable of and suitable for an increased density given its proximity to services and facilities, public transport and areas of public open space.
- In addition to the above, the proposal will provide dwellings with a variety of bedroom numbers on smaller lot sizes than the majority of dwellings in the locality which should assist with providing a more affordable housing product.
- The development will provide a combined area of land onsite that equates 35.2 percent of the total site area which can be considered Garden Area.
- The development is single storey and therefore will not result of an overshadowing of either existing or future rooftop solar energy systems on dwellings on adjoining lots.
- The proposal has been assessed against the Objectives and Standards of Clause 55 and deemed to meet all of the objectives and the standards within the clause. This matter is discussed further in a later section of this report will a complete assessment provided as an attachment to this report.

Overlays:

The site is not covered by any overlays.

Relevant Particular Provisions:

Clause 52.06 – Car Parking

The proposal has been considered against the relevant policies, objectives, design standards and decision guidelines of Clause 52.06 with the following points noted.

- The development includes one – four bedroom dwelling (Dwelling 1) and two – three bedroom dwellings (Dwellings 2 and 3) with each dwelling provided with two vehicle parking spaces which complies with the rate specified in Table 1 of Clause 52.06-4. Dwelling 1 is provided with a single garage and second space in tandem which Dwelling 2 and 3 are both provided with double garages.
- The proposal generally adheres to the relevant design standards found within Clause 52.06-9 noting that.
    - The common driveway will has a total width of 5 metres with a 3 metre wide pavement.
    - Swept paths have been provided to demonstrate that vehicles can enter and exit the site in a forwards direction.
    - The dimensions of each garage (one single and two double) comply with (doubles) or exceed (single) minimums dimensions specified within the design standards.
- Council's development Engineers have reviewed the proposal and have expressed no traffic related concerns with the proposal.

Clause 55 – Two or More Dwellings on a Lot

The proposal includes the construction of three single storey dwellings on the site and therefore the development needs to be considered against the requirements of Clause 55.

This has occurred with a full assessment against the Objectives and Standards of Clause 55 included as Attachment 1 to this report. Following this assessment it has been deemed that the proposal meets all of the relevant Objectives and Standards within Clause 55.

General Provisions:

Clause 65.01 – Approval of an Application or Plan

Based on the assessment/analysis contained within this report it is considered that the proposal is consistent with the relevant decision guidelines found within Clause 65.01.

Objections:

While a number of the key planning issues raised by the objectors have been directly or indirectly addressed throughout the report the following provides further discussion in relation to the planning issues.

Neighbourhood character/Overdevelopment

In relation to neighbourhood character and overdevelopment the following comments are made.

- As has already been mentioned throughout this report there are no other three dwelling sites within the locality however the average lot site is similar to the smaller lots within the locality thereby resulting in a similar density.

- The development is single storey which is consistent with the existing built form character of the area, as is the use of brick, render and pitched tiled roofing.
- The layout of the site in relation to front and side setbacks is similar to the existing patter of development within the street and therefore the development will not disrupt the existing streetscape.
- While complying with all of the objectives and standards does not guarantee a development should be approved it does demonstrate that the development is site responsive and therefore it is hard to suggest that the development is an overdevelopment of the site.

Traffic and car parking

In relation to traffic and parking the following comments are made.

- Preston Street is a narrow street which presents challenges for people accessing site and also significantly inhibits on street parking.
- The proposed dwellings are all provided with two onsite parking spaces which meets the statutory requirements specified within Clause 52.06 of the planning scheme.
- As there are only three dwellings there is no requirement for the development to provide onsite visitor parking.
- Basing the potential parking demand that would be generated by the site on the number of people that could fit in the dwellings, as has been suggested by some objectors, is not a reasonable or accurate way to determine a parking demand.
- On street parking where available can be used by any road user, it is not reserved or restricted to use by only the resident or visitors to the abutting dwelling. Any visitors to the site would be required to park legally within the street as per any other street.
- The development does not proposed a front fence and therefore there would be an option for future residents to mount the kerb and essentially park on street without impeding traffic movements within the street.

Based on the above, while it is acknowledged that traffic movement and street parking within Preston Street can be challenging the proposed development adheres to the statutory requirements in relation to parking and access.

Waste Collection

Following with comments made during the consultation meeting in regards to waste collection within the street, further advice was sought from Council's Strategic Waste Management Officer who in turn sought advice from Wheelie Waste who collect three of the four bins for Council. A summary of the advice received is as follows.

- All bins are currently collected for the eastern side of the street with the waste truck reversing up Preston Street and then collecting bins on the way back down. This is an informal arrangement.
- The development would introduce six new bins into the street at normal times and nine at the extra Christmas collection (once a year).
- Wheelie Waste noted that operationally it would not be ideally to introduce more bins due to the access challenges however they could manage the extra bins in the current collection arrangement.

Based on the above, although there are challenges with waste collection due to access, the proposed development could be services by the existing kerbside service and therefore an alternate waste collection option is not required.

Infrastructure

The application was referred to Council's Engineers who have realised no concerns that the proposed development would overload existing infrastructure within the street such as drainage infrastructure.

Conclusion

Having given consideration to the planning permit documentation, referral advice and any concerns raised by objectors, and following an assessment of the proposal against the relevant provisions of the Warrnambool Planning Scheme as discussed within this report, it is considered that on balance the application warrants support and a recommendation for approval from Council Officers.

Recommendation

That council, having caused notice of Planning Application No. PP2022-0052 to be given under Section 52 of the *Planning and Environment Act 1987* and or the planning scheme having considered all the matters required under Section 60 of *the Planning and Environment Act 1987* decides to determine to approve the application for PP2022-0052 under the provisions of the Warrnambool Planning Scheme in respect of the land known and described as ALLOT Lot 1 TP 961744Y PSH WAN TSH DENN, 19 Preston St DENNINGTON VIC 3280, for the Construction of three (3) dwellings (following demolition of existing) in accordance with the endorsed plans, subject to the following conditions:

1. Before the development start(s), amended plans to the satisfaction of the Responsible Authority must be submitted to and approved by the Responsible Authority.

   When approved, the plans will be endorsed and will then form part of the permit. The plans must be drawn to scale with dimensions and three copies must be provided. The plans must be generally in accordance with the plans submitted with the application (received by Council on 22 June and 11 August 2022) but modified to show:

   a. The bin collection area within the street verge depicted on the Site Plan removed.

   b. Show the location of the two vehicle crossovers with them noted as existing or proposed as relevant.

   c. The following note included on the Site Plan 'existing redundant crossovers to be reinstated to kerb and channel to Council Standard'.

   d. Show corner splays in accordance with Clause 52.06-9.

2. The development as shown on the endorsed plans must not be altered without the prior written consent of the Responsible Authority.

3. Before the commencement of construction a detailed Stormwater Management Plan is to be submitted to and endorsed by the Responsible Authority. The stormwater works must be designed in accordance with the current Responsible Authority's Design Guidelines, the endorsed application plans and must include:

   a) Identification of any existing drainage on the site.

b) Details of how the works on the land are to be drained and/or retarded.

c) Computations in support of the proposed drainage.

d) A proposed Legal Point of Discharge for each lot.

e) An underground drainage system to convey minor flows (as defined by the IDM) to the Legal Point of Discharge or retention system for the development;

f) Details of how the storm water discharge from the development will be limited such that post development flows up to the 20% AEP do not exceed pre-development flows;

g) Evidence that storm water runoff resulting from a 1% AEP storm event is able to pass through the development via reserves and/or easements, or be retained within lots without causing damage or nuisance to adjoining property.

h) Details and measures to enhance stormwater discharge quality from the site and protect downstream waterways in accordance with Clause 56.07-4 of the Planning Scheme.

4. The endorsed Stormwater Management Plan is to be implemented to the satisfaction of the Responsible Authority prior to use or occupation of the new dwelling.

5. Before the use or occupation of the development, the applicant must provide vehicle access to all lots to the satisfaction of the Responsible Authority. This includes the removal of existing substandard or redundant vehicle crossings and reinstatement of affected kerb, nature strip and footpath. Satisfactory clearance is to be provided to any stormwater pit, power or telecommunications pole, manhole cover, marker, or street tree. Any relocation, alteration or replacement required shall be at the applicant's expense.

6. Before the use or occupation of the development the internal/common property traffic and parking area must be constructed to the satisfaction of the Responsible Authority, and must:

   a. Be in accordance with endorsed plans.

   b. Be in accordance with Australian Standards.

   c. Be finished with an all-weather sealed surface.

   d. Be drained.

   Areas designated for car parking on the endorsed plan are to be kept free and clear for that purpose.

7. Vehicles are to enter and exit Dwelling 2 and Dwelling 3 to/from Preston Street in a forwards direction.

8. To safeguard the amenity, reduce noise nuisance and to prevent environmental pollution during the construction period:

   a) Stockpiles of top soil, sand, aggregate, spoil or other material shall be stored clear of any drainage path or easement, natural watercourse, footpath, kerb or road surface and shall have measures in place to prevent the movement of such material off site.

   b) Building operations such as brick cutting, washing tools, concreting and bricklaying shall be undertaken on the building block. The pollutants from these building operations shall be contained on site.

   c) Builders waste must not be burnt or buried on site. All waste must be contained and removed to a Waste Disposal Depot.

9. Before occupation of the development or by such later date as is approved by the Responsible Authority in writing, the landscaping works shown on the endorsed plans must be carried out and completed to the satisfaction of the Responsible Authority.

10. The landscaping shown on the endorsed plans must be maintained to the satisfaction of the Responsible Authority, including that any dead, diseased or damaged plants are to be replaced.

NOTES

- Before the commencement of any works within the road reserve, a Road Reserve Works Permit must be obtained from Council. All conditions on the Permit must be complied with.

- Before the commencement of any physical works to the site, an Asset Protection Permit must be obtained from Council. This purpose of this permit is to protect Council assets from damage which can result from the works and from the movement of heavy equipment and materials on and off the site. All conditions on the Permit must be complied with.

- Polluted drainage must be treated and/or absorbed on the lot from which it emanates to the satisfaction of the Responsible Authority. Polluted drainage must not be discharged beyond the boundaries of the lot from which it emanates or into a watercourse or easement drain.

  Refer to Environment Protection Authority Victoria (EPA) guidelines.

- This permit will expire if one of the following circumstances applies:

  a) The development is not started within two (2) years of the date of this permit.

  b) The development is not completed within four (4) years of the date of this permit.

  The responsible authority may extend the periods referred to if a request is made in writing before the permit expires, or:

  a) Within six (6) months afterwards for commencement, or

  b) Within twelve (12) months afterwards for completion.

Planner Responsible:	Nick Legoe	Delegate:	
Signature:		Signature:	
Date:	16 November 2022	Date:	

ATTACHMENT 1 – Clause 55 Assessment

Assessment - Two or More Dwellings on a Lot and Residential Buildings (Clause 55)

Refer to Clause 55 of the Planning Scheme for objectives, decision guidelines and a full description of standards.

APPLICATION: PP2022-0052

ADDRESS: 19 Preston St DENNINGTON VIC 3280

Neighbourhood Character Clause 55.02

Title & Objective	Standard	Complies / Does Not Comply / Variation Required
B1 **Neighbourhood Character** Design respects existing neighbourhood character or contributes to a preferred neighbourhood character. Development responds to features of the site and surrounding area.	1. Appropriate design response to the neighbourhood and site.	✓ **Complies** The scale and mass of the development is generally consistent with development within the locality. Furthermore, the site setbacks are also similar to those throughout the locality. It is noted that the number of dwellings per lot (three dwellings) is higher than that found on surrounding lots however the average lot size is 333 square metres which is a similar size to the smaller lots within the locality.
	2. Design respects the existing or preferred neighbourhood character & responds to site features.	✓ **Complies** Refer above.

Title & Objective	Standard	Complies / Does Not Comply / Variation Required
B2 **Residential Policy** Residential development is consistent with housing policies in the SPPF, LPPF including the MSS and local planning policies. Support medium densities in areas to take advantage of public transport and community infrastructure and services.	3. Application to be accompanied by written statement that explains consistency with relevant housing policy in PPF, VPP, MSS and local planning policies.	✓ **Complies** Refer to discussion within Delegate Report.
B3 **Dwelling Diversity** Encourages a range of dwelling sizes and types in developments of ten or more dwellings.	4. Developments of ten or more dwellings to provide for: ▪ Dwellings with a different number of bedrooms. ▪ At least one dwelling containing a kitchen, bath or shower, and a toilet and wash basin at ground floor level.	- **N/A** The development involves three dwelling and therefore this standard is not relevant.
B4 **Infrastructure** Provides appropriate utility services and infrastructure without overloading the capacity.	5. Connection to reticulated sewerage, electricity, gas and drainage services.	✓ **Complies** All relevant services are available in front of the property.
	6. Capacity of infrastructure and utility services should not be exceeded unreasonably.	✓ **Complies** Council's Engineering department have not expressed any concerns that the capacity of existing infrastructure would be exceeded by the proposal.
	7. Provision should be made for upgrading and mitigation of the impact of services or infrastructure where little or no spare capacity exists.	✓ **Complies** Council's Engineering Department have not advised that any upgrading of services is required.
B5 **Integration with the Street** Integrate the layout of development with the street.	8. Development orientated to front existing and proposed streets.	✓ **Complies** The development is orientated towards the street with Dwelling 1 having both direct vehicle and pedestrian access to the street.
	9. Vehicle and pedestrian links that maintain and enhance local accessibility.	✓ **Complies** The development maintains clear pedestrian and vehicle access to the site.

Title & Objective	Standard	Complies / Does Not Comply / Variation Required
	10. High fences in front of dwellings should be avoided if practicable.	✓ **Complies** No front fencing is proposed.
	11. Development next to public open space should be laid out to complement the open space.	- **N/A**

Site Layout and Building Massing Clause 55.03

Title & Objective	Standard	Complies / Does Not Comply / Variation Required
B6 **Street Setback** The setbacks of buildings from a street respect the existing or preferred neighbourhood character and make efficient use of the site.	12. Walls of buildings should be set back from streets: ▪ at least the distance specified in the schedule to the zone, or ▪ If no distance is specified in the schedule to the zone setbacks should be as set out below. *Porches, pergolas and verandahs less than 3.6m high and eaves may encroach not more than 2.5m into the setbacks of this standard.*	✓ **Complies**
	13. Existing building on both the abutting allotments facing the same street & site is not on a corner. Min front Setback = average setback of existing buildings on abutting allotments facing the front street or 9m, whichever is the lesser.	✓ **Complies** The development has a primary setback of 5.6 metres which is a greater distance than the average of the two adjoining properties (5.5 metres).
	14. Existing building + vacant site either side of the subject site facing the same street & site is not on a corner Min front Setback = same setback of front wall of existing building or 9m, whichever is the lesser.	- **N/A**

Title & Objective	Standard	Complies / Does Not Comply / Variation Required
	15. The site is on a corner Min side setback for front walls = Same setback of existing building or 9m, whichever is the lesser. If no building 6m for streets in a RDZ1 and 4m for other. Min side setback for front walls fronting side street of corner site = same setback of existing building or 3m, whichever is the lesser. Min side setback for side walls on a corner site = same setback of existing building or 2 metres, whichever is lesser	- **N/A**

Title & Objective	Standard	Complies / Does Not Comply / Variation Required
	16. There is no existing building on either of the abutting allotments facing the same street & site is not on a corner Min front Setback = 6m in RDZ1 & 4m for other streets.	- **N/A**
B7 **Building Height** Building height should respect the existing or preferred neighbourhood character.	17. The maximum building height should not exceed that specified in the zone, schedule to the zone or any overlay that applies to the land.	✓ **Complies** The development is single storey with a maximum height of 5.24 metres with is significantly lower than the maximum of 11 metres specified in the GRZ.
	18. Where no maximum height is specified, the max height should not exceed 9m, unless the slope of the natural ground level at any cross section wider than 8m of the site is 2.5 degrees or more, in which case the max height should not exceed 10m.	✓ **Complies**
	19. Changes of building height between new and existing should be graduated.	✓ **Complies** Single storey building scale is consistent with the adjoining built form.

B8 **Site Coverage** Site coverage should respect the existing or preferred neighbourhood character and respond to the features of the site.	20. The site area covered by buildings should not exceed: ▪ The max site coverage specified in the schedule to the zone, or ▪ If no max site coverage is specified 60%	✓ **Complies** The site coverage is 45.3 percent.
B9 **Permeability** Reduce the impact of stormwater run-off on the drainage system and facilitate on-site stormwater infiltration.	21. At least 20% of the site should not be covered by impervious surfaces	✓ **Complies** The site permeability will be 42.4 percent with is significantly greater than the 20 percent minimum required.
	22. Stormwater management system be designed: ▪ Meet best practice performance objectives in *Urban Stormwater – Best Practice Environmental Management Guidelines* ▪ Contribute to cooling, improving local habitat and providing attractive and enjoyable spaces	✓ **Complies** WSUD Plan provided which demonstrates how stormwater will be managed on site and included a STORM Report rating on 100 percent.
B10 **Energy Efficiency** Achieve and protect energy efficient dwellings and residential buildings. Ensure orientation and layout reduces fossil fuel energy use and makes appropriate use of daylight and solar energy.	23. Orientation of buildings should make appropriate use of solar energy.	✓ **Complies** Each dwelling is provided with living areas and areas of SPOS with a northern orientation.
	24. Siting and design of buildings should not reduce the energy efficiency of adjoining lots, as well as the performance of existing rooftop solar energy facilities on dwellings in adjoining lots.	✓ **Complies** The development will not impact the energy efficiency of solar panel of adjoining properties,
	25. If practicable the living areas and private open space are to be located on the north side.	✓ **Complies** Each dwelling is provided with living areas and areas of SPOS with a northern orientation.
	26. Solar access for north-facing windows should be maximised.	✓ **Complies**

B11 **Open Space** Integrate layout of development with any public and communal open space provided in or adjacent to the development.	27. Public open spaces should: ▪ Be substantially fronted by dwellings. ▪ Provide outlook for dwellings. ▪ Be designed to protect natural features. ▪ Be accessible and usable.	**- N/A** No public or communal open space is proposed as part of the development.
B12 **Safety** Layout to provide safety and security for residents and property.	28. Entrances to dwellings and residential buildings should not be isolated or obscured from the street and internal accessways.	✓ **Complies** None of the dwelling entries will be obscured from view from either the street or common driveway.
	29. Planting should not create unsafe spaces along streets and accessways	✓ **Complies** Refer Landscape Plan.
	30. Good lighting, visibility and surveillance of car parks and internal accessways.	✓ **Complies** Consideration should however be given to low level bollard lighting throughout common driveway area to improve visibility at night.
	31. Protection of private spaces from inappropriate use as public thoroughfares.	✓ **Complies**
B13 **Landscaping** To provide appropriate landscaping To encourage: ▪ Development that respects the landscape character of the neighbourhood. ▪ Development that maintains and enhances habitat for plants and animals in locations of habitat importance. ▪ The retention of mature vegetation on the site.	32. Landscape layout and design should: ▪ Protect predominant landscape features of the neighbourhood ▪ Take into account the soil type and drainage patterns of the site ▪ Allow for intended veg. growth and structural protection of buildings ▪ In locations of habitat importance, maintain existing habitat and provide for new habitat for plants and animals. ▪ Provide a safe, attractive and functional environment for residents	✓ **Complies** Refer Landscape Plan provided.

	33. Development should: ▪ Provide for the retention or planting of trees, where these are part of the character of neighbourhood. ▪ Provide for the replacement of any significant trees that have been removed in the 12 months prior to the application being made.	**N/A** There are no trees on the site to be removed.
	34. Landscape design should specify landscape themes, vegetation location & species, paving & lighting.	✓ **Complies** Refer Landscape Plan provided.
	35. Development should meet any additional landscape requirements specified in a schedule to the zone.	- **N/A**
B14 **Access** Ensure the safe, manageable and convenient vehicle access to and from the development. Ensure the number and design of vehicle crossovers respects neighbourhood character.	36. The width of the accessways or car spaces should not exceed: ▪ 33% of the street frontage; or ▪ 40% if the width of the street frontage is less than 20m.	✓ **Complies** The width of the two crossovers equates to 26.8 percent of the width of the overall site (22.3 metres).
	37. For each dwelling fronting a street, only one single- width crossover should be provided.	✓ **Complies** Dwelling 1 fronts the street and is provided with a single width crossover. Dwelling 2 and 3 are accessed via a shared single width crossover.
	38. The location of crossovers will maximise the retention of on-street car parking spaces.	✓ **Complies** The area between the two crossovers would be sufficient to accommodate two on street parking spaces however it is noted that due to the narrowness of the street and minimal verge in front of the site on street parking is not possible unless a vehicle was to partially park on the subject site.
	39. Access points to a road in Road Zones to be minimised.	- **N/A**
	40. Access for service, emergency and delivery vehicles must be provided.	✓ **Complies**

B15 **Parking Location** Provide resident and visitor vehicles with convenient parking. Avoid parking and traffic difficulties in the development and the neighbourhood. Protect residents from vehicular noise within developments.	41. Car parking facilities should be: ▪ Close and convenient to dwellings. ▪ Secure ▪ Well ventilated if enclosed	✓ **Complies** Each dwelling is provided with undercover parking with direct access to the associated dwelling.
	43. Shared accessways, car parks of other dwellings/ residential buildings should be at least 1.5m from the windows of habitable rooms. This setback may be reduced to 1m, where there is a fence at least 1.5m high or window sills are at least 1.4m above the accessway.	✓ **Complies** The common drive is setback 1 metre from habitable room windows associated with Dwelling 1 and 2 which is acceptable as the sill height of these windows is 1.45 metres above ground level. Furthermore as the driveway only services two dwellings the number of vehicle movements will be low and therefore any noise generated will be limited.

Amenity Impacts Clause 55.04

Title & Objective	Standard	Complies / Does Not Comply / Variation Required
B17 **Side and Rear Setbacks** Ensure the height and setback respects the existing or preferred neighbourhood character and limits the amenity impacts on existing dwellings.	44. A new building not on or within 200mm of a boundary should be setback from side or rear boundaries: 45. At least the distance specified in the schedule to the zone, or 46. 1m+ 0.3m for every metre of height over 3.6 metres up to 6.9 metres, plus 1 metre for every metre of height over 6.9 metres. (refer Diagram B1 for more detail and information about minor encroachments).	✓ **Complies** The development complies with all side and rear setback requirements.

Title & Objective	Standard	Complies / Does Not Comply / Variation Required
B18 **Walls on Boundaries** Ensure the location, length and height of a wall on a boundary respects the existing or preferred neighbourhood character and limits the amenity impacts on existing dwellings.	47. A new wall constructed on or within 200mm of a side or rear boundary of a lot or a carport constructed on or within 1m of a side or rear boundary of a lot should not abut the boundary for a length of more than: 48. 10m plus 25 % of the remaining length of the boundary of an adjoining lot. or 49. Where there are existing or simultaneously constructed walls or carports abutting the boundary of an abutting lot, the length of the existing or simultaneously constructed walls or carports - whichever is the greater. 50. A new wall or carport may fully abut a side or rear boundary where slope and retaining walls or fences would result in effective height of the wall or carport being less than 2m on the abutting property boundary. 51. A building set back up to 200mm from a boundary 52. A height of a new wall constructed on or within 200mm of a side or rear boundary or a carport constructed on or within 1m of a side or rear boundary should not exceed an average of 3.2m with no part higher than 3.6m unless abutting a higher existing or simultaneously constructed wall.	✓ **Complies** The garage wall of Dwelling 1 will be constructed on the boundary. The wall has a maximum length of 6.6 metres which is less than the maximum allowable length of 18.8 metres (10. The wall has a maximum height of 3.2 metres and an average height of 2.99 metres.

Title & Objective	Standard	Complies / Does Not Comply / Variation Required
B19 **Daylight to Existing Windows** Allow adequate daylight into existing habitable room windows.	53. Buildings opposite an existing habitable room window should provide a light court of at least 3sqm and a minimum dimension of 1m clear to the sky (this can include land on the adjoining lot).	✓ **Complies** All existing habitable room windows have a minimum of 1 metre clear to the sky.
	54. Walls or carports more than 3m in height opposite should be setback from the window at least 50% of the height of the new wall if the wall is within a 55 degree arc from the centre of the existing window. The arc may be swung to within 35 degrees of the plane of the wall containing the existing window.	✓ **Complies**
	55. Please note: where any existing window is above ground floor level, the wall height is measured from the floor level of the room containing the window.	
B20 **North Facing Windows** Allow adequate solar access to existing north-facing habitable room windows.	56. Buildings should be setback 1m if an existing north-facing habitable widow is within 3m of the abutting lot boundary. (Add 0.6m to this setback for every metre of height over 3.6m and add 1m for every metre over 6.9m.) Refer to 55.04-4 for further clarification (a diagram is included).	✓ **Complies** The proposed built form has a minimum setback of 9.4 metres to adjoining north facing window which when combined with the single storey built form will not alter the solar access from current conditions.
B21 **Overshadowing Open Space** Ensure buildings do not significantly overshadow existing secluded private open space.	57. Where sunlight to a private open space of an existing dwelling is reduced, at least 75%, or 40sqm with min. 3m, whichever is the lesser area, of the open space should receive a min. of 5 hours of sunlight between 9 am and 3pm on 22 Sept. If the existing sunlight to the private open space of an existing dwelling is less than these requirements, the amount of sunlight should not be reduced further.	✓ **Complies** The single storey built form and minimum setback of 3 metres from the southern boundary ensures that the proposed development will not result in any unreasonable additional overshadowing of adjoining areas of SPOS with the provided shadow diagrams demonstrating that any new shadow will not extend beyond the existing boundary fence shadow.

Title & Objective	Standard	Complies / Does Not Comply / Variation Required
B22 **Overlooking** Limit views into existing secluded private open space and habitable room windows.	58. A habitable room window, balcony, terrace, deck or patio with a direct view (measured 45 degree angle from the plane of window or perimeter of balcony, terrace etc. from a height of 1.7m) into an existing habitable window within a horizontal window within a horizontal distance of 9m (see clause for details) should have either: 59. A minimum offset of 1.5m from the edge of one window to the other. 60. Sill heights of at least 1.7m above floor level. 61. Fixed obscure glazing in any part of the window below 1.7m above floor level. 62. Permanently fixed external screens to at least 1.7m above floor level and be no more than 25 transparent.	- **N/A** The development is single storey and therefore the existing boundary fence appropriately restricts any potential overlooking.
	63. Obscure glazing below 1.7m above floor level may be openable if there are no direct views as specified in this standard.	- **N/A**
	64. Screens to obscure view should be: 65. Perforated panels or trellis with solid translucent panels or a maximum 25% openings. 66. Permanent, fixed and durable. 67. Blended into the development. See Clause 55.04-6 for instances where this standard does not apply.	- **N/A**
B23 **Internal Views** Limit views into existing secluded private open space and habitable room windows of dwellings and residential buildings within the same development.	68. Windows and balconies should to be designed to prevent overlooking of more than 50% of the secluded private open space of a lower level dwelling or residential building within the same development.	✓ **Complies** The 1.8 metre high internal fencing will restrict views into adjoining habitable room windows and/or areas of SPOS

Title & Objective	Standard	Complies / Does Not Comply / Variation Required
B24 **Noise Impacts** Protect residents from external noise and contain noise sources in developments that may affect existing dwellings.	69. Noise sources should not be located near bedrooms of immediately adjacent existing dwellings.	✓ **Complies** Noise source such as AC units are located away from habitable room windows of adjacent dwellings. It is noted that the location of AC units are shown on the site plan.
	70. Noise sensitive rooms and private open space should consider noise sources on immediately adjacent properties.	✓ **Complies** Generous boundary setbacks to proposed habitable rooms such as bedrooms and living areas, in addition to areas of SPOS not being located adjacent to neighbouring driveways etc will minimise the potential for disturbance to future residents from noise generated on adjoining properties.
	71. Dwellings and residential buildings should be designed to limit noise levels in habitable rooms close to busy roads, railway lines or industry.	**N/A**

On-Site Amenity and Facilities Clause 55.05

Title & Objective	Standard	Complies / Does Not Comply / Variation Required
B25 **Accessibility** Consider people with limited mobility in the design of developments.	72. Dwelling entries of the ground floor of buildings should be accessible or able to be easily made accessible to people with limited mobility.	✓ **Complies** The dwellings are considered to provide an appropriate level of access for people with limited mobility given the entries to Dwelling 1 and 3 are at grade while Dwelling 2 is limited to two steps.
B26 **Dwelling Entry** Provide a sense of identity to each dwelling/residential building.	73. Entries are to be visible and easily identifiable from streets and other public areas.	✓ **Complies** Each dwelling has an entry that is clearly visible from the street or common driveway area.
	74. The entries should provide shelter, a sense of personal address and a transitional space.	✓ **Complies** Each dwelling is proved with a porch to provide shelter.

Title & Objective	Standard	Complies / Does Not Comply / Variation Required
B27 **Daylight to New Windows** Allow adequate daylight into new habitable room windows.	75. Habitable room windows to face: 76. Outdoor space open to the sky or light court with minimum area of 3sqm and a min. dimension of 1m clear to the sky or; 77. Verandah, provided it is open for at least one third of its perimeter or; 78. A carport provided it has two or more open sides and is open for at least one third of its perimeter.	✓ **Complies** All habitable windows within the proposed development are located to face an outdoor space clear to the sky or a light court with a minimum area of 3 square metres.
B28 **Private Open Space** Provide reasonable recreation and service needs of residents by adequate private open space	79. Unless specified in the schedule to the zone, a dwelling should have private open space consisting of: ▪ 40sqm with one part at the side or rear of the dwelling/residential building with a minimum dimension of 3m, a minimum area of 25sqm and convenient access from a living room or; ▪ Balcony - minimum 8sqm, minimum width 1.6m and accessed from living room or; ▪ Roof-top – minimum 10sqm, minimum width 2m and convenient access from living room. *Please note that balcony requirements in 55.05-4 do not apply to apartment development*	✓ **Complies** Each dwelling is provided with in excess of 40 square metres of POS with a more than 25 square metres being SPOS. It is noted that all SPOS is located to the side and/or rear of the associated dwelling.
B29 **Solar Access to Open Space** Allow solar access into the secluded private open space of new dwellings/buildings.	80. The private open space should be located on the north side of the dwelling if appropriate.	✓ **Complies** The orientation of the site allows each dwelling to be provided with substantial areas of SPOS with a northern orientation thereby maximising solar access to these areas.
	81. Southern boundary of open space should be setback from any wall on the north of the space at least (2+0.9h) h= height of wall.	**N/A** There are no walls located on the northern boundary of areas of POS or SPOS

Title & Objective	Standard	Complies / Does Not Comply / Variation Required
B30 **Storage** Provide adequate storage facilities for each dwelling.	82. Each dwelling should have access to a minimum 6m^3 of externally accessible, secure storage space.	✓ **Complies** Each dwelling is provided with 6 square metres of storage with the SPOS.

Detailed Design — Clause 55.06

Title & Objective	Standard	Complies / Does Not Comply / Variation Required
B31 **Design Detail** Encourage design detail that respects the existing or preferred neighbourhood character.	83. Design of buildings should respect the existing or preferred neighbourhood character and address: 84. Façade articulation & detailing. 85. Window and door proportions. 86. Roof form. 87. Verandahs, eaves and parapets.	✓ **Complies** The proposed dwellings are single storey with pitched roof forms and utilise brick/render (walls) and tiles (roofing) which is consistent with the built form character of the area.
	88. Garages and carports should be visually compatible with the development and neighbourhood character.	✓ **Complies** The garage of Dwelling 1 is visible from the street however it is setback behind the main building façade. The Garages of Dwelling 2 and 3 are towards the rear of the site and not visible from the street.
B32 **Front Fences** Encourage front fence design that respects the existing or preferred neighbourhood character	89. The front fence should complement the design of the dwelling or any front fences on adjoining properties.	- **N/A** No front fencing is proposed.
	90. A front fence within 3m of the street should not exceed the maximum height specified in the schedule to the zone or if no max. specified, the front fence should not exceed: 91. 2m if abutting a Road Zone, Category 1. 92. 1.5m in any other streets.	- **N/A**
B33 **Common Property**	93. Developments should clearly delineate public, communal and private areas.	✓ **Complies**

Title & Objective	Standard	Complies / Does Not Comply / Variation Required
Ensure car parking, access areas and other communal open space is practical, attractive and easily maintained. Avoid future management difficulties in common ownership areas.	94. Common property, where provided, should be functional and capable of efficient management.	✓ **Complies** Common property is clearly identifiable allowing for efficient management in the future.
B34 **Site Services** Ensure site services and facilities can be installed and easily maintained and are accessible, adequate and attractive.	95. Dwelling layout and design should provide for sufficient space and facilities for services to be installed and maintained.	✓ **Complies** Site facilities including mailboxes and clothes lines have been provided in appropriate locations (Refer to development Plans).
	96. Bin and recycling enclosures, mailboxes and other site facilities should be adequate in size, durable, waterproof and should blend in with the development.	✓ **Complies** Refer to development Plans
	97. The site facilities including mailboxes should be located for convenient access. Bin and recycling enclosures located for convenient access. Mailboxes provided and located for convenient access as required by Aust. Post.	✓ **Complies** Services and facilities shown on plans and the locations are considered appropriate.

Delegate Planning Assessment Report

Application Details:

Application is for:	A Development Plan which seeks to facilitate future development on site including 52 residential lot subdivision, a retirement village, golf course, drainage infrastructure and riparian corridor along the Merri River frontage.	
Applicant's/Owner's Name:	Pro Urban Suite 201/5 Claremont Street, SOUTH YARRA, VIC 2141	
	Received: 7 November 2022	Further Info Rec: N/A
Statutory Days:	N/A	Notice Period: N/A
Application Number:	DP2022-0008	
Land/Address:	Lot 1 on Title Plan 99782 and Lot 1 on Title Plan 8844446 147 Wollaston Rd, WARRNAMBOOL VIC 3280	
Zoning:	General Residential 1 Zone Urban Floodway Zone	
Overlays:	Development Plan Overlay Schedule 10 Floodway Overlay Environmental Significance Overlay Schedule 2 Development Contributions Plan Overlay Schedule 1	
Under what clause(s) is a permit required?	Pursuant to Clause 43.04-2, a permit must not be granted until a development plan has been prepared to the satisfaction of the RA. Further permits will be required for subdivision and development.	
Restrictive covenants on the title?	A caveat has been registered on both titles	
Current use and development:	Existing dwelling, associated outbuilding and agricultural grazing land use.	

Proposal

The proposal seeks approval for a Development Plan which would facilitate the future development on site of 52 residential lots, a retirement village comprising 192 dwellings, open space and associated roads, infrastructure and facilities.

A Traffic Impact Assessment, Open Space Plan, CHMP, Stormwater Management Strategy, Services Plan and Urban Design Report have been submitted in support of the application. A land budget, vegetation assessment, and bushfire assessment were also submitted.

The proposed development plan broadly proposes residential and retirement village development on that part of the site within the General Residential zone, and open space within the floodplain area. The open space area is proposed to accommodate associated drainage infrastructure (one retarding basin and one wetland). The development is separated into three individual stages. Stage 1 includes 26 residential lots and, while the DP does not specify which lots, it is understood the land would be developed from the northeast corner.

Stage 2 would contain the remaining 26 residential lots and stage 3 would combine the entire retirement village area and golf course (developed on one lot).

The DP identifies 52 residential lots ranging from 698m^2 to 957m^2 which achieves a NDha of approximately 10.5 lots per hectare. This falls below the density envisioned by the North of the Merri River Structure Plan (NMRSP) which seeks an average lot density of 12 dwellings per NDha. The balance of the lot is indicated as a future retirement village with approximately 192 dwellings on a single lot. Should the retirement village not proceed, the report indicates that land would be developed for residential purposes in line with the density target of the NMRSP.

A 36m wide public open space corridor is proposed along the north of the Merri River with a 10m vegetation buffer and 2.5m shared path. The DP proposes a Section 173 agreement that will provide the floodplain land as open space in the event that stage 3 of the development is not developed for the purposes of a retirement village.

The DP provides a future carriageway link across the Merri River to Bromfield Street with a 24m wide carriage easement that connects with the proposed internal road network that links to Wollaston Road. No vehicle access is contemplated to Ponting Drive; however, pedestrian and cycle access is provided. Road cross sections of 20m in width have been provided.

Pedestrian access is provided along the northern bank of the Merri River via a 2.5m shared path and two waterbodies are proposed within the floodplain area.

The site will be serviced by reticulated sewerage via the existing connection to the west and east in line with Ponting Drive. Reticulated water supply will be provided with a new watermain along the northern edge of the site.

The Development Plan provides the full details of the development of Stage 1 and 2 only. Pursuant to Clause 43.04-4, a DP can be prepared in stages which is in effect what the applicant is proposing. It is anticipated a further DP approval will be required prior to the development of Stage 3.

Subject site & locality

The site has a total area of 24.844 hectares and is currently occupied by a single storey residential dwelling and outhouse in the central eastern extent. As shown in Figure 1, the subject site has a north to south orientation. The site has a frontage of 389.79m to Wollaston Road. The site also has a frontage to Ponting Drive; however, the title documents do not indicate any legal right of access to this road.

The site is bound by residential properties to the east, Merri River School and agricultural land to the west and the Merri River to the south. From a highpoint in the northeast corner of the site, the site broadly slopes down to the south. Approximately 30% of the site is located within a floodplain of the Merri River. Vegetation on site is largely limited to the banks of the Merri River with some trees around the existing dwelling. An existing intermittent waterbody is located in the south-eastern corner of the site.

Figure 1: Subject site (Image source: NearMap 2022)

Permit/Site History

Permit History:

A review of Council's online system indicates there is no relevant planning permit history for the site. It is noted that a current application for 2 lot re-subdivision has recently been approved, where the proposed subdivision pattern is consistent with the development plan. That application was assessed without an approved development plan, in line with the provisions of the overlay.

Restrictions on title:

There are no covenants or S.173 Agreements registered on the title; however, a caveat has been registered on both titles.

Whether a caveat should be considered a restriction on title and be a material consideration of a planning application was contemplated by the Supreme Court in *Brighton Foreshore Association Inc v Bayside City Council* [2021] VSC 2. The Court determined that a caveat should not be considered a registered restrictive covenant and is not breached by the issue of a permit for use and development.

Cultural Heritage Sensitivity:

The site is located within an area of Aboriginal Cultural Heritage Sensitivity. The proposal

triggers a requirement for a mandatory CHMP.

A CHMP, approved on 13 May 2021, has been submitted in support of the application. The CHMP applies standard conditions regarding maintaining a copy of the CHMP on site, providing a CHMP induction and contingency plans in the event an aboriginal cultural heritage site is discovered.

Public Notification

The application was not subject to non-statutory advertisement, however the current plan replaces a very recent application which was subject to notice. In that process, notice was sent by way of letters to adjoining properties and a newspaper advertisement.

Three (3) objections were received, which raised the following concerns:

- Road Design
- Bromfield Street River Crossing and Road Extension
- Drainage Catchments
- Stormwater Management
- Wetland Preservation
- Golf Course and Public Open Space
- Inconsistency with the Merri River Development Control Plan

Referrals

Referrals were also primarily undertaken in relation to the original submission. The amended plan was re-referred, where at the time of writing a further response has only been received by CMA.

Wannon Water advises in the letter dated 23 September 2021 that further investigation is needed to determine whether a sewer pumpstation has adequate cover to service the development, whether the watermain along Wollaston Road needs to be upgraded and whether the future Wollaston Water tower is sufficient. Wannon Water indicates that if any of these assets need upgrading, they will seek a contribution from the developer. The applicant has updated the plans to indicate the watermain being upgraded to 150mm. The applicant has also indicated they would be willing to contribute to any infrastructure upgrades and are prepared to enter into an agreement with Council to contribute to the bridge project. It is noted the Bridge is a DCP item and contributions will be levied at the subdivision stage.

Downer, on behalf of Ausnet, advises in the letter dated 4 October 2021 they do not have any objections to the approval of the Development Plan by Council.

Environmental Protection Authority advises in the letter dated 6 October 2021 they do not object to the Development Plan but they highlight that no information has been provided by way of environmental assessment to satisfy the requirements of DPO10 or Section 2.2 of the NMRSP. An environmental assessment was later sent in response to a request for further information.

The Glenelg Hopkins Catchment Management Authority referral dated 7 October 2021 raises concerns with the location of the retarding basin, wetland and golf course in the floodplain. The GHCMA have sought further details including hydraulic modelling that demonstrates the retarding basin and wetland will not impact on the flood behaviour in the floodplain, and further details any cut and fill proposed to construct the golf course which would

also require hydraulic modelling. The applicant has indicated the SWMS provides hydraulic modelling and preliminary meetings have been held with the GHCMA. Despite this, the GHCMA have not provided their approval of the proposal. The residential layout in the DP relies on the location of the retarding basin and wetland in the floodplain. While it is not considered appropriate to approve a layout without support from the CMA, discussion concerning the open space is included in future sections.

The GHCMA referral also provides commentary on the future bridge connection and the need for a flood response plan for the retirement village. The bridge is a DCP item and will be designed and constructed with the correct input from all authorities.

A further response was provided 17 November 2022 in relation to the new proposal. Given that this advice is proving a critical portion of the assessment, their response is quoted directly here:

> *While the development plan indicates that all proposed lots and accessways will be located outside of the floodplain, it is proposed that a portion of the two retention basins servicing the development are located within the floodplain. It is the CMA's preference that all infrastructure including retention basins are located outside the 1% AEP floodplain. If this cannot be achieved, the CMA will require hydraulic flood modelling prior to providing support for the development. Any modelling produced would be required to conform to the CMA's Flood Modelling Guidelines and Specifications - August 2021 (attached).*
>
> *The CMA also notes that there is a proposed wetland located in the 1% AEP floodplain. This wetland is located at the approximate location of an existing waterbody / dam. While this proposal is consistent with Clause 13.03-1L of the Warrnambool Planning Scheme in encouraging the use of wetlands as a means of storing floodwater, we also need to consider the impacts that floodplain manipulation may have on flood storage and behaviour on other properties and structures. Pending the amount of topographic manipulation to achieve this, the CMA may require a cut and fill balance OR hydraulic flood modelling to demonstrate the changes to flood behaviour and or its minimal impact because of this work.*
>
> *The CMA notes that there is a proposed future bridge connection from the development site to Bromfield Street to the south of the Merri River. The CMA's preference for new linkages is to be above the 1% AEP flood level, however this is not practicable in this location. The CMA will require any bridge to be constructed to minimise flood impacts and will require flood modelling to be undertaken. Signage will be required to identify that the bridge will be impassable during flood events, should this design eventuate, then it is preferable that a road closure mechanism is considered along with a stream gauge for flood response purposes. The construction of a bridge would also require a Works on Waterways Licence from the CMA as Merri River is a designated waterway.*
>
> *Please also note that a Designated Waterway passes through the property. Any works in, on or around a designated waterway require a licence from the CMA. An application form can be obtained from our Hamilton Office or downloaded from our website at www.ghcma.vic.gov.au.*

Again, the purpose of the Development Plan is to secure an underlying understanding of the design intent for future development, and the referral authority in this case is attempting to raise legitimate concerns, while acknowledging that the modelling and/or mitigation strategies required could be achieved at the time of detailed design. Therefore, it is reasonable to conclude that concerns have been raised, but the referral authority has not directly objected to the proposal.

Country Fire Authority advises in the letter dated 7 October 2021 that the site is within a Designated Bushfire Prone area but no information has been provided responding to the requirements of Clause 13.02-1S. Given Clause 13.02-1S elevates bushfire considerations above all other considerations and the proposal would entrench sensitive uses and a layout of the site, it is not considered appropriate to leave bushfire matters to the planning permit stage. A bushfire assessment was therefore provided in response to a request for further information, and re-referred to CFA. A response was not provided as of the time of writing.

Internal Referrals:

Council's Infrastructure Management Team referral indicates the wetland is located in the future road easement and there are inconsistencies with the stormwater management strategy and the NMR DCP. The referral also indicates a Bromfield Street section is inconsistent with the section in the NMRSP. In the event the development plan is approved, a condition of approval will require the cross section in the DP be updated to reflect the section in the NMRSP.

Council's City Development Teams referral response indicates the NMRSP requires the floodplain area and river reserve to be vested in Council as public open space and a 30m river biodiversity corridor, and provides comment on annotations in the DP, whether roads are private or public and whether the lot density is met. The DP proposes a 36m reserve along the rivers northern bank which provides this biodiversity corridor function. The roads will be public and the lot density proposed is considered acceptable.

Assessment

PLANNING POLICY

The following policies are relevant to this application:

- Clause 02.03 (Strategic Directions)
- Clause 02.04 (Strategic Framework Plan)
- Clause 11.01-1S (Settlement)
- Clause 11.01-1R (Settlement – Great South Coast)
- Clause 11.03-2S (Growth Areas)
- Clause 11.03-2L (North of the Merri Growth Area)
- Clause 11.03-4S (Coastal Settlement)
- Clause 12.03-1L (Waterways and Wetlands)
- Clause 12.05-1S (Environmentally Sensitive Areas)
- Clause 13.02-1S (Bushfire Planning)
- Clause 13.03-1L (Merri River and Russell's Creek Floodplains)
- Clause 16.01-1L (Housing Supply)
- Clause 19.02-6S (Open Space)
- Clause 19.02-6L (Open Space)
- Clause 19.03-3L (Integrated Water Management)

The Municipal Policy Statement (MPS) and Planning Policy Framework (PPF) broadly seek to promote sustainable growth and development in regional Victoria with a focus for growth and investment in major regional cities, including Warrnambool.

The PPF includes policy directives for retaining settlement boundaries and seeking housing growth and diversity in locations with excellent access to service and amenities. Residential

development that respects existing or preferred neighbourhood character and minimises impacts on neighbouring properties is also sought. The MPS supports increased residential densities in areas close to transport corridors, activity centres and open space. The proposal will provide increased housing supply in an area identified for urban development and will make a material contribution to housing diversity and affordability in Warrnambool. The siting and layout of the subdivision concept responds to the context of the site and the area's character. The proposal appropriately avoids amenity impacts on adjoining properties.

Clause 13.03 seeks to protect life, property and community infrastructure from flood hazards and to maintain the natural flood storage function of floodplains. The proposal to construct a wetland in the general location of an existing wetland is consistent with the objectives of Clause 13.03-1L which encourages the use of existing waterbodies in the development of drainage infrastructure.

Given the residential and retirement village uses and the site's location in a designated fire prone area, the application must identify the bushfire hazard and undertake an appropriate risk assessment pursuant to Clause 13.02-1S to prioritise the protection of human life. The application has provided an assessment of the bushfire hazard, which shows a suitable level of risk, where specific mitigation measures can be dealt with at the time of subdivision.

Clause 19.02-6S seeks to establish, manage and improve a diverse and integrated network of public open space that meets the needs of the community. The proposal would provide a 36m open space corridor along the river frontage, and the floodplain that is identified for public open space.

North of the Merri Structure Plan (2011)

The North of the Merri Structure Plan (NMRSP) outlines the planning and development framework for approximately 250ha of land referred to as the North of the Merri River Growth Area. The NMRSP defines a vision and broad structure for the movement network and land uses within the Structure Plan area to guide preparation of more detailed development plans and planning permit applications.

The NMRSP identifies the following items of particular relevance to the subject site:

- Standard residential densities (12 dwellings per NDha) to the part of the site within the GRZ, with diverse housing or medium density fronting open space areas.
- Public Open Space for that part of the site within the Urban Floodway Zone, including pedestrian paths and wetlands.
- A future crossing over the Merri River through the site to Bromfield Street.
- Cross sections for the new roads.

Figure 2: Structure plan map showing site location (source: NMRSP)

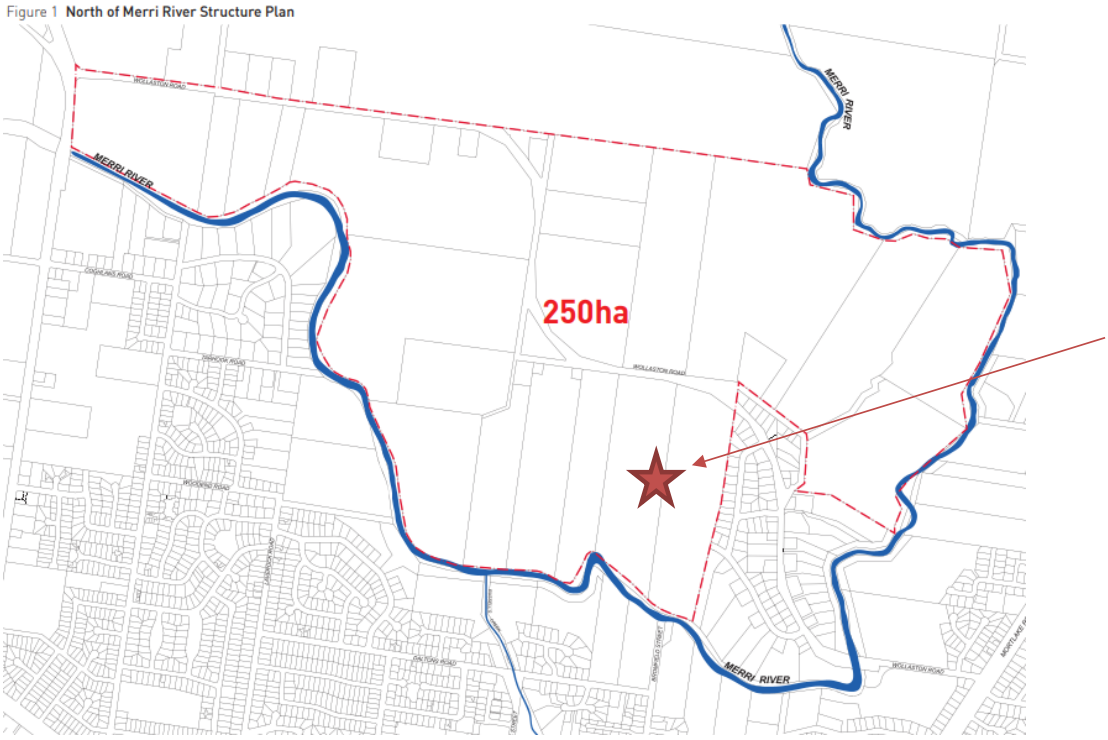
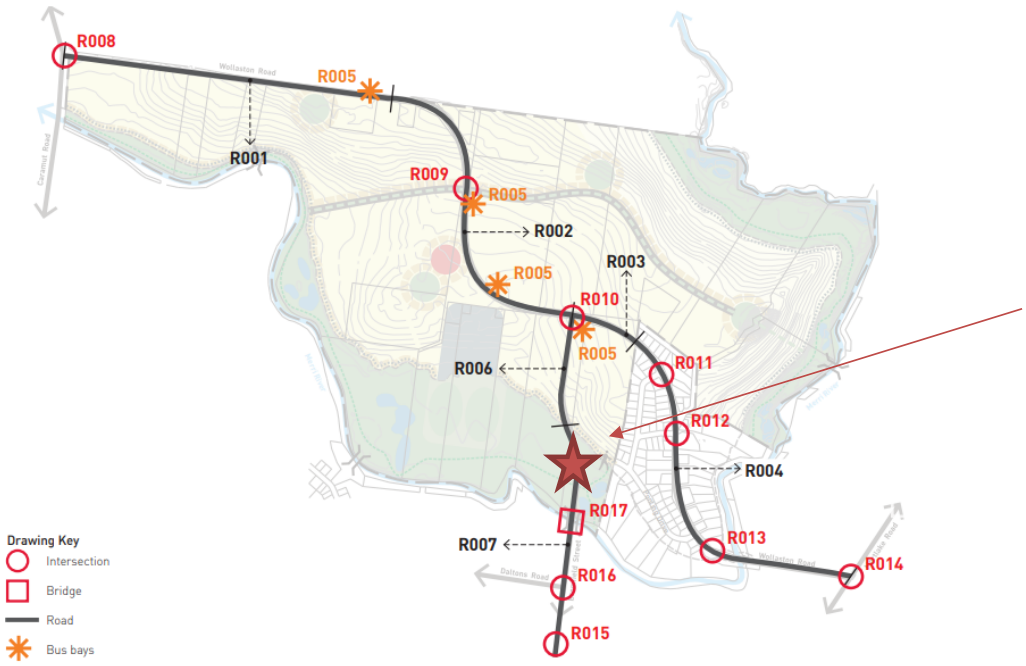


Figure 3: Subject site as shown in underlying framework plan (source: NMSP)

Figure 4: Subject site as shown within the development contributions plan (source: NMR DCP)



The NMRSP is an incorporated document in the Warrnambool Planning Scheme and the Development Plan must be generally in accordance with this document. The proposed development plan broadly realises the vision of the NMRSP with residential and retirement village development on that part of the site within the GRZ and open space within the floodplain area. The key difference proposed by the development plan is the open space area is proposed to accommodate a private golf course and drainage infrastructure (one retarding basin and one wetland). This will be discussed in depth in the response to the DPO10 section.

The development is separated into three individual stages. Stage 1 includes 26 residential lots and, while the DP does not specify which lots, it is understood the land would be developed from the northeast corner. Stage 2 would contain the remaining 26 residential lots and stage 3 would combine the entire retirement village area and golf course.

A 36m wide public open space corridor is proposed along the Merri River with a 10m vegetation buffer and 2.5m shared path. The DP proposes a section 173 agreement that will provide the floodplain land as open space in the event that stage 3 of the development is not developed for the purposes of a retirement village.

The DP provides a future carriageway link across the Merri River to Bromfield Street with a 20m wide carriage easement that connects with the proposed internal road network that links to Wollaston Road. Road cross sections of 20m in width have been provided. The cross sections are not consistent with the cross sections in the NMRSP. The NMRSP indicates this road should have a 9 metre wide carriageway when the DP is indicating a 7.3 metre wide carriageway. In the event the DP is approved, this can be resolved via condition of approval.

No vehicle access is contemplated to Ponting Drive; however, pedestrian and cycle access is provided. This is consistent with the NMRSP. Pedestrian access is provided along the northern bank of the Merri River via a 2.5m shared path and two waterbodies are proposed within the floodplain area. The Development Plan does not propose to construct any of the

DCP items on the site; however, would provide a carriageway easement for the future road connection and bridge across the Merri River.

ZONE

The subject site is partly within the General Residential Zone, Schedule 1.

The Purpose of this zone is:

- *To implement the Municipal Planning Strategy and Planning Policy Framework.*
- *To encourage development that respects the neighbourhood character of the area.*
- *To encourage a diversity of housing types and housing growth particularly in locations offering good access to services and transport.*
- *To allow educational, recreational, religious, community and a limited range of other non-residential uses to serve local community needs in appropriate locations.*

The decision guidelines include the following objectives:

- The Municipal Planning Strategy and the Planning Policy Framework.
- The purpose of this zone.
- The objectives set out in a schedule to this zone.
- Any other decision guidelines specified in a schedule to this zone.
- For the construction and extension of two or more dwellings on a lot, dwellings on common property and residential buildings, the objectives, standards and decision guidelines of Clause 55.
- An application to subdivide land, other than an application to subdivide land into lots each containing an existing dwelling or car parking space, must meet the requirements of Clause 56.

The proposed development plan does not trigger a permit under the GRZ. Future planning applications will be assessed under the purpose and decision guidelines of the Zone; however, the proposed residential and retirement village uses are considered to be broadly consistent with the purpose of encouraging a diversity of housing types in appropriate locations that respect neighbourhood character.

The site is also partly within the Urban Floodway Zone. The purpose of this zone is:

- *To implement the Municipal Planning Strategy and the Planning Policy Framework.*
- *To identify waterways, major floodpaths, drainage depressions and high hazard areas within urban areas which have the greatest risk and frequency of being affected by flooding.*
- *To ensure that any development maintains the free passage and temporary storage of floodwater, minimises flood damage and is compatible with flood hazard, local drainage conditions and the minimisation of soil erosion, sedimentation and silting.*
- *To reflect any declarations under Division 4 of Part 10 of the* Water Act, 1989*.*
- *To protect water quality and waterways as natural resources by managing urban stormwater, protecting water supply catchment areas and managing saline discharges to minimise the risks to the environmental quality of water and groundwater.*

The proposed development plan does not trigger a permit under the Urban Floodway Zone. Future planning applications for the golf course, wetlands, retarding basin and other infrastructure in this area will be assessed under the purpose and decision guidelines of the Zone. The proposal is considered to be broadly consistent with the purpose of identifying flood paths, maintaining free passage of floodwater and protecting water quality.

OVERLAYS

Development Plan (Clause 43.04 and Schedule 10)

The subject site is within the Development Plan Overlay Schedule 10 (DPO10) and the application seeks approval for a Development Plan under this overlay.

The purpose of the DPO is:

- *To implement the Municipal Planning Strategy and the Planning Policy Framework.*
- *To identify areas which require the form and conditions of future use and development to be shown on a development plan before a permit can be granted to use or develop the land.*
- *To exempt an application from notice and review if a development plan has been prepared to the satisfaction of the responsible authority.*

Pursuant to Clause 43.04-2, a permit must not be granted to use or subdivide land, or construct a building or carry out works until a development plan has been prepared to the satisfaction of the Responsible Authority.

The proposal is considered to be broadly consistent with the objectives and requirements of DPO10. An assessment of the development plan against the objectives and requirements of Schedule 10 to Clause 43.04 Development Plan Overlay has been undertaken in the tables below.

Objective	Comment
Movement network objective *To provide a movement network, including a connector road, local street and pedestrian/cycle path network that:*	
Responds to the topography and existing road reserves (internal and external to the Development Plan area).	**Acceptable** The development plan responds to the site topography. The layout allows for the fall of the site from the north-east corner, down to the river. The road alignment and lot layout minimise earthworks required for individual sites. In developing the road network, the development plan has generally undertaken consideration of the existing external roads. The site will connect to Wollaston Road in the north and will allow for future connections to Bromfield Street to the south through a 24m carriageway easement that connects to the internal road network. No vehicle access has been provided through to Ponting Drive; however, pedestrian access would be provided. It is noted the NMRSP does not

Objective	Comment
	identify vehicle access through to Ponting Drive.
Establishes a modified grid-based local road network with a high level of streetscape diversity, including a variety of street cross-sections.	**Acceptable** Only one road is proposed as part of the development plan to facilitate the development of stage 1 and 2, and the future connection across the Merri River. Pursuant to Clause 43.04-4, a DP can be prepared in stages which is in effect what the applicant is proposing. It is anticipated a further DP approval will be required prior to the development of Stage 3. The traffic report indicates the proposed vehicle movements for Stages 1, 2 and 3 can be accommodated by the surrounding road network.
Establishes connections between neighbourhoods within the structure plan area, and to existing surrounding neighbourhoods where relevant.	**Acceptable** Vehicle access to Ponting Drive will not be provided to prevent 'rat-running' through the existing street network. Council considers this acceptable based on advice from NMRSP which indicates Ponting Drive should provide pedestrian and cycle access into the site and does not identify vehicle access from Ponting Drive. An east-west pedestrian and cycle path will be provided adjacent to Merri Creek and will connect with the existing path from the adjacent development reserve. A north-south shared path will connect the aforementioned path to Ponting Drive.
Incorporates a positive landscape character in key locations through use of boulevard treatments and high-quality street tree planting.	**Acceptable** The street frontages include wide nature strips which will be landscaped with native and indigenous vegetation selected from the WCC street tree planting guidelines. Limited detail of landscaping has been provided beyond this; however, it is noted the DPO10 does not explicitly require full landscaping details. The DP indicates that full details of species and the location of street trees and landscaping will be subject to a Landscape Masterplan that will be submitted at the permit application stage. This is considered appropriate.
Provides an accessible public transport route along Wollaston Road and a linked pedestrian and cycle network (on and off road).	**Acceptable** Pedestrian paths will be provided along both sides of the internal road and shared pedestrian, with a link to Ponting Road and a shared path will be provided in the southern portion of the site.
Open space objectives *To provide an interlinked open space network that:*	

Objective	Comment
Focuses on the Merri River floodplain and key site features (ridgelines, existing vegetation, heritage features) to create a 'green loop' of open space connected by boulevard roads throughout the structure plan area.	**Acceptable** A 36m corridor of open space will be provided along the northern river edge. It will include a shared path that connects with existing paths to create a green loop. The proposed wetlands are located in place of the existing intermittent waterbody and a retarding basin is also proposed to be incorporated into the design of the floodplain.
Is visually and physically connected to surrounding land uses through use of edge road treatments or active frontages.	**Acceptable** The proposal has only provided the interface details with the open space when Stage 2 integrates with the floodplain area. The DP report provides no details of the development of Stage 3 including the interface treatments with the open space area. The DPO enables a Development Plan to be prepared in stages and as such the lack of detail of Stage 3 will require a further Development Plan before this area is developed.
Accommodates a range of functions, including drainage, active and passive recreation, walking/cycling trails and preserves key site features.	**Acceptable** Open space has been shown as unencumbered, and a number of uses and functions could be accommodated.
Locates local open space to form the heart of neighbourhoods.	**Acceptable** Open space is located as per the constraints of the site, but also in prime consideration of the natural attributes of the land.
Establishes a distinct character for each open space that reflects the context and intended function of the space and provides for an area of usable open space.	**Acceptable** The space provides opportunities for leisure and activities that is consistent with the needs of the public.
Reinforces the role of streets by establishing small green spaces within the local street network, including small parks, widened nature strips and central medians to provide points of difference and to create neighbourhood character.	**Acceptable** The development plan reinforces the role of streets and enhances the neighbourhood character. The carriageway that runs north to south through the site includes pedestrian pathways, on-street parking and wide nature strips with street trees.
Identifies land within the floodplain suitable for active and passive recreation purposes and for drainage and conservation purposes, having regard for the 30 metre biodiversity corridor along the river.	**Acceptable** A 36m wide creek reserve in combination with passive recreation areas are consistent with the objective.
Activity centre and community facilities objectives *To provide a centralised activity and community centre that:*	
Provides a local focus for the community, incorporating retail at a local Convenience Centre scale.	**N/A** In accordance with the North of Merri River Growth Area Framework Plan, the local

Objective	Comment
	convenience centre is to be located on the northern side of Wollaston Road.
Locates community facilities, including the primary school and local and active open space, adjacent to or nearby the retail/service centre.	**N/A** The subject site is identified for conventional residential development only. Community, school and commercial development has been identified on other parcels.
Identifies opportunities for shared use of land for community facilities, including the primary school and any required Council operated facilities.	The proposal does not accommodate any community uses. The vesting of the floodplain area with Council provides opportunities for public access and use of this land.
Is accessible via public transport with convenient access to a bus stop.	**Acceptable** The NMRSP does not identify any future public transport corridors within the site. The proposal would provide for appropriate bus stop locations.
Takes a 'street-based' form with a design that enhances visual interaction between the street and the land uses and accommodates on-street parking.	**Acceptable** The proposed carriageways will accommodate on-street parking. The conventional residential lot layout provides appropriate opportunities for development to address the street.
Provides adequate parking for retail and other commercial uses in a location that does not feature prominently from key locations, such as Wollaston Road.	**N/A** Retail and commercial uses will not be provided on site.
Provides opportunities for diverse housing options including higher density housing and mixed use activities surrounding the centre, including service businesses and home offices.	**Acceptable** The development plan will provide a diversity of lot sizes and includes provision for a future retirement village. While the densities in Stages 1 and 2 are below the 12 per NDha expected by the NMRSP, this is an appropriate response to the adjacent larger lot development. The future retirement village will provide opportunities for greater densities.
Incorporates buildings and uses of a scale sympathetic to the surrounding residential context.	**Acceptable** The indicative future residential development and retirement village uses are of a scale that is sympathetic to the surrounding residential development. In particular, the lot layout of Stages 1 and 2 provide an appropriate interface to Wollaston Road and the adjacent residential land to the east.
Neighbourhoods and density objectives *To provide a series of internal neighbourhoods that:*	
Are diverse in landscape, streetscape and built form character, each with a neighbourhood 'core' consisting of a feature (such as open space, a streetscape feature, local activity centre etc).	**Acceptable** The development plan provides for a neighbourhood core with smaller lot sizes that adjoining land which will contribute to character that will be distinguished from elsewhere in the precinct. The single road proposed will create the neighbourhood feature and will accommodate street tree
Are clearly defined by streetscape features and land uses, yet are connected through use of local streets and the 'green loop' of open space and boulevard connectors.	

Objective	Comment
	planting and views down through to the floodplain and Merri River.
Provide diversity in lot sizes and housing styles, with smaller lots in key, high amenity locations around open space and the local activity centre and larger lots in appropriate locations such as on steep slopes.	**Acceptable** The DP identifies 52 residential lots ranging from 698m^2 to 957m^2 which achieves a NDha of approximately 10.5 lots per hectare. This falls below the density envisioned by the NRMSP which seeks an average lot density of 12 dwellings per NDha. The balance of the lot is indicated as a future retirement village with approximately 192 lots. Despite the vision for 192 retirement village lots, applications for the future retirement village will be encouraged to provide greater densities, particularly along the interface with the open space area and as such the current lower NDha is considered appropriate.
Achieve an overall density of 12 lots per net developable hectare across the structure plan area.	
Incorporate a high amenity character through use of diverse streetscape cross-sections and distinct open space to provide a context for diverse and higher density housing outcomes.	**Acceptable** The proposed design of Stage 1 and 2, and the street layout will provide a unique character for this neighbourhood in the precinct which will centre on smaller lot sizes and a road network offering views of the floodplain and Merri River area.
Incorporate sensitive design of lots and siting of housing to preserve opportunities for infill development to occur over time.	**Acceptable** The conventional residential layout will provide opportunities for infill development in the future. Importantly, the layout will not prejudice the future development of stage 3 or the redevelopment of any land to the east.
Provide an appropriate housing and fencing interface to adjoining rural land, and vehicle and pedestrian connections to adjoining residential land.	**Acceptable** The site does not have interfaces with rural land. Pedestrian connections are provided along the Merri River corridor and Ponting Drive as per the NMRSP.
Utilities and drainage objectives	
To provide physical services and infrastructure that: • *Meet the needs of the future community and the development.* • *Is provided in accordance with the North of the Merri River Development Contributions Plan 2011.* • *Provides for the efficient, staged delivery of services and infrastructure to ensure all lots are provided with adequate services.* • *Incorporates a Water Sensitive Urban Design approach to stormwater management to protect the water quality of the Merri River.*	**Acceptable** The Development Plan and services plan indicate the site is capable of be serviced by existing utilities and services. The site will be serviced by reticulated sewerage via the existing connection to the west and east in line with Pointing Drive. Reticulated water supply will be provided with a new watermain along the northern edge of the site. Wannon Water has indicated further investigations are required to determine whether infrastructure upgrades are required to service the development. In the event upgrades are required, the development will be required to contribute to these costs.

Objective	Comment
	The Development Plan does not propose to construct any of the DCP items on the site as works in kind; however, would provide a carriageway easement for the future road connection and bridge across the Merri River. A stormwater management strategy has been submitted in support of the application that details a WSUD strategy for the development of the wider site. The strategy would rely on a retarding basin and wetland located in the floodplain area and would protect the quality and pre-development flows of any discharge into the Merri River.

Requirement	Comment
A development plan must be generally in accordance with the *North of the Merri River Structure Plan 2011* and the North of Merri River Growth Area Framework Plan in this schedule.	**Acceptable** The Development Plan is generally in accordance with the North of the Merri River Structure Plan 2011 with the exception of the privatisation of the floodplain area as a golf course. As discussed above, this area must be vested in Council as public open space whereby the applicant can then enter into negotiations for a leasehold of this land for the golf course.
A development plan should be prepared for a group of landholdings generally in accordance with the Development Plan Precincts identified in the *North of the Merri River Structure Plan*. Variations to the development plan precincts must be to the satisfaction of the responsible authority.	**Acceptable** Minor variations to the Structure Plan have been undertaken to adjust the location of the internal road and the residential lot density. As discussed above, this is considered to be broadly acceptable.
A design response that is based on the results of the site analysis process, and is generally consistent with the objectives and requirements of the *North of the Merri River Structure Plan*.	**Acceptable** The design response is based on the site analysis in the DP report and the urban design analysis. Other than the items raised above, the design response is considered to broadly reflect the objectives and requirements of the North of Merri River Growth Area Structure Plan.
A written report and plans addressing the objectives described in this schedule.	**Acceptable** The Development Plan report addresses the objectives of the schedule.
A detailed site analysis that includes the following items to the satisfaction of the responsible authority:	
An environmental assessment of the flora, fauna and habitat significance of the land which includes recommended actions for management, revegetation and restoration of any identified conservation and vegetation protection areas where relevant. The assessment must also make recommendations with regard to management of	**Acceptable** The Development Plan is supported by an environmental assessment (Trengove, November 2021). The DP report indicates no native vegetation exists on the site aside from the riparian zone along the Merri River, and

Requirement	Comment
noxious weeds as identified by the *Catchment and Land Protection Act 1994*. The assessment should be guided by the broader environmental assessment and recommendations completed as part of the *North of the Merri River Structure Plan*.	the report generally confirms this view. Although the application has not addressed the management of noxious weeds, this could form part of future permit conditions.
An arboriculture assessment of all existing trees on the land which provides a description of the condition, health and integrity of all trees. The assessment must include recommendations for the long term preservation of tree(s) having regard to proposed open space or development in the neighbourhood context. The arboriculture assessment must include a plan showing the location of all vegetation nominated for removal and retention and surveyed locations of the trunk, canopy and tree protection zone of all vegetation nominated for retention.	**Acceptable** While the site has been largely cleared of vegetation in the previous 3 years, from aerial photographs a number of trees seemed to have been retained around the existing dwelling/dairy. The Development Plan describes Cypress Trees planted in wind breaks along fence lines, and the vegetation assessment suggests “evidence of recent tree clearing (presumably large Cypress trees)”. Although it is unconfirmed as to whether or not those trees would have required planning consideration, given they have been removed and the assessment concludes no national, state, or regionally significant plant species were recorded in 2021, it would be unreasonable to require an arboricultural assessment for an area of predominantly exotic species with no significant trees.
An archaeological survey and heritage assessment which includes recommendations for the protection, restoration and interpretation of significant sites, and where appropriate, design measures to sensitively integrate sites. The assessment must also identify areas where a Cultural Heritage Management Plan is required by the *Aboriginal Heritage Act 2006*. The assessment should be guided by the broader archaeological and heritage assessment and recommendations completed as part of the *North of the Merri River Structure Plan.*	**Acceptable** A Cultural Heritage Management Plan has been prepared as part of this development plan. No specific measures are needed for the management of Aboriginal cultural heritage and no Aboriginal cultural heritage or areas of archaeological potential were identified on site during the assessment. Standard conditions apply to the CHMP.
A landscape assessment that defines any important landscape views or vistas and any landscape features.	**Acceptable** The urban design package provides a rudimentary analysis of existing view corridors. The design of the development is expected to maintain public view lines.
An environmental audit identifying any environmental hazards or contamination on the land and proposed treatments, if any; or a qualified statement indicating the absence of such hazards or contamination.	**Unacceptable** The environmental assessment addresses the environmental conditions on site but no environmental audit has been provided to demonstrate the site’s suitability for sensitive land uses. An environmental audit or qualified statement could be required by permit condition.
A consolidated site analysis plan in digital and hard copy format that depicts all relevant site analysis information.	**Acceptable** A Consolidated Site Analysis Plan has been provided.
Movement network	
A street layout plan that details all aspects of the movement network, including streets, intersection	**Acceptable**

Requirement	Comment
treatments, traffic management devices, public transport routes and pedestrian/cycle paths.	A Street Layout Plan has been provided for the Stage 1 and 2 of the development. No road network has been provided for the stage 3 development. This would be the subject of the future DP application.
Typical cross-sections for all streets.	**Unacceptable** A typical local road cross-section have been provided as part of the proposal. The cross section is not consistent with the NMRSP in relation to the carriageway. This could be resolved via a condition of approval if the Development Plan is approved.
A road hierarchy plan.	**Acceptable** The proposed network hierarchy generally follows the structure plan by providing a road link between Wollaston Road and Bromfield Street; albeit further to the east of the site that identified in the NRMSP. The traffic report submitted in support of the application demonstrates a connection road can still be provided in the location identified in the SP; however, this has not been detailed in the DP.
A road traffic safety plan that assigns a traffic volume range to each road and identifies measures to ensure roads do not exceed the traffic volume range commensurate with their position in the road hierarchy.	**Acceptable** The Traffic Assessment submitted in support of the application demonstrates the anticipated vehicle movements associated with the development can be accommodate by the local road network.
Open Space	
An open space plan identifying encumbered open space, passive open space, land suitable for active open space, and any additional open space required to perform a streetscape function or to link open space areas.	**Acceptable** An open space plan has been provided that indicates the layout for the site. The Open Space Plan provides a high-level landscape concept and a planting palette for the street trees and floodplain area. Future permit conditions can control the broad design of a landscape buffer along the river corridor and other planting that would generally retain existing views down to the river.
A landscape masterplan that identifies a preferred character/theme for each open space area and a street tree theme for streets and boulevards, including nomination of suitable species.	
A landscape masterplan for the floodplain or part thereof that clearly defines land within the floodplain suitable for active, passive and conservation functions, with a distinct landscape design for each.	
A plan detailing any vegetation to be preserved on site, vegetation to be removed and any revegetation works required in accordance with the recommendations of the flora and fauna assessment.	**Acceptable** An assessment has been provided which concludes no patch or scatter tree native vegetation is to be impacted, and not significant plant species recorded within the study area. Re-vegetation works could be required via permit condition.
Details of fencing treatments proposed for land abutting open space, including land abutting the floodplain.	**Acceptable** Details of the post and rail fencing proposed at the interface with the river/reserve is shown on landscape plans. Further fencing details

Requirement	Comment
	would require confirmation of the intended use of the open space area, and could be provided as part of the permit process.
Activity centres and community facilities	
An activity centre plan indicatively identifying the design of the centre, the location and scale of uses, location of bus stops and parking areas and the relationship between the activity centre and the open space, primary school and any community facilities required by the responsible authority.	**N/A** An Activity Centre Plan has not been provided. This is considered acceptable given the local centre has been identified on another parcel.
Neighbourhoods and density	
An indicative lot layout plan that identifies areas appropriate for medium density housing, areas that are suitable for potential change over time (potential re-subdivision) and areas appropriate for mixed uses.	**Acceptable** An indicative lot layout plan has been provided as part of the proposal. It identifies the eastern portion of the site as the location for 52 residential lots and the western portion as a future retirement village or potential residential development. Stage 1 and 2 achieve a density of 10.4 dwelling per NDha. This is considered an appropriate response to the larger lots directly to the east. Stage 3 of the development will provide opportunities for greater densities without impacting neighbouring land.
Utilities and Drainage	
A development sequencing plan that identifies the likely sequence of development, the staging and provision of infrastructure, drainage, roads and other key facilities and evidence that reticulated water supply and sewerage services can be provided to the land in a timely and efficient manner.	**Acceptable** The site services plan indicates the servicing of Stages 1 and 2. As discussed above, the DPO enables a DP to be prepared in stages. A further DP approval will be required prior to any permit being issued for Stage 3 of the site.
An overall land budget that calculates the area for each category of land use shown on the plan. The land budget must specifically identify land that will be set aside for infrastructure and open space in accordance with the North of the Merri River Development Contributions Plan 2011.	**Acceptable** The proposed DP submission includes a land budget at Section 5.5. It includes land to be set aside for future roads, however does not address open space since the proposal assumes otherwise. If the plan is approved on condition of the provision of open space, the budget can be updated accordingly.

Environmental Significance (Clause 42.01 and Schedule 2)

Part of the site is impact by the Environmental Significance Overlay. The objective of the overlay is:

- *To protect the natural, cultural and visual values of the Hopkins and Merri Rivers, their tributaries, adjacent land and associated habitat corridors.*
- *To promote the integrated management and protection of the rivers and adjacent land.*
- *To ensure freehold land along the rivers is used and developed in a sustainable manner.*

- *To maintain and enhance stands of remnant vegetation and encourage planting of locally indigenous species.*
- *To prevent and arrest erosion of the riverbanks, which includes discouraging the grazing of stock close to riverbanks.*
- *To place high priority on protecting the rivers and adjacent land in locations which are visible from main roads, residential areas and other key activity locations.*
- *To provide the opportunity for the provision of public open space adjacent to the river in appropriate locations to provide for passive and active recreational activities..*

The proposed development plan does not trigger a permit under the ESO2. Future planning applications at the site will be assessed against the environmental objectives and decision guidelines. The proposal is considered to be capable of respecting the natural and cultural values of the site.

Development Contributions Plan (Clause 45.06 and Schedule 1)

Part of the site is impact by the Development Contributions Plan Overlay – Schedule 1 (DCPO1). The purpose of the DCPO is:

- *To implement the Municipal Planning Strategy and the Planning Policy Framework.*
- *To identify areas which require the preparation of a development contributions plan for the purpose of levying contributions for the provision of works, services and facilities before development can commence.*

The application does not trigger a permit requirement or a contributions requirement on the development. DCP's will be levied at the planning or subdivision permit stage.

Recommendation

That having considered all the matters normally required under Section 60 of the Act for planning applications, the Council should approve the development plan under the relevant provisions of the Warrnambool Planning Scheme in respect of the land known and described as Lot 1 on Title Plan 99782 and Lot 1 on Title Plan 8844446 at 147 Wollaston Rd, WARRNAMBOOL VIC 3280, which seeks to facilitate future residential, retirement village and open space development on site.

proUrban
PLANNING & PROJECT MANAGEMENT

147 WOLLASTON DEVELOPMENT PLAN

North of the Merri River Growth Area

4 November 2022

Document No.	Document Form	Prepared By	Reviewed By	Dated
1.	Draft	G. Rule	H. McKenzie	13 Jan 2021
2.	Draft	G. Rule	H. McKenzie	31 Aug 2021
3.	Draft	G. Rule	H. McKenzie	2 Sept 2021
4.	Final Draft	pU	Gull Group	3 Sept 2021
5.	Final	pU	Council	7 Sept 2021
6.	Revision Draft	pU	Gull Group	19 October 2022
7.	Revision Final	pU	Council	4 November 2022

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List of Figures and Plans

Appendix

	Document	Date	Prepared By
A	Urban Design Package	26/10/2022	Beveridge Williams
B	Open Space Plan	4/11/2022	Beveridge Williams
C	Traffic Impact Assessment	4/11/2022	Beveridge Williams
D	Stormwater Management Strategy	4/11/2022	Beveridge Williams
E	Services Plan	4/11/2022	Beveridge Williams
F	Title Documents	4/11/2022	
G	Cultural Heritage Management Plan	15/04/21	Heritage Insight Pty Ltd.
H.	Bushfire Development Report	2/11/22	Terramatrix
I.	Vegetation Assessment	4/11/2021	Mark Trengove Ecological Services

1 Introduction

1.1 Development Plan Overview

The 147 Wollaston Development Plan ('The Development Plan') has been prepared by proUrban Planning Advisory and Management (proUrban) on behalf of Wollaston Developments Pty Ltd.

The Development Plan provides a clear framework for the future development of the land identified as 147 Wollaston Road, Warrnambool.

The Development Plan has been prepared in accordance with the requirements of the Development Plan Overlay – Schedule 10 (DPO10) at Clause 43.04-10 of the Warrnambool Planning Scheme and the North of the Merri River Growth Area Structure Plan.

1.2 Development Plan Vision

To implement the vision depicted in the North of the Merri River Structure Plan to establish a vibrant community that is well-connected, well-serviced and that has a positive sense of place.

The 147 Wollaston Development Plan seeks to guide the future development of the land to provide for a diverse range of residential lots and residential land uses to meet the needs of the community. The Development Plan seeks to facilitate future development which will improve the Merri River interface and create a well-connected open space network.

The Development seeks to provide improved pedestrian and cycle connectivity through the area.

2 Site Context

2.1 Site Context

The City of Warrnambool, located 330km southwest of Melbourne, is the major regional centre within south-western Victoria. The City has a diverse population and provides a base for housing, employment and education for the broader region.

To accommodate projected population growth, the City of Warrnambool has identified four key growth areas suitable for accommodating growth, including the North of the Merri River growth area.

The North of the Merri River growth area is located approximately 4km north west of the Warrnambool Central Business District and has historically been used for farming, with established residential areas to the south, east and west.

Development has commenced on a number of residential estates within the North of the Merri River growth area.

2.2 Site Description

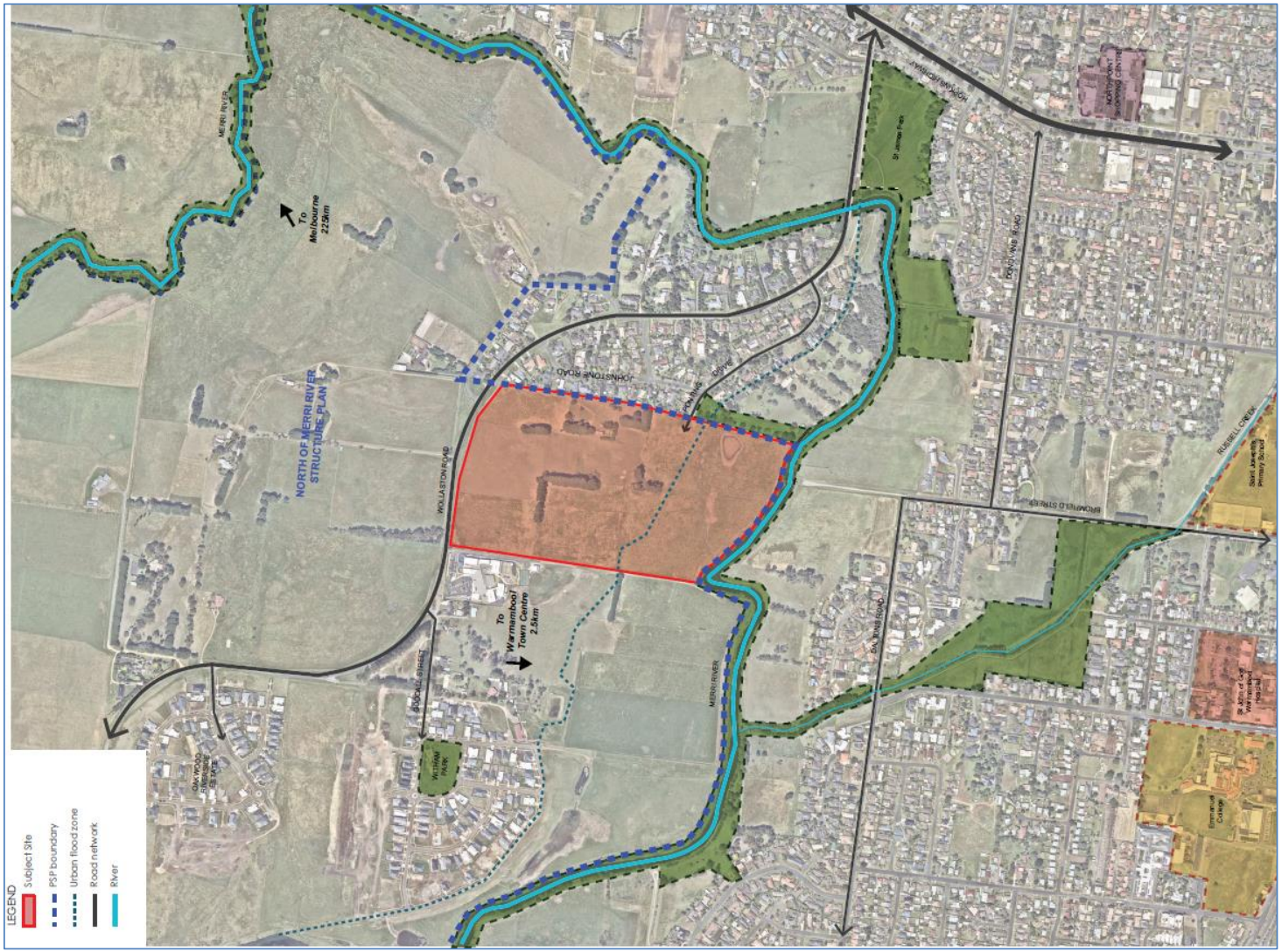
The subject site is located at 147 Wollaston Road. The site contains two lots and the relevant Certificate of Titles confirm that the site has the following legal discriptions:

- Lot 1 on Title Plan 99782; and
- Lot 1 on Title Plan 8844446.

The site has a total area of approximately 24.844ha and is currently occupied by a single dwelling and outbuildings. There are a number of established stands of pine trees across the site. Other than grassland and fencing the site is otherwise void of any notable onground features. The land generally slopes from the north (Wollaston Road) down to the south (Merri River). Please refer to the aerial image on page six and site and surrounds photos on pages seven, eight and nine for further details of the existing conditions of the site.

The subject site is located on the eastern edge of the growth area, with frontage to Wollaston Road to the north and the Merri River to the south. Ponting Drive and the Ponting Drive Reserve Playground are to the east south east with established residential dwellings along the northern half of the eastern boundary (fronting Johnstone Road). The Merri River Mootkana school is to the west.

Approximately one third (the southern third) of the site is in the Merri River floodplain.



Plan 1 | Site Context Plan

Figure 1 | View from Wollaston Road looking southwest to Merri River School

Figure 2 | View from Wollaston Road looking south

Figure 3 | View from Wollaston Road looking east

Figure 4 | View from Wollaston Road looking north

Figure 5 | View from Ponting Drive looking northwest

Figure 6 | View from Ponting Drive looking south

Figure 7 | View from Ponting Drive looking west

Figure 8 | View of Merri River from southeast corner of site

Figure 9 | View from Ponting Drive looking south

Figure 10 | View from Bromfield Weir looking north

Figure 11 | View from Bromfield Street looking north

Figure 12 | View of Bromfield Weir looking north

3 Planning Policy Context

3.1 Planning Policy Framework

The Planning Policy Framework (PPF) seeks to ensure that the objectives of planning in Victoria (as set out in Section 4 of the *Planning and Environment Act 1987*) are fostered through appropriate land use and development policies and practices. It informs the preparation and implementation of local planning policy objectives and the introduction of zone and overlay controls, and seeks to integrate relevant environmental, cultural, social and economic factors in the interest of net community benefit and sustainable development. Those clauses most relevant to the Development Plan include:

- Clause 11 Settlement
- Clause 12 Environmental and Landscape Values
- Clause 13 Environmental Risks
- Clause 15 Built Environment and Heritage
- Clause 16 Housing
- Clause 18 Transport
- Clause 19 Infrastructure.

Clause 11.01-1R Settlement – Great South Coast

- *To attract more people to the region.*

Clause 11.03-2S Growth Areas

- *To locate urban growth close to transport corridors and services and provide efficient and effective infrastructure to create sustainability benefits while protecting primary production, major sources of raw materials and valued environmental areas.*

Clause 11.03-2L-01 North of the Merri Growth Area

- Land use strategies:
    - Create five distinct neighbourhoods defined by a neighbourhood 'core' of passive open space and the local activity centre.
    - Avoid further urban expansion beyond the established boundary to protect the viability of nearby agricultural land.
    - Provide higher density housing and mixed uses, such as home offices, surrounding the activity centre.
    - Avoid future development encroaching upon flora, fauna and cultural heritage assets.
- Access and circulation strategies:
    - Link each neighbourhood by Wollaston Road, the east-west boulevard connector road and the 'green loop' comprising the floodplain.
    - Use Wollaston Road as the primary connector road to connect externally to the east and west and incorporate a central median to create a strong landscape character/boulevard effect.
    - Provide a north-south connection over the Merri River at Bromfield Street to connect the growth area with urban areas to the south.
    - Provide a connected on and off-road pedestrian/cycle network that uses the Merri River, local open space links and boulevard connector roads.
    - Provide an active edge to all open space areas, including the floodplain, via edge roads.
    - Provide direct property access to all roads, including Wollaston Road.
    - Provide a dedicated pedestrian/cycle link to the adjacent Ponting Estate in the location of Ponting Drive.
    - Discourage through vehicle movements into the Ponting Estate.
- Open space and landscape strategies:
    - Maximise use of the Merri River floodplain for active open space and passive recreation to minimise the need to set aside developable land for open space.
    - Create a 'green loop' system of open space and green boulevards, comprising the floodplain, east-west boulevard connector and local open space.

- Link open space to neighbourhoods through road treatments, including edge roads along the length of the floodplain.
- Cluster development to provide land for large areas of public open space (utilising the floodplain), environmental linkages and the protection of ridgelines.

Clause 12.03-1L Waterways and wetlands

- *To maintain the ecological health and natural and cultural values of Warrnambool's waterways and wetlands.*
- Strategies:
  - Encourage use and development that enhances estuary, river and lake water quality, and minimises nutrient and sediment load conditions.
  - Ensure use and development mitigates any visual impacts to the Hopkins estuary, rivers and their environs.
  - Support the restoration of degraded land, particularly stream frontages, floodplains and riparian areas.
  - Revegetate along waterways and floodplains using native species with the inclusion of understorey species.

Clause 13.03-1L – Merri River and Russells Creek floodplains

- *To maintain the integrity of the Merri River and Russells Creek floodplains.*
- Strategies:
  - Discourage the filling of land that is subject to flooding.
  - Encourage the use of constructed wetlands as a means of storing floodwater, to improve water quality and contribute to natural habitats. Incorporate the Merri River and Russells Creek floodplains into open spaces.
  - Avoid development that will have an adverse downstream impact in terms of flooding and water quality.
  - Ensure that when drainage and flood protection works are inadequate that habitable buildings are protected from flooding in major storms.

Clause 16.01-1L – Housing supply

- Support increased residential densities in growth areas and established urban areas within proximity to existing or planned transport corridors, activity centres and open space.
- Support the redevelopment of former industrial sites within established residential areas.
- Support residential infill development within established urban areas that complements the area's neighbourhood character.

Clause 19.02-6L – Open space

- Develop an open space network that protects the municipality's natural and cultural environments and enhances biodiversity and water quality.
- Protect sites with high environmental or cultural values by incorporating them into the open space network as part of growth area planning.
- Encourage development adjacent to public open space to provide clear separation between public and private land.
- Avoid development that reduces public access to open space.
- Encourage development to enhance a sense of safety by maximising interaction, passive surveillance and incidental lighting of open space.

Clause 19.03-3L – Integrated water management

- *To reduce environmental degradation associated with stormwater run-off and effluent disposal.*
- Strategies:
  - Establish artificial wetlands, retention basins and stormwater pollution traps and other water sensitive urban design features as a means of controlling the quality and quantity of stormwater run-off from urban areas.
  - Control urban run-off to protect and enhance waterways.
  - Reduce sediment and nutrients entering waterways.
  - Discourage waste disposal systems for residential, industrial and commercial purposes that are detrimental to the environment.

- Encourage the re-use of wastewater and stormwater run-off within greenfield growth areas.

3.2 Municipal Planning Strategy

The Municipal Planning Strategy (MPS) outlines the vision and strategic directions for the City of Warrnambool. The clauses most relevant to the Development Plan include:

Clause 02.01 – Context

- Warrnambool is Victoria's largest coastal regional city and is the fastest growing economy and population centre in South West Victoria.
- The City is bound by Moyne Shire in the north, east and west; and by the Southern Ocean in the south. It is approximately 260 kilometres west of Melbourne and has a land area of 120 square kilometres.
- Warrnambool has a steadily growing population of about 35,200 in 2019 (ABS) that is expected to increase to 43,000 people by 2031.
- The majority of the population is in Warrnambool, Dennington, Allansford, Bushfield and Woodford.
- Warrnambool is served by the Princes and Hopkins Highways and the Great Ocean Road. There is a passenger and freight rail service to Melbourne and a local and regional bus service. The Warrnambool Airport is 11 kilometres northwest of the City.
- Warrnambool has a diversity of land uses including residential, industrial and commercial. Much of the rural area (approximately 60 per cent of the land area) is used for agriculture, particularly dairy farming.
- Warrnambool provides support to the region for commerce, governance, social services, health, education, the arts and recreation. There is a clear retail hierarchy with Warrnambool City Centre as the principal retail and commercial centre for South-West Victoria and other retail components including the Eastern Activity Centre (a secondary retail centre), small shopping centres and convenience stores.
- Specialist medical services include the Warrnambool Base and St. John of God Hospitals. There are numerous primary and secondary schools and the Deakin University is located on the eastern outskirts of the City.
- First inhabitants and traditional custodians of the area are the Eastern Maar people and there are a number of important cultural heritage areas.
- Warrnambool has a large number of buildings, places, gardens, and trees dating from the nineteenth century that reflect Warrnambool's history as a market, port and place of residence and are of significant heritage value.
- Warrnambool is situated on one of the most spectacular sections of the southwest Victorian coastline and is a major tourist hub. The Botanic Gardens, Lake Pertobe and the Warrnambool Foreshore (among others) are key recreational spaces that also offer substantial tourism and environmental benefits.

Clause 02.02 – Vision

- The Council Plan (2017-2021) sets out the following vision for Warrnambool:

  A cosmopolitan city by the sea
- The Council Plan identifies four objectives relevant to land use planning:
  - Sustain, enhance and protect the natural environment.
  - Foster a healthy, welcoming city that is socially and culturally rich.
  - Maintain and improve the physical places and visual appeal of the city.
  - Develop a smarter economy with diverse and sustainable employment.

Clause 02.03 – Strategic Directions

Clause 02.03-1 Settlement – Urban Growth

- Warrnambool's growth areas provide for a variety of dwelling types and development densities.

- Council's strategic directions for its growth areas are:
    - Directing urban growth to identified growth areas in order to protect productive rural areas and achieve a more compact sustainable urban area.
    - Supporting increased residential densities in growth areas close to transport corridors, activity centres and open space.
    - Facilitating infrastructure provision of roads, drainage, utilities and community infrastructure through structure planning and development contributions.

Clause 02.03-2 Environmental and landscape values

- The Merri River, Hopkins River and associated wetlands and floodplains form a highly significant coastal wetland system that provides important habitat for listed species of flora and fauna
- Council's strategic directions for biodiversity are:
    - Protecting and enhancing sites of biodiversity conservation significance.
    - Providing wildlife habitat and corridors for vulnerable and threatened flora and fauna species in coastal reserves.
    - Arresting the decline and fragmentation of native vegetation to minimise land and water degradation issues.

Clause 02.03-3 Environmental risks and amenity

Floodplain management

- The Merri River and Russells Creek floodplains affect large expanses of land within urban and rural areas.
- The management of floodplains protects the natural environment and properties that are at risk of flooding.
- The filling of flood prone land can significantly alter water flow within the floodplain.
- Council's strategic directions for floodplain management are:
    - Protecting floodplains from development that would detrimentally impact their function.
    - Protecting life, property and community infrastructure from flood events.

Clause 02.03-5 Built environment and heritage

Sustainable development

- A compact urban environment that encourages increased public transport patronage as well as walking and cycling has substantial benefits in reducing reliance on motor vehicles with a consequent reduction in greenhouse gas emissions.
- A socially and economically sustainable Warrnambool will generally include a mix of shops and services, community facilities, employment choices, housing choices, a network of open spaces, and public transport options.
- Council is committed to ecologically sustainable development principles in relation to water conservation, the minimisation of greenhouse gas emissions, protection of biodiversity assets and the protection of natural coastal resources.
- Council's strategic directions for sustainable development are:
    - Creating a sustainable City that allows people to walk or cycle to access their everyday needs and contributes to social interaction, community building and wellbeing.
    - Promoting ecologically sustainable development.
    - Supporting development that reduces energy and greenhouse gas emissions.

Urban design

- View sharing is an emerging issue within the municipality. Views of the ocean, the Merri and Hopkins Rivers, inland hilltops and ridgelines, and surrounding rural areas are highly valued. The siting and design of development can have a critical impact on sensitive areas, views, liveability, safety and visual appearance.
- Distracting and dominating signage can impact on public amenity particularly in areas of heritage significance and along township entrances.
- The vision for a liveable city revolves around health and wellbeing and the social and physical attributesthat contribute to this. The design of the built environment can also influence the incidence of crime and feelings of safety within the city.

- Council's strategic directions for urban design are:
  - Protecting and enhancing the quality of the built environment.
  - Facilitating the sharing, rather than protection, of views from the public realm and private areas.
  - Providing for signs that are in context with the scale of development, the surrounding environment and the surrounding signage patterns.
  - Promoting safety and the perception of safety in the design of buildings.
  - Designing developments to maximise vehicle and pedestrian access between activity centres and surrounding neighbourhoods.

Clause 02.03-6 Housing

Housing diversity

- Warrnambool has a range of dwelling sizes. Every five in ten dwellings contain three bedrooms. Two and four bedroom dwellings represent one in six of all dwellings. Over the next two decades, Warrnambool's population is projected to age and household sizes are expected to continue to get smaller. Dwelling sizes however, are anticipated to increase and by 2031, a quarter of the City's dwellings could have four or more bedrooms. More diversity in dwelling sizes is needed.
- Council's strategic directions for housing diversity are:
  - Providing infill opportunities to accommodate residential development.
  - Ensuring future populations have access to a diverse range of housing options including increasing the supply of housing for smaller households.

Housing affordability

- The affordability of housing has significant impacts on the liveability and economic prosperity of the community. A lack of affordable housing is a barrier to attracting key workers and tertiary students to the City. It also has detrimental impacts on sole parents, single people, young people, older people (65+ years) and children of sole parents.
- Council's strategic directions for housing affordability are:
  - Facilitating smaller lot sizes and housing for the ageing and student populations close to community services.
  - Providing social housing in future growth area planning

Clause 02.03-8 Transport and Infrastructure

Transport

- Warrnambool residents are currently heavily reliant on personal motor vehicles for transport. The Sustainable Transport Strategy (WCC, 2010) seeks to improve walking and cycling infrastructure and to encourage residents and visitors to use these transport modes and public transport more often.
- Council's strategic directions for transport are:
  - Providing an integrated transport network.
  - Facilitating the use of sustainable transport modes. Prioritising pedestrian movements in the Warrnambool City Centre.

Open space

- Warrnambool's open space network is identified on the Warrnambool Strategic Framework Plan at Clause 02.04. While overall provision of open space in Warrnambool is good, there are some areas where residents do not have access to open space within walking distance of home.
- Council's strategic directions for open space are:
  - Facilitating high quality open space within walking distance for all residents.
  - Improving access to waterways to provide important recreational opportunities.
  - Improving connectivity between open spaces and access to off-road trails.

Development Infrastructure

- Council's strategic directions for development infrastructure are:
  - Minimising stormwater runoff into the catchments by the use of water sensitive urban design and utilising open spaces to act as floodways.

- Providing for the sustainable planning, design and construction of infrastructure.

3.3 Strategic Documents

Warrnambool Open Space Strategy (2014)

The overarching vision for open space in Warrnambool is:

"Warrnambool will have a high quality, diverse, accessible open space network that reflects community needs and enhances social connection, environmental protection and economic benefit".

The Warrnambool Open Space Strategy (WOOS) provides a framework for open space planning and management within the City of Warrnambool. The WOOS identifies large amounts of flood affected land as open space areas within the growth area. The WOOS identifies opportunities for improved overall connectivity along the Merri River corridor.

Warrnambool City-Wide Housing Strategy (2013)

The Warrnambool City-Wide Housing Strategy (WCWHS) provides guidance on housing density and dwelling types for future residential development within Warrnambool. The WCWHS builds on the Warrnambool Land Use Strategy 2004, which identified the need for the expansion of Warrnambool's urban area and identified five greenfield growth areas including the North of the Merri precinct.

The subject site is identified as a greenfield growth area in the City-Wide Housing Framework Plan. The WCWHS seeks the development of 12 dwellings per net developable area and directs increased housing densities to areas near transport corridors, open space and activity centres. The WCWHS identifies opportunities for a variety of dwelling types to be provided within greenfield areas.

North of the Merri Structure Plan (2011)

The North of the Merri River Structure Plan (NMRSP) defines a vision and broad structure for the movement network and land uses within the Structure Plan area to guide preparation of more detailed Development Plans and Planning Permit Applications that will be prepared for individual landholdings.

In doing so the NMRSP outlines the planning and development framework for the North of the Merri growth area.

The vision for the North of the Merri Structure Plan area is:

> *To create a well-connected and well serviced community that has a positive sense of place.*

The NMSP identifies five key elements, including:

- Movement
- Open space
- Activity centre and community facilities
- Neighbourhood and density
- Utilities and drainage.

Clear themes emerge throughout the NMSP as to the desired outcome for the area. The key themes include:

- A positive landscape character.
- A focus on accessible public transport and pedestrian/cycle networks.
- Providing high amenity settings for diverse housing outcomes.

Warrnambool 2040 Plan (2019)

Warrnambool 2040 (W2040) is a community plan for Warrnambool that outlines the long-term visions and goals for Warrnambool's environment, economy, place and people.

In relation to place, W2040 outlines the following goals:

- an affordable and accessible place to live for everyone
- encourages and prioritises sustainable transport
- well-connected outside the city
- has accessible, high-quality public spaces and facilities

Progress measures identified to achieve these goals include:

- More residential properties within 400m of quality public open space than in 2017.
- Housing types and sizes are more diverse than in 2017.
- All residents feel safer walking in their neighbourhoods than they did in 2017.
- All residents have high-quality, public places/facilities/infrastructure within their local areas (800m).

Sustainable Subdivisions Framework Trial: October 2020 – March 2022

The Framework seeks to mitigate the impacts of future climate projection scenarios, creating sustainable and liveable subdivisions that can adapt to the changing climate. The Framework identifies seven (7) categories that can assist in creating environmentally sustainable subdivisions:

- Site Layout and Liveability
- Streets and Public Realm
- Energy
- Ecology
- Integrated Water Management (IWM)
- Urban Heat
- Circular Economy (Materials and Waste)

3.4 Zoning

3.4.1 General Residential Zone (GRZ)

Majority of the site is located within Schedule 1 to the General Residential Zone (GRZ1) of the Warrnambool Planning Scheme. The GRZ1 relates to the General Residential Area. In addition to implementing the Municipal Planning Strategy and the Planning Policy Framework, the purpose of the GRZ1 includes:

- To encourage development that respects the neighbourhood character of the area.
- To encourage a diversity of housing types and housing growth particularly in locations offering good access to services and transport.
- To allow educational, recreational, religious, community and a limited range of other non-residential uses to serve local community needs in appropriate locations.

3.4.2 Urban Floodway Zone (UFZ)

The southern portion of the site adjacent to the Merri River is located within the Urban Floodway Zone (UFZ). In addition to implementing the Municipal Planning Strategy and the Planning Policy Framework, the purpose of the UFZ includes:

- To identify waterways, major floodpaths, drainage depressions and high hazard areas within urban areas which have the greatest risk and frequency of being affected by flooding.
- To ensure that any development maintains the free passage and temporary storage of floodwater, minimises flood damage and is compatible with flood hazard, local drainage conditions and the minimisation of soil erosion, sedimentation and silting.
- To reflect any declarations under Division 4 of Part 10 of the Water Act, 1989.
- To protect water quality and waterways as natural resources in accordance with the provisions of relevant State Environment Protection Policies, and particularly in accordance with Clauses 33 and 35 of the State Environment Protection Policy (Waters of Victoria).

A planning permit is required to undertake buildings and works within the UFZ.

3.5 Overlays

3.5.1 Environmental Significance Overlay – Schedule 2 (ESO2)

The purpose of the ESO includes:

- To identify areas where the development of land may be affected by environmental constraints.
- To ensure that development is compatible with identified environmental values.

Schedule 2 to the ESO relates to the Hopkins and Merri River Environs. The ESO2 outlines the following environmental objectives to be achieved:

- To protect the natural, cultural and visual values of the Hopkins and Merri Rivers, their tributaries, adjacent land and associated habitat corridors.
- To promote the integrated management and protection of the rivers and adjacent land.
- To ensure freehold land along the rivers is used and developed in a sustainable manner.
- To maintain and enhance stands of remnant vegetation and encourage planting of locally indigenous species.
- To prevent and arrest erosion of the riverbanks, which includes discouraging the grazing of stock close to riverbanks.
- To place high priority on protecting the rivers and adjacent land in locations which are visible from main roads, residential areas and other key activity locations.
- To provide the opportunity for the provision of public open space adjacent to the river in appropriate locations to provide for passive and active recreational activities.

3.5.2 Development Contributions Plan Overlay – Schedule 1 (DCPO1)

The North of the Merri River growth area, including the subject site is affected by Schedule 1 to the Development Contributions Plan Overlay (DCPO1). The purpose of the DCPO includes:

- To identify areas which require the preparation of a development contributions plan for the purpose of levying contributions for the provision of works, services and facilities before development can commence.

Schedule 1 to the DCPO provides a summary of the levies payable by the development.

The overlay was implemented following the preparation of The North of the Merri River Development Contributions Plan (NMRDCP). The NMRDCP was prepared to enable the equitable and efficient delivery of a range of infrastructure to service planned growth within the NMRSP area. The NMRDCP applies to all land that is subject to the NMRSP.

The NMRDCP identifies the necessary infrastructure and establishes a framework to ensure that the cost of infrastructure is shared equitably by all development proponents and by the broader community.

3.5.3 Development Plan Overlay – Schedule 10 (DPO10)

The purpose of the DPO10 includes:

- To identify areas which require the form and conditions of future use and development to be shown on a development plan before a permit can be granted to use or develop the land.
- To exempt an application from notice and review if a development plan has been prepared to the satisfaction of the responsible authority.

Schedule 10 to the DPO specifically relates to the North of the Merri Development Plan.

A development plan must be generally in accordance with the NMRSP and must address the following objectives:

<u>Overall Objectives</u>

To implement the vision depicted in the NMRSP to establish a well-connected and well serviced community that demonstrates a positive sense of place, with specific reference to the following plan elements:

- Movement network

- Open space
- Activity centre and community facilities
- Neighbourhoods and density
- Utilities and drainage.

To implement the layout, design and density objectives of the NMRSP.

Movement Network Objectives

To provide a movement network, including a connector road, local street and pedestrian/cycle path network that:

- Responds to the topography and existing road reserves (internal and external to the Development Plan area). Establishes a modified grid-based local road network with a high level of streetscape diversity, including a variety of street cross-sections.
- Establishes connections between neighbourhoods within the NMRSP area, and to existing, surrounding neighbourhoods where relevant.
- Incorporates a positive landscape character in key locations through use of boulevard treatments and high quality street tree planting.
- Provides an accessible public transport route along Wollaston Road and a linked pedestrian and cycle network (on and off road).

Open Space Objectives

To provide an interlinked open space network that:

- Focuses on the Merri River floodplain and key site features (ridgelines, existing vegetation, heritage features) to create a 'green loop' of open space connected by boulevard roads throughout the structure plan area.
- Is visually and physically connected to surrounding land uses through use of edge road treatments or active frontages.
- Accommodates a range of functions, including drainage, active and passive recreation, walking/cycling trails and preserves key site features.
- Locates local open space to form the heart of neighbourhoods.
- Provides a high amenity setting for diverse housing outcomes, including current and future medium density housing.
- Establishes a distinct character for each open space that reflects the context and intended function of the space and provides for an area of usable open space.
- Reinforces the role of streets by establishing small green spaces within the local street network, including small parks, widened nature strips and central medians to provide points of difference and to create neighbourhood character.
- Identifies land within the floodplain suitable for active and passive recreation purposes and for drainage and conservation purposes, having regard for the 30m biodiversity corridor along the river.

Activity Centre and Community Facilities Objectives

To provide a centralised activity and community centre that:

- Provides a local focus for the community, incorporating retail at a local Convenience Centre scale.
- Locates community facilities, including the primary school and local and active open space, adjacent to or nearby the retail/service centre.
- Identifies opportunities for shared use of land for community facilities, including the primary school and any required Council operated facilities.
- Is accessible via public transport with convenient access to a bus stop. Takes a 'street-based' form with a design that enhances visual interaction between the street and the land uses and accommodates on-street parking.
- Provides adequate parking for retail and other commercial uses in a location that does not feature prominently from key locations, such as Wollaston Road.
- Provides opportunities for diverse housing options including higher density housing and mixed use activities surrounding the centre, including service businesses and home offices.
- Incorporates buildings and uses of a scale sympathetic to the surrounding residential context.

Neighbourhoods and Density Objectives

To provide a series of internal neighbourhoods that:

- Are diverse in landscape, streetscape and built form character, each with a neighbourhood 'core' consisting of a feature (such as open space, a streetscape feature, local activity centre etc).
- Are clearly defined by streetscape features and land uses, yet are connected through use of local streets and the 'green loop' of open space and boulevard connectors.
- Provide diversity in lot sizes and housing styles, with smaller lots in key, high amenity locations around open space and the local activity centre and larger lots in appropriate locations such as on steep slopes.
- Achieve an overall density of 12 lots per net developable ha across the structure plan area.
- Incorporates a high amenity character through use of diverse streetscape cross-sections and distinct open space to provide a context for diverse and higher density housing outcomes.
- Incorporates sensitive design of lots and siting of housing to preserve opportunities for infill subdivision/development to occur over time.
- Provides an appropriate housing and fencing interface to adjoining rural land, and vehicle and pedestrian connections to adjoining residential land.

Utilities and Drainage Objectives

To provide physical services and infrastructure that:

- Meet the needs of the future community and the development.
- Is provided in accordance with the NMRDCP.
- Provides for the efficient, staged delivery of services and infrastructure to ensure all lots are provided with adequate services.
- Incorporates a Water Sensitive Urban Design approach to stormwater management to protect the water quality of the Merri River.

4 Site Analysis

4.1 Surrounding Land Uses and Development

The site is located on the eastern edge of the North of the Merri Growth Area.

To the east, the site adjoins established residential properties which front Johnstone Road and Ponting Drive. The dwellings are a mix of single and double storey and are well setback from the street. There is an existing playground at the intersection of Johnstone Road and Ponting Drive.

To the immediate north of the Development Plan land, the site adjoins Wollaston Road, a Category 2 Road Zone. On the opposite side of Wollaston Road, the land is currently vacant however forms part of the North of the Merri River Growth Area. The NMRSP envisages standard densitiy residential development for this land.

To the west, the site adjoins the Merri River School (formally the Warrnambool Special Development School).

To the south, the site adjoins the Merri River. The Merri River originates in Winslow to the north of Warrnambool and flows through to Stingray Bay, in the Thunder Point Coastal Reserve. On the southern side of the Merri River, is the Bromfield Weir. The South of Merri Open Space Precinct Plan identifies a potential river crossing from the weir to the subject site.

4.2 Topography and Views

Landform within the site comprises undulating topography with a gentle slope towards the river. The Feature and Level plan shows the slopes generally descends from north east and north to south direction. The high points are located on the north east corner of the site, which is approximately RL 25. The low points are located along the southern boundary (the bank of Merri River), which ranges from RL 3 to 4.

The site benefits of views to Warrnambool to the south across the Merri River and to the west towards the North of the Merri growth area.

4.3 Waterways and Drainage

The Merri River is the primary waterway for the development plan area. The NMRSP identifies the Merri River as a key part of the drainage corridor function. The NMRSP idenifies the need for Water Sensitive Urban Design (WSUD) treatment measures to ensure the discharge of urban stormwater into the Merri River protects the water quality of the river.

The Drainage Authority for the area is Warrnambool City Council, in consultation with the Glenelg Hopkins Catchment Management Authority (GHCMA). Council and the GHCMA have prepared detailed flood mapping of the area to determine the 1 in 100 year flood extent. The area of encumbered floodplain will serve a key drainage function as well as serving additional functions including environmental importance and opportunities for passive and active open space. The identified floodplain area has been zoned as UFZ and includes the southern portion of the subject site.

4.4 Flora and Fauna

Vegetation within the site is predominately exotic pasture grasses and weed species. There are a number of planted cyprus trees planted in windbreaks along existing fencelines. A 2009 assessment of the Flora and Fauna in the growth area found the area was highly disturbed with little native vegetation remaining.

The Vegetation Assessmnet prepared by Mark Trengove Ecological Services found vegetation on site has been subjected to past disturbances and is degraded. The Vegetation assessment confirms the vegetation on site comprises predominately exotic plant species, with two native plant species, Lesser Loosestrife and a Rush species recorded in the study area. These species occur in a few very small clumps (<1m2 each) and represent a minor

component of the vegetation. These fragments are not considered 'patch vegetation.

Implications

- No patch or scattered tree native vegetation is proposed to be impacted upon.
- No State, National or Regionally significant plant species were recorded within the study area.
- The proposal is assessed to have no implications under the Commonwealth EPBC Act.
- Referral to DELWP is not required under the Native Vegetation Removal Regulations as no
- patch or scattered tree native vegetation is proposed to be removed.

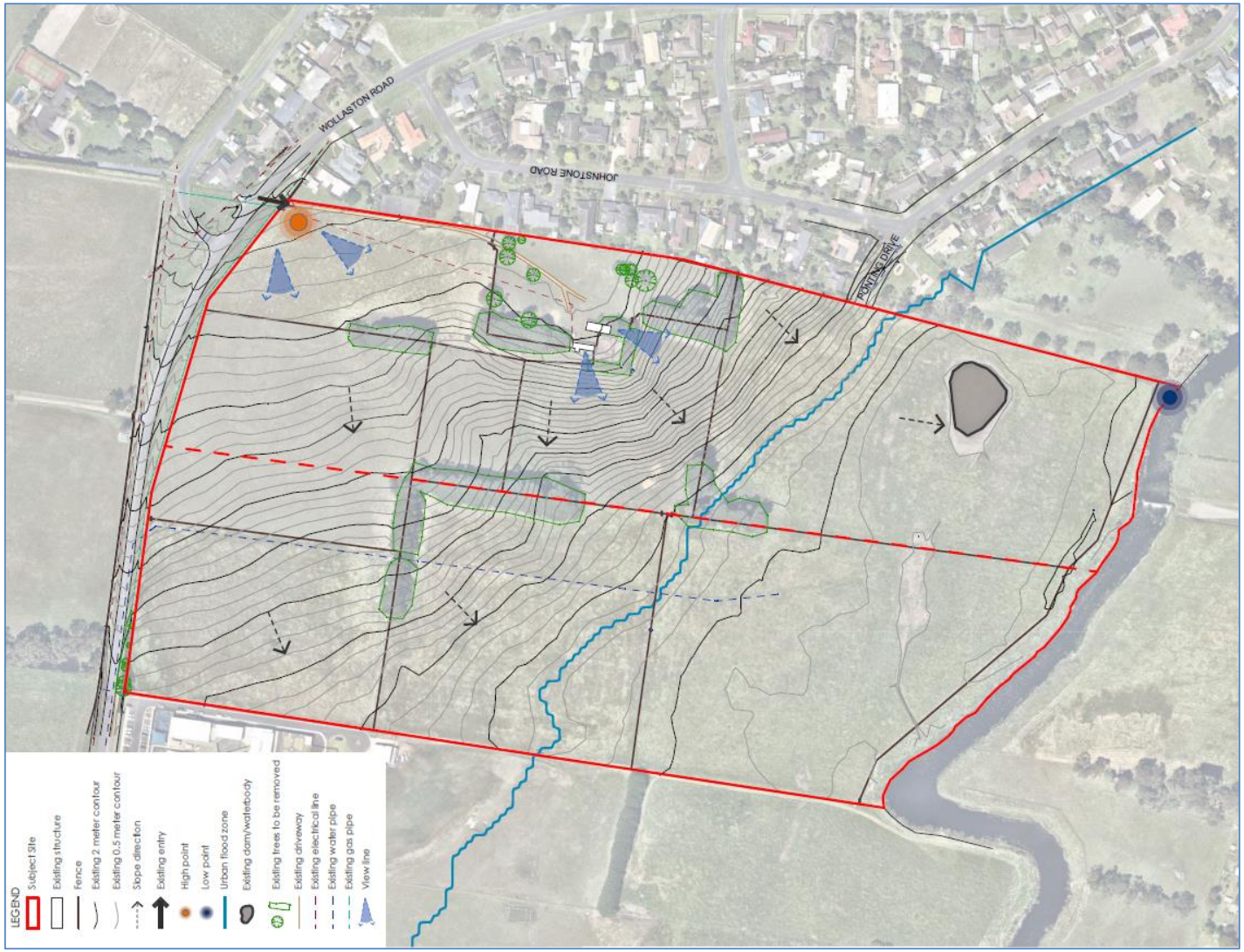
4.5 Cultural Heritage

A Cultural Heritage Management Plan (CHMP) has been prepared by Heritage Insight Pty Ltd and approved by the Director Heritage Services Aboriginal Victoria.

A standard and complex assessment were undertaken by Heritage Insight Pty Ltd and the Eastern Maar Aboriginal Corporation (EMAC). The CHMP concluded that the activity area contains low archaeological potential as it is located on both a steep slope (unsuitable for camping) and the flood plain adjacent Merri River. It was noted that the flood plain is regularly inundated and has likely been highly modified since European settlement. No Aboriginal cultural material was located during this CHMP assessment.

4.6 Access

The site currently has access from Wollaston Road. Wollaston Road is considered a connector road and has a road reserve of approximately 20 metres. Wollaston Road runs through the growth area and connects Caramut Road to the Hopkins Highway.



Plan 2 | Site Analysis Plan

Plan 3 | 147 Wollaston Development Plan

5 Development Plan

This Development Plan outlines the land use, built form and landscape features that will guide the future development of the land at 147 Wollaston Road, Warrnambool. The Development Plan has been informed by the views of the Warrnambool City Council, Glenelg Hopkins Catchment Management Authority, Wannon Water, Eastern Maar Aboriginal Corperation, the planning framework and the vision of Wollaston Developments Pty Ltd.

The Development Plan seeks to implement the vision depicted in the NMRSP to establish a well-connected and well serviced community that demonstrates a positive sense of place, with specific reference to the following plan elements:

- Movement network;
- Open space;
- Neighbourhoods and density; and
- Utilities and drainage.

5.1 Movement network

The Development Plan has been designed around a well-connected movement network, which seeks to provide improved connectivity for vehicles, pedestrians and cyclists.

The proposed movement network connects into the existing road network at Wollaston Road and facilitates improved pedestrian and cycling networks envisaged by the NMRSP. The Development Plan also provides for future connections to Bromfield Street to the south through a 24m wide carriageway easement that connects the internal road network (and Wollaston Road) through the open space reserve and river corridor to the Merri River.

Strong consideration has been given to the existing road network and natural topography of the area in developming the road network. The Development Plan includes a north south connector road which comprises two different cross sections. There is a strong focus on landscaping throughout the road network with nature strips proposed on both sides of the carriageway.

Whilst the residential connector street (stages 1 and 2) does not connect through to Ponting Drive, this connection has strategic merit, particularly in the interim whilst the Bromfield Street connection is not realised. Connecting the future Bromfield Street and Ponting Drive is discouraged by the NMRSP in response to feedback seeking to avoid 'rat running' throught the existing street network to the east.

The development plan realises the vision of the NMRSP by providing an east west shared path connection adjacent to the Merri Creek. This will link the sites western boundary with the Ponting Drive Reserve. A north south shared path will connect to the aforemented shared path and also links Ponting Drive with the Merri River.

5.1.1 Wollaston Road

The Development Plan adjoins Wollaston Road to the north. Wollaston Road is proposed to be upgraded to a Boulevard Connector to the west of the intersection with the subject site and a connector road to the east in accordance with the NMRSP. The Wollaston Road intersection has been designed 150m to the east of the indicative location depicted within the NMRSP. This has been done to better accommodate the proposed lot layout and support the retirement village or residential development within stage three. The development plan includes a row of residential lots which front Wollaston Road. It is proposed these lots will gain direct access from Wollaston Road.

5.1.2 Connector Street

A 20m wide north-south connector street is proposed along the eastern side of the development plan area. The alignment of the road deviates slightly from the North of the Merri Structure Plan to facilitate the retirement living village in stage three.

Two variations of the connector street are proposed for the residential lot interface and retirement village interface. The residential lot interface provides a 7.3m carriage way separated by a 4.85m wide landscaping strip and 1.5m wide pedestrian path. The retierment village interfaces maintains the 7.3m

carriageway but provides additional landscaping the the west, with a 6.85m wide landscape strip to the west and 2.85m wide landscape strip to the east.

Whilst the road layout and alignment is not strictly in accordance with the NMRSP, the proposed layout is generally in accordance with the NMRSP. The variances enable the facilitation of the retirement village which responds to broader strategic issues within the municipality. These include planning and managing for an ageing populating and facilitating community infastructure associated with this.

The connector road intergrates with residential allotments proposed to back onto the established residential properties fronting Johnstone Road (outside the development plan area).

The development plan includes the provision for future connecion to Bromfield Street to the south. A 24m wide easement is proposed to provide the future road connection at such time as the funding for the Bromfield Street bridge becomes available.

5.1.3 Pedestrian/Cycle Connections

Pedestrian paths are included along both sides of the connector Street. The development plan also includes a 2.5m wide shared path along the Merri River corridor and along the eastern boundary to the Ponting Street Reserve. The shared paths will connect into the existing informal paths through Ponting Reserve and the broader road network at Ponting Drive. To the west, the shared path will connect into the future development of the adjoining lot.

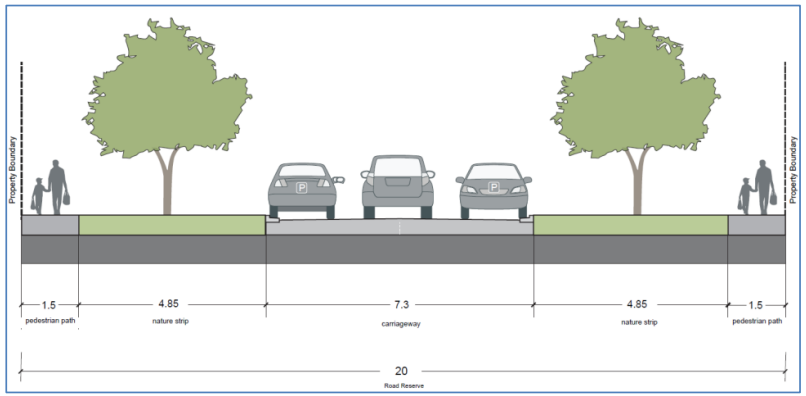


Figure 13 | Section - Residential Lot Interface

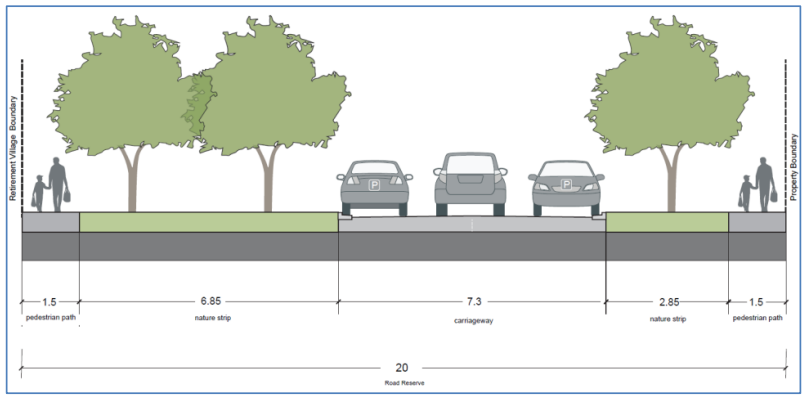
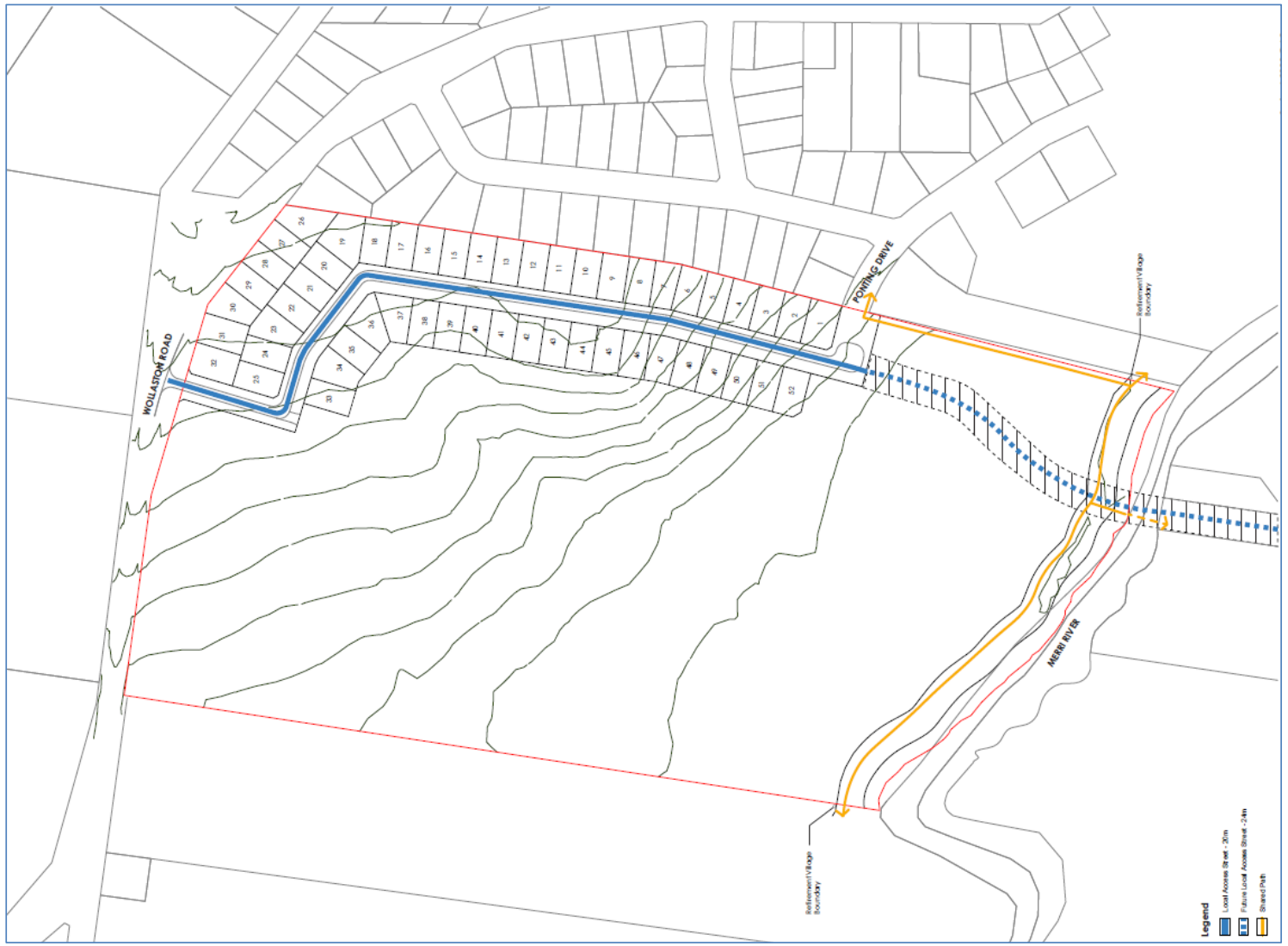


Figure 14 | Section – Retirement Village Interface



Plan 4 | Movement Network

5.2 Open space

The Merri River floodplain has been the centrepoint of the development plan. The development plan seeks to create a well-connected open space network along the river corridor to provide amenity to the future residents and broader area. The floodplain is designated as public open space and includes a 2.5m wide shared path, which is proposed to connect in to the Ponting Street reserve, road network and the existing residential precinct to the west. A 10m wide vegetation buffer is proposed adjacent to the river edge to retain and reinstate the existing vegetation.

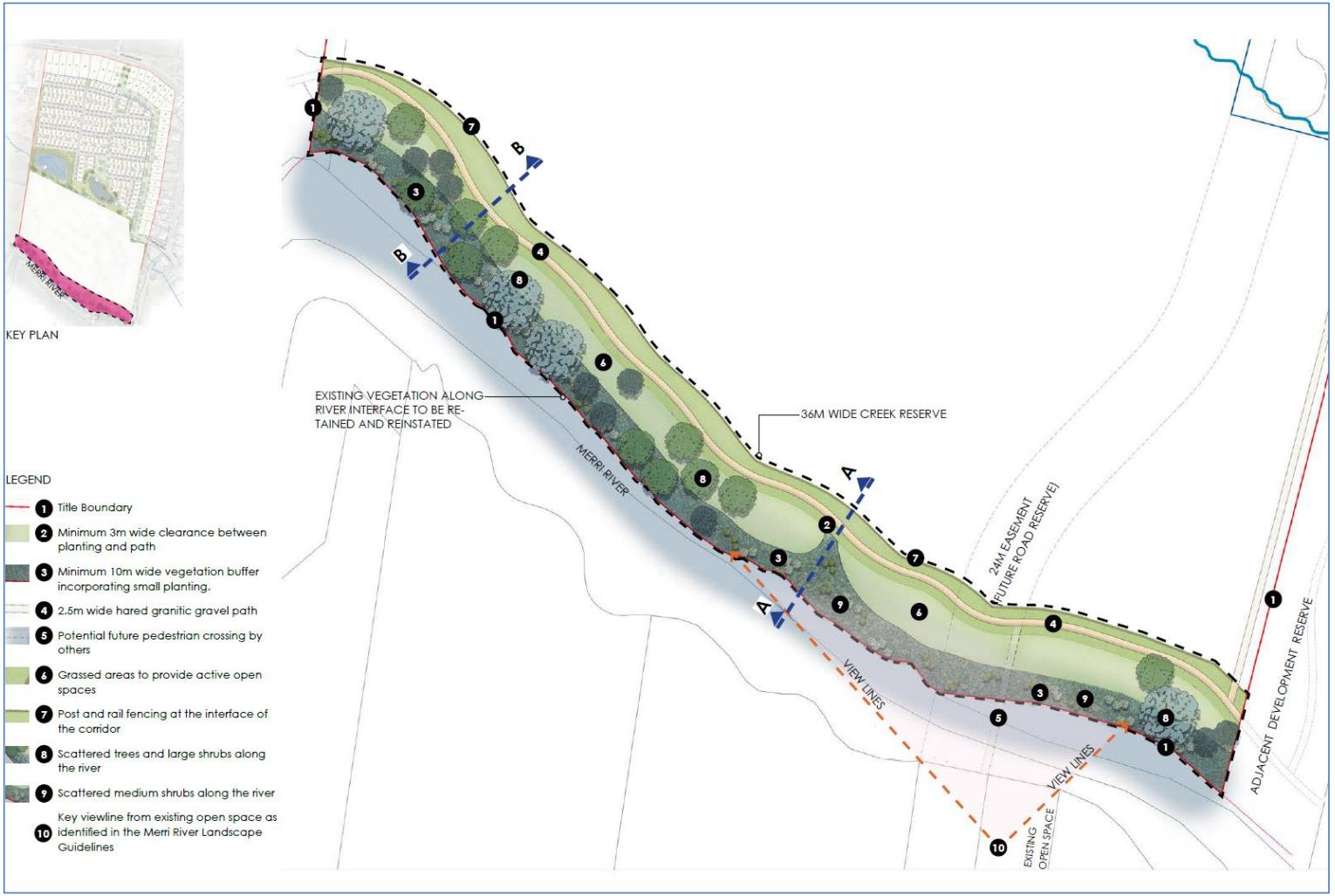
To maintain the character and ecological values of the Merri River corridor, the river corridor area will include native vegetation indigenous to South West Victoria. A mix of trees, shurbs and groundcovers are proposed, including Blackwoods (*Accacia melanoxylon)* and Swamp gums (*Eucalyptus ovata).*

The development plan will play its part in facilitiating the 'green loop' envisaged in the Structure Plan through the provision of open space and well landscaped road networks.

5.2.1 Street Network

The connector street includes wide nature strips which are proposed to be landscaped with native vegetation indigenous to south west Victora. Plant species will be selected from the Warrnambool City Council Street Tree Planting and Management Guidelines and follow the landscape character of the river corridor.

Plan 5 | Open Space Plan



Plan 6 | River Corridor Plan

5.3 Neighbourhoods and Density

The development plan seeks to achieve the objectives of the structure plan by providing a diversity of lot sizes and housing styles. In particular the site seeks to respond to the ageing population through the provision of a retirement village which will signifcantly improve the diversity of accommodation options in the precinct.

5.3.1 Residential areas

The development plan includes 52 residential lots along the eastern portion of the site. The lots range in size from 698m^2 to 957m^2 with an average lot size of 718m^2. The lots predominantly front the connector road, with 7 lots proposed to front Wollaston Road directly. The lots have been designed to enable future change over time to respond to increased housing demand in the area and enable infill subdivision or development.

The residential area provides for 10.4 lots per ha. It is acknowledged this is slighlty below the density target of 12 lots per ha. The lower density is considered appropriate given the site's location on the edge of the growth area and potential for infill development in the future.

5.3.2 Retirement village

The balance of the site is proposed to be developed as a retirement village. The retirement village is proposed to have a distinctive character and includes a series of internal private road networks. The retirement village area is to be retained as a single lot, however will provide for dwellings at increased densities, increasing the overall density of the site.

In the event the balance of the land is not developed as a retirement village, this land will be developed for residential purposes in line with the density target of the NMRSP.

5.4 Utilities and drainage

The utility providers have confirmed that the land can be serviced.

5.4.1 Water and Sewerage

Wannon Water are the responsible authority for water and sewerage in the development plan area.

A new watermain is proposed along the northern edge of the area within the Wollaston Road reserve and will run along the new connector street. The area will connect to the existing watermain in the north east corner of the site and at Ponting Drive.

The development will connect into the existing sewer to the west and east in line with Ponting Drive.

5.4.2 Electricity

Powercor Australia are the relevant service provider for electricity within the development plan area. The area will connect into the existing electricity lines at Ponting Drive and Wollaston Road.
The existing overhead powerlines connecting the existing dwelling are proposed to be removed.

5.4.3 Telecommunications

Telsta are the relevant service provider for telecommunications in the area. The site will connect into existing telecommunications lines along Wollaston Road and Ponting Drive. The exisitng telecommunications line connecting the existing dwelling is proposed to be removed.

5.4.4 Drainage

Warrnambool City Council and Glenelg Hopkins CMA are the relevant service providers for drainage.

A Stormwater Management Strategy has been prepared by Beveridge Williams as part of this development plan. Two stormwater retarding basins are proposed within the floodplain. The retarding basins will have volumes of 4,980m^3 and 1,160m^3 and will detain the 1% AEP post development site flow to pre-development level. Stormwater quality management is proposed to be managed through a 500m^2 sedimentation basin and a 2,000m^2 wetland system.

The legal drainage point for the overall catchment will be to Merri River to the south. The subsurface drainage network for the development will convey all pipe flows to the outlet location, via the proposed stormwater quality treatment facilities (sedimentation basin and wetland). The pipe network will be adequately sized to convey the 20% AEP flows throughout the proposed development's drainage network.

Overland flows from the subject site will be directed via the proposed subdivisional roads to the retarding basins. The internal roads for the development, and associated lot finished surface levels, will be designed to ensure that the 1% AEP overland flows through the site are within the safe hydraulic capacity of road floodway.

5.4.5 Gas

Tennix are the service provider for gas within the development plan area. The area will connect to the existing gas main at the intersection of Wollaston Road and the connector street and at Ponting Drive.

5.4.6 Staging

The development is proposed to be split across 3 stages to ensure the provision of infrastructure and services.

Development is proposed to commence in the north-east corner at the intersection of the connector street and Wollaston Road. Stage 1 comprises 26 lots and has an area of 2.466ha. Stage 2 includes the remainder of the residential lots and comprises an area of 2.544ha. Stage 3 includes the balance of the land set aside for the retirement village.

5.5 Land Budget

The following table calculates the net developable area for the site. In total there is a total of 21.779ha of developable land within the development plan arae.

Description	Hectares	% of total area	% of NDA
Total Development Plan area	24.844 ha	100%	
Encumbered Land			
Urban Floodway Zone	1.247 ha	5.0%	5.7%
Transport			
Wollaston Road Upgrade	0.000 ha		0%
Local Road	1.275 ha	5.1%	5.9%
Easement (future road)	0.543 ha	2.2%	2.4%
Net Developable Area (NDA)	21.779 ha	87.7%	

Urban Design Package

147 Wollaston Road, Warrnambool

Client

Gull Group

Issued

26.10.2022

Beveridge Williams

Contents

Client: Gull Group

Issued: 26.10.2022

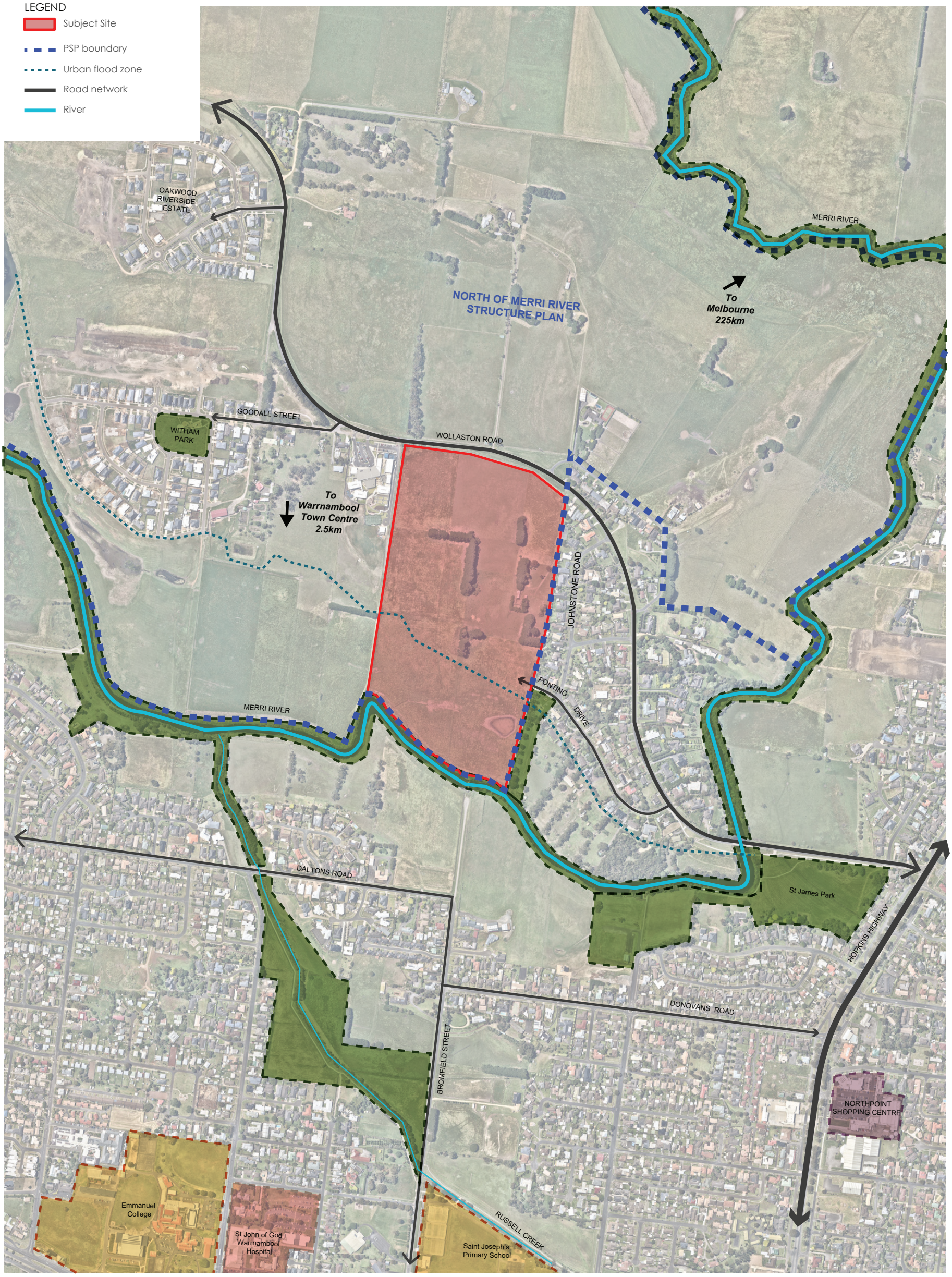
Version: 06

Prepared by: WEB/MJ

Checked by: WEB

Town Planning
Traffic & Transport Engineering
Urban Design
Landscape Architecture
Surveying
Civil Engineering
Environmental Consulting
Water Resource Management
Project Management

www.beveridgewilliams.com.au



Beveridge Williams

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Site Context Plan

147 Wollaston Road, Warnambool

Gull Group

Version	Date	Description	Drafted	Approved
01	04.03.2021	Initial Issue	WEB	WEB

Date: 04.03.2021
Version No: 01
Job No: 2000243
Scale (A1): NS
(A3): NS

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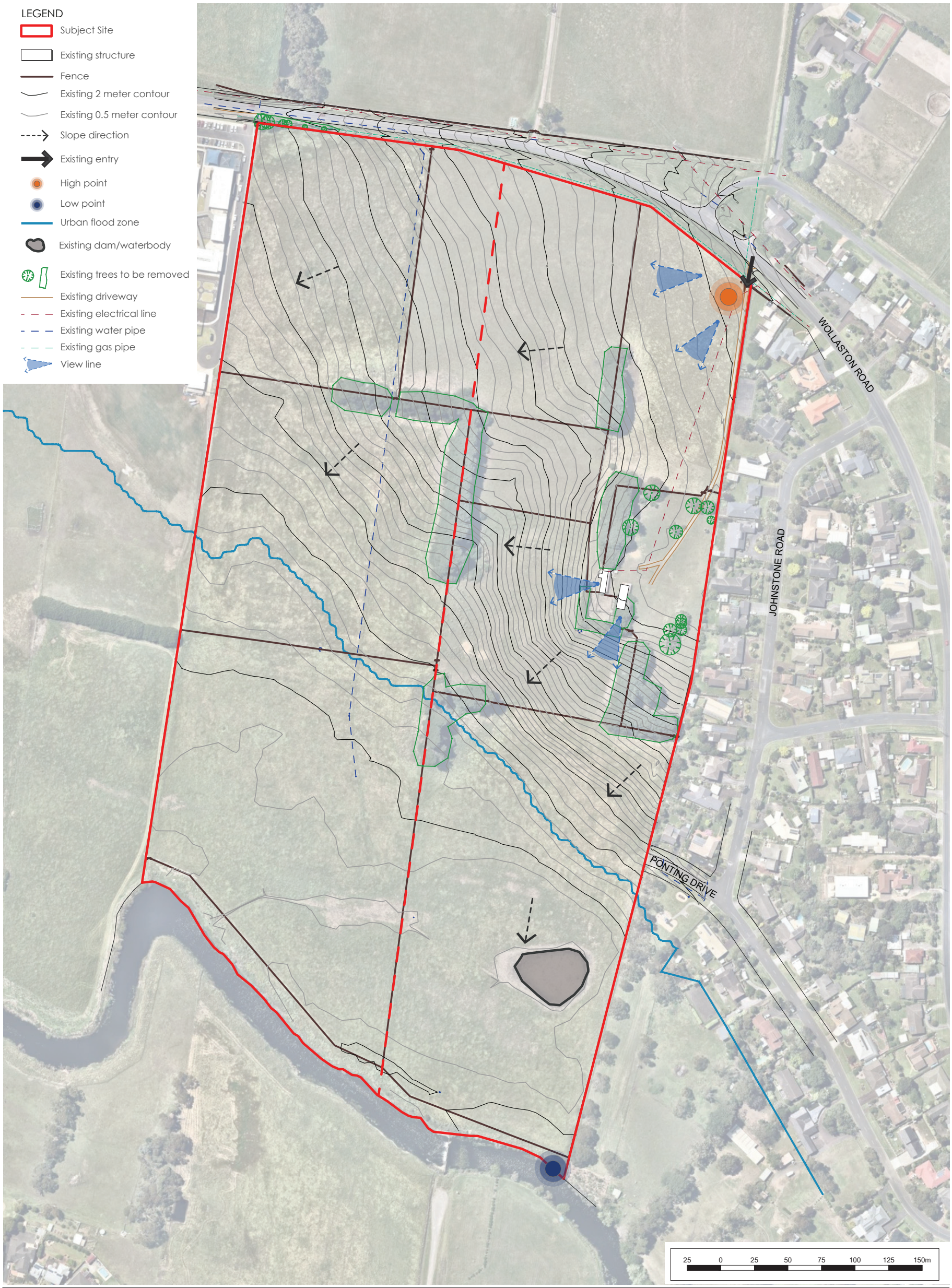

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Site Analysis Plan

147 Wollaston Road, Warnambool

Gull Group

Version	Date	Description	Drafted	Approved
01	04.03.2021	Initial Issue	WEB	WEB
02	20.08.2021	Second Issue	MJ	WEB

Date: 20.08.2021
Version No: 02
Job No: 2000243
Scale (A1): 1:1250
(A3): 1:2500

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Legend

1 - Residential/retirement living
2- Open space
3 - Wetlands
4 - Residential lots - 700m² - 52 lots
5 - Creek reserve
6 - Water main
7 - Urban Flood Zone Boundary
8 - Retarding Basin
9 - Indicative swale
10 - Indicative shared path (granitic sand)
11 - Potential road reserve for future bridge crossing

Scale : 1:2000 @ A3

Beveridge Williams

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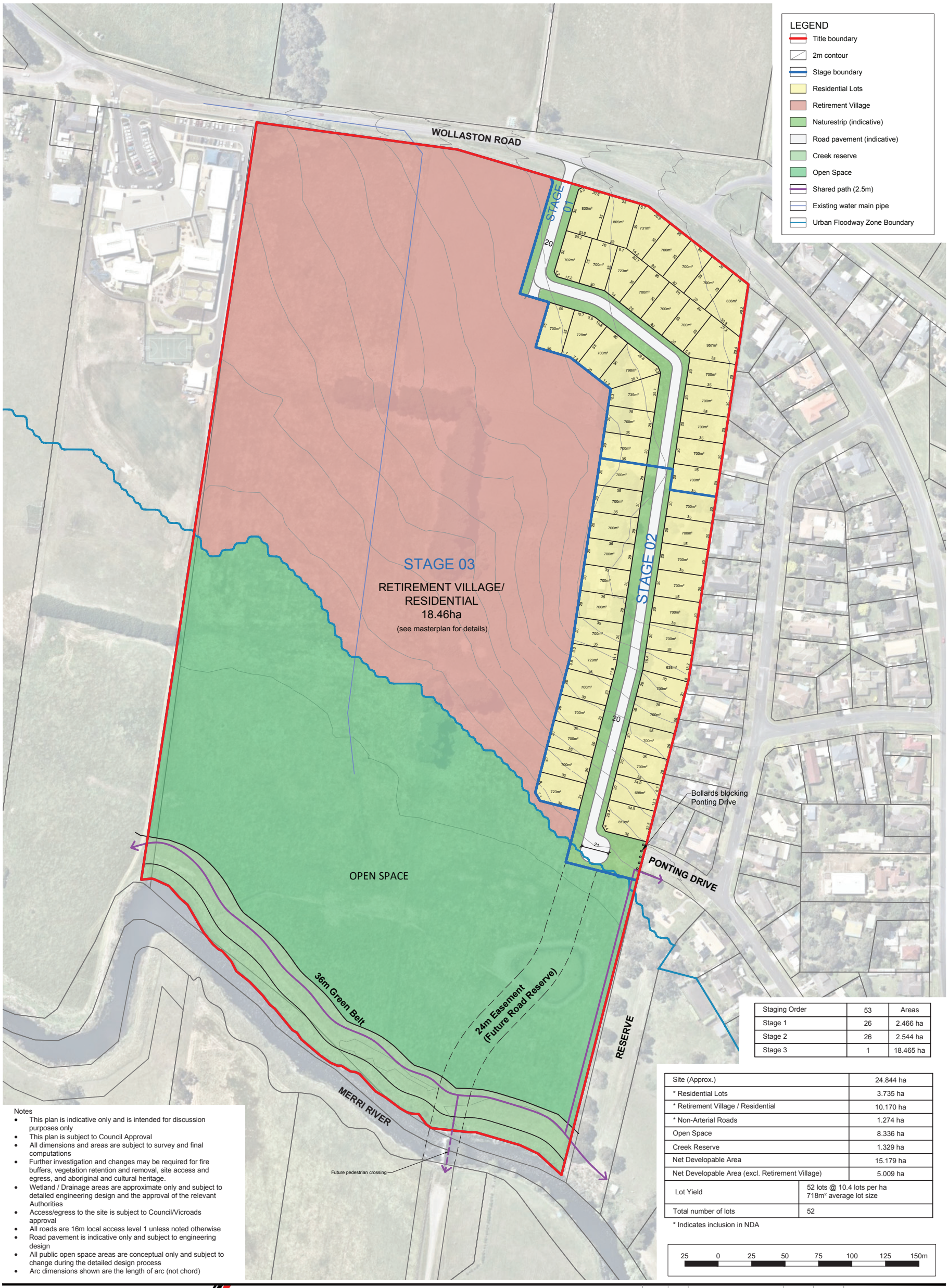
147 Wollaston Road, Warrnambool
Master Plan

2000243
26.10.2022
Ver 09



Staging Order	53	Areas
Stage 1	26	2.466 ha
Stage 2	26	2.544 ha
Stage 3	1	18.465 ha

Site (Approx.)	24.844 ha
* Residential Lots	3.735 ha
* Retirement Village / Residential	10.170 ha
* Non-Arterial Roads	1.274 ha
Open Space	8.336 ha
Creek Reserve	1.329 ha
Net Developable Area	15.179 ha
Net Developable Area (excl. Retirement Village)	5.009 ha
Lot Yield	52 lots @ 10.4 lots per ha 718m² average lot size
Total number of lots	52

* Indicates inclusion in NDA

25 0 25 50 75 100 125 150m

Notes
- This plan is indicative only and is intended for discussion purposes only
- This plan is subject to Council Approval
- All dimensions and areas are subject to survey and final computations
- Further investigation and changes may be required for fire buffers, vegetation retention and removal, site access and egress, and aboriginal and cultural heritage.
- Wetland / Drainage areas are approximate only and subject to detailed engineering design and the approval of the relevant Authorities
- Access/egress to the site is subject to Council/Vicroads approval
- All roads are 16m local access level 1 unless noted otherwise
- Road pavement is indicative only and subject to engineering design
- All public open space areas are conceptual only and subject to change during the detailed design process
- Arc dimensions shown are the length of arc (not chord)

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Indicative Subdivision Plan

147 Wollaston Road, Warnambool

Gull Group

Version	Date	Description	Drafted	Approved
08	20.05.2021	Amended layout	MJ	WEB
09	08.06.2021	Amended layout	MJ	WEB
10	25.08.2021	Amended layout	MJ	WEB
11	08.08.2022	Amended layout	VA	WEB
12	26.10.2022	Golf course removed	VA	WEB

Date: 26.10.2022
Version No: 12
Job No: 2000243
Scale (A1): 1:1250
(A3): 1:2500

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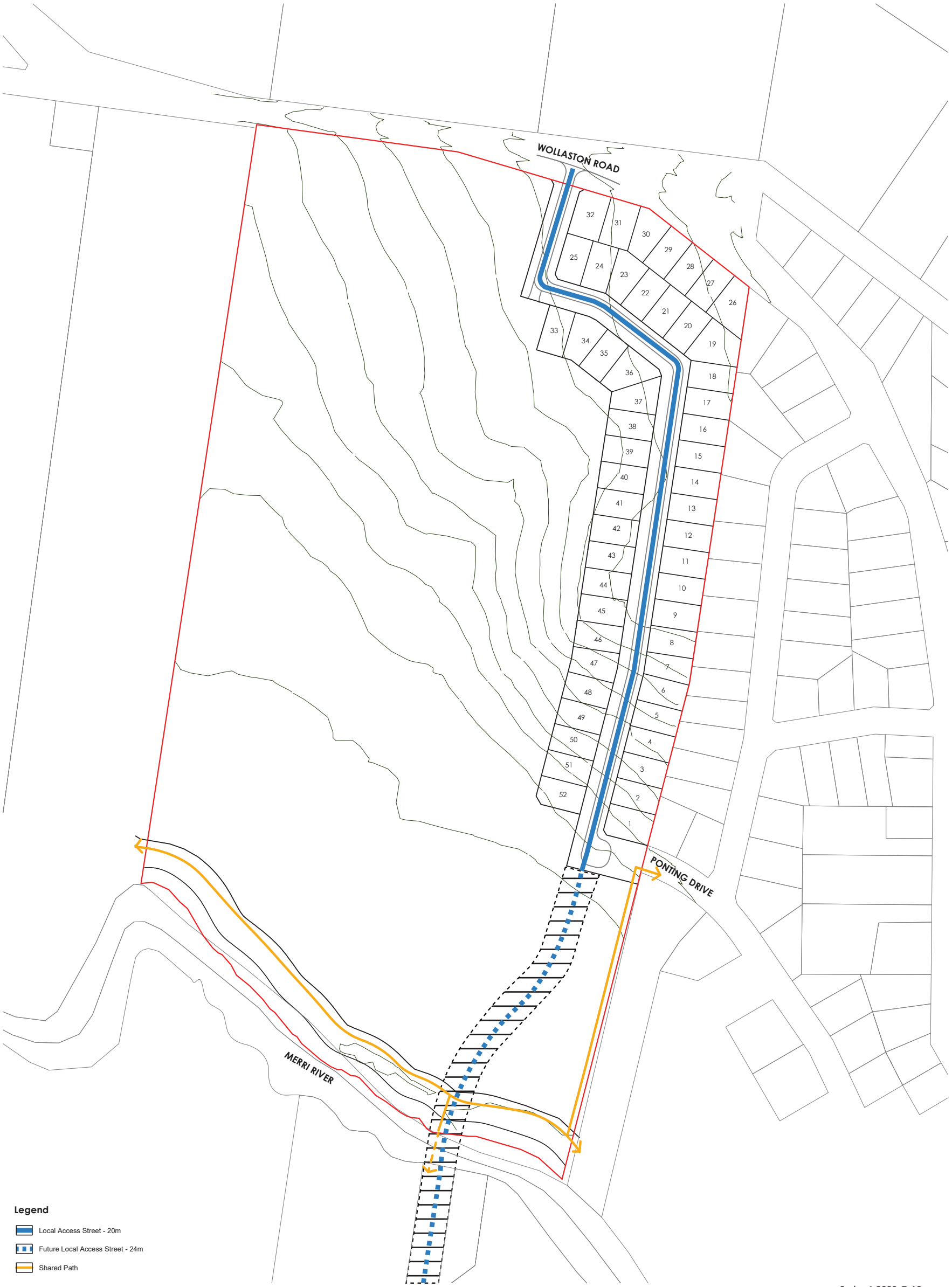

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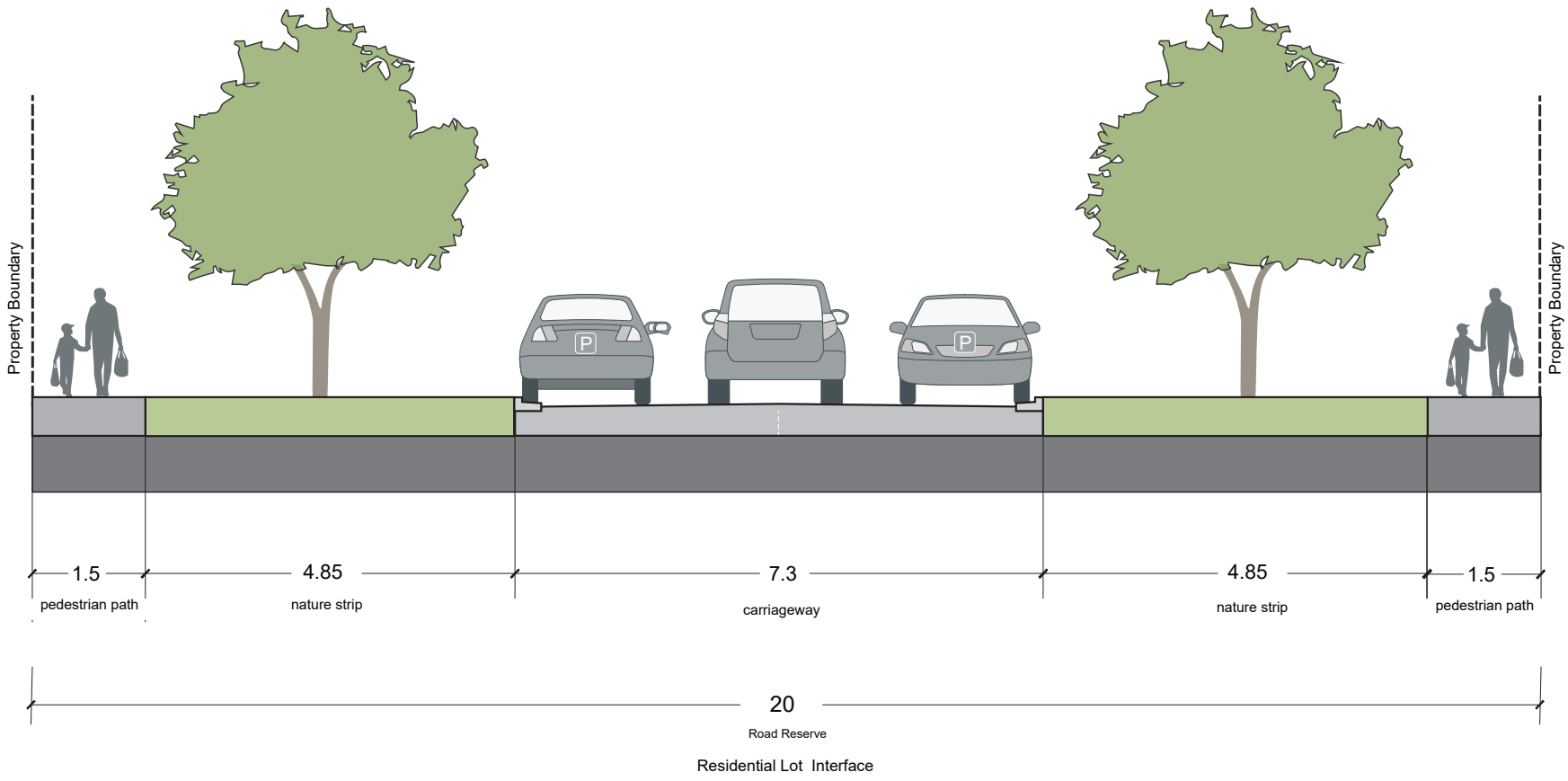
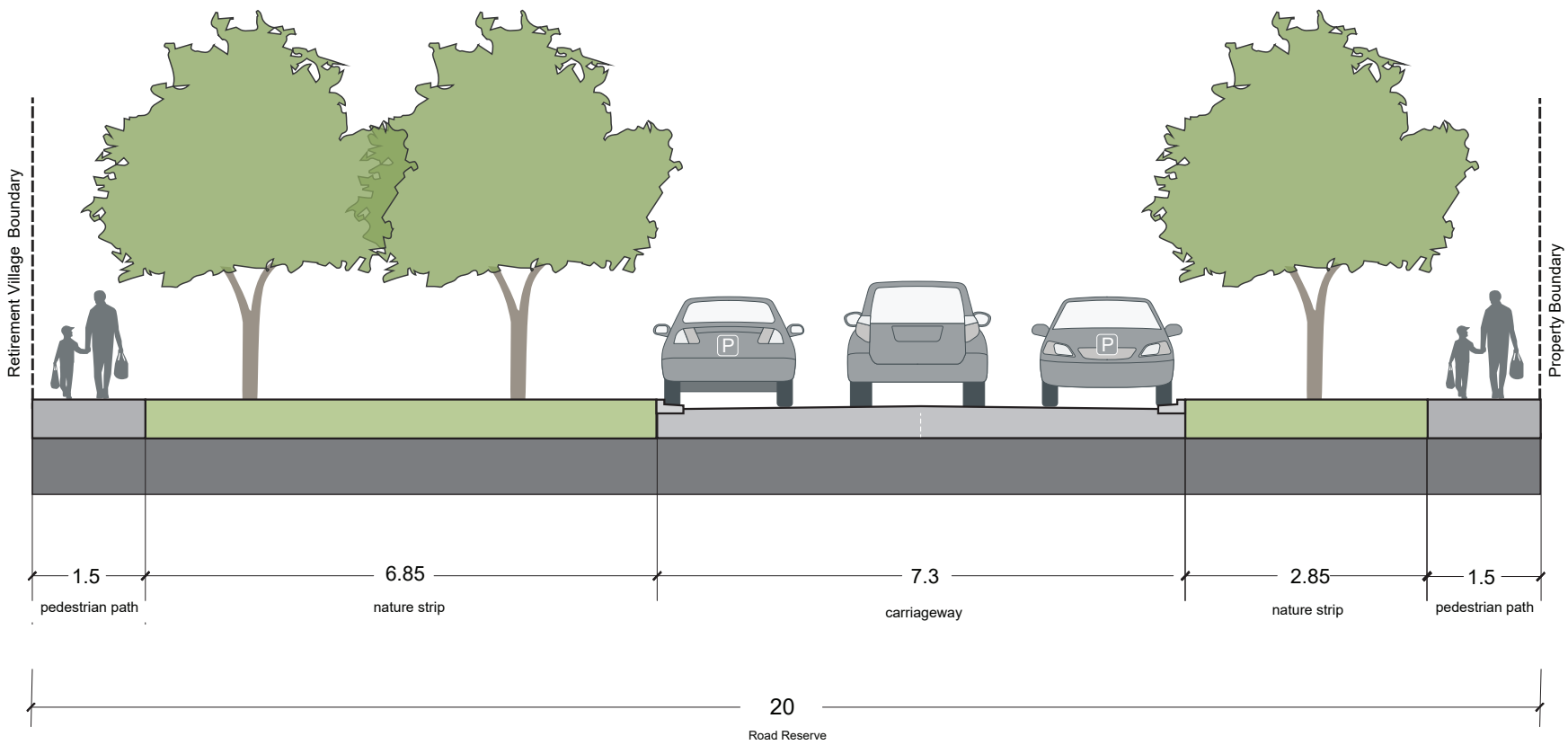
147 Wollaston Road, Warrnambool
Mobility Plan

2000243
26.10.2022
Ver 02



Residential Lot Interface



Retirement Village Interface

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Road Cross Sections

147 Wollaston Road, Warnambool

Gull Group

Version	Date	Description	Drafted	Approved
01	05.03.2021	Initial Issue	WEB	WEB

Date: 05.03.2021
Version No: 01
Job No: 2000243
Scale (A1): NS
(A3): NS

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WOLLASTON ROAD
PONTING DRIVE
MERRI RIVER
Street Trees
- Trees with be native and indigenous species
- Trees will be chosen from Warrnambool City Council Street Tree Planting and Management Guidelines and follow the landscape character of Merri River Concept Plan
- Final tree species and location will subject to a Landscape Master Plan
Open Space
- Planting with be native and indigenous species
- Planting will be chosen from Warrnambool City Council Street Tree Planting and Management Guidelines and follow the landscape character of Merri River Concept Plan
- Final planting selections and location will subject to a Landscape Master Plan
Merri River
- See 36m Creek Reserve Concept Plan , cross sections and Indicative Planting Palette for further details.
Legend
1 - Residential/retirement living
2- Open space
3 - Wetlands
4 - Residential lots - 700m² - 52 lots
5 - Creek reserve
6 - Water main
7 - Urban Flood Zone Boundary
8 - Retarding Basin
9 - Indicative swale
10 - Indicative shared path (granitic sand)
11 - Potential road reserve for future bridge crossing
Scale : 1:2000 @ A3
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147 Wollaston Road, Warrnambool
Open Space Plan
2000243
26.10.2022
Ver 04

Town Planning
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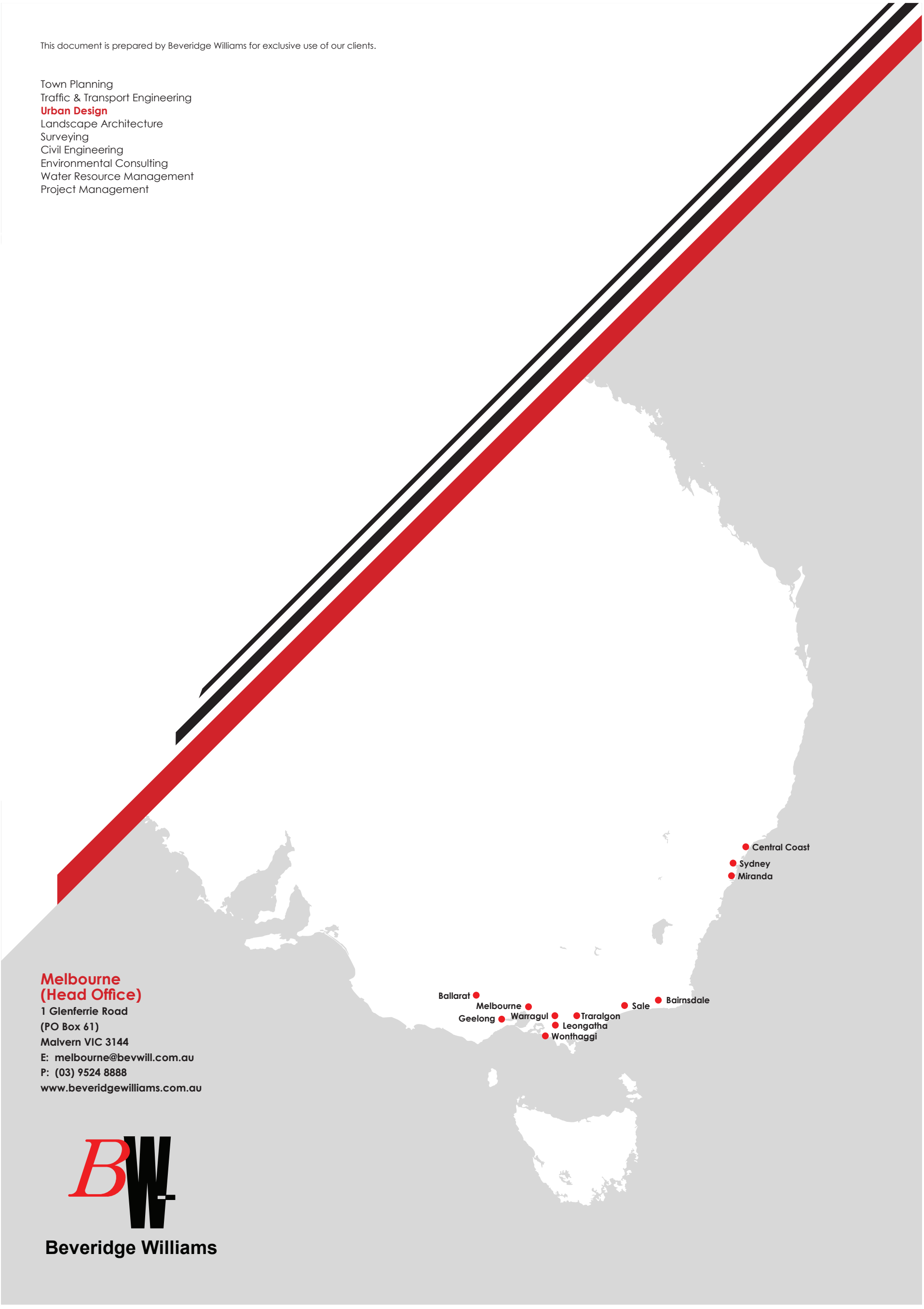
Civil Engineering
Environmental Consulting
Water Resource Management
Project Management



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KEY PLAN

LEGEND

1. Title Boundary
2. Minimum 3m wide clearance between planting and path
3. Minimum 10m wide vegetation buffer incorporating small planting.
4. 2.5m wide hared granitic gravel path
5. Potential future pedestrian crossing by others
6. Grassed areas to provide active open spaces
7. Post and rail fencing at the interface of the corridor
8. Scattered trees and large shrubs along the river
9. Scattered medium shrubs along the river
10. Key viewline from existing open space as identified in the Merri River Landscape Guidelines

36m Creek Reserve Concept Plan

147 Wollaston Road, Warrnambool

Gull Group

Project Number: 2000243
Drawn by: SV
Checked by: SK, JD

Revision: B
Issued: 04.11.2022

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Scale: 1:600 @A1

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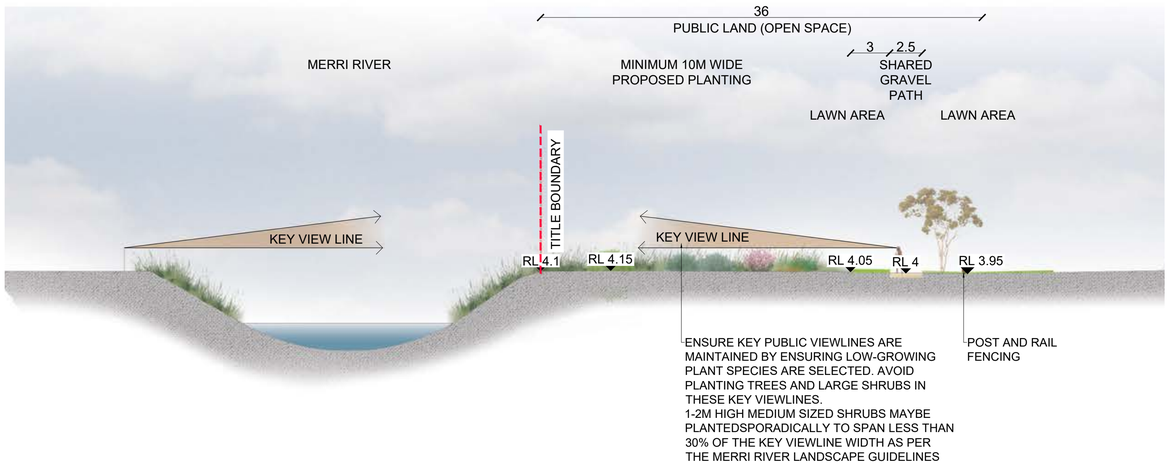

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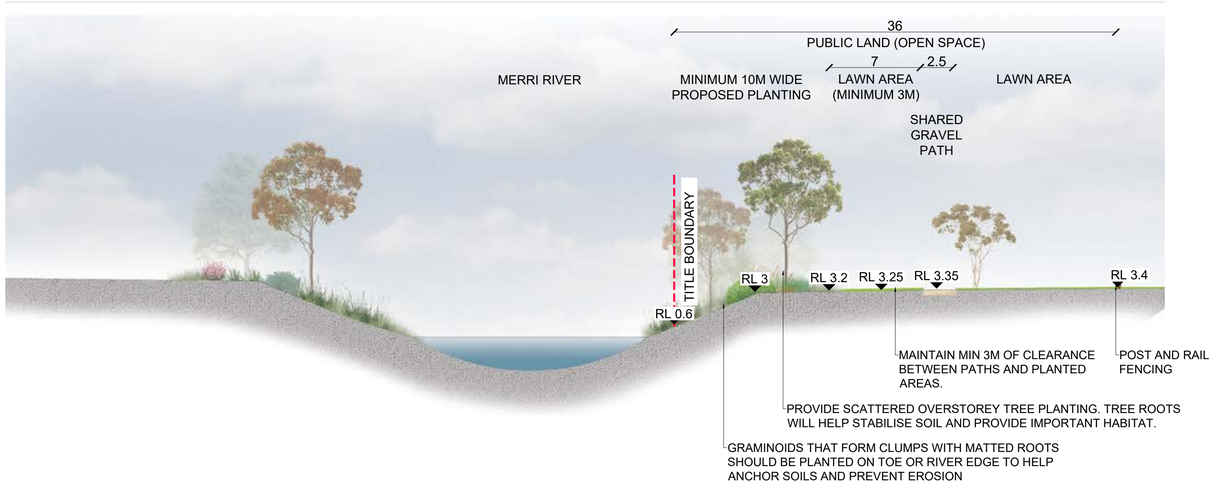

SECTION AT BB

POST AND RAIL FENCING

Merri River Corridor Cross Sections

147 Wollaston Road, Warrnambool

Gull Group

Project Number: 2000243
Drawn by: SV
Checked by: SK, JD

Revision: B
Issued: 04.11.2022

Scale: 1:200 @A1

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TREES (>8M)

Acacia melanoxylon | Blackwood
12-15 x 5m

Eucalyptus ovata | Swamp Gum
10 x 5m

LARGE SHRUBS TO SMALL TREES (2-8m)

Leptospermum lanigerum | Woolly Tea-tree | 2-6 x 1-3m

Acacia paradoxa | *Hedge Wattle*
2-4 x 2-5m

Melaleuca squarrosa | Scented Paperbark | 2-5 x 1-2m

Myoporum insulare | Common Boobialla | 1-6 x 3m

MEDIUM SHRUBS (1-2M)

Acacia myrtifolia | Myrtle Wattle | 1-2 x 1-2m

Leptospermum scoparium | Manuka | 2 x 2m

Leucopogon virgatus | Common Beard-heath | 0.3-1 x 0.2-0.6m

Pimelea humilis | Common Rice-flower | 0.3 x 0.3-1 m

SMALL PLANTS (<1M - MIX OF SMALL AND PROSTRATE SHRUBS, HERBS AND GRAMINOIDS)

Dichondra repens | Kidney-weed | Prostrate

Hydrocotyle pterocarpa | Wing Pennywort | Prostrate

Persicaria decipiens | Slender Knotweed | Prostrate

Senecio odoratus var. odoratus | Scented Groundsel

Urtica incisa | Scrub Nettle | Prostrate

Carex appressa | Tall Sedge | 1 x 1m

Dianella revoluta | Black Anther Flax-lily | 0.3-1 x 0.5-1m

Ficinia nodosa | Knobby Club-rush | 1 x 0.8m

Gahnia sieberiana | Red-fruit Saw-sedge | 1.5-2 x 2-3m

Lomandra longifolia | Mat Rush | 0.5-1 x 0.4-0.6m

Phragmites australis | Common Reed |

Poa labillardierei | Common Tussock- grass | 1.2 x 0.3-0.8m

Schoenus lepidosperma | Slender Bog-sedge | 0.3 x 0.2m

Themeda triandra | Kangaroo Grass | 1.5 x 0.5m

NOTE - PLANTING PALETTE IS AS PER MERRI RIVER LANDSCAPE GUIDELINES AND EVC 53

Indicative Planting Palette
147 Wollaston Road, Warrnambool
Gull Group

Project Number: 2000243
Drawn by: SV
Checked by: SK, JD

Revision: B
Issued: 04.11.2022

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Traffic Impact Assessment

147 WOLLASTON ROAD,
WARNAMBOOL

Issued
4/11/2022

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Client:	Gull Group
Issued:	4/11/2022
Version:	2.0
Prepared by:	Max Small
Checked by:	Jimmy Liakos
Project Manager:	Antonia Erceg
Project Number:	2000243

Surveying
Asset Recording
Civil Engineering
Infrastructure Engineering
Traffic & Transport Engineering
Environmental Consulting
Water Resource Engineering
Strata Certification (NSW)
Town Planning
Urban Design
Landscape Architecture
Project Management

Revision Table

REV	DESCRIPTION	DATE	AUTHORISED
1.0	Submission	20/04/2020	
2.0	Updated Subdivision Layout	04/11/2022	Antonia Erceg

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1 PREAMBLE

INTRODUCTION

Beveridge Williams has been engaged by Gull Group to prepare a Traffic Impact Assessment for a proposed subdivision at 147 Wollaston Road, Warrnambool. The following report sets out the findings of this assessment based on the investigations undertaken by Beveridge Williams.

1.2 OBJECTIVES

Based on the scope of Beveridge Williams engagement, the information contained within this assessment has been prepared to respond to the following objectives:

- Review of the surrounding road network;
- Review of the Warrnambool Planning Scheme;
- Traffic impact considerations;
- Access considerations;
- Design considerations; and
- Other considerations.

1.3 FACTS AND MATTERS RELIED UPON

In preparing this assessment, Beveridge Williams have relied upon the following facts, matters and information:

- Warrnambool Planning Scheme;
- North of the Merri River Structure Plan;
- AS/NZS 2890.1:2004 Parking facilities Part 1: Off-street car parking;
- AS/NZS 2890.6:2009 Parking facilities Part 6: Off-street parking for people with disabilities;
- RMS Guide to Traffic Generating Developments (October 2002); and
- Traffic movement survey data collected.

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2 EXISTING CONDITIONS

2.1 SUBJECT SITE

The subject site is located at 147 Wollaston Road, Warrnambool, and occupies a total area of 28.8ha. The site is bordered by Wollaston Road to the north and Merri River to the south of the site. There is residential development to the site's east.

The site is predominantly cleared and undeveloped with sparse vegetation. There is an existing vehicle crossover on Wollaston Road, and a street connection to Ponting Drive along the eastern boundary.

The existing site conditions are shown in Figure 1.

Figure 1: Subject Site – Existing Conditions

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2.2 SUBJECT SITE CONTEXT

Located within the Warrnambool City Council municipality, the subject site is within a General Residential Zone (GRZ). The lower third of the site is also located within the Urban Floodway Zone (UGZ) due to Merri River along the site's southern border. The site is located within Schedule 10 to the Development Plan Overlay, which cross references the North of Merri River Development Plan discussed in section 2.4 of this report.

The site is located approximately 2.5km north of the Warrnambool Town Centre. The subject site locality and surrounding area are provided in Figure 2.

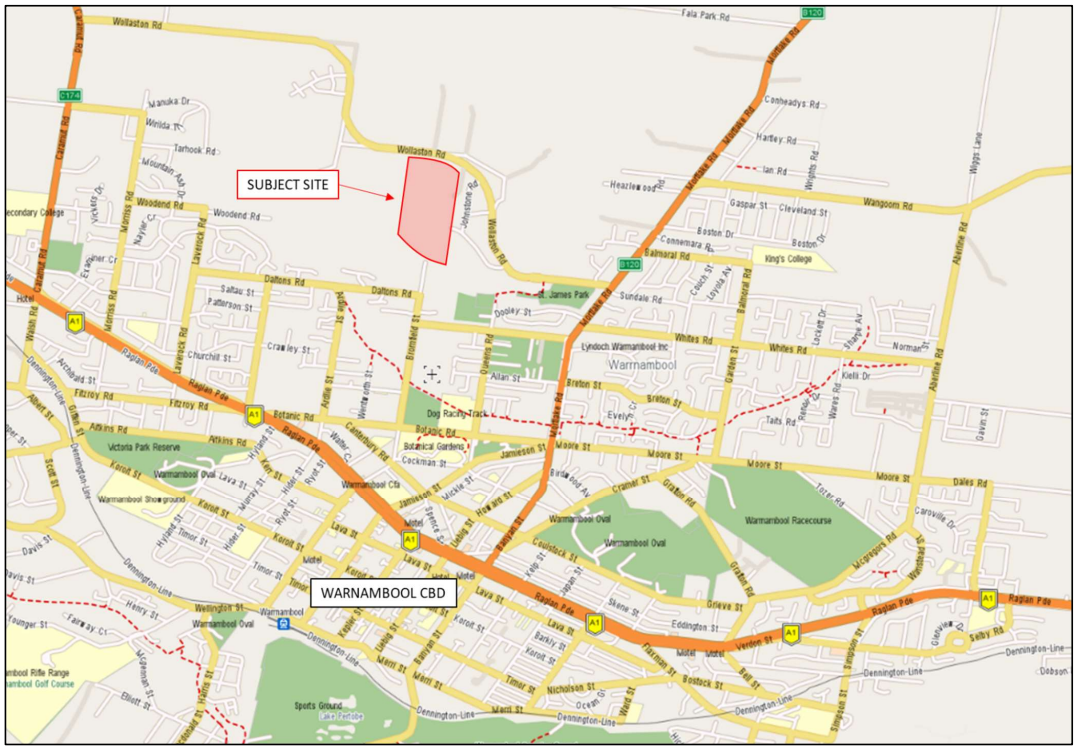

Figure 2 :Subject Site Locality

2.3 ROAD NETWORK

2.3.1 Wollaston Road

Wollaston Road is a rural collector road under the authority of the Warrnambool City Council. Wollaston Road runs between Hopkins Highway and Caramut Road, which are the main north/south roads that cross Merri River. Wollaston Road generally runs east/west with four large-radius, 90-degree bends.

At the frontage of the site, Wollaston Road is a two-lane, two-way road with 7m-wide carriageway and a posted speed limit of 80km/h. The roadside has grassed verges with no road shoulder. East of Walls Road the posted speed limit is 60km/h and the road is kerbed with no footpath on both sides of the road.

Figure 3: Wollaston Road facing west

2.3.2 Ponting Drive

Ponting Drive is a local road under the authority of Warrnambool City Council. Ponting Drive intersects with Wollaston Road and runs parallel with Merri River for approximately 450m and terminates at the eastern boundary of the subject site.

At the eastern boundary of the site Ponting Drive is a two-lane, two-way road with pavement of approximately 8m between kerbs. There are no footpaths and wide nature strips on both sides of the street. The speed limit is a default 50km/h.

Figure 4: Ponting Drive at the site boundary

2.4 NORTH OF MERRI RIVER STRUCTURE PLAN 2011

The North of Merri River Structure Plan 2011 has been prepared for Warrnambool City Council to provide planning and development framework for the land within the 250ha precinct area. The figure below shows the precinct area, with the site location and movement plan superimposed.

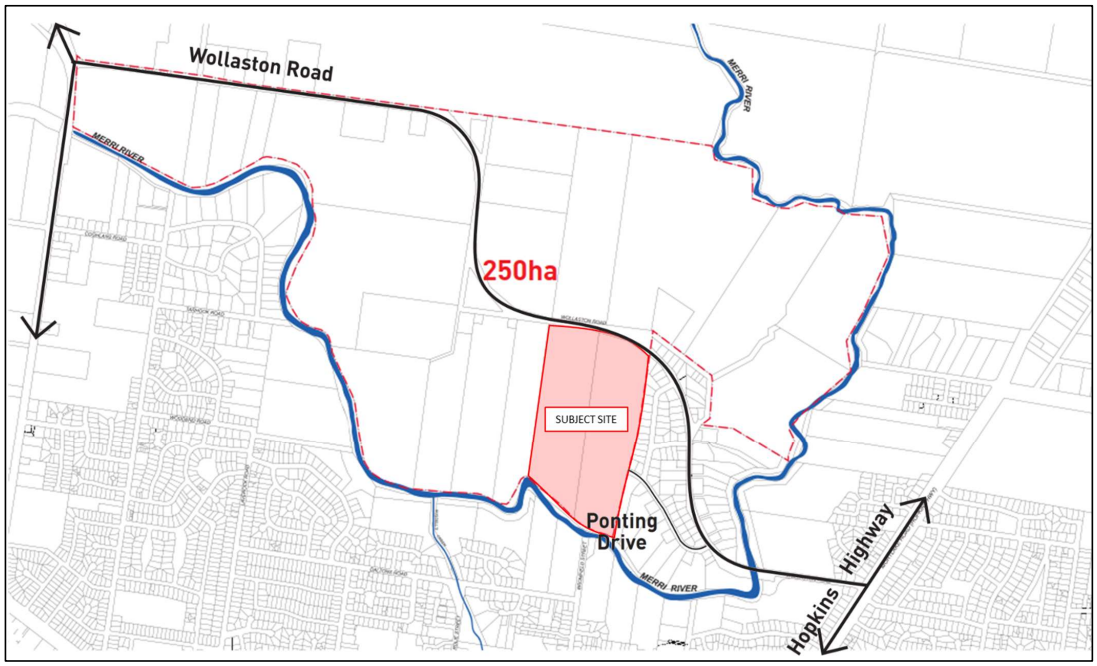

Figure 5: North of Merri River Precinct Area and Movement Plan

The movement plan as described in the North of Merri River Structure Plan indicates that Wollaston Road will continue its function to carry traffic between Hopkins Highway and Caramut Road. The through volumes are estimated to increase from approximately 3,000 vehicles per day (vpd) to 14,580vpd upon full development of the area. It is noted that the lot access objectives in Clause 56.06 in the Warrnambool Planning Scheme associates daily traffic volumes of more than 7,000vpd to an arterial road function albeit with the nominal geometry of a connector street.

It is also noted that the intersection of Hopkins Highway and Wollaston Road was signalised in 2015, after the structure plan was published 2011. The movement network also mentions a potential bridge connection to Bromfield Street, which terminates on the south side of Merri River.

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2.5 EXISTING TRAFFIC MOVEMENTS

Turning movement surveys were undertaken on Wednesday 10 March 2021 to determine the existing peak hour traffic movements along Ponting Drive at Wollaston Road and Johnstone Street. Refer to Appendix A for the full survey data.

The survey at Wollaston Road indicated that the morning peak occurred between 8am-9am and the afternoon peak occurred between 3.30pm-4.30pm. The survey at Johnson Street had significantly less traffic and indicated no single peak as the hours commencing at 9.15am, 9.30am and 10am all had the same volume. The afternoon peak occurred between 4.15pm-5.15pm. In addition to the typical peak periods, there was a peak in traffic between 12.30pm-1.30pm.

The combined peak hour movements are shown in Figure 6.

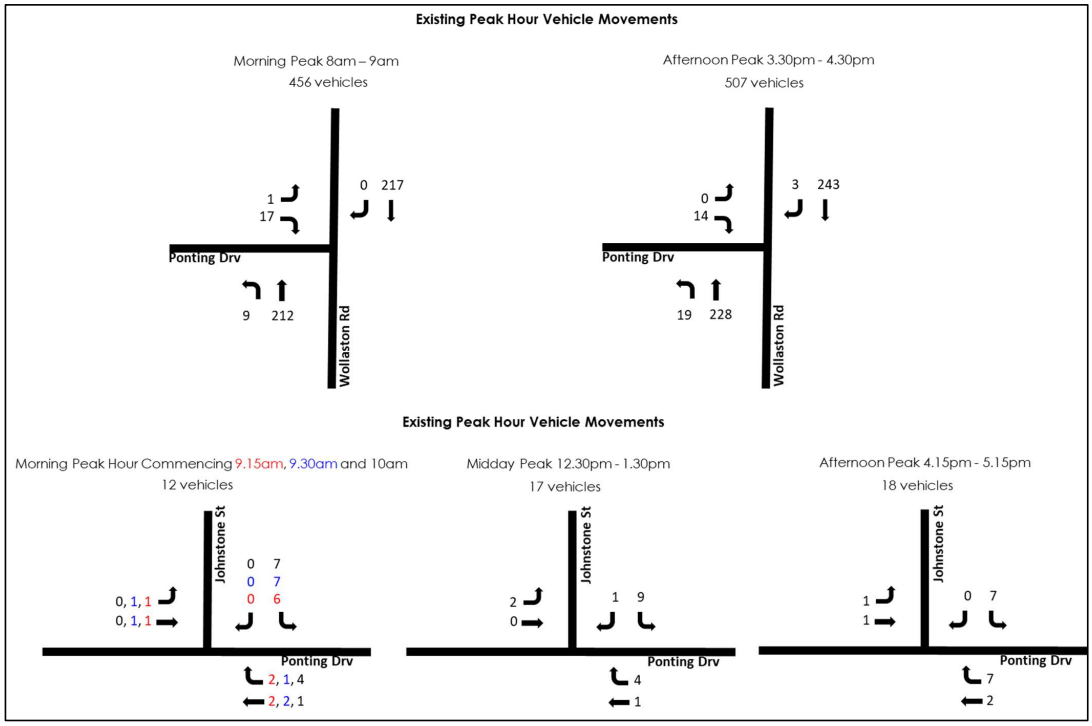

Figure 6: Existing Peak Hour Vehicle Movements

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The traffic volumes of the signals at Hopkins Highway/Wollaston Road was obtained from the DoT data website. The date of the data obtained was also for Wednesday 10 March 2021 to coincide with the turning movement survey that was commissioned.

As all the approach lanes at this intersection has an individual turning direction and detector loop, the loop volume data was able to be used to ascertain a turning movement survey. Collating the data, the morning peak was found to occur between 8am-9am with 1,281 vehicles and the afternoon peak between 4.30pm-5.30pm with 1,319 vehicles.

A copy of the detector map and peak hour turning movements are shown below.

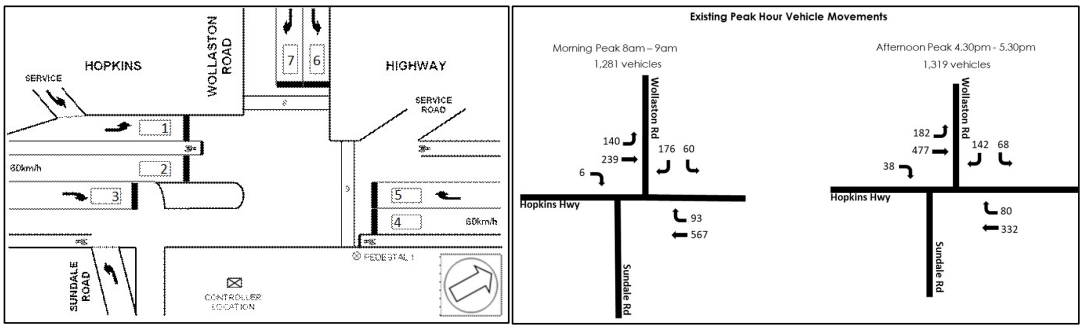

Figure 7: Detector Map and Peak Hour Turning Movements

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3 PROPOSAL

3.1 GENERAL

It is proposed to develop a 52-lot residential subdivision, with an 18.46ha designation for a retirement village and associated facilities. Access will be obtained approximately from the existing vehicle crossing location on Wollaston Road.

There is land set aside for a potential future road reserve along the southeast boundary to provide a bridge crossing over Merri River.

The proposed development is shown in Figure 8 and attached in Appendix B.

Figure 8: Proposed Development

3.2 SITE ACCESSES

In accordance with the structure plan, the site will continue pedestrian and cycling access to Ponting Drive on the eastern border. It will not, however, provide a vehicle connection. There is one intersection access proposed along Wollaston Road approximately 145m from the eastern boundary, which is the location of the current vehicle crossing to the site. The lots fronting the northern site boundary will also gain direct vehicle access to Wollaston Road.

There is also land set aside along southeast corner of the site to facilitate a road reserve that would provide access to the potential bridge connection to Bromfield Street, south of Merri River.

The site access locations including the potential bridge connection are demonstrated in the figure below.

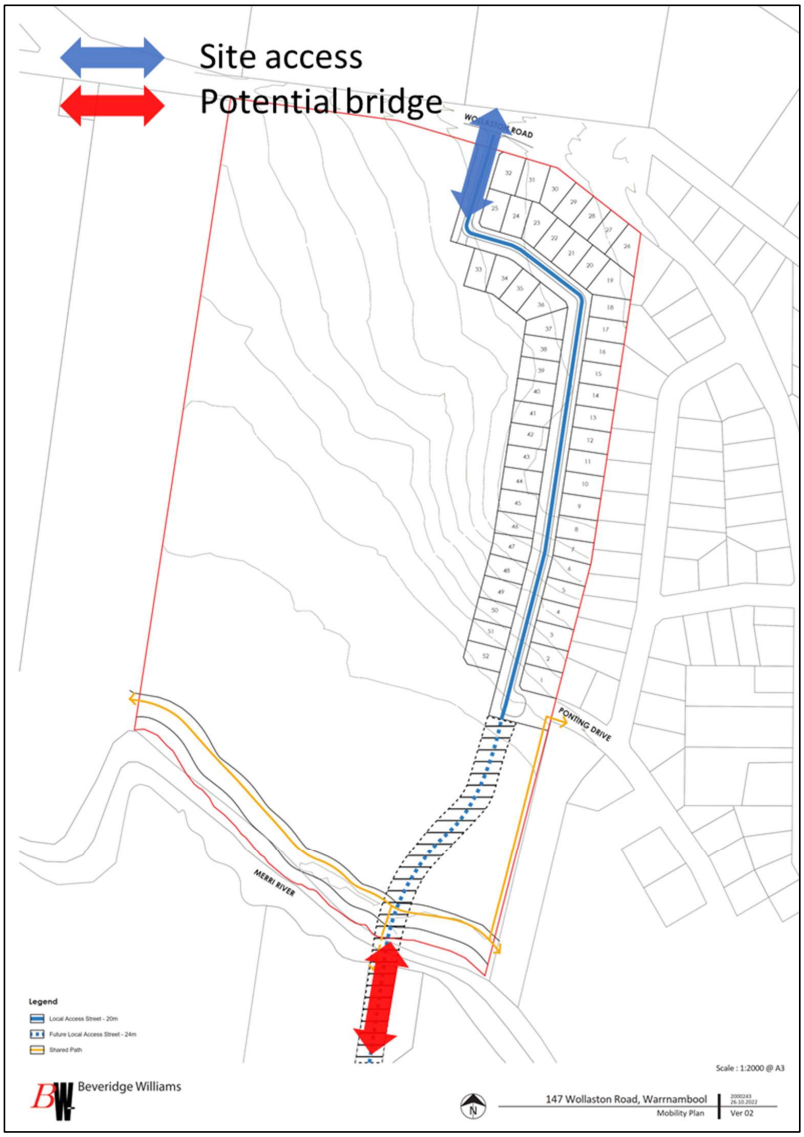

Figure 9: Site Access Plan

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3.3 NORTH OF MERRI CREEK STRUCTURE PLAN

3.3.1 Existing Structure Plan

The North of Merri River Structure Plan outlines indicative amenity locations and road network. The indicative placement of the intersection access to the subject site is located immediately after the first left-hand bend from Hopkins Highway. Wollaston Road is proposed to be upgraded to a boulevard to the west of the site access with a wide median.

A north/south connector road is indicated through the subject site to connect Wollaston Road to the extension of Bromfield Street south of Merri River. Within the flood 1 in 100-year flood plain, there will be a proposed public open space.

The developable are of the subject site located north of the 1 in 100-year flood line is indicated to comprise standard density residential lots. The structure plan also indicates a pedestrian path to run along the north side of Merri River.

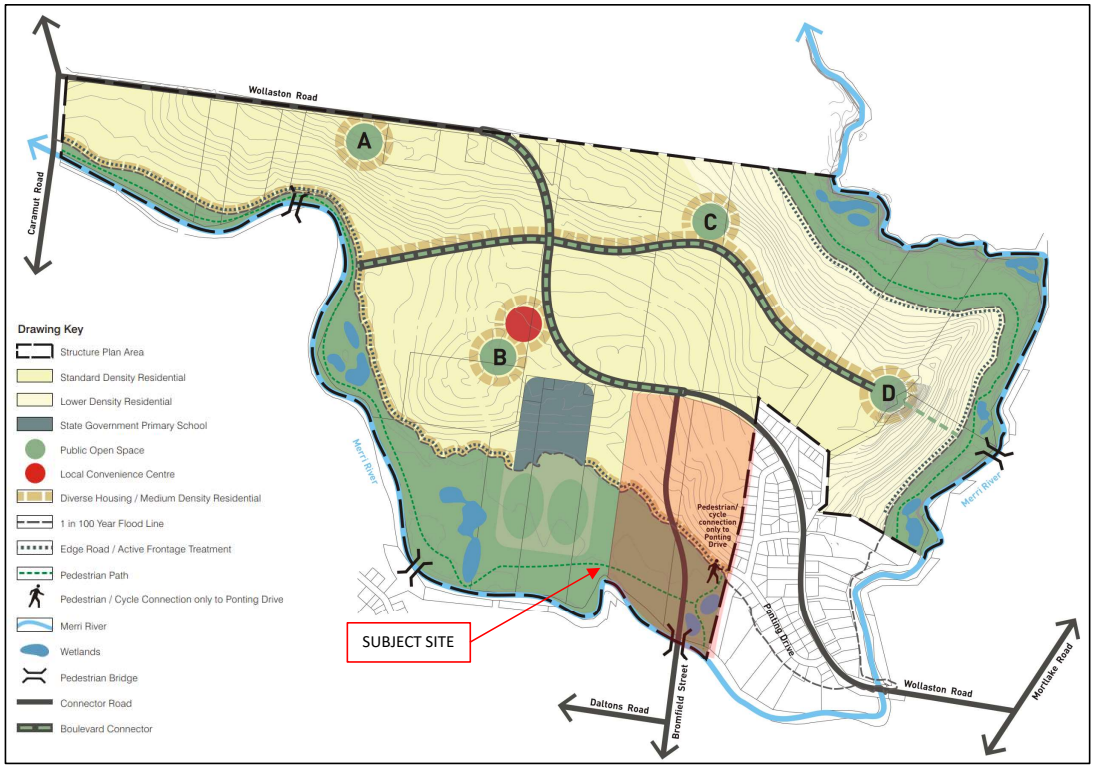

Figure 10: North of Merri River Structure Plan

3.3.2 Proposed Structure Plan Departures

As a departure to the structure plan, the proposed intersection is approximately 150m east of the location indicated in the structure plan. Additionally, the connector road instead doglegs toward the east and predominantly runs 50m offset from the eastern boundary. The Bromfield Street continuation is proposed to follow the south and eastern corner boundary to link the connector road with the proposed river crossing.

It is also proposed to amend the shared path route to connect to Ponting Drive via the vacant land east of the of the subject site. The shared path, much like the Bromfield Street continuation, will straddle the south and east corner boundary and continue following the general alignment of the Merri River.

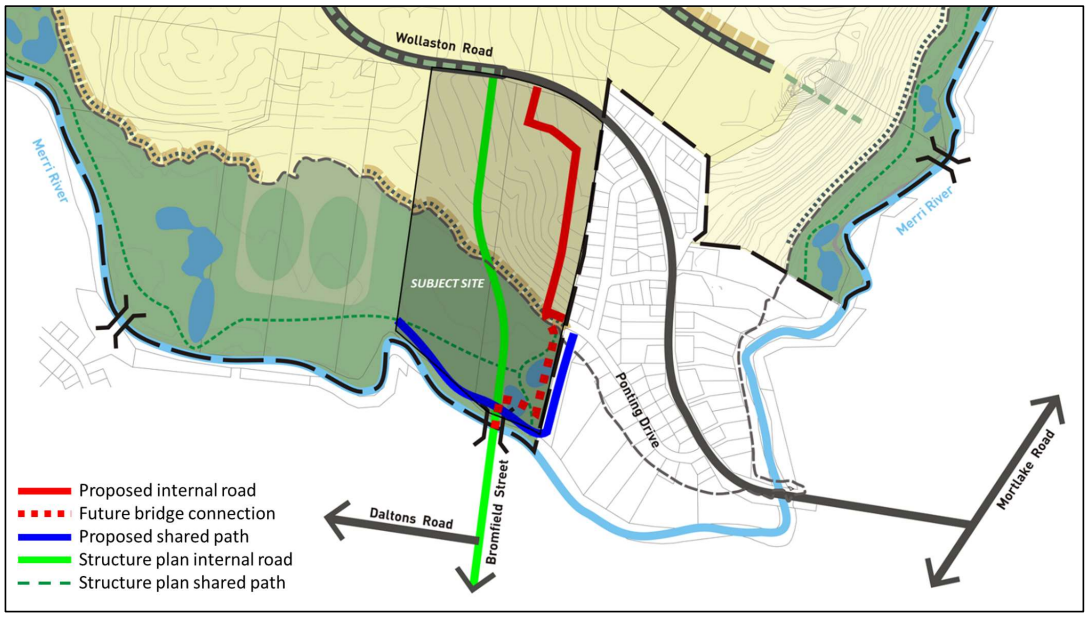

Figure 11: Proposed Development Structure Plan Amendments

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3.4 PROPOSED INTERNAL ROAD NETWORK HEIRARCHY

The proposed network hierarchy generally follows the structure plan by providing a connector road link between Wollaston Road and Bromfield Street. The street network of the retirement village will remain private roads. The general carriageway width of these roads will be 6m.

The connector road is proposed to comprise two different cross sections: one for residential frontage and one for the retirement village frontage. The cross sections generally conform to the lot access objectives outlined in the Planning Scheme in Clause 56.06. The only departure of note is the minimum verge requirement of 4.5m each side. The retirement village cross section proposed an eastern verge of 4.35m.

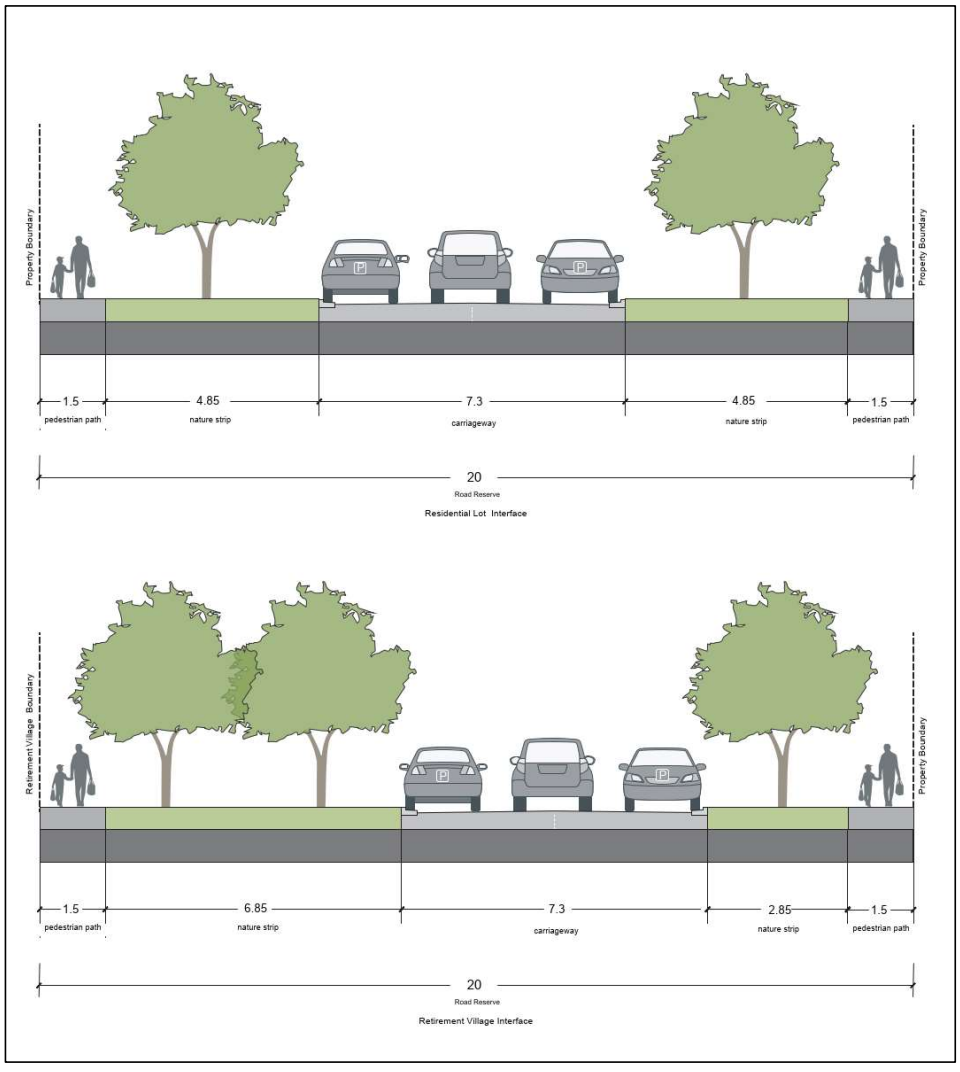

Figure 12: Connector Road Cross Sections

4 TRAFFIC IMPACT CONSIDERATIONS

4.1 TRAFFIC GENERATION

It is generally accepted that a single dwelling on a standard lot will generate vehicular traffic at a rate of 8-10 trips per day, with 10% of daily volume occurring in each peak hour. Based on case study data for similar projects, the following daily and peak hour rate for the subject site has been adopted.

- Daily volume: 10 vehicle movements / dwelling
- Peak volume: 1 vehicle movement / dwelling

The RMS Guide to Traffic Generating Developments outlines surveyed traffic generation and parking rates for specific land uses. The nominal traffic generation rate for housing for aged and disabled persons is as follows:

- Daily volume: 1-2 / dwelling
- Evening peak hour trips: 0.1-0.2 / dwelling

Applying the upper limit traffic generation rates for the 52 residential and 216 retirement village lots, the estimated traffic volume is below:

- 952 daily vehicle movements: 520 residential and 432 retirement village
- 95 peak hour movements: 52 residential and 43 retirement village

4.2 TRAFFIC DISTRIBUTION

Wollaston Road is expected to carry an additional 952 daily vehicle movements upon full occupation of the proposed development. Based off the turning movement survey at the intersection of Ponting Drive and Wollaston Road, the overwhelming demand is east toward Hopkins Highway. The subject site context also indicates that Warrnambool and Melbourne/Geelong-bound traffic will likely head east. As such, a distribution split of 95% east/5% west is applied.

During peak periods, traffic is generally split 90% outbound and 10% inbound during the morning and 40% outbound and 60% inbound during the afternoon peak.

Applying the above traffic generation rates to the internally accessed lots, the traffic generation is calculated below.

	East out	East in	West out	West in
AM Peak	75	8	4	1
PM Peak	33	50	2	3

All internally and externally accessed lots will travel via Wollaston Road.

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4.3 POST-DEVELOPMENT TRAFFIC VOLUME

The total post-development daily traffic volume is shown below applying the distribution split estimations. The traffic generation source consists of 216 retirement village lots and the 52 residential lots that comprise the internal lots.

Of the 52 residential lots, it is proposed that 7 of them will directly access Wollaston Road.

The internal road will likely carry 882 daily movements with a total of approximately 904 movements to/from the east and approximately 48 to/from the west.

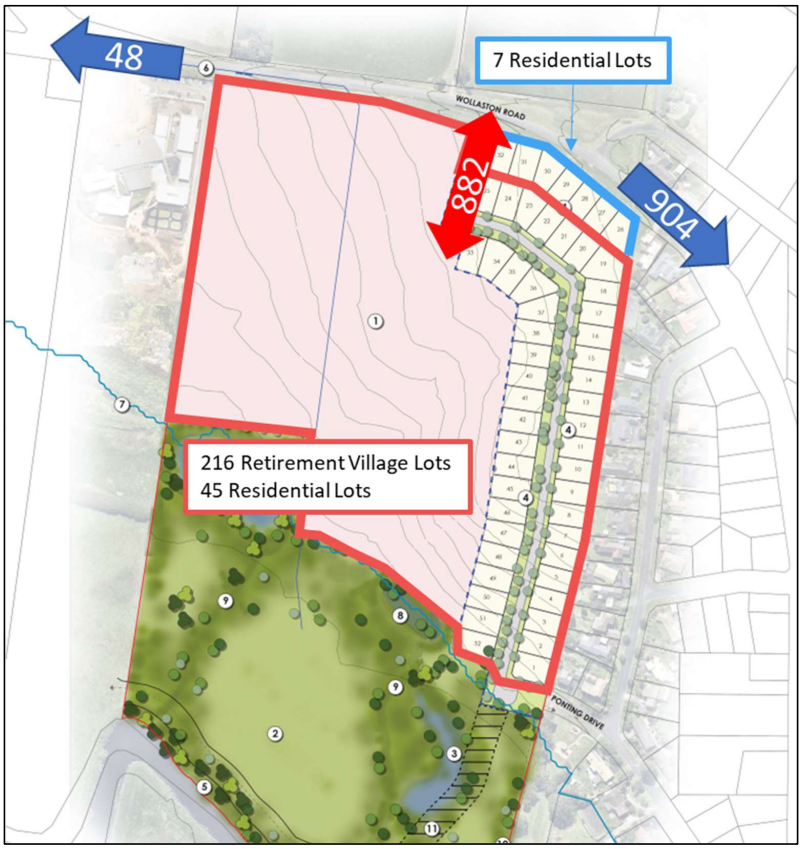


Figure 13: Additional Daily Post-Development Traffic Volumes

4.4 POST-DEVELOPMENT TRAFFIC IMPACTS

Based on the lot objectives in Clause 56.06 of the Warrnambool Planning Scheme, the estimated daily traffic volume does not exceed the nominal volumes. The connector road has a daily volume cap of 3,000vpd. Considering that the only external connectivity to the surrounding road network will be via the northern intersection of the connector road with Wollaston Road, it is anticipated that the post-development volumes along the connector road will be similar to the volumes generated by the subject site.

It is expected that the intersection of the connector street and Wollaston Road will continue to operate at an acceptable level of service and well below capacity post-development.

Based on the intended zoning objectives of the structure plan, the entire retirement village area replaces what would otherwise be standard density residential lots. This results in a significant reduction of traffic generation across more than half of the developable area of the subject site.

It is noted that the set of signals at the intersection of Wollaston Road and Hopkins Highway was constructed in 2015 – four years after the North of Merri River Structure Plan was published. It is assumed that the signals and lane geometry of this intersection would have taken into account the proposed traffic volumes of a fully developed study area. Considering the subject site proposes a lower traffic generating land-use the traffic impact of the proposed development along Wollaston Road and its intersection with Hopkins Highway is expected to be less than the structure plan outlines. Additionally, the realignment of the connector road makes the travel route along Wollaston Road more equitable.

The proposed development is considered appropriate and is expected to operate with less of an impact than initially provisioned within the North of Merri River Structure Plan.

5 SUMMARY AND CONCLUSIONS

Based on the preceding analysis, it is summarised that:

- It is proposed to develop a subdivision on subject site to comprise 52 residential lots and a retirement village including 216 lots.
- The site will be accessed by a proposed intersection along Wollaston Road.
- There is land set aside for a potential future road reserve along the southeast boundary to provide a bridge crossing over Merri River.
- A turning movement survey was commissioned on Wednesday 10 March 2010 along Ponting Drive at its intersections with Wollaston Road and Ponting Drive.
- The site layout proposes a realigned connector street from the structure plan that travels closer to the eastern boundary of the site.
- The proposed shared path is also realigned to track along the vacant land east of the subject site and north of the Merri River.
- The proposed development is expected to generate 952 daily vehicle movements or 95 peak hour movements.
- The traffic distribution is expected to predominantly travel east towards Hopkins Highway.
- All ingress and egress traffic movements from the subject site will use the intersection of the connector road and Wollaston Road.
- The post development traffic generated from the site is expected to not exceed the operational objectives of the road hierarchies of the internal collector road or Wollaston Road.
- The proposed development is considered to not have significant impact on the operation of Wollaston Road or the signalised intersection at Hopkins Highway.

In conclusion, the proposed development is considered to have minimal impact on the operation of the existing road network. Should you have any queries or require any clarification, please do not hesitate to call or contact the Beveridge Williams traffic department.

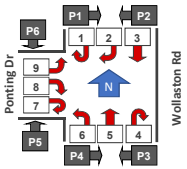
Jimmy Liakos
Manager – Traffic Engineering and Transport Planning
BEVERIDGE WILLIAMS

Beveridge Williams

APPENDIX A: TURNING MOVEMENT SURVEY

nationwide TRAFFIC SURVEYS

Client: Beverage Williams
Name: Warrnambool Traffic Count
Job No.: 6072
Location: Wollaston Rd and Ponting Dr
Date: Wed 10/03/2021 **Time:** 7am to 7pm
Weather: Sunny



Absolute Value		VEHICLE MOVEMENTS																		PEDESTRIAN MOVEMENTS												
		1		2		3		4		5		6		7		8		9		P1		P2		P3		P4		P5		P6		
TIME		Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Ped	Bike	Ped	Bike	Ped	Bike	Ped	Bike	Ped	Bike	Ped	Bike	
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7:15	7:30	0	0	0	0	12	0	1	0	33	1	2	0	0	0	6	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30	7:45	0	0	0	0	24	1	0	0	24	3	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	
7:45	8:00	0	0	0	0	33	0	0	0	42	3	0	0	0	0	2	0	1	0	0	0	1	0	0	0	0	0	2	0	0	0	243
8:00	8:15	0	0	0	0	40	3	0	0	35	2	3	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	277
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9:30	9:45	0	0	0	0	31	1	0	0	23	3	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	316
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11:30	11:45	0	0	0	0	25	0	0	0	25	3	2	0	0	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	247
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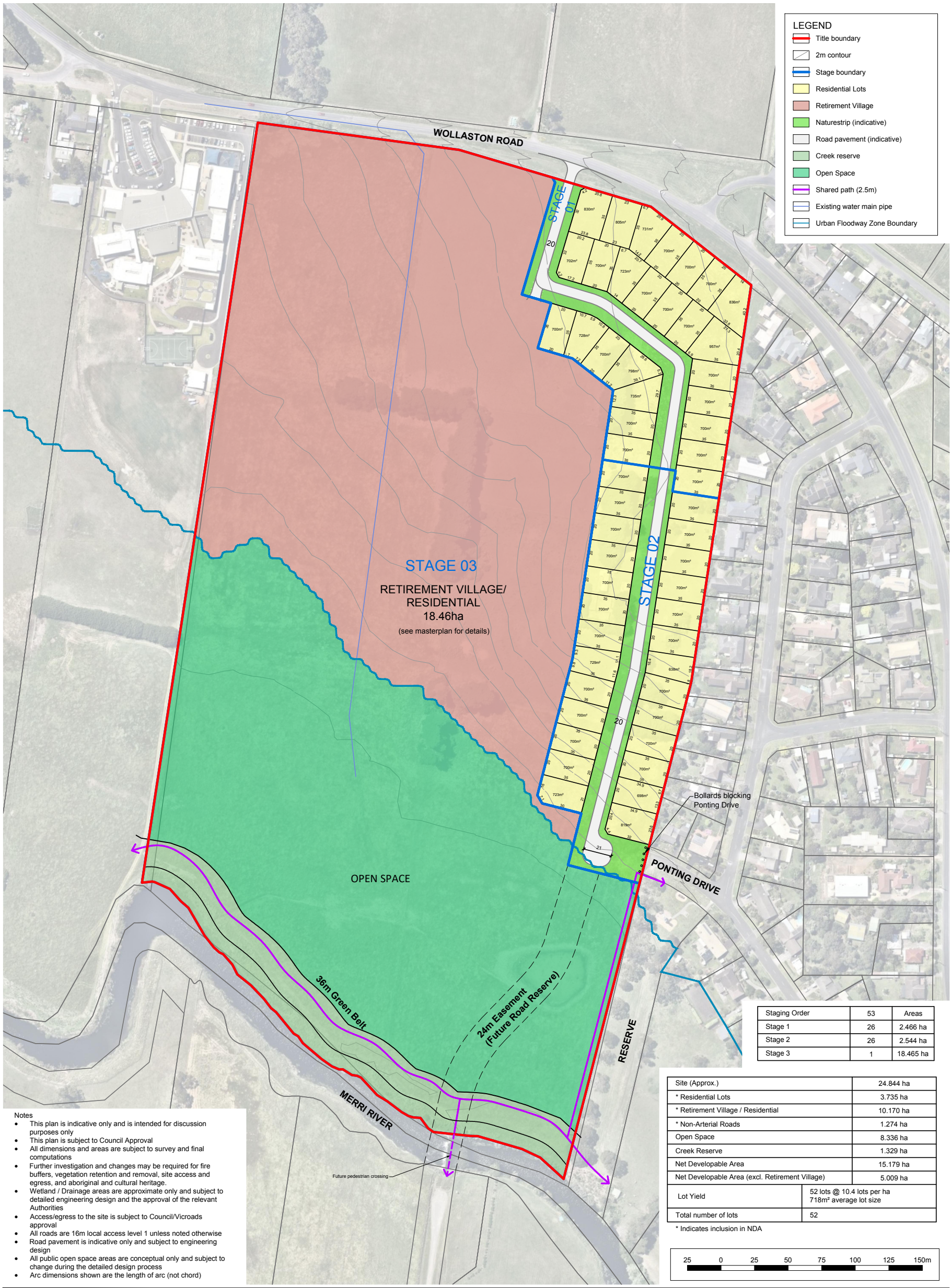
APPENDIX B: SITE LAYOUT PLAN



Staging Order	53	Areas
Stage 1	26	2.466 ha
Stage 2	26	2.544 ha
Stage 3	1	18.465 ha

Site (Approx.)	24.844 ha
* Residential Lots	3.735 ha
* Retirement Village / Residential	10.170 ha
* Non-Arterial Roads	1.274 ha
Open Space	8.336 ha
Creek Reserve	1.329 ha
Net Developable Area	15.179 ha
Net Developable Area (excl. Retirement Village)	5.009 ha
Lot Yield	52 lots @ 10.4 lots per ha 718m² average lot size
Total number of lots	52

* Indicates inclusion in NDA

25 0 25 50 75 100 125 150m

Notes
- This plan is indicative only and is intended for discussion purposes only
- This plan is subject to Council Approval
- All dimensions and areas are subject to survey and final computations
- Further investigation and changes may be required for fire buffers, vegetation retention and removal, site access and egress, and aboriginal and cultural heritage.
- Wetland / Drainage areas are approximate only and subject to detailed engineering design and the approval of the relevant Authorities
- Access/egress to the site is subject to Council/Vicroads approval
- All roads are 16m local access level 1 unless noted otherwise
- Road pavement is indicative only and subject to engineering design
- All public open space areas are conceptual only and subject to change during the detailed design process
- Arc dimensions shown are the length of arc (not chord)

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Indicative Subdivision Plan

147 Wollaston Road, Warnambool

Gull Group

Version	Date	Description	Drafted	Approved
08	20.05.2021	Amended layout	MJ	WEB
09	08.06.2021	Amended layout	MJ	WEB
10	25.08.2021	Amended layout	MJ	WEB
11	08.08.2022	Amended layout	VA	WEB
12	26.10.2022	Golf course removed	VA	WEB

Date: 26.10.2022
Version No: 12
Job No: 2000243
Scale (A1): 1:1250
(A3): 1:2500

K:\JOBS DATA\2000243 - 147 WOLLASTON ROAD WARRNAMBOOL_UD\CAD\2000243_UD_BASE01.DWG

Stormwater Management Strategy Rev D

147 Wollaston Rd, Warrnambool

Client
Gull Group

Issued
4/11/2022

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Beveridge Williams

Client:	Gull Group
Issued:	4/11/2022
Version:	D
Prepared by:	Lola Nurhalim
Checked by:	Aram Manjikian
Project Manager:	Antonia Erceg
Project Number:	2000243

Surveying
Asset Recording
Civil Engineering
Infrastructure Engineering
Traffic & Transport Engineering
Environmental Consulting
Water Resource Engineering
Strata Certification (NSW)
Town Planning
Urban Design
Landscape Architecture
Project Management

Revision Table

REV	DESCRIPTION	DATE	AUTHORISED
A	Drainage Strategy – 147 Wollaston Road, Warrnambool	**24/03/2020**	**RS**
B	Updated Master Plan Rev 07	**27/08/2021**	**RS**
C	Updated Master Plan Rev 08	**07/09/2021**	**RS**
D	Updated Master Plan Rev 09 – No technical change to drainage strategy	**04/11/2022**	**AE**

Contents

Tables

Figures

Appendix

Glossary of terms

Alphabetical list of terms and abbreviations used in report

AHD	Australian Height Datum A common national surface level datum approximately corresponding to mean sea level.
AEP	Annual Exceedance Probability. Probability of a flood event occurring in any year
AR&R	Australian Rainfall and Runoff
Authorities	Organisations responsible for supply and management of sewer, water, gas, electricity and telecommunications, roads and transport
BPEMG	Best Practice Environmental Management Guidelines
BWCo	Beveridge Williams & Co Pty Ltd
CMA	Glenelg Hopkins Catchment Management Authority
Client	Gull Group
Council	Warrnambool City Council
IDM	Infrastructure Design Manual
LSIO	Land Subject to Inundation Overlay
NTWL	Normal Top Water Level
Q_5	Storm water flow generated from 20% AEP storm event.
Q_{100}	Storm water flow generated from 1% AEP storm event.
Q_{gap}	Flow difference between Q_5 and Q_{100} storm event.
RB	Retardation Basin
WLRB	Wetland Retardation Basin
WSUD	Water Sensitive Urban Design

1 INTRODUCTION

Beveridge Williams has been commissioned by Gull Group to prepare a Stormwater Management Strategy (SWMS) for the proposed residential development site located at 147 Wollaston Road, Warrnambool. The total site area is 24.84 ha and is proposed to develop the land into a retirement village and 52 residential lots.

This SWMS report is intended to provide sufficient evidence that drainage strategy from the proposed development site can meet Stormwater Best Practice Environmental Management Guidelines (BPEMG) and to the satisfaction of Glenelg Hopkins CMA, Warrnambool City Council and other relevant authorities.

1.1. Site Overview

The subject site is located approximately 285 km west of Melbourne. It is located within the Warrnambool City Council municipality. The site is currently vacant land and is bounded by Wollaston Road to the north, existing residential area to the east, Merri River to the south and Merri River School to the west. There are a few existing rows of trees scattered around the site (Refer to Figure 1 below).

Figure 1: Site Aerial Map (Source: Near Map, Mar 2020)

2 EXISTING CONDITIONS

2.1. Topography

The Feature and Level plan shows the slopes generally descends from north east and north to south direction (Refer to Figure 2 below and Appendix A). The high points are located on the north east corner of the site, which is approximately RL 25 on the north east. The low points are located along the southern boundary (the bank of Merri River), which ranges from RL 3 to 4 (see Figure 2 below).

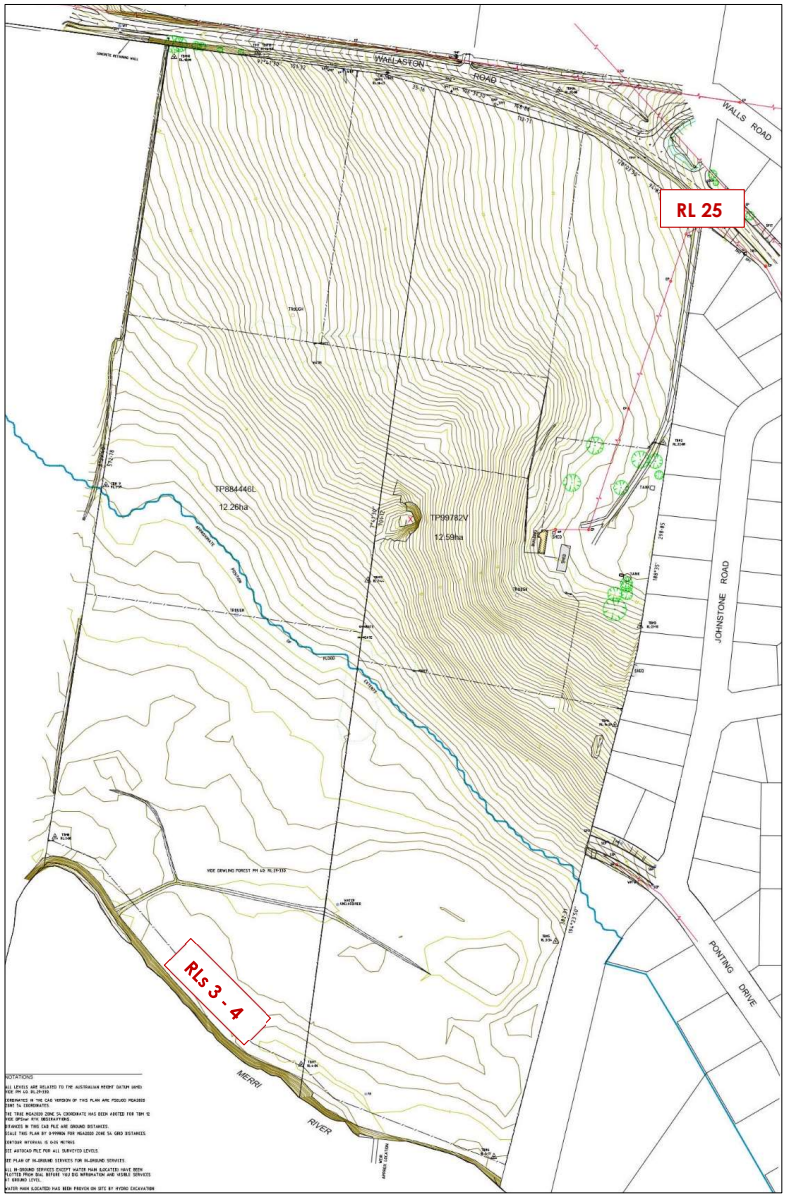


Figure 2: Feature & Level Survey (Not to scale)

2.2. Surface Water and Drainage

As previously mentioned in Section 2.1, the site generally slopes from north east and north towards to the south. The surface water flows are mainly directed to the Merri River on the south, as shown in Figure 3 below.

Figure 3: Site Drainage Analysis Plan (Not to scale)

3 DESIGN INTENT

3.1. Proposed Development

It is proposed to subdivide the land for residential development to 52 lots (total of 5 ha) with 700 m² average lot size and a retirement village site. The development also includes a wetland (with a sedimentation basin) and two retarding basins. The total net developable area is 23.48 ha (Refer to Figure 4 below and Appendix B for Indicative Master Plan).

The overall development area is limited by the floodway zone boundary, as shown on Figure 4. Both residential lots and retirement village sited will be located on the northern part, outside from the floodway zone.

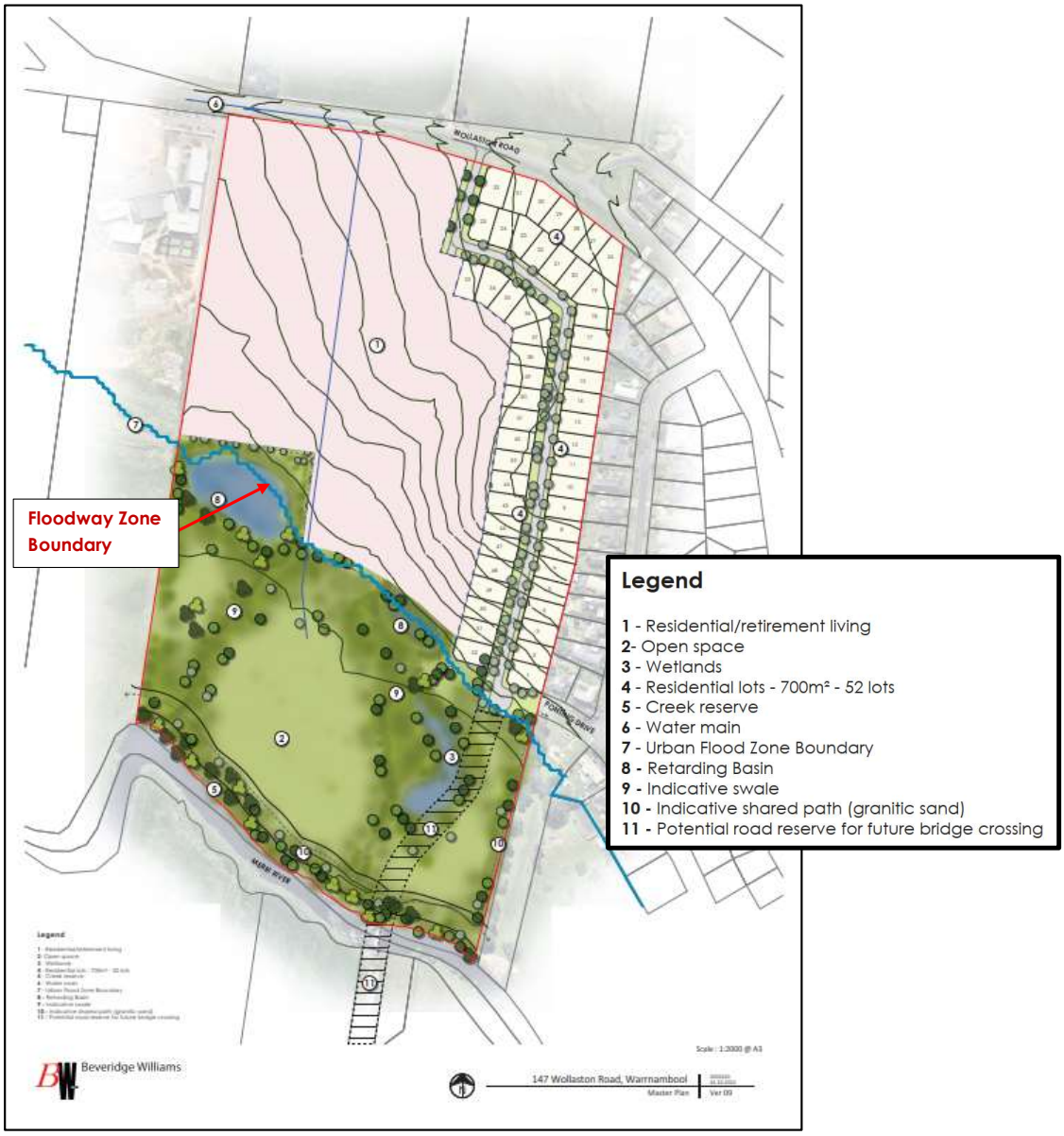


Figure 4: Indicative Master Plan Layout (Not to scale)

3.2. Proposed Stormwater Management Strategy

The proposed site's Stormwater Management Strategy is to follow the existing natural features of the pre-developed site.

For stormwater quantity management, it is proposed to provide two stormwater retardation basins (RBs) to the south of the retirement village residential area to detain the 1% AEP post development site flow to pre-development level.

For stormwater quality management, it is proposed to provide a sedimentation basin (SB) and a wetland system. Both stormwater treatment assets will be located within the available area located on the southern part of the site. The system will provide stormwater treatment for the proposed development site.

Details of both stormwater quantity and quality management are discussed in Sections 4 and 5 and Drainage Assets Location Plan is provided in Figure 5 below.

Figure 5: Drainage Assets Location Plan

4 STORMWATER QUANTITY MANAGEMENT

Details of stormwater quantity management are discussed in the following sections.

4.1. Pre- and Post- Development Catchment Plans

The pre-development and post-development catchment plans were developed to include the subject site and associated external catchment sites, as shown in Figures 6 and 7 (also in Appendix C). Each catchment plan shows with a series of sub-areas that indicate where stormwater discharges are channelled towards to southern direction (Merri River).

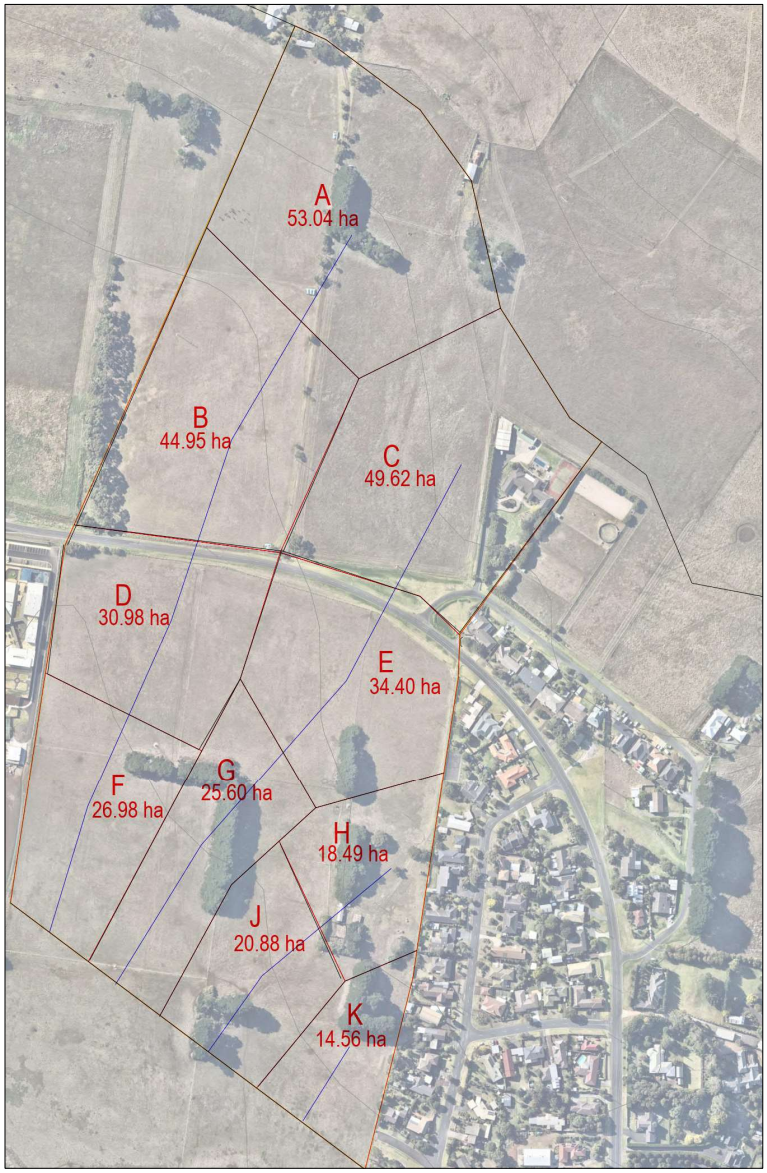


Figure 6: Pre-Development Catchment Plan

The post-development catchment plan shows that the flows are to be diverted towards the proposed retarding basins on the south prior to being discharged into Merri River. This plan was developed based on an Indicative Retirement Village Area Layout.

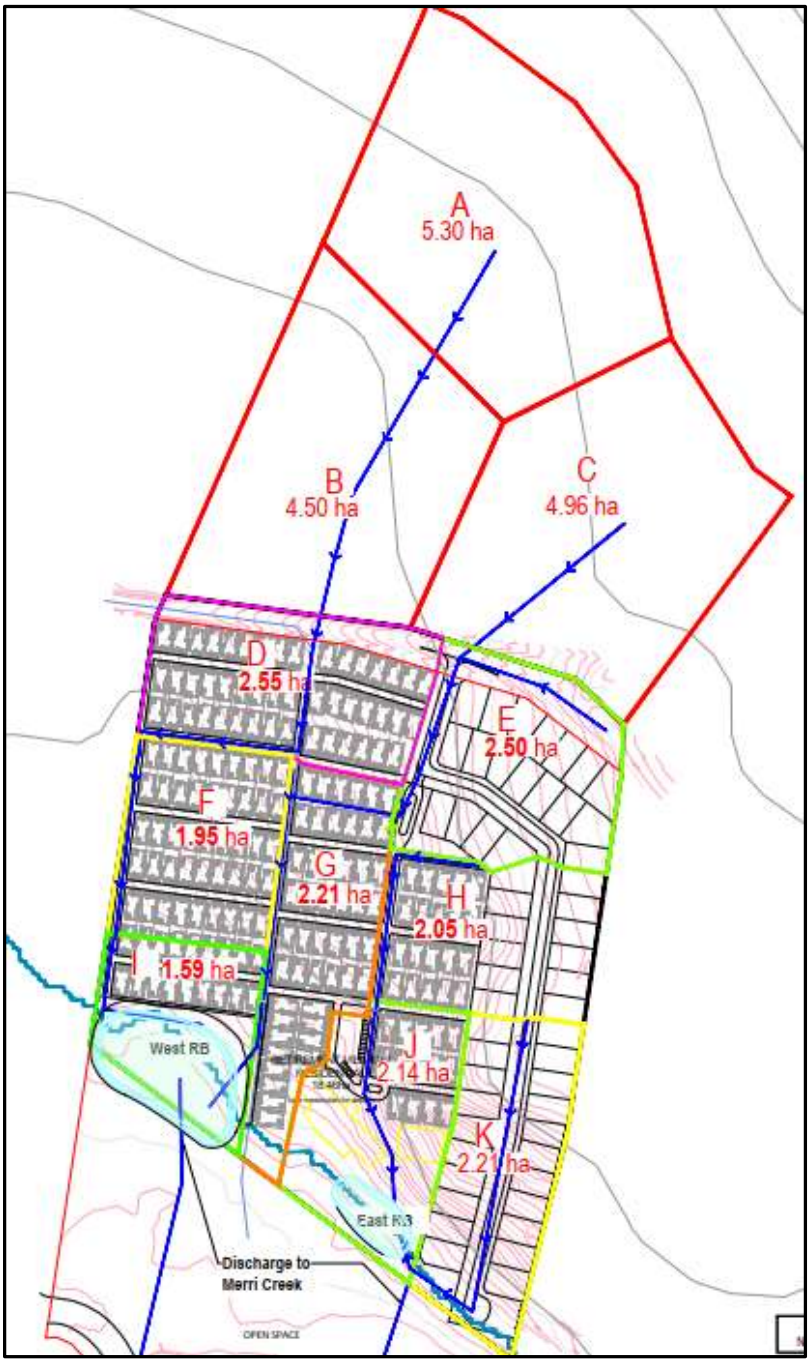


Figure 7: Post-development Catchment Plan (based on an Indicative Retirement Village Area Layout)

4.2. RORB Modelling

The hydrological analysis for the proposed development site was undertaken using RORB Runoff Routing Program modelling (in accordance with AR&R 2019) to determine the design flows for the pre-developed and post-developed scenarios. The RORB input parameters and results are provided as follows.

4.2.1. Losses

For this assessment, the losses adopted were derived from AR&R19 provided losses in the Datahub for rural catchments, as shown in Table 1.

Table 1: Model Losses

Type	Losses Type	Value
AR&R19 Provided Losses	Initial Losses (mm)	24
	Continuing Losses (mm/hr)	4.6

4.2.2. Kc Parameter

The k_c parameter for pre-development scenario was determined using the RORB default equation method. The k_c parameter for post-development scenario was calibrated by using a k_c to d_{av} ratio from the pre-development parameter. Details of these parameters are provided in Table 2.

Table 2: RORB Input Parameters

Parameter	Adopted Parameters for the Pre Development Scenario	Adopted Parameters for the Post-development Scenario
k_c	1.24	1.78
d_{av} (km)	0.39	0.56
m	0.80	0.80

4.2.3. Model Comparisons

To ensure RORB practicality, the Regional Flood Frequency Equation Method (RFFE) has been used to check the suitability of the hydrology assessment (pre-develop flow) as suggested by AR&R19 guidelines. The comparison in Table 3 shows a difference of approximately 68% between the RFFE and RORB Model (using the RORB default method generated Kc). This is considered not a suitable discrepancy between the two methods. The RFFE method is commonly more conservative to RORB modelling since the datasets RFFE extrapolates from have catchment areas ranging from 0.5-1000 km^2, which is far greater than our overall catchment area that is less than 0.5 km^2 (Refer to Appendix D for RFFE calculation results).

Therefore, another comparison has been made with ARR 16 Book 7, Chapter 6.2.1.3 (MAR>800mm) and as shown on Table 3 the difference is approximately 17%, which considered a more suitable discrepancy. Additionally, a comparison with Rational Method has also been made with difference of approximately 36%, which is considered another slightly suitable discrepancy.

Table 3: Calibration Check

Methodology	Peak Pre-Development Flow (m^3/s)
RORB Model	0.92
Rational Method	1.25
RFFE Method	0.29
ARR16 Book 7, Chapter 6.2.1.3 (MAR > 800mm, 21 catchments, 20 sq.km < A < 1924 sq.km	0.76

4.2.4. Sub-Catchment Area and Fraction Impervious

The RORB model sub-areas and fraction impervious used for this catchment modelling are provided in Table 4. The modelling includes associated external sub catchment areas to the north of the site (Refer to Figure 6).

Table 4: RORB Sub-Catchment Areas and Fraction Impervious

RORB Sub-Catchments and Fraction Impervious	
RORB Total Catchment Area:	31.96 ha
• *West RB Catchment*	*25.56 ha*
• *East RB Catchment*	*6.40 ha*
Total Catchment Area for the proposed development site (up to retarding basins)	17.20 ha
Total External Catchment Area	14.76 ha
Fraction Impervious for retirement village residential area (lot area < 300m^2)	0.75
Fraction Impervious for residential area (lot area 601 - 1,000m^2)	0.60
Fraction Impervious for reserve and external areas	0.10

4.3. 1% AEP Peak Flows Results and Detention Storage Volume

The results of 1% AEP pre-development and post-development peak flows and the required detention storage volume from the RORB modelling are shown in Table 5. Additionally, the results of pre-development flows from the external catchments are also shown in Table 5. The RORB models were run using the Ensemble method. Details of the RORB modelling results are shown in Appendix D.

Table 5: 1% AEP Post-development Flows and Detention Storage Volumes Required

	Peak Pre-Development Flow (m^3/s)	Peak Post-Development Flow (Total Inflow to RB) (m^3/s)	Peak Post-Development Flow (m^3/s) (Detention - Outflow from RBs)	Total Storage Volume Required for Detention (m^3)
External Catchment (West)	0.38 (2hr)	-	-	-
External Catchment (East)	0.28 (2 hr)	-	-	-
Total Catchment	0.92 (3 hr)	4.42 (20 min)	0.91 (4.5 hr)	6,140

The above peak flows and detention storage volumes results indicate that the 1% AEP post-development peak flows for the overall site can be detained to the pre-development level by providing a total detention storage of 6,140 m³. This will be provided through the two retarding basins (RBs), the West RB with volume of 4,980 m³ and the East RB with volume of 1,160 m³.

4.4. Flow Hydrographs Comparison with Merri River

Peak-flow hydrographs for the development site (outlet from the RBs) and Merri River at the upstream boundary (taken from Design of North Warrnambool Floodplain Management Plan, prepared by Cardno for Glenelg Hopkins CMA & Warrnambool City Council, October 2010) are compared to analyse the peak-flow events for the 1% AEP flow. Both hydrographs (shown in Figures 8 and 9) clearly indicate that the peak flows occur at different rainfall events and times.

Peak flow from subject site (RB outlets) (0.91 m^3/s @4.5 hr-median flow result) occur before peak flow of the Merri River (approximately 430 m^3/s @25 hr). The location of Merri River adjacent to the subject site is further downstream from the flood study shown on Figure 9. That means that the peak flow further downstream occurs later than 25 hr and therefore, the peak flow from the subject site will not increase the peak flow discharge at Merri River.

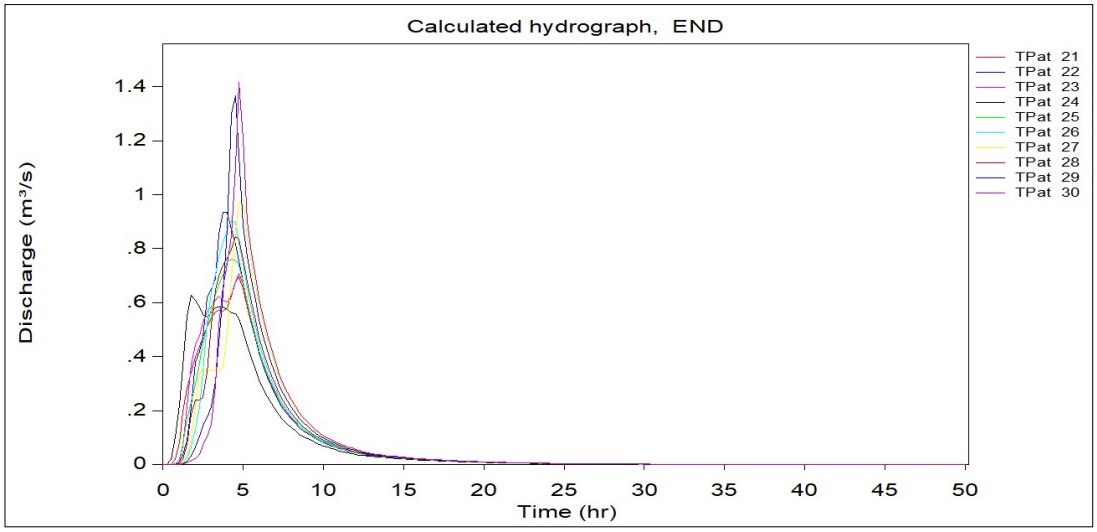


Figure 8: Hydrograph for the Development Site – Outlet from the RBs

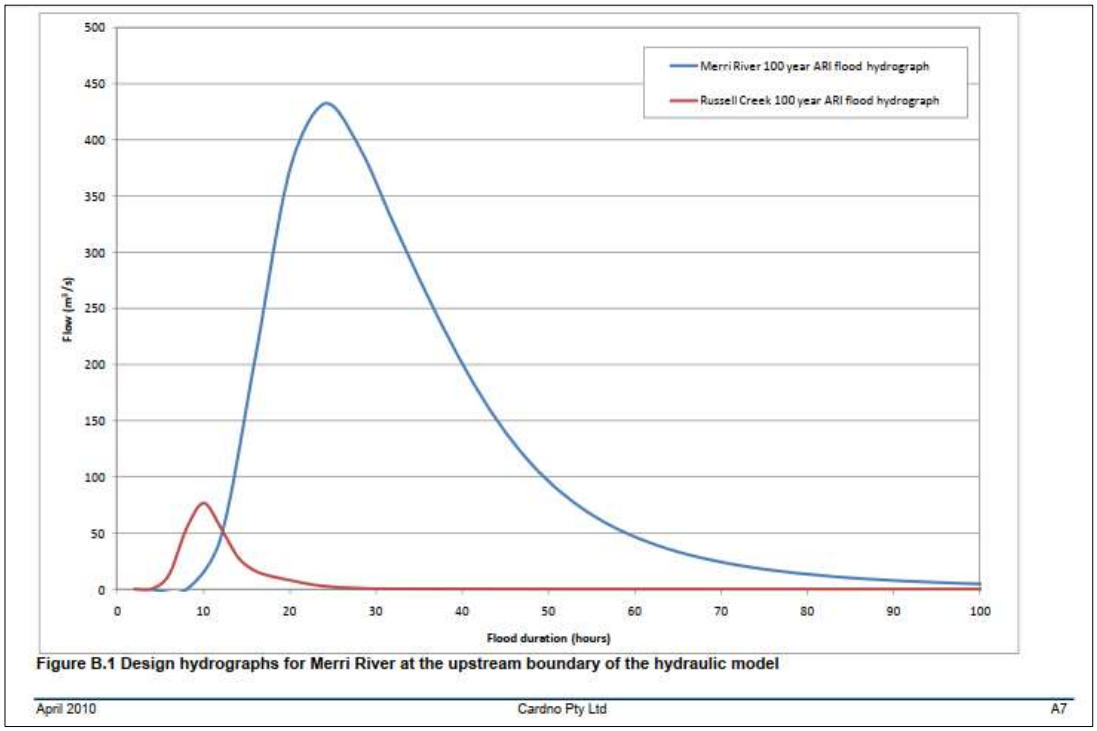


Figure 9: Hydrograph for Merri River at the Upstream Boundary (Source: Design of North Warrnambool Floodplain Management Plan, Cardno, October 2010)

4.5. Gap Flow

Gap flow, which is the difference between 1% AEP and 20% AEP post-development flows, was calculated for the biggest sub-catchments area contributing to the West RB, which contributes to West RB Inflow 1 (Refer to Figure 10 in Section 4.7). These sub-catchments have a total area of 15.89 Ha, including associated external catchment area. The calculations are included in Appendix C and the results are shown in Table 6 below. These flows are the basis for the road reserve capacity assessment, which is further discussed in Section 4.7.

Table 6: Gap Flows

	1% AEP Flow (m^3/s)	20% AEP Flow (m^3/s)	Gap Flow (m^3/s)
Sub-catchments to the West RB Inflow 1	1.66	0.76	0.90

4.6. Subsurface Drainage

The legal drainage point for the overall catchment will be to Merri River to the south. The subsurface drainage network for the development will convey all pipe flows to the outlet location, via the proposed stormwater quality treatment facilities (a sedimentation basin and a wetland) on the southern part of the available drainage area (Refer to Figure 4 in Section 3.2). The pipe network will be adequately sized to convey the 20% AEP flows throughout the proposed development's drainage network.

In addition, there are external catchment areas to the external north that will be directed to the proposed sub-surface drainage network.

4.7. Subject Site Overland Flow

Overland flows from the subject site will be directed via the proposed subdivisional roads to the proposed two retarding basins on the south (Refer to Figure 10). The overland flow path plan (Figure 10) was developed based on an Indicative Retirement Village Area Layout.

The internal roads for the development, and associated lot finished surface levels, will be designed to ensure that the 1% AEP overland flows through the site are within the safe hydraulic capacity of road floodway.

Figure 10: Indicative Overland Flow Path Plan (based on an Indicative Retirement Village Area Layout) (Not to Scale)

PC Convey Assessment

The internal roads or overland flow path within the proposed site development and associated lot finished surface levels will be designed to ensure that the 1% AEP overland flows through the site are within the safe hydraulic capacity of road floodway. A PC Convey assessment for the overland flow path adjacent to the West RB Inflow 1 location (Refer to Figure 10) has been undertaken to demonstrate that gap flow of 0.90 m^3/s for the designated sub-catchments can be contained within the overland flow path.

A typical cross section of the overland flow path is shown in Figure 11 and the calculation result is included in Appendix E. The section location was chosen based on where the largest peak flow would be expected to provide the most conservative result.

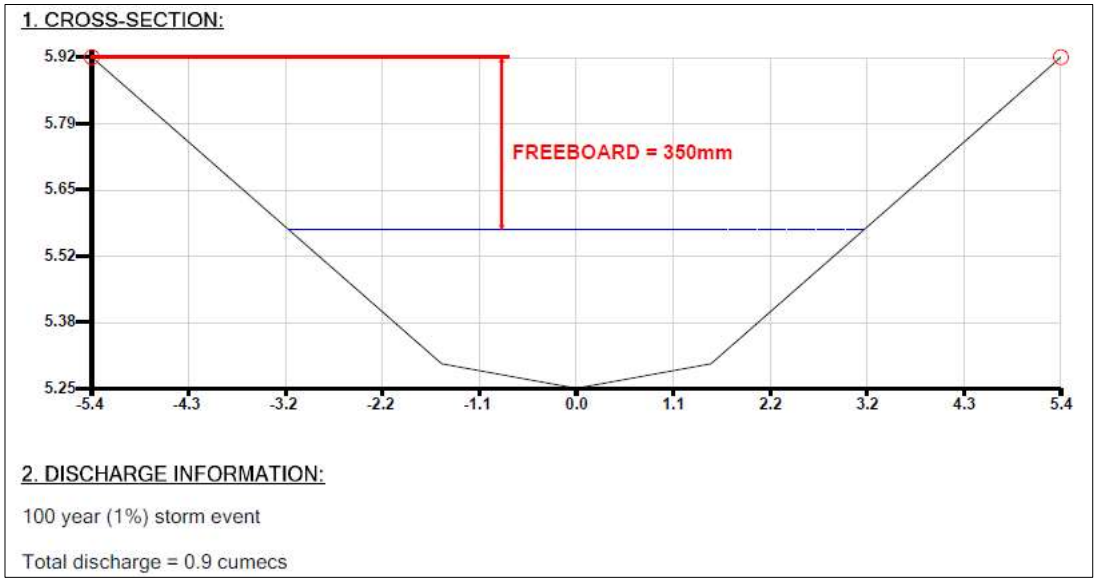


Figure 11: PC Convey Result for Proposed Development Site

As shown on above, the gap flow of 0.90 m^3/s can be contained within the typical 10 m overland flow path reserve with 350 mm freeboard. In addition, the average velocity (Vav) m/s x average depth (dav) is 0.15 m^2/s, which is less than 0.35 m^2/s and an average depth (dav) of 0.21 m, which is less than 0.30 m. The Vav is 0.71 m/s which is less than 1.5 m/s. Therefore, the gap flow is within recommended safety limits.

4.8. Sizing of the Retarding Basins and Outlets

Details of the proposed retarding basins for are provided in Table 7 below and a plan of indicative locations of the RBs is provided in the previous Figure 10 in section 4.7. Concept plans of the RBs are shown on Figure 12 and Figure 13. The overall concept layout plan is shown in Appendix F.

Table 7: Details of Retarding Basin

Retarding Basin	Outlet Control	Storage	Batter Slope
West RB	• Spillway 1 – 0.7 m length at the base level (RL 3.2m AHD) • Spillway 2 –10 m length at RL 3.9 m AHD	4,980 m^3	1 in 5
East RB	• Spillway 1 – 0.3 m length at the base level (RL 3.6m AHD) • Spillway 2 –10 m length at RL 4.4 m AHD	1,160 m^3	1 in 5

Outlets from both retarding basins will be conveyed to Merri Creek via swales or proposed outlet weirs throughout the available drainage area.

The retarding basins will be designed in accordance with Melbourne Water's Retarding Basin Guidelines and IDM (Infrastructure Design Manual), where applicable. The design of the retarding basins, including the outlets configuration will be undertaken during the functional and detailed design phases of the project.

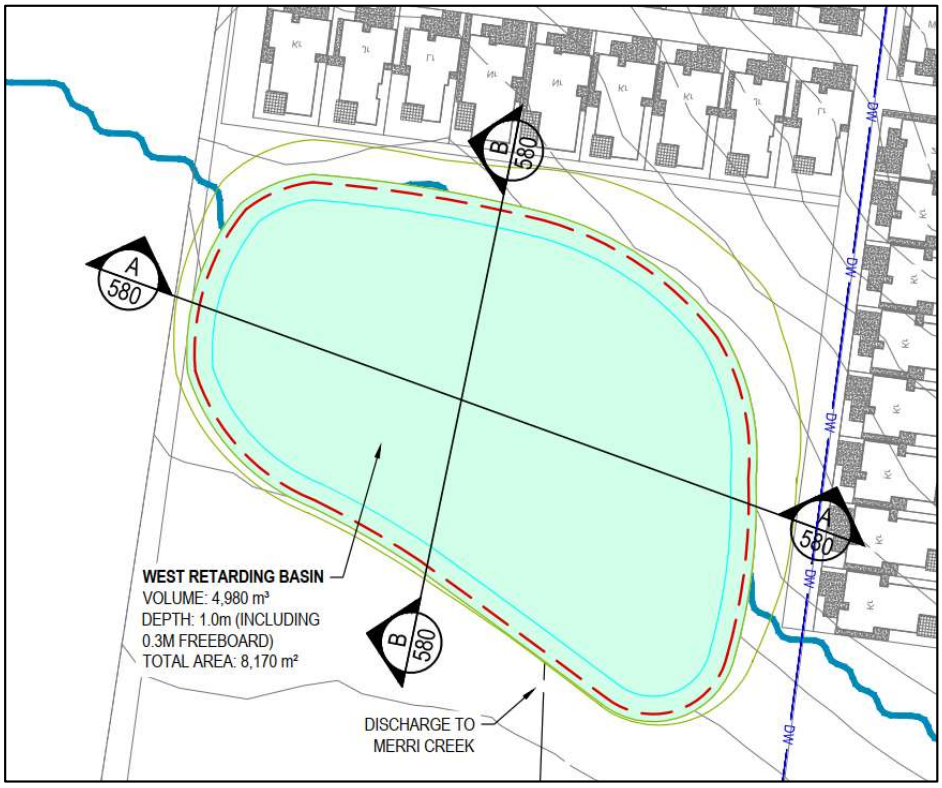


Figure 12: West RB Concept Layout Plan

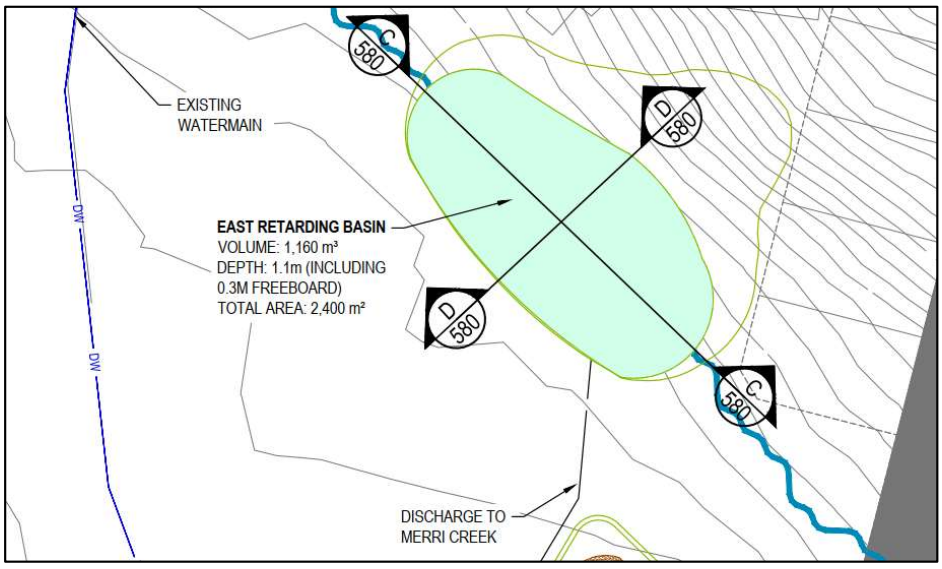


Figure 13: East RB Concept Layout Plan

5 STORMWATER QUALITY MANAGEMENT

It is a Victorian Government requirement that Quality of stormwater runoff from the proposed development meets the Urban Stormwater Best Practice Environmental Management Guidelines (BPEMG), which are required under Clause 56 of the Victorian Planning Provisions (VPP). The targets are:

- 70% removal of the Total Gross Pollutant Load (Litter)
- 80% removal of Total Suspended Solids (TSS)
- 45% removal of Total Phosphorus (TP)
- 45% removal of Total Nitrogen (TN)

Stormwater quality modelling was conducted using MUSIC (Model for Urban Stormwater Improvement Conceptualisation) for the development site. The weather station used was obtained from the BOM (Bureau of Meteorology) website (www.bom.gov.au) and located at Warrnambool Racecourse, which is approximately 4 km away from the subject site. The rainfall data ranges from 1950-2010.

The layout of the MUSIC Model is shown in Figure 14 and results of the MUSIC model are shown in Table 8. The stormwater treatment assets include a sedimentation basin and a wetland located on the south of the East RB, within the available draiange area. Low flows from the two RB's will be directed to the sediment basin, and high flows will bypass the treatment assets to protect them from high velocities.

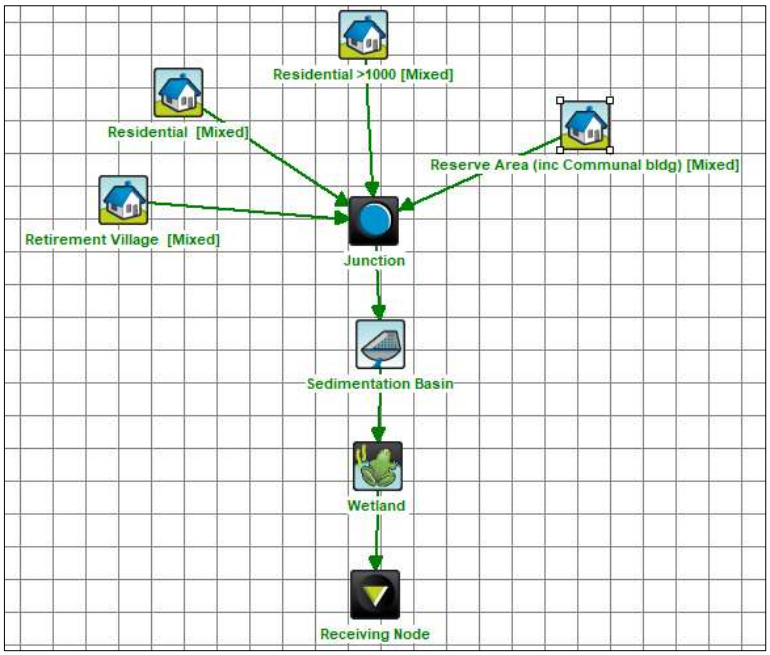


Figure 14: MUSIC Model Layout

Table 8: MUSIC Model Result

Site Treatment	BPEMG Target % Removal	% Removal
Total Suspended Solids (Kg/yr)	80	92.9
Total Phosphorus (Kg/yr)	45	75.9
Total Nitrogen (Kg/yr)	45	45.0
Gross Pollutants (Kg/yr)	100	100.0

As shown above, the proposed sedimentation basin and wetland meet the best practice BPEMG standard for the site development area.

Details of stormwater treatments assets are shown in Table 9 and the concept layout plan of both assets is shown on previous Figure 15 (also in Appendix F). Both sedimentation basin and wetland will be designed in accordance with Melbourne Water's Retarding Basin Guidelines and IDM (Infrastructure Design Manual), where applicable.

Table 9: Details of Sedimentation Basin and Wetland

Location	Catchment Area	Asset	Surface Area
Development site	17.20 ha	Wetland	2,000 m²
		Sedimentation Basin	500 m²
		Sediment Dry Out Area	640 m²

Outlet from the wetland will be conveyed to Merri Creek via swales/pipes throughout the available drainage area.

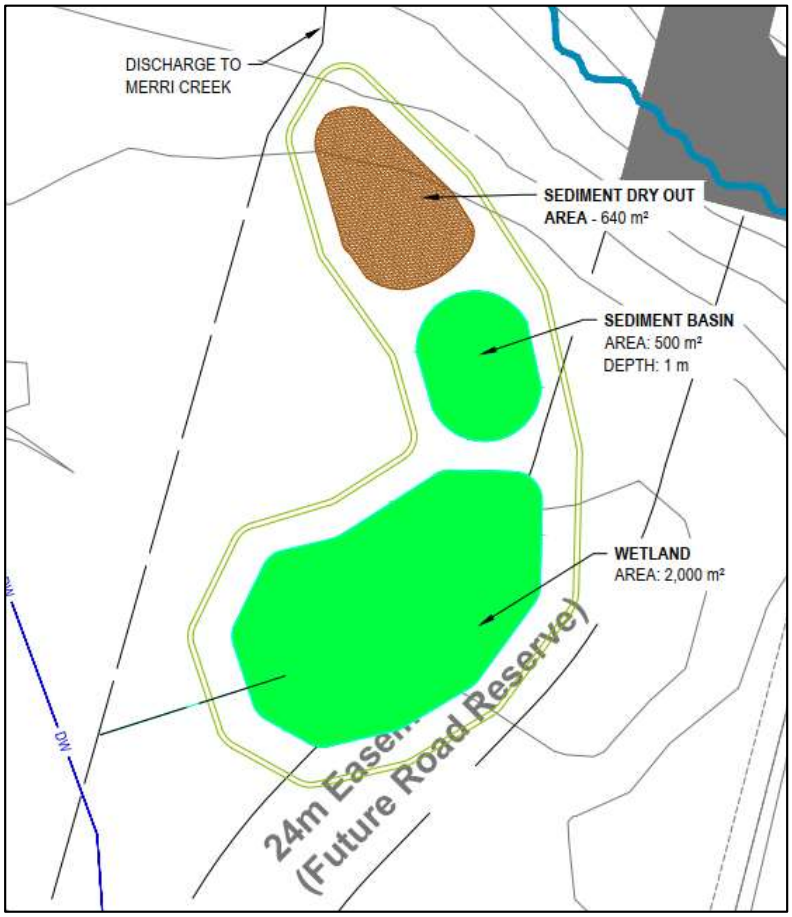


Figure 15: Sedimentation Basin and Wetland Concept Layout Plan

6 CONCLUSION

This report has identified an overall drainage management strategy for the proposed residential development at 147 Wollaston Road, Warrnambool. The strategy provides a methodology for the management of stormwater on the subject site, which would result in:

- Conveyance of catchment flows through the site in accordance with the Glenelg Hopkins Catchment Management Authority Floodway Criteria.
- Construction of drainage to meet the requirements of CMA and Council, including 1% AEP capacity road reserves and underground drainage for the 20% AEP storm event as required.
- Stormwater detention for the development site to detain 1% AEP post-development flow to pre-development level is provided through the proposed two retarding basins with volumes of 4,980 m^3 and 1,1600 m^3 for each.
- Stormwater quality treatment system required to meet BPMEG standard will be provided through the proposed a 500 m^2 sedimentation basin and a 2,000 m^2 wetland system located on the southern part of the site.

The above strategy can be implemented, and all the CMA's and Council's development requirements can be achieved, with no net effect on the downstream properties.

BEVERIDGE WILLIAMS & CO PTY LTD

Prepared by	Reviewed by
Lola Nurhalim *Senior Water Resources Engineer*	*Aram Manjikian* *Water Resources Engineering Manager*

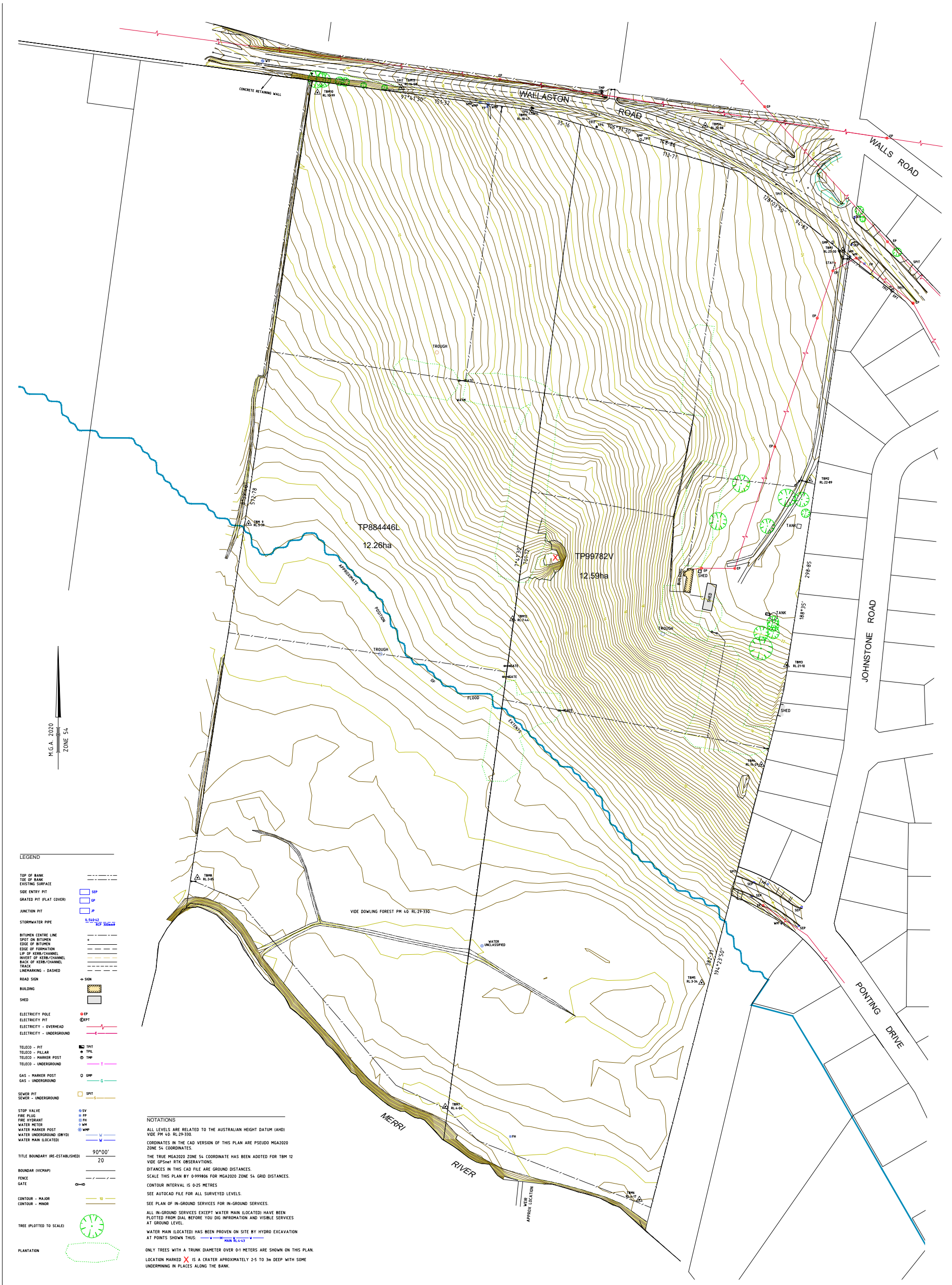
Approved for issue by

Antonia Erceg
Project Manager

7 REFERENCE

Design of North Warrnambool Floodplain Management Plan – Implementation Works, RM3309 v1.0 Final, Prepared for City of Warrnambool, Cardno (October 2010)

APPENDIX A: FEATURE AND LEVEL SURVEY PLAN



CAD REFERENCE: 2000243fs.dwg

VER	BY	AMENDMENTS	DATE

SURVEYOR: SW, PJ, SG, SM
DRAWN: SM
CHECKED: SM

SURVEYORS REF. 2000243
VERSION 01
DATE
SHEET 1 OF 2

ORIGINAL SCALE 1:800 SHEET SIZE A0
0 8 16 24 32
LENGTHS ARE IN METRES

Beveridge Williams
development & environment consultants
96 Main Road Ballarat
PO Box 1465 Bakery Hill 3354
Ph:53272000 Fax:53272099
www.beveridgewilliams.com.au

NOTATIONS

PROJECT:
147 WOLLASTON ROAD
WARRNAMBOOL
LOT 1 TP884446L
LOT 1 TP99782V

DETAILS:
PLAN OF FEATURE &
RE-ESTABLISHMENT SURVEY

APPENDIX B: INDICATIVE MASTER PLAN

Legend

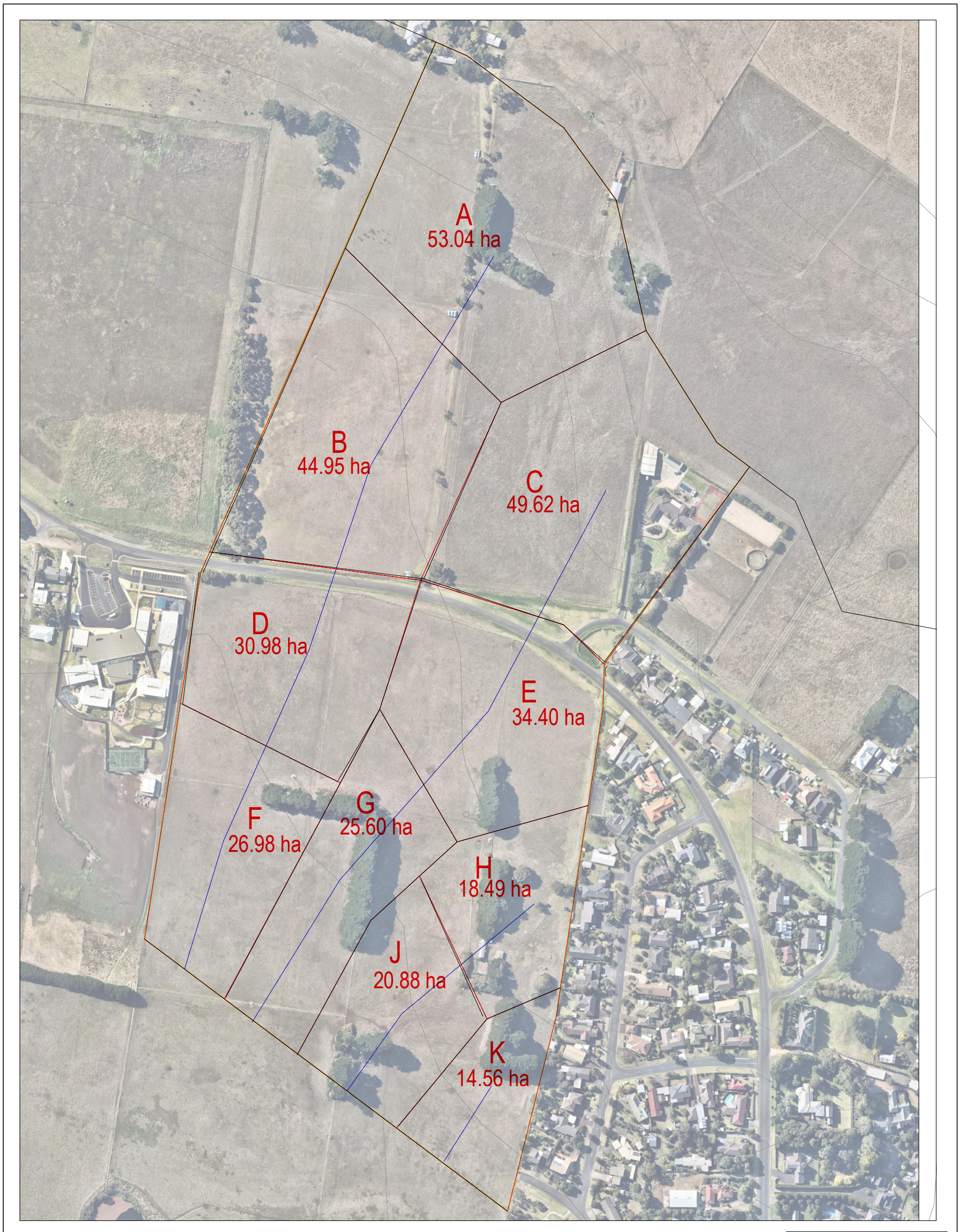
1 - Residential/retirement living
2- Open space
3 - Wetlands
4 - Residential lots - 700m² - 52 lots
5 - Creek reserve
6 - Water main
7 - Urban Flood Zone Boundary
8 - Retarding Basin
9 - Indicative swale
10 - Indicative shared path (granitic sand)
11 - Potential road reserve for future bridge crossing

Scale : 1:2000 @ A3

Beveridge Williams

147 Wollaston Road, Warrnambool | 2000243 26.10.2022
Master Plan | Ver 09

APPENDIX C: CATCHMENT PLANS



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REV	DESCRIPTION	DATE	DRN.	APP.

Designed ZOE O'HARA
Date 31.07.20
Drawn ZOE O'HARA
Approved A.MANJIKIAN
Date 31.08.20
PS Number PS

Beveridge Williams
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Project Details: 147 WOLLASTON ROAD, WARRNAMBOOL
GULL GROUP
WARRNAMBOOL CITY COUNCIL

Drawing Title: DRAINAGE STRATEGY
PRE DEVELOPMENT CATCHMENT PLAN

Sheet 01 of 1
Scale NOT TO SCALE

Project Ref	Stage No	Drawing No	Rev
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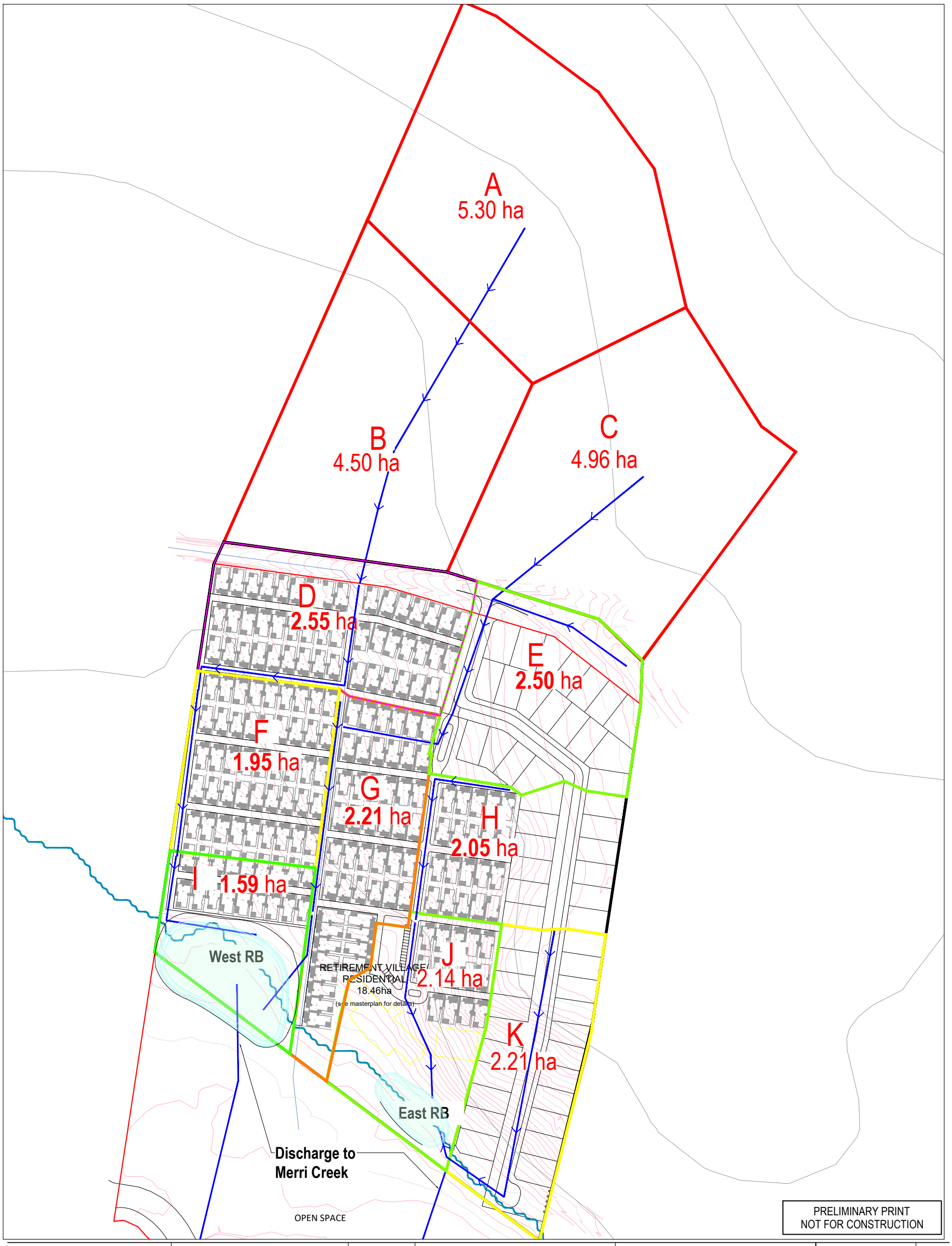

REV	DESCRIPTION	DATE	DRN.	APP.

Designed	L. NURHALIM
Date	04.03.21
Drawn	L. NURHALIM
Approved	A.MANJIKIAN
Date	11.03.21
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Project Details	147 WOLLASTON ROAD, WARRNAMBOOL GULL GROUP WARRNAMBOOL CITY COUNCIL
Drawing Title	DRAINAGE STRATEGY POST DEVELOPMENT CATCHMENT PLAN

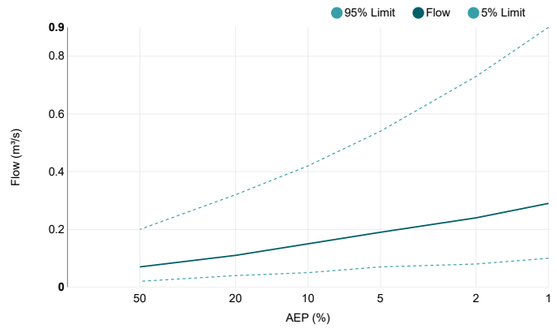
Sheet 01 of 1
Scale NOT TO SCALE
N

Project Ref	Stage No	Drawing No	Rev
2000243	00	1	P1

\\MelSto01\data\Jobs Data\2000243 - 147 Wollaston Road Warrnambool_Wat\Drawings\Catchment Plan\2000243-CP-POSTDEV V2.dwg

APPENDIX D: RORB AND RFFE RESULTS

Results | Regional Flood Frequency Estimation Model



*The catchment is outside the recommended catchment size of 0.5 to 1,000 km^2. Results have lower accuracy and may not be directly applicable in practice.

AEP (%)	Discharge (m^3/s)	Lower Confidence Limit (5%) (m^3/s)	Upper Confidence Limit (95%) (m^3/s)
50	0.0700	0.0200	0.200
20	0.110	0.0400	0.320
10	0.150	0.0500	0.420
5	0.190	0.0700	0.540
2	0.240	0.0800	0.730
1	0.290	0.100	0.900

Statistics

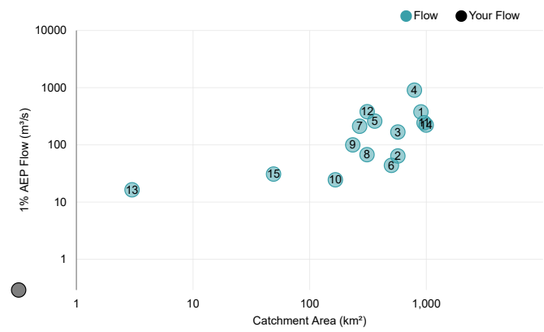
Variable	Value	Standard Dev
Mean	-2.909	0.678
Standard Dev	0.603	0.207
Skew	0.101	0.032

Note: These statistics come from the nearest gauged catchment. Details.

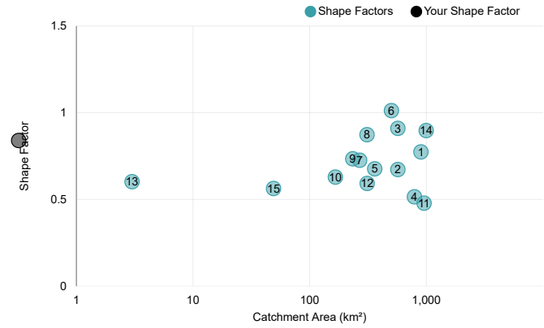
Correlation		
1.000		
-0.330	1.000	
0.170	-0.280	1.000

Note: These statistics are common to each region. Details.

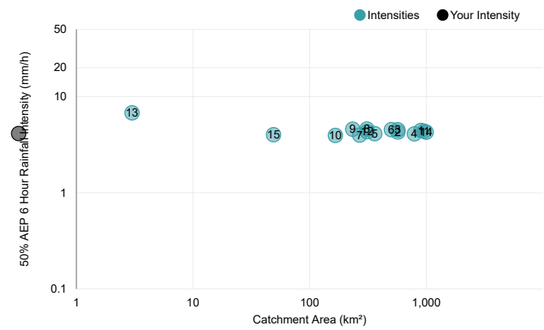
1% AEP Flow vs Catchment Area



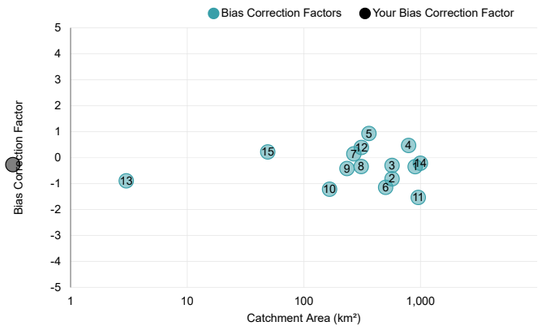
Shape Factor vs Catchment Area



Intensity vs Catchment Area



Bias Correction Factor vs Catchment Area

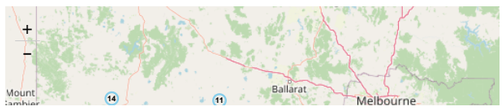


Download

TXT | Nearby | JSON

Input Data

Date/Time	2021-03-18 14:50
Catchment Name	Catchment1
Latitude (Outlet)	-38.361
Longitude (Outlet)	142.483
Latitude (Centroid)	-38.357
Longitude (Centroid)	142.485
Catchment Area (km^2)	0.32*
Distance to Nearest Gauged Catchment (km)	4.57
50% AEP 6 Hour Rainfall Intensity (mm/h)	4.129825
2% AEP 6 Hour Rainfall Intensity (mm/h)	10.448288
Rainfall Intensity Source (User/Auto)	Auto
Region	East Coast
Region Version	RFFE Model 2016 v1
Region Source (User/Auto)	Auto
Shape Factor	0.84
Interpolation Method	Natural Neighbour
Bias Correction Value	-0.27



Method by Dr Ataur Rahman and Dr Khaled Haddad from Western Sydney University for the Australian Rainfall and Runoff Project. Full description of the project can be found at the project page (http://arr.ga.gov.au/revision-projects/project-list/projects/project-5) on the ARR website. Send any questions regarding the method or project here (mailto:admin@arr-software.org).

ENGINEERS AUSTRALIA (http://www.engineersaustralia.org.au)

WESTERN SYDNEY UNIVERSITY (http://www.uws.edu.au)

```
RORBWin Batch Run Summary
*************************

Program version 6.45 (last updated 20th March 2019)
Copyright Monash University and Hydrology and Risk Consulting

Date run: 04 Mar 2021 12:09

Catchment file   : K:\Jobs Data\2000243 - 147 Wollaston Road Warrnambool\_Wat\Models\RORB\Pre Dev\2000243-PREDEV.catg
Rainfall location: User defined
Temporal pattern : ARR2016 point temporal patterns
Spatial pattern  : Uniform
Areal Red. Fact. : Based on ARR 2016 (Book 2 Chapter 4)
Loss factors     : Constant with ARI


Parameters:  kc =     1.24    m = 0.80

Loss parameters     Initial loss (mm)   Cont. loss (mm/h)
                          24.00              4.60

Peak  Description
  01  Calculated hydrograph,  END

Run        Duration            AEP   TPat  Rain(mm)     ARF  Peak0001
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  1          10 min             1%     22     22.00    1.00    0.0543
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  1          10 min             1%     26     22.00    1.00    0.0543
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18	36 hour	1%	25	134.00	1.00	0.2883
18	36 hour	1%	26	134.00	1.00	0.1797
18	36 hour	1%	27	134.00	1.00	0.1042
18	36 hour	1%	28	134.00	1.00	0.1160
18	36 hour	1%	29	134.00	1.00	0.7742
18	36 hour	1%	30	134.00	1.00	0.3267
19	48 hour	1%	21	143.00	1.00	0.1029
19	48 hour	1%	22	143.00	1.00	0.3141
19	48 hour	1%	23	143.00	1.00	0.5489
19	48 hour	1%	24	143.00	1.00	0.2571
19	48 hour	1%	25	143.00	1.00	0.7027
19	48 hour	1%	26	143.00	1.00	0.1862
19	48 hour	1%	27	143.00	1.00	0.1410
19	48 hour	1%	28	143.00	1.00	0.1499
19	48 hour	1%	29	143.00	1.00	0.1423
19	48 hour	1%	30	143.00	1.00	0.3368
20	72 hour	1%	21	152.00	1.00	0.0302

```
20         72 hour             1%     22    152.00    1.00    0.2171
20         72 hour             1%     23    152.00    1.00    0.2311
20         72 hour             1%     24    152.00    1.00    0.0987
20         72 hour             1%     25    152.00    1.00    0.0388
20         72 hour             1%     26    152.00    1.00    0.0337
20         72 hour             1%     27    152.00    1.00    0.0851
20         72 hour             1%     28    152.00    1.00    0.3465
20         72 hour             1%     29    152.00    1.00    0.2083
20         72 hour             1%     30    152.00    1.00    0.1339
21         96 hour             1%     21    156.00    1.00    0.1457
21         96 hour             1%     22    156.00    1.00    0.4101
21         96 hour             1%     23    156.00    1.00    0.0276
21         96 hour             1%     24    156.00    1.00    0.1995
21         96 hour             1%     25    156.00    1.00    0.1513
21         96 hour             1%     26    156.00    1.00    0.0177
21         96 hour             1%     27    156.00    1.00    0.1088
21         96 hour             1%     28    156.00    1.00    0.0942
21         96 hour             1%     29    156.00    1.00    0.0550
21         96 hour             1%     30    156.00    1.00    0.5555
22        120 hour             1%     21    158.00    1.00    0.0176
22        120 hour             1%     22    158.00    1.00    0.2711
22        120 hour             1%     23    158.00    1.00    0.3275
22        120 hour             1%     24    158.00    1.00    0.2902
22        120 hour             1%     25    158.00    1.00    0.0429
22        120 hour             1%     26    158.00    1.00    0.0739
22        120 hour             1%     27    158.00    1.00    0.2043
22        120 hour             1%     28    158.00    1.00    0.0713
22        120 hour             1%     29    158.00    1.00    0.0091
22        120 hour             1%     30    158.00    1.00    0.1606
23        144 hour             1%     21    159.00    1.00    0.0674
23        144 hour             1%     22    159.00    1.00    0.1190
23        144 hour             1%     23    159.00    1.00    0.2596
23        144 hour             1%     24    159.00    1.00    0.0432
23        144 hour             1%     25    159.00    1.00    0.0519
23        144 hour             1%     26    159.00    1.00    0.0166
23        144 hour             1%     27    159.00    1.00    0.1774
23        144 hour             1%     28    159.00    1.00    0.0006
23        144 hour             1%     29    159.00    1.00    0.1785
23        144 hour             1%     30    159.00    1.00    0.0000
24        168 hour             1%     21    160.00    1.00    0.3403
24        168 hour             1%     22    160.00    1.00    0.0305
24        168 hour             1%     23    160.00    1.00    0.3441
24        168 hour             1%     24    160.00    1.00    0.4486
24        168 hour             1%     25    160.00    1.00    0.1652
24        168 hour             1%     26    160.00    1.00    0.1067
24        168 hour             1%     27    160.00    1.00    0.2616
24        168 hour             1%     28    160.00    1.00    0.1269
24        168 hour             1%     29    160.00    1.00    0.0000
24        168 hour             1%     30    160.00    1.00    0.0243
Run,    Representative hydrograph
 1     dur10min_aep1tp26.out
Run,    Representative hydrograph
 2     dur15min_aep1tp25.out
Run,    Representative hydrograph
```

```
 3     dur20min_aep1tp25.out
Run,    Representative hydrograph
 4     dur25min_aep1tp21.out
Run,    Representative hydrograph
 5     dur30min_aep1tp25.out
Run,    Representative hydrograph
 6     dur45min_aep1tp21.out
Run,    Representative hydrograph
 7     dur1hour_aep1tp29.out
Run,    Representative hydrograph
 8     dur1_5hour_aep1tp24.out
Run,    Representative hydrograph
 9     dur2hour_aep1tp28.out
Run,    Representative hydrograph
10     dur3hour_aep1tp27.out
Run,    Representative hydrograph
11     dur4_5hour_aep1tp26.out
Run,    Representative hydrograph
12     dur6hour_aep1tp22.out
Run,    Representative hydrograph
13     dur9hour_aep1tp28.out
Run,    Representative hydrograph
14     dur12hour_aep1tp30.out
Run,    Representative hydrograph
15     dur18hour_aep1tp23.out
Run,    Representative hydrograph
16     dur24hour_aep1tp23.out
Run,    Representative hydrograph
17     dur30hour_aep1tp24.out
Run,    Representative hydrograph
18     dur36hour_aep1tp25.out
Run,    Representative hydrograph
19     dur48hour_aep1tp24.out
Run,    Representative hydrograph
20     dur72hour_aep1tp30.out
Run,    Representative hydrograph
21     dur96hour_aep1tp21.out
Run,    Representative hydrograph
22     dur120hour_aep1tp30.out
Run,    Representative hydrograph
23     dur144hour_aep1tp21.out
Run,    Representative hydrograph
24     dur168hour_aep1tp25.out

Elapsed Run Time (hh:mm:ss) = 00:02:32
```

```
RORBWin Batch Run Summary
*************************

Program version 6.45 (last updated 20th March 2019)
Copyright Monash University and Hydrology and Risk Consulting

Date run: 27 Aug 2021 12:46

Catchment file   : K:\Jobs Data\2000243 - 147 Wollaston Road Warrnambool\_Wat\Models\RORB\Post Dev V2\2000243-POSTDEV RB V2.catg
Rainfall location: User defined
Temporal pattern : ARR2016 point temporal patterns
Spatial pattern  : Uniform
Areal Red. Fact. : Based on ARR 2016 (Book 2 Chapter 4)
Loss factors     : Constant with ARI


Parameters:  kc =     1.78    m = 0.80

Loss parameters     Initial loss (mm)   Cont. loss (mm/h)
                          24.00              4.60

Peak  Description
  01  Calculated hydrograph,  Ext Flow West
  02  Calculated hydrograph,  West RB Inlet 1
  03  Calculated hydrograph,  Ext Flow East
  04  Calculated hydrograph,  West RB Inlet 2
  05  Special storage :   West RB - Outflow
  06  Special storage :   West RB - Inflow
  07  Special storage :   East RB - Outflow
  08  Special storage :   East RB - Inflow
  09  Calculated hydrograph,  END

Run        Duration             AEP    TPat   Rain(mm)      ARF   Peak0001   Peak0002   Peak0003   Peak0004   Peak0005   Peak0006   Peak0007   Peak0008   Peak0009
  1          10 min              1%      21      22.00     1.00     0.0290     1.5685     0.0403     0.8324     0.1106     1.9683     0.1469     1.2880     0.2445
  1          10 min              1%      22      22.00     1.00     0.0290     1.5446     0.0403     0.8539     0.1106     1.8880     0.1461     1.3116     0.2437
  1          10 min              1%      23      22.00     1.00     0.0290     1.5781     0.0403     0.8161     0.1111     2.0238     0.1476     1.2681     0.2455
  1          10 min              1%      24      22.00     1.00     0.0290     1.5010     0.0403     0.9417     0.1119     2.1807     0.1507     1.3983     0.2496
  1          10 min              1%      25      22.00     1.00     0.0290     1.5616     0.0403     0.8392     0.1107     1.9452     0.1467     1.2953     0.2443
  1          10 min              1%      26      22.00     1.00     0.0290     1.5400     0.0403     0.8660     0.1113     2.1075     0.1494     1.3112     0.2474
  1          10 min              1%      27      22.00     1.00     0.0290     1.5539     0.0403     0.8461     0.1107     1.9197     0.1463     1.3029     0.2440
  1          10 min              1%      28      22.00     1.00     0.0290     1.5098     0.0403     0.9221     0.1115     2.1613     0.1497     1.3792     0.2481
  1          10 min              1%      29      22.00     1.00     0.0290     1.4398     0.0403     1.0189     0.1125     2.2618     0.1514     1.4425     0.2514
  1          10 min              1%      30      22.00     1.00     0.0290     1.4936     0.0403     0.9524     0.1120     2.1925     0.1507     1.4054     0.2498
  2          15 min              1%      21      26.80     1.00     0.0951     1.3956     0.0859     0.8793     0.1632     2.1303     0.1968     1.3168     0.3421
  2          15 min              1%      22      26.80     1.00     0.0951     1.4226     0.0860     0.9837     0.1638     2.2732     0.1987     1.5250     0.3441
  2          15 min              1%      23      26.80     1.00     0.0951     1.4222     0.0929     0.9396     0.1648     2.1260     0.1993     1.4743     0.3450
  2          15 min              1%      24      26.80     1.00     0.0951     1.6670     0.0929     1.1399     0.1656     2.3383     0.2034     1.7802     0.3488
  2          15 min              1%      25      26.80     1.00     0.0951     1.6717     0.0929     1.0504     0.1658     2.1636     0.2039     1.6998     0.3495
  2          15 min              1%      26      26.80     1.00     0.0951     1.8440     0.0928     1.2178     0.1662     2.4388     0.2043     1.8246     0.3499
  2          15 min              1%      27      26.80     1.00     0.0951     1.5540     0.0928     1.0608     0.1649     2.2762     0.2013     1.6914     0.3466
  2          15 min              1%      28      26.80     1.00     0.0951     1.6512     0.0929     1.1145     0.1654     2.2918     0.2029     1.7616     0.3481
  2          15 min              1%      29      26.80     1.00     0.0951     2.0546     0.0929     1.0816     0.1682     2.7336     0.2113     1.6993     0.3579
  2          15 min              1%      30      26.80     1.00     0.0951     1.8344     0.0929     1.2219     0.1683     2.7826     0.2132     1.7603     0.3601
  3          20 min              1%      21      30.10     1.00     0.1650     1.4532     0.1396     0.9876     0.2175     2.2014     0.2394     1.5723     0.4294
```

3	20 min	1%	22	30.10	1.00	0.1656	1.3854	0.1337	0.9602	0.2158	2.1892	0.2374	1.5094	0.4267
3	20 min	1%	23	30.10	1.00	0.1647	1.5418	0.1392	1.0720	0.2180	2.2427	0.2399	1.6635	0.4308
3	20 min	1%	24	30.10	1.00	0.1801	1.7630	0.1552	1.1185	0.2219	2.3987	0.2531	1.7646	0.4417
3	20 min	1%	25	30.10	1.00	0.1682	1.6662	0.1434	1.1661	0.2198	2.7015	0.2485	1.7457	0.4385
3	20 min	1%	26	30.10	1.00	0.1638	1.8794	0.1383	1.0987	0.2200	2.7268	0.2442	1.6900	0.4363
3	20 min	1%	27	30.10	1.00	0.1683	1.6599	0.1434	1.1590	0.2198	2.6874	0.2484	1.7327	0.4384
3	20 min	1%	28	30.10	1.00	0.1677	1.6417	0.1428	1.2054	0.2194	2.7226	0.2487	1.8126	0.4383
3	20 min	1%	29	30.10	1.00	0.1801	1.9143	0.1488	1.2646	0.2218	2.6334	0.2544	2.0282	0.4432
3	20 min	1%	30	30.10	1.00	0.1801	1.9631	0.1487	1.3120	0.2215	2.6629	0.2551	2.0852	0.4433
4	25 min	1%	21	32.60	1.00	0.2292	1.4090	0.1780	0.9809	0.2633	2.2864	0.2736	1.4381	0.5014
4	25 min	1%	22	32.60	1.00	0.2134	1.5307	0.1684	1.0261	0.2603	2.1940	0.2637	1.5845	0.4942
4	25 min	1%	23	32.60	1.00	0.2338	1.3677	0.1890	1.0020	0.2632	2.2771	0.2758	1.3976	0.5014
4	25 min	1%	24	32.60	1.00	0.2217	1.0995	0.1775	0.8123	0.2586	1.7504	0.2671	1.2395	0.4912
4	25 min	1%	25	32.60	1.00	0.2315	1.1899	0.1795	0.8936	0.2614	1.9559	0.2712	1.1759	0.4965
4	25 min	1%	26	32.60	1.00	0.2172	1.5259	0.1727	1.0228	0.2618	2.4172	0.2709	1.5257	0.5004
4	25 min	1%	27	32.60	1.00	0.2113	1.7845	0.1663	1.0722	0.2622	2.6383	0.2714	1.5607	0.5016
4	25 min	1%	28	32.60	1.00	0.2276	1.4364	0.1754	0.9858	0.2629	2.2642	0.2720	1.4976	0.5003
4	25 min	1%	29	32.60	1.00	0.2354	2.1153	0.1909	1.5237	0.2682	3.2495	0.2921	2.3430	0.5197
4	25 min	1%	30	32.60	1.00	0.2369	1.6909	0.1923	1.2139	0.2652	2.6064	0.2851	1.7330	0.5104
5	30 min	1%	21	34.60	1.00	0.2679	1.3093	0.2062	0.8922	0.2994	2.1114	0.2930	1.4312	0.5526
5	30 min	1%	22	34.60	1.00	0.2463	1.5686	0.1854	1.0575	0.2958	2.4880	0.2859	1.5741	0.5467
5	30 min	1%	23	34.60	1.00	0.2448	1.5344	0.1840	0.9734	0.2952	2.3624	0.2842	1.4561	0.5448
5	30 min	1%	24	34.60	1.00	0.2476	1.5814	0.1867	0.9543	0.2959	2.3420	0.2883	1.3940	0.5476
5	30 min	1%	25	34.60	1.00	0.2648	1.5990	0.2029	1.0631	0.3013	2.4375	0.2962	1.6443	0.5576
5	30 min	1%	26	34.60	1.00	0.2701	1.3153	0.2086	0.9729	0.3004	2.2302	0.2968	1.3670	0.5560
5	30 min	1%	27	34.60	1.00	0.2607	1.3908	0.1928	0.9416	0.2980	2.2088	0.2895	1.4429	0.5493
5	30 min	1%	28	34.60	1.00	0.2526	1.4642	0.1915	1.0429	0.2974	2.3730	0.2940	1.6240	0.5522
5	30 min	1%	29	34.60	1.00	0.2849	1.6989	0.2160	1.1593	0.3049	2.7015	0.3070	1.8422	0.5662
5	30 min	1%	30	34.60	1.00	0.2895	1.5919	0.2277	1.1744	0.3051	2.5887	0.3100	1.5689	0.5665
6	45 min	1%	21	38.90	1.00	0.3558	1.3227	0.2635	1.0352	0.3843	2.3228	0.3514	1.3236	0.6738
6	45 min	1%	22	38.90	1.00	0.3300	1.5310	0.2425	1.1038	0.3820	2.4795	0.3356	1.6588	0.6720
6	45 min	1%	23	38.90	1.00	0.3578	1.2514	0.2532	0.8003	0.3802	1.8414	0.3235	1.1847	0.6570
6	45 min	1%	24	38.90	1.00	0.3418	1.1633	0.2462	0.8965	0.3697	1.9558	0.3216	1.2681	0.6415
6	45 min	1%	25	38.90	1.00	0.3184	1.1909	0.2319	0.7886	0.3708	1.8398	0.3141	1.2401	0.6418
6	45 min	1%	26	38.90	1.00	0.3652	1.2276	0.2638	0.9469	0.3804	2.0839	0.3366	1.1034	0.6628
6	45 min	1%	27	38.90	1.00	0.3385	1.1041	0.2410	0.7685	0.3786	1.7579	0.3260	1.2182	0.6589
6	45 min	1%	28	38.90	1.00	0.3377	1.0532	0.2502	0.7896	0.3776	1.7418	0.3294	0.9915	0.6586
6	45 min	1%	29	38.90	1.00	0.3611	1.4973	0.2628	1.0876	0.3869	2.4922	0.4048	1.5740	0.7014
6	45 min	1%	30	38.90	1.00	0.3897	1.5436	0.2844	1.1610	0.3856	2.5050	0.3720	1.4831	0.6952
7	1 hour	1%	21	42.00	1.00	0.4474	1.5842	0.3173	1.1533	0.4524	2.6668	0.5952	1.5621	0.9076
7	1 hour	1%	22	42.00	1.00	0.3215	1.1265	0.2139	0.7479	0.4214	1.6940	0.3044	1.2098	0.6896
7	1 hour	1%	23	42.00	1.00	0.3647	1.3057	0.2700	0.9685	0.4389	2.1164	0.3609	1.1998	0.7309
7	1 hour	1%	24	42.00	1.00	0.3843	0.9484	0.2594	0.7242	0.4299	1.6081	0.3296	1.0121	0.7123
7	1 hour	1%	25	42.00	1.00	0.3955	1.1300	0.2692	0.8796	0.4217	1.9330	0.3318	1.0602	0.6996
7	1 hour	1%	26	42.00	1.00	0.4135	1.4333	0.2850	1.0163	0.4195	2.1032	0.3309	1.2930	0.6963
7	1 hour	1%	27	42.00	1.00	0.3591	1.1437	0.2527	0.8774	0.4355	1.8769	0.3372	1.0622	0.7255
7	1 hour	1%	28	42.00	1.00	0.4106	1.2179	0.2893	0.9084	0.4395	1.9645	0.4313	1.0183	0.7588
7	1 hour	1%	29	42.00	1.00	0.4007	1.1011	0.2767	0.8154	0.4378	1.7809	0.3852	0.8597	0.7321
7	1 hour	1%	30	42.00	1.00	0.4357	1.5633	0.3091	1.1335	0.4546	2.5796	0.5785	1.5219	0.8887
8	1.5 hour	1%	21	46.70	1.00	0.3599	1.0089	0.2247	0.7470	0.5076	1.6909	0.3106	0.9639	0.7906
8	1.5 hour	1%	22	46.70	1.00	0.4694	1.1013	0.3184	0.8187	0.5276	1.8984	0.5106	0.7826	0.9509
8	1.5 hour	1%	23	46.70	1.00	0.3732	0.8697	0.2480	0.6430	0.5021	1.4640	0.3243	0.7810	0.7729
8	1.5 hour	1%	24	46.70	1.00	0.4378	1.1506	0.2950	0.8313	0.4909	1.9443	0.3496	0.9014	0.7834
8	1.5 hour	1%	25	46.70	1.00	0.2805	1.1776	0.1832	0.7545	0.4765	1.7639	0.2807	1.1630	0.7171

8	1.5 hour	1%	26	46.70	1.00	0.4243	1.0481	0.2821	0.7899	0.5241	1.7568	0.4332	0.8896	0.8408
8	1.5 hour	1%	27	46.70	1.00	0.4457	1.0409	0.2960	0.7724	0.5208	1.7397	0.4412	0.7961	0.8572
8	1.5 hour	1%	28	46.70	1.00	0.4536	1.2147	0.3027	0.8853	0.5179	1.9027	0.4363	0.9913	0.8764
8	1.5 hour	1%	29	46.70	1.00	0.3880	1.2740	0.2731	0.9771	0.5253	2.1623	0.4011	1.3026	0.8266
8	1.5 hour	1%	30	46.70	1.00	0.5325	1.5694	0.3752	1.1570	0.5400	2.5881	0.6144	1.4975	1.0370
9	2 hour	1%	21	50.60	1.00	0.3513	0.9844	0.2193	0.7299	0.5519	1.6529	0.3060	0.9367	0.8007
9	2 hour	1%	22	50.60	1.00	0.3807	1.0390	0.2509	0.7882	0.5548	1.7342	0.3391	1.0876	0.8273
9	2 hour	1%	23	50.60	1.00	0.3762	1.4051	0.2314	0.9845	0.5247	2.2684	0.2913	1.4961	0.7887
9	2 hour	1%	24	50.60	1.00	0.4014	1.1908	0.2628	0.8711	0.5480	1.8720	0.3306	1.1906	0.8086
9	2 hour	1%	25	50.60	1.00	0.4744	1.1507	0.3104	0.8317	0.5795	1.9531	0.4609	0.8901	0.9014
9	2 hour	1%	26	50.60	1.00	0.3727	0.8026	0.2295	0.5523	0.5513	1.2662	0.3001	0.6670	0.8186
9	2 hour	1%	27	50.60	1.00	0.4686	0.9810	0.2981	0.7157	0.5768	1.6376	0.4029	0.7494	0.9178
9	2 hour	1%	28	50.60	1.00	0.3765	1.6395	0.2415	1.1171	0.5826	2.3212	0.3156	1.7164	0.8672
9	2 hour	1%	29	50.60	1.00	0.4660	1.0496	0.3058	0.7687	0.5971	1.7983	0.4727	0.7526	0.9158
9	2 hour	1%	30	50.60	1.00	0.5583	1.2653	0.3631	0.9128	0.6066	2.0978	0.6329	0.8472	1.0944
10	3 hour	1%	21	57.30	1.00	0.5836	1.2189	0.3767	0.8860	0.8669	2.0987	0.6022	0.7662	1.1458
10	3 hour	1%	22	57.30	1.00	0.3368	0.7659	0.2185	0.5148	0.4758	1.2717	0.2910	0.6378	0.7264
10	3 hour	1%	23	57.30	1.00	0.3061	0.5934	0.1762	0.4145	0.5428	1.0356	0.2437	0.5380	0.7613
10	3 hour	1%	24	57.30	1.00	0.3143	0.6973	0.2070	0.5104	0.5145	1.1777	0.2766	0.4602	0.7094
10	3 hour	1%	25	57.30	1.00	0.4054	0.8171	0.2416	0.5964	0.6261	1.5282	0.3004	0.7123	0.9077
10	3 hour	1%	26	57.30	1.00	0.4014	0.8850	0.2467	0.6594	0.7121	1.5139	0.3255	0.7182	0.9735
10	3 hour	1%	27	57.30	1.00	0.3765	0.8727	0.2264	0.6005	0.6189	1.4045	0.2970	0.5703	0.8881
10	3 hour	1%	28	57.30	1.00	0.3910	0.7663	0.2385	0.5644	0.6526	1.3294	0.3138	0.5157	0.9293
10	3 hour	1%	29	57.30	1.00	0.3995	0.8466	0.2440	0.6180	0.6019	1.5214	0.2896	0.5699	0.8838
10	3 hour	1%	30	57.30	1.00	0.4932	1.1257	0.3109	0.8291	0.8697	1.7895	0.4585	1.0412	1.1716
11	4.5 hour	1%	21	65.60	1.00	0.2254	0.4540	0.1255	0.2973	0.5156	0.7397	0.1848	0.4181	0.6963
11	4.5 hour	1%	22	65.60	1.00	0.3966	0.7917	0.2292	0.5576	0.6914	1.4433	0.2877	0.6405	0.9349
11	4.5 hour	1%	23	65.60	1.00	0.2196	0.5809	0.1275	0.4359	0.5237	0.9703	0.2102	0.5758	0.7071
11	4.5 hour	1%	24	65.60	1.00	0.2962	0.7277	0.2022	0.5065	0.4377	1.2665	0.2721	0.6134	0.6279
11	4.5 hour	1%	25	65.60	1.00	0.2548	0.5012	0.1404	0.3211	0.5693	0.7889	0.2123	0.3703	0.7618
11	4.5 hour	1%	26	65.60	1.00	0.3137	0.6647	0.2004	0.5094	0.6784	1.2070	0.2704	0.5359	0.9056
11	4.5 hour	1%	27	65.60	1.00	0.4199	0.8007	0.2485	0.5721	0.7287	1.4209	0.3001	0.5995	0.9845
11	4.5 hour	1%	28	65.60	1.00	0.3107	0.6789	0.1898	0.5117	0.6290	1.2286	0.2569	0.4991	0.8459
11	4.5 hour	1%	29	65.60	1.00	0.5420	1.1033	0.3142	0.7558	1.0528	1.7690	0.4489	0.6635	1.3683
11	4.5 hour	1%	30	65.60	1.00	0.4805	0.9934	0.2743	0.6630	1.0760	1.5798	0.3410	0.6816	1.4170
12	6 hour	1%	21	72.70	1.00	0.6239	1.2092	0.3668	0.8403	1.2086	2.0016	0.5279	0.7812	1.5474
12	6 hour	1%	22	72.70	1.00	0.3336	0.7607	0.2032	0.5568	0.5096	1.3042	0.2762	0.5356	0.7379
12	6 hour	1%	23	72.70	1.00	0.4102	0.8475	0.2453	0.6101	0.6333	1.5441	0.2719	0.5788	0.9026
12	6 hour	1%	24	72.70	1.00	0.2324	0.5839	0.1569	0.3901	0.4987	0.9676	0.2290	0.5171	0.6727
12	6 hour	1%	25	72.70	1.00	0.2715	0.5508	0.1732	0.4041	0.4566	0.9650	0.2395	0.4628	0.6230
12	6 hour	1%	26	72.70	1.00	0.4186	1.0522	0.2538	0.7613	0.5551	1.7498	0.2830	0.8498	0.7926
12	6 hour	1%	27	72.70	1.00	0.2359	0.4629	0.1343	0.3156	0.5558	0.7748	0.1948	0.2655	0.7379
12	6 hour	1%	28	72.70	1.00	0.2952	0.5983	0.1768	0.4105	0.5382	0.9819	0.2384	0.3677	0.7373
12	6 hour	1%	29	72.70	1.00	0.2257	0.4408	0.1342	0.3021	0.4974	0.7402	0.1991	0.3035	0.6650
12	6 hour	1%	30	72.70	1.00	0.3786	0.7383	0.2241	0.5106	0.8443	1.2153	0.2875	0.4214	1.0935
13	9 hour	1%	21	84.60	1.00	0.1729	0.3633	0.0944	0.2359	0.4615	0.5831	0.1506	0.2336	0.6047
13	9 hour	1%	22	84.60	1.00	0.1827	0.4055	0.1192	0.2957	0.4025	0.7000	0.1711	0.2505	0.5312
13	9 hour	1%	23	84.60	1.00	0.3798	0.8468	0.2260	0.6302	0.5908	1.4639	0.3210	0.5974	0.8640
13	9 hour	1%	24	84.60	1.00	0.2267	0.4452	0.1397	0.3178	0.5115	0.7930	0.2060	0.2921	0.7003
13	9 hour	1%	25	84.60	1.00	0.4086	0.8684	0.2428	0.5907	0.5317	1.4196	0.2975	0.6820	0.7399
13	9 hour	1%	26	84.60	1.00	0.1889	0.3953	0.1083	0.2753	0.4521	0.6690	0.1611	0.2392	0.6036
13	9 hour	1%	27	84.60	1.00	0.3233	0.6024	0.1853	0.4083	0.5992	1.0232	0.2335	0.3235	0.8014
13	9 hour	1%	28	84.60	1.00	0.2980	0.5566	0.1639	0.3640	0.6338	0.8941	0.2285	0.3236	0.8346
13	9 hour	1%	29	84.60	1.00	0.3573	0.7059	0.2076	0.4807	0.8724	1.1701	0.2659	0.3868	1.1312

13	9 hour	1%	30	84.60	1.00	0.5258	1.0786	0.3142	0.7524	1.1660	1.8356	0.3423	0.6280	1.5083
14	12 hour	1%	21	94.20	1.00	0.3880	0.7004	0.2154	0.4711	0.8415	1.1382	0.2762	0.3857	1.0922
14	12 hour	1%	22	94.20	1.00	0.2957	0.6166	0.1673	0.4106	0.5593	0.9494	0.2272	0.3970	0.7612
14	12 hour	1%	23	94.20	1.00	0.1412	0.2776	0.0882	0.2087	0.3710	0.4876	0.1506	0.2457	0.4901
14	12 hour	1%	24	94.20	1.00	0.2036	0.4094	0.1237	0.2765	0.4674	0.6961	0.1902	0.2724	0.6419
14	12 hour	1%	25	94.20	1.00	0.5240	1.0174	0.3100	0.7097	1.1270	1.7601	0.3394	0.5600	1.4310
14	12 hour	1%	26	94.20	1.00	0.1755	0.3511	0.0964	0.2328	0.4594	0.5926	0.1556	0.1890	0.6126
14	12 hour	1%	27	94.20	1.00	0.2401	0.4569	0.1416	0.3095	0.4574	0.7665	0.2027	0.2459	0.6486
14	12 hour	1%	28	94.20	1.00	0.4144	0.7321	0.2374	0.5315	0.8319	1.2859	0.2920	0.4479	1.1111
14	12 hour	1%	29	94.20	1.00	0.1989	0.3874	0.1131	0.2606	0.4886	0.6516	0.1692	0.2002	0.6457
14	12 hour	1%	30	94.20	1.00	0.2470	0.5222	0.1593	0.3524	0.5209	0.8402	0.2176	0.3759	0.7185
15	18 hour	1%	21	109.00	1.00	0.0809	0.1752	0.0479	0.1227	0.2393	0.3020	0.0964	0.1404	0.3249
15	18 hour	1%	22	109.00	1.00	0.1211	0.2562	0.0716	0.1753	0.3056	0.4231	0.1253	0.1451	0.4118
15	18 hour	1%	23	109.00	1.00	0.1442	0.2989	0.0837	0.2011	0.3586	0.4939	0.1306	0.1595	0.4875
15	18 hour	1%	24	109.00	1.00	0.2251	0.4358	0.1290	0.2940	0.5026	0.7239	0.1800	0.2283	0.6607
15	18 hour	1%	25	109.00	1.00	0.2482	0.4664	0.1422	0.3142	0.5089	0.7852	0.1935	0.2305	0.6722
15	18 hour	1%	26	109.00	1.00	0.0800	0.1761	0.0482	0.1296	0.2711	0.3048	0.1041	0.1628	0.3640
15	18 hour	1%	27	109.00	1.00	0.2205	0.3982	0.1222	0.2671	0.5018	0.6629	0.1846	0.2076	0.6788
15	18 hour	1%	28	109.00	1.00	0.2271	0.4580	0.1261	0.3068	0.3764	0.6808	0.1713	0.3266	0.5323
15	18 hour	1%	29	109.00	1.00	0.1480	0.2833	0.0907	0.1993	0.3632	0.4916	0.1319	0.1975	0.4846
15	18 hour	1%	30	109.00	1.00	0.1412	0.2781	0.0784	0.1818	0.3694	0.4558	0.1304	0.1425	0.4915
16	24 hour	1%	21	120.00	1.00	0.1520	0.2909	0.0827	0.1928	0.4011	0.4815	0.1376	0.1493	0.5286
16	24 hour	1%	22	120.00	1.00	0.0843	0.1975	0.0489	0.1389	0.2470	0.3280	0.0951	0.1324	0.3417
16	24 hour	1%	23	120.00	1.00	0.1807	0.3674	0.1029	0.2684	0.3571	0.6124	0.1557	0.2417	0.4959
16	24 hour	1%	24	120.00	1.00	0.1648	0.3522	0.1007	0.2450	0.3430	0.5908	0.1350	0.2132	0.4781
16	24 hour	1%	25	120.00	1.00	0.2117	0.4281	0.1187	0.2971	0.3904	0.6790	0.1676	0.2949	0.5580
16	24 hour	1%	26	120.00	1.00	0.1753	0.3345	0.0983	0.2282	0.3861	0.5387	0.1488	0.2099	0.5073
16	24 hour	1%	27	120.00	1.00	0.1864	0.4237	0.1152	0.2950	0.3932	0.7037	0.1504	0.2587	0.5222
16	24 hour	1%	28	120.00	1.00	0.0637	0.1642	0.0383	0.1329	0.2101	0.2901	0.0876	0.1628	0.2883
16	24 hour	1%	29	120.00	1.00	0.1704	0.4006	0.0995	0.2742	0.4078	0.6473	0.1426	0.2570	0.5430
16	24 hour	1%	30	120.00	1.00	0.1665	0.3827	0.0979	0.2786	0.3980	0.6565	0.1501	0.2515	0.5421
17	30 hour	1%	21	128.00	1.00	0.0798	0.1704	0.0448	0.1205	0.2326	0.2835	0.0888	0.1099	0.3214
17	30 hour	1%	22	128.00	1.00	0.1819	0.3622	0.1049	0.2430	0.4560	0.6027	0.1519	0.1885	0.5938
17	30 hour	1%	23	128.00	1.00	0.1075	0.2634	0.0666	0.1844	0.2607	0.4413	0.1069	0.1650	0.3343
17	30 hour	1%	24	128.00	1.00	0.0992	0.2281	0.0604	0.1575	0.2886	0.3781	0.1019	0.1332	0.3864
17	30 hour	1%	25	128.00	1.00	0.1617	0.3756	0.1029	0.2685	0.3867	0.6492	0.1905	0.2276	0.5394
17	30 hour	1%	26	128.00	1.00	0.0642	0.1618	0.0375	0.1176	0.1952	0.2788	0.0859	0.1199	0.2704
17	30 hour	1%	27	128.00	1.00	0.0496	0.1383	0.0301	0.0966	0.1664	0.2235	0.0712	0.1001	0.2377
17	30 hour	1%	28	128.00	1.00	0.0506	0.1262	0.0320	0.0897	0.1778	0.2184	0.0717	0.0772	0.2445
17	30 hour	1%	29	128.00	1.00	0.1204	0.2344	0.0666	0.1532	0.3166	0.3885	0.1141	0.1279	0.4168
17	30 hour	1%	30	128.00	1.00	0.0556	0.1397	0.0344	0.0979	0.1946	0.2383	0.0761	0.0832	0.2628
18	36 hour	1%	21	134.00	1.00	0.0463	0.1264	0.0278	0.0922	0.1730	0.2164	0.0742	0.0895	0.2412
18	36 hour	1%	22	134.00	1.00	0.0697	0.1492	0.0403	0.1072	0.2027	0.2533	0.0823	0.1017	0.2850
18	36 hour	1%	23	134.00	1.00	0.1186	0.2245	0.0659	0.1543	0.2745	0.3709	0.1073	0.1520	0.3819
18	36 hour	1%	24	134.00	1.00	0.2092	0.3665	0.1133	0.2371	0.4524	0.6180	0.1642	0.1960	0.6166
18	36 hour	1%	25	134.00	1.00	0.0958	0.1988	0.0530	0.1399	0.2594	0.3285	0.0970	0.1281	0.3563
18	36 hour	1%	26	134.00	1.00	0.0667	0.1588	0.0469	0.1174	0.1943	0.2764	0.0923	0.1062	0.2683
18	36 hour	1%	27	134.00	1.00	0.0349	0.1072	0.0222	0.0799	0.1384	0.1851	0.0603	0.0830	0.1987
18	36 hour	1%	28	134.00	1.00	0.0369	0.1222	0.0250	0.0889	0.1530	0.2097	0.0651	0.0877	0.2075
18	36 hour	1%	29	134.00	1.00	0.2892	0.5465	0.1623	0.3613	0.6287	0.9096	0.2187	0.2710	0.7922
18	36 hour	1%	30	134.00	1.00	0.1086	0.2321	0.0627	0.1547	0.3116	0.3809	0.1082	0.1246	0.4123
19	48 hour	1%	21	143.00	1.00	0.0341	0.1028	0.0218	0.0777	0.1442	0.1787	0.0692	0.0868	0.2051
19	48 hour	1%	22	143.00	1.00	0.1172	0.2362	0.0681	0.1595	0.2570	0.3951	0.1108	0.1219	0.3510
19	48 hour	1%	23	143.00	1.00	0.1825	0.3388	0.0967	0.2342	0.4228	0.5497	0.1444	0.2138	0.5673

19	48 hour	1%	24	143.00	1.00	0.0898	0.1862	0.0508	0.1289	0.2158	0.2996	0.0896	0.1293	0.3054
19	48 hour	1%	25	143.00	1.00	0.2583	0.4634	0.1436	0.3045	0.4799	0.7737	0.1931	0.2145	0.6730
19	48 hour	1%	26	143.00	1.00	0.0682	0.1581	0.0472	0.1140	0.1884	0.2730	0.0878	0.1014	0.2622
19	48 hour	1%	27	143.00	1.00	0.0538	0.1339	0.0339	0.0944	0.1575	0.2285	0.0735	0.0792	0.2226
19	48 hour	1%	28	143.00	1.00	0.0472	0.1187	0.0285	0.0833	0.1736	0.2079	0.0705	0.0758	0.2442
19	48 hour	1%	29	143.00	1.00	0.0526	0.1317	0.0328	0.0931	0.1550	0.2312	0.0678	0.0790	0.2142
19	48 hour	1%	30	143.00	1.00	0.1118	0.2649	0.0604	0.1828	0.2584	0.4268	0.0936	0.1786	0.3382
20	72 hour	1%	21	152.00	1.00	0.0092	0.0654	0.0067	0.0502	0.0824	0.1176	0.0482	0.0557	0.1204
20	72 hour	1%	22	152.00	1.00	0.0764	0.1727	0.0454	0.1203	0.2066	0.2969	0.0880	0.0979	0.2946
20	72 hour	1%	23	152.00	1.00	0.0711	0.1921	0.0437	0.1319	0.2241	0.3130	0.0760	0.1246	0.2964
20	72 hour	1%	24	152.00	1.00	0.0302	0.1054	0.0191	0.0726	0.1189	0.1703	0.0566	0.0744	0.1677
20	72 hour	1%	25	152.00	1.00	0.0119	0.0678	0.0083	0.0491	0.0678	0.1137	0.0394	0.0545	0.1073
20	72 hour	1%	26	152.00	1.00	0.0094	0.0666	0.0068	0.0480	0.0924	0.1134	0.0449	0.0541	0.1342
20	72 hour	1%	27	152.00	1.00	0.0246	0.0891	0.0162	0.0655	0.1381	0.1532	0.0576	0.0654	0.1953
20	72 hour	1%	28	152.00	1.00	0.1174	0.2778	0.0719	0.1936	0.2962	0.4587	0.1228	0.1901	0.3681
20	72 hour	1%	29	152.00	1.00	0.0789	0.1927	0.0486	0.1342	0.2006	0.3217	0.0947	0.1175	0.2953
20	72 hour	1%	30	152.00	1.00	0.0410	0.1218	0.0244	0.0881	0.1573	0.2068	0.0637	0.0876	0.2187

Run,	Representative hydrograph
1	dur10min_aep1tp26.out
Run,	Representative hydrograph
2	dur15min_aep1tp24.out
Run,	Representative hydrograph
3	dur20min_aep1tp27.out
Run,	Representative hydrograph
4	dur25min_aep1tp21.out
Run,	Representative hydrograph
5	dur30min_aep1tp21.out
Run,	Representative hydrograph
6	dur45min_aep1tp26.out
Run,	Representative hydrograph
7	dur1hour_aep1tp23.out
Run,	Representative hydrograph
8	dur1_5hour_aep1tp26.out
Run,	Representative hydrograph
9	dur2hour_aep1tp28.out
Run,	Representative hydrograph
10	dur3hour_aep1tp25.out
Run,	Representative hydrograph
11	dur4_5hour_aep1tp26.out
Run,	Representative hydrograph
12	dur6hour_aep1tp27.out
Run,	Representative hydrograph
13	dur9hour_aep1tp27.out
Run,	Representative hydrograph
14	dur12hour_aep1tp30.out
Run,	Representative hydrograph
15	dur18hour_aep1tp30.out
Run,	Representative hydrograph
16	dur24hour_aep1tp27.out
Run,	Representative hydrograph
17	dur30hour_aep1tp23.out
Run,	Representative hydrograph
18	dur36hour_aep1tp25.out
Run,	Representative hydrograph

```
 19     dur48hour_aep1tp24.out
 Run,    Representative hydrograph
 20     dur72hour_aep1tp30.out

Elapsed Run Time (hh:mm:ss) = 00:02:36
```

```
RORBWin Batch Run Summary
*************************

Program version 6.45 (last updated 20th March 2019)
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Date run: 13 Aug 2021 16:44

Catchment file   : K:\Jobs Data\2000243 - 147 Wollaston Road Warrnambool\_Wat\Models\RORB\Post Dev V2\2000243-POSTDEV RB V2.catg
Rainfall location: User defined
Temporal pattern : ARR2016 point temporal patterns
Spatial pattern  : Uniform
Areal Red. Fact. : Based on ARR 2016 (Book 2 Chapter 4)
Loss factors     : Constant with ARI


Parameters:  kc =     1.78    m = 0.80

Loss parameters     Initial loss (mm)   Cont. loss (mm/h)
                          24.00              4.60

Peak  Description
  01  Calculated hydrograph,  West RB Inlet 1
  02  Calculated hydrograph,  West RB Inlet 2
  03  Special storage :   West RB - Outflow
  04  Special storage :   West RB - Inflow
  05  Special storage :   East RB - Outflow
  06  Special storage :   East RB - Inflow
  07  Calculated hydrograph,  END
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Run	Duration	AEP	TPat	Rain(mm)	ARF	Peak0001	Peak0002	Peak0003	Peak0004	Peak0005	Peak0006	Peak0007
1	10 min	20%	1	9.89	1.00	0.6457	0.3398	0.0338	0.8246	0.0467	0.5301	0.0772
1	10 min	20%	2	9.89	1.00	0.6465	0.3313	0.0336	0.7962	0.0465	0.5122	0.0770
1	10 min	20%	3	9.89	1.00	0.6456	0.3324	0.0336	0.7936	0.0465	0.5138	0.0770
1	10 min	20%	4	9.89	1.00	0.6266	0.3511	0.0335	0.7480	0.0461	0.5384	0.0769
1	10 min	20%	5	9.89	1.00	0.6500	0.3269	0.0336	0.8058	0.0465	0.5065	0.0771
1	10 min	20%	6	9.89	1.00	0.6266	0.3512	0.0335	0.7478	0.0461	0.5385	0.0769
1	10 min	20%	7	9.89	1.00	0.5885	0.4204	0.0340	0.8830	0.0490	0.6214	0.0794
1	10 min	20%	8	9.89	1.00	0.6267	0.3511	0.0335	0.7482	0.0461	0.5383	0.0769
1	10 min	20%	9	9.89	1.00	0.6316	0.3613	0.0338	0.8401	0.0476	0.5720	0.0780
1	10 min	20%	10	9.89	1.00	0.6235	0.3727	0.0338	0.8479	0.0478	0.5857	0.0781
2	15 min	20%	1	11.90	1.00	0.5974	0.3843	0.0437	0.8148	0.0595	0.6349	0.0980
2	15 min	20%	2	11.90	1.00	0.5379	0.3429	0.0435	0.7914	0.0584	0.5490	0.0971
2	15 min	20%	3	11.90	1.00	0.5300	0.3201	0.0433	0.7376	0.0583	0.5093	0.0967
2	15 min	20%	4	11.90	1.00	0.7764	0.4294	0.0449	0.9369	0.0612	0.6600	0.1008
2	15 min	20%	5	11.90	1.00	0.6701	0.4427	0.0441	0.8559	0.0606	0.6867	0.0992
2	15 min	20%	6	11.90	1.00	0.7184	0.4468	0.0444	0.8657	0.0612	0.6805	0.1001
2	15 min	20%	7	11.90	1.00	0.7872	0.4197	0.0449	0.9638	0.0613	0.6476	0.1010
2	15 min	20%	8	11.90	1.00	0.6927	0.4157	0.0442	0.8695	0.0606	0.6592	0.0996
2	15 min	20%	9	11.90	1.00	0.7663	0.4079	0.0449	0.9978	0.0613	0.6255	0.1012
2	15 min	20%	10	11.90	1.00	0.7216	0.4589	0.0449	1.0309	0.0625	0.7133	0.1022
3	20 min	20%	1	13.40	1.00	0.5392	0.3448	0.0513	0.8168	0.0675	0.5261	0.1140
3	20 min	20%	2	13.40	1.00	0.4735	0.3266	0.0517	0.7394	0.0677	0.5019	0.1147
3	20 min	20%	3	13.40	1.00	0.5773	0.3523	0.0524	0.8162	0.0684	0.5107	0.1160

3	20 min	20%	4	13.40	1.00	0.6999	0.4198	0.0531	0.8964	0.0706	0.7029	0.1179
3	20 min	20%	5	13.40	1.00	0.7378	0.5204	0.0534	1.0571	0.0717	0.7996	0.1192
3	20 min	20%	6	13.40	1.00	0.7637	0.4858	0.0535	0.9380	0.0716	0.7684	0.1191
3	20 min	20%	7	13.40	1.00	0.7593	0.4567	0.0535	0.9664	0.0715	0.7443	0.1189
3	20 min	20%	8	13.40	1.00	0.6656	0.4108	0.0531	0.8845	0.0697	0.6760	0.1172
3	20 min	20%	9	13.40	1.00	0.8030	0.5206	0.0538	0.9779	0.0723	0.7880	0.1199
3	20 min	20%	10	13.40	1.00	0.8396	0.4953	0.0539	1.0382	0.0725	0.7598	0.1200
4	25 min	20%	1	14.60	1.00	0.5260	0.3469	0.0582	0.7408	0.0747	0.5175	0.1276
4	25 min	20%	2	14.60	1.00	0.4868	0.3229	0.0574	0.7585	0.0739	0.4873	0.1265
4	25 min	20%	3	14.60	1.00	0.5196	0.3396	0.0585	0.8049	0.0748	0.5197	0.1283
4	25 min	20%	4	14.60	1.00	0.5628	0.3940	0.0586	0.8631	0.0764	0.5881	0.1294
4	25 min	20%	5	14.60	1.00	0.6076	0.4213	0.0593	0.9571	0.0774	0.6500	0.1311
4	25 min	20%	6	14.60	1.00	0.5053	0.3091	0.0587	0.7174	0.0747	0.4427	0.1284
4	25 min	20%	7	14.60	1.00	0.6886	0.4425	0.0589	0.9381	0.0765	0.6860	0.1303
4	25 min	20%	8	14.60	1.00	0.6253	0.3926	0.0589	0.9129	0.0766	0.6188	0.1304
4	25 min	20%	9	14.60	1.00	0.7704	0.4784	0.0602	0.9767	0.0795	0.7910	0.1335
4	25 min	20%	10	14.60	1.00	0.7240	0.5081	0.0601	1.0982	0.0795	0.8201	0.1334
5	30 min	20%	1	15.60	1.00	0.6023	0.3911	0.0639	0.8169	0.0807	0.6230	0.1386
5	30 min	20%	2	15.60	1.00	0.5715	0.3567	0.0625	0.8193	0.0784	0.5767	0.1365
5	30 min	20%	3	15.60	1.00	0.3994	0.2650	0.0623	0.6240	0.0778	0.3706	0.1354
5	30 min	20%	4	15.60	1.00	0.5403	0.3872	0.0644	0.8627	0.0827	0.5573	0.1411
5	30 min	20%	5	15.60	1.00	0.5972	0.4274	0.0644	0.9068	0.0829	0.6408	0.1411
5	30 min	20%	6	15.60	1.00	0.5183	0.3445	0.0638	0.8134	0.0817	0.5323	0.1400
5	30 min	20%	7	15.60	1.00	0.5871	0.4099	0.0647	0.9003	0.0839	0.6049	0.1425
5	30 min	20%	8	15.60	1.00	0.5349	0.3824	0.0631	0.8580	0.0808	0.5490	0.1384
5	30 min	20%	9	15.60	1.00	0.7302	0.4602	0.0661	0.9826	0.0859	0.7421	0.1455
5	30 min	20%	10	15.60	1.00	0.8411	0.5267	0.0661	1.0750	0.0880	0.8651	0.1472
6	45 min	20%	1	18.00	1.00	0.4327	0.2613	0.0737	0.5977	0.0889	0.4124	0.1587
6	45 min	20%	2	18.00	1.00	0.3940	0.2956	0.0734	0.6521	0.0884	0.4355	0.1580
6	45 min	20%	3	18.00	1.00	0.4849	0.2999	0.0721	0.6943	0.0850	0.5014	0.1541
6	45 min	20%	4	18.00	1.00	0.3817	0.2769	0.0736	0.5751	0.0895	0.4029	0.1574
6	45 min	20%	5	18.00	1.00	0.5981	0.4115	0.0745	0.8834	0.0937	0.6207	0.1632
6	45 min	20%	6	18.00	1.00	0.4288	0.3053	0.0753	0.6471	0.0939	0.4373	0.1632
6	45 min	20%	7	18.00	1.00	0.5891	0.3647	0.0768	0.8862	0.0951	0.5941	0.1677
6	45 min	20%	8	18.00	1.00	0.6275	0.3974	0.0740	0.8840	0.0892	0.6553	0.1602
6	45 min	20%	9	18.00	1.00	0.8099	0.5119	0.0787	1.2085	0.0999	0.8056	0.1733
6	45 min	20%	10	18.00	1.00	0.6969	0.4462	0.0773	0.9779	0.0975	0.6828	0.1693
7	1 hour	20%	1	19.80	1.00	0.4412	0.2797	0.0785	0.6575	0.0892	0.4413	0.1644
7	1 hour	20%	2	19.80	1.00	0.4127	0.2425	0.0790	0.6003	0.0911	0.3666	0.1655
7	1 hour	20%	3	19.80	1.00	0.4097	0.2627	0.0794	0.5806	0.0916	0.4197	0.1672
7	1 hour	20%	4	19.80	1.00	0.5554	0.3704	0.0833	0.8557	0.0994	0.5429	0.1791
7	1 hour	20%	5	19.80	1.00	0.3615	0.2629	0.0828	0.6028	0.1008	0.3647	0.1789
7	1 hour	20%	6	19.80	1.00	0.5467	0.3921	0.0825	0.8682	0.0998	0.5749	0.1779
7	1 hour	20%	7	19.80	1.00	0.5348	0.3562	0.0844	0.8227	0.1021	0.5774	0.1828
7	1 hour	20%	8	19.80	1.00	0.4411	0.2915	0.0821	0.6614	0.0969	0.4578	0.1750
7	1 hour	20%	9	19.80	1.00	0.9638	0.6084	0.0882	1.3861	0.1170	0.8970	0.1965
7	1 hour	20%	10	19.80	1.00	0.7206	0.4988	0.0879	1.1501	0.1149	0.7735	0.1952
8	1.5 hour	20%	1	22.50	1.00	0.3840	0.2419	0.0836	0.5843	0.0870	0.3909	0.1668
8	1.5 hour	20%	2	22.50	1.00	0.5288	0.3285	0.0845	0.7621	0.0862	0.5341	0.1654
8	1.5 hour	20%	3	22.50	1.00	0.4028	0.3036	0.0849	0.6372	0.0909	0.4710	0.1707
8	1.5 hour	20%	4	22.50	1.00	0.3167	0.2382	0.0935	0.5178	0.1095	0.3239	0.1986
8	1.5 hour	20%	5	22.50	1.00	0.5248	0.3329	0.0840	0.7781	0.0853	0.5451	0.1662
8	1.5 hour	20%	6	22.50	1.00	0.2803	0.2076	0.0897	0.4621	0.1019	0.3034	0.1875
8	1.5 hour	20%	7	22.50	1.00	0.4631	0.3132	0.0848	0.7332	0.0872	0.4693	0.1688

8	1.5 hour	20%	8	22.50	1.00	0.4580	0.3116	0.0940	0.7211	0.1101	0.4602	0.1992
8	1.5 hour	20%	9	22.50	1.00	0.5955	0.4153	0.0955	0.9035	0.1172	0.6288	0.2065
8	1.5 hour	20%	10	22.50	1.00	0.8667	0.6026	0.0983	1.3412	0.1271	0.8739	0.2179
9	2 hour	20%	1	24.70	1.00	0.3744	0.2411	0.0890	0.5281	0.0851	0.3800	0.1714
9	2 hour	20%	2	24.70	1.00	0.3578	0.2231	0.0848	0.5523	0.0760	0.3380	0.1588
9	2 hour	20%	3	24.70	1.00	0.3289	0.2056	0.0898	0.4673	0.0870	0.2594	0.1733
9	2 hour	20%	4	24.70	1.00	0.3318	0.2009	0.0986	0.4336	0.1030	0.2894	0.1977
9	2 hour	20%	5	24.70	1.00	0.4478	0.3481	0.1058	0.7442	0.1195	0.4928	0.2182
9	2 hour	20%	6	24.70	1.00	0.3321	0.2572	0.0958	0.5507	0.0993	0.3525	0.1903
9	2 hour	20%	7	24.70	1.00	0.3058	0.2279	0.0969	0.4831	0.0987	0.3380	0.1907
9	2 hour	20%	8	24.70	1.00	0.2865	0.2240	0.0948	0.4852	0.1040	0.3063	0.1938
9	2 hour	20%	9	24.70	1.00	0.3832	0.2795	0.1053	0.6127	0.1128	0.4136	0.2137
9	2 hour	20%	10	24.70	1.00	0.4706	0.2951	0.1095	0.6925	0.1210	0.4363	0.2255
10	3 hour	20%	1	28.20	1.00	0.2811	0.2040	0.1089	0.4470	0.0856	0.2480	0.1838
10	3 hour	20%	2	28.20	1.00	0.1806	0.1409	0.0896	0.3086	0.0753	0.1848	0.1623
10	3 hour	20%	3	28.20	1.00	0.2911	0.2161	0.0983	0.5522	0.0857	0.2752	0.1724
10	3 hour	20%	4	28.20	1.00	0.2855	0.2164	0.0974	0.4850	0.0851	0.3168	0.1743
10	3 hour	20%	5	28.20	1.00	0.1802	0.1406	0.1130	0.3233	0.0949	0.1673	0.2001
10	3 hour	20%	6	28.20	1.00	0.2091	0.1664	0.1155	0.3867	0.0963	0.1841	0.2077
10	3 hour	20%	7	28.20	1.00	0.1469	0.1182	0.1011	0.2543	0.0801	0.1722	0.1788
10	3 hour	20%	8	28.20	1.00	0.4349	0.3108	0.0987	0.6546	0.1094	0.4507	0.2045
10	3 hour	20%	9	28.20	1.00	0.3058	0.2234	0.1290	0.5242	0.1194	0.3163	0.2402
10	3 hour	20%	10	28.20	1.00	0.2414	0.1837	0.1287	0.4135	0.1151	0.2500	0.2362
11	4.5 hour	20%	1	32.30	1.00	0.1281	0.1001	0.1081	0.2119	0.0690	0.1323	0.1713
11	4.5 hour	20%	2	32.30	1.00	0.1831	0.1385	0.1312	0.3189	0.0859	0.1780	0.2099
11	4.5 hour	20%	3	32.30	1.00	0.2788	0.1948	0.1239	0.4380	0.0793	0.2670	0.1972
11	4.5 hour	20%	4	32.30	1.00	0.1780	0.1248	0.1180	0.2718	0.0786	0.1638	0.1866
11	4.5 hour	20%	5	32.30	1.00	0.2162	0.1478	0.1321	0.3253	0.0899	0.1948	0.2142
11	4.5 hour	20%	6	32.30	1.00	0.3182	0.2515	0.1476	0.5724	0.1067	0.2695	0.2455
11	4.5 hour	20%	7	32.30	1.00	0.2413	0.1690	0.1398	0.3532	0.0989	0.1927	0.2287
11	4.5 hour	20%	8	32.30	1.00	0.1357	0.0997	0.1242	0.2317	0.0797	0.1046	0.2004
11	4.5 hour	20%	9	32.30	1.00	0.2249	0.1728	0.1533	0.3792	0.1119	0.1807	0.2541
11	4.5 hour	20%	10	32.30	1.00	0.3201	0.2523	0.1594	0.5608	0.1228	0.2601	0.2705
12	6 hour	20%	1	35.50	1.00	0.2752	0.1922	0.1229	0.4324	0.0784	0.2626	0.1947
12	6 hour	20%	2	35.50	1.00	0.2027	0.1504	0.1034	0.3323	0.0678	0.2096	0.1648
12	6 hour	20%	3	35.50	1.00	0.0999	0.0785	0.0918	0.1700	0.0558	0.1031	0.1470
12	6 hour	20%	4	35.50	1.00	0.1737	0.1361	0.1143	0.3140	0.0746	0.1877	0.1739
12	6 hour	20%	5	35.50	1.00	0.1265	0.0955	0.1190	0.2110	0.0685	0.1280	0.1809
12	6 hour	20%	6	35.50	1.00	0.1616	0.1160	0.1312	0.2481	0.0794	0.1681	0.1984
12	6 hour	20%	7	35.50	1.00	0.1274	0.0981	0.1259	0.2182	0.0719	0.1244	0.1920
12	6 hour	20%	8	35.50	1.00	0.2781	0.2247	0.1529	0.4990	0.1100	0.2734	0.2270
12	6 hour	20%	9	35.50	1.00	0.3401	0.2377	0.1774	0.5082	0.1226	0.2581	0.2883
12	6 hour	20%	10	35.50	1.00	0.3657	0.2854	0.1824	0.6626	0.1278	0.2930	0.3001
13	9 hour	20%	1	40.70	1.00	0.1294	0.1055	0.0881	0.2403	0.0589	0.1291	0.1273
13	9 hour	20%	2	40.70	1.00	0.1393	0.0964	0.0893	0.2137	0.0551	0.1373	0.1434
13	9 hour	20%	3	40.70	1.00	0.1590	0.1136	0.1312	0.2501	0.0629	0.1375	0.1942
13	9 hour	20%	4	40.70	1.00	0.2077	0.1455	0.1377	0.3176	0.0827	0.1613	0.2059
13	9 hour	20%	5	40.70	1.00	0.1325	0.0984	0.1131	0.2311	0.0660	0.0956	0.1747
13	9 hour	20%	6	40.70	1.00	0.1518	0.1133	0.1405	0.2625	0.0808	0.1046	0.2131
13	9 hour	20%	7	40.70	1.00	0.1752	0.1287	0.1095	0.2981	0.0660	0.1350	0.1749
13	9 hour	20%	8	40.70	1.00	0.2175	0.1607	0.2006	0.3770	0.1088	0.1578	0.2945
13	9 hour	20%	9	40.70	1.00	0.1983	0.1482	0.1738	0.3578	0.1010	0.1599	0.2610
13	9 hour	20%	10	40.70	1.00	0.2648	0.1942	0.1961	0.4585	0.1083	0.1782	0.2873
14	12 hour	20%	1	44.70	1.00	0.1106	0.0798	0.0801	0.1956	0.0507	0.0993	0.1261

14	12 hour	20%	2	44.70	1.00	0.1624	0.1167	0.0877	0.2826	0.0783	0.1623	0.1606
14	12 hour	20%	3	44.70	1.00	0.0892	0.0606	0.0548	0.1391	0.0366	0.0731	0.0877
14	12 hour	20%	4	44.70	1.00	0.1155	0.0860	0.0931	0.1959	0.0580	0.0833	0.1485
14	12 hour	20%	5	44.70	1.00	0.1270	0.0977	0.1223	0.2310	0.0700	0.1154	0.1855
14	12 hour	20%	6	44.70	1.00	0.0590	0.0405	0.0581	0.0927	0.0346	0.0548	0.0925
14	12 hour	20%	7	44.70	1.00	0.1447	0.1050	0.1252	0.2384	0.0690	0.1202	0.1859
14	12 hour	20%	8	44.70	1.00	0.1847	0.1295	0.1628	0.3083	0.0806	0.1395	0.2315
14	12 hour	20%	9	44.70	1.00	0.3112	0.2105	0.2265	0.4881	0.1147	0.1940	0.3374
14	12 hour	20%	10	44.70	1.00	0.2534	0.1694	0.1543	0.3637	0.0911	0.2026	0.2319
15	18 hour	20%	1	50.70	1.00	0.0522	0.0404	0.0523	0.0897	0.0366	0.0522	0.0881
15	18 hour	20%	2	50.70	1.00	0.1335	0.0898	0.0892	0.2115	0.0729	0.1272	0.1487
15	18 hour	20%	3	50.70	1.00	0.0717	0.0615	0.0496	0.1368	0.0401	0.0769	0.0897
15	18 hour	20%	4	50.70	1.00	0.0541	0.0432	0.0590	0.1021	0.0362	0.0504	0.0925
15	18 hour	20%	5	50.70	1.00	0.0909	0.0706	0.0613	0.1450	0.0453	0.0994	0.0971
15	18 hour	20%	6	50.70	1.00	0.0525	0.0396	0.0408	0.0928	0.0308	0.0495	0.0716
15	18 hour	20%	7	50.70	1.00	0.0394	0.0284	0.0462	0.0668	0.0287	0.0343	0.0727
15	18 hour	20%	8	50.70	1.00	0.1009	0.0734	0.0965	0.1639	0.0529	0.0823	0.1494
15	18 hour	20%	9	50.70	1.00	0.0481	0.0360	0.0646	0.0832	0.0378	0.0435	0.1023
15	18 hour	20%	10	50.70	1.00	0.2474	0.1794	0.2037	0.4365	0.0915	0.1478	0.2941
16	24 hour	20%	1	55.20	1.00	0.0686	0.0468	0.0521	0.1075	0.0301	0.0619	0.0822
16	24 hour	20%	2	55.20	1.00	0.0741	0.0462	0.0485	0.1236	0.0312	0.0616	0.0773
16	24 hour	20%	3	55.20	1.00	0.1210	0.0830	0.0716	0.1778	0.0441	0.0983	0.1110
16	24 hour	20%	4	55.20	1.00	0.0426	0.0334	0.0396	0.0803	0.0246	0.0398	0.0642
16	24 hour	20%	5	55.20	1.00	0.0310	0.0226	0.0296	0.0533	0.0158	0.0298	0.0454
16	24 hour	20%	6	55.20	1.00	0.0290	0.0235	0.0270	0.0522	0.0147	0.0289	0.0417
16	24 hour	20%	7	55.20	1.00	0.1064	0.0780	0.0876	0.1914	0.0512	0.0878	0.1278
16	24 hour	20%	8	55.20	1.00	0.0965	0.0728	0.0853	0.1731	0.0486	0.0741	0.1274
16	24 hour	20%	9	55.20	1.00	0.1165	0.0819	0.1206	0.1852	0.0582	0.0840	0.1720
16	24 hour	20%	10	55.20	1.00	0.0526	0.0387	0.0518	0.0902	0.0335	0.0481	0.0833
17	30 hour	20%	1	58.70	1.00	0.0674	0.0462	0.0391	0.1086	0.0285	0.0626	0.0672
17	30 hour	20%	2	58.70	1.00	0.0469	0.0297	0.0473	0.0776	0.0295	0.0386	0.0752
17	30 hour	20%	3	58.70	1.00	0.0637	0.0469	0.0612	0.1105	0.0340	0.0546	0.0938
17	30 hour	20%	4	58.70	1.00	0.0204	0.0146	0.0249	0.0348	0.0120	0.0168	0.0362
17	30 hour	20%	5	58.70	1.00	0.1042	0.0735	0.0801	0.1699	0.0366	0.0793	0.1166
17	30 hour	20%	6	58.70	1.00	0.0287	0.0195	0.0282	0.0473	0.0161	0.0236	0.0430
17	30 hour	20%	7	58.70	1.00	0.0790	0.0560	0.0567	0.1249	0.0290	0.0630	0.0857
17	30 hour	20%	8	58.70	1.00	0.0366	0.0255	0.0446	0.0613	0.0271	0.0319	0.0693
17	30 hour	20%	9	58.70	1.00	0.0367	0.0255	0.0323	0.0609	0.0192	0.0323	0.0498
17	30 hour	20%	10	58.70	1.00	0.0509	0.0383	0.0520	0.0926	0.0341	0.0441	0.0806
18	36 hour	20%	1	61.50	1.00	0.0354	0.0246	0.0424	0.0592	0.0258	0.0306	0.0660
18	36 hour	20%	2	61.50	1.00	0.0430	0.0339	0.0373	0.0785	0.0275	0.0413	0.0616
18	36 hour	20%	3	61.50	1.00	0.0270	0.0194	0.0254	0.0428	0.0141	0.0250	0.0396
18	36 hour	20%	4	61.50	1.00	0.0354	0.0233	0.0267	0.0546	0.0147	0.0302	0.0414
18	36 hour	20%	5	61.50	1.00	0.0295	0.0211	0.0264	0.0513	0.0150	0.0252	0.0413
18	36 hour	20%	6	61.50	1.00	0.0400	0.0294	0.0334	0.0698	0.0209	0.0366	0.0511
18	36 hour	20%	7	61.50	1.00	0.0288	0.0195	0.0293	0.0466	0.0179	0.0239	0.0471
18	36 hour	20%	8	61.50	1.00	0.0695	0.0490	0.0357	0.1095	0.0265	0.0582	0.0623
18	36 hour	20%	9	61.50	1.00	0.0985	0.0706	0.0789	0.1645	0.0392	0.0767	0.1153
18	36 hour	20%	10	61.50	1.00	0.1614	0.1118	0.1656	0.2554	0.0765	0.1143	0.2421
19	48 hour	20%	1	66.00	1.00	0.0336	0.0230	0.0260	0.0517	0.0154	0.0297	0.0405
19	48 hour	20%	2	66.00	1.00	0.0490	0.0340	0.0429	0.0763	0.0261	0.0371	0.0657
19	48 hour	20%	3	66.00	1.00	0.0689	0.0537	0.0730	0.1185	0.0400	0.0604	0.1087
19	48 hour	20%	4	66.00	1.00	0.1165	0.0907	0.0788	0.1934	0.0562	0.1189	0.1350
19	48 hour	20%	5	66.00	1.00	0.0420	0.0300	0.0304	0.0724	0.0200	0.0371	0.0504

19	48 hour	20%	6	66.00	1.00	0.0865	0.0659	0.0777	0.1531	0.0482	0.0688	0.1115
19	48 hour	20%	7	66.00	1.00	0.0450	0.0337	0.0356	0.0804	0.0261	0.0412	0.0570
19	48 hour	20%	8	66.00	1.00	0.0291	0.0201	0.0215	0.0450	0.0140	0.0257	0.0348
19	48 hour	20%	9	66.00	1.00	0.1121	0.0786	0.0989	0.1807	0.0478	0.0839	0.1467
19	48 hour	20%	10	66.00	1.00	0.0403	0.0291	0.0344	0.0673	0.0206	0.0365	0.0551
20	72 hour	20%	1	72.30	1.00	0.0150	0.0081	0.0153	0.0221	0.0056	0.0084	0.0209
20	72 hour	20%	2	72.30	1.00	0.0372	0.0266	0.0354	0.0656	0.0257	0.0325	0.0564
20	72 hour	20%	3	72.30	1.00	0.0172	0.0110	0.0149	0.0278	0.0063	0.0121	0.0208
20	72 hour	20%	4	72.30	1.00	0.0325	0.0224	0.0219	0.0516	0.0130	0.0284	0.0349
20	72 hour	20%	5	72.30	1.00	0.0298	0.0211	0.0219	0.0477	0.0123	0.0265	0.0325
20	72 hour	20%	6	72.30	1.00	0.0110	0.0045	0.0076	0.0150	0.0020	0.0039	0.0096
20	72 hour	20%	7	72.30	1.00	0.0150	0.0035	0.0069	0.0159	0.0017	0.0029	0.0085
20	72 hour	20%	8	72.30	1.00	0.0358	0.0245	0.0232	0.0572	0.0140	0.0314	0.0372
20	72 hour	20%	9	72.30	1.00	0.0429	0.0308	0.0329	0.0711	0.0184	0.0382	0.0514
20	72 hour	20%	10	72.30	1.00	0.0445	0.0329	0.0315	0.0731	0.0173	0.0400	0.0487
21	96 hour	20%	1	77.20	1.00	0.0460	0.0351	0.0442	0.0836	0.0352	0.0418	0.0790
21	96 hour	20%	2	77.20	1.00	0.0360	0.0258	0.0420	0.0635	0.0292	0.0316	0.0711
21	96 hour	20%	3	77.20	1.00	0.0168	0.0096	0.0115	0.0263	0.0050	0.0104	0.0165
21	96 hour	20%	4	77.20	1.00	0.0440	0.0291	0.0304	0.0689	0.0155	0.0323	0.0459
21	96 hour	20%	5	77.20	1.00	0.0179	0.0111	0.0131	0.0287	0.0059	0.0124	0.0190
21	96 hour	20%	6	77.20	1.00	0.0371	0.0253	0.0235	0.0587	0.0125	0.0269	0.0360
21	96 hour	20%	7	77.20	1.00	0.0182	0.0118	0.0146	0.0280	0.0078	0.0135	0.0224
21	96 hour	20%	8	77.20	1.00	0.0327	0.0222	0.0258	0.0540	0.0137	0.0274	0.0395
21	96 hour	20%	9	77.20	1.00	0.0867	0.0620	0.0782	0.1441	0.0377	0.0658	0.1063
21	96 hour	20%	10	77.20	1.00	0.0413	0.0303	0.0272	0.0676	0.0162	0.0376	0.0434
22	120 hour	20%	1	81.40	1.00	0.0323	0.0231	0.0350	0.0568	0.0253	0.0278	0.0601
22	120 hour	20%	2	81.40	1.00	0.0277	0.0196	0.0295	0.0471	0.0201	0.0236	0.0496
22	120 hour	20%	3	81.40	1.00	0.0098	0.0043	0.0107	0.0142	0.0028	0.0036	0.0135
22	120 hour	20%	4	81.40	1.00	0.0208	0.0078	0.0157	0.0264	0.0048	0.0079	0.0204
22	120 hour	20%	5	81.40	1.00	0.0247	0.0132	0.0209	0.0371	0.0098	0.0146	0.0300
22	120 hour	20%	6	81.40	1.00	0.0465	0.0343	0.0314	0.0764	0.0178	0.0413	0.0493
22	120 hour	20%	7	81.40	1.00	0.0328	0.0226	0.0209	0.0521	0.0132	0.0287	0.0340
22	120 hour	20%	8	81.40	1.00	0.0778	0.0605	0.0766	0.1415	0.0494	0.0626	0.1260
22	120 hour	20%	9	81.40	1.00	0.0180	0.0110	0.0114	0.0276	0.0059	0.0125	0.0173
22	120 hour	20%	10	81.40	1.00	0.0765	0.0553	0.0680	0.1289	0.0358	0.0599	0.0938
23	144 hour	20%	1	85.40	1.00	0.0282	0.0185	0.0183	0.0447	0.0106	0.0229	0.0289
23	144 hour	20%	2	85.40	1.00	0.0636	0.0461	0.0531	0.1040	0.0241	0.0518	0.0767
23	144 hour	20%	3	85.40	1.00	0.0321	0.0231	0.0313	0.0548	0.0202	0.0281	0.0477
23	144 hour	20%	4	85.40	1.00	0.0284	0.0194	0.0262	0.0465	0.0142	0.0237	0.0398
23	144 hour	20%	5	85.40	1.00	0.0258	0.0173	0.0213	0.0405	0.0131	0.0212	0.0343
23	144 hour	20%	6	85.40	1.00	0.0504	0.0370	0.0361	0.0826	0.0192	0.0437	0.0554
23	144 hour	20%	7	85.40	1.00	0.0222	0.0148	0.0142	0.0346	0.0083	0.0177	0.0225
23	144 hour	20%	8	85.40	1.00	0.0143	0.0064	0.0101	0.0210	0.0029	0.0057	0.0128
23	144 hour	20%	9	85.40	1.00	0.0346	0.0251	0.0387	0.0594	0.0220	0.0307	0.0594
23	144 hour	20%	10	85.40	1.00	0.0957	0.0727	0.0946	0.1666	0.0562	0.0731	0.1395
24	168 hour	20%	1	89.40	1.00	0.0232	0.0167	0.0234	0.0359	0.0122	0.0205	0.0345
24	168 hour	20%	2	89.40	1.00	0.0256	0.0200	0.0185	0.0429	0.0102	0.0216	0.0287
24	168 hour	20%	3	89.40	1.00	0.0309	0.0208	0.0237	0.0523	0.0148	0.0250	0.0363
24	168 hour	20%	4	89.40	1.00	0.1204	0.0842	0.1088	0.1951	0.0437	0.0846	0.1447
24	168 hour	20%	5	89.40	1.00	0.0264	0.0107	0.0175	0.0343	0.0088	0.0120	0.0246
24	168 hour	20%	6	89.40	1.00	0.0330	0.0223	0.0228	0.0541	0.0128	0.0278	0.0356
24	168 hour	20%	7	89.40	1.00	0.0071	0.0018	0.0047	0.0080	0.0007	0.0013	0.0051
24	168 hour	20%	8	89.40	1.00	0.0316	0.0209	0.0324	0.0510	0.0204	0.0263	0.0499
24	168 hour	20%	9	89.40	1.00	0.0866	0.0610	0.0782	0.1418	0.0325	0.0649	0.1078

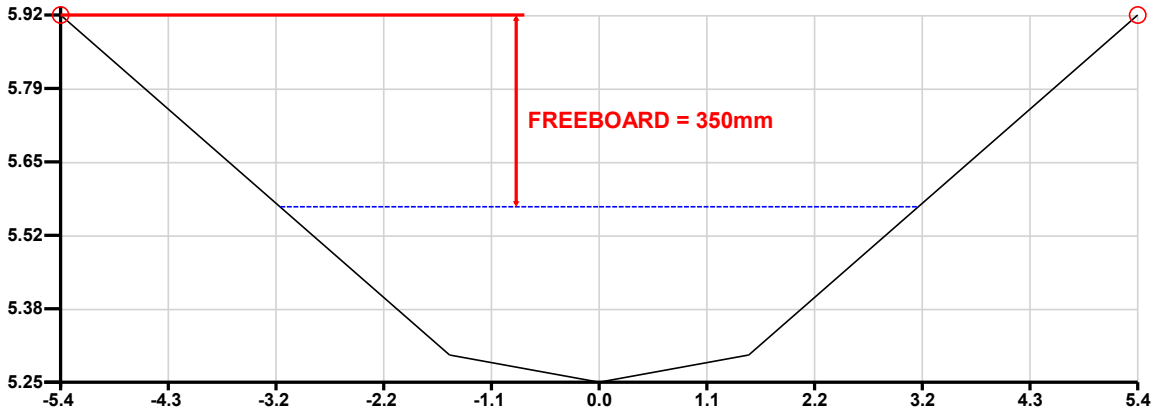
```
 24        168 hour             20%     10     89.40    1.00    0.0182    0.0118    0.0132    0.0279    0.0064    0.0135    0.0186
Run,    Representative hydrograph
 1     dur10min_aep20tp5.out
Run,    Representative hydrograph
 2     dur15min_aep20tp6.out
Run,    Representative hydrograph
 3     dur20min_aep20tp7.out
Run,    Representative hydrograph
 4     dur25min_aep20tp7.out
Run,    Representative hydrograph
 5     dur30min_aep20tp4.out
Run,    Representative hydrograph
 6     dur45min_aep20tp6.out
Run,    Representative hydrograph
 7     dur1hour_aep20tp5.out
Run,    Representative hydrograph
 8     dur1_5hour_aep20tp6.out
Run,    Representative hydrograph
 9     dur2hour_aep20tp8.out
Run,    Representative hydrograph
10     dur3hour_aep20tp5.out
Run,    Representative hydrograph
11     dur4_5hour_aep20tp5.out
Run,    Representative hydrograph
12     dur6hour_aep20tp1.out
Run,    Representative hydrograph
13     dur9hour_aep20tp4.out
Run,    Representative hydrograph
14     dur12hour_aep20tp5.out
Run,    Representative hydrograph
15     dur18hour_aep20tp5.out
Run,    Representative hydrograph
16     dur24hour_aep20tp10.out
Run,    Representative hydrograph
17     dur30hour_aep20tp2.out
Run,    Representative hydrograph
18     dur36hour_aep20tp2.out
Run,    Representative hydrograph
19     dur48hour_aep20tp2.out
Run,    Representative hydrograph
20     dur72hour_aep20tp4.out
Run,    Representative hydrograph
21     dur96hour_aep20tp10.out
Run,    Representative hydrograph
22     dur120hour_aep20tp6.out
Run,    Representative hydrograph
23     dur144hour_aep20tp3.out
Run,    Representative hydrograph
24     dur168hour_aep20tp6.out

Elapsed Run Time (hh:mm:ss) = 00:01:45
```

APPENDIX E: PC CONVEY RESULT

PROJECT: 2000243-Wollaston OFLP 10m
Comment
Print-out date: 27/08/2021 - Time: 2:06
Data File: C:\Users\nurhalim\Documents\Lola\Work BevWill-Temp\OFLP 10m.dat

1. CROSS-SECTION:



2. DISCHARGE INFORMATION:

100 year (1%) storm event

Total discharge = 0.9 cumecs

There is no pipe discharge
Overland / Channel / Watercourse discharge = 0.900 cumecs

3. RESULTS: Water surface elevation = 5.570m

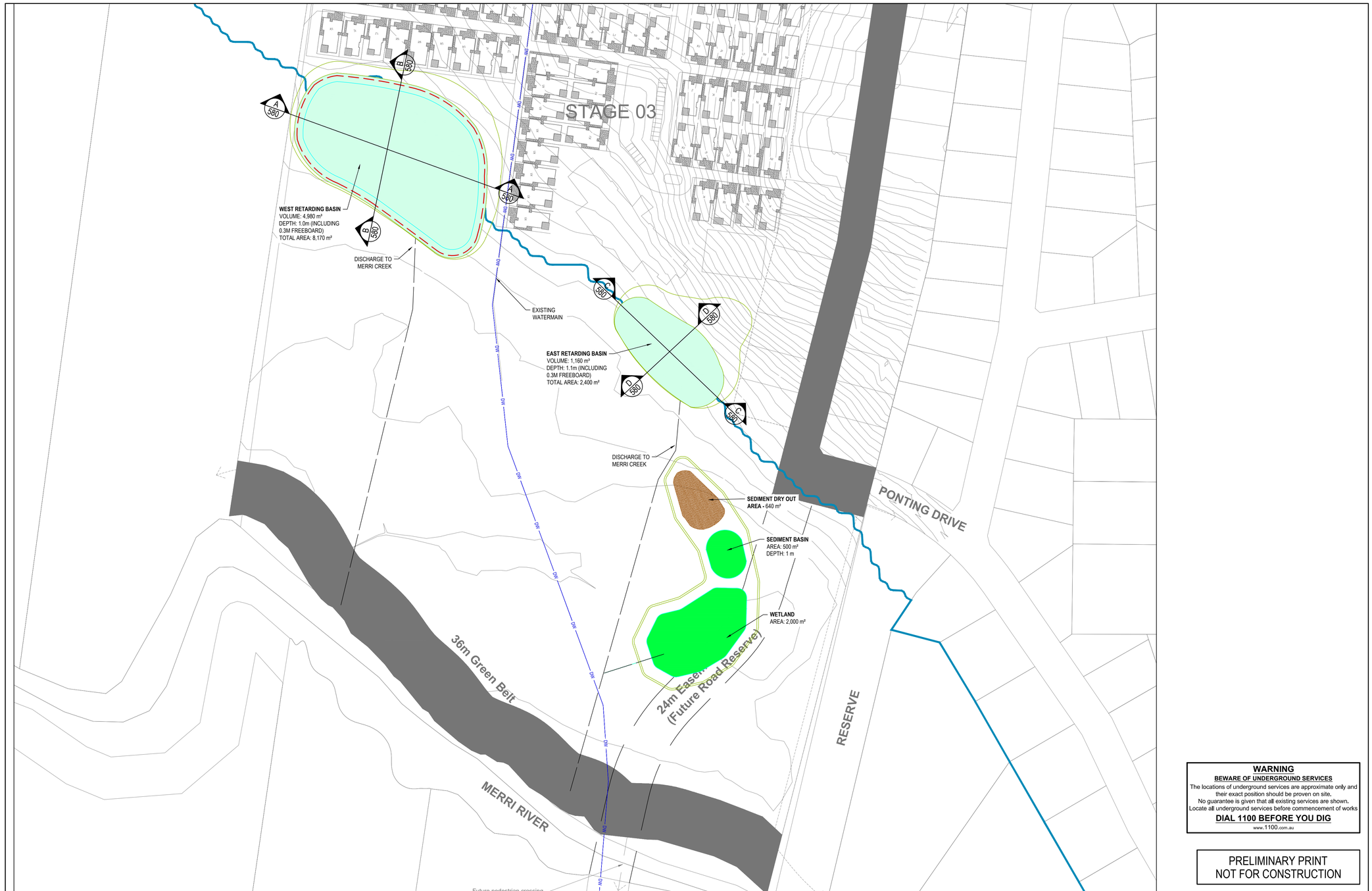
High Flow Channel grade = 1 in 200, Main Channel / Low Flow Channel grade = 1 in 200.

	LEFT OVERBANK	MAIN CHANNEL	RIGHT OVERBANK	TOTAL CROSS-SECTION
Discharge (cumecs):	0.00	0.95	0.00	0.95
D(Max) = Max. Depth (m):	0.00	0.32	0.00	0.32
D(Ave) = Ave. Depth (m):	0.00	0.21	0.00	0.21
V = Ave. Velocity (m/s):	0.00	0.71	0.00	0.71
D(Max) x V (cumecs/m):	0.00	0.23	0.00	0.23
D(Ave) x V (cumecs/m):	0.00	0.15	0.00	0.15
Froude Number:	0.00	0.50	0.00	0.50
Area (m^2):	0.00	1.34	0.00	1.34
Wetted Perimeter (m):	0.00	6.44	0.00	6.44
Flow Width (m):	0.00	6.40	0.00	6.40
Hydraulic Radius (m):	0.00	0.21	0.00	0.21
Composite Manning's n:	0.000	0.035	0.000	0.035
Split Flow?	-	-	-	No

4. CROSS-SECTION DATA:

	LEFT HAND POINT		RIGHT HAND POINT		
SEGMENT NO.	CHAINAGE (m)	R.L. (m)	CHAINAGE (m)	R.L. (m)	MANNING'S N
1	-5.400	5.920	-1.500	5.300	0.035
2	-1.500	5.300	0.000	5.250	0.035
3	0.000	5.250	1.500	5.300	0.035
4	1.500	5.300	5.400	5.920	0.035

APPENDIX F: CONCEPT LAYOUT PLAN AND CROSS SECTIONS PLAN



WARNING
BEWARE OF UNDERGROUND SERVICES
The locations of underground services are approximate only and their exact position should be proven on site.
No guarantee is given that all existing services are shown.
Locate all underground services before commencement of works
DIAL 1100 BEFORE YOU DIG
www.1100.com.au

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REV	DESCRIPTION	DATE	DRN.	APP.
P2	ISSUED FOR INFORMATION	26.08.21	J.T.	L.N.
P1	ISSUED FOR INFORMATION	18.03.21	M.F.J.	L.N.

0 10 20 40 60 80
SCALE 1:1000 AT A1 SIZE

Designed L. NURHALIM 18.03.2021
Drawn M.F. JAURIGUE
Approved -
Date
PS Number PS1000

Beveridge Williams
1 Glenferrie Road
Malvern VIC 3144
ph: 03 9524 8888
www.beveridgewilliams.com.au

Project Details: 147 WOLLASTON ROAD, WARRNAMBOOL
GULL GROUP
WARRNAMBOOL CITY COUNCIL

Drawing Title: CONCEPT PLAN

Sheet 01 of 02
Scale 1:1000 @ A1
N

Project Ref	Stage No	Drawing No	Rev
2000243	00	551	P2

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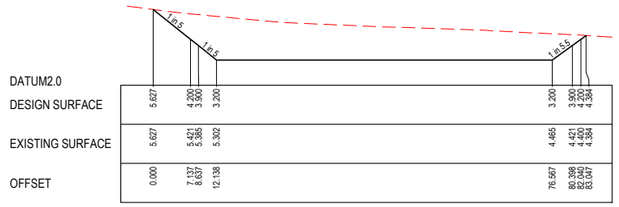
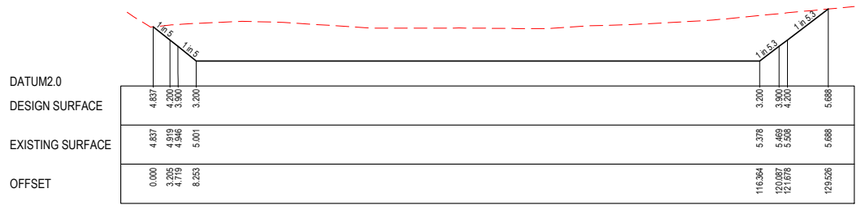
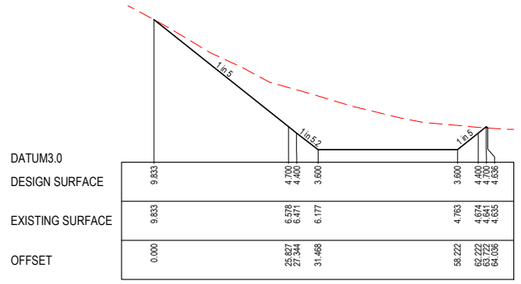


SECTION B-B

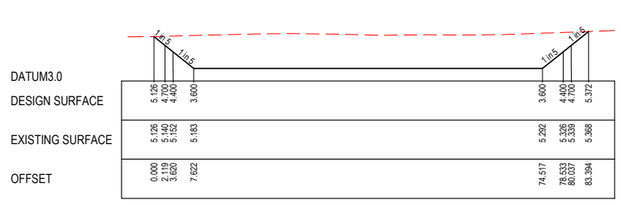


SECTION A-A

WEST SECTIONS



SECTION D-D



SECTION C-C

EAST SECTIONS

PRELIMINARY PRINT
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REV	DESCRIPTION	DATE	DRN.	APP.
P2	ISSUED FOR INFORMATION	26.08.21	J.T.	L.N.
P1	ISSUED FOR INFORMATION	18.03.21	M.F.J.	L.N.

REV	DESCRIPTION	DATE	DRN.	APP.

Designed L. NURHALIM
Date 18.03.2021
Drawn M.F. JAURIGUE
Approved -
Date
PS Number PS1000

Beveridge Williams
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Project Details 147 WOLLASTON ROAD, WARRNAMBOOL
GULL GROUP
WARRNAMBOOL CITY COUNCIL

Drawing Title SECTIONS

Sheet 02 of 02
Scale AS SHOWN

Project Ref	Stage No	Drawing No	Rev
2000243	00	580	P2

K:\Jobs Data\2000243 - 147 Wollaston Road Warrnambool_Wat\Drawings\2000243-00-580-WLSEC.dwg


terramatrix
Bushfire Development Report
for the development of a
staged subdivision at
147 Wollaston Road
Warrnambool VIC 3280
Report prepared for
Wollaston Road Developments Pty Ltd
November 2022
WWW.TERRAMATRIX.COM.AU

Terramatrix project code: WollastonRoadDevelopmentsPtyLtd-2022-01 DD_BPA-Warrnambool
Cover image: Looking north over the site.

Accountability

Stage	Date completed	Name	Title
Desktop assessment	2022-07-04	John Eastwood	Senior Analyst
Analysis & report preparation	2022-07-06	John Eastwood	Senior Analyst
Peer review	2022-07-07	Jon Boura	Managing Director
Update	2022-07-22	John Eastwood	Senior Analyst

Version Control

Version	Date issued	Comments	Issued by
1.0	2022-07-07	Bushfire Development Report (BDR) to client	John Eastwood
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Contents

1 Introduction

This Bushfire Development Report (BDR) has been prepared for Wollaston Road Developments Pty Ltd, to assess how the proposed development of a possible retirement village and residential subdivision at 147 Wollaston Road, Warrnambool VIC 3280 can respond to the bushfire risk and the applicable Victorian planning and building controls that relate to bushfire, in particular the objective and applicable strategies of the Planning Policy Framework (PPF) at Clause 13.02-1S *Bushfire planning* in the Victoria Planning Provisions (Warrnambool Planning Scheme, 2018a).

This report will inform the development plan to subdivide the north-eastern part of the land for subsequent residential development and develop a retirement village in the north-western part. The site is currently vacant and is in a designated Bushfire Prone Area (BPA). BPAs are those areas subject to or likely to be subject to bushfires, as determined by the Minister for Planning.

Higher hazard land within a BPA, which may be subject to extreme bushfire behaviour, is covered by the Bushfire Management Overlay (BMO). The nearest areas covered by the BMO are approximately 3.7kms to the east and south-west.

This report assesses the bushfire hazard and identifies how the proposed development can appropriately mitigate any bushfire risk and respond to and comply with the applicable bushfire planning and building controls. These are:

- Clause 13.02-1S *Bushfire Planning*, which is the State planning policy for bushfire. The development proposal needs to show that it meets the objective and applicable strategies of the policy.
- The Building Act 1993 and associated Building Regulations 2018, which require bushfire protection standards in designated BPAs, for class 1, 2 and 3 buildings, 'Specific Use Bushfire Protected Buildings' and associated class 10a buildings or decks.

This report has been prepared in accordance with guidance for the assessment of, and response to, bushfire risk, provided in:

- *Bushfire State Planning Policy Amendment VC140*, Planning Advisory Note 68 (DELWP, 2018);
- *Local planning for bushfire protection*, Planning Practice Note 64 (DELWP, 2015a);
- *Planning Permit Applications Bushfire Management Overlay* Technical Guide (DELWP, 2017);
- *Design guidelines for settlement planning at the bushfire interface* (DELWP, 2020a); and
- AS 3959-2018 *Construction of buildings in bushfire prone areas* (Standards Australia, 2020).

2 Overview of site

The site comprises a large vacant lot north of the progressively developing urban areas of Warrnambool in the City of Warrnambool local government area (see Figure 1). The site is in the south-eastern corner of the North of Merri River Structure Plan (Mesh, 2011).

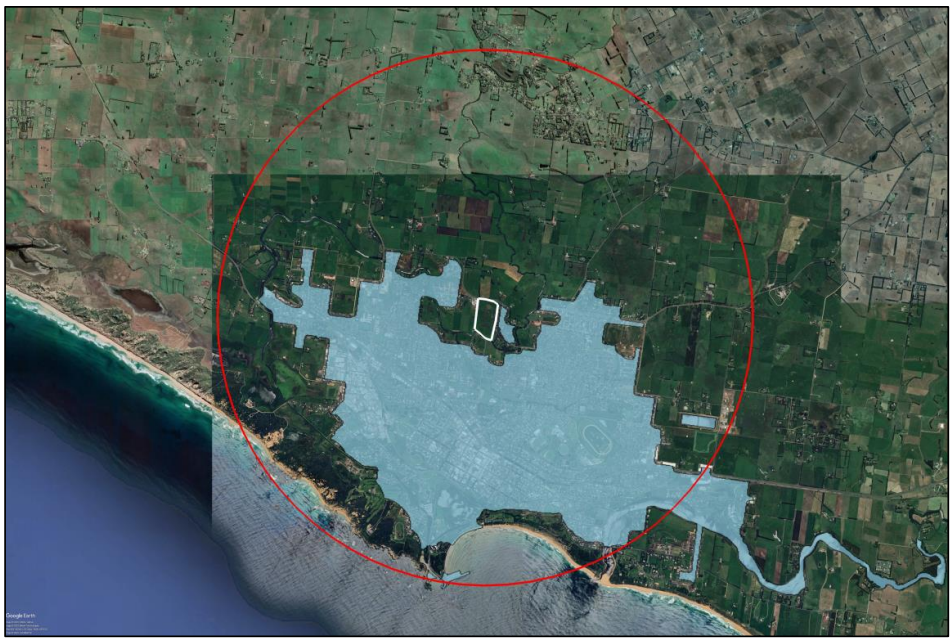


Figure 1 – 147 Wollaston Road area (site shown in white outline, 5km buffer in red outline) non-BPA land is shown in teal shading (2022 Google Earth).

2.1 Proposed development

The development proposal is for the staged multi-lot subdivision of the eastern part of the site with subsequent residential development, and the development of a retirement village in the western part. The site is in the currently undeveloped pastoral area to the north Warrnambool, to the south of Wollaston Road and north of Merri River. The southern part of the site is affected by the Urban Floodway Zone (and Schedule) (UFZ) and will comprise open space (see Figure 2) to be managed by Council in the future.

The proposed subdivision layout and road network will provide a single access/egress point to Wollaston Road, with the possibility of a future accessway across Merri River to the south (see Figure 2).

Figure 2 – 147 Wollaston Road master plan (Beveridge Williams, 2022).

3 Bushfire planning and building controls

This section identifies the applicable planning and building controls that relate to bushfire.

3.1 Clause 13.01-1S Natural hazards and climate change

The objective of this Clause is to minimise the impacts of natural hazards and adapt to the impacts of climate change through risk-based planning. Specified strategies to achieve the objective are:

- '*Consider the risks associated with climate change in planning and management decision making processes.*
- *Identify at risk areas using the best available data and climate change science.*
- *Integrate strategic land use planning with emergency management decision making.*
- *Direct population growth and development to low risk locations.*
- *Develop adaptation response strategies for existing settlements in risk areas to accommodate change over time.*
- *Ensure planning controls allow for risk mitigation or risk adaptation strategies to be implemented.*
- *Site and design development to minimise risk to life, property, the natural environment and community infrastructure from natural hazards*' (Warrnambool Planning Scheme, 2018b).

Especially in southern and eastern Australia, since the 1950's there has been an increase in the length of the fire weather season and a greater number of higher risk days associated with climate change (CSIRO/BOM, 2020). The Australasian Fire and Emergency Service Authorities Council (AFAC) identify that a failure of building codes and land use planning to adequately adapt to climate change is a significant risk (AFAC, 2018).

This Clause supports the adoption of a precautionary approach to the identification and mitigation of bushfire risk.

3.2 Clause 13.02-1S Bushfire Planning

Clause 13.02-1S has the objective '*To strengthen the resilience of settlements and communities to bushfire through risk based planning that prioritises the protection of human life*' (Warrnambool Planning Scheme, 2018a). The policy must be applied to all planning and decision making under the Planning and Environment Act 1987, relating to land which is:

- Within a designated BPA;
- Subject to a BMO; or
- Proposed to be used or developed in a way that may create a bushfire hazard.

Clause 13.02-1S requires priority to be given to the protection of human life by:

- *'Prioritising the protection of human life over all other policy considerations.*
- *Directing population growth and development to low risk locations and ensuring the availability of, and safe access to, areas where human life can be better protected from the effects of bushfire.*

- *Reducing the vulnerability of communities to bushfire through consideration of bushfire risk in decision-making at all stages of the planning process'* (Warrnambool Planning Scheme, 2018a).

Key strategies are stipulated in Clause 13.02-1S, which require that strategic planning documents, planning scheme amendments and development plan approvals properly assess bushfire risk and include appropriate bushfire protection measures. This also applies to planning permit applications for:

- Subdivisions of more than 10 lots;
- Accommodation;
- Childcare centre;
- Education centre;
- Emergency services facility;
- Hospital;
- Indoor recreation facility;
- Major sports and recreation facility;
- Place of assembly; and
- Any application for development that will result in people congregating in large numbers.

Development should not be approved where '*…a landowner or proponent has not satisfactorily demonstrated that the relevant policies have been addressed, performance measures satisfied or bushfire protection measures can be adequately implemented*' (Warrnambool Planning Scheme, 2018a).

This study assesses the bushfire hazard and identifies the bushfire protection measures that will be required for future development of the site. It is considered that development can appropriately prioritise the protection of human life and meet the objectives of Clause 13.02-1S by ensuring compliance with the applicable bushfire planning and building controls.

A response to the applicable strategies of Clause 13.02-1S is provided in Section 7 of this report.

3.3 Clause 71.02-3 Integrated Decision Making

Clause 71.02-3 states that planning and responsible authorities should endeavour to integrate policies and balance conflicting objectives in favour of net community benefit and sustainable development. However, in bushfire affected areas, the protection of human life must be prioritised over all other policy considerations (Warrnambool Planning Scheme, 2018c).

3.4 Bushfire Prone Area (BPA)

The site is in a BPA (see Figure 3). BPAs are those areas subject to or likely to be subject to bushfire, as determined by the Minister for Planning. Those areas of highest bushfire risk within the BPA are designated as BMO areas, which does not apply to the site or any land for 3.5km.

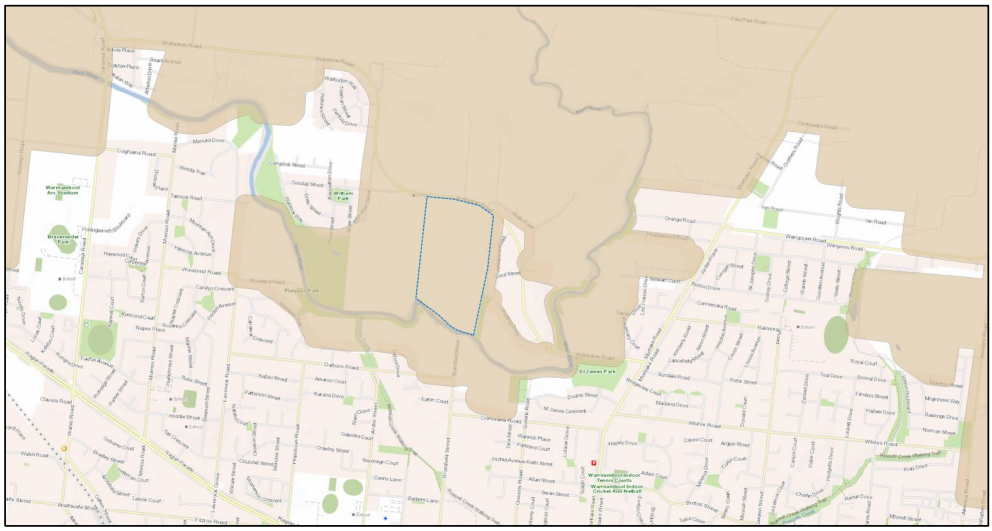


Figure 3 - BPA (brown shading) coverage of the site (highlighted in blue outline) and surrounds.

In a BPA, the Building Act 1993 and associated Building Regulations 2018, through application of the National Construction Code (NCC), require bushfire protection standards for class 1, 2 and 3[1] buildings, 'Specific Use Bushfire Protected Buildings'[2] and associated class 10A buildings[3] or decks. The applicable performance requirement in the NCC is:

> *'A building that is constructed in a designated bushfire prone area must, to the degree necessary, be designed and constructed to reduce the risk of ignition from a bushfire, appropriate to the —*
> *(a) potential for ignition caused by burning embers, radiant heat or flame generated by a bushfire; and*
> *(b) intensity of the bushfire attack on the building'* (ABCB, 2020).

Compliance with *AS 3959-2018 Construction of buildings in bushfire prone areas* is 'deemed-to-satisfy' the performance requirement (ABCB, 2020). For Class 1 buildings and associated Class10a buildings or decks, the *NASH Standard – Steel Framed Construction in Bushfire Areas* is also deemed to satisfy the requirement (NASH, 2021).

The Victorian building regulations require that applicable buildings be constructed to a minimum Bushfire Attack Level (BAL)-12.5, or higher, as determined by a site assessment or planning scheme requirement. A BAL is a means of measuring the severity of a building's potential exposure to ember attack, radiant heat and direct flame contact. There are six BALs defined in AS 3959-2018, which range from BAL-LOW, which has no bushfire construction requirements, to BAL-FZ (Flame Zone) where flame contact with a building is expected (see Appendix A).

[1] Class 1, 2 and 3 buildings are defined in the Building Code of Australia (BCA), and are generally those used for residential accommodation, including houses and other dwellings, apartments, hotels and other buildings with a similar function or use.
[2] Specific Use Bushfire Protected Buildings are defined in the Victorian *Building Regulations 2018,* they generally comprise 'vulnerable' uses and include schools, kindergartens, childcare facilities, aged care facilities and hospitals.
[3] Class 10a buildings are defined in the BCA as non-habitable buildings including sheds, carports, and private garages.

Larger developments and certain vulnerable uses in a BPA (see Section 3.2) are also required by Clause 13.02-1S *Bushfire planning* to:

- *'Consider the risk of bushfire to people, property and community infrastructure.*
- *Require the implementation of appropriate bushfire protection measures to address the identified bushfire risk.*
- *Ensure new development can implement bushfire protection measures without unacceptable biodiversity impacts'* (Warrnambool Planning Scheme, 2018a).

DELWP review and excise areas from the BPA approximately every 6 months, particularly in growth areas where the hazard is removed as urban development occurs. Land becomes eligible for excision if it satisfies statewide hazard mapping criteria, including that the land needs to be:

- At least 300m from areas of classified vegetation (except grassland) larger than 4ha in size; and
- At least 150m from areas of classified vegetation (except grassland) 2 to 4ha in size; and
- At least 60m from areas of unmanaged grassland more than 2ha in size (DELWP, 2015b).

For isolated areas of vegetation greater than 1ha but less than 2ha, the shape of the area and connectivity to any other hazardous vegetation is a further consideration (DELWP, 2015b).

There are no obstacles to future development of the site complying with the applicable strategies at Clause 13.02-1S and the building regulations invoked by the BPA coverage (see Sections 6 and 7). Following development, parts of the site will be eligible for excision from the BPA.

3.5 Other controls

3.5.1 Zoning

The site is in the General Residential Zone and Schedule 1 (GRZ1) and Urban Floodway Zone and Schedule (UFZ). Neither zoning or Schedule has bushfire planning implications for the site, although the UFZ does mean that a large undeveloped area within the site will remain – this area will become open space and be managed by Council.

3.5.2 Overlays

The site is covered by the Development Plan Overlay and Schedule 10 (DPO10), which calls for the preparation of a Development Plan. The site is also covered by the Development Contributions Plan Overlay - Schedule 1 (DCPO1) and the Environmental Significance Overlay and Schedule 2 (ESO2), neither of which have bushfire planning implications for the site. The Floodway Overlay and Schedule (FO) over the southern part of the site will see the retention of an undeveloped area within the site, which will form the future open space to be managed by Council. Parts of the open space will need to be managed in a low threat state to provide setbacks for dwellings built to a BAL-12.5 construction standard.

4 North of Merri River Structure Plan

The site is in the North of Merri River Structure Plan (Mesh, 2011). The structure plan does not identify bushfire as an issue and no bushfire protection measures are stipulated. The arrangement of different land uses proposed for the precinct, as shown in the structure plan, is shown here at Figure 4. The site and the land to the north is identified as 'Standard density residential'.

The structure plan identifies a road through the site (shown as black line on Figure 4) that will be provided for in the development plan on an alternative alignment (see Figure 2).

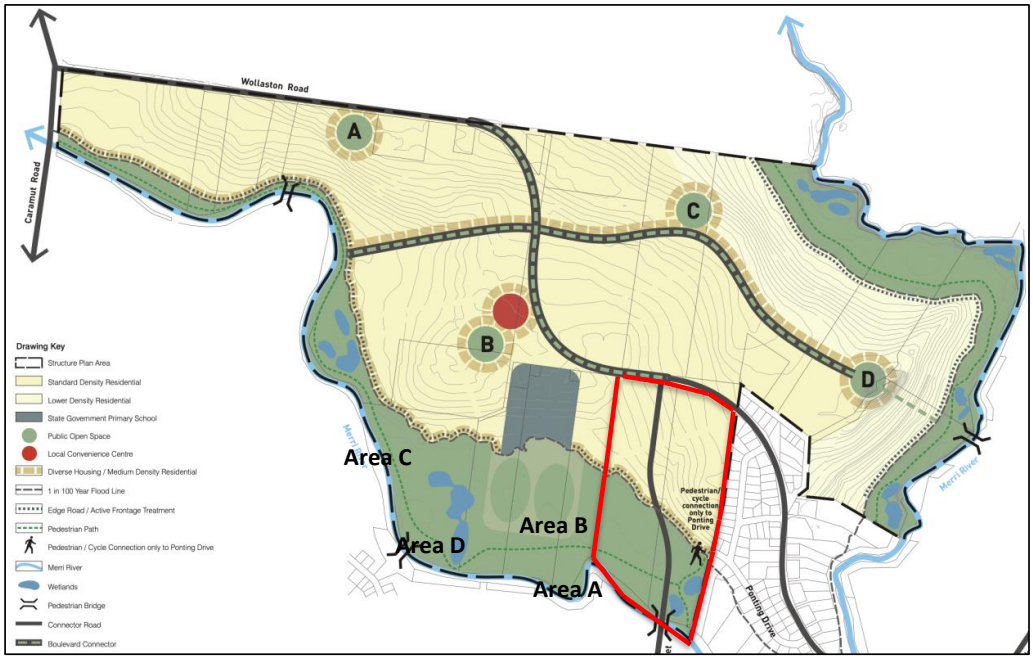


Figure 4 – Site and surrounds as shown in North of Merri River Structure Plan (Mesh, 2011), with approximate site boundary highlighted in red.

4.1 Regional bushfire risk assessments and plans

Regional Bushfire Planning Assessment (RBPA) Barwon South-west Region

As part of the response to the 2009 Victorian Bushfires Royal Commission, Regional Bushfire Planning Assessments (RBPAs) were undertaken across six regions that covered the whole of Victoria. The RBPAs provide information about 'identified areas' where a range of land use planning matters intersect with a bushfire hazard to influence the level of risk to life and property from bushfire. The RBPAs state that '*This information should be addressed as part of strategic land use and settlement planning at the regional, municipal and local levels'* (DPCD, 2012).

The *Regional Bushfire Planning Assessment – Barwon South-west Region* covers the City of Warrnambool LGA. It does not identify any bushfire matters of concern in or around the site, although the Merri River environs are identified:
'*The watercourse contains patches of riparian vegetation surrounded by grassland environments. Surrounding developed and undeveloped lots are in or in proximity to vegetated bushfire hazard areas'* (DPCD, 2012).

The vegetation in the Merri River environs is not considered to be a significant bushfire risk to the site and can be addressed through the management of vegetation within the site and appropriate BAL construction standards. The southern part of the site will form open space which will be managed by Council, including areas required to be managed in a low threat state to provide setbacks for the nearby dwellings built to a BAL-12.5 construction standard. This is consistent with the DELWP settlement interface guidelines recommending low threat public open space on the bushfire interface (DELWP, 2020).

Warrnambool Municipal Fire Management Plan (MFMP)

The Warrnambool MFMP addresses a range of risk environments, including fires in residential, commercial and industrial environments, bushfires and hazardous material environments across the Warrnambool municipality and lists a wide range of programs to address these risks (Warrnambool City Council, 2015).

The MFMP does not identify a requirement for specific bushfire protection actions in the Wollaston Road area.

Safer Together – Strategic Bushfire Management Planning

The Safer Together program is an approach to reducing the risk of bushfire in Victoria. Strategic bushfire management planning is jointly delivered by Forest Fire Management Victoria (FFMVic), Country Fire Authority (CFA), Emergency Management Victoria (EMV) and local government in consultation with communities (DELWP, 2020).

Fuel management focused strategies have been developed for six regions, with region-specific strategies applied in response to the identified bushfire risk (see Figure 5 and Figure 6). The 147 Wollaston Road site is in the easternmost part of the Barwon South-West – Far South-West region.

The Warrnambool area is not in a Bushfire Risk Engagement Area (which are areas in which managing bushfire fuels is most effective in reducing risk). The low risk of the site (see Figure 5), and that no need has been identified for fuel management in the surrounding landscape (see Figure 6), contribute to the proposed development of the site being appropriate.

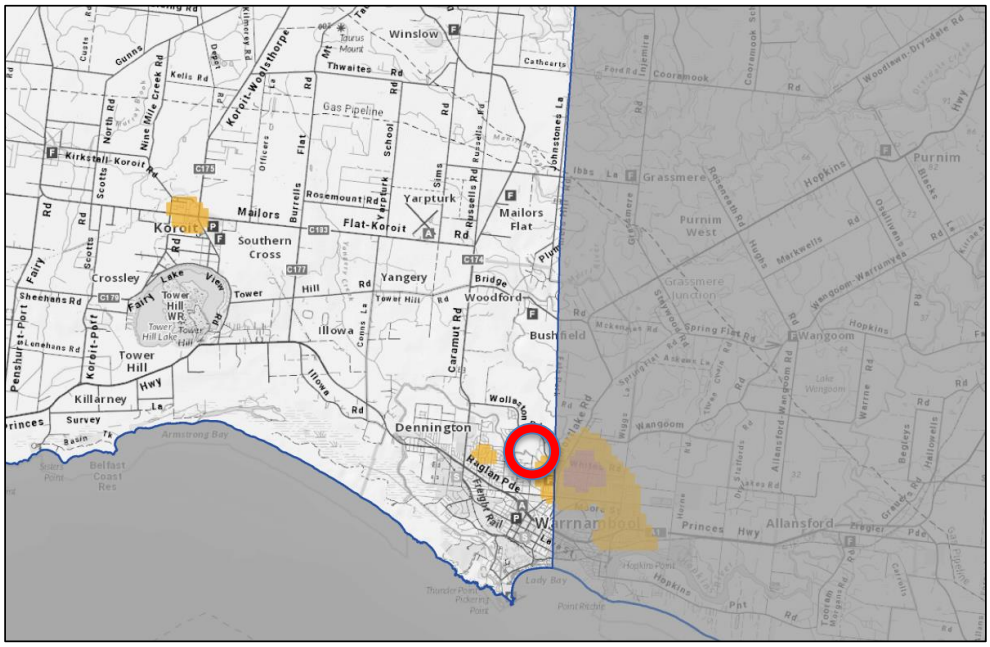


Figure 5 – Risk of house loss (orange is low-intermediate risk, purple the highest risk) (FFMV, 2021) with the site indicated by red circle.

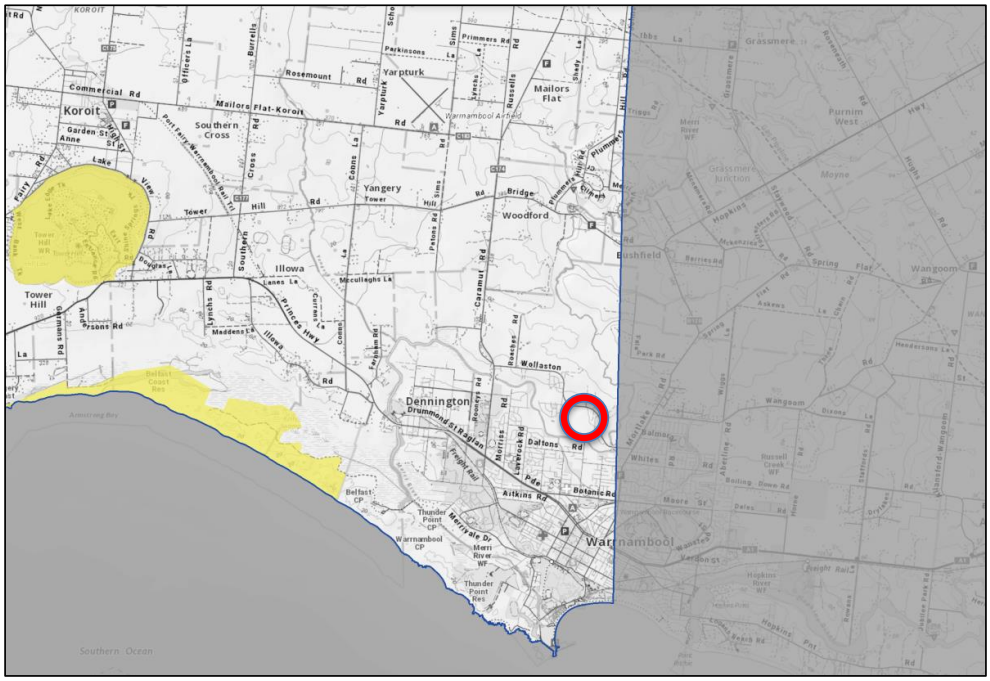


Figure 6 – FFMV fuel management strategy in the Warrnambool area (see Table 1) with the site indicated by red circle.

Table 1 – Legend to Figure 6.

Fire Management Zone	Legend colour	Aim
Asset Protection Zone (APZ)		To provide the highest level of localised protection to human life, property, critical infrastructure, the economy and high value community assets. Reduces radiant heat and ember attack through planned burning, mowing slashing or vegetation removal.
Bushfire Moderation Zone (BMZ)		To develop fuel- reduced areas of sufficient width and continuity to reduce the speed and intensity of bushfires. BMZ also aims to provide areas which assist in making bushfire suppression safer and more effective and in improving access and egress. Reduces speed and intensity of bushfires. Supports APZs and protects nearby assets, particularly from ember spotting.
Landscape Management Zone (LMZ)		Management objectives are varied and include fuel reduction and ecological outcomes. Hazard reduction may be undertaken to supplement APZ and BMZ activities, only where deemed necessary by a risk-based approach. Treatments may be undertaken for the active management of ecosystem function and for the management of flora and fauna species. Burning (or absence of burning) will be used to ecosystem resilience across the landscape. Planned burning will be used to reduce overall fuel and bushfire hazard, ecological resilience and particular landscape values.
Planned Burn Exclusion Zone (PBEZ)		Exclusion of planned burning from areas intolerant to fire.

5 Bushfire hazard assessment

One of the bushfire hazard identification and assessment strategies in Clause 13.02-1S is to use the best available science to identify the hazard posed by vegetation, topographic and climatic conditions. The basis for the hazard assessment should be:

- *'Landscape conditions - meaning the conditions in the landscape within 20 kilometres and potentially up to 75 kilometres from a site;*
- *Local conditions - meaning conditions in the area within approximately 1 kilometre from a site;*
- *Neighbourhood conditions - meaning conditions in the area within 400 metres of a site; and,*
- *The site for the development'* (Warrnambool Planning Scheme, 2018a).

This section includes a bushfire assessment at:

- The wider landscape scale, for at least 20km around the site (see Figure 1 and Map 1);
- The local landscape scale extending up to 1km from the site and the neighbourhood scale up to 400m around the site boundary, to identify any risk arising around the site beyond the site assessment zone (see Map 2); and
- The site scale, for 100m around the site and future residential areas, to determine likely future BALs (see Map 3).

The BPA coverage invokes AS 3959-2018, which requires a site assessment of the vegetation and topography up to 100m around a building, for the purposes of determining the applicable BAL construction standard for that building (Standards Australia, 2020).

5.1 Landscape assessment

5.1.1 Landscape – to 20km

The development site at 147 Wollaston Road is located north of Merri River on the northern side of Warrnambool, approximately 4.5km from the coast.

The landscape is characterised by three main land types:

- To the south and, at some distance to the east and west of the site, areas of existing urban development comprise a largely low threat zone, with part of the immediately adjacent property to the west currently comprising unmanaged vegetation;
- Beyond the urban area to the south-west, a thin band of coastal scrub is covered by the BMO; and
- The majority of the 20km landscape assessment zone comprises flat pastoral land with limited treed vegetation to the north, east and west of Warrnambool beyond the immediate urban areas.

The designated BPA covers roughly 90% of the 20km landscape assessment zone (excluding the ocean), with the exception of the urban areas of Warrnambool. The BMO covers the coastal scrub mentioned above and a large but isolated area of bushland near Purnim, around 18km to the north-east.

There is a limited fire history within 20km, mostly well to the east of Warrnambool (see Map 1). However, the potential for a grassfire impacting the site will remain until the surrounding landscape is developed as urban area.

In Victoria, the most likely scenarios for a large landscape fire are an approach from those directions typically associated with the direction of the wind on severe, or higher, fire danger days i.e. approach of bushfire from the north, north-west, west or south-west (Long, 2006).

The site has an exposure to extensive areas of grass to the north beyond Wollaston Road, and to the south in the Merri River corridor. Consequently, the site could be affected by a potentially fast-moving grassfire, with possible impact by smoke, ember attack (although likely to be less than that generated by a fire in woodland or forest) and radiant heat. The presence of Wollaston Road and provision of adequate setbacks and separation from the hazard will mitigate the threat of flame contact and radiant heat.

The site has access to the nearby lower threat areas immediately to the east and to Warrnambool to the south via Wollaston Road.

5.2 Local and neighbourhood conditions

5.2.1 Local – to 1km

Within the 1km local assessment zone, the landscape is dominated by the pastoral areas of nearby farmland, with the fringe of the 1km local assessment zone comprising low threat areas of the nearby urban areas in all directions except the north. The predominant bushfire hazard are the areas of Grassland around the site.

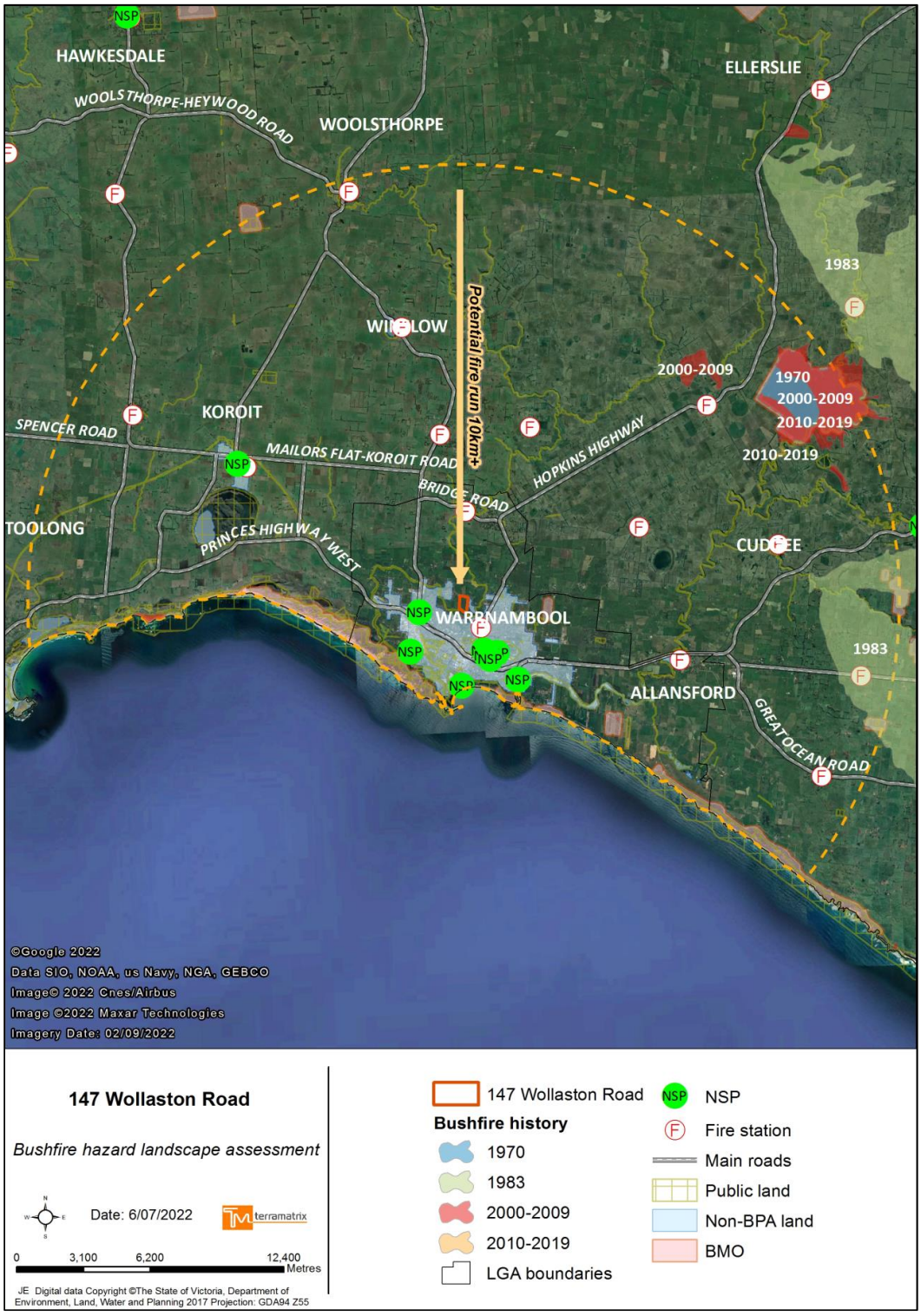
5.2.2 Neighbourhood – to 400m

Within 400m, the neighbourhood scale bushfire risk to the site is largely consistent with that for 1km, however land undergoing urban development comprises a smaller proportion of the assessment zone.

5.2.3 Landscape risk

To assist in assessing landscape risk, four 'broader landscape types', representing different landscape risk levels, are described in the DELWP technical guide *Planning Applications Bushfire Management Overlay*. These are intended to streamline decision-making and support more consistent decisions based on the landscape risk (DELWP, 2017).

The four types range from low risk landscapes where there is little hazardous vegetation beyond 150m of a site and extreme bushfire behaviour is not credible, to extreme risk landscapes with limited or no evacuation options, and where fire behaviour could exceed BMO/AS 3959 assumptions (see Table 2).



Map 1 – Bushfire hazard landscape assessment.

The development site and surrounding landscape accords with Landscape Type 2 although this risk is generated by Grassland rather than higher fuel load vegetation types and largely restricted to approach from the north. The risk to the site is likely to be reduced in the medium term as adjacent and nearby properties in the North of Merri River Structure Plan are developed and hazardous vegetation removed.

Table 2 - Landscape risk typologies (from DELWP, 2017).

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 →			

Map 2 – Local and neighbourhood hazard assessment.

5.3 Vegetation

Vegetation within a 100m assessment zone around the site has been classified in accordance with the AS 3959-2018 methodology through a desktop assessment. Classified vegetation is vegetation that is deemed hazardous from a bushfire perspective.

The classification system is not directly analogous to Ecological Vegetation Classes (EVCs) but uses a generalised description of vegetation based on the AUSLIG (Australian Natural Resources Atlas: No. 7 - Native Vegetation) classification system. The classification is largely based on the structural characteristics of the vegetation at maturity, but the key determinant should be the likely fire behaviour that it will generate.

5.3.1 Woodland

A small area of treed vegetation to the north-west best accords with the Woodland group of AS 3959-2018. Woodland vegetation comprises areas with trees up to 30m tall, 10% – 30% foliage cover dominated by eucalypts (and/or callitris) with a prominent grassy understorey, may contain isolated shrubs (Standards Australia, 2020).

5.3.2 Grassland

Vegetation on adjacent land to the north and south-west matches the AS 3959-2018 classification of Grassland, which is defined as all forms of vegetation (except Tussock Moorlands) including situations with shrubs and trees, if overstorey foliage cover is less than 10%. Includes pasture and cropland (Standards Australia, 2020).

Grassland vegetation is considered hazardous and therefore classifiable when it is not managed in a minimal fuel condition. Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack (e.g. short-cropped grass, to a nominal height of 100 mm) (Standards Australia, 2020). Grassland areas should be assumed to be unmanaged and classifiable unless there is 'reasonable assurance' that they will be managed in perpetuity, in a low threat state, e.g. no more than approx. 100mm high.

5.3.3 Excluded vegetation and non-vegetated areas

Areas of low threat vegetation and non-vegetated areas can be excluded from classification in accordance with Section 2.2.3.2 of AS 3959-2018, if they meet one or more of the following criteria:

a) *'Vegetation of any type that is more than 100m from the site.*
b) *Single areas of vegetation less than 1 ha in area and not within 100m of other areas of vegetation being classified vegetation.*
c) *Multiple areas of vegetation less than 0.25 ha in area and not within 20 m of the site, or each other, or of other areas of vegetation being classified vegetation.*

d) *Strips of vegetation less than 20 m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20 m of the site or each other, or other areas of vegetation being classified vegetation.*
e) *Non-vegetated areas, that is, areas permanently cleared of vegetation, including waterways, exposed beaches, roads, footpaths, buildings and rocky outcrops.*
f) *Vegetation regarded as low threat due to factors such as flammability, moisture content or fuel load. This includes grassland managed in a minimal fuel condition, mangroves and other saline wetlands, maintained lawns, golf courses (such as playing areas and fairways), maintained public reserves and parklands, sporting fields, vineyards, orchards, banana plantations, market gardens (and other non-curing crops), cultivated gardens, commercial nurseries, nature strips and windbreaks'* (Standards Australia, 2020).

For the purposes of this report, it is assumed that all vegetation on the site, including the open space to the south, will be managed in a low threat state (i.e. as non-classified vegetation), therefore Map 3 does not show any classified vegetation on the site. Low-threat areas excluded from classification include the managed curtilage of the surrounding properties. Non-vegetated areas include the roads, driveways and structures within the site assessment zone (see Map 3).

5.4 Topography

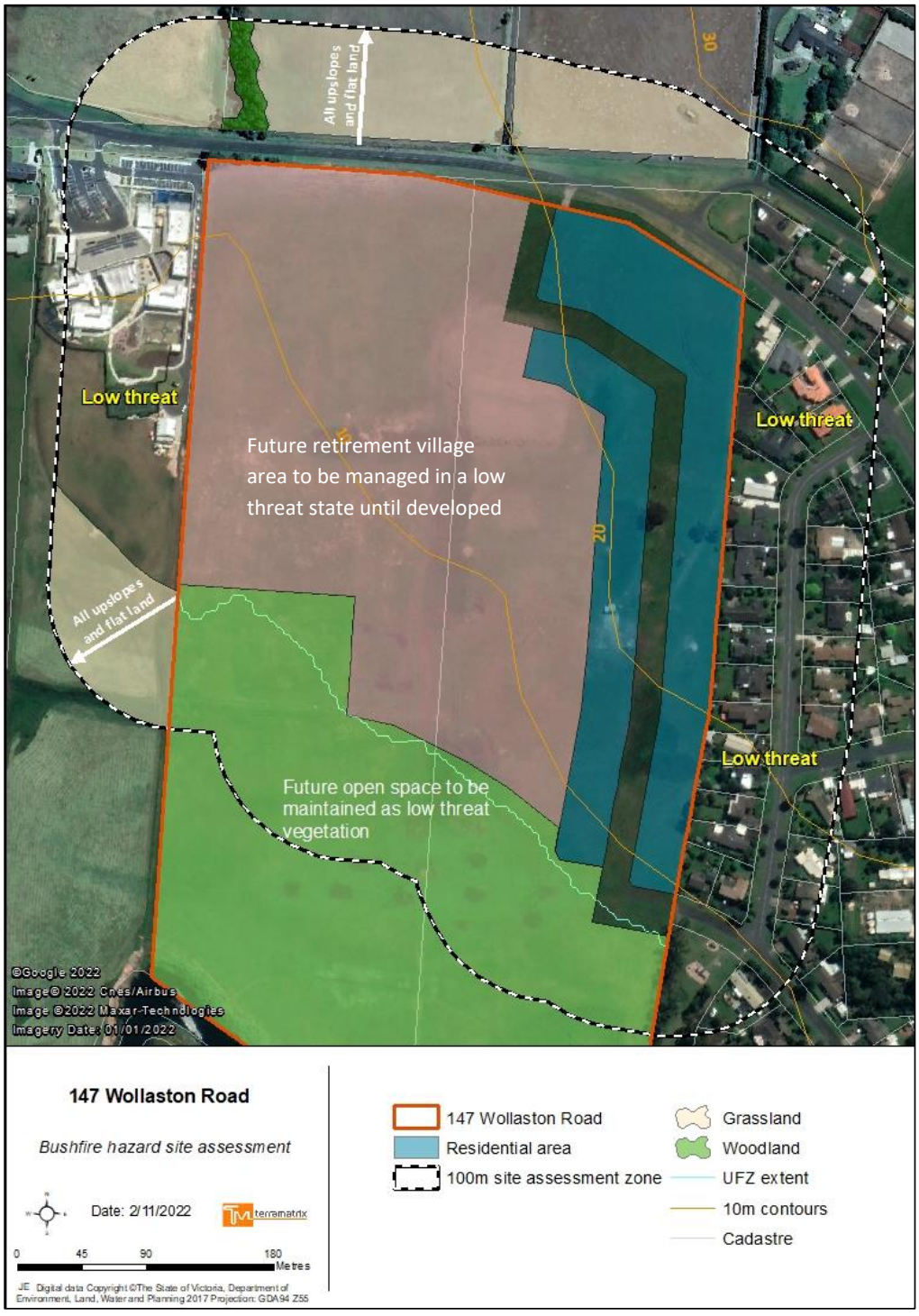
AS 3959-2018 requires that the 'effective slope' be identified to determine the BAL and applicable vegetation setback distances. This is the slope of the land under the classified vegetation[4] that will most significantly influence the bushfire attack on a building. Two broad types apply:

- Flat and/or Upslope - land that is flat or on which a bushfire will be burning downhill in relation to the development. Fires burning downhill (i.e. on an upslope) will generally be moving more slowly with a reduced intensity.
- Downslope - land under the classified vegetation on which a bushfire will be burning uphill in relation to the development. As the rate of spread of a bushfire burning on a downslope (i.e. burning uphill towards a development) is significantly influenced by increases in slope, downslopes are grouped into five classes in 5˚ increments from 0˚ up to 20˚.

The site is in a predominantly flat or undulating or only gently sloping landscape, without significant changes in elevation that would appreciably influence bushfire behaviour. The land to the north rises away from the site in the 'All upslopes and flat land' slope category of AS 3959-2018. The land to the south-west is on the flat area associated with the Merri River and has been assessed as being in the 'All upslopes and flat land' slope category, however the limited information regarding this area means that this slope should be verified through a site assessment.

For the purposes of determining BALs and vegetation setback distances for future development in all affected areas, the applicable slope class is 'All upslopes and flat land'.

[4] The slope of the land between the classified vegetation and the building is called the site slope, which in the Method 1 procedure of AS 3959, is assumed to be the same as the effective slope.



Map 3 – 147 Wollaston Road Bushfire hazard site assessment.

5.5 Future Urban Structure

147 Wollaston Road is located on the southern edge of the of the North of Merri River Structure Plan (Mesh, 2011) (see Figure 4), in an area indicated as future residential development to be created to the north of the existing urban areas of Warrnambool.

The North of Merri River Structure Plan provides a broad picture of the planned expansion of Warrnambool to the north, including the road network, open space, activity centres and community facilities, neighbourhoods and density and the utilities and drainage. The structure plan indicates that in the medium to long term, the land to the north of the site will also comprise low threat residential areas for a distance of 700m, with a comprehensive local road network providing access to the existing urban areas of Warrnambool.

The North of Merri River Structure Plan shows minor reserves and local parks throughout the residential and commercial zones (Mesh, 2011). The Merri River corridor will form the primary open areas close to the site, with potential active open space sports fields proposed to the west.

6 Planning and design response

This section identifies how future development can respond to the bushfire risk, including the requirements of Clause 13.02-1S, published DELWP and CFA guidance and the building regulations applicable to construction in a BPA.

6.1 BAL construction standard

To satisfy the applicable strategies of Clause 13.02-1S, future dwellings and other buildings requiring a BAL (see Section 3.4), should be sufficiently setback from classified vegetation to enable an appropriate construction standard.

Building setbacks are measured from the edge of the classified vegetation to the external wall of a building, excluding eaves, roof overhangs and some other building appurtenances[5] (Standards Australia, 2020) (see Figure 7).

[5] The setback distance is measured from the edge of the classified vegetation to the external wall of the building, or for parts of the building that do not have external walls (including carports, verandas, decks, landings, steps and ramps), to the supporting posts or columns. The following parts of a building are excluded:

a) Eaves and roof overhangs.
b) Rainwater and domestic fuel tanks.
c) Chimneys, pipes, cooling or heating appliances or other services.
d) Unroofed pergolas.
e) Sun blinds (Standards Australia, 2020).

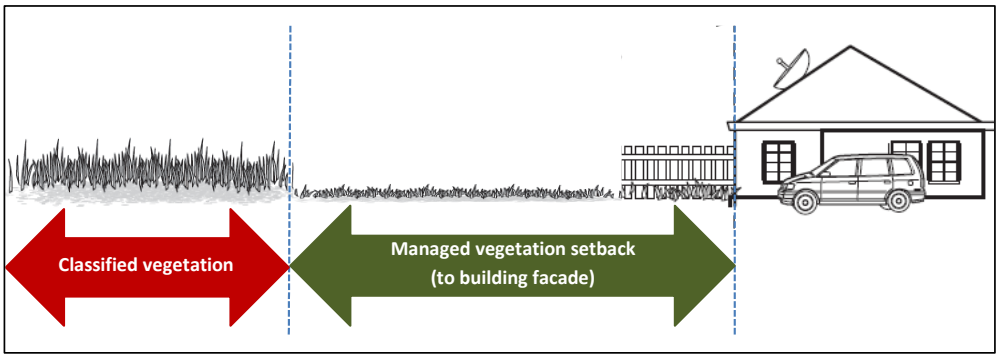


Figure 7 - Example of building-classified vegetation setback (adapted from CFA, 2013).

6.1.1 Building setbacks

The site is exposed to classified Grassland to the north and south-west. Much of this bushfire hazard is a short to medium term issue, with the progressive removal of the hazard as the structure plan is realised. The setbacks required in response to Grassland for BAL-12.5, based on the hazard assessment in Section 5 and determined using the simple Method 1 procedure of AS 3959-2018, are shown in Table 3 below.

Table 3 - Building setbacks for BAL-12.5.

BAL construction standard	Vegetation type	Effective slope	Low threat setback distance (m)
BAL-12.5	Grassland	All upslopes and flat land	19m

As no rezoning or other planning scheme amendment is proposed and the development proposal is consistent with the North of Merri River Structure Plan, the settlement planning strategies of Clause 13.02-1S arguably do not apply and the development of the site is not limited to a BAL-12.5 construction standard for future buildings. BAL-12.5 setbacks are, however, achievable across the site.

Map 3 shows the setbacks required in response to classified Grassland outside of the site. These setbacks are based on assumptions about vegetation retention and management, i.e.:

- All classified vegetation external to the site (see Map 3) will be retained in the short to medium term and will need to be responded to during the design and layout of the subdivision, i.e. buildings will not be able to be constructed within 19m of classified Grassland beyond the site boundary;
- All dwellings and other buildings requiring a BAL will need to have a 19m low threat setback in all directions at the time of building permit application to achieve a BAL-12.5 rating; and
- The vegetation within the open space will be landscaped to create a low threat vegetation (see Map 4 and Section 6.1.2).

The site can respond to the bushfire hazard with an appropriate layout and through the management of vegetation within the future retirement village and open space areas.

6.1.2 Open space and landscaping

Parts of the future open space to the south of the residential development area will comprise low threat vegetation. However, vegetated areas have the potential to create classified vegetation within the site, potentially close to the residential development area.

The supplied plans indicate areas of vegetation within the open space. If this vegetation does not meet the AS 3959-2108 exclusion criteria, it may create a bushfire hazard that requires a higher BAL response from nearby dwellings. Consequently, it is recommended that the layout and landscaping of the open space within 100m of the interface with the future residential areas meet the AS 3959-2018 exclusion criteria.

The exclusion criteria are:

(a) 'Vegetation of any type that is more than 100m from the site.
(b) Single areas of vegetation less than 1 ha in area and not within 100m of other areas of vegetation being classified vegetation.
(c) Multiple areas of vegetation less than 0.25 ha in area and not within 20 m of the site, or each other, or of other areas of vegetation being classified vegetation.
(d) Strips of vegetation less than 20 m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20 m of the site or each other, or other areas of vegetation being classified vegetation.
(e) Non-vegetated areas, that is, areas permanently cleared of vegetation, including waterways, exposed beaches, roads, footpaths, buildings and rocky outcrops.
(f) Vegetation regarded as low threat due to factors such as flammability, moisture content or fuel load. This includes grassland managed in a minimal fuel condition6, mangroves and other saline wetlands, maintained lawns, golf courses (such as playing areas and fairways), maintained public reserves and parklands, sporting fields, vineyards, orchards, banana plantations, market gardens (and other non-curing crops), cultivated gardens, commercial nurseries, nature strips and windbreaks' (Standards Australia, 2020).

As the open space extends more than 100m from the residential development area, vegetation beyond that distance will not constitute a bushfire hazard to the proposed development. Within 100m, the application of exclusion criteria *(c), (d), (e)* and *(f)* will avoid the creation of a bushfire hazard within the site. Information that may assist in achieving this is included below. This area will be managed by Council and must be managed in a low threat state to provide a Minimum of 19m setback from the bushfire hazard for the adjacent dwellings built to a BAL-12.5 construction standard

[6] Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack, recognisable as short-cropped grass for example, to a nominal height of 100mm (Standards Australia, 2020).

(see Map 4). Note that this requirement will also apply to the retirement residential area when developed (not shown on Map 4).

A useful guide to creating low threat landscaping is the CFA publication *Landscaping for Bushfire* available (along with other information) at <https://www.cfa.vic.gov.au/plan-prepare/how-to-prepare-your-property/landscaping>, and which can be used in combination with the 'Firewise' plant selection guide available at <https://www.cfa.vic.gov.au/plan-prepare/how-to-prepare-your-property/landscaping/plant-selection-key/plant-selection-key>.

Within the residential area, landscaping should also consider:

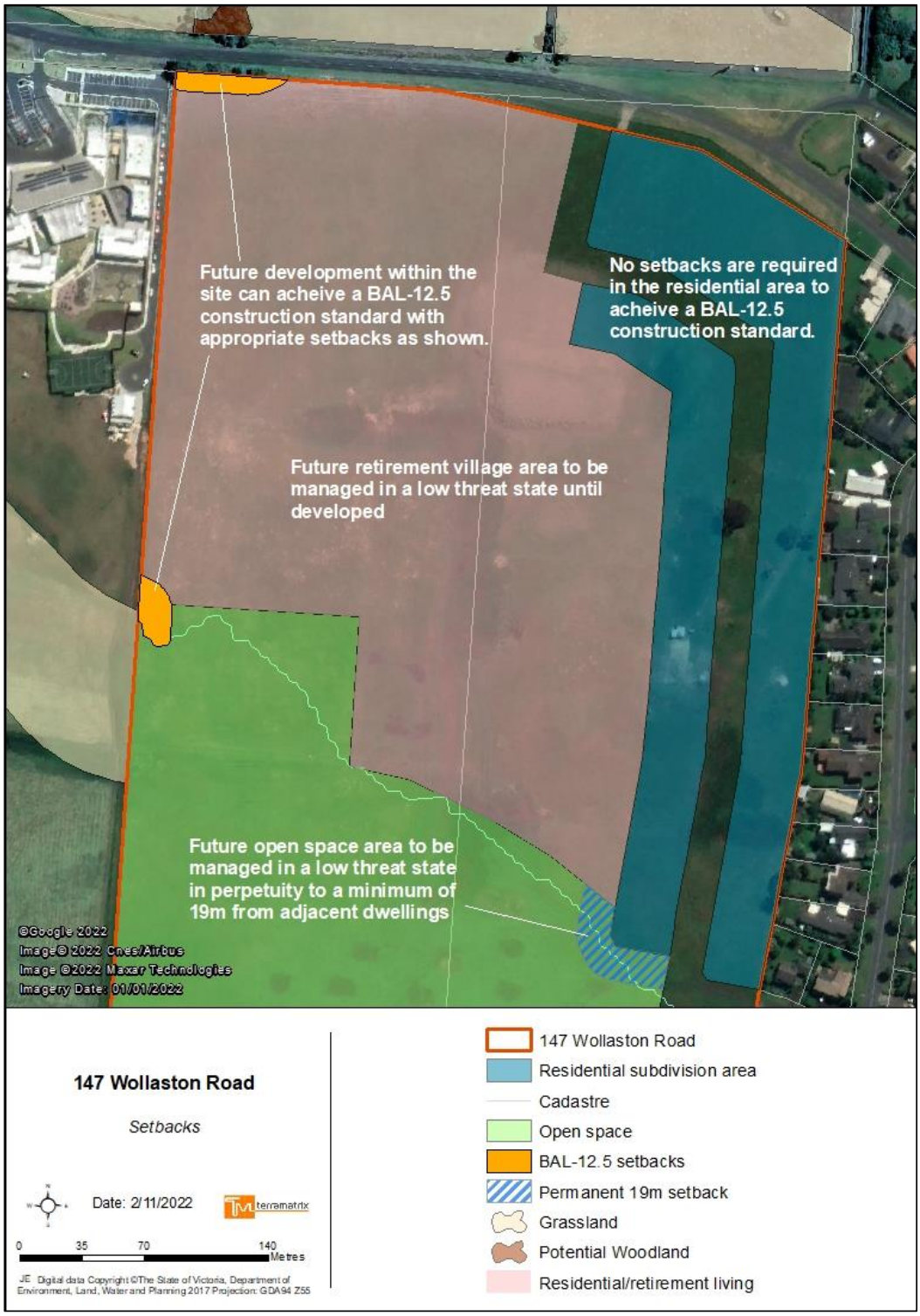
- Avoiding plantings that are in direct contact with buildings;
- Creating breaks in the horizontal and vertical continuity of plantings using non- combustible features such as crushed rock paths or lawn; and
- Using non-combustible mulches such as crushed glass, rock or granitic sand.

Suggested vegetation management standards within and for 100m around the residential development area are:

- Grass should be short cropped and maintained during the declared fire danger
- period.
- All leaves and vegetation debris should be removed at regular intervals during the
- declared fire danger period.
- Flammable objects and materials should not be located within 6m of the building.
- Plants greater than 30 centimetres in height should not be placed within 3m of a
- window or other glazed feature of the building.
- Individual and clumps of shrubs should not exceed 5 sq. metres in area and be
- separated from each other by 5 metres.
- Only low shrubs up to approx. 0.5 metres height at maturity should be planted under
- trees.
- There should be a clearance of approx. 2 metres between the lowest tree branches
- and ground level/understorey shrubs.

6.1.3 Roads and fire hydrants

All roads within the site should meet the guidelines detailed in the CFA publication *Requirements for water supplies and access for subdivisions in Residential 1 and 2 and Township Zones* (CFA, 2006). This publication also provides guidance regarding the provision of a reliable water supply for fire fighting via a conventional reticulated hydrant system, in accordance with the hydrant objective for residential subdivision at Clause 56.09-3 of the Warrnambool Planning Scheme.



Map 4 –Setbacks.

7 Clause 13.02-1S Bushfire planning

The applicable strategies at Clause 13.02-1S are detailed in the following sub-sections, and a summary response is provided about how the proposed development can respond to the strategies.

7.1.1 Protection of human life strategies

Priority must be given to the protection of human life.

Prioritising the protection of human life over all other policy considerations

The site is in a moderate bushfire risk location. The risk will lessen as development in and around the site occurs. Accordingly, the protection of human life can be prioritised by adopting the measures recommended in this report and through application of the existing planning and building regulations for construction in a BPA. There is access to the existing lower threat areas of Warrnambool, and the progressive excision of developed areas from the BPA (and eventually the site itself) will improve access to lower threat areas.

Directing population growth and development to low risk locations and ensuring the availability of, and safe access to, areas where human life can be better protected from the effects of bushfire.

As identified in Section 5.1, the site is in a moderate bushfire risk landscape. Therefore, if future buildings are setback sufficiently from any hazardous vegetation such that they achieve an appropriate BAL, the risk can be deemed to be acceptably mitigated.

The nearest *lowest* risk locations are the developed areas of Warrnambool near the site, and over the Merri River to the south, that are not in the BPA.

As development occurs within the site and on adjacent and nearby land, reliably low threat areas within the site will become eligible for excision from the BPA if they satisfy the exclusion criteria.

Reducing the vulnerability of communities to bushfire through consideration of bushfire risk in decision-making at all stages of the planning process

This report provides the basis for incorporating bushfire risk into decision making associated with planning development in the site.

The CFA (and FRV) consider that community resilience to bushfire will be strengthened (and hence, presumably, vulnerability to bushfire will be reduced) when a strategic planning proposal demonstrates that Clause 13.02-1S strategies have been applied, and

where a proposal takes advantage of existing settlement patterns so that new development will not expose the community to increased risk from bushfire.

The CFA provide principles to respond to Clause 13.02-1S including that settlement planning decisions should;

- *'Direct development to locations of lower bushfire risk.*
- *Carefully consider development in locations where there is significant bushfire risk that cannot be avoided.*
- *Avoid development in locations of extreme bushfire risk.*
- *Avoid development in areas where planned bushfire protection measures may be incompatible with other environmental objectives'* (CFA, 2015).

It is considered that development of the site can appropriately implement the strategies in Clause 13.02-1S that aim to prioritise protection of human life and will, therefore, meet the CFA strategic planning principles for bushfire.

7.1.2 Bushfire hazard identification and assessment strategies

The bushfire hazard must be identified, and an appropriate risk assessment be undertaken.

Applying the best available science to identify vegetation, topographic and climatic conditions that create a bushfire hazard.

This report identifies the hazard in accordance with the commonly accepted methodologies of AS 3959-2018 and, as appropriate, additional guidance provided in *Planning Practice Note 64 Local planning for bushfire protection* (DEWLP, 2015a), *Planning Advisory Note 68 Bushfire State Planning Policy Amendment VC140* (DEWLP, 2018a) and *Planning Permit Applications Bushfire Management Overlay Technical Guide*[7] (DELWP, 2017).

The type and extent of (hazardous) vegetation within, and up to 400m around, the site has been identified and classified into AS 3959-2018 vegetation groups. Classification was based on the anticipated long-term state of the vegetation, EVC mapping, aerial imagery, desktop assessment, published guidance on vegetation assessment for bushfire purposes and experience with the fuel hazard posed by the vegetation types that occur within the region.

GIS analysis of publicly available contour data for the area was undertaken to determine slopes, extending to 100m around the site (see Map 3).

[7] Although the site is not affected by the BMO, DELWP's BMO technical guide provides useful descriptors and guidance for assessing the bushfire risk at the landscape scale, as discussed in Section 5.1.

In relation to climatic conditions and fire weather, the AS 3959-2018 default FFDI 100/GFDI 130 benchmark used in the Victorian planning and building system, has been applied.

Considering the best available information about bushfire hazard including the map of designated bushfire prone areas prepared under the Building Act 1993 or regulations made under that Act.

The extent of BPA coverage has been considered (see Section 3.4) and is shown Map 1 and Map 2. This is based on the most recent BPA mapping for the area, which was gazetted 18th March 2022.

Applying the Bushfire Management Overlay in planning schemes to areas where the extent of vegetation can create an extreme bushfire hazard.

As identified in Section 5, no part of the site is covered by the BMO. This is considered appropriate and reflects relatively state-wide BMO mapping introduced into the Warrnambool Planning Scheme by amendment GC13, which was gazetted on 3rd October 2017.

Considering and assessing the bushfire hazard on the basis of:

- ***Landscape conditions - meaning the conditions in the landscape within 20 kilometres and potentially up to 75 kilometres from a site;***
- ***Local conditions - meaning conditions in the area within approximately 1 kilometre from a site;***
- ***Neighbourhood conditions - meaning conditions in the area within 400 metres of a site; and***
- ***The site for the development.***

The hazard has been assessed and described at the landscape, site, neighbourhood and local scales (see Section 5 and Maps 1, 2, and 3).

At the site scale, the assessment follows the AS 3959-2018 methodology applied in a BPA - by means of a desktop assessment - of classifying vegetation and topography within 100m of a building and, for this study, extending 100m around the site (see Map 3). At the local and neighbourhood scales, the site has been assessed at the 1km and 400m scales (see Map 2).

At the broader landscape scale a 20km radius around the site has been applied (see Section 5.1 and Map 1) in accordance with guidance about assessing risk for planning scheme amendments in Planning Advisory Note 68 (DEWLP, 2018a) and Planning Practice Note 64 (DELWP, 2015a).

Consulting with emergency management agencies and the relevant fire authority early in the process to receive their recommendations and implement appropriate bushfire protection measures.

Terramatrix is unaware of any consultation with fire authorities. It is anticipated Warrnambool City Council will refer this Bushfire Development Report to the CFA for their comments and recommendations.

Ensuring that strategic planning documents, planning scheme amendments, planning permit applications and development plan approvals properly assess bushfire risk and include appropriate bushfire protection measures.

DELWP advisory and practice notes, Clause 13.02-1S, and the building regulations invoked by the BPA coverage, specify the general requirements and standards for assessing the risk, and the bushfire hazard landscape assessment has been considered. The guidance and requirements have been applied in this report as appropriate and bushfire protection measures have been identified commensurate with the risk.

Not approving development where a landowner or proponent has not satisfactorily demonstrated that the relevant policies have been addressed, performance measures satisfied or bushfire protection measures can be adequately implemented.

If the objectives and applicable strategies of Clause 13.02-1S are successfully implemented, as discussed in this report, and the building and planning regulations for construction in a BPA are complied with, then the risk can be deemed to be acceptably mitigated such that development can proceed.

The CFA specify that areas where development should not proceed could include:

- *'Isolated settlements where the size and/or configuration of the settlements will be insufficient to modify fire behaviour and provide protection from a bushfire.*
- *Where bushfire protection measures will not reduce the risk to an acceptable level.*
- *Where evacuation (access) is severely restricted.*
- *Where the extent and potential impact of required bushfire protection measures may be incompatible with other environmental objectives or issues, e.g. vegetation protection, land subject to erosion or landslip'* (CFA, 2015).

None of these criteria or characteristics are applicable to the site.

7.1.3 Settlement planning strategies

As the proposed development does not require a planning scheme amendment and is consistent with the existing zoning, North of Merri River Structure Plan and the settlement objectives and strategies in

the Planning Policy Framework (see Section 3.2), it is considered that the settlement planning strategies are not applicable. They are listed below but not responded to.

Directing population growth and development to low risk locations, being those locations assessed as having a radiant heat flux of less than 12.5 kilowatts/square metre under AS 3959-2009 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009).

Ensuring the availability of, and safe access to, areas assessed as a BAL-LOW rating under AS 3959-2009 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009) where human life can be better protected from the effects of bushfire.

Ensuring the bushfire risk to existing and future residents, property and community infrastructure will not increase as a result of future land use and development.

Achieving no net increase in risk to existing and future residents, property and community infrastructure, through the implementation of bushfire protection measures and where possible reduce bushfire risk overall.

Assessing and addressing the bushfire hazard posed to the settlement and the likely bushfire behaviour it will produce at a landscape, settlement, local, neighbourhood and site scale, including the potential for neighbourhood-scale destruction.

Assessing alternative low risk locations for settlement growth on a regional, municipal, settlement, local and neighbourhood basis.

Not approving any strategic planning document, local planning policy, or planning scheme amendment that will result in the introduction or intensification of development in an area that has, or will on completion have, more than a BAL-12.5 rating under AS 3959-2009'

7.1.4 Areas of high biodiversity conservation value

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

Terramatrix is not aware of any significant biodiversity impacts associated with the development proposal. The site has a history of pastoral use and contains no remnant native vegetation.

7.1.5 Use and development control in a Bushfire Prone Area

Clause 13.02-1S requires that '*In a bushfire prone area designated in accordance with regulations made under the Building Act 1993, bushfire risk should be considered when assessing planning applications for the following uses and development:*

- *Subdivisions of more than 10 lots.*
- *Accommodation.*
- *Childcare centre.*
- *Education centre.*
- *Emergency services facility.*
- *Hospital.*
- *Indoor recreation facility.*
- *Major sports and recreation facility.*
- *Place of assembly.*
- *Any application for development that will result in people congregating in large numbers'* (Warrnambool Planning Scheme, 2018a).

It further states that:
'When assessing a planning permit application for the above uses and development:

- *Consider the risk of bushfire to people, property and community infrastructure.*
- *Require the implementation of appropriate bushfire protection measures to address the identified bushfire risk.*
- *Ensure new development can implement bushfire protection measures without unacceptable biodiversity impacts'* (Warrnambool Planning Scheme, 2018a).

Future development applications should be able to respond to this strategy and achieve acceptable safety if:

- Appropriate setbacks for future development from classified vegetation are achieved to enable appropriate BAL construction, with BAL-12.5 achievable across the site;
- Adequate access and egress for emergency management vehicles is provided by a residential road network; and
- A reliable water supply for firefighting is provided, via a conventional reticulated hydrant system, in accordance with the hydrant objective for residential subdivision at Clause 56.09-3.

8 Conclusion

This report has assessed the bushfire hazard in and around the 147 Wollaston Road site in accordance with Clause 13.02-1S in the Warrnambool Planning Scheme, and the AS 3959-2018 methodology - by means of a desktop assessment - as invoked by the Victorian building and planning regulations, and additional guidance provided in *Planning Practice Note 64 Local planning for bushfire protection* (DEWLP, 2015a) and *Planning Advisory Note 68 Bushfire State Planning Policy Amendment VC140* (DEWLP, 2018).

All areas of the site are currently in a designated BPA. Following development, some of the site will be eligible for excision from the BPA. The landscape is of moderate bushfire risk (Landscape Type 2), which will lessen as development on the subject site and neighbouring land proceeds.

The type and extent of (hazardous) vegetation within, and up to 100m around the site, has been identified and classified into AS 3959-2018 vegetation groups, based on DELWP extant EVC mapping, aerial imagery and publicly available spatial data. The classification is based on the current state of the vegetation outside of the site and identifies that the hazard is exposure to Grassland to the north and south-west, with a small area of Woodland to the north-west.

The terrain of the site and the surrounding landscape is benign from a bushfire perspective, being predominantly flat or gently rising away from the site. For the purposes of determining BALs and vegetation setback distances for future buildings, the applicable slope class is 'All upslopes and flat land'.

Bushfire behaviour can reasonably be expected to be within AS 3959-2018 presumptions and design parameters. Accordingly, it is considered that the risk can be mitigated to an acceptable level, and that future development of the site is appropriate, if dwellings (and any other buildings that require a BAL) are separated from hazardous vegetation to allow an appropriate BAL, in accordance with the building regulations.

A reliable water supply for firefighting can be provided via a conventional reticulated hydrant system in accordance with the hydrant objective for residential subdivision.

The risk to existing residents of Warrnambool will be reduced by the development of additional urban residential areas and associated low threat or non-vegetated land. This will eventually create BAL-LOW areas with the potential to be excised from the BPA if they are sufficiently distant from hazardous vegetation.

9 Appendix A - BALs explained

Bushfire Attack Level (BAL)	Risk Level	Construction elements are expected to be exposed to…	Comment
BAL-Low	VERY LOW: There is insufficient risk to warrant any specific construction requirements but there is still some risk.	No specification.	At 4kW/m^2 pain to humans after 10 to 20 seconds exposure. Critical conditions at 10kW/m^2 and pain to humans after 3 seconds. Considered to be life threatening within 1 minute exposure in protective equipment.
BAL-12.5	LOW: There is risk of ember attack.	A radiant heat flux not greater than 12.5 kW/m^2	At 12.5kW/m^2 standard float glass could fail and some timbers can ignite with prolonged exposure and piloted ignition.
BAL-19	MODERATE: There is a risk of ember attack and burning debris ignited by windborne embers and a likelihood of exposure to radiant heat.	A radiant heat flux not greater than 19 kW/m^2	At 19kW/m^2 screened float glass could fail.
BAL-29	HIGH: There is an increased risk of ember attack and burning debris ignited by windborne embers and a likelihood of exposure to an increased level of radiant heat.	A radiant heat flux not greater than 29 kW/m^2	At 29kW/m^2 ignition of most timbers without piloted ignition after 3 minutes exposure. Toughened glass could fail.
BAL-40	VERY HIGH: There is a much increased risk of ember attack and burning debris ignited by windborne embers, a likelihood of exposure to a high level of radiant heat and some likelihood of direct exposure to flames from the fire front.	A radiant heat flux not greater than 40 kW/m^2	At 42kW/m^2 ignition of cotton fabric after 5 seconds exposure (without piloted ignition).
BAL- FZ (i.e. Flame Zone)	EXTREME: There is an extremely high risk of ember attack and a likelihood of exposure to an extreme level of radiant heat and direct exposure to flames from the fire front.	A radiant heat flux greater than 40 kW/m^2	At 45kW/m^2 ignition of timber in 20 seconds (without piloted ignition).

Source: derived from AS 3959-2018 (Standards Australia, 2020).

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WARRNAMBOOL
CITY COUNCIL

Albert Park Revegetation Plan

OCTOBER 2022

TABLE OF CONTENTS

ACKNOWLEDGEMENTS

A number of groups and individuals have contributed to the information contained in this document, including staff of Warrnambool City Council, Department of Environment, Land, Water and Planning and representatives of Warrnambool Field Naturalists and Albert Park user groups.

Council acknowledges the Eastern Maar Nation as the original custodians of the lands of this general area. Council also acknowledges the descendants of the ancestors of Aboriginal nations within the lands forming the Great South Coast and particularly the elders of the indigenous communities within both Warrnambool and this region.

PREPARED BY:

ACRONYMS

DELWP	Department Environment, Land, Water and Planning
EVC	Ecological Vegetation Class
EVCs	Ecological Vegetation Classes
PPRZ	Public Park and Recreation Zone
WCC	Warrnambool City Council
WSUD	Water Sensitive Urban Design

1. INTRODUCTION

The Albert Park Precinct is approximately 57 hectares of public land located one kilometre north-east of the Warrnambool town centre. The Precinct includes Warrnambool College, Wannon Water facilities, Grieve Street Park, Warrnambool Community Garden, Warrnambool Japanese Garden and the Albert Park Reserve.

Albert Park Reserve makes up approximately 41 hectares of the Precinct and contains facilities for a range of sporting groups and clubs. Facilities within the Reserve include the RW Mack Oval, Reid Oval, Walter Oval, Warrnambool Hockey Fields, City Memorial Bowls Club and infrastructure for the Warrnambool Pony Club. The location of Albert Park is shown in Figure 1.

In 2019, the Albert Park Integrated Water Management Plan was prepared. This Plan identified a range of improvements for Albert Park, including increasing native vegetation within the park and possible future biodiversity link (biolink) between the park and Russells Creek. The benefits of increasing native vegetation with the park include:

- *Increase cooling*
- *Mitigate the urban heat island effect*
- *Improve amenity*
- *Improve air quality*
- *Provide refuge for wildlife to move safely within an urban environment*
- *Create wildlife habitat, and*
- *Intercept stormwater runoff*

(WCC, 2019, p. 15)

The extension of native revegetation works east of Grafton Road does not form part of the scope of this revegetation project. At a later date, a biolink extending between Albert Park and Russells Creek may be considered by Council. This link would be subject to further consultation and design.

Revegetation works within the park also provide the opportunity to provide future biolinks south to the foreshore. The Warrnambool Coastcare Landcare Group and the Warrnambool Community Garden have requested that Albert Park form part of a future Blue Wren biolink.

Any future biolinks would complement works already being undertaken across the municipality outlined in Council plans such as the South of Merri Open Space Precinct Plan 2020 (WCC) and Warrnambool Coast Vegetation Management Plan 2012 (WCC). Providing a biolink, north to south, across much of the municipality linking the Merri River, Russells Creek, Hopkins River and the foreshore.

The Integrated Water Management Plan highlighted increasing vegetation in the following areas:

- *East of Mack Oval*
- *At the corner of Grafton Road and Cramer Street, as Warrnambool College has expressed interest in increasing vegetation in this area.*
- *The middle of Albert Park, creating a link from the existing established vegetation and the native Kangaroo Grass closer to Russells Creek.*

  (WCC, 2019, p. 15)

Revegetation within Albert Park will form '*an essential action in supporting the IWM and improving the environmental and biodiversity values of the park* (WCC, 2019, p, 15).'

The Existing Conditions Plan (Appendix 1) and Site Analysis Plan (Appendix 2) show the location and existing conditions in Albert Park. Opportunities for revegetation works and general improvements to enhance biodiversity and public use of the Park are identified on these plans.

1.1 WHAT INFORMED THE REVEGETATION PLAN?

The Albert Park Revegetation Plan draws on the site analysis, discussions with stakeholders and existing strategies, frameworks and policies relating to revegetation and 'greening' of Warrnambool.

Relevant plans, policies, strategies and frameworks applicable to landscaping and revegetation of Albert Park include:

- *Warrnambool Planning Scheme, Warrnambool City Council*
- *Warrnambool Council Plan 2021-2025, Warrnambool City Council*
- *Warrnambool Open Space Strategy 2014, Warrnambool City Council*
- *Green Warrnambool 2018, Warrnambool City Council*
- *Warrnambool City Council Revegetation Policy and Guidelines 2021,* and
- *Albert Park Integrated Water Management Plan 2019, Warrnambool City Council*

FIGURE 1: ALBERT PARK SITE LOCATION

1.2 WHAT IS THE PURPOSE OF THE REVEGETATION PLAN?

The purpose of the Albert Park Revegetation Plan is to define areas suitable for revegetation zones, taking into consideration all users of the park, and to make recommendations for planting within these zones. The Plan seeks to provide improved ecological outcomes for the park whilst maintaining and enhancing social and recreational outcomes for park users.

Through discussion with stakeholders, it was suggested that this site would present an excellent opportunity to provide habitat that focusses on bird and insect pollinators, including larvae of pollinating insects. Pollinators have not been a key focus of many revegetation projects in the Warrnambool area.

The objectives of revegetating areas of Albert Park are to:

- *Increase biodiversity through the planting of native plant species.*
- *Create an ecosystem that supports the establishment of pollinator species, particularly focusing on pollinator species for insects.*
- *Incorporate a range of local indigenous species, including from the local ecological vegetation class.*
- *Assist in achieving goals for Warrnambool 2040, Green Warrnambool and other adopted plans.*
- *Ensure safety of park users, by maintaining passive surveillance and providing adequate clearance alongside the path network.*

The Albert Park Revegetation Plan is provided at Appendix 3. This plan identifies areas or zones for future planting and the recommended vegetation categories.

2. PLANT ECOLOGY

The Warrnambool Plain Bioregion covers most of Warrnambool City. According to the State Government's modelled data (DELWP, 2020), the ecological vegetation class (EVC) that was likely to have been present prior to the 1750s in Albert Park was Damp Sands Herb-rich Woodland (EVC 3).

Figure 2 shows the modelled location of Ecological Vegetation Classes EVCs prior to the 1750s. (DELWP, 2020) (DELWP[1], 2020).

2.1 DAMP SANDS HERB-RICH WOODLAND (EVC 3)

Damp Sands Herb-rich Woodland (EVC 3) is dominated by Eucalypt forest or open woodland up to 15 m tall with a large shrub and ground layer. This EVC grows on moderately fertile, relatively well-drained sand or loamy topsoils over heavier subsoils. EVC 3 is located close to the coastline, separating the Coastal Dune Scrub and Swamp Scrub/Aquatic Herbland from the inland Plains Grassy Woodland.

In EVC 3, tree cover is approximately 15% and consists of Manna Gum (*Eucalyptus viminalis*), Swamp Gum (*Eucalyptus ovata*) and Blackwood (*Acacia melanoxylon*).

In EVC3 Understorey is a diverse range of shrubs, herbs and graminoids including Prickly Tea-tree (*Leptospermum continentale),* Silver Banksia (*Banksia marginata*), Common Heath (*Epacris impressa*), Running Postman (*Kennedia prostrata*), Tall Rush (*Juncus procerus*), Velvet Tussock-grass (*Poa rodwayi*), Tasman Flax-lily (*Dianella tasmanica*), Kangaroo Grass (*Themeda triandra*) and others. (DELWP1, 2020)

There are 29 typical species found in EVC 3. But not all of these 29 species are suitable for revegetation projects, due to difficulty in propagation and establishment. For this reason, it is considered appropriate to broaden the species selection to those from nearby EVCs, including EVC 53 Swamp Scrub, EVC 55 Plains Grassy Woodland and EVC 160 Coastal Dune Scrub as well as some native species outside of these EVCs.

2.2 EXISTING VEGETATION

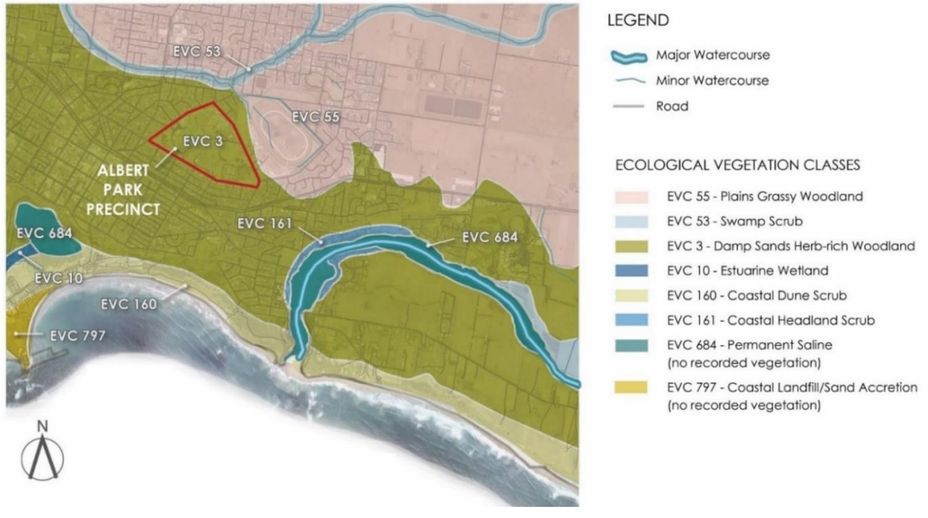
A mixed assortment of species have been planted in Albert Park. Most are native species, including Coast Banksia (*Banksia integrifolia*), Willow Myrtle (*Agonis flexuosa*), Stringybark (*Eucalyptus baxteri*), Seaberry Saltbush *(Rhagodia candolleana),* Wattles *(Acacia spp.)* and Casuarinas *(Allocasuarina spp.).* Some exotic species, including Aleppo Pine (*Pinus halepensis*) and Radiata Pine (*Pinus radiata*) have also been planted. The Aleppo Pines were planted as a windrow next to Mack Oval and as feature trees through the Park. Radiata Pine has self-seeded through vegetation patches. The intent is to gradually transition to native species.

A significant portion of the site are perennial grass areas that are mown on a regular basis. There is a small area of Kangaroo Grass (*Themeda triandra*) between Reid Oval and Walter Oval, which has previously been fenced off for management purposes. It is likely there are numerous locations across the Park that contain native grasses.

2.3 WEEDS

A declared noxious weed, Chilean Needle Grass (*Nassella neesiana*), has been identified in Albert Park. It is important that control of this weed is undertaken as a priority to prevent further spread within the park or to other sites. A carefully implemented weed control program needs to be in place prior to any new revegetation plantings occurring.

FIGURE 2: ECOLOGICAL VEGETATION MAP



2.4 PLANTS FOR POLLINATORS

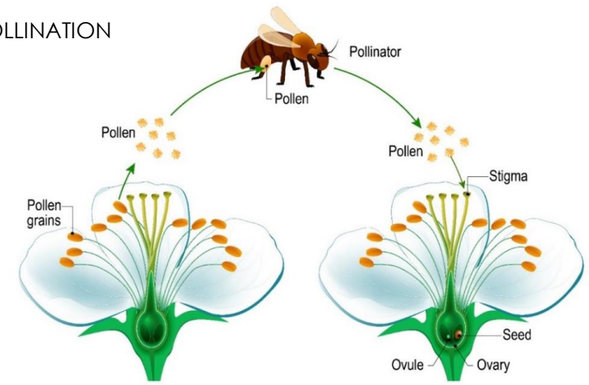
Many animals, including insects, birds and mammals, play a role as pollinators, transferring pollen between flowering plants.

Insect pollinators help pollinator-dependent flowering plants and crops to survive and thrive. A range of insects, including native and honey bees, hoverflies, beetles, wasps, thrips, moths and butterflies, provide pollination services. (Wheen Bee Foundation, 2020)

Insects visit flowers to eat nectar or pollen. Whilst feeding, the pollen becomes stuck to their bodies. When these insects visit other flowers looking for more nectar or pollen to eat, the pollen falls or rubs off onto the flower. If the pollen is from the same species as the flower being visited, pollination is likely to occur. If conditions and timing are right, fertilisation of the flower may occur following pollination. Refer to Figure 3.

'*Plants attract pollinators in various ways, by offering pollen or nectar meals and by guideline them to the flower using scent and visual cues.* (Australian Museum, 2022)' Ensuring diversity in plant species and flowering time is important so that pollinator reward, either pollen or nectar, is available all year round to meet the needs of the various insects.

FIGURE 3: INSECT POLLINATION



2.5 REVEGETATION SPECIES SELECTION

There are varying views from individuals, organisations and groups regarding the range of species that should be planted in public open space reserves in Warrnambool. For this project, a large percentage of species indigenous to the Warrnambool Plains Bioregion (aprx. 65%) have been selected. In addition to these, a selection of native Victorian species, mostly from nearby Victorian bioregions, that are known to attract pollinators and/or small birds or provide food for pollinator insect larvae, have also been included. A total of 79 native species have been selected for planting in Albert Park. These 79 species will provide good diversity in plant forms and heights and food and habitat for various invertebrates and vertebrates.

It is recognised that many exotic species such as Buddleja, Convolvulus, Lavender and others, as well as many native species from other parts of Australia have high visitation from pollinators and birds. Exotic species have not been included in Albert Park as the aim is to transition to native species. Plant selection also focuses on native species from Victorian. The vegetation species mix and planting densities should be monitored over the life of the project to determine if, and when any alterations are required.

2.6 SITE CONDITIONS AND SPECIES SELECTION

Due to topography and location, Albert Park is relatively exposed. The sparsely planted open areas are subject to strong winds. This makes establishing plants, and particularly trees, challenging. Choosing the right plants for the right place is essential if they are to grow and perform well. Plants must not only be selected for their ability to tolerate the site conditions, including strong winds, they must also have other desirable characteristics that encourage insect pollinators and be suited to the surrounding recreation uses.

Manna Gum, Swamp Gum and Blackwood which are commonly found in EVC 3 Damp Sands Herb-rich Woodland are large trees, which are well-suited to moist conditions in valleys and lower lying areas. One of the features of Albert Park is that it is located on a rise in an exposed position, so many of the tree and shrub species found in EVC 3 may not establish easily in the park. These three tree species from EVC 3 have been included in the revegetation species list, but the list has been broadened to include species outside of this EVC which may perform better in the exposed locations.

2.7 REVEGETATION CATEGORIES

For the purposes of the revegetation plan, the following categories have been used to define the vegetation on the revegetation plan:

CATEGORY A - WOODLAND

'The term woodland is generally used in Australia to describe ecosystems which contain widely spaced trees, the crowns of which do not touch (Yates & Hobbs 1997). In temperate Australia, woodlands are mainly dominated by Eucalyptus species. Temperate woodlands occur predominantly in regions with a mean annual rainfall of between 250-800mm, forming a transitional zone between the higher rainfall forested margins of the continent and the shrub and grasslands of the arid interior (Beadle 1981) (DCCEEW, 2022).'

The understorey species selected for the woodland should be of an appropriate height/form so that good passive surveillance can be achieved throughout the park, particularly adjacent paths.

CATEGORY B – SCRUB

'Scrub' typically consists of woody plants up to 8m tall, frequently with many stems arising at or near the base. In the Albert Park setting, 'scrub' is useful in providing wind breaks for exposed sites to enhance the comfort of park users, but it can also provide the necessary wind protection to help adjacent species to establish. The planting of scrub through the park is limited, as scrub limits sightlines.

CATEGORY C – MIXED GRAMINOIDS/HERBS/LOW SHRUBS

This category is based on a typical 'grassland' dominated by grasses and herbs with few shrubs or trees. This category includes a range of low growing species, <1.2m in height to maintain good viewlines. In some locations adjacent roads or near intersections lower growing species <0.5m in height should be selected to maintain viewlines for vehicle drivers.

CATEGORY D – SUPPLEMENTARY PLANTING

Plant selection in existing vegetated areas is informed by the site-specific vegetation present in the existing vegetation zone. Supplementary planting may include a mix of Categories A, B and/or C.

2.7 ALBERT PARK REVEGETATION SPECIES LIST

There are a variety of native species considered suitable for planting in Albert Park. Table 1 includes a full list of recommended species. The plant images at Figure 4, show some examples of the species included in Table 1.

FIGURE 4: EXAMPLES OF SPECIES SUITABLE FOR PLANTING IN ALBERT PARK

Allocasuarina verticillata
Drooping Sheoak

Banksia marginata
Silver Banksia

Leptospermum continentale
Prickly Tea-tree

Ficinia nodosa
Knobby Club-rush

Dianella tasmanica
Tasman Flax Lily

Ozothamnus ferrugineus
Tree Everlasting

Melaleuca lanceolata
Moonah

Acacia melanoxylon
Blackwood

Acaena novae-zelandiae
Bidgee-Widgee

Bursaria spinosa
Sweet Bursaria

TABLE 1: ALBERT PARK REVEGETATION SPECIES LIST

		ECOLOGICAL VEGETATION CLASS				REVEGETATION ZONE				POLLINATOR	
SCIENTIFIC NAME	**COMMON NAME**	**Damp Sands Herb-rich Woodland**	**Swamp Scrub**	**Plains Grassy Woodland**	**Coastal Dune Scrub**	**Woodland**	**Scrub**	**Mixed Graminoids/Herbs/Small Shrubs**	**Supplementary Planting**	**Known Pollinator Reward (Nectar and/or Pollen)**	**Known Larval Food for Butterflies**
MEDIUM TO LARGE TREES (TYPICALLY >8M)		**EVC3**	**EVC53**	**EVC55**	**EVC160**	**W**	**S**	**MG**	**SP**	**POLLINATOR**	**LARVAL FOOD**
Acacia mearnsii	Black Wattle			✓		✓				✓	
Acacia melanoxylon	Blackwood	✓	✓	✓		✓				✓	✓
**Allocasuarina verticillata*	Drooping Sheoak					✓				✓	
**Eucalyptus baxteri*	Brown Stringybark					✓				✓	
***Eucalyptus obliqua*	Messmate Stringybark					✓				✓	
Eucalyptus ovata	Swamp Gum	✓	✓			✓				✓	
Eucalyptus viminalis	Manna Gum	✓				✓				✓	
LARGE SHRUBS AND SMALL TREES (2-8M)		**EVC3**	**EVC53**	**EVC55**	**EVC160**	**W**	**S**	**MG**	**SP**	**POLLINATOR**	**LARVAL FOOD**
Acacia pycnantha	Golden Wattle			✓		✓	✓		✓	✓	✓
Acacia verticillate	Prickly Moses	✓		✓		✓	✓		✓	✓	
**Apophyllum anomalum*	Currant Bush					✓	✓		✓	✓	
Banksia marginata	Silver Banksia	✓				✓	✓		✓	✓	
**Bursaria spinosa*	Sweet Bursaria					✓	✓		✓	✓	
**Melaleuca lanceolata*	Moonah					✓	✓		✓	✓	
Melaleuca squarrosa	Scented Paperbark		✓			✓	✓		✓	✓	
Myoporum insulare	Common Boobialla	✓	✓		✓	✓	✓		✓		
Ozothamnus ferrugineus	Tree Everlasting			✓		✓	✓		✓	✓	

MEDIUM SHRUBS (TYPICALLY 1-2M)		EVC3	EVC53	EVC55	EVC160	W	S	MG	SP	POLLINATOR	LARVAL FOOD
Acacia myrtifolia	Myrtle Wattle		✓	✓		✓	✓		✓	✓	
**Correa alba*	Coast Correa					✓	✓		✓	✓	
**Daviesia latifolia*	Hop Bitter-Pea					✓	✓		✓	✓	
Epacris impressa	Common Heath	✓				✓	✓		✓	✓	
**Goodenia ovata*	Hop Goodenia					✓	✓		✓	✓	
[d]*Hakea rostrata*	Beaked Hakea					✓	✓		✓	✓	
[c]*Hakea sericea*	Silky Hakea					✓	✓		✓	✓	
Leptospermum continentale	Prickly Tea-tree	✓				✓	✓		✓	✓	
Leptospermum scoparium	Manuka		✓			✓	✓		✓	✓	
Leucopogon parviflorus	Coast Beard Heath				✓	✓	✓		✓		
Olearia axillaris	Coast Daisy Bush				✓	✓	✓		✓		
Rhagodia candolleana ssp. *Candolleana*	Seaberry Saltbush				✓	✓	✓		✓		✓
**Senna artemisioides*	Silver Cassia					✓	✓		✓		✓
SMALL SHRUBS AND PROSTRATE SHRUBS (TYPICALLY <1M)		**EVC3**	**EVC53**	**EVC55**	**EVC160**	**W**	**S**	**MG**	**SP**	**POLLINATOR**	**LARVAL FOOD**
Astroloma humifusum	Cranberry Heath	✓		✓		✓		✓	✓	✓	
Acrotriche serrulate	Honey-pots	✓				✓		✓	✓		
Bossiaea prostrata	Creeping Bossiaea			✓		✓		✓	✓		
**Correa reflexa* var. *reflexa* 'Granny's Grave'	Granny's Grave Correa					✓		✓	✓	✓	
[c]*Hakea rubosa*	Dwarf Hakea					✓		✓	✓	✓	
Hibbertia stricta s.l.	Upright Guinea-flower	✓				✓		✓	✓		
**Leucophyta brownie*	Cushion Bush							✓	✓	✓	
Pimelea humilis	Common Rice-flower		✓	✓		✓		✓	✓		
MEDIUM HERBS (TYPICALLY 0.4-1M)		**EVC3**	**EVC53**	**EVC55**	**EVC160**	**W**	**S**	**MG**	**SP**	**POLLINATOR**	**LARVAL FOOD**
Acaena echinate	Sheep's Burr			✓		✓		✓	✓		
Acaena novae-zelandiae	Bidgee Widgee			✓		✓		✓	✓	✓	
Gonocarpus tetragynus	Common Raspwort	✓		✓		✓		✓	✓		
Hypericum gramineum	Small St John's Wort	✓				✓		✓	✓		
Lagenophora stipitata	Common Bottle-daisy	✓				✓		✓	✓		
Oxalis perennans	Grassland Wood-sorrel			✓		✓		✓	✓		
Stackhousia spathulata	Coast Stackhousia				✓						
Wahlenbergia gymnoclada	Naked Bluebell	✓				✓		✓	✓		
**Xerochrysum viscosum*	Shiny Everlasting					✓		✓	✓		✓

SMALL HERBS (TYPICALLY <0.4M)		EVC3	EVC53	EVC55	EVC160	W	S	MG	SP	POLLINATOR	LARVAL FOOD
***Cullen tenax*	Emu Foot					✓		✓	✓		✓
Dichondra repens	Kidney-weed		✓	✓		✓		✓	✓		
Hydrocotyle laxiflora	Stinking Pennywort	✓		✓		✓		✓	✓		
Kennedia prostrata	Running Postman	✓				✓		✓	✓		
Oxalis exilis	Shady Wood-sorrel	✓				✓		✓	✓		
Solenogyne dominii	Smooth Solenogyne	✓				✓		✓	✓		
LARGE GRAMINOIDS (TYPICALLY 0.7-2.0M)		**EVC3**	**EVC53**	**EVC55**	**EVC160**	**W**	**S**	**MG**	**SP**	**POLLINATOR**	**LARVAL FOOD**
Austrostipa bigeniculata	Kneed Spear-grass			✓		✓		✓	✓		
Austrostipa mollis	Supple Spear-grass			✓		✓		✓	✓		
Baumea rubiginosa s.l.	Soft Twig-rush	✓				✓		✓	✓		
Carex appressa	Tall Sedge		✓			✓		✓	✓		✓
Deyeuxia quadriseta	Reed Bent-grass	✓				✓		✓	✓		
Gahnia sieberiana	Red-fruit Saw-sedge		✓			✓		✓	✓		✓
Juncus procerus	Tall Rush	✓				✓		✓	✓		
Lepidosperma longitudinale	Pithy Sword-sedge	✓				✓		✓	✓		
**Lomandra longifolia*	Spiny Headed Mat Rush					✓		✓	✓	✓	✓
***Lomandra spicata*	Jungle Mat Rush					✓		✓	✓	✓	✓
MEDIUM GRAMINOIDS (TYPICALLY 0.4-0.7M)		**EVC3**	**EVC53**	**EVC55**	**EVC160**	**W**	**S**	**MG**	**SP**	**POLLINATOR**	**LARVAL FOOD**
***Dianella brevicaulis*	Coast Flax-lily					✓		✓	✓		✓
***Dianella longifolia*	Pale Flax-lily					✓		✓	✓		✓
**Dianella revoluta*	Black Anther Flax-lily					✓		✓	✓		✓
**Dianella tasmanica*	Tasman Flax-lily					✓		✓	✓		✓
Elymus scaber var. *scaber*	Common Wheat-grass			✓		✓		✓	✓		
Ficinia nodosa	Knobby Club-rush				✓			✓	✓	✓	
Lomandra filiformis	Wattle Mat-rush	✓				✓		✓	✓		✓
Microlaena stipoides var. *stipoides*	Weeping Grass	✓		✓		✓		✓	✓		✓
***Patersonia occidentalis*	Long Purple Flag					✓		✓	✓		
**Poa labillardierei*	Common Tussock-grass			✓		✓		✓	✓		✓
Poa rodwayi	Velvet Tussock-grass	✓		✓		✓		✓	✓		✓
**Poa tenera*	Slender Tussock-grass					✓		✓	✓		✓
Rytidosperma caespitosum	Bristly Wallaby-grass			✓		✓		✓	✓		✓
Rytidosperma racemosum var. *racemosum*	Striped Wallaby-grass			✓		✓		✓	✓		✓
Themeda triandra	Kangaroo Grass	✓		✓		✓		✓	✓		✓

CLIMBERS		EVC3	EVC53	EVC55	EVC160	W	S	MG	SP	POLLINATOR	LARVAL FOOD
Clematis microphylla var. *microphylla*	Small-leaved Clematis				✓	✓		✓	✓		
Comesperma volubile	Love Creeper	✓				✓		✓	✓		

NOTES:
*Native species indigenous to Warrnambool Plain Bioregion, but not commonly found in EVC3, 53, 55 or 160. Known pollinator species suitable for site conditions with low risk of naturalisation and weediness.
**Native species but non-indigenous to Warrnambool Plain Bioregion. Known pollinator species suitable for site conditions with low risk of naturalisation and weediness.
***Native species indigenous to Warrnambool Plain Bioregion, but not commonly found in EVC3, 53, 55 or 160. Known Koala habitat species suitable for site conditions with low risk of naturalisation and weediness.
[c]Native species indigenous to Central Victorian Uplands. Known pollinator species suitable for site conditions with low risk of naturalisation and weediness.
[d]Native species indigenous to Dundas Tablelands. Known pollinator species suitable for site conditions with low risk of naturalisation and weediness.

Pollinator information obtained from: Flora of South Australia - http://www.flora.sa.gov.au/, Wheen Bee Foundation - www.wheenbeefoundation.org.au, Warrnambool Field Naturalists – list of larval food species provided to Council

3. CONSULTATION SUMMARY

3.1 CONSULTATION FEEDBACK

Consultation with the community and stakeholders was undertaken in September 2022. This Consultation sought feedback on the draft Albert Park Revegetation Plan. A total of 9 submissions were received. There were submissions from 4 organisations and 5 individuals. A summary of submissions is provided at Appendix 5.

Requests for changes included:

- Weed threats to be further discussed.
- Add more large trees for habitat and shade.
- Create biolinks through the park and to Russells Creek and the foreshore.
- Concern that species list has too many 'non-indigenous' species.
- Concern that species list will create homogenous parkland.
- Request for additional *Eucalyptus spp*. to be included for Koala habitat.
- Request for *Correa reflexa* var. *reflexa* 'Granny's Grave' to be planted in this park and to help secure the future population of this species in Warrnambool.
- Request for additional species to be added for small bird habitat, including Blue Wrens.

RESPONSES/CHANGES AS A RESULT OF CONSULTATION

A common theme raised in the submissions was the importance of improving biodiversity and providing habitat within Albert Park.

Balancing the needs of existing park users and enhancing habitat for wildlife within public open space can be challenging for park managers and there is a need to ensure that Albert Park remains a safe and functional space for existing recreation users. Continued monitoring of park usage and the revegetation works within the park is required to ensure this balance is right. As stakeholder needs and usage of the Park changes over time, or new projects such as biolinks occur, the plan should be updated to reflect these changes.

This Plan focuses on revegetation works within Albert Park. Some of the suggestions in the submissions relate to biolinks on adjoining land that are outside the scope of works for this project. However, the revegetation zones within the Park have been designed to extend to the park edges at Coulstock Street and Grafton Road, which will allow for continuation of biolinks to and from the Park in the future.

Suggestions that have been incorporated into this final version of the Revegetation Plan include:

- Weed threats and weed management have been discussed in more detail.
- Additional *Eucalyptus spp*. have been included on the revegetation species list to provide for additional Koala habitat.
- *Correa reflexa* var. *reflexa* 'Granny's Grave' has been included on the revegetation species list.
- Additional shrubs have been added along revegetation zones closest to Coulstock Street to provide additional habitat for small birds and possible future biolink for Blue Wrens.
- The revegetation species list has been broadened to include three *Hakea spp.* from Victoria for additional bird habitat.

FIGURE 5: A HONEY BEE VISITING A NATIVE TEA-TREE FLOWER

4. IMPLEMENTATION

4.1 STAGED IMPLEMENTATION

This Revegetation Plan is intended to be implemented over a number of years. The timing for delivery of revegetation works may be dependent on:

- Council priorities and budget allocations.
- Availability of funding programs and grant opportunities.
- Community support and involvement from community groups.
- Timing of park projects, such as the construction of integrated water management infrastructure, including wetland and raingarden.

The following Implementation Plan at Table 2 provides a suggested approach to planting of Areas 1 to 23.

4.2 CULTURAL HERITAGE

Warrnambool has been home to Traditional Owners for thousands of years. This site at Albert Park is in an area of Cultural Heritage Sensitivity.

Eastern Maar Aboriginal Corporation (EMAC) will need to be actively engaged and involved early in the planning phase for any new infrastructure requiring Cultural Heritage Management Plans (CHMP) under the Aboriginal Heritage Act 2006. Any permit approvals for new infrastructure must align with the recommendations of the relevant Cultural Heritage Management Plan, following its approval.

4.3 PARK FEATURES

Additional features that could be incorporated into Albert Park include:

- 'Insect hotels' to encourage pollinators (example shown at Figure 6).
- Seating for park users.
- Signage and information about pollination and insect pollinators.
- Art or sculptures for added visual interest.

4.4 THREATS

Weed species pose significant threats to native fauna and flora and biodiversity.

In addition to Chilean Needle Grass (*Nassella neesiana*), mentioned at Section 2.3, there are other weeds which will need to be controlled pre- and post-planting to ensure newly planted native vegetation does not become out-competed. Weed species that are dispersed by seed, such as Cocksfoot (*Dactylis glomerata*), Cat's Ear (*Hypochaeris radicata*) and Capeweed (*Arctotheca calendula*) present challenges when revegetating areas. Seeds of some species may be dormant in the ground or new seeds may be spread in the area by birds, animals, machinery or other means even after weed control preparation works have taken place.

In order for the revegetation works to be successful, weed control will need to be a key focus and priority within the park. A concerted weed control program is required in all newly planted areas to help ensure the success of revegetation planting occurs.

4.5 MONITORING

The project outcomes, maintenance and monitoring should be reported on in accordance with Warrnambool City Council's Revegetation Guidelines. Reporting on project outcomes and success of each revegetation zone will assist in ensuring future plantings avoid any past mistakes.

Monitoring of revegetation sites involves the recording and analysis of observations over time and is an important aspect of any project. Monitoring allows project managers to:

- See what is happening at the site
- Identify the need for any further maintenance, such as weed control or any replanting requirements in relation to plant losses
- Provides continued learning to improve current or future projects, and
- Assists in determining the success of the project

It is essential that monitoring begins at the start of the project, during the planning stages, as this allows for the collection of baseline data. It is also important to ensure the monitoring program is not subjective and easily repeatable so it can be carried out by different people over the life of the project.

One of the simplest ways to monitor a project is through photographs. A fixed location must be set up to ensure the same area is photographed over time. These photographs can then provide a record of changes in the vegetation. The photo monitoring point must be recorded and marked, along with the camera settings used. When selecting a photo monitoring point, the future growth of vegetation must be considered, this is particularly important when planting trees as the revegetated area should not be blocked by future tree growth.

Observations at the time of photographic monitoring should also be recorded. This information combined with the photographs can build a more effective picture of the site and assist in determining the success and/or failure of species, allowing the modification of practices for future projects.

FIGURE 6: AN ‘INSECT HOTEL’ PROVIDES ADDITIONAL HABITAT FOR INSECTS

TABLE 2: IMPLEMENTATION PLAN

STAGE 1 - YEARS 1 TO 3				
SITE PREPARATION	**DESCRIPTION OF WORKS**		**COMMENTS/ADDITIONAL INFORMATION**	
N/A	Grass identification		• Prior to any weed removal or revegetation work occurring within the Park, it is recommended that a contractor with excellent grass identification skills be employed to locate native grasses and invasive exotic grasses, including Chilean Needle Grass (*Nassella neesiana)* across the Park. The contractor should also be engaged to provide recommendations for future management of both native grasses and exotic grass weed species in the Park.	
N/A	Weed Control for entire site.		• Commence containment and reduction of Chilean Needle Grass (*Nassella neesiana)* which has been found in various locations throughout park. Chemical application required. Prioritise contractors with excellent grass identification skills to ensure correct identification of Chilean Needle Grass. • Undertake removal of Radiata Pine (*Pinus radiata*) and other woody weeds.	
VEGETATION ZONE NUMBER	**DESCRIPTION OF WORKS**	**ZONE AREA (APRX. SQUARE METRES)**	**COMMENTS/ADDITIONAL INFORMATION**	**REVEGETATION AREA (APRX. SQUARE METRES)**
7	Revegetation Category A – Woodland located in centre of park	4,020m².		4,020m²
8	Revegetation Category D – Supplementary Planting located on north side of Mack Oval	3,455m²	• There is existing established vegetation scattered in this area.	1,728m² (aprx. 50% of area)
11	Revegetation Category B – Scrub located near Mack Oval on west side of existing row of Aleppo Pines	1,760m²	• Planting of Zone 11 with scrub will provide a windbreak to help protect new tree plantings when Aleppo Pines are eventually replaced with native species in the future.	1,760m²
20	Revegetation Category C - Mixed Graminoids/Herbs and Low Shrubs around raingarden and swale located near Coulstock Street	705m²	• Planting to occur at same time as raingarden and swale construction.	705m²
22	Revegetation Category C - Mixed Graminoids/Herbs and Low Shrubs located around proposed wetland near Coulstock Street and Revegetation Category D – Supplementary Planting along park edge adjoining Coulstock Street and next to wetland (between Kelp Street and vehicle east of Japan Street)	3,030m² 4,385m²	• Planting to occur at same time as wetland construction. • Planting to occur at same time as wetland construction.	3,030m² 3,070m² (aprx. 70% of area)
			TOTAL REVEGETATION AREA	**14,313m² (1.431 hectares)**

STAGE 2 - YEARS 3 TO 5				
VEGETATION ZONE NUMBER	**DESCRIPTION OF WORKS**	**ZONE AREA (APRX. SQUARE METRES)**	**COMMENTS/ADDITIONAL INFORMATION**	**REVEGETATION AREA (SQUARE METRES)**
1	Revegetation Category D – Supplementary Planting north of entry closest to Japan Street	3,100m²		1,550m² (aprx. 50% of area)
2	Revegetation Category C - Mixed Graminoids/Herbs and Low Shrubs near existing grassland and Revegetation Category D – Supplementary Planting near existing grassland	820m² 630m²	• Undertake inspection of existing drainage swale with engineering input, to ensure future revegetation works provide additional water quality improvements without restricting water flows through swale. • Undertake inspection of existing drainage swale (same as above)	820m² 315m² (aprx. 50% of area)
3	Revegetation Category D – Supplementary Planting	1,240m²		620m² (aprx. 50% of area)
4	Revegetation Category A – Woodland and Revegetation Category D – Supplementary Planting	1,780m² 880m²		1,780m² 440m² (aprx. 50% of area)
5	Revegetation Category C - Mixed Graminoids/Herbs and Low Shrubs and Revegetation Category D – Supplementary Planting	390m² 1,030m²		390m² 515m² (aprx. 50% of area)
6	Revegetation Category A – Woodland located in centre of park	3,030m²		3,030m²
			TOTAL REVEGETATION AREA	**9,460m² (0.946 hectares)**

STAGE 3 - 6 TO 8 YEARS				
VEGETATION ZONE NUMBER	**DESCRIPTION OF WORKS**	**ZONE AREA (APRX. SQUARE METRES)**	**COMMENTS/ADDITIONAL INFORMATION**	**REVEGETATION AREA (SQUARE METRES)**
10	Revegetation Category B – Scrub located along park edge to Grafton Road and Revegetation Category A – Woodland	750m² 2,550m²	• Planting of scrub along the edge of Zone 10 will provide a windbreak to help protect revegetation in Zone 10.	750m² 2,550m²
13	Revegetation Category C - Mixed Graminoids/Herbs and Low Shrubs along norther edge of zone and Revegetation Category D – Supplementary Planting	535m² 2,200m²	• Removal any woody weeds regrowth prior to planting.	535m² 1,100m² (aprx. 50% of area)
14	Revegetation Category D – Supplementary Planting	970m²		485m² (aprx. 50% of area)
15	Revegetation Category D – Supplementary Planting	5,700m²		2,850m² (aprx. 50% of area)
16	Revegetation Category C - Mixed Graminoids/Herbs and Low Shrubs along norther edge of zone and Revegetation Category D – Supplementary Planting along Wannon Water boundary	1,480m² 4,600m²	• Existing planting includes array of medium and large shrubs and trees.	1,480m² 2,300m² (aprx. 50% of area)
			TOTAL REVEGETATION AREA	**12,050m² (1.205 hectares)**

STAGE 4 - 8+ YEARS				
SITE PREPARATION	**DESCRIPTION OF WORKS**		**COMMENTS/ADDITIONAL INFORMATION**	
N/A	Removal of Aleppo Pines on western side of Mack Oval.		• Stump removal/grinding may be required.	
N/A	Conduct review of Stage 1 planting around Zones 20 and 22 water sensitive urban design features.		• Review water flows through WSUD treatments and revegetation works surrounding the WSUD treatments. Conduct new/supplementary planting and altered species selection, where required, to ensure optimal functioning of WUD assets.	
VEGETATION ZONE NUMBER	**DESCRIPTION OF WORKS**	**ZONE AREA (APRX. SQUARE METRES)**	**COMMENTS/ADDITIONAL INFORMATION**	**REVEGETATION AREA (SQUARE METRES)**
9	Revegetation Category A – Woodland near Warrnambool College	672m²		672m²
12	Revegetation Category A – Woodland located on western side of Mack Oval	3,200m²	• Stump removal of Aleppo Pines may be required prior to commencement of revegetation planting.	3,200m²
17	Revegetation Category D – Supplementary Planting along park edge adjoining Coulstock Street east of Craig Street	1,740m²		1,218m² (aprx. 70% of area)
18	Revegetation Category D – Supplementary Planting along park edge adjoining Coulstock Street west of Craig Street to pedestrian entry	1,180m²		826m² (aprx. 70% of area)
19	Revegetation Category D – Supplementary Planting along park edge adjoining Coulstock Street east of Foster Street to pedestrian entry	1,540m²		1078m² (aprx. 70% of area)
21	Revegetation Category D – Supplementary Planting along park edge adjoining Coulstock Street west of Foster Street between vehicle entry points	1,870m²		1,309m² (aprx. 70% of area)
23	Revegetation Category D – Supplementary Planting along park edge adjoining Coulstock Street between Cramer Street and Kelp Street	1,340m²		938m² (aprx. 70% of area)
			TOTAL REVEGETATION AREA	**9,241m² (0.924 hectares)**

IMPLEMENTATION NOTES:

- Ensure edge of revegetation maintains a suitable distance from the pony club trail and shared paths to maintain safe clearance zones and sightlines.
- Ensure species growing to <0.5m in height are selected adjacent vehicle access road to maintain viewlines for vehicle drivers
- Site preparation works will be required prior to planting of each vegetation zone. Preparation will require:
  - marking out of revegetation site
  - calculation of revegetation area
  - removal of weeds and grass
  - addition of mulch

5. REFERENCES

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FIGURE 7: A BUTTERFLY VISITING A PAPER DAISY FLOWER

APPENDIX 1 – ALBERT PARK EXISTING CONDITIONS PLAN

LEGEND

- Albert Park Precinct Boundary
- Fence
- Vehicle access
- Maintenance access (informal track)
- Pedestrian path/shared trail
- Access Point
- Playground
- Contours (0.5m)
- High Point
- Approximate location of Pony Club Jump Circuit feature (currently in use)
- Kangaroo Grass (*Themeda triandra*) protection area
- Trees/shrubs
- Existing drainage line (swale)
- Photograph reference point (Refer to photographs below)
- Public mulch collection area

Note: Chilean Needle Grass (*Nassella neesiana*) has been found within the Park. The locations and extent of this noxious weed is to be confirmed through onsite inspection and plant identification.

REVISION	DATE	REVISION DESCRIPTION	DESIGNED
A	24/11/2021	FOR DISCUSSION PURPOSES	E.MARSLEN
B	02/12/2021	PLAN AMENDED TO INCLUDE MULCH COLLECTION AREA	E.MARSLEN
C	03/02/2022	FOR REVIEW. ADDITIONAL ITEMS ADDED TO PLAN.	E.MARSLEN
D	04/05/2022	REVISIONS IN RESPONSE TO STAKEHOLDER FEEDBACK	E.MARSLEN
E	23/10/2022	REVISIONS IN RESPONSE TO CONSULTATION FEEDBACK	E.MARSLEN

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Project Title
REVEGETATION PROJECT
ALBERT PARK WARRNAMBOOL

Drawing Title
EXISTING CONDITIONS PLAN

Project Number	File/Drawing Number	Drawing Status	Sheet	Revision
2021072	072-EC1	FINAL	1/1	E

APPENDIX 2 – ALBERT PARK SITE ANALYSIS PLAN

LEGEND

- Albert Park Precinct Boundary
- Fence
- Vehicle access
- Maintenance access (informal track)
- Pedestrian path/shared trail
- Access Point
- Playground
- Contours (0.5m)
- High Point
- Approximate location of Pony Club Jump Circuit feature (currently in use)
- Kangaroo Grass (*Themeda triandra*) protection area
- Trees/shrubs
- Existing drainage line (swale)
- Site identified for future Water Sensitive Urban Design feature
- Public mulch collection area

OPPORTUNITIES

(A) Improve the environmental and biodiversity values of the park with additional planting. Opportunity to focus on providing varied habitat for a range of local pollinator species, including bees, butterflies, moths, beetles and birds.

(B) Enhance social and recreational values of the park by improving the appearance of planted areas, providing additional shade for visitors and attracting new visitors by incorporating interactive play/learning features to complement the new plantings for pollinators.

(C) Support integrated water management improvements by planting areas surrounding water sensitive urban design features and drainage lines. This will help improve water quality through additional stormwater filtration.

(D) Replace ageing Pine trees with native vegetation.

(E) Potential to improve path netwwork throughout park particularly in well-trafficked grass areas and south-west corner, possibly connecting to the Japanese Garden.

(F) Enhance existing patches of vegetation and minimise the need for mowing under existing trees and shrubs by providing additional understorey planting.

(G) Reduce risk of Chilean Needle Grass spreading further through park or to other sites by carrying out a carefully implemented weed control program prior to any new plantings.

REVISION	DATE	REVISION DESCRIPTION	DESIGNED
A	24/11/2021	FOR DISCUSSION PURPOSES	E.MARSLEN
B	02/12/2021	PLAN AMENDED TO INCLUDE MULCH COLLECTION AREA	E.MARSLEN
C	03/02/2022	FOR REVIEW. ADDITIONAL ITEMS ADDED TO PLAN.	E.MARSLEN
D	04/05/2022	REVISIONS IN RESPONSE TO STAKEHOLDER FEEDBACK	E.MARSLEN
E	23/10/2022	REVISIONS IN RESPONSE TO CONSULTATION FEEDBACK	E.MARSLEN

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Project Title: REVEGETATION PROJECT
ALBERT PARK WARRNAMBOOL

Drawing Title: SITE ANALYSIS PLAN

Project Number	File/Drawing Number	Drawing Status	Sheet	Revision
2021072	072-SA1	FINAL	1/1	E

APPENDIX 3 – ALBERT PARK REVEGETATION PLAN

LEGEND

- Albert Park Precinct Boundary
- Fence
- Vehicle access
- Maintenance access (informal track)
- Pedestrian path/shared trail
- Possible future path extension
- Access Point
- Playground
- Kangaroo Grass protection area to be retained
- (1) Proposed Revegetation Area with zone identification number
- Revegetation Category A Woodland
- Revegetation Category B Scrub
- Revegetation Category C Mixed Graminoids/Herbs/Low Shrubs
- Revegetation Category D Supplementary Planting Proposed revegetation under existing shrubs and trees (combination of Categories A, B and C)
- Existing Pony Club Jump Circuit Feature to be retained
- Existing Pony Club Jump Circuit Feature to be relocated
- Existing Pony Club Jump Circuit Feature to be removed
- Site identified for future Water Sensitive Urban Design feature
- Public mulch collection area
- Future Yarning Circle (approximate location, as identified in the Albert Park Integrated Water Management Plan)

REVISION	DATE	REVISION DESCRIPTION	DESIGNED
A	24/11/2021	FOR DISCUSSION PURPOSES	E.MARSLEN
B	02/12/2021	PLAN AMENDED TO INCLUDE MULCH COLLECTION AREA	E.MARSLEN
C	03/02/2022	FOR REVIEW. ADDITIONAL ITEMS ADDED TO PLAN.	E.MARSLEN
D	04/05/2022	REVISIONS IN RESPONSE TO STAKEHOLDER FEEDBACK	E.MARSLEN
E	25/10/2022	REVISIONS IN RESPONSE TO CONSULTATION FEEDBACK	E.MARSLEN

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Notes
Revision B - Modifications to proposed revegetation areas following site visits and discussion with stakeholders
Revision C - Modifications to proposed revegetation areas following review by client and stakeholders

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Project Title
REVEGETATION PROJECT
ALBERT PARK WARRNAMBOOL

Drawing Title
REVEGETATION PLAN - CONCEPT

Project Number	File/Drawing Number	Drawing Status	Sheet	Revision
2021072	072-RP1	FINAL	1/1	E

APPENDIX 4 –ZONE REVEGETATION PLANTING GUIDE

ZONE 1 – 0.3100Ha				
SUPPLEMENTARY PLANTING – REVEGETATION CATEGORY D (SITE-SPECIFIC DEPENDING ON EXISTING VEGETATION)				
Total Area = 3,100 square metres **Total Revegetation Area = 1,550 square metres or 0.155 hectares (aprx. 50% of area)**	**% Cover**	**Total area x** **% cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	N/A	1,550sqm	8/Ha	2
Small Trees, Large Shrubs	15%	232.5sqm	1 plant per 3 square metres	78
Medium Shrubs	0%	0sqm	1 plant per 2 square metres	0
Small Shrubs and Prostrate Shrubs	15%	232.5sqm	1 plant per square metre	233
Medium Herbs	20%	310.0sqm	4 plants per square metre	1240
Small Herbs and Prostrate Herbs	10%	155.0sqm	6 plants per square metre	930
Large graminoids	20%	310.0sqm	2 plants per square metre	620
Medium graminoids	20%	310.0sqm	4 plants per square metre	1240
Total	**100%**	**1,550sqm**	**Total Number of Plants**	**4,343**

ZONE 2 – 0.1450Ha

MIXED HERBS, GRAMINOIDS AND LOW SHRUBS - REVEGETATION CATEGORY C

Total Area = 820 square metres **Total Revegetation Area = 820 square metres or 0.082 Hectares (100% of area)**	**% Cover**	**Total area x** **% cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	N/A	0sqm	0/Ha	0
Small Trees, Large Shrubs	0%	0sqm	0/Ha	0
Medium Shrubs	0%	0sqm	1 plant per 2 square metres	0
Small Shrubs and Prostrate Shrubs	18%	147.6sqm	1 plant per square metre	148
Medium Herbs	23%	188.6sqm	4 plants per square metre	755
Small Herbs and Prostrate Herbs	13%	106.6sqm	6 plants per square metre	640
Large graminoids	23%	188.6sqm	2 plants per square metre	378
Medium graminoids	23%	188.6sqm	4 plants per square metre	756
Total	**100%**	**820sqm**	**Total Number of Plants**	**2,677**

SUPPLEMENTARY PLANTING – REVEGETATION CATEGORY D (SITE-SPECIFIC DEPENDING ON EXISTING VEGETATION)

Total Area = 630 square metres **Total Revegetation Area = 315 square metres or 0.0315 hectares (aprx. 50% of area)**	**% Cover**	**Total area x** **% cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	N/A	315sqm	8/Ha	2
Small Trees, Large Shrubs	15%	47.3sqm	1 plant per 3 square metres	16
Medium Shrubs	0%	0sqm	1 plant per 2 square metres	0
Small Shrubs and Prostrate Shrubs	15%	47.3sqm	1 plant per square metre	48
Medium Herbs	20%	63.0sqm	4 plants per square metre	252
Small Herbs and Prostrate Herbs	10%	31.5sqm	6 plants per square metre	189
Large graminoids	20%	63.0sqm	2 plants per square metre	126
Medium graminoids	20%	63.0sqm	4 plants per square metre	252
Total	**100%**	**315sqm**	**Total Number of Plants**	**885**

ZONE 3 – 0.124Ha

SUPPLEMENTARY PLANTING – REVEGETATION CATEGORY D (SITE-SPECIFIC DEPENDING ON EXISTING VEGETATION)

Total Area = 1,240 square metres **Total Revegetation Area = 620 square metres or 0.062 hectares (aprx. 50% of area)**	**% Cover**	**Total area x** **% cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	N/A	620sqm	8/Ha	2
Small Trees, Large Shrubs	15%	93.0sqm	1 plant per 3 square metres	31
Medium Shrubs	0%	0sqm	1 plant per 2 square metres	0
Small Shrubs and Prostrate Shrubs	15%	93.0sqm	1 plant per square metre	93
Medium Herbs	20%	124.0sqm	4 plants per square metre	496
Small Herbs and Prostrate Herbs	10%	62sqm	6 plants per square metre	372
Large graminoids	20%	124sqm	2 plants per square metre	248
Medium graminoids	20%	124sqm	4 plants per square metre	248
Total	**100%**	**620sqm**	**Total Number of Plants**	**1,490**

ZONE 4 – 0.266Ha

WOODLAND – REVEGETATION CATEGORY A

Total Area = 1,780 square metres **Total Revegetation Area = 1,780 square metres 0.178 hectares (100% of area)**	**% Cover**	**Total area x** **% cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	N/A	1,780sqm	15/Ha	4
Small Trees, Large Shrubs	0%	N/A	1 plant per 3 square metres	0
Medium Shrubs	0%	0sqm	1 plant per 2 square metres	0
Small Shrubs and Prostrate Shrubs	18%	320.0sqm	1 plant per square metre	320
Medium Herbs	23%	409.4sqm	4 plants per square metre	1638
Small Herbs and Prostrate Herbs	13%	231.4sqm	6 plants per square metre	1389
Large graminoids	23%	409.4sqm	2 plants per square metre	819
Medium graminoids	23%	409.4sqm	4 plants per square metre	1638
Total	**100%**	**1,780sqm**	**Total Number of Plants**	**5,804**

SUPPLEMENTARY PLANTING – REVEGETATION CATEGORY D (SITE-SPECIFIC DEPENDING ON EXISTING VEGETATION)

Total Area = 880 square metres **Total Revegetation Area = 440 square metres or 0.044 hectares (aprx. 50% of area)**	**% Cover**	**Total area x** **% cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	N/A	440sqm	8/Ha	2
Small Trees, Large Shrubs	15%	66sqm	1 plant per 3 square metres	22
Medium Shrubs	0%	0sqm	1 plant per 2 square metres	0
Small Shrubs and Prostrate Shrubs	15%	66sqm	1 plant per square metre	66
Medium Herbs	20%	88sqm	4 plants per square metre	352
Small Herbs and Prostrate Herbs	10%	44sqm	6 plants per square metre	264
Large graminoids	20%	88sqm	2 plants per square metre	176
Medium graminoids	20%	88sqm	4 plants per square metre	352
Total	**100%**	**440sqm**	**Total Number of Plants**	**1,234**

ZONE 5 – 0.1420Ha

MIXED HERBS, GRAMINOIDS AND LOW SHRUBS - REVEGETATION CATEGORY C

Total Area = 390 square metres **Total Revegetation Area = 390 square metres or 0.039 Hectares (100% of area)**	**% Cover**	**Total area x** **% cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	N/A	0sqm	0/Ha	0
Small Trees, Large Shrubs	0%	0sqm	0/Ha	0
Medium Shrubs	0%	0sqm	1 plant per 2 square metres	0
Small Shrubs and Prostrate Shrubs	18%	70.2sqm	1 plant per square metre	71
Medium Herbs	23%	89.7sqm	4 plants per square metre	359
Small Herbs and Prostrate Herbs	13%	50.7sqm	6 plants per square metre	305
Large graminoids	23%	89.7sqm	2 plants per square metre	180
Medium graminoids	23%	89.7sqm	4 plants per square metre	359
Total	**100%**	**390sqm**	**Total Number of Plants**	**1,274**

SUPPLEMENTARY PLANTING – REVEGETATION CATEGORY D (SITE-SPECIFIC DEPENDING ON EXISTING VEGETATION)

Total Area = 1,030 square metres **Total Revegetation Area = 515 square metres or 0.0515 hectares (aprx. 50% of area)**	**% Cover**	**Total area x** **% cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	N/A	515sqm	8/Ha	2
Small Trees, Large Shrubs	15%	77.3sqm	1 plant per 3 square metres	26
Medium Shrubs	0%	0sqm	1 plant per 2 square metres	0
Small Shrubs and Prostrate Shrubs	15%	77.3sqm	1 plant per square metre	78
Medium Herbs	20%	103.0sqm	4 plants per square metre	412
Small Herbs and Prostrate Herbs	10%	51.5sqm	6 plants per square metre	309
Large graminoids	20%	103.0sqm	2 plants per square metre	206
Medium graminoids	20%	103.0sqm	4 plants per square metre	412
Total	**100%**	**515sqm**	**Total Number of Plants**	**1,445**

ZONE 6 – 0.303Ha

WOODLAND – REVEGETATION CATEGORY A

Total Area = 3,030 square metres **Total Revegetation Area = 3,030 square metres or 0.303 Hectares (100% of area)**	**% Cover**	**Total area x** **% cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	N/A	3,030sqm	15/Ha	6
Small Trees, Large Shrubs	0%	N/A	1 plant per 3 square metres	0
Medium Shrubs	0%	0sqm	1 plant per 2 square metres	0
Small Shrubs and Prostrate Shrubs	18%	545.4sqm	1 plant per square metre	546
Medium Herbs	23%	696.9sqm	4 plants per square metre	2,788
Small Herbs and Prostrate Herbs	13%	393.9sqm	6 plants per square metre	2,364
Large graminoids	23%	696.9sqm	2 plants per square metre	1,394
Medium graminoids	23%	696.9sqm	4 plants per square metre	2,788
Total	**100%**	**3,030.0sqm**	**Total Number of Plants**	**9,880**

ZONE 7 – 0.402Ha

WOODLAND – REVEGETATION CATEGORY A

Total Area = 4,020 square metres **Total Revegetation Area = 4,020 square metres or 0.402 Hectares (100% of area)**	**% Cover**	**Total area x** **% cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	N/A	4,020 sqm	15/Ha	8
Small Trees, Large Shrubs	0%	N/A	1 plant per 3 square metres	0
Medium Shrubs	0%	0sqm	1 plant per 2 square metres	0
Small Shrubs and Prostrate Shrubs	18%	723.6sqm	1 plant per square metre	724
Medium Herbs	23%	924.6sqm	4 plants per square metre	3,699
Small Herbs and Prostrate Herbs	13%	522.6sqm	6 plants per square metre	3,136
Large graminoids	23%	924.6sqm	2 plants per square metre	1,849
Medium graminoids	23%	924.6sqm	4 plants per square metre	3,699
Total	**100%**	**4,020sqm**	**Total Number of Plants**	**13,115**

ZONE 8 – 0.3455Ha				
SUPPLEMENTARY PLANTING – REVEGETATION CATEGORY D (SITE-SPECIFIC DEPENDING ON EXISTING VEGETATION)				
Total Area = 3,455 sqm **Total Revegetation Area = 1,728 sqm or 0.1728 hectares (aprx. 50% of area)**	**% Cover**	**Total area x** **% cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	N/A	1,728sqm	8/Ha	3
Small Trees, Large Shrubs	15%	259.2sqm	1 plant per 3 square metres	87
Medium Shrubs	0%	0sqm	1 plant per 2 square metres	0
Small Shrubs and Prostrate Shrubs	15%	259.2sqm	1 plant per square metre	260
Medium Herbs	20%	345.6sqm	4 plants per square metre	1,383
Small Herbs and Prostrate Herbs	10%	172.8sqm	6 plants per square metre	1,037
Large graminoids	20%	345.6sqm	2 plants per square metre	692
Medium graminoids	20%	345.6sqm	4 plants per square metre	1,383
Total	**100%**	**1,728sqm**	**Total Number of Plants**	**4,845**

ZONE 9 – 0.0672Ha				
WOODLAND – REVEGETATION CATEGORY A				
Total Area = 672 sqm **Total Revegetation Area = 672 sqm or 0.0672 Hectares (100% of area)**	**% Cover**	**Total area x** **% cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	N/A	672sqm	15/Ha	2
Small Trees, Large Shrubs	0%	N/A	1 plant per 3 square metres	0
Medium Shrubs	0%	0sqm	1 plant per 2 square metres	0
Small Shrubs and Prostrate Shrubs	18%	121.0sqm	1 plant per square metre	121
Medium Herbs	23%	154.6sqm	4 plants per square metre	619
Small Herbs and Prostrate Herbs	13%	87.4sqm	6 plants per square metre	525
Large graminoids	23%	154.6sqm	2 plants per square metre	310
Medium graminoids	23%	154.6sqm	4 plants per square metre	619
Total	**100%**	**672sqm**	**Total Number of Plants**	**2,196**

ZONE 10 – 0.330Ha

SCRUB – REVEGETATION CATEGORY B

Total Area = 750sqm Total Area = 750 square metres or 0.075 hectares	% Cover	Total area x % cover applied	Planting Density	Number of Plants for Area
*Medium and Large Trees	0%	0sqm	0/Ha	0
Small Trees, Large Shrubs	50%	375sqm	1 plant per 3 square metres	125
Medium Shrubs	50%	375sqm	1 plant per 2 square metres	188
Small Shrubs and Prostrate Shrubs	0%	0sqm	1 plant per square metre	0
Medium Herbs	0%	0sqm	4 plants per square metre	0
Small Herbs and Prostrate Herbs	0%	0sqm	6 plants per square metre	0
Large graminoids	0%	0sqm	2 plants per square metre	0
Medium graminoids	0%	0sqm	4 plants per square metre	0
Total	**100%**	**750sqm**	**Total Number of Plants**	**313**

WOODLAND – REVEGETATION CATEGORY A

Total Area = 2,550sqm Total Revegetation Area = 2,550sqm or 0.2550 Hectares (100% of area)	% Cover	Total area x % cover applied	Planting Density	Number of Plants for Area
*Medium and Large Trees	N/A	2,550sqm	15/Ha	5
Small Trees, Large Shrubs	0%	N/A	1 plant per 3 square metres	0
Medium Shrubs	0%	0sqm	1 plant per 2 square metres	0
Small Shrubs and Prostrate Shrubs	18%	459.0sqm	1 plant per square metre	459
Medium Herbs	23%	586.5sqm	4 plants per square metre	2,346
Small Herbs and Prostrate Herbs	13%	331.5sqm	6 plants per square metre	1,989
Large graminoids	23%	586.5sqm	2 plants per square metre	1,173
Medium graminoids	23%	586.5sqm	4 plants per square metre	2,346
Total	**100%**	**2,550sqm**	**Total Number of Plants**	**8,318**

ZONE 11 - 0.176Ha

SCRUB – REVEGETATION CATEGORY B

Total Area = 1,760 sqm **Total Area = 1,760 sqm or 0.1760 hectares**	**% Cover**	**Total area x** **% cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	0%	0sqm	0/Ha	0
Small Trees, Large Shrubs	50%	880sqm	1 plant per 3 square metres	293
Medium Shrubs	50%	880sqm	1 plant per 2 square metres	440
Small Shrubs and Prostrate Shrubs	0%	sqm	1 plant per square metre	0
Medium Herbs	0%	sqm	4 plants per square metre	0
Small Herbs and Prostrate Herbs	0%	sqm	6 plants per square metre	0
Large graminoids	0%	sqm	2 plants per square metre	0
Medium graminoids	0%	sqm	4 plants per square metre	0
Total	**100%**	**1,760sqm**	**Total Number of Plants**	**733**

ZONE 12 – 0.320Ha

WOODLAND – REVEGETATION CATEGORY A

Total Area = 3,200sqm **Total Revegetation Area = 3,200sqm or 0.320 Hectares (100% of area)**	**% Cover**	**Total area x** **% cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	N/A	3,200sqm	15/Ha	7
Small Trees, Large Shrubs	0%	N/A	1 plant per 3 square metres	0
Medium Shrubs	0%	0sqm	1 plant per 2 square metres	0
Small Shrubs and Prostrate Shrubs	18%	576.0sqm	1 plant per square metre	576
Medium Herbs	23%	736.0sqm	4 plants per square metre	2,944
Small Herbs and Prostrate Herbs	13%	416.0sqm	6 plants per square metre	2,496
Large graminoids	23%	736.0sqm	2 plants per square metre	1,472
Medium graminoids	23%	736.0sqm	4 plants per square metre	2,944

Total	**100%**	**3,200sqm**	**Total Number of Plants**	**10,439**

ZONE 13 – 0.2735Ha

MIXED HERBS, GRAMINOIDS AND LOW SHRUBS - REVEGETATION CATEGORY C

Total Area = 535 sqms **Total Revegetation Area = 535sqm or 0.0535 Hectares (100% of area)**	**% Cover**	**Total area x** **% cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	N/A	0sqm	0/Ha	0
Small Trees, Large Shrubs	0%	0sqm	0/Ha	0
Medium Shrubs	0%	0sqm	1 plant per 2 square metres	0
Small Shrubs and Prostrate Shrubs	18%	96.3sqm	1 plant per square metre	97
Medium Herbs	23%	123.1sqm	4 plants per square metre	493
Small Herbs and Prostrate Herbs	13%	69.6sqm	6 plants per square metre	420
Large graminoids	23%	123.1sqm	2 plants per square metre	246
Medium graminoids	23%	123.1sqm	4 plants per square metre	493
Total	**100%**	**535sqm**	**Total Number of Plants**	**1,749**

SUPPLEMENTARY PLANTING – REVEGETATION CATEGORY D (SITE-SPECIFIC DEPENDING ON EXISTING VEGETATION)

Total Area = 2,200sqm **Total Revegetation Area = 1,100sqm or 0.110 hectares (aprx. 50% of area)**	**% Cover**	**Total area x** **% cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	N/A	1,100sqm	8/Ha	2
Small Trees, Large Shrubs	15%	165.0sqm	1 plant per 3 square metres	55
Medium Shrubs	0%	0sqm	1 plant per 2 square metres	0
Small Shrubs and Prostrate Shrubs	15%	165.0sqm	1 plant per square metre	165
Medium Herbs	20%	220.0sqm	4 plants per square metre	880
Small Herbs and Prostrate Herbs	10%	110.0sqm	6 plants per square metre	660
Large graminoids	20%	220.0sqm	2 plants per square metre	440
Medium graminoids	20%	220.0sqm	4 plants per square metre	880
Total	**100%**	**1,100sqm**	**Total Number of Plants**	**3,082**

ZONE 14– 0.097Ha

SUPPLEMENTARY PLANTING – REVEGETATION CATEGORY D (SITE-SPECIFIC DEPENDING ON EXISTING VEGETATION)

Total Area = 970 sqm **Total Revegetation Area = 485sqm or 0.0485 hectares (aprx. 50% of area)**	**% Cover**	**Total area x** **% cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	N/A	485sqm	8/Ha	2
Small Trees, Large Shrubs	15%	72.8sqm	1 plant per 3 square metres	25
Medium Shrubs	0%	0sqm	1 plant per 2 square metres	0
Small Shrubs and Prostrate Shrubs	15%	72.8sqm	1 plant per square metre	73
Medium Herbs	20%	97.0sqm	4 plants per square metre	388
Small Herbs and Prostrate Herbs	10%	48.5sqm	6 plants per square metre	291
Large graminoids	20%	97.0sqm	2 plants per square metre	194
Medium graminoids	20%	97.0sqm	4 plants per square metre	388
Total	**100%**	**485sqm**	**Total Number of Plants**	**1,361**

ZONE 15– 0.570Ha

SUPPLEMENTARY PLANTING – REVEGETATION CATEGORY D (SITE-SPECIFIC DEPENDING ON EXISTING VEGETATION)

Total Area = 5,700sqm **Total Revegetation Area = 2,850sqm or 0.285 hectares (aprx. 50% of area)**	**% Cover**	**Total area x** **% cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	N/A	2,850sqm	8/Ha	3
Small Trees, Large Shrubs	15%	427.5sqm	1 plant per 3 square metres	143
Medium Shrubs	0%	0sqm	1 plant per 2 square metres	0
Small Shrubs and Prostrate Shrubs	15%	427.5sqm	1 plant per square metre	428
Medium Herbs	20%	516.0sqm	4 plants per square metre	2,064
Small Herbs and Prostrate Herbs	10%	285.0sqm	6 plants per square metre	1,710
Large graminoids	20%	516.0sqm	2 plants per square metre	1,032

Medium graminoids	20%	516.0sqm	4 plants per square metre	2,064
Total	**100%**	**2,850sqm**	**Total Number of Plants**	**7,444**

ZONE 16 – 0.608Ha

MIXED HERBS, GRAMINOIDS AND LOW SHRUBS - REVEGETATION CATEGORY C

Total Area = 1,480sqm **Total Revegetation Area = 1,480sqm or 0.148 hectares (100% of area)**	**% Cover**	**Total area x** **% cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	N/A	0sqm	0/Ha	0
Small Trees, Large Shrubs	0%	0sqm	0/Ha	0
Medium Shrubs	0%	0sqm	1 plant per 2 square metres	0
Small Shrubs and Prostrate Shrubs	18%	266.4sqm	1 plant per square metre	267
Medium Herbs	23%	340.4sqm	4 plants per square metre	1,361
Small Herbs and Prostrate Herbs	13%	192.4sqm	6 plants per square metre	1,155
Large graminoids	23%	340.4sqm	2 plants per square metre	681
Medium graminoids	23%	340.4sqm	4 plants per square metre	1,362
Total	**100%**	**1,480sqm**	**Total Number of Plants**	**4,826**

SUPPLEMENTARY PLANTING – REVEGETATION CATEGORY D (SITE-SPECIFIC DEPENDING ON EXISTING VEGETATION)

Total Area = 4,600sqm **Total Revegetation Area = 2,300sqm or 0.230 hectares (aprx. 50% of area)**	**% Cover**	**Total area x** **% cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	N/A	2,300sqm	8/Ha	3
Small Trees, Large Shrubs	15%	345.0sqm	1 plant per 3 square metres	115
Medium Shrubs	0%	0sqm	1 plant per 2 square metres	0
Small Shrubs and Prostrate Shrubs	15%	345.0sqm	1 plant per square metre	345
Medium Herbs	20%	460.0sqm	4 plants per square metre	1,840
Small Herbs and Prostrate Herbs	10%	230.0sqm	6 plants per square metre	1,380
Large graminoids	20%	460.0sqm	2 plants per square metre	920
Medium graminoids	20%	460.0sqm	4 plants per square metre	1,840

Total	**100%**	**2,300sqm**	**Total Number of Plants**	**6,443**

ZONE 17 – 0.174Ha

SUPPLEMENTARY PLANTING – REVEGETATION CATEGORY D (SITE-SPECIFIC DEPENDING ON EXISTING VEGETATION)

Total Area = 1,740 square metres **Total Revegetation Area = 1,218 sqm or 0.1218 hectares (aprx. 70% of area)**	**% Cover**	**Total area x** **% cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	N/A	1,218sqm	8/Ha	2
Small Trees, Large Shrubs	15%	182.7sqm	1 plant per 3 square metres	61
Medium Shrubs	10%	121.8sqm	1 plant per 2 square metres	61
Small Shrubs and Prostrate Shrubs	15%	182.7sqm	1 plant per square metre	183
Medium Herbs	10%	121.8sqm	4 plants per square metre	488
Small Herbs and Prostrate Herbs	10%	121.8sqm	6 plants per square metre	731
Large graminoids	20%	243.6sqm	2 plants per square metre	488
Medium graminoids	20%	243.6sqm	4 plants per square metre	975
Total	**100%**	**1,218sqm**	**Total Number of Plants**	**2,989**

ZONE 18 – 0.118Ha

SUPPLEMENTARY PLANTING – REVEGETATION CATEGORY D (SITE-SPECIFIC DEPENDING ON EXISTING VEGETATION)

Total Area = 1,180 square metres **Total Revegetation Area = 826sqm or 0.0826 hectares (aprx. 70% of area)**	**% Cover**	**Total area x** **% cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	N/A	826sqm	8/Ha	2
Small Trees, Large Shrubs	15%	123.9sqm	1 plant per 3 square metres	42
Medium Shrubs	10%	82.6sqm	1 plant per 2 square metres	42
Small Shrubs and Prostrate Shrubs	15%	123.9sqm	1 plant per square metre	124
Medium Herbs	10%	82.6sqm	4 plants per square metre	331
Small Herbs and Prostrate Herbs	10%	82.6sqm	6 plants per square metre	496

Large graminoids	20%	165.2sqm	2 plants per square metre	331
Medium graminoids	20%	165.2sqm	4 plants per square metre	661
Total	**100%**	**826sqm**	**Total Number of Plants**	**2,029**

ZONE 19 – 0.154Ha

SUPPLEMENTARY PLANTING – REVEGETATION CATEGORY D (SITE-SPECIFIC DEPENDING ON EXISTING VEGETATION)

Total Area = 1,540 square metres **Total Revegetation Area = 1,078sqm or 0.1078 hectares (aprx. 70% of area)**	**% Cover**	**Total area x % cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	N/A	1,078sqm	8/Ha	2
Small Trees, Large Shrubs	15%	161.7sqm	1 plant per 3 square metres	54
Medium Shrubs	10%	107.8sqm	1 plant per 2 square metres	54
Small Shrubs and Prostrate Shrubs	15%	161.7sqm	1 plant per square metre	162
Medium Herbs	10%	107.8sqm	4 plants per square metre	432
Small Herbs and Prostrate Herbs	10%	107.8sqm	6 plants per square metre	647
Large graminoids	20%	215.6sqm	2 plants per square metre	432
Medium graminoids	20%	215.6sqm	4 plants per square metre	863
Total	**100%**	**1,078sqm**	**Total Number of Plants**	**2,646**

ZONE 20 – 0.0705Ha

MIXED HERBS, GRAMINOIDS AND LOW SHRUBS - REVEGETATION CATEGORY C

Total Area = 750sqm **Total Revegetation Area = 750 sqm or 0.075 Hectares (100% of area)**	**% Cover**	**Total area x % cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	N/A	0sqm	0/Ha	0
Small Trees, Large Shrubs	0%	0sqm	0/Ha	0
Medium Shrubs	0%	0sqm	1 plant per 2 square metres	0
Small Shrubs and Prostrate Shrubs	18%	135sqm	1 plant per square metre	135
Medium Herbs	23%	172.5sqm	4 plants per square metre	690

Small Herbs and Prostrate Herbs	13%	97.5sqm	6 plants per square metre	585
Large graminoids	23%	172.5sqm	2 plants per square metre	345
Medium graminoids	23%	172.5sqm	4 plants per square metre	690
Total	**100%**	**750sqm**	**Total Number of Plants**	**2,445**

ZONE 21 – 0.187Ha

SUPPLEMENTARY PLANTING – REVEGETATION CATEGORY D (SITE-SPECIFIC DEPENDING ON EXISTING VEGETATION)

Total Area = 1,870 sqm **Total Revegetation Area = 1,309sqm or 0.1309 hectares (aprx. 70% of area)**	**% Cover**	**Total area x % cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	N/A	1,309sqm	8/Ha	2
Small Trees, Large Shrubs	15%	196.4sqm	1 plant per 3 square metres	66
Medium Shrubs	10%	130.9sqm	1 plant per 2 square metres	66
Small Shrubs and Prostrate Shrubs	15%	196.4sqm	1 plant per square metre	197
Medium Herbs	10%	130.9sqm	4 plants per square metre	524
Small Herbs and Prostrate Herbs	10%	130.9sqm	6 plants per square metre	786
Large graminoids	20%	261.8sqm	2 plants per square metre	524
Medium graminoids	20%	261.8sqm	4 plants per square metre	1,048
Total	**100%**	**1,309sqm**	**Total Number of Plants**	**3,213**

ZONE 22 – 0.7415Ha

MIXED HERBS, GRAMINOIDS AND LOW SHRUBS - REVEGETATION CATEGORY C

Total Area = 3,030sqm **Total Revegetation Area = 3,030sqm or 0.303 hectares (100% of area)**	**% Cover**	**Total area x** **% cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	N/A	0sqm	0/Ha	0
Small Trees, Large Shrubs	0%	0sqm	0/Ha	0
Medium Shrubs	0%	0sqm	1 plant per 2 square metres	0
Small Shrubs and Prostrate Shrubs	18%	545.4sqm	1 plant per square metre	546
Medium Herbs	23%	696.9sqm	4 plants per square metre	2,788
Small Herbs and Prostrate Herbs	13%	393.9sqm	6 plants per square metre	2,364
Large graminoids	23%	696.9sqm	2 plants per square metre	1,394
Medium graminoids	23%	696.9sqm	4 plants per square metre	2,788
Total	**100%**	**3,030sqm**	**Total Number of Plants**	**9,880**

SUPPLEMENTARY PLANTING – REVEGETATION CATEGORY D (SITE-SPECIFIC DEPENDING ON EXISTING VEGETATION)

Total Area = 4,385sqm **Total Revegetation Area = 3,070sqm or 0.307 hectares (aprx. 70% of area)**	**% Cover**	**Total area x** **% cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	N/A	3,070sqm	8/Ha	4
Small Trees, Large Shrubs	15%	460.5sqm	1 plant per 3 square metres	154
Medium Shrubs	10%	307.0sqm	1 plant per 2 square metres	154
Small Shrubs and Prostrate Shrubs	15%	460.5sqm	1 plant per square metre	461
Medium Herbs	10%	307.0sqm	4 plants per square metre	1,228
Small Herbs and Prostrate Herbs	10%	307.0sqm	6 plants per square metre	1,842
Large graminoids	20%	614.0sqm	2 plants per square metre	1,228

Medium graminoids	20%	614.0sqm	4 plants per square metre	2,456
Total	**100%**	**3,070sqm**	**Total Number of Plants**	**7,527**

ZONE 23 – 0.134Ha

SUPPLEMENTARY PLANTING – REVEGETATION CATEGORY D (SITE-SPECIFIC DEPENDING ON EXISTING VEGETATION)

Total Area = 1,340 sqm **Total Revegetation Area = 938sqm or 0.0938 hectares (aprx. 70% of area)**	**% Cover**	**Total area x % cover applied**	**Planting Density**	**Number of Plants for Area**
*Medium and Large Trees	N/A	938sqm	8/Ha	2
Small Trees, Large Shrubs	15%	140.7sqm	1 plant per 3 square metres	47
Medium Shrubs	10%	93.8sqm	1 plant per 2 square metres	47
Small Shrubs and Prostrate Shrubs	15%	140.7sqm	1 plant per square metre	141
Medium Herbs	10%	93.8sqm	4 plants per square metre	376
Small Herbs and Prostrate Herbs	10%	93.8sqm	6 plants per square metre	563
Large graminoids	20%	187.6sqm	2 plants per square metre	376
Medium graminoids	20%	187.6sqm	4 plants per square metre	751
Total	**100%**	**938sqm**	**Total Number of Plants**	**2,303**

REVEGETATION NOTES

Note 1 - Ground ferns, bryophytes and lichens typical of local EVCs are not included. These species would be difficult to establish in revegetation areas. Ground ferns can be added once shrub and overstorey layers establish. The % coverage of other species has been increased to account for the absence of ground ferns, bryophytes and lichens.

Note 2 - All planting density figures per square metre for trees, shrubs, herbs and graminoids have been calculated to account for 30% stock loss, anticipated for new revegetation sites in Warrnambool

Note 3 - *30% increase in number of canopy trees has been added to the total number of plants to account for stock losses.

APPENDIX 5 –SUMMARY OF SUBMISSIONS

Submission Number	Main Points Raised in Submission	Response
#1	Support the native approach to the revegetation of the Park, acknowledging wildlife within the city, providing refuge and habitat for wildlife and allowing wildlife to move more safely in the urban environment. . The plan has a lack of habitat for koalas whose population is dwindling quickly due to tree removal largely for development. Critical that areas are set aside for large canopy koala food trees. As these trees are disappearing from private gardens and completely removed from development sites, they must be planted on Council owned land. Koalas are absent on the species list in the Green Warrnambool plan. Blue Gums providing Koala habitat and food were removed at Russells Creek Reserve. These trees were removed during flood mitigation works and have not been replaced. Koalas only eat specific species of Eucalypts including: *E. viminalis* (Manna Gum), *E. ovata* (Swamp Gum), *E. camaldulensis* (Red Gum), *E. nicholii* (Narrow Leaved Black Peppermint), *E. globulus* (Blue Gum), *E. obliqua* (Messmate) Larger trees provide much larger areas of shade assisting with cooling and mitigating heat islands. If these species are not included in the plantings then koalas will continue to struggle to survive in Warrnambool. The creation of a corridor between Albert Park and Russells Creek would be a great benefit for the safe movements of wildlife including Wallabies. It would also assist mitigate vehicle collision when wildlife are using the road to move around. The draft states that the exposed site would result in some of the listed species struggling to grow. Manna Gums grow in extremely exposed sites.	This plan focuses primarily on the proposed revegetation zones identified in the Albert Park Integrated Water Management Plan. The Plan includes approximately 67 new medium to large trees within these revegetation zones, including a number of Eucalyptus species. The draft Albert Park Revegetation Species List list included *Eucalyptus viminalis* (Manna Gum) and *Eucalyptus ovata* (Swamp Gum). The Revegetation Species List now has been expanded to include *Eucalyptus obliqua* (Messmate Stringybark) for additional Koala food source. *Eucalyptus obliqua* is found in the Warrnambool Plain Bioregion, and is considered appropriate for inclusion in the revegetation species list. Future planning of the Park could include a landscape plan that focuses on larger shade trees, feature trees and habitat for Koalas. One of the recommendations of the Albert Park Integrated Water Management Plan is to encourage a corridor between Albert Park and Russells Creek. This biolink is supported by this Revegetation Plan but is outside the scope of works for this project.
#2	The document is well researched and presented. Based on local plant records held by Warrnambool Field Naturalists Club, the local species list could be added to. Cocksfoot Grass has the ability to overpower new planting and revegetation areas. Concerned about the number of non-local native plants listed. Coast beard heath is a hardy local, Seaberry Saltbush occurs naturally in the park, Bower Spinach and Small Leaf Clematis are great colonisers.	Additional comments have been added under Section 4 noting weeds species such as Cocksfoot Grass as a threat to the success of revegetation works. The Albert Park revegetation species list contains approximately 65% of species that are indigenous to the Warrnambool Plains Bioregion. The remaining species that are non-indigenous to the Warrnambool Plains Bioregion, have been added as they are known pollinator species suited to the site conditions with low risk of naturalisation and weediness. Three medium shrubs, including Coast Beard Heath and Seaberry Saltbush are found in local EVC 160. These were accidentally omitted from the species list and have now been added.

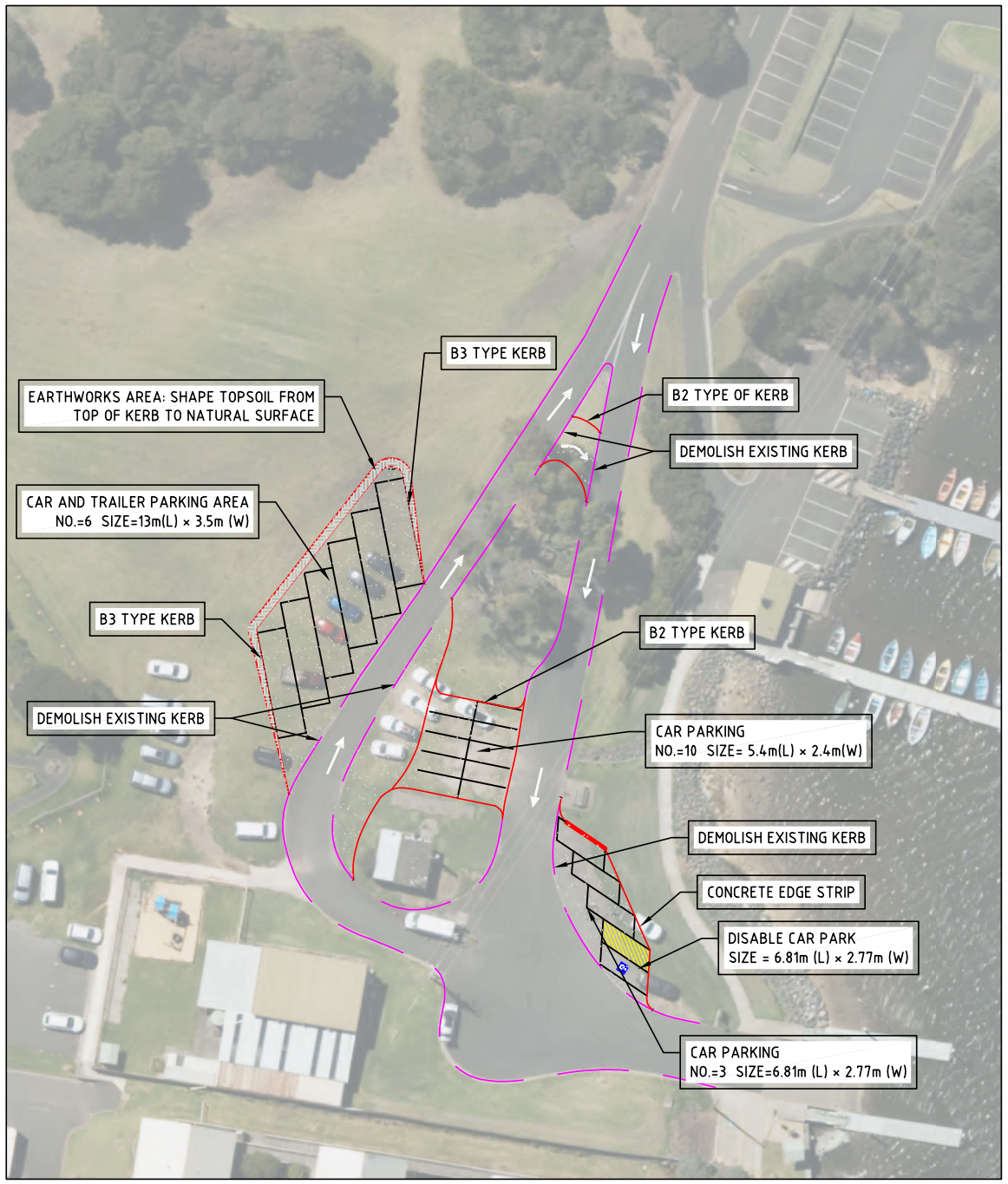
#3	**Comments** - Urban parklands tend to be homogenous. - The plan will not likely contribute significantly to Warrnambool's 2040 canopy coverage goal. - The existing 'island' planting on the east side of the park have become room for people, possibly students to hang out in and are a dumping ground of rubbish. - Plantings in Warrnambool are dominated by small plant species, there is an absence of true 'canopy' in which abut. This would provide much better habitat for species such as ring-tailed possums, sugar gliders, koalas and numerous canopy feeding birds such as Golden Whistlers and Crested Shrike Tits. - Pruning and care for trees in W.C.C. seems to be focused on creating 'parkland' or 'feature' trees. This shape may bring with it higher costs and higher risks as it encourages more lateral growth. - Albert Park is one of the rare sites in the municipality that may be a little more conducive to growing trees of a reasonable size. - Adhering to EVCs in our area is very problematic, it is limited and not ground tested. **Suggestions** - To plant trees in a plantation style typically used for timber production. This means: - Selection of species for tall, straight growth. These can be local species such as *Eucalyptus obliqua* and *Eucalyptus baxteri* or native species such as *Eucalyptus maculata* and *Eucalyptus saligna*. - Uniform spacing. - Care, such as high pruning, to develop an uninterrupted trunk up to at least 6 meters in height. **Benefits** - People will be able to see through the trees. - People will be able to walk under the trees. - A complete canopy will lead to weed suppression and less maintenance. - Continuous canopy has great habitat values. - Aesthetically pleasing. - Maximise carbon sequestration. - Temper the immediate environment. - Council will be managing an asset which will continue to appreciate. - In maturity trees could be harvested and given to the local men's shed or auctioned one by one annual as a charity event. - The greater the area the more effective the plantation in achieving all of the above.	The plan seeks to create a park that has a heterogenous species mix to provide for pollinators and other animal species. The plan does not adhere rigorously to the EVCs and provides an expanded native vegetation species list. The plan will contribute significantly to Warrnambool's 2040 canopy coverage goal. There are a total of approximately 1200 large shrubs, small trees, medium trees and large trees. A substantial number of trees are proposed in the revegetation zones.

#4	Vegetation plantings should link in to any future streetside plantings along Kelp, Japan and Foster Streets to provide a biolink to vegetation along the coast and Lake Pertobe for wildlife, birds in particular, to safely travel along. It would be great to see Blue Wrens in Albert Park. It is noted that proposed plantings are very small meaning they are would be fragmented and highly subject to invasion from introduced grass species along the edges from outside reducing habitat benefits. Maintenance of this would be high and should be minimised if possible. Request to include Correa reflexa 'Granny's Grave' in the mix of understory species to secure additional populations away from the dune area where it is under extreme threat from introduced species. If native species that aren't indigenous to the bioregion are included, then why not include for example, other banksia and hakea species, that would also provide food sources for Yellow-tailed Black Cockatoos. This could also enhance the amenity component mentioned in the introduction.	Revegetation zones 17 to 23 will provide a link between the Park and Kelp, Japan and Foster Streets. A number of species proposed for planting in these zones will provide habitat for small birds. Species include, *Themeda triandra* (Kangaroo grass), *Poa labillardierei* (Tussock Grass), *Acacia verticillata* (Prickly moses), *Clematis microphylla* (Small-leaved clematis), *Sweet bursaria* (Bursaria spinosa), *Scented paper-bark* (Melaleuca squarrosa) and *Correa spp*. In response to this submission, the species list for revegetation zones 17, 18, 19, 21, 22 and 23 has been altered to reduce medium herb cover by 10% and increase medium shrub cover by 10% to provide additional small bird habitat. Shrubs and small trees now comprises 25% cover in these revegetation zones near Coulstock Street, and will provide good habitat, whilst retaining sufficient passive surveillance into and out of park for recreation users. *Correa reflexa* var. *reflexa* 'Granny's Grave' has now been added to the species list. The possibility of fragmentation was considered in the preparation of the plan. Up to 30-35% of some revegetation zones include small to medium herbs and graminoids. These plants were included to provide increased biodviersity and many were listed as larval food sources by the Warrnambool Field Naturalists Club. It is important each revegetation zone is monitored and analysed following planting and establishment to determine planting success rate. If fragmentation following establishment is high, the species list should be modified prior to planting of the next zone to reflect these findings and reduce fragmentation. Three Hakea species indigenous to Victoria have been added to the Revegetation Species List. They include: - *Hakea rostrata* (Beaked Hakea) from the Dundas Tableands Bioregion - *Hakea sericea* (Silky Hakea) from the Central Victorian Uplands Bioregion, and - *Hakea rubosa* (Dwarf Hakea) from the Central Victorian Uplands Bioregion
#5	As well as a future biolink from Albert Park to Russells Creek, the plan should refer to future biolinks from the park to the foreshore. These biolinks have been discussed in the community for many years and at Council's previous environment and Planning Advisory Committee and other Council committees. It should be a core principle underlying the plan that the distance between plantings of shrub / scrub is not more than some of our small birds are prepared to fly. For example, Superb Fairy Wrens and White Browed Scrub Wrens prefer to be in or near scrub and will not fly far over open areas. So, in planning plantings of shrubs / scrub, there should be clear 'pathways' for these small birds from one side of Albert Park to the other and in the future, onwards to Russells Creek and the foreshore. All pedestrian paths should have spaced shade trees along them (on the north side where possible). Most paths are very exposed to the sun and the revegetation plan does not adequately address this. Perhaps Eucalypts, providing dappled shade, would be appropriate rather than more dense Sheoaks or Moonahs? Disappointed that Warrnambool Coastcare Landcare Network was not engaged in consultation in the development of the draft revegetation plan.	The plan refers to the potential future biolink to Russel's Creek and has now been amended to include reference to potential future biolinks to the foreshore. The primary purpose of the plan was looking at the revegetation areas proposed in the Integrated Water Management Plan and to develop a revegetation guide for these proposed areas of revegetation as well as existing clumps of vegetaion along Coulstock Street. The scope of the project was not an overall landscape master plan for the park. There are opportunities to provide additional shade, particularly along path edges as part of a broader park landscape plan in the future. Moonah and Sheoaks were included in the revegetation list as they attract a range of pollinators. Moonah have pollen and nectar for native bees, honey bees, wasps, butterflies, moths, beetles and flies. Sheoaks have pollen for native bees, honey bees and hoverflies. The initial consultation primarily involved direct liaison with active park user groups. The purpose of this round of consultation was to reach the broader community and stakeholders, including Landcare and other organisations interested in revegetation projects.

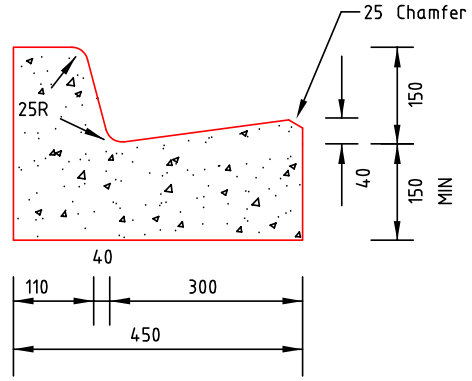
#6	Please note that it is the Warrnambool Community Garden NOT Gardens. Request for a priority on clearing weeds in the areas near to and bordering the community garden. Request for assistance to clear weeds that have jumped the fence into the garden including Chilean Needle Grass. Security concerns. Several break-ins via Albert Park (block 15 area) into the Community Garden – we suggest that the planting lists for our shared fence could be dense and prickly rather than the open woodland that is proposed for block 15. **General feedback:** - The plan is difficult to read when printed. - It would be great to see the proposed biolink from Albert Park to Russells Creek given priority. - Council should consider a biolink from Albert Park to the foreshore using nature strip planting as has been talked about for many years in the community and on various Council Committees (the Blue Wren biolink concept). - The Community Garden partnered with Council on a nature strip revegetation pilot project three years ago and would be happy to discuss possible involvement in the future and the various ways that we could do this.	Warrnambol Community Gardens has been changed to 'Warrnambool Community Garden' in the document text. Clearing of weeds is a priority in the plan and is included in Stage 1 of the implementation plan. The implementation of the revegetation plan is intended to create a park environment that is better maintained and utilised, including the area nearest the Community Garden. The revegetation area at Zone 15 will include removal of woody weeds, with new mulch and planting. It is important that pedestrian access is promoted to/from and throughout the park to increase usage of all areas, enhance passive surveillance and assist in reducing anti-social behaviour. The plan within this report has been created for printing at A3 size. A high resolution file can be requested from Council for printing at a larger size. The biolink from Albert Park to Russells Creek and is referred to within this document as a potential future project, but is outside the scope of works for this revegetation project in Albert Park. The biolink from Albert Park to the foreshore is now referred to in the introduction.
#7	Commend the plan for its willingness to embrace replanting with local, native and appropriate plants to be used as a complex and varying framework for the habitats of the area to support a wide range of fauna. Applaud the plans concentration on "pollinator species" planting with its implied emphasis on the invertebrate species which are at the bottom of the food web and thus the basis for other groups of species that will use the area. Pleased to see the *Themeda* area set aside for specific management and I like the idea of extending the area through the planned low-profile grasses, herbs and other suitable plants. I'd urge fostering continued contact with community groups to help involve their interests, expertise and enthusiasm. Regarding planting for pollinators, the plan needs to recognise that at least some groups of pollinators, e.g. butterflies and moths, need larval food plants as well as, but often quite different to, the adult food plants which are much more general involving mainly nectar sources. I'd urge that the plan contains reference to larval food plants and it will be a simple process to add in any missing plants. Museum Victoria has information for butterflies, also Field, R 2013 Butterflies: Identification and Life Histories, Museum Victoria. The Entomological Society of Victoria will also have expertise with moth and other insects' larval needs. Over time, thought should be given to blending an optimal proportion of gene stock from warmer areas further north to allow for better survival with climate change.	A column has been added in the revegetation species list to show which of the species are known larval foods for pollinators. Provenance mixing for climate change adaptation is something that could be discussed with local nurseries when plant orders are placed for each revegetation zone. The scope of this project is to provide guidance on planting of revegetation areas that were identified through the Albert Park Integrated Water Management Plan with added emphasis on attracting pollinator species. It would be ideal if there was enough interest garnered through these revegetation planting works in Albert Park to encourage a group or individual to carry out scientific-based monitoring of the invertebrates. Each revegetation area should be monitored and analysed at regular intervals following planting to determine what species are growing well, what species are outcompeting others and what species have poor success. Monitoring and analysis will help to determine future plant schedules and mix of species. The plant species should be modified to reflect these findings. Additional details have been added in the report in the implementation section regarding the importance and requirements around monitoring for the project.

#7 (cont'd)	Finally, and perhaps most importantly, there is little mention of the role of monitoring in allowing the council to respond to changes in the new communities being formed. The plan provides a chance to set up a simple but scientifically-based monitoring of the invertebrates' (and also larger species') presence in and use of the park. If monitoring prior to the project sets up a baseline of data for the area, scientifically valid monitoring survey design can be set up to answer important questions about the effects and changes caused by the revegetation. This may then guide future development, not only at Albert Park but at other reserves around the city. This can be the start of a long-running set of data which teases out long term changes. This may be important in a changing climate and is something which has done more successfully perhaps in Europe than Australia. Well-done for considering the important role of invertebrates in the system and best wishes for a successful project.	
#8	Recommend replacing the word "Patch" with Revegetation Area or zone throughout the document. The term "Patch" of native vegetation has a very specific meaning and definition in Victoria. Consistent use of *italics* when using Latin names of plants. Section 2.2 they are but in 2.1 they are not. Warrnambool City Council is undertaking flood treatment works in the form of a sub-surface retention cell for Japan Street, this indicates the future Water Sensitive Urban Design/Wetland area identified in both the revegetation plan and IWM plan may have a reduced capacity. However, it is recommended to re-visit the proposed species list for areas 18, 19, 21 and 22 (all Stage 4 and 8+ years away) with the Water Sensitive Urban Design/Wetland works. Species selection may need to be altered if there are increased water flows through the area as proposed in the IWM plan to facilitate stormwater from Coulstock Street to the wetland. Suggestion that local alternative *Dianella* species be considered rather than the widely planted *D. tasmanica*, who's natural range doesn't appear to cover areas this far west. Recommended alternative options are *D. longifolia*, *D. brevicaulis* and *D. revoluta*. Support the planting of *Bursaria spinosa*, it is a local native species and it offers food for pollinators at times of the year when there is little else on offer. When hiring contractors to conduct the Chilean Needle Grass control, WCC should prioritise contractors with excellent grass ID skills. It can be hard to recognise amongst other grasses when not in flower. The remnant *Themeda triandra* area needs to be prioritised. This plant community is incredibly rare locally. We would strongly recommend that this percentage coverage be increased through improved management practices and this be incorporated in the reserves management plan.	Reference to 'Patch' has been changed to 'Zone'. All Latin names are now in *italics* in Section 2.1 The revegetation works of areas 20 and 22 for the WSUD areas are proposed in Years 1 to 3. The implementation plan has been amended for Stage 4 to include a review of water flows through WSUD treatments and revegetation works surrounding the WSUD treatments. A recommendation that new/supplementary planting and altered species selection occur, where required, to ensure optimal functioning of WSUD assets. The draft plan included *Dianella tasmanica* and *Dianella revoluta*. *Dianella tasmanica* is a species noted as being of local origin and found within EVC 3: Damp Sands Herb-rich Woodland - Warrnambool Plain Bioregion. In response to this submission, the revegetation species list has been expanded to include both *Dianella brevicaulis* and *Dianella longifolia*. The implementation plan now includes mention of the importance of prioritising contractors with excellent grass identification skills to identify both native grass species and noxious grass weeds including Chilean Needle Grass. The percentage coverage of *Themeda triandra* is proposed to be increased throughout the park.
#9	Warrnambool is becoming less attractive because of all the trees that are being cut down for housing. Concerning that Warrnambool is becoming more like Melbourne with more rooftops and less trees.	Tree planting is proposed within the Plan. A total of approximately 63 new Medium to Large trees are included on the draft plan. A total of approximately 1139 large shrubs and small trees are proposed for

	The Plan is important for both the Warrnambool residents and the wildlife that live here. Disappointing that there has not been any consideration in the planning for planting of trees for the native wildlife that live in and around Warrnambool. More trees need to be planted to form a corridor for habitat and food. Consulting with the experts at the local Wildlife Shelter (Mosswood Wildlife) and working together can ensure that the trees planted are the correct ones and working out where to plant so that these corridors for the wildlife to move through are met.	planting in the Park. Tree species to be planted will include various species of Eucalyptus, Acacia, Banksia, Melaleuca and Allocasuarina. Mosswood Wildlife have provided comment on the draft plan.



LAYOUT PLAN



B2 KERB

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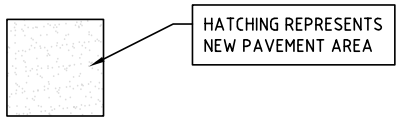

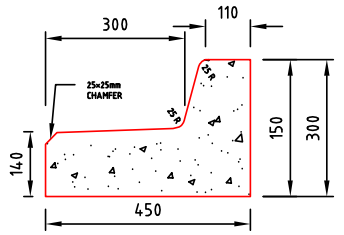

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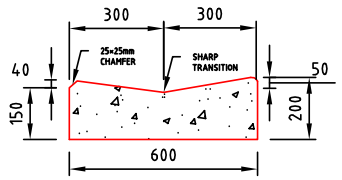

M2 KERB

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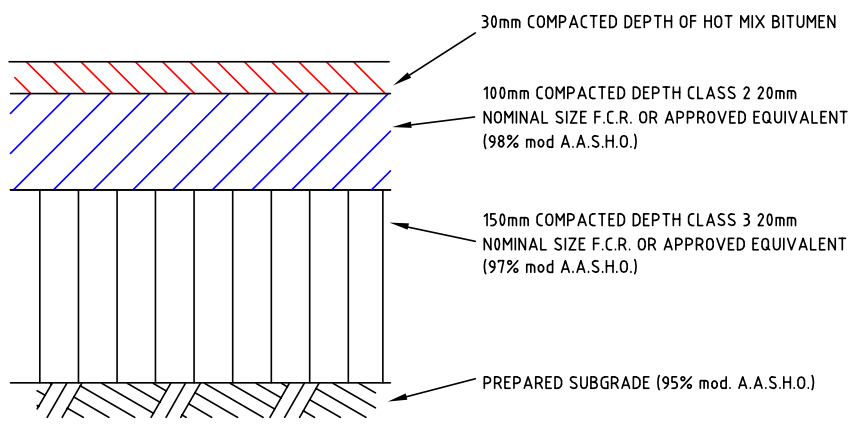


TOTAL DEPTH = 280mm

ROAD PAVEMENT DESIGN

SCALE = N.T.S.

NORTH

WARNING

BEWARE OF UNDERGROUND SERVICES

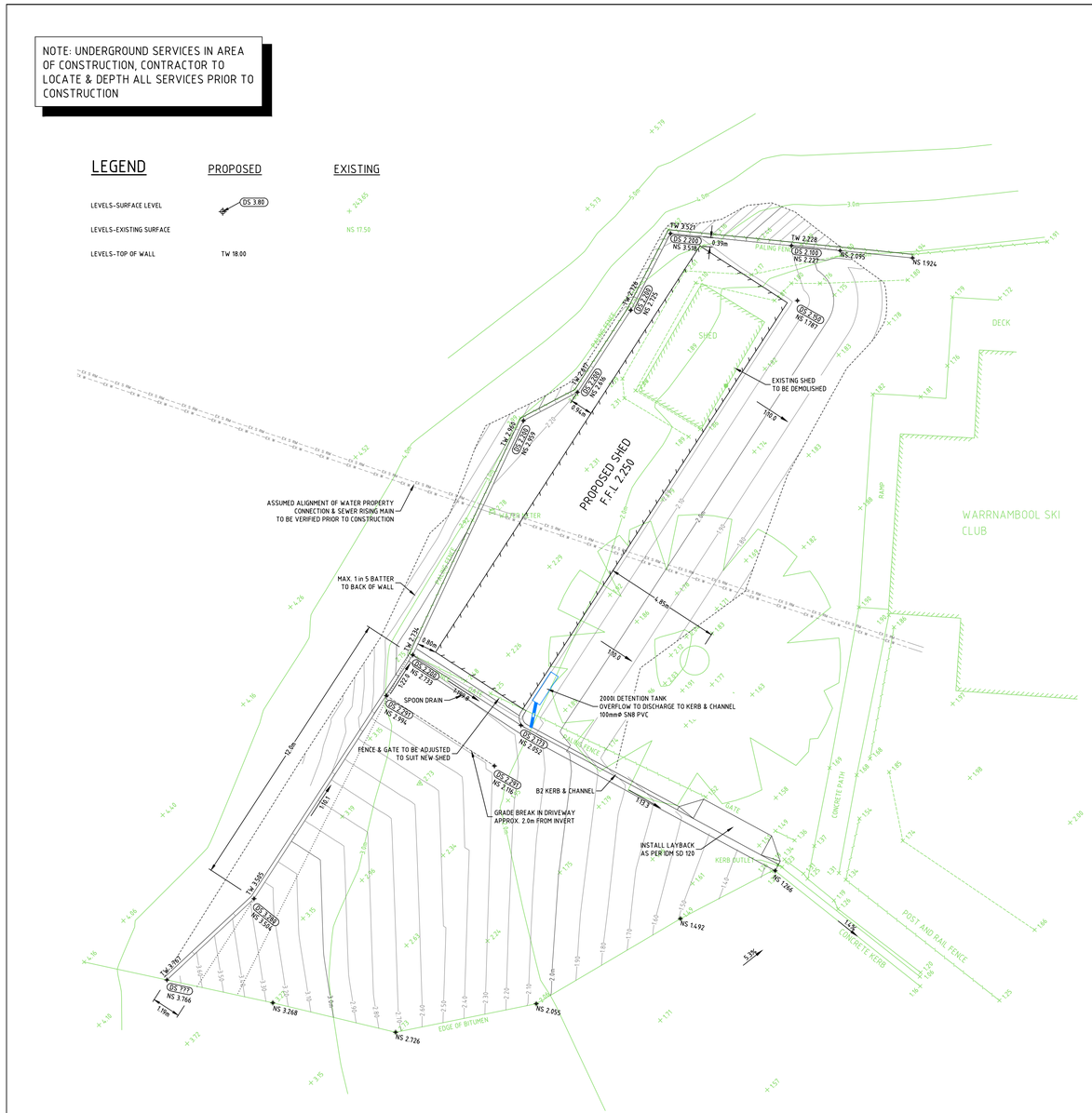
THE LOCATION OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY, AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

REV	DESCRIPTION	DATE
A	CONCEPT ISSUE	29.08.2022

WARRNAMBOOL CITY COUNCIL

DESIGNED: LAKSHMIKANTH UTTI	DATE: 29/08/2022	PROJECT: PROPOSED ANGLING CLUB BOAT RAMP PARKING	
CHECKED: P.MORRIS	DATE: 09/09/22		
SCALE: NOT TO SCALE	DATE: AUG 2022	DRAWING TITLE: BOAT PARKING CONCEPT PLAN	
CAD FILE: s:\city infrastructure\technical services\projects\2022\pro2022052 lyndoch boat ramp carpark\cad\pro2022052 lyndoch boat ramp carpark.dwg		PROJECT No. PRO2022052	SHEET No. 2 OF 2 / REV. A

NOTE: UNDERGROUND SERVICES IN AREA OF CONSTRUCTION, CONTRACTOR TO LOCATE & DEPTH ALL SERVICES PRIOR TO CONSTRUCTION



LAYOUT PLAN
SCALE 1:100

STORMWATER DRAINAGE

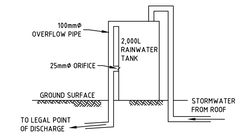
SW 1 All stormwater pipes 225mm dia. and smaller shall be UPVC DWV class pipe, All stormwater pipes 300mm dia. and larger shall be reinforced concrete class 2 unless otherwise shown. Rubber ring joints shall be used under all pavements and building floor slabs.

SW 2 Downpipes shall be connected to pits or stormwater pipes at a minimum grade of 1 in 100.

SW 3 Pipe handling, trenching, laying, jointing & refilling is to be in accordance with the manufacturers recommendations.

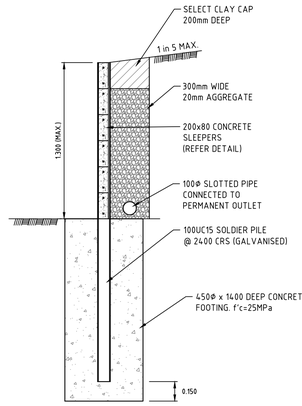
SW 4 Trenching backfill to be in accordance with IDM SD-310 and pipe/conduit/cable manufacturers specification.

SW 5 All pit covers to be class 'D' if located in pavement and class 'B' if located in reserves unless specified. Refer to stormwater pit schedule for pit details and cover types.

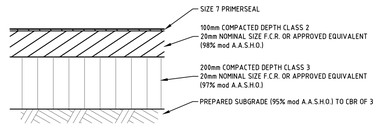


DETENTION TANK DETAIL
N.T.S.

CONCRETE SLEEPER DETAIL
SCALE 1:10



SLEEPER RETAINING WALL DETAIL
SCALE 1:20



TYPICAL PAVEMENT DETAIL
N.T.S.

GENERAL

G 1 These drawings are to be read in conjunction with the project specification.

G 2 All dimensions are in meters, unless otherwise noted.

G 3 All dimensions and reduced levels must be verified on site before commencement of any work. Any discrepancy shall be referred to the Design Engineer before proceeding with the work.

G 4 All dimensions shown are to edge of road or face of wall unless otherwise shown. The CSE Group drawings shall not be scaled.

G 5 All levels are to A.H.D. vide Ausgeoid corrected GNSS observations obtained using the Smartnet Aus network of cors receivers.
Bearing datum – MGA 94 ZONE 54
This plan is to ground co-ordinates.

G 6 The exact location and depth of existing services is unknown. The contractor shall verify by excavation the actual location of services prior to the commencement of construction.

G 7 The contractor shall liaise directly with all service authorities and shall comply with all regulations concerned.

G 8 All work within the road reserve shall be approved by the Municipal Council.

EARTHWORKS – GENERAL

E 1 Unless otherwise noted all vegetation and topsoil containing organic matter shall be stripped to a minimum depth of 300mm under all pavement and building areas.

E 2 All Uncontrolled fill material shall be material approved by the Superintendent and the Council Engineer and compacted in 150mm maximum compacted thickness layers. Prior to the placement of any fill material under buildings or pavements the exposed subgrade shall be compacted to 95% modified AASHO (AS 1289). Any soft or unsuitable material in the subgrade shall be removed and replaced with approved granular fill material.

E 4 It is the responsibility of the contractor to adequately drain the site during all stages of construction.

E 5 All cut batters to be 1 in 5 and all fill batters to be 1 in 5 unless otherwise shown.

E 6 Grade evenly between finished surface spot levels shown on drawings. Where finished levels are not shown the surface shall be graded smoothly so that it will drain, and to match existing surfaces or structures.

STRUCTURAL CONTROLLED FILL ON RESIDENTIAL & COMMERCIAL SITES

CF 1 Structural controlled fill shall be placed in accordance with AS3798–2007 Guidelines on earthworks for commercial and residential developments.

CF 2 This specification shall only apply to residential and commercial developments of no more than two storeys with floor slab average imposed bearing pressure not exceeding 20kPa and strip or pad footings not exceeding imposed bearing pressures of 100kPa.

CF 3 The ground to be filled shall be stripped to design founding level and all unsuitable material such as organic soils, roots and vegetative matter, contaminated soils, silts, building rubble, uncontrolled fill and boulders shall be removed and disposed of away from the site.

CF 4 The insitu subgrade shall be shaped to assist drainage and the top 150mm shall be compacted to 95% minimum relative compaction (standard compaction) for residential sites and 98% minimum relative compaction (standard compaction) for commercial sites. Moisture content shall be maintained as close to optimum as practical whilst compaction is in progress.

CF 5 Imported fill shall be cohesionless, non-reactive material as approved by the Design Engineer with no contaminants and shall be placed at optimum moisture content, near horizontal and compacted in layers not exceeding 150mm in depth to 95% minimum relative compaction (standard compaction) for residential sites and 98% minimum relative compaction (standard compaction) for commercial sites.

CF 6 All layers, including the subgrade, shall be proof rolled with either a 12Tstatic smooth wheeled roller, 20T Pneumatic tyred roller or truck with 8T load on each axle. Any areas where visible deformation or springing is observed should be rectified and retested.

CF 7 In addition tests for compaction shall be conducted at the rate of 1 test per layer for every 1000 square metres or 1 test per 200 cubic metres of fill, whichever requires the most tests.

PAVEMENTS

P 1 All pavement layers including the subgrade shall be proof rolled as per Infrastructure Design Manual Clause 12.7.14 or VicRoads Standard Specification Section 17.3.

P 2 Subgrade compaction testing to be undertaken as per Infrastructure Design Manual Clause 12.7.11

P 3 Sub base materials shall be 40mm nominal size class 3 fine crushed rock and compacted to 97% modified AASHO as per AS 1289 unless otherwise shown. Fine crushed rock material shall be placed and compacted in layers not exceeding 200mm compacted thickness.

P 4 Base material shall be 20mm nominal size class 2 fine crushed rock and compacted to 98% modified AASHO as per AS 1289 unless otherwise shown. Fine crushed rock material shall be placed and compacted in layers not exceeding 150mm compacted thickness.

P 5 Contractor shall provide for the superintendent to be present during all test rolling.

CONCRETE

C1 Minimum compressive strength shall be 25 Mpa at 28 days unless noted otherwise.

KERB & CHANNEL

KC 1 Cross section details shall be as shown in Infrastructure Design Manual standard drawing No. SD 100

KC 2 Construction joints shall be constructed at 2.50m. spacings

KC 3 75mm compacted layer of pavement material shall be placed under all kerb & channel

KC 4 Sub-surface drains to be installed behind all kerbs unless noted otherwise. Sub-surface drains to be installed as per Infrastructure Design Manual Standards Drawing SD 145.

REV.	DESCRIPTION	DATE
B	ADJUSTED ENTRANCE FOR VEHICLE CLEARANCE	17.05.2022
A	ISSUED FOR COMMENT	11.05.2022

APPROVED

THE CSE GROUP. CONSULTING ENGINEERS
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DESIGNED: S. Brodie
DRAWN: D. Handreck
SCALE: A1 1:100
DATE: May 2022

PROJECT TITLE: PROPOSED DRAGON BOAT STORAGE SHED HOPKINS RIVER FRONTAGE, SIMPSON STREET WARRNAMBOOL

DRAWING TITLE: CIVIL WORKS LAYOUT PLAN & NOTES

NORTH

PROJECT No. 2021.360
SHEET C-02 REV. B

C:\Users\stephenb\OneDrive - The CSE Group Consulting Engineers PTY LTD\CSE One Drive Share\2021\2021.360 Dragon Boat Storage Shed\C3D\2021.360 Civil.dwg, C-02, 17/05/2022 5:30:55 PM, stephenb, DWG To PDF.pc3, ISO full bleed A1 (841.00 x 594.00 MM), 1:1

Informal Meeting of Council Record

Name of Committee or Group (if applicable):	Informal Meeting of Council (Councillor Briefing)
Date of Meeting:	14 November 2022
Time Meeting Commenced:	3.00pm
Councillors in Attendance:	Cr. D. Arnott, Mayor Cr B. Blain Cr. V. Jellie AM – Via Zoom Cr A. Paspaliaris (arrived at 3:02pm) Cr M. Taylor Cr R. Ziegeler (arrive at 3:03pm)
Council Officers in Attendance:	Peter Schneider, Chief Executive Officer David Leahy, Director City Infrastructure Bree Ryan, Acting Director Corporate Strategies Andrew Paton, Director City Growth Ingrid Bishop, Director Community Development Julie Anderson, Manager Governance, Property, Projects & Legal Julie McLean, Manager City Strategy & Development (3:00pm – 3:53pm) Juan Donis, Sustainability Officer (3:31pm – 3:36pm) Justin Harzmeyer, Coordinator Natural Environment (3:36pm – 3:45pm) Alison Kemp, Manager Recreation and Culture (3:39pm – 4:16pm) Julie Perry, Coordinator Building and Planning Support (3:46pm - 3:53pm) John Brockway, Manager Financial Services (3:45pm -
Other persons present:	Elke Cummins, Red Ink Planning Consultant - via Zoom
Apologies	Cr O. Akoch
Matters Considered:	**1. Warrnambool Planning Scheme Review - (3.00pm - 3.30pm)** **2. Council's Future Energy Contracts - 30 June Onwards - (3.31pm - 3.36pm)** **3. Albert Park Revegetation Plan - (3.36pm - 3.46pm)** **4. Street Naming Proposal - (3.46pm – 3:53pm)** **5. Warrnambool Art Gallery Business Case - Update - (3.53pm - 4.16pm)** **6. 2023-24 Budget Calendar - (4.16pm - 4.22pm)**
Council and Officer Items Raised (4:22pm – 4:31pm):	
Councillor Conflicts of interest Disclosures: Nil	
Councillor /officer Name: Nil	
Meeting close time:	4:31pm
Record Completed by:	Julie Anderson Manager Governance, Property, Projects & Legal

Informal Meeting of Council Record

Name of Committee or Group (if applicable):	Informal Meeting of Council (Councillor Briefing)
Date of Meeting:	21 November 2022
Time Meeting Commenced:	3.01pm
Councillors in Attendance:	Cr. D. Arnott, Mayor Cr. O. Akoch Cr B. Blain - Via Zoom Cr. V. Jellie AM – Via Zoom Cr A. Paspaliaris Cr M. Taylor Cr R. Ziegeler
Council Officers in Attendance:	Peter Schneider, Chief Executive Officer David Leahy, Director City Infrastructure Bree Ryan, Acting Director Corporate Strategies (via Zoom) Andrew Paton, Director City Growth Ingrid Bishop, Director Community Development Julie Anderson, Manager Governance, Property, Projects & Legal John Brockway, Manager Financial Services (3:27pm – 3:38pm) Robert Wandell, Coordinator City Development (3:38pm – 3:53pm) Stephan Hoy, Manager Economic Development & Events (3:42pm – 4:05pm) Ali Kemp, Manager Recreation and Culture (4:00pm – 4:22pm)
Other persons present:	Paul Dillon, President, Warrnambool District Hockey Association (3:03pm – 3:33pm) Mark Bridge, Secretary, Warrnambool District Hockey Association (3:03pm – 3:33pm) Peter Gall, External Project Manager (3:03pm – 3:33pm)
Apologies	Nil.
Matters Considered:	**1. Presentation – Hockey Association (3:03pm – 3:33pm)** **2. Short Stay Accommodation Local Law - (3.34pm - 3.38pm)** **3. Amended Planning Permit Application Pp2000-0135.04 – 355 Koroit Street - (3.38pm - 3.53pm)** **4. Great South Coast Regional Digital Strategy - (3.53pm - 4.00pm)** **5. Warrnambool Business Survey 2022 - (4.00pm - 4.05pm)** **6. Brierly Reserve - Eastern Oval Redevelopment - (4.05pm - 4.08pm)** **7. Reid Oval AFLW Outcomes Report - (4.08pm - 4.13pm)**
Council and Officer Items Raised (4:13pm – 4:27pm):	• **Outdoor Pool Opening** • **Delay with construction at boat ramp due to unfavourable weather conditions.** • **Dredging update** • **Saleyards closure update.** • **Solar Field @ Provico**
Councillor Conflicts of interest Disclosures: Cr Ziegeler – COI declared on item 2 Short Stay Accommodation Local Law – Cr Ziegeler left the room at 3:34pm and returned at 3:38pm	

Cr Paspaliaris – acknowledged a previous COI in relation to item 3 Amended Planning Permit Application Pp2000-0135.04 – 355 Koroit Street – but stated that there was no longer a conflict of interest as her business is no longer a customer of the applicant.	
Councillor /officer Name:	
Meeting close time:	4:27pm
Record Completed by:	Julie Anderson Manager Governance, Property, Projects & Legal

Informal Meeting of Council Record

Name of Committee or Group (if applicable):	Informal Meeting of Council (Councillor Briefing)
Date of Meeting:	28 November 2022
Time Meeting Commenced:	2.00pm
Councillors in Attendance:	Cr. D. Arnott, Mayor Cr. O. Akoch Cr B. Blain Cr. V. Jellie AM Cr M. Taylor Cr R. Ziegeler
Council Officers in Attendance:	Peter Schneider, Chief Executive Officer David Leahy, Director City Infrastructure Bree Ryan, Acting Director Corporate Strategies Andrew Paton, Director City Growth Ingrid Bishop, Director Community Development Luke Coughlan, Manager Infrastructure Services John Brockway, Manager Financial Services (2.00pm – 2.53pm) Wendy McGorm Co-ordinator Financial Services - (2.00pm – 2.53pm) Wendy Clark, Executive Assistant (2.55pm – 4.33pm) Julie McLean, Manager City Strategy & Development – (3.02pm – 3.32pm) Rob Wandell, Co-ordinator City Development - (3.02pm – 3.32pm) Nick Legoe, Senior Statutory Planner Via ZOOM - (3.08pm – 3.32pm) Julie Anderson, Manager Strategic Assets, Property & Projects (3.332pm – 3.52pm) Shaun Lucas, Project Manager – (3.35pm – 3.39pm) Ashish Sitoula, Manager Strategic Community Planning & Policy – (3.58pm – 4.24pm) Nick Higgins, Manager Communications – (4.00pm – 4.24pm) Ali Kemp, Manager Recreation & Culture – (4.24pm – 4.28pm)
Other persons present:	
Apologies	Cr. A. Paspaliaris
Matters Considered:	**1. Budget Workshop – (2.00pm-2.53pm)** **2. Appointments To Advisory Committees & External Bodies - (2.48pm – 2.55pm)** **3. Warrnambool Hockey Synthetic Turf Replacement - (2.56pm – 3.02pm)** **4. Customer Service Charter - (3.02pm - 3.08pm)** **5. PP2022-0052 - 19 Preston Street, Dennington - (3.08pm - 3.13pm)** **6. Development Plan Application Dp2022-0008 - 147 Wollaston Road - (3.14pm - 3.20pm)** **7. Proposed Changes To Instrument Of Sub-Delegation S6 - (3.20pm - 3.32pm)** **8. South Warrnambool Change Room Refurbishment - (3.35pm – 3.35pm)** **9. Dragon Boat Storage Shed Update - (3.35pm – 3.39pm)**

	10. Grants Policy - (3.39pm – 3.52pm) **11. Mayoral Diary Update - (3.52pm – 3.53pm)** **12. October 2022 Monthly Financial Report - (3.53pm – 3.55pm)** **13. Customer Service and Community Engagement Report - (3.55pm – 3.59pm)** **14. Healthy Warrnambool Plan 2021-25 Update - (3.59pm – 4.04pm)** **15. Feedback on Events For 26 January - (4.05pm – 4.24pm)** **16. Aquatic Strategy 2023 - (4.24pm – 4.28pm)**
Council and Officer Items Raised (4.25pm – 4.33pm):	• **Florence Collins Child Care Centre** • **Warrnambool Art Gallery** • **Parkers car park repairs** • **Thank you to Director City Growth.**
Councillor Conflicts of interest Disclosures:	
Councillor /officer Name:	
Meeting close time:	4:33pm
Record Completed by:	Wendy Clark Executive Assistant