HUME CITY COUNCIL

Office Use Only

Application No.: Date Lodged: / /

Application for
Planning Permit

Planning Enquiries
Phone: 03 9205 2200
Web: http://www.hume.vic.gov.au

If you need help to complete this form, read How to complete the Application for Planning Permit form.

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

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

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

Clear Form

The Land

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

Street Address *

Unit No.: | St. No.: 99-107 | St. Name: Lygon Drive

Suburb/Locality: CRAIGIEBURN | Postcode:3064

Formal Land Description *
Complete either A or B.

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

A Lot No.: T ◯ Lodged Plan ◯ Title Plan ◯ Plan of Subdivision No.: LP 212816

OR

B Crown Allotment No.: | Section No.:

Parish/Township Name:

If this application relates to more than one address, please click this button and enter relevant details. Add Address

The Proposal

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

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

If you need help about the proposal, read: How to Complete the Application for Planning Permit Form

Fire Rescue Victoria request a Planning Permit for the Use and Development of a 3 Bay Fire Station

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

(3) **Estimated cost of development for which the permit is required ***

Cost $13m

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

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

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Existing Conditions

(4) **Describe how the land is used and developed now ***

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

The site is vacant . refer to the attached report for existing conditions photos

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

Title Information

5 **Encumbrances on title** *

If you need help about the title, read: How to complete the Application for Planning Permit form

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

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

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

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Applicant and Owner Details

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

Applicant *

The person who wants the permit.

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

Please provide at least one contact phone number *

Owner *

The person or organisation who owns the land

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

[redacted]

Declaration

7 **This form must be signed by th**

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

Need help with the Application?

If you need help to complete this form, read How to complete the Application for Planning Permit form
General information about the planning process is available at www.delwp.vic.gov.au/planning

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

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

◉ No ○ Yes

Checklist

9 **Have you:**

☑ Filled in the form completely?

☑ Paid or included the application fee?

⚠ Most applications require a fee to be paid. Contact Council to determine the appropriate fee.

☑ Provided all necessary supporting information and documents?

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

☑ Completed the relevant Council planning permit checklist?

☑ Signed the declaration (section 7)?

Lodgement

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

Hume City Council
PO Box 119 Dallas VIC 3047
Pascoe Vale Road Broadmeadows VIC 3047

Contact information:

Telephone: 61 03 9205 2200
Email: email@hume.vic.gov.au
DX: 94718
Translation: 03 9205 2200 for connection to Hume Link's multilingual telephone information service

Deliver application in person, by fax, or by post:

Print Form — Make sure you have all the required supporting documentation and necessary payment when you deliver this form to the above mentioned address. This is usually your local council but can sometimes be the Minister for Planning or another body.

Save Form:

Save Form To Your Computer — You can save this application form to your computer to complete or review later or email it to others to complete relevant sections.

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The Victorian Government acknowledges the Traditional Owners of Victoria and pays respects to their ongoing connection to their Country, History and Culture. The Victorian Government extends this respect to their Elders, past, present and emerging.

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

VOLUME 09903 FOLIO 738 Security no : 124125816318L
Produced 01/07/2025 02:18 PM

LAND DESCRIPTION

Lot T on Plan of Subdivision 212816J.
PARENT TITLE Volume 09867 Folio 863

REGISTERED PROPRIETOR

Estate Fee Simple
Sole Proprietor
[redacted]

ENCUMBRANCES, CAVEATS AND NOTICES

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

DIAGRAM LOCATION

SEE LP212816J FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NIL

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

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

Street Address: 99-107 LYGON DRIVE CRAIGIEBURN VIC 3064

ADMINISTRATIVE NOTICES

NIL

eCT Control 20218G HUNT & HUNT VICTORIA
Effective from 08/06/2022

DOCUMENT END

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LP 212816J
EDITION 1
~~PARISH/TOWNSHIP~~/CHART 17

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NOTATIONS

LAND SUBJECT TO EASEMENT
E-1 WAY, DRAINAGE, SEWERAGE, AND THE SUPPLY OF WATER, GAS, TELEPHONE AND THE USE OF THE STATE ELECTRICITY COMISSION OF VICTORIA FOR POWERLINE PURPOSES PURSUANT TO SECTION 103 B OF THE S.E.C. ACT AND TO THE MELBOURNE AND METROPOLITAN BOARD OF WORKS FOR PIPELINE PURPOSES PURSUANT TO SECTION 258 BA OF THE M.M.B.W. ACT VIDE L.P. 113107

LAND APPROPRIATED OR SET APART
ROADS WITHIN THE THICK LINES FOR WAY, DRAINAGE, SEWERAGE, AND THE SUPPLY OF WATER, ELECTRICITY, TELEPHONE AND GAS.
E-2. DRAINAGE AND SEWERAGE.

OTHER NOTATIONS
LOTS NUMBERED 1 TO 483 AND A TO S (ALL INCLUSIVE) HAVE BEEN OMITTED FROM THIS PLAN.

TO BE COMPLETED WHERE APPLICABLE
THIS SURVEY HAS BEEN CONNECTED TO PERMANENT MARKS NOS.
IN PROCLAIMED SURVEY AREA NO. 74

THE LAND TO BE SUBDIVIDED IS SHOWN ENCLOSED BY THICK LINES
TITLE REF: CT/9867/863
LAST PLAN REF: L.P 212307 LOT 25

PLAN OF SUBDIVISION

COUNTY BOURKE
PARISH YUROKE CHART 17
SECTION 23
CROWN ALLOTMENT B (PART)

NUMBER OF SHEETS IN PLAN 2
NUMBER OF THIS SHEET 1
SCALE 10 5 0 10 20 LENGTHS ARE IN METRES
ORIGINAL SHEET SIZE A2
SCALE 1:500

OFFICE USE ONLY
LP212816J
VICTORIA

PLAN APPROVED AT ON 26.9.89
ASSISTANT REGISTRAR OF TITLES

OFFICE USE ONLY
CERTIFICATE OF MUNICIPAL CLERK
MUNICIPALITY SHIRE OF BULLA COUNCIL REF E/7811498
CERTIFICATE A
THIS PLAN ACCORDS WITH A PLAN
- SEALED BY THE COUNCIL UNDER SECTION 569B OF THE LOCAL GOVERNMENT ACT 1958 ON 6/6/1988
- ~~CONFIRMED BY THE PLANNING APPEALS BOARD ON~~
- AND A REQUIREMENT ~~AND REQUIREMENT~~ PURSUANT TO SECTION 569E OF THE LOCAL GOVERNMENT ACT 1958 HAS BEEN MADE

DATE 6.6.1988 MUNICIPAL CLERK

CERTIFICATION BY SURVEYOR
I GEOFFREY LESLIE COOPER of JOHN I. TAYLOR & ASSOCIATES (VIC.) PTY. LTD. 464 ST KILDA ROAD, MELBOURNE 3004 certify that this plan has been prepared from a survey made under my immediate direction and supervision, in accordance with the Surveyors Act 1978 and completed on 12/1/1988 and that this plan is accurate and correctly represents the adopted boundaries and the classification of the survey it is C3
Date: 15/1/1988
Licensed Surveyor, Surveyors Act 1978

AMENDMENTS

JOHN I. TAYLOR & ASSOCIATES (VIC.) PTY. LTD.
LAND SURVEYORS TOWN PLANNERS AND CIVIL ENGINEERS
464 St Kilda Road, Melbourne, 3004 Phone 267 2222

SURVEYORS REF 333/25 SHEET 1 DATE 12-1-88

ONLY CERTIFICATE A OR CERTIFICATE B TO BE COMPLETED

SHEET 2 SEE SHEET 2

COURT
REDHILL
STREET
DORCHESTER
CRAIGIEBURN ROAD
SECTION 22
C.A. A
A.M.G. ZONE 55

Lots: 484 707m², 485 654m², 486 660m², 487 659m², 488 815m², 489 698m², 490 659m², 491, 495, 496 675m², 497 650m², 498 650m², 499
PC350159
PC350159J
PC350159K
PC350159L
PC350159M
PC350159N
PC350159P
PC350159Q
PC350159R
PC350159S

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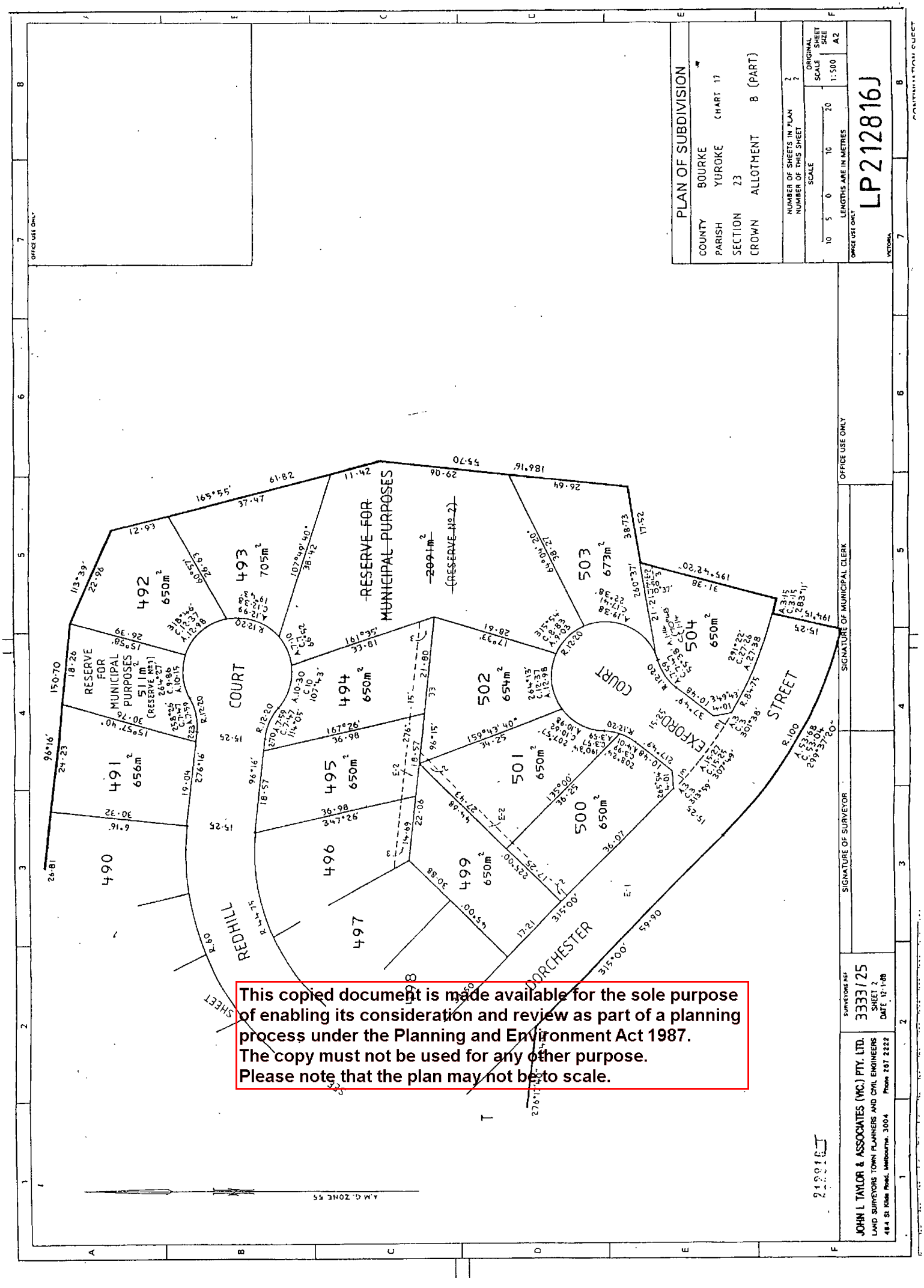

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MODIFICATION TABLE

RECORD OF ALL ADDITIONS OR CHANGES TO THE PLAN

PLAN NUMBER

LP212816J

AFFECTED LAND / PARCEL	LAND / PARCEL / IDENTIFIER CREATED	MODIFICATION	DEALING NUMBER	DATE	TIME	EDITION NUMBER	ASSISTANT REGISTRAR OF TITLES
RES.1		REMOVAL OF RESERVE STATUS	PS435527G	25/07/01	2.30	2	

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22013 – Craigieburn Fire StationFRV

FS #80

Planning Report

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[redacted]

FIRE RESCUE VICTORIA

[redacted]

Cover Letter

[redacted]

RE: TOWN PLANNING REPORT IN SUPPORT OF PLANNING PERMIT APPLICATION – FIRE STATION 80, 99-107 Lygon Drive, CRAIGIEBURN (FRV)

[redacted] is pleased to submit the enclosed Town Planning Report prepared on behalf of Fire Rescue Victoria (FRV) in support of a planning permit application for the construction of a new Emergency Services Facility (Fire Station 80) at 99-107 Lygon Drive, Craigieburn.

The proposed development comprises a purpose-built, three-bay fire station to serve the growing emergency service needs of Melbourne's outer northern metropolitan region. The facility will be permanently staffed by 14 FRV firefighters with surge capacity for up to 16 personnel, ensuring operational readiness and flexibility. The new station includes three appliance bays to accommodate primary response vehicles, with the capacity to forward-position specialist apparatus, such as ladder platforms, for major incident response as required.

This project delivers on a 2019 Government commitment to establish a new fire station in Craigieburn, and the site has been selected for its strategic location, response time advantages, and operational suitability. While no formal pre-application meeting has yet occurred with Hume City Council, preliminary advice has been received regarding site sensitivity and the suitability of the location. This report has been prepared ahead of pre-application engagement with Council.

We trust that this submission provides sufficient detail to support your assessment. Please do not hesitate to contact our office should any further information be required.

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Yours sincerely,

[redacted]

1 Overview

Background	
Applicant /Owner	Fire Rescue Victoria
Lot Description	Council Property Number 671636
Relevant Planning Controls	
State Planning Policy Framework	Clause 11.01-1S Settlement Clause 12.05-2S Landscapes Clause 13.01-1s Flood Plane management Clause 13.05-1S Noise Abatement Clause 13.07-1s Clause 15.01-1S & R Urban Design Clause 15.01-2S Building Design Clause 15.01-5S Neighbourhood Character Clause 18-02-3S Road System Clause 18.02-4S Car parking Clause 19.02-5S Emergency Services
Local Planning Policy Framework	Clause 32.04-10 Clause 32.04-11 Clause 55 (residential interface _ East) Clause 56.03-3
Zone	GRZ – General Residential Zone
Overlays	N/A
Particular Provisions	Clause 52.05 Signs Clause 52.06 Car Parking Clause 52.34 Bicycle Facilities
Strategic Planning Documents	N/A
Permit Application Details	
Description of Proposal	New Emergency Services Facility
Permit Requirement	Clause 32.08-9 (GRZ) - construct a building or carry out works for a Section 2 use of Clause 32.08-2. Clause 52.04 – display of business identification signs
Recommendations	Approve the buildings and works associated with the New Fire Station at 92- 110 Dorchester Street Craigieburn 3064

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Quality Assurance

Planning Report

Planning Permit Application

99-107 Lygon Drive Craigieburn 3064

[redacted]

Revisions

Rev	Date	Details	Prepared By	Reviewed By	Project Principal
00	1 FEB 2023	Issue for review			
01	10JULY 2023	Issue for review			
02	1 SEPT 2023	Issue for review			
03	24 JUNE 2025	FRV Review			
04	1 july 2025	Hume			

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[redacted]

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1 Introduction

1.1 Purpose

This report has been prepared by [redacted] upon the instructions of Fire Rescue Victoria in support of a planning permit application for proposed buildings and works to an Emergency services facility (fire station) at **99-107 Lygon Drive, Craigieburn ('the Site').**

LGA: Hume

The purpose of this report and enclosed documents is to enable Council to make a considered assessment of the proposed changes and issue a planning permit for the proposed buildings and works. This report discusses the proposal, identifies the relevant planning controls, and provides an assessment of the proposal against the relevant planning controls.

The Site is a vacant lot, located at **99-107 Lygon Drive, Craigieburn.** The Site is an irregular triangular property parcel wedged between Dorchester Rd and Lygon Drive measuring a total of 7,708m2.

The Site forms part of General Residential Zone -**GRZ** [Category. 1]and is not affected by the any overlay

The proposal triggers the following planning permit requirements:
· **Clause 32.04-10 General Residential Zone** – Any buildings or works constructed on a lot that abuts land which is in a General Residential Zone, Neighbourhood Residential Zone, Residential Growth Zone, or Township Zone must meet the requirements of Clauses 55.03-5, 55.04-1, 55.04-2, 55.04-3, 55.04-5 and 55.04-6 along that boundary. This does not apply to a building or works for a residential aged care facility.
· **Clause 52.05-13 (Signs)** – A permit is required to display business identification signs. Medium limitation Purpose To ensure that signs in high-amenity areas are orderly, of good design and do not detract from the appearance of the building on which a sign is displayed or the surrounding area. Section 1 - Permit not required Sign Condition Bed and breakfast sign Home based business sign Only one to each premises. The display area must not exceed 0.2 sqm. Direction sign None specified Section 2 - Permit required Sign Condition Above-verandah sign Business identification sign.

It is the conclusion of this report that the proposal is generally consistent with all relevant State and local planning policies. It follows as the recommendation and rests of this report that Council should issue a planning permit for the proposed refurbishment of the Craigieburn Fire Station.

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1.2 Background

The New Craigieburn Fire Station will be delivered on a New Site as per the 2019 Government announcement.

The fire station will serve the outer northern metropolitan regions to deliver three (3) FRV appliance bays (fire truck parking spaces)

The station will be permanently staffed by Fourteen(14) Fire Fighters, with surge capacity for Sixteen (16) at any one time.

The new facility bays providing the fleet flexibility to temporarily forward position for specialist vehicles (i.e., Ladder Platforms) for incident response, unfortunately there are insufficient resources to permanently locate on an ongoing basis at Craigieburn.

Pre – Application Meeting
A pre-application meeting has not been held with Hume City Council to discuss the proposal. This report is prepared rather for review ahead of preapplication with council. Preliminary advice was received from the city of Hume regarding sensitivities relating to local road use (Recommending Lygon drive as primary heavy vehicle entry/exit point) and appropriateness of the site as a fire station.

Clause 32.04-10 Buildings on lots, that abut another residential zone.

Clause 32.04-11 Maximum building height requirement

A building must not be constructed that exceeds the maximum building height specified in a schedule to this zone.

The stated exceptions do not apply.

The Maximum building height specified in the schedule is Set by clause 55.03-02

If no maximum height is specified in the zone, schedule to the zone or an overlay, the maximum building height should not exceed 9 metres, unless the slope of the natural ground level at any cross section wider than 8 metres of the site of the building is 2.5 degrees or more, in which case the maximum building height should not exceed 10 metres.

The Maximum Height of the proposed building is nominated as 8.0m over the Appliance Bay **It does not exceed 9 m.**

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State Provisions

Clause 11 Settlement

- Planning is to anticipate and respond to the needs of existing and future communities through provision of zoned and serviced land for housing, employment, recreation and open space, commercial and community facilities and infrastructure.
- Planning is to recognise the need for, and as far as practicable contribute towards:

- Health, wellbeing, and **safety.**
- Diversity of choice.
- Adaptation in response to changing technology.
- Economic viability.
- **A high standard of environmental sustainability, urban design, and amenity.**
- Climate change adaptation and mitigation.
- **Prevention of land, water, air, and noise pollution.**
- Protecting, conserving, and improving biodiversity, waterways, and other natural resources.
- Accessibility.
- **Land use and transport integration.**
- **Waste minimisation and resource recovery.**
- Planning is to prevent environmental, human health and amenity problems created by siting incompatible land uses close together.
- Planning is to facilitate sustainable development that takes full advantage of **existing settlement patterns** and investment in transport, utility, social, community and commercial infrastructure and services.

Response

- Fire Services Provision in this area in in response to existing and emerging settlement patterns. The facility will support the safety requirements of the local neighbourhood.
- The facility will be constructed to a high level of environmentally sustainable design including.
    - Rain water collection and reuse
    - Solar power collection storage and reuse
    - Energy efficient, highly insulated, and well oriented design for low energy use
    - Robust materials for low life cycle costs
- The Proposed Fire Station will use best practice cleaning to prevent land water air and noise pollution.
- There is adequate on-site waste management to allow for waste minimisation and resource recovery.

Clause 13.07-1s Land Use Compatibility

Objective

To protect community amenity, human health and safety while facilitating appropriate commercial, industrial, infrastructure or other uses with potential adverse off-site impacts.

Strategies

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- 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 commercial, industrial, and other employment generating uses from encroachment by use or development that would compromise the ability of those uses to **function safely and effectively**.

Response

- The Site is currently vacant land and is adjacent to an existing Ambulance station and Hospital to the South.
- The Site is in close proximity of commercial zoned land including a large retail area.
- The built form is varied and articulated in height and mass has been proposed at a 38-degree angle to its boundaries providing opportunities for planting and landscape and reducing perceived visual bulk to residential neighbours.
- Traffic Signal Controls and automatic gates are proposed to manage emergency vehicle traffic requirements.
- The facility will not generate noxious industrial air emissions.

Clause 19.02- 5s Emergency Services

Objective

To ensure suitable locations for police, **fire, ambulance,** and other emergency services

Strategies

Ensure police, **fire, ambulance,** and other emergency services are provided for in or near activity centres.

Locate emergency services together in newly developing areas.

Response

- The Site is currently vacant land and is adjacent to an existing Ambulance station.

1.3 Site History

The Site is included within the General Residential Zone.it is currently a Vacant but cleared lot .

1.4 Previous Approvals

The site was modified from Reserve Status to General Residential Zone 26/07/2001.

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1.5 Project Team

The project team assembled for Fire Rescue Victoria for this application consists of:

- Henderson and Lodge – Architecture ·
- Hansen Partnership – Town Planning ·
- TTM – Traffic Engineering
- Henderson and Lodge -Waste Management
- Mexted Rimmer-- Landscape Architects ·

1.6 Limitations

This report has considered the following documents:

- Hume Planning Scheme
- Victoria Planning Provisions
- MFB Fire Station Design Guide Rev D

2 Site and Surrounds

2.1 Site Context

The Site is located at **99-107 Lygon Drive, Craigieburn** within **Hume City Council** The land is more formally identified as **Lot 'T' on Plan of Subdivision 212816J.** The registered proprietor on the title is **ADAMUR PTY LTD of 390 ST KILDA ROAD MELBOURNE 3000**

On 1 July 2020, following the fire services reform, MFB and the Country Fire Authority consolidated into a new organisation, Fire Rescue Victoria (FRV). All titles previously registered under the MFB are therefore now owned by Fire Rescue Victoria.

It is located between of Lygon Drive and Dorchester Road. The Site is irregular in shape, with a narrow western boundary fronting Lygon Drive and Light industrial zone land totalling approximately 100m, an Eastern boundary fronting Dorchester Rd of approximately 150m, Southern boundaries totalling approximately 130 m abutting a reserve and the Ambulance Station and Craigieburn Community Hospital and a Northern boundary of 36.m. Abutting a reserve.

Currently, the site is vacant.

The overall site area is approximately 7,708sqm and the topography is relatively flat.

The site is grassed with shrubs and an existing colorbond fence to the western interface with residences. There is an existing post and rail fence along the Site's boundary to Lygon Drive. The interface to Dorchester St is unfenced.

Vehicular ingress (including fire trucks) is proposed predominantly from Lygon Drive via a new crossover, There are no existing crossovers to the site.

There is vegetation along the site boundaries, is limited to shrubs and semi-mature trees ranging in poor condition.

Refer Site Photos over leaf

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2.2 Site Analysis

The Site has the following interfaces:

· **North**: Dorchester Street Reserve

· **East**: Dorchester Street _ Residential Interface.

· **West**: Lygon Drive and Residential Private open spaces for sole occupancy dwellings facing Brunswick Crescent.

· **South**: Craigieburn Ambulance Station and Craigieburn Community Hospital with a timber fence.

The Site is conveniently located to a range of services. It is situated approximately 150m east of the Craigieburn Central Shopping Centre and is well serviced by the major arterial roads of Craigieburn Rd.

The Site has a high level of public amenity, including:

· **Commercial and retail areas**: Craigieburn Central Shopping Centre (approximately 150m east of the Site),

· **Open Space**: Dorchester St Reserve. To the northern interface and Craigieburn Golf Course. Craigieburn Bicentennial Park. About 250 meters South of the site over Craigieburn Rd.

· **Public transport**: Bus route 529 (529 Craigieburn Station - Craigieburn North via Craigieburn Central SC) and 537 (537 Craigieburn Station - Craigieburn West via Craigieburn Central SC) west of the site, with bus stops located approximately 200m from the site. Craigieburn Train Station and bus route 537(approximately 2km southeast of the Site).

Refer to Figure 3 – Context Plan. overleaf.

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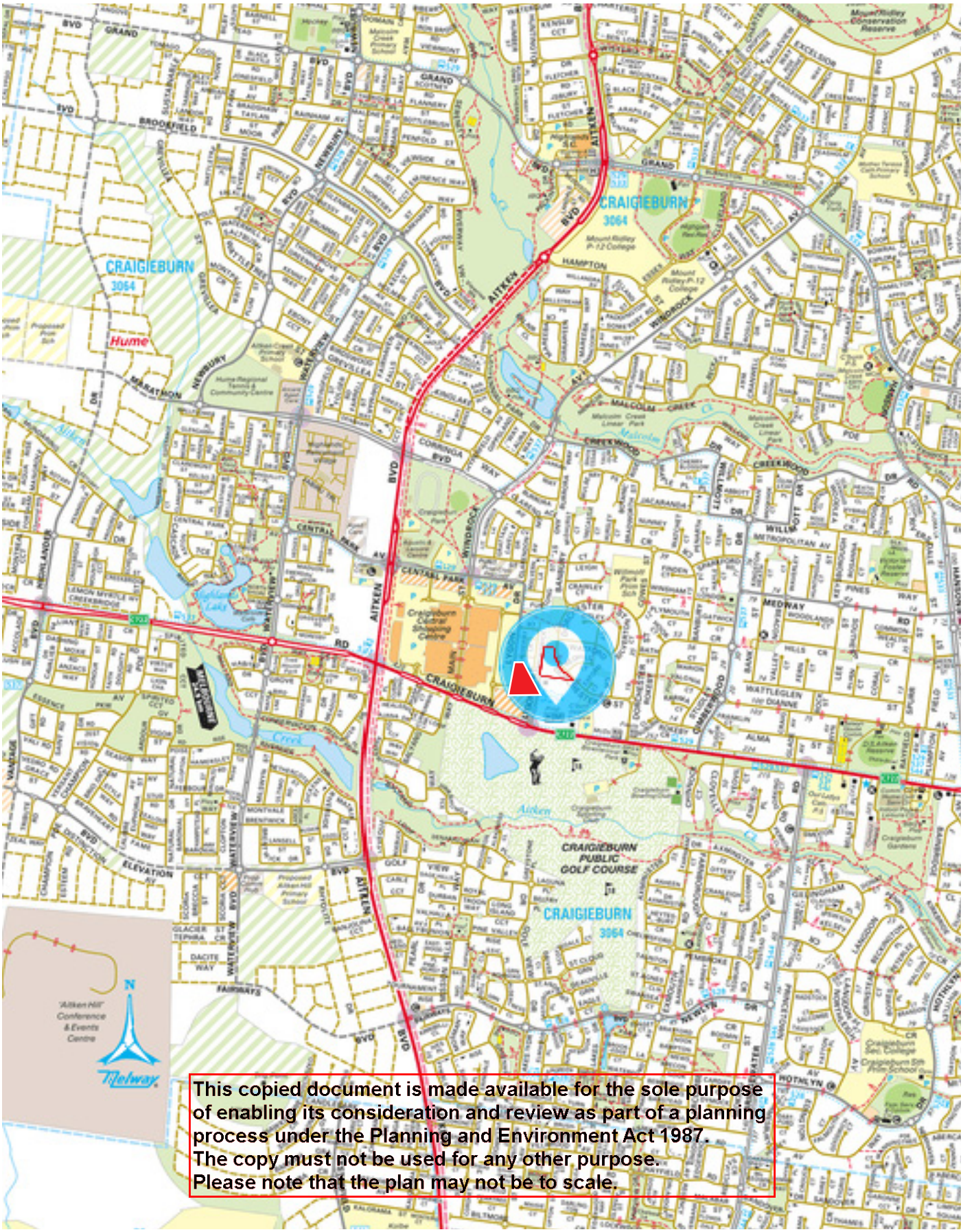

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Figure 2 Melways Map Reference

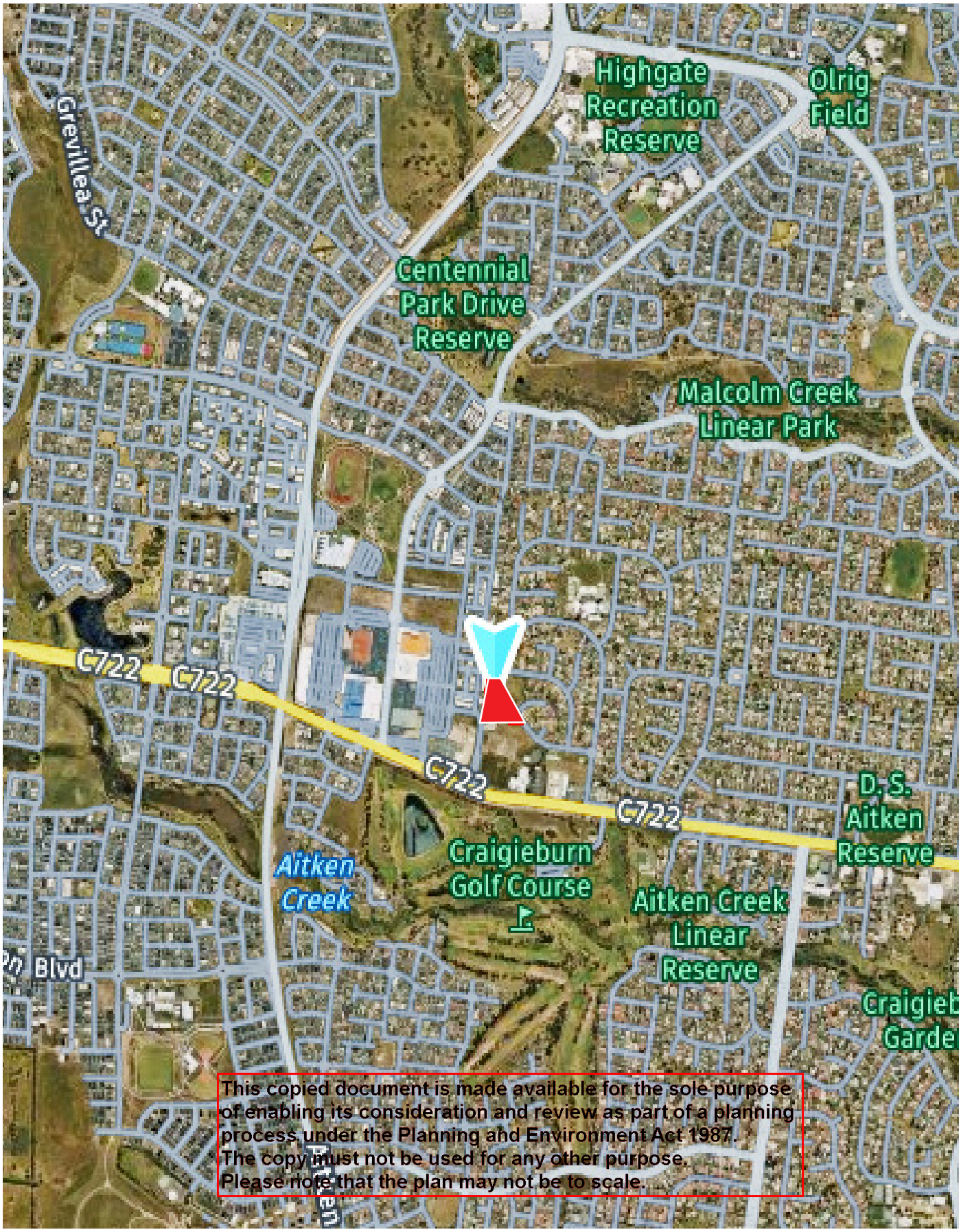
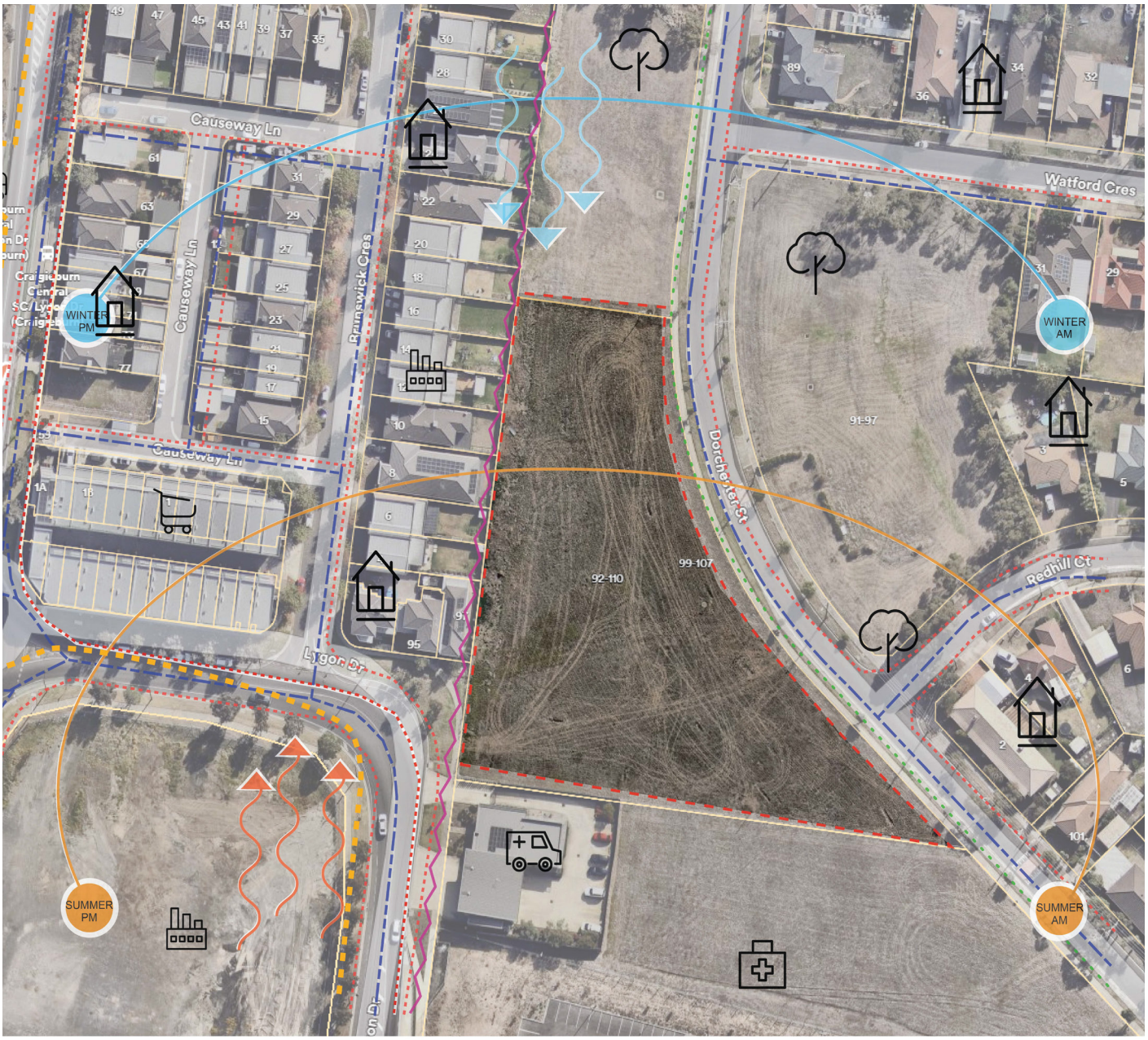


Figure 3 - Context Plan



LEGEND

- SITE BOUNDARY
- BUS ROUTE
- BUS STOP
- MAIN ROADS
- SMALLER ROADS
- RESIDENTIAL INTERFACE
- GREEN RESERVE
- WINTER SUN PATH
- SUMMER SUN PATH
- PEDESTRIAN
- PREVAILING SUMMER WINDS @3PM
- PREVAILING WINTER WINDS @3PM

ZONE

- INDUSTRY MEDIUM
- RETAIL
- EXISTING MEDICAL
- EXISTING AMBULANCE
- NOISE GENERATION
- QUIET

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Figure 5 - Site Analysis



Figure 3 Site Photo



Figure 5 Site Photo

3.4 Design Response

[redacted] was engaged to develop an appropriate design solution for the Site.

The Station will include all necessary facilities to comply with the *FRV Fire Station Design Guide Rev D 2019.* and the appropriate FRV Room Data Sheets.

The contemporary architectural design aims to improve the landscape and urban design outcomes of the existing development, while integrating the development with the existing streetscape and meeting the FRV regulations to improve the onsite amenity for its staff. The contemporary new building including to the articulation and materiality of the building façade seeks to respect and enhance the streetscape character and public realm of the key transport corridors.

New Fire Station

The proposed development delivers a new fire station in with a modern architectural presentation to **Lygon Drive** and **Dorchester St.** and provide modern internal spaces and amenity for its staff and satisfy the FRV regulations.

The proposed New Station will house the activities of the fire station A Fire Station is a **complex building system** integrating workplace with rest and recovery rooms, information technology, security systems, public accessibility and garaging for the Brigade's primary "workhorses" - the fire trucks.

It must provide a pleasant, healthy, living environment whilst withstanding extreme hardwearing use, 24 hours a-day / every day of the year

In addition to being inherently durable, a Fire Station must be arranged to:

- Ensure safe, easy, and immediate access between living quarters and appliance bays.
- Segregate the public areas of the building from operational areas;
- Provide for movement flow of fire fighters from the living quarters (clean area) to the active area which contains the appliance bay and the transition space for the personal protective clothing (PPC) changing area which enables fire fighters to put on or remove protective clothing in the active area prior to entering/exiting the clean area.
- Provide safe and secure access to plant areas for maintenance works;
- Set a community example for fire safety engineering;
- Provide a non-load bearing layout of interior walls. Fire stations will undergo changes to their layout over their lifetime and their design must adapt easily to those changes. The following should be considered:
- Changes to communications technology
- Population shifts causing alterations to the level of services required
- Changes in award conditions for fire fighters
- Developments in firefighting technology
- Changes to appliance types and sizes (fire trucks)
- Changes to environmental demands
- Possible requirements for resale and change of use at the end of its useful life as a fire station.

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3.5 The Internal Organisation

- Clearly reflect two distinct characteristics of the FRV.
    - It is a **Workplace,**
        - **Appliance Bay and Fire Pumper Operational Area**
        - **Administration and office**
    - it is also a **Rest and Recovery place** for the firefighters.

These two characteristics are reflected in the design and layout of the building.

Generally, there are **three** zones,

- **Active** – the section of the building that allows for the firefighting and recues operations to occur. This is the base from which the firefighters, go out to and come back from, perform their firefighting and rescue duties.
- **Transition**- the section of the building which separates Active from Clean and ensures health and safety of workers when they are not wearing Personal Protective Clothing.
- **Clean** – the section of the building that allows for the everyday administration and living of the station.

3.6 Site Response

The Proposal includes careful consideration to the following issues:

- 24-hour active occupation
- 24-hour call-out
- Lighting levels
- Noise levels
- Building scale
- Construction materials
- Landscaping (underdevelopment) *responding to Council recommended Planting guidelines*

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3.7 Architectural response

The Architectural design response Is respectful of the preferred character of Craigieburn and surrounding zone and allotments.

The proposed station will have:

- **A Maximum Building Height** 8.0m above Natural Ground Level to accommodate the appliance bay building requirements.

- **The Front Set Back**
  - greater than 6 m from Lygon drive or
  - greater than 9.0 m to Dorchester St

- **The Public Entrance** (and approach) is clearly obvious and identifiable both day and night. For occasions when appliances are out on call and the station is locked, the emergency phone to contact MFB central control is prominently located.

Clean Zone

- To the residential interface the rear yards of town houses from Brunswick Cres there is a 100 square meter staff break out courtyard which is fenced and with a pergola. And generous landscape area for trees and planting *(landscape plan to follow)*
  - The pergola is approximately 50sqm in area and includes communal BBQ and retreat garden for the fire station's staff. The area is landscaped and includes a desk with tables and bench seating.
- The **Staff break out area** can be directly accessed externally as well as from the **Kitchen Mess** and dining room and **Gymnasium.**
- The staff break out facilities and transition area comprise of the following elements.
  - Kitchen / mess hall 62 sqm with direct access to the proposed outdoor pergola.
  - Gymnasium 75 sqm,
  - Multi-purpose room 60 sqm with adjacent 11m furniture store
  - Breakout room 12 sqm
- Rest and Recovery Wing
  - 14 individual rest and recovery rooms
  - locker areas by incorporating them into the central circulation area.
  - 7 shared ensuites. , where each ensuite is shared by a maximum of two rest and recovery room.
- 3 Staff toilets
- Staff cleaning Store
- 3 Storerooms
- Station Office Area
- Station Admin
- Service rooms including Switchboard and Comms

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Transition Zone

- Transition WC and Shower
- PPE change and storage areas, including areas for spare storage.

Active Zone

- Appliance bay + storage areas in the appliance bay, including a new 16sqm bicycle storage area.

ENVIRONMENTAL SUSTAINABILITY DESIGN STRATEGY.

FRV has a Strong commitment to environmentally sustainable outcomes.

First: Passive Design
The building shall incorporate best practice passive design principles with the aim to reduce energy and water demands as much as possible, under consideration of the Indoor Environment Quality
(IEQ - thermal comfort, daylight, air quality and acoustics).

Second: Equipment Efficiencies
Once a reasonable balance between building energy demand (heating, cooling, ventilation and artificial lighting), water consumption and IEQ is achieved, consideration shall be given to the efficiency of building services. When analysing energy, emphasis shall be placed on related CO2 emissions rather than the quantity of energy required.

Third: Environmental Impact
The environmental impact, although often difficult to measure, shall be considered for every material and technology assessed. A lifecycle approach shall be adopted considering resource extraction, manufacture, installation, operation and end-of-life treatment.

Fourth: Financial Viability
Where feasible, all major initiatives shall be analysed under consideration of capital expenditure, operational costs including maintenance and end-of-life treatment cost. Payback periods of up to 15 years are considered reasonable for most energy related equipment. Water related initiatives are likely to have longer payback periods, often beyond economic life and also have an impact on energy use/ CO2 emissions.

ESD Performance Targets

Low Energy Use	10% improvement on Min NCC requirement
Rain water reuse	Water tanks collect for landscape reuse in the Landscape
Bio diversity	Generous Landscape Gardens and tree canopy
Waste minimisation	Recycling and Sorting Provision

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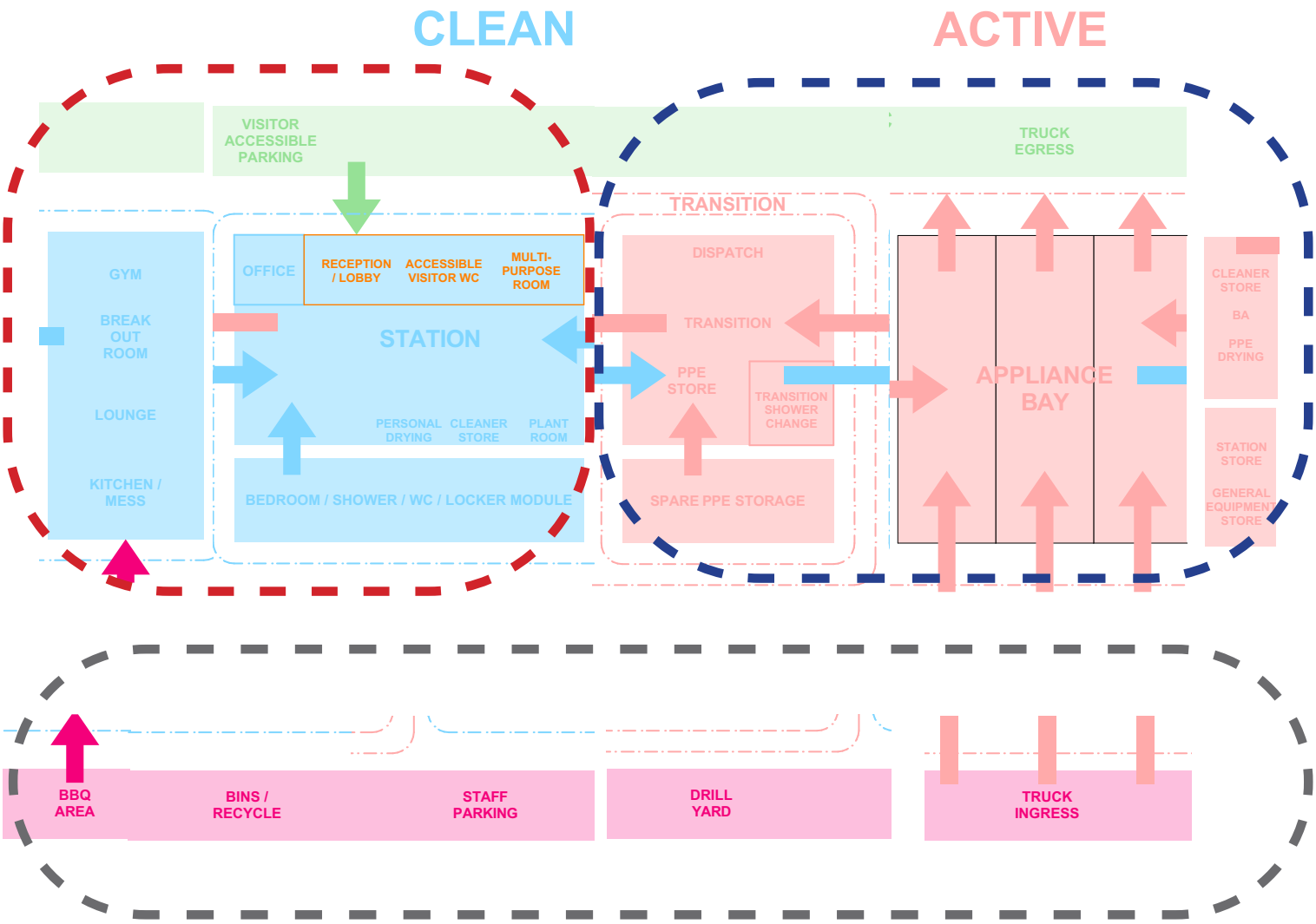
PROJECT SPECIFIC BRIEF



ADAPTED FROM METROPOLITAN FIRE AND EMERGENCY
SERVICES BOARD DESIGN & DELIVERY MANUAL FOR NEW & REFURBISHED FIRE STATIONS REV D 10//2019
FMSA ARCHITECTURE

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3.8 Materials

The design has sought to complement the preferred neighbourhood Character of Craigieburn with a contemporary Fire Station. The proposed station will introduce **modern colours and materials,**

The building is proposed to use a mix of brick and colorbond cladding in varying shades of white or grey. This will be complemented with subtle accent colours. In addition to the brick and metal cladding, articulation is further provided through the proposed canopy cover additions with steel framework adjacent to the appliance bay, as well as the use of concrete and timber in the fencing elements of the design.

3.9 Tree Retention and Landscaping

There are no trees on the site, There is potential for new trees within the landscape particularly abutting Dorchester St to address the residential street interface and to the south as landscaping to soften the edges.

Our Landscape Architect Mexted Rimmer is currently updating the Landscape plan to include a blend of drought resistant local and native species

3.10 Parking and Access

Access to the site for both vehicles and appliances (fire trucks) will require new crossovers.
A total of **34** new car parking spaces will be provided on site.
(28 spaces for staff allowing for maximum capacity at shift change over plus 3 for visitors and 1 DDA park near the entrance),

Bicycle storage space has been included within the FRV Staff Storage Area .and also Undercover adjacent the **Rest and Recovery Wing**

- All HRV and commercial vehicles will **enter and exit from Lygon Drive.**
- FRV staff vehicles can enter via Lygon Drive or Dorchester to the Secured Carpark.
- FRV Staff vehicles may exit via Dorchester Rd via secured gate.
- Maintenance and Delivery Vehicles including waste management and Laundry will enter via Lygon Drive.

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3 Proposal

3.1 Overview

The proposal seeks approval for works associated with a **New Emergency Services** facility (the Craigieburn Fire Station). It does not require the removal of a trees.

The proposed works are necessary to ensure the **Craigieburn Fire Station FS#80** meet mandatory FRV regulations and the needs of their staff, in particular the fire fighters stationed at the facility.

To meet these regulations, a new building including appliance bays, service and storage areas, administration and transition areas and rest and recovery rooms and communal space are required.

This section should be read in conjunction with the architectural plans prepared by [redacted]

3.2 Planning Permit Triggers

The Site is subject to the Hume Planning Scheme. The following planning permit triggers apply to this planning applications:

· Constructing a New Building from the Section 2 table in a General Residential Zone.

· Clause 52.05-13 (Signs) – Permit required for the display of a business identification signs.

3.3 Key Elements

Key elements of the proposal include:
New building to include

- **3** appliance bays (fire truck parking spaces)
- **28** staff car spaces
- **14** separate Rest and Recovery rooms for staff (FRV Fatigue Management).
- **3** Maintenance and visitor car spaces
- Administration and transition areas
- Staff communal spaces
- a new outdoor pergola area with BBQ and exercise spaces,
- **1** new crossovers and access to Lygon Drive and 2 new crossovers to Dorchester Street including bollards and traffic management measures such as traffic light overrides.
- Display of three new business identification signs facing Lygon Drive
- Removal of weed species.
- Proposed new landscaping and vegetation, including the planting of trees. Shrubs and grasses

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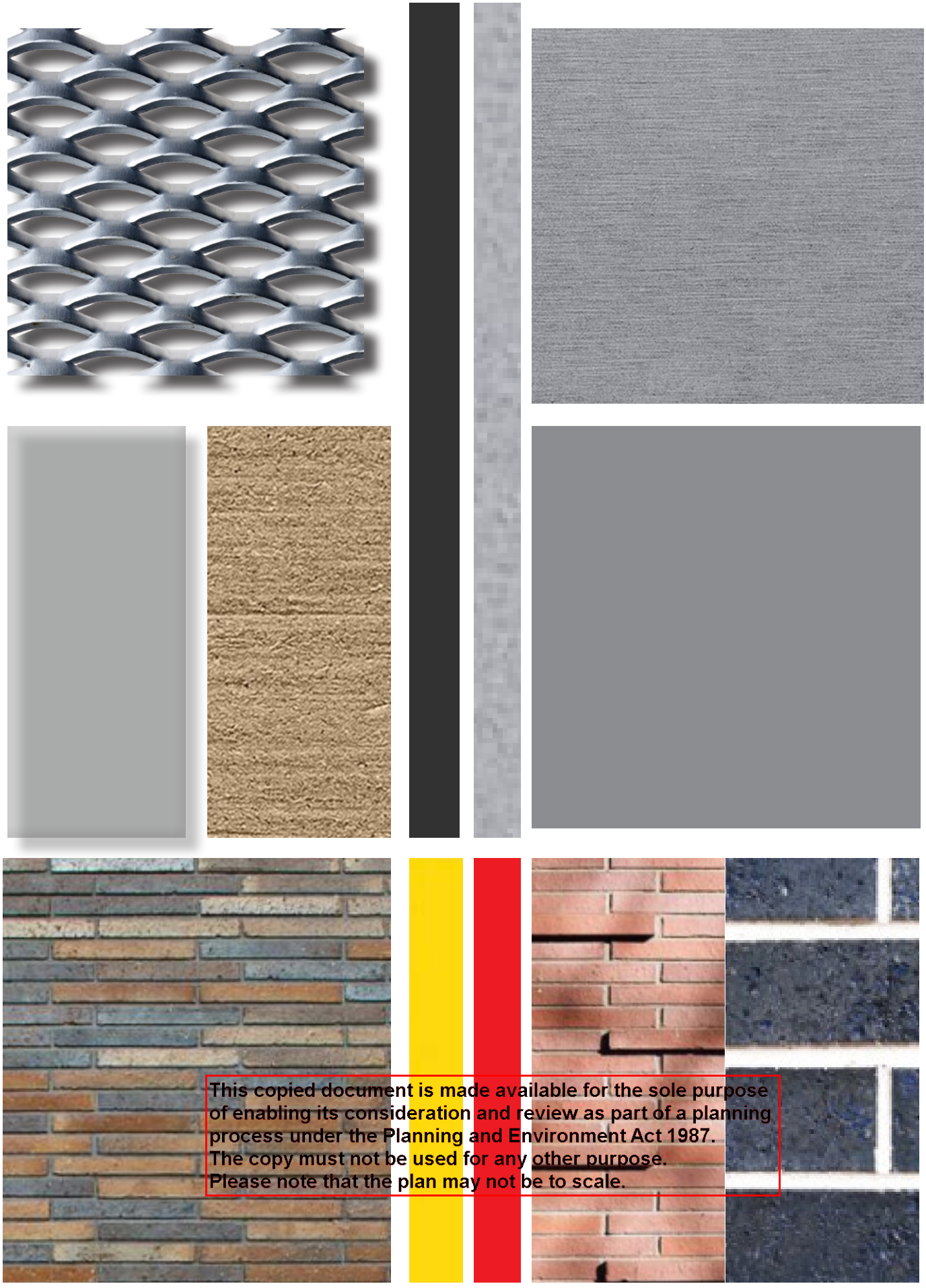

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Material palette refer to drawings

3.11 Signs

Details of the proposed signs are included in the architectural plans and signs plan included in the planning application.
As an overview:

- An internally illuminated business identification sign, measuring 0.5m in height and 19.259m in length, is proposed on the fence along the Lygon Drive frontage The proposed sign is separated into letterings that spells out ‘Craigieburn Fire Station’. Each letter will be backlit from dusk to dawn, with red side highlights
- A backlit station identification sign ‘Craigieburn Fire Station’. Each letter will be softly backlit from dusk to dawn.”
- A partially internally illuminated business identification sign is proposed in the setback from Lygon Drive near the visitor entry. The sign has a two-sided display area facing northward and southward and measures 2.5m in height and 1.25m in length.
- A business identification sign (consisting of the Fire Rescue Victoria crest) is proposed on the western elevation of the appliance bay, facing Lygon Drive. It measures 0.9m in height, and 0.87m in length.

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4 Planning Policies

4.1 State Planning Policy

The following State planning policies are considered relevant to this proposal:

- **Clause 11 (Settlement)** states planning is to anticipate and respond to the needs of existing and future communities through provision of zoned and serviced land for housing, employment, recreation and open space, commercial and community facilities and infrastructure.
- **Clause 12.05-2S (Landscapes)** seeks to protect and enhance significant landscapes and open spaces that contribute to the character, identity and sustainable environments.
- **Clause 13.05-1S (Noise Abatement)** seeks to assist the control of noise effects on sensitive land uses and includes the strategy to ensure that development is not prejudiced and community amenity is not reduced by noise emissions, using a range of building design, urban design and land use separation techniques as appropriate to the land use functions and character of the area.
- **Clause 15.01-1S (Urban Design)** aims to create urban environments that are safe, healthy, functional and enjoyable and that contribute to a sense of place and cultural identity.
- **Clause 15.01-1R (Urban Design – Metropolitan Melbourne)** seeks to create a distinctive and liveable city with quality design and amenity.
- **Clause 15.01-2S (Building Design)** states the objective to achieve building design outcomes that contribute positively to the local context and enhance the public realm and includes the strategy to ensure the form, scale, and appearance of development enhances the function and amenity of the public realm.
- **Clause 15.01-5S (Neighbourhood Character)** aims to recognise, support and protect neighbourhood character, cultural identity, and sense of place.
- **Clause 18.02-3S (Road System**) includes a strategy that seeks to plan and regulate the design of transport routes and nearby areas to achieve visual standards appropriate to the importance of the route with particular reference to landscaping, the control of outdoor advertising and, where appropriate, the provision of buffer zones and resting places.
- **Clause 18.02-4S (Car Parking) seeks** to ensure an adequate supply of car parking that is appropriately designed and located.
- **Clause 19.02-5S (Emergency Services)** aims to ensure suitable locations for police, fire, ambulance and other emergency services and includes the strategy to ensure police, fire, ambulance and other emergency services are provided for in or near activity centres.

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4.2 Local Planning Policy

The following Local planning policies are considered relevant to this proposal:

- **Clause 22.09 Advertising signs local policy**

Maintain and enhance the attractiveness and orderly appearance of the City through the siting and appropriate control of advertising signs.
Ensure that signs do not detract from the amenity and character of the surrounding area.
Encourage the display of signs based on themes appropriate to the scale and character of the surrounding area.
Avoid or reduce sign clutter to maximise the effectiveness of individual identification signs.

4.3 Zoning

Clause 32.08 – General Residential Zone

The Site, in its entirety, is located in the General Residential Zone (GRZ).

Purpose

- 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 32.08-1 Neighbourhood Character objective**

None Specified

- **Clause 32.08-2 Table of uses**

Emergency Services facility is a Section 2 Use hence a Permit is required.

- **Clause 32.08-3 Subdivision**

Not applicable

- **Clause 32.08-4 Construction or extension of a dwelling or residential building**

Not applicable

- **Clause 32.08-5 Construction and extension of one dwelling on a lot**

Not applicable

- **Clause 32.08-6 Construction and extension of two or more dwellings on a lot, dwellings on common property and residential buildings**

Not applicable

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- **Clause 32.08-7 Requirements of Clause 54 and Clause 55**

If a requirement is not specified in a schedule to this zone, the requirement set out in the relevant standard of Clause 54 or Clause 55 applies.
None Specified

- **Clause 32.08-8 Residential aged care facility**

Not applicable

- **Clause 32.08-9 Buildings and works associated with a Section 2 use**

A permit is required to construct a building or construct or carry out works for a use in Section 2 of Clause 32.08-2. Construct a building or construct or carry out works where:

  - Exceptions Do not apply.
  - The requirements in the following standards of Clause 54 are met, where the land adjoins land in a residential zone used for residential purposes:
    - A10 Side and rear setbacks.
    - A11 Walls on boundaries.
    - A12 Daylight to existing windows.
    - A13 North-facing windows.
    - A14 Overshadowing open space.
    - A15 Overlooking.

If a schedule to the zone specifies a requirement of a standard different from a requirement set out in the Clause 54 standard, the requirement in the schedule to the zone applies and must be met.

- **Clause 32.08-10 Maximum building height requirement for a dwelling or residential building**

Not applicable.

- **Clause 32.08-11 Application requirements**

An application must be accompanied by the following information, as appropriate:

Plans drawn to scale and dimensioned which show:
- Site shape, size, dimensions and orientation.
- The siting and use of existing and proposed buildings.
- Adjacent buildings and uses.
- The building form and scale.
- Setbacks to property boundaries.

The likely effects, if any, on adjoining land, including
- noise levels,
- traffic,
- the hours of delivery and despatch of good and materials,
- hours of operation and
- light spill,
- solar access and glare.

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Any other application requirements specified in a schedule to this zone.

PROPERTY REPORT

Environment, Land, Water and Planning

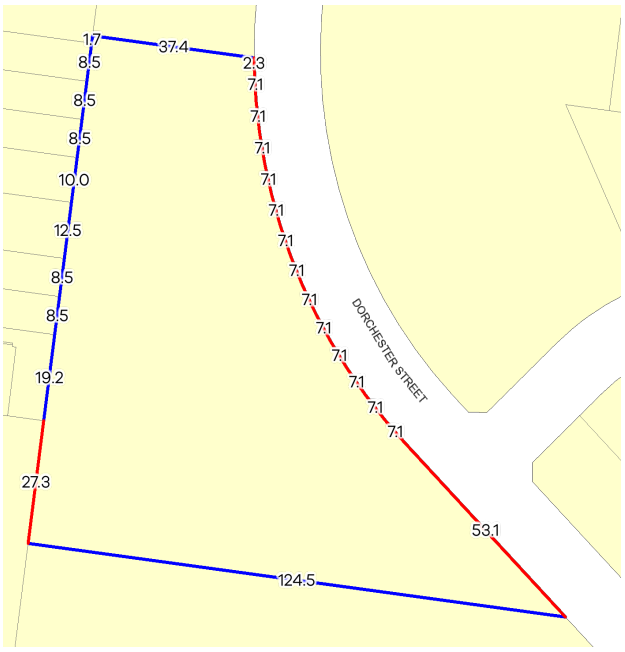
From www.planning.vic.gov.au at 13 July 2023 09:07 AM

PROPERTY DETAILS

Address:	**92-110 DORCHESTER STREET CRAIGIEBURN 3064**
Lot and Plan Number:	**Lot T LP212816**
Standard Parcel Identifier (SPI):	**T\LP212816**
Local Government Area (Council):	**HUME** www.hume.vic.gov.au
Council Property Number:	**671636**
Directory Reference:	**Melway 386 H8**

SITE DIMENSIONS

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



Area: 7719 sq. m
Perimeter: 422 m
For this property:
Site boundaries
Road frontages

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

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

For more accurate dimensions get copy of plan at Title and Property Certificates

UTILITIES

Rural Water Corporation:	**Southern Rural Water**
Melbourne Water Retailer:	**Yarra Valley Water**
Melbourne Water:	**Inside drainage boundary**
Power Distributor:	**JEMENA**

STATE ELECTORATES

Legislative Council:	**NORTHERN METROPOLITAN**
Legislative Assembly:	**KALKALLO**

PLANNING INFORMATION

Property Planning details have been removed from the Property Reports to address duplication with the Planning Property Reports which are DELWP's authoritative source for planning information.

The Planning Property Report for this property can be found using the Property Reports service.

Planning Property Reports can be found via these two links
Vicplan https://mapshare.vic.gov.au/vicplan/
Property and parcel search https://www.land.vic.gov.au/property-and-parcel-search

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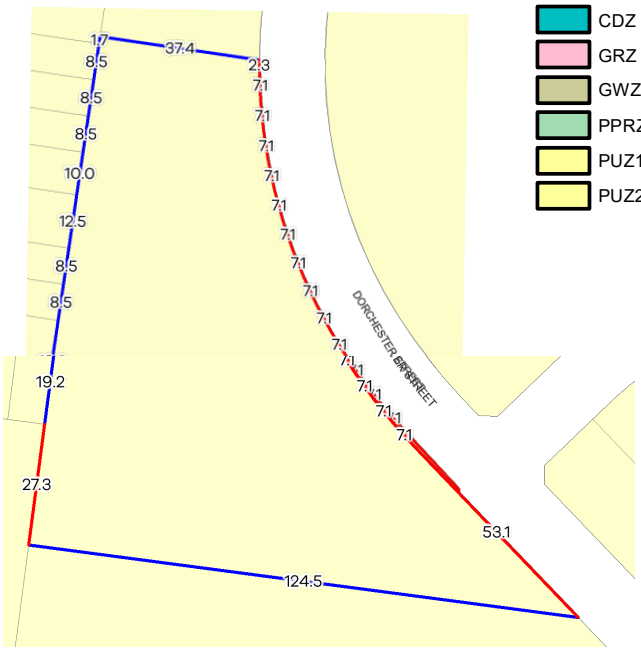
If in the opinion of the responsible authority an application requirement is not relevant to the evaluation of an application, the responsible authority may waive or reduce the requirement.

4.4 Overlays

There are no overlays affecting the site



LEGEND

- CDZ - Comprehensive Development Zone
- GRZ - General Residential Zone
- GWZ - Green Wedge Zone
- PPRZ - Public Park and Recreation Zone
- PUZ1 - Public Use Zone - Service and Utility
- PUZ2 - Public Use Zone - Education
- RCZ - Rural Conservation Zone
- RLZ - Rural Living Zone
- TRZ2 - Principal Road Network
- UFZ - Urban Floodway Zone
- UGZ - Urban Growth Zone

The adjacent site zones:

- Comprehensive Development Zone (CDZ)
- Comprehensive Development Zone - Schedule 1(CDZ1)

Adjacent site Planning Overlays

- Development Plan Overlay (DPO)
- Development Plan Overlay - Schedule 7 (DPO7)
- Specific Controls Overlay (SCO)
- Specific Controls Overlay - Schedule 8 (SCO8)

UTILITIES

Rural Water Corporation:	**Southern Rural Water**
Melbourne Water Retailer:	**Yarra Valley Water**
Melbourne Water:	**Inside drainage boundary**
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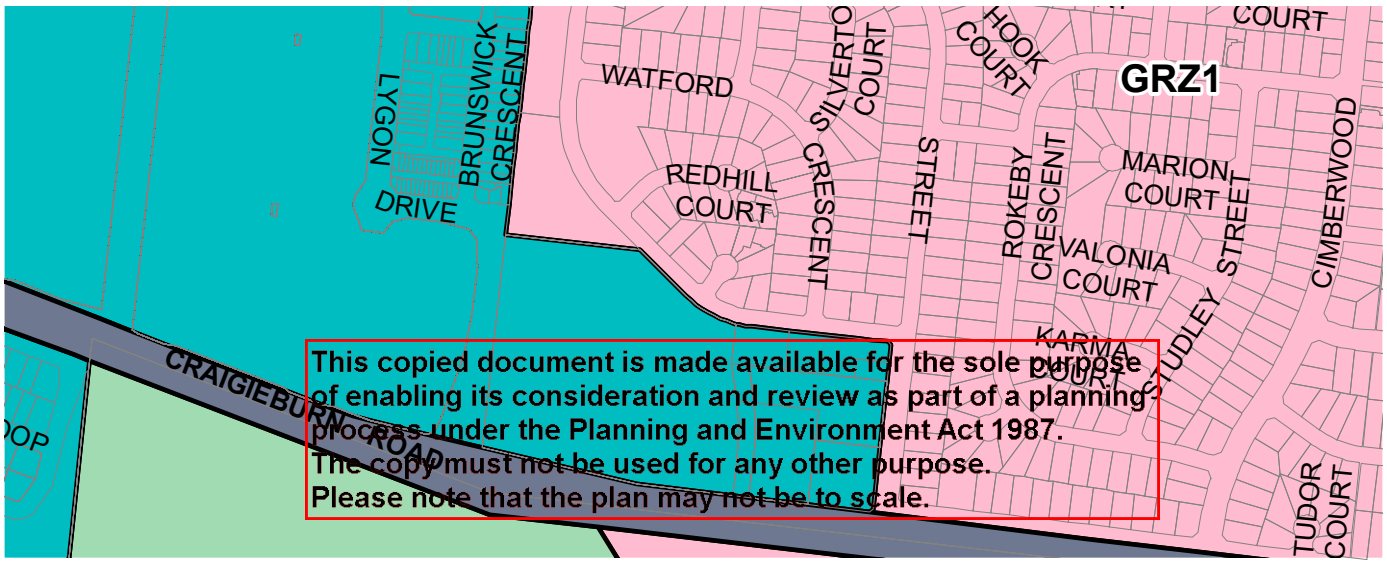

Extract of map 10 from the Hume Planning Scheme Maps DWELP Printed Jan 2022

4.5 Particular Provisions

- **Clause 52.05 - Signs**

  The purpose of Clause 52.05 is:
  - To regulate the development of land for signs and associated structures.
  - To ensure signs are compatible with the amenity and visual appearance of an area, including the existing or desired future character.
  - To ensure signs do not contribute to excessive visual clutter or visual disorder.
  - To ensure that signs do not cause loss of amenity or adversely affect the natural or built environment or the safety, appearance or efficiency of a road.

  The proposed sign is not within 600mm of the road formation. The category of advertising control that applies is therefore the category that applies to the adjoining zone nearest to the land. The adjoining zone nearest to the land is the General Residential Zone, which is in a **Category 3**. Category 3 advertising control therefore applies to this application. Category 3 is classified as a 'High Amenity Area' (medium limitation) with regard to signs.

  Pursuant to Clause 52.05-13, the purpose of this category is:

  'To ensure that signs in high-amenity areas are orderly, of good design and do not detract from the appearance of the building on which a sign is displayed or the surrounding area.'

  The display of business identification sign is listed in Section 2 of Clause 52.05, therefore a permit is required

- **Clause 52.06 – Carparking**

  Purpose
  - To ensure that car parking is provided in accordance with the Municipal Planning Strategy and the Planning Policy Framework.
  - To ensure the provision of an appropriate number of car parking spaces having regard to the demand likely to be generated, the activities on the land and the nature of the locality.
  - To support sustainable transport alternatives to the motor car.
  - To promote the efficient use of car parking spaces through the consolidation of car parking facilities.
  - To ensure that car parking does not adversely affect the amenity of the locality.
  - To ensure that the design and location of car parking is of a high standard, creates a safe environment
  - for users and enables easy and efficient use

As car parking requirements for an Emergency services facility are not specified in Table 1, car parking is required to be provided to the satisfaction of the Responsible Authority.

Numbers of carparks have been provided based on the number of staff likely for a shift at capacity and at shift change over.

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- **Clause 52.34 – Bicycle Facilities**

Pursuant to Clause 52.34-1:

A new use must not commence or the floor area of an existing use must not be increased until the required bicycle facilities and associated signage has been provided on the land.

The purpose of Clause 52.34 is

- To encourage cycling as a mode of transport.
- To provide secure, accessible and convenient bicycle parking spaces and associated shower and change facilities

Bicycle facility requirements for an Emergency services facility are not specified in Table 1, therefore there is no specific statutory requirement.

- FRV fire stations provide bike storage to provide local staff the option to ride to work.

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5 Planning Assessment

5.1 Overview

It is considered that the proposed building and works for the **Craigieburn Fire Station FS#80** at **99-107 Lygon Drive, Craigieburn** are consistent with the relevant planning provisions of the Hume Planning Scheme and delivers an appropriate planning outcome.

5.2 Key Considerations

When assessing the proposal against the Hume Planning Scheme, it was determined that the following issues were relevant.

- The proposal consistent with planning policy.
- The proposal satisfactory respond to the requirements of the General Residential Zone.
- The proposal satisfactorily responds to the requirements of Clause 43.03 regarding significant landscapes.
- The proposed signs respond to the site context and provide a satisfactory design outcome.
- The proposal provide a satisfactory car parking solution.

Each of these is discussed further below.

5.2.1 Is the proposal consistent with planning policy

The proposed buildings and works for the new emergency service facility is considered to be supported by State planning policy. The proposed development is appropriately sited and designed, and in this regard is in accordance with urban and building design state policies under Clause 12.05-2S, 15.01-1S, 15.01-2S, 18.02-3S and 18.02-4S, as well as local policies under Clause 21.06 and 21.10.

Specifically, the proposed colour scheme, materiality and articulation to the building façade reflects a modern architectural presentation of the site to the abutting road; Lygon Drive and Dorchester Street,

The proposed landscaping of the site provides for an urban design outcome that is safe and enjoyable for pedestrians and cyclists.

The proposed sign is also incorporated into the design of the building, therefore does not detract from the public realm.

The selection of low maintenance materials will also protect the long-term appearance of the building

The building footprint is considered to be a site responsive outcome. It is considered to achieve visual standards appropriate to the General Residential Zone. Given that the site is not close to any sensitive uses, the proposed development will also have minimal impact on neighbouring properties. Rather, its design respects and enhances the neighbourhood and streetscape character of the area that is dominated by high fences, single to two-storey development within a landscaped setting.

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The surrounding landscape is relatively flat with newly established trees associated with recent and ongoing residential development. There are large shrubs on the western boundary interfacing with residential town houses on Brunswick Crescent. The removed shrubs will be replaced with the planting of trees and enhanced landscaping with endemic species in the front set back and along the eastern and northern boundaries. With opportunities for the planting of vegetation and trees around the building. In addition to the proposed vegetation and landscaping. The carparking is planned with green wedges for new trees to be introduced.

The building incorporates other ESD measures, such as solar panels and water tanks including below carparking spaces.

The aim of the proposed buildings and works is to facilitate contemporary accommodation standards for employees of the proposed fire station to be in compliance with the FRV standards. The proposed new building provides individual rest and recovery spaces, and shared recreational spaces. Habitable spaces have carefully planned windows and doors for natural light and access to external shared open space, as well as landscaping to complement and enhance site amenity for fire fighters and ensures a design outcome that is suitable for the operation of important fire emergency services.

5.2.2 Does the proposal satisfactorily respond to the requirements of the General Residential Zone- Category 1?

The zoning of the site General Residential Zone- Category 1.

The purpose of the zone is 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 nominated emergency services use is a Section 2 use; a permit is required but the proposed use is considered to satisfactorily respond to the requirements of the General Residential Zone.

The General Residential Zone does not have specific character objectives.

5.2.3 Do the proposed signs respond to the site context and provide a satisfactory design outcome?

The proposed sign facing Lygon Drive is proposed to be incorporated into the design of the architectural façade to minimise its visual dominance in the landscape or streetscape.

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The proposed business identification signs near the visitor entrance and on the appliance, bay are standard Fire Rescue Victoria signs. These are coordinated in colour and are necessary to identify the function of the Fire Station. As an emergency services facility, it is essential that appropriate identification is provided for the community.

Given the location on a bend in Lygon drive with a vacant lot opposite the entrance residences perpendicular to the entrance. the signs will not result in any detrimental

amenity impacts to these dwellings. The signs are static and will not be floodlit nor have an animated display, therefore should not adversely impact on the safety of Lygon Drive. Signage is not proposed to Dorchester St. The proposed size and quantity of signs are not considered to increase visual clutter.

5.2.4 Does the proposal provide a satisfactory car parking solution?

Clause 52.06 does not specify parking rates for a Fire Station. However, it is understood that an FRV 3 bay appliance station will generate a maximum need of 14 car spaces for staff (4 fire fighters per appliance bay and 2 additional staff spaces for station officers). The proposed 28 on-site spaces therefore adequately accommodate the peak parking demands expected to be generated by a two-bay appliance fire station. Additional spaces are required to accommodate all fire fighter's cars during shift changeovers. A further 3 spaces are provided for visitors and maintenance vehicles. Plus 1 DDA Space

Please note also the inclusion of Bike Parking and End of trip facilities for staff who which to travel via bicycle to and from the station.

Cars Spaces Proposed.

PARAMETER	FRV	VISITORS	TOTAL
NO OF STAFF	14	3	
CHANGE OVER	all		
APPLIANCES	3		
TOTAL	28	4	32

Waste Management

A comprehensive Waste management plan is provided and included.

Noise levels

Well planned siting, considered road connections and sufficient onsite parking will ensure that the proposed station does not have any detrimental off-site amenity impact

Traffic

Please refer to the attached Traffic Engineering letter prepared by Colliers

Other amenity: Hours of operation and delivery, Light

- Deliveries and maintenance will be confined t conventional business hours
- Dispatch and return from emergency call outs will be via Lygon Drive on an as needs basis with controlled signalling
- The building is sited to not overshadow any neighbouring building
- Materials have been considered as matt or satin with window screens and will not create a glare nuisance for neighbours

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6 Conclusion

The report has described the Site and its context, detailed the proposal, and provided an assessment against the relevant provisions of the Hume Planning Scheme, including the State and Local planning policies.

The proposed new fire station is considered to be consistent with the relevant planning provisions of the Hume Planning Scheme and delivers an appropriate planning outcome. The buildings and works will allow for improved on-site amenity for fire fighters, bringing the fire station in line with FRV requirements, and therefore enhance the operation of the FRV's Craigieburn-based fire-fighting services.

The design of the development delivers modern conditions and provides an urban and building design outcome that enhances the safety and attractiveness of the public realm and streetscape of the abutting surrounding streets. The proposed removal of weeds and shrubs will not detract from the landscape character of the area, which is dominated by recently established trees in the developing suburb. they will be replaced with an improved, purpose-designed landscaping outcome, providing new trees and additional endemic vegetation that respects and enhances the landscape character of the area.

The development is not located near any sensitive uses and will therefore not have any detrimental off-site amenity issues. The car parking arrangement will adequately cater for the fire station and improve its safety and functionality.

Council is respectfully requested to grant a permit for the proposed buildings and works.

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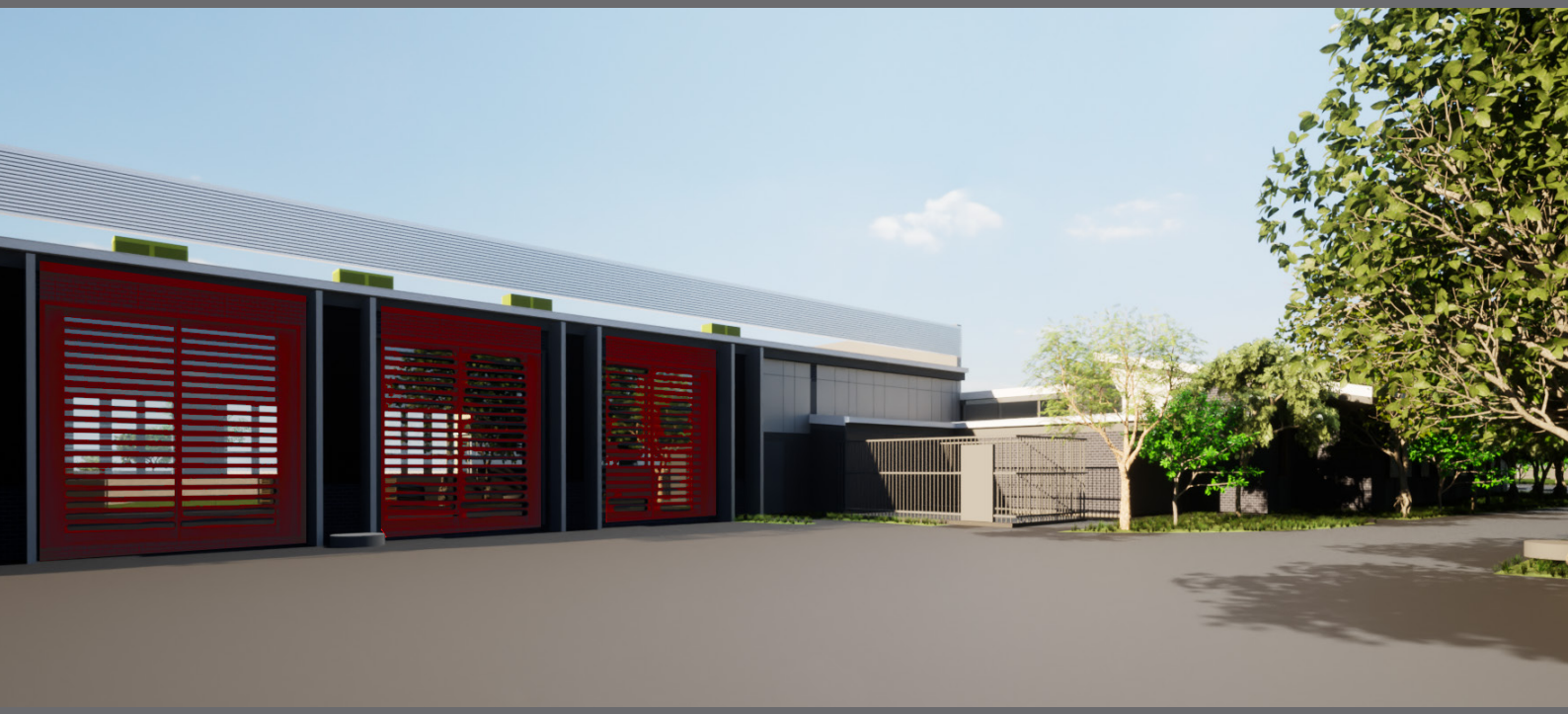

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[redacted]

FIRE RESCUE VICTORIA

FRV STATION 80
92 - 110 DORCHESTER STREET CRAIGIEBURN 3064



ARCHITECTURAL DRAWINGS

DRAWING NO.	Rev	TITLE
TP10	2	PROPOSED SITE PLAN
TP00	2	COVER SHEET
TP01	2	EXISTING NEIGHBOURHOOD ANALYSIS
TP02	2	EXISTING SITE PLAN
TP05	3	PROPOSED DESIGN RESPONSE
TP16	4	PROPOSED ROOF PLAN
TP20	2	ELEVATIONS - SITE _ 1/200
TP21	2	ELEVATIONS - BUILDING 1/100
TP30	2	MATERIAL BOARD
TP40	2	LANDSCAPE PLAN & SCHEDULE OF PLANTING , QUANTITIES
TP41	2	LANDSCAPE DETAILS
TP42	2	PLANTING SCHEDULE
TP50	2	FRV SIGNS
TP15	3	FLOOR PLAN
SK1001		OPTION 1
SK1003		OPTION 3
SK1004		OPTION 4
SK1005		OPTION 5
SK1002		OPTION 2
SK1000		OPTION 0
A17		FLOOR PLAN VENTILATION
A18		SCHEDULES

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2	JULY 2025	ISSUE C	
1	JUNE 2025	ISSUE B	

notes

[redacted]

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FRV
99-107 LYGON DRIVE, CRAIGIEBURN
STATION #80

DESIGN DEVELOPMENT
COVER SHEET

scale	@ A1
drawn by	BG/BM/TB
date	MAY 2022
checked by	JS
job no	22011
drawing no	TP00
rev no	2

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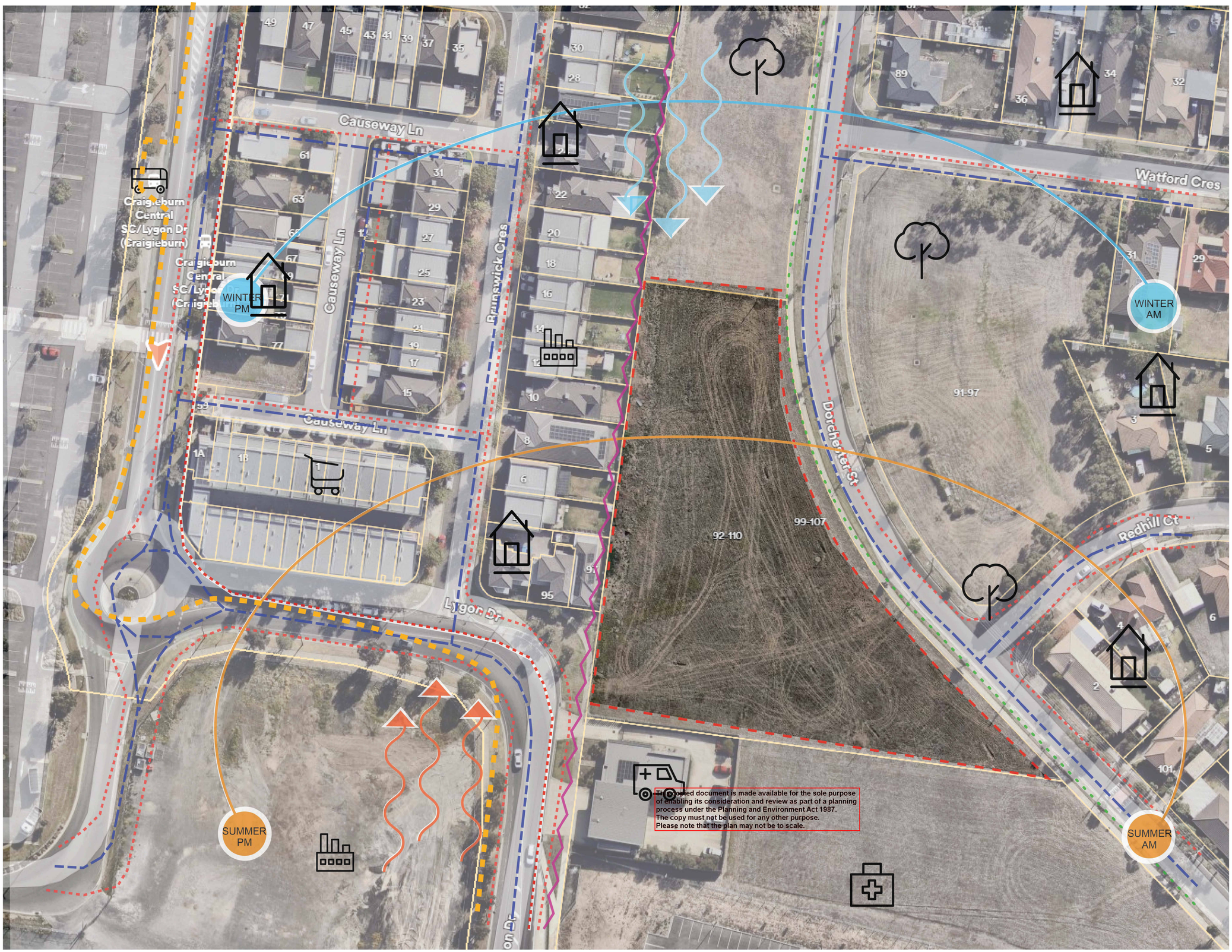

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LEGEND

- SITE BOUNDARY
- BUS ROUTE
- BUS STOP
- MAIN ROADS
- SMALLER ROADS
- RESIDENTIAL INTERFACE
- GREEN RESERVE
- WINTER SUN PATH
- SUMMER SUN PATH
- PEDESTRIAN
- PREVAILING SUMMER WINDS @3PM
- PREVAILING WINTER WINDS @3PM

ZONE

- INDUSTRY MEDIUM
- RETAIL
- EXISTING MEDICAL
- EXISTING AMBULANCE
- NOISE GENERATION
- QUIET

no	date	amendments/issue	drawn
2	JULY 2025	ISSUE C	
1	JUNE 2025	ISSUE B	

notes

[redacted]

FRV
99-107 LYGON DRIVE, CRAIGIEBURN
STATION #80

DESIGN DEVELOPMENT
EXISTING NEIGHBOURHOOD ANALYSIS

scale	@ A1
drawn by	BG/BM/TB
date	MAY 2022
checked by	JS
job no	22011
drawing no	TP01
rev no	2

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FRV
99-107 LYGON DRIVE, CRAIGIEBURN
STATION #80
DESIGN DEVELOPMENT
EXISTING SITE PLAN

scale 1 : 500 @ A1	drawn by BG/BM/TB
date MAY 2022	checked by JS
	job no 22011
	drawing no TP02 rev no 2

0 5 10 15 20 25 40 50

SCALE IN METRES



1 PROPOSED SITE RESPONSE
1 : 500

SITE DETAILS

SITE AREA	7,708 m²	100%
BUILDING FOOTPRINT	1,628 m²	21%
PERMEABLE LANDSCAPE	3,160 m²	40%

PARKING PROVISION
28 SECURE STAFF PARKING BAYS
4 VISITOR AND MAINTENANCE BAYS
(INCLUDES 1 DDA AND 1 OFFICE DELIVERIES)
3 SECURE APPLIANCE BAYS
18 BICYCLE STORAGE BAYS

RAIN WATER RETENTION
8 RAINWATER STORAGE TANKS
24,000 COMBINED CAPACITY ABOVE GROUND

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0 5 10 15 20 25 40 50
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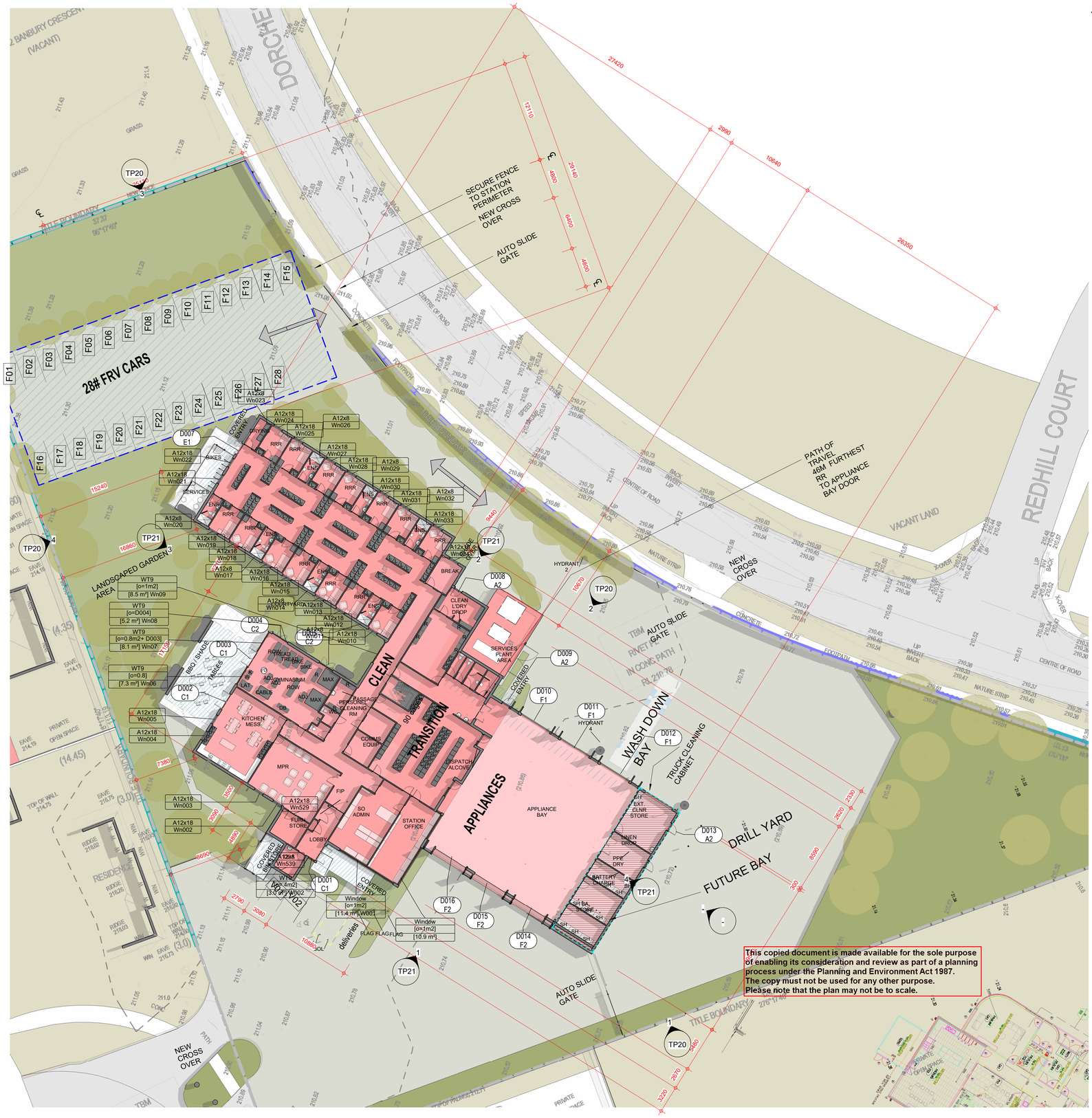
no	date	amendments/issue	drawn
3	17/11/25	ISSUE E	
2	JULY 2025	ISSUE C	
1	JUNE 2025	ISSUE B	

notes

FRV
99-107 LYGON DRIVE, CRAIGIEBURN
STATION #80

DESIGN DEVELOPMENT
PROPOSED DESIGN RESPONSE

scale	1 : 500 @ A1
drawn by	BG/BM/TB
date	MAY 2022
checked by	JS
job no	22011
drawing no	TP05
rev no	3



1 PROPOSED FLOOR PLAN
1 : 250

0 5 10 15 20 25
SCALE IN METRES

GENERAL LEGEND

- RR R — REST AND RECLINE ROOM
- 12.5M LONG HRV VEHICLE
- SERVICE VEHICLE PATH
- FF SAFE PATH
- APPLIANCE PATH
- PROPOSED TREE INDICATIVE REFER TO LANDSCAPE ARCHITECTURE DRAWINGS
- STORM WATER RETENTION BELOW PARKING AREA
- FUTURE BAY EXPANSION
- CVX MI _## — CONVEX MIRROR _ ID
- SECURE PALISADE FENCE
- OPAQUE _ PAILING FENCE

no	date	amendments/issue	drawn
2	JULY 2025	ISSUE C	
1	JUNE 2025	ISSUE B	
P1	AUG 2023	ISSUE A	

notes

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FRV
99-107 LYGON DRIVE, CRAIGIEBURN
STATION #80
DESIGN DEVELOPMENT
PROPOSED SITE PLAN

scale: As indicated @ A1	drawn by: BG/TB
date: MAY 2022	checked by: JS
	job no: 22011
	drawing no: TP10 rev no: 2

Curtain Wall Schedule		
Mark	Area	OPENING
D005	4.6 m²	D005
H01	2.6 m²	1.3m2
H02	2.6 m²	1.3m2
H03	2.6 m²	1.3m2
H04	2.6 m²	1.3m2
H05	1.4 m²	0.7m2
H06	1.4 m²	0.7m2
H07	1.4 m²	0.7m2
H08	1.4 m²	0.7m2
H09	1.4 m²	0.7m2
H19	5.0 m²	2.6m2
W002	3.0 m²	.4m2
Wn06	7.3 m²	0.8
Wn07	8.1 m²	0.8m2+ D003
Wn08	5.2 m²	D004
Wn09	8.5 m²	1m2

Exterior Door Schedule		
Mark	Function	Type Mark
004	Exterior	C2
005	Exterior	C2
5A	Exterior	S1
007	Exterior	E1
7A	Exterior	S1
008	Exterior	A2
009	Exterior	A2
9A	Exterior	S1
9B	Exterior	S1
010	Exterior	F1
011	Exterior	F1
012	Exterior	F1
013	Exterior	A2
014	Exterior	F2
015	Exterior	F2
016	Exterior	F2
DC1	Exterior	H3
G6	Exterior	H2
G28	Exterior	A2

Window Schedule			
Mark	Type Mark	Width	Height
002	A12x18	1200	1850
003	A12x18	1200	1850
004	A12x18	1200	1850
005	A12x18	1200	1850
010	A12x18	1200	1850
011	A12x8	1200	850
012	A12x18	1200	1850
013	A12x18	1200	1850
014	A12x8	1200	850
015	A12x18	1200	1850
016	A12x18	1200	1850
017	A12x8	1200	850
018	A12x18	1200	1850
019	A12x18	1200	1850
020	A12x8	1200	850
021	A12x18	1200	1850

Window Schedule			
Mark	Type Mark	Width	Height
022	A12x18	1200	1850
023	A12x8	1200	850
024	A12x18	1200	1850
025	A12x18	1200	1850
026	A12x8	1200	850
027	A12x18	1200	1850
028	A12x18	1200	1850
029	A12x8	1200	850
030	A12x18	1200	1850
031	A12x18	1200	1850
032	A12x8	1200	850
033	A12x18	1200	1850
034	A12x18	1200	1850
529	A12x18	1200	1850
539	A12x8	1200	850

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3	17/11/25	ISSUE E
2	JULY 2025	ISSUE C
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99-107 LYGON DRIVE, CRAIGIEBURN
STATION #80

DESIGN DEVELOPMENT
FLOOR PLAN

scale: 1 : 100 @ A1
drawn by: BG/RK
date: MAY 2022
checked by: Checker
job no: 22011
drawing no: TP15
rev no: 3

1 PROPOSED FLOOR PLAN
1 : 100

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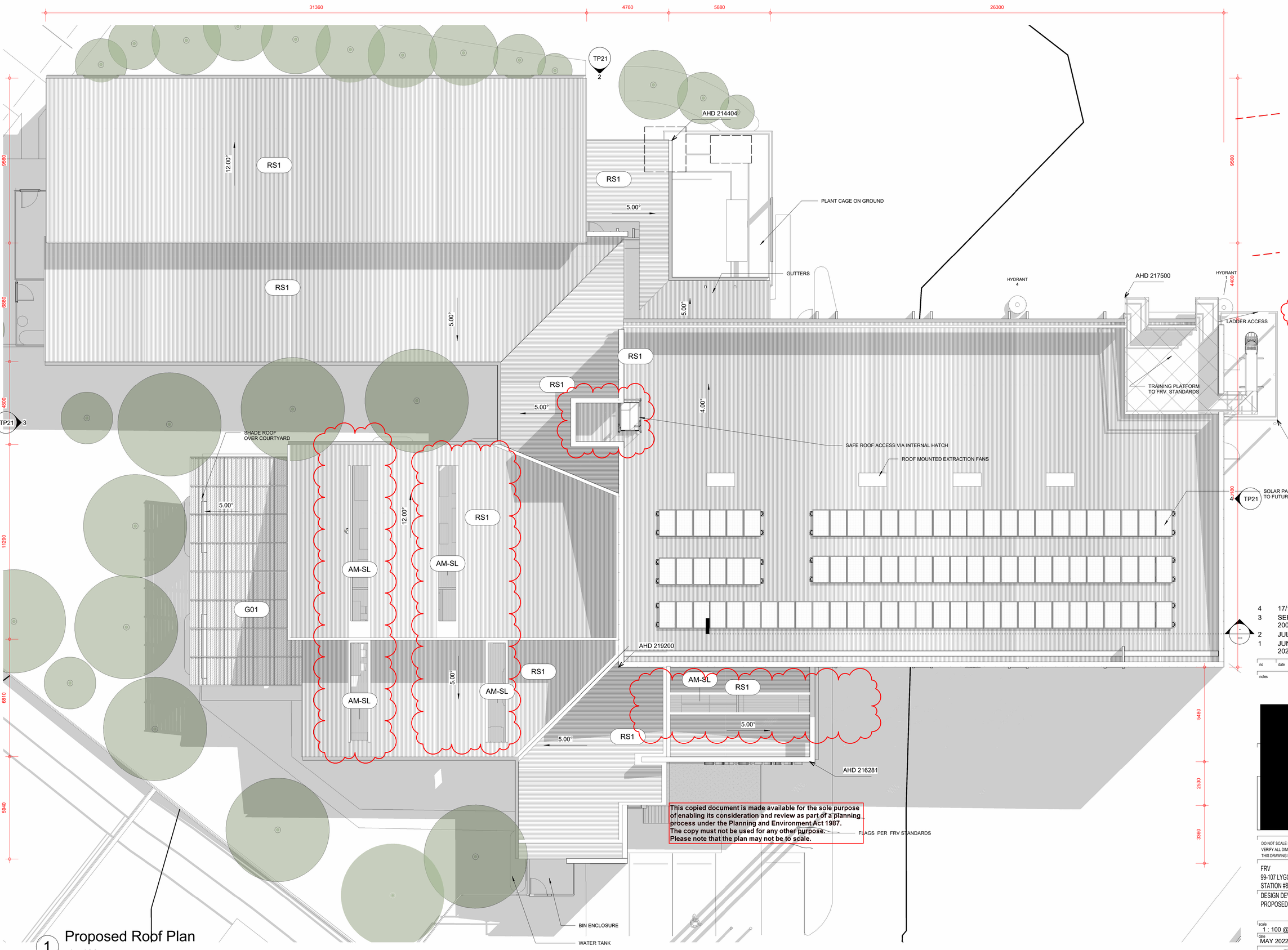
SCALE IN METRES



MATERIALS

- RS1 ROOF SHEET COLORBOND SURFMIST
- SS1 SUNSCREEN PERF MESH - RHEA
- G01 CLEAR GLASS TO SUIT SECTION J REQUIREMENT
- FC1 COMPRESSED FIBRE CEMENT - SILVER GREY
- FC2 COMPRESSED FIBRE CEMENT _ WOOD GRAIN
- BR1 FACE BRICK KLAUS _MID BLEND
- BR2 FACEBRICK AB LA PALMA GUADI
- PC1 POWDER COAT COLOURBOND MONUMENT
- PC2 POWDER COAT COLOURBOND METALLIC ASTRO
- PC3 POWDER COAT DULUX SAFETY YELLOW
- PC4 POWDER COAT COLOURBOND METALLIC RHEA
- PC5 POWDER COAT R13 SIGNAL RED GLOSS
- AM-SL AMPELITE EEFAS SKYLIGHT

1 Proposed Roof Plan

1 : 100

0 1 2 3 4 5 10

SCALE IN METRES

no	date	amendments/issue	drawn
4	17/11/25	ISSUE E	
3	SEPT 2005	ISSUE D	
2	JULY 2025	ISSUE C	
1	JUNE 2025	ISSUE B	

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STATION #80

DESIGN DEVELOPMENT
PROPOSED ROOF PLAN

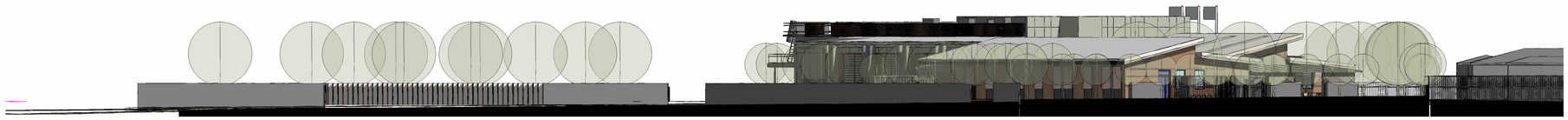
scale	1 : 100 @ A1
drawn by	BG/BM/TB
date	MAY 2022
checked by	JS
job no	22011
drawing no	TP16
rev no	4



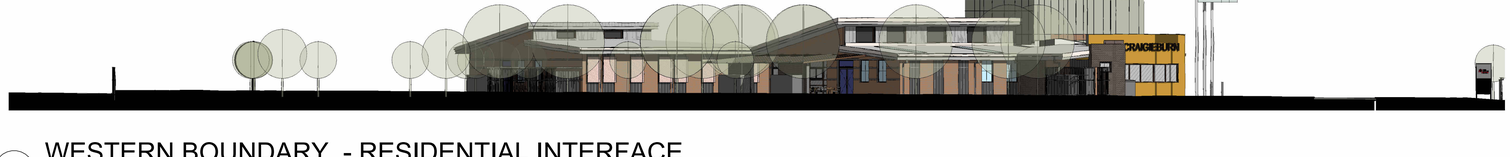
1 SOUTHERN BOUNDARY - LYGON STREET
1 : 200



2 DORCHESTER STREET
1 : 200



3 NORTHERN BOUNDARY
1 : 250



4 WESTERN BOUNDARY - RESIDENTIAL INTERFACE
1 : 250

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MATERIALS

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- FC1 COMPRESSED FIBRE CEMENT - SILVER GREY
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- PC2 POWDER COAT COLOURBOND METALLIC ASTRO
- PC3 POWDER COAT DULUX SAFETY YELLOW
- PC4 POWDER COAT COLOURBOND METALLIC RHEA
- PC5 POWDER COAT R13 SIGNAL RED GLOSS
- AM-SL AMPELITE EEFAS SKYLIGHT

0 2 4 6 8 10 20

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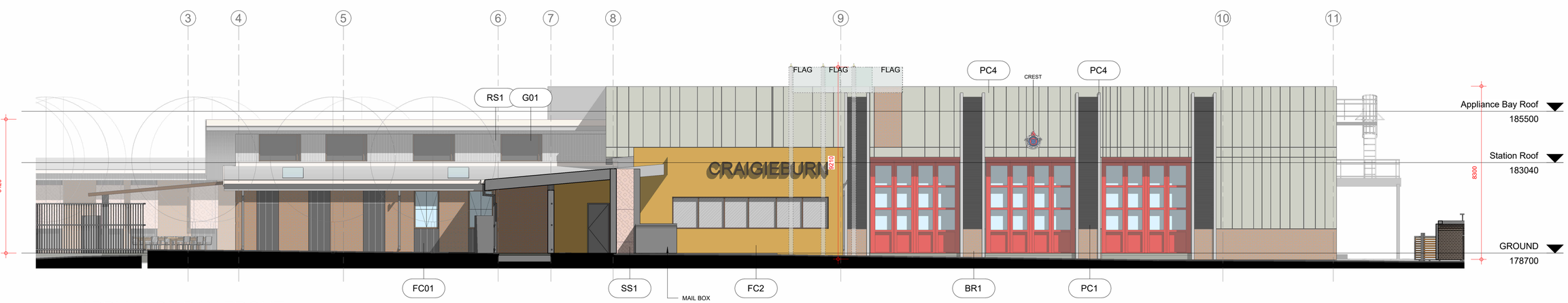
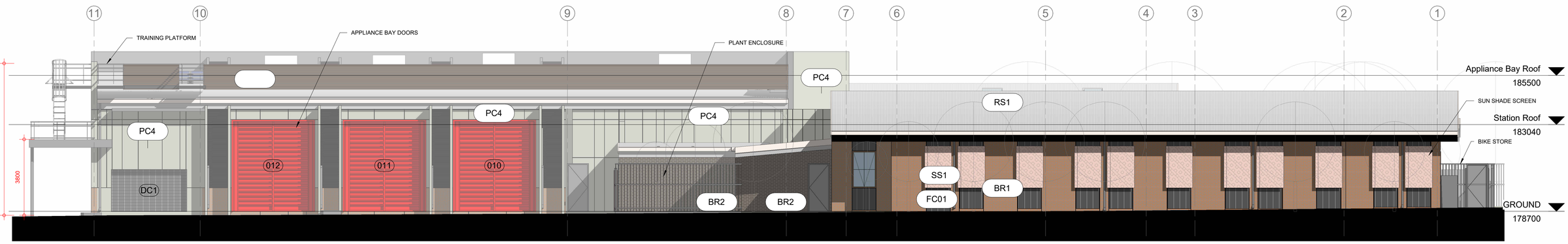
STATION #80
DESIGN DEVELOPMENT
ELEVATIONS - SITE _ 1/200

scale	As indicated @ A1
drawn by	BG/BM/TB
date	MAY 2022
checked by	JS
job no	22011
drawing no	TP20
rev no	2



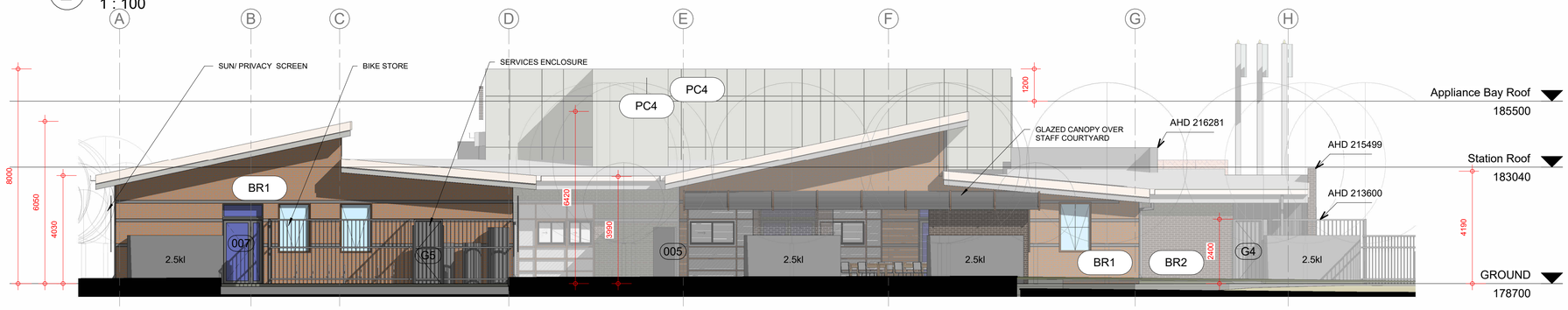
1 APPLIANCE BAY FRONT

1 : 100



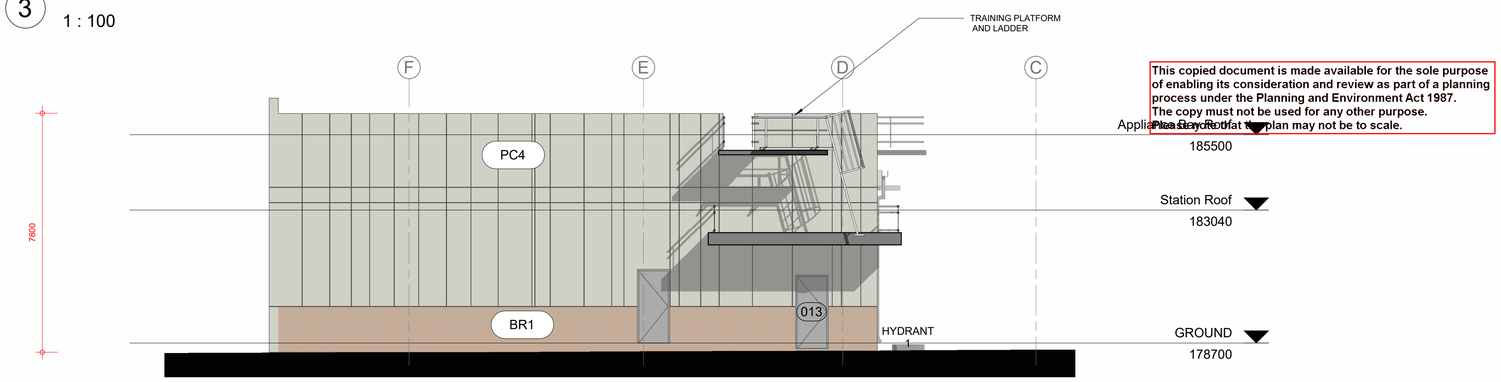
2 APPLIANCE BAY REAR

1 : 100



3 NORTH WALL

1 : 100



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4 TRAINING WALL

1 : 100

MATERIALS

- RS1 ROOF SHEET COLORBOND SURFMIST
- SS1 SUNSCREEN PERF MESH - RHEA
- G01 CLEAR GLASS TO SUIT SECTION J REQUIREMENT
- FC1 COMPRESSED FIBRE CEMENT - SILVER GREY
- FC2 COMPRESSED FIBRE CEMENT _ WOOD GRAIN
- BR1 FACE BRICK KLAUS _MID BLEND
- BR2 FACEBRICK AB LA PALMA GUADI
- PC1 POWDER COAT COLOURBOND MONUMENT
- PC2 POWDER COAT COLOURBOND METALLIC ASTRO
- PC3 POWDER COAT DULUX SAFETY YELLOW
- PC4 POWDER COAT COLOURBOND METALLIC RHEA
- PC5 POWDER COAT R13 SIGNAL RED GLOSS
- AM-SL AMPELITE EEFAS SKYLIGHT

no	date	amendments/issue	drawn
2	JULY 2025	ISSUE C	
1	JUNE 2025	ISSUE B	

notes

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FRV
99-107 LYGON DRIVE, CRAIGIEBURN
STATION #80

DESIGN DEVELOPMENT
ELEVATIONS - BUILDING 1/100

scale	1 : 100 @ A1
drawn by	BG/BM/TB
date	MAY 2022
checked by	JS
job no	22011
drawing no	TP21
rev no	2

SCALE IN METRES

0 2 4 6 8 10 20

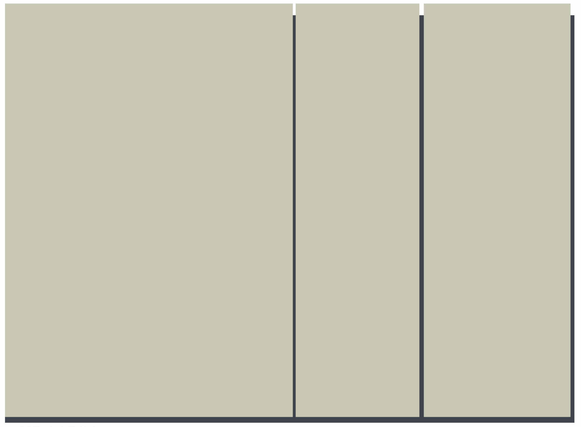
MATERIALS



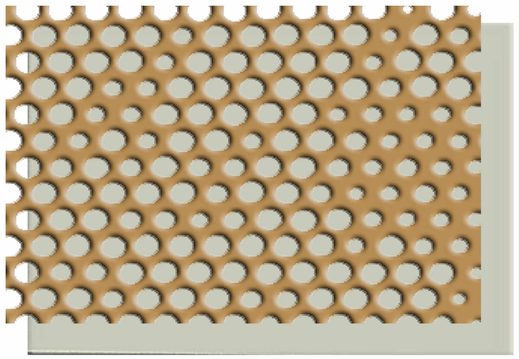
CB1
ROOF - TRIMDEK
COLORBOND SURFMIST

LV 1
ZINCALUME LOUVRES

DP 1
GUTTERS + DOWN PIPES
COLORBOND WINDSPRAY



MP 1 / PC4
METAL PANEL _ DOMINION VERTICAL
COLORBOND METALIC RHEA



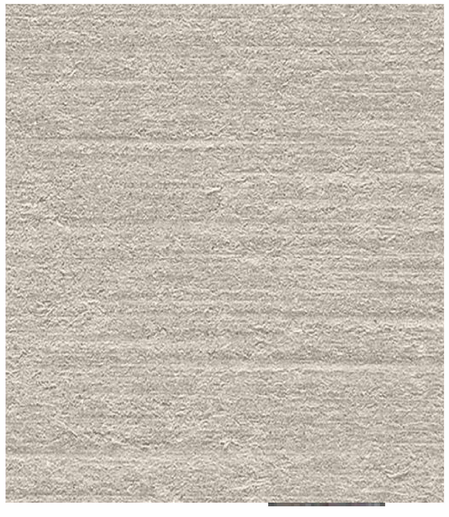
SS 1
SUNSCREEN - ZINCALUME EPANDED METAL



FC 2
EQUITONE TECTIVA TE30



LV 2
VENTILATION LOUVRES
COLORBOND MONUMENT



FC 1
EQUITONE TECTIVA TE15



BR 1
KLAUS BRICKS
MID BLEND



BR 2
AUSTRAL BRICKS -
LA PALERMO _ GAUDI



CB2 TYPICAL
DOORS - COLORBOND
IRONSTONE
HIGH SPEED DOORS - RED

RS1 ROOF SHEET
COLORBOND SURFMIST

SS1 SUNSCREEN
PERF MESH - RHEA

G01 CLEAR GLASS
TO SUIT SECTION J REQUIREMENT

FC1 COMPRESSED FIBRE CEMENT -
SILVER GREY

FC2 COMPRESSED FIBRE CEMENT _
WOOD GRAIN

BR1 FACE BRICK
KLAUS _MID BLEND

BR2 FACEBRICK
AB LA PALMA GUADI

PC1 POWDER COAT
COLOURBOND MONUMENT

PC2 POWDER COAT
COLOURBOND METALLIC ASTRO

PC3 POWDER COAT
DULUX SAFETY YELLOW

PC4 POWDER COAT
COLOURBOND METALLIC RHEA

PC5 POWDER COAT
R13 SIGNAL RED GLOSS

AM-SL AMPELITE EEFAS SKYLIGHT

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no	date	amendments/issue	drawn
2	JULY 2025	ISSUE C	
1	JUNE 2025	ISSUE B	

notes

[redacted]

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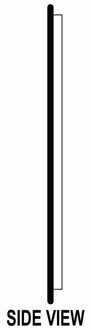
FRV
99-107 LYGON DRIVE, CRAIGIEBURN
STATION #80

DESIGN DEVELOPMENT
MATERIAL BOARD

scale: 1 : 100 @ A1	drawn by: BG/BM/TB
date: MAY 2022	checked by: JS
	job no: 22011
	drawing no: TP30 rev no: 2



FRONT VIEW



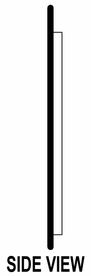
SIDE VIEW



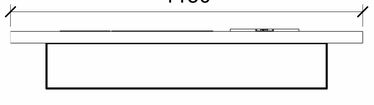
PLAN VIEW



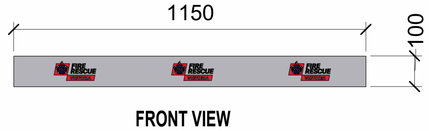
FRONT VIEW



SIDE VIEW



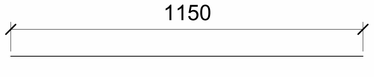
PLAN VIEW



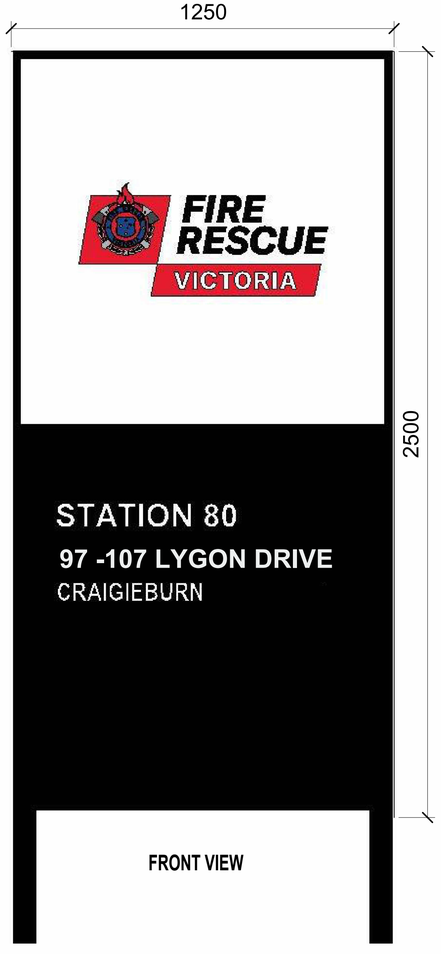
FRONT VIEW



SIDE VIEW



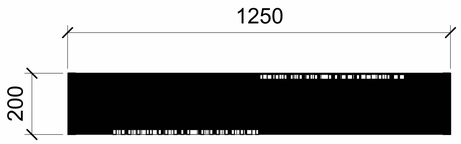
PLAN VIEW



FRONT VIEW



SIDE VIEW



PLAN VIEW

3D CREST - FRV BADGE

SPECIFICATIONS:

- 25X25X3 ALUMINIUM EA & 20X20X3 ALUMINIUM SHS FRAMEWORK, WITH 3MM ALUMINIUM PLATES WELDED TOP AND BOTTOM FOR FIXING POINTS.
- FABRICATED 3MM ALUMINIUM BACKING PANEL, WITH 10MM ACRYLIC ADHERED DIRECTLY TO THE FACE.
- 10MM ACRYLIC WITH SPRAY AND MASKED GRAPHICS AND A GRADIENT DIGITAL PRINT (PRINTED ON CLEAR) TO THE FACE.
- 1.6MM ALUMINIUM DISC, METAL SPUN WITH SPRAY AND MASKED GRAPHICS TO THE FACE. FIXED TO FABRICATED BACKING WITH 12X20X3 ALUMINIUM UA.
- ALL FIXINGS PAINTED TO

COLOUR	LOGO RED PMS 2035 C // LOGO BLUE 661 C // DARK BLUE 289 C
MEDIA	ALUMINIUM 3D SIGN
LAMINATE	N/A
FINISH	ALUMINIUM
WIDTH (mm) (NOM)	870
HEIGHT (mm) (NOM)	900
QUANTITY	1

MAIN ACM SIGN - FRV LOGO

SPECIFICATIONS:

...

COLOUR	LOGO RED PMS 2035 C // LOGO BLUE 661 C // DARK BLUE 289 C
MEDIA	3M 1J180MC OUTDOOR BLOCKOUT WHITE SAV, 3mm ACM
LAMINATE	3M 8518 OUTDOOR GLOSS LAMINATE
FINISH	WRAP MOUNT SAV TO 3mm ACM, SQUARE TRIM TO SIZE
WIDTH (mm) (NOM)	1150
HEIGHT (mm) (NOM)	660
QUANTITY	1

WINDOW / DOOR FROSTING STRIPS

SPECIFICATIONS:

OVERALL SIZE TO COVER 2200mm WIDTH

COLOUR	LOGO RED PMS 2035 C // LOGO BLUE 661 C // DARK BLUE 289 C
MEDIA	OPAL HAZE FROSTED VINYL - RIGHT READING / WRONG READING
LAMINATE	N/A
FINISH	SQUARE TRIM TO SIZE
WIDTH (mm) (NOM)	1150
HEIGHT (mm) (NOM)	100
QUANTITY	2

LIGHTBOX FREESTANDER

SPECIFICATIONS:

75x75x3 ALUMINIUM SHS FRAMEWORK, WITH DIR-206 EXTRUSION WELDED DIRECTLY TO SIDES. DIR -225 H TRIM EXTRUSION WELDED AS CENTRE SPACER. PAINTED BLACK WITH A SATIN FINISH (60% SEMI GLOSS). TOP PANEL INTERNALLY ILLUMINATED FROM LEDS MOUNTED TO 3mm ALUMINIUM PANEL. 4.5mm OPAL ACRYLIC PANEL WITH DIGITALLY PRINTED LOGO TO THE FACE. BOTTOM PANEL, 3mm ALUMINIUM PAINTED BLACK WITH WHITE VINYL ADHERED DIRECTLY TO THE FACE. SLID THROUGH THE EXTRUSION. POWER TO RUN OUT OF BASEPLATE.

COLOUR	BLACK, WHITE VINYL, PMS 2035, PMS 289, PMS 661, SATIN
MEDIA	OPAL ACRYLIC PANEL WITH DIGITALLY PRINTEDGRAPHICS TO THE FACE
LAMINATE	N/A
FINISH	ALUMINIUM PANEL,
WIDTH (mm) (NOM)	1250
HEIGHT (mm) (NOM)	2500
QUANTITY	2

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no	date	amendments/issue	drawn
2	JULY 2025	ISSUE C	
1	JUNE 2025	ISSUE B	

notes



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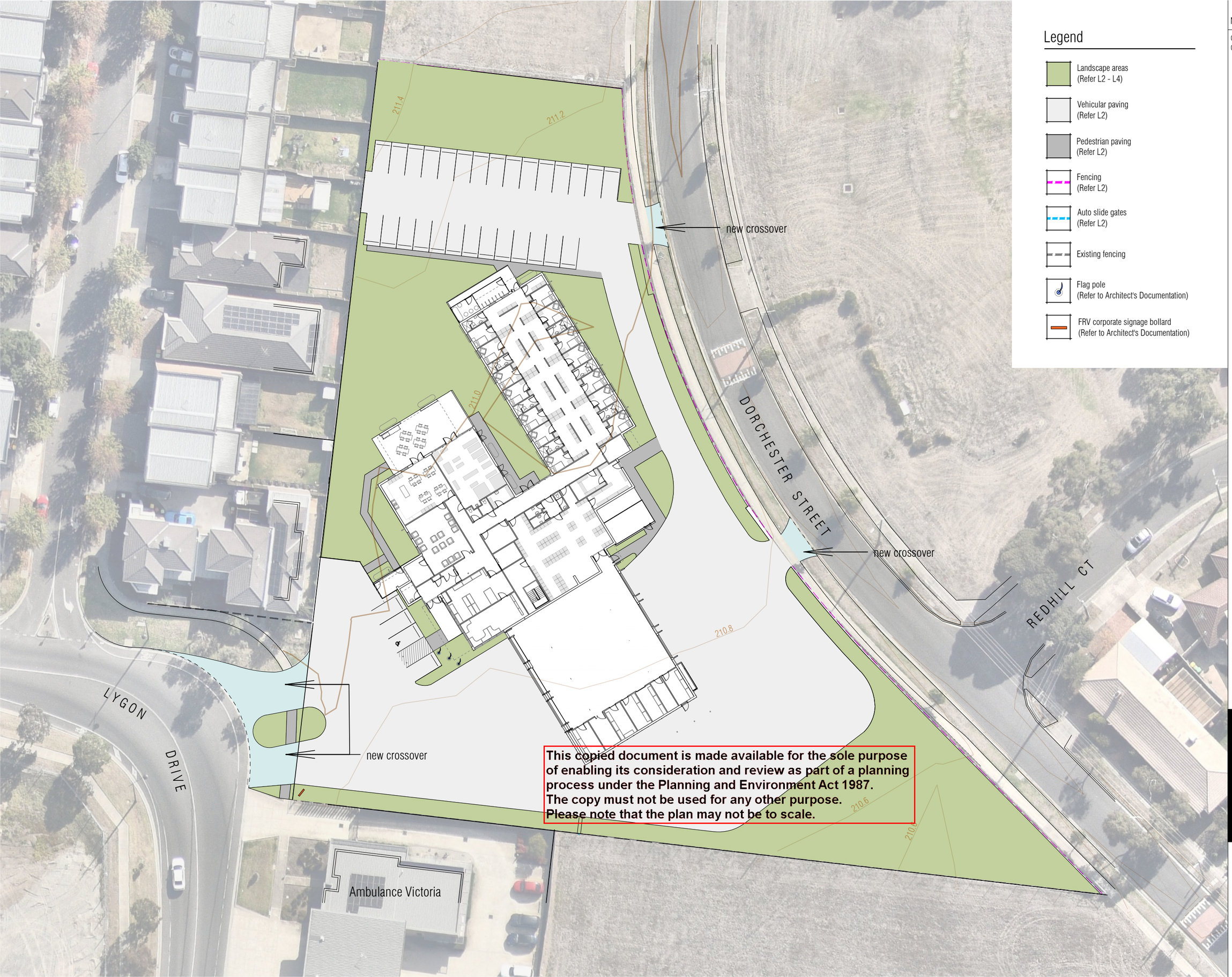
FRV
99-107 LYGON DRIVE, CRAIGIEBURN
STATION #80

DESIGN DEVELOPMENT
FRV SIGNS

scale	1 : 10 @ A1
drawn by	BG/BM/TB
date	MAY 2022
checked by	JS
job no	22011
drawing no	TP50
rev no	2

SCALE IN METRES



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Legend

- Landscape areas (Refer L2 - L4)
- Vehicular paving (Refer L2)
- Pedestrian paving (Refer L2)
- Fencing (Refer L2)
- Auto slide gates (Refer L2)
- Existing fencing
- Flag pole (Refer to Architect's Documentation)
- FRV corporate signage bollard (Refer to Architect's Documentation)

No.	Issue	Drawn	Date
01	Preliminary	CK	18.07.2025
02	Town Planning	CK	12.09.2025

Craigieburn Fire Station

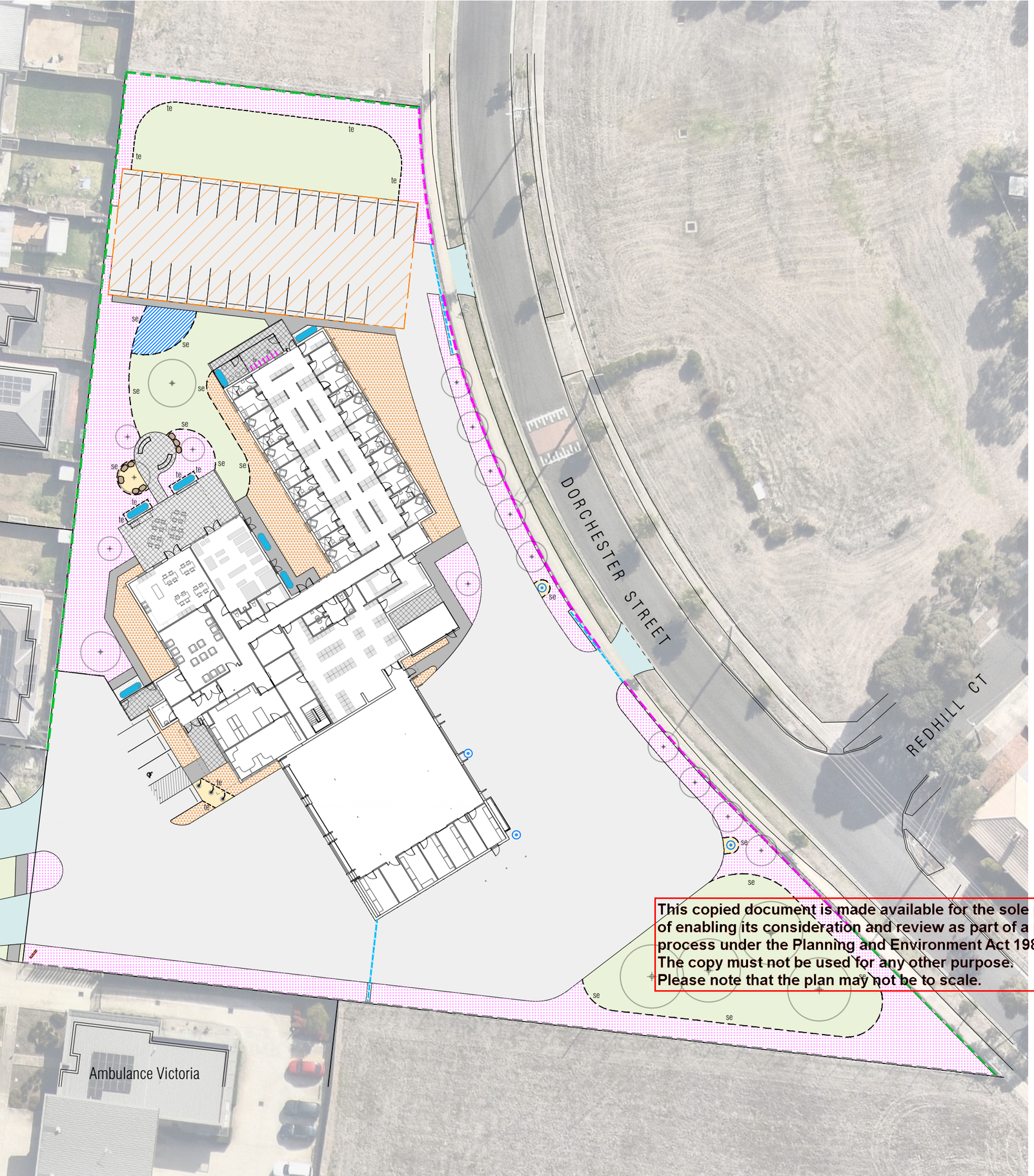
99 - 117 Lygon Drive
Craigieburn

Location Plan

[redacted]

project no:	3590
drawing no:	L1
issue:	02
sheet no:	1 of 5
designed by:	GM
date:	12.09.2025
scale:	1:500 @ A3

0 4 8 12m



Legend

- Tree planting (Refer L3 + L4)
- Grass seeding
- Raingarden (35 m²)
- Garden bed area - 75mm depth wood mulch
- Garden bed area - 50mm depth 20mm Granite Oaklands stone mulch (or approved equivalent)
- Timber edge
- Steel edge
- Roof over (Refer to Architect's Documentation)
- Hardstand concrete vehicular paving (Refer to Architect's Documentation)
- Plain grey concrete pedestrian paving
- Exposed aggregate concrete pedestrian paving
- 75mm compacted depth selected 14mm max size gravel topping paving on 75mm compacted depth F.C.R. base
- Secure slat screen palisade fencing, 2100mm nom. height (Refer to Architect's Documentation)
- Opaque timber paling fencing, 2100mm nom. height (Refer to Architect's Documentation)
- Auto slide gate (Refer to Architect's Documentation)
- Existing fencing
- Flag pole (Refer to Architect's Documentation)
- Undergrund stormwater retention
- Rainwater tanks
- Water hydrants
- Bike racks, 7 No.
- FRV corporate signage bollard (Refer to Architect's Documentation)

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No.	Issue	Drawn	Date
01	Preliminary	CK	18.07.2025
02	Town Planning	CK	12.09.2025

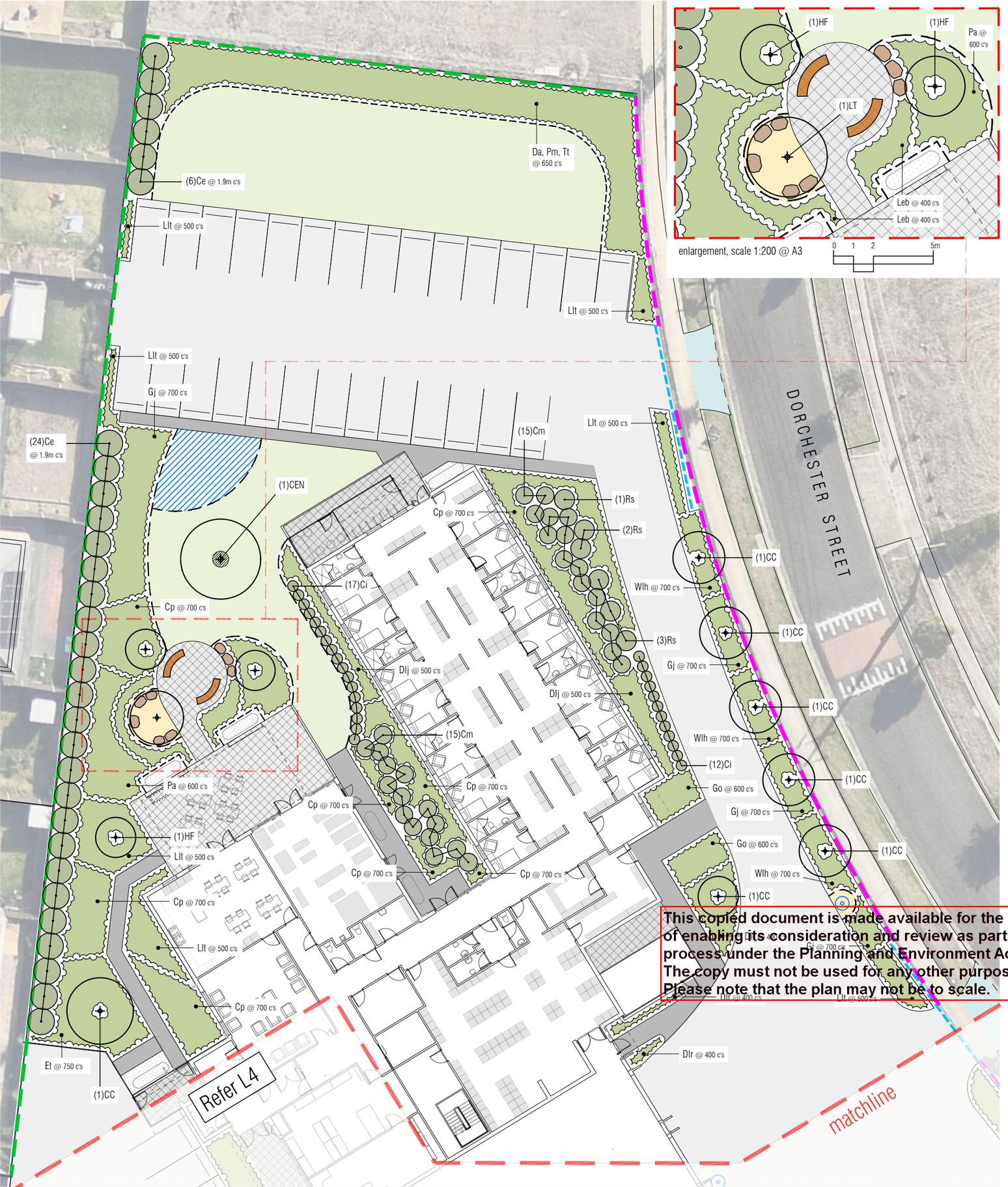
Craigieburn Fire Station

99 - 117 Lygon Drive
Craigieburn

Landscape Layout Plan

project no:	3590
drawing no:	L2
issue:	02
sheet no:	2 of 5
designed by:	GM
date:	12.09.2025
scale:	1:500 @ A3

0 4 8 12m



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Legend

- Tree planting in 1200 mm wood mulched circles within grassed areas
- Tree planting in wood mulched garden bed area
- Shrub planting within wood/stone mulched garden bed area
- Groundcover planting within wood/stone mulched garden bed area
- Grass seeding
- Raingarden (35 m²)
- Timber edge, Refer L2
- Steel edge, Refer L2
- Roof over (Refer to Architect's Documentation)
- Hardstand concrete vehicular paving (Refer to Architect's Documentation)
- Plain grey concrete pedestrian paving
- Exposed aggregate concrete pedestrian paving
- 75mm compacted depth selected 14mm max size gravel topping paving on 75mm compacted depth F.C.R. base
- Secure slat screen palisade fencing, 2100mm nom. height (Refer to Architect's Documentation)
- Opaque timber paling fencing, 2100mm nom. height (Refer to Architect's Documentation)
- Auto slide gate (Refer to Architect's Documentation)
- Existing fencing
- Build-in bench seats
- Flag pole (Refer to Architect's Documentation)
- Water hydrants
- FRV corporate signage bollard (Refer to Architect's Documentation)

Plant Schedule

KEY	BOTANICAL NAME (COMMON NAME)	MATURE SIZE HEIGHTxWIDTH	PURCHASE SIZE	
Trees				
CC	Corymbia citriodora 'Scentuous'	7 x 5	150mm	
CEN	Corymbia eximia nana	6 x 7	150mm	
EL	Eucalyptus leucoxylon 'Rosea'	12 x 10	150mm	
HF	Hakea francisiana (Pink Spike Hakea)	5 x 3	150mm	
LT	Lagerstroemia 'Tuscarora'	6 x 4	150mm	
Shrubs				
Ce	Callistemon citrinus 'Endeavour'	3.0 x 2.5	150mm	
Ci	Callistemonv ssp. 'Icy Burst'	1.5 x 0.8	150mm	
Cm	Callistemon viminalis 'Macarthur'	1.8 x 1.5	150mm	
Rs	Rhagodia spinensis (Hedge Saltbush)	0.6 x 1.5	150mm	
Ww	Westringia fruticosa x eremicola 'Wynyabbie Gem'	1.5 x 2.0	150mm	
Groundcovers				
As	Atriplex semibaccata (Creeping Saltbush)	0.5 x 0.8	forestry tube	
Cp	Correa pulchella 'Fire Balls'	0.3 x 0.8	150mm	
Da	Dianella admixta (Black-Anther Flax-Lily)	0.5 x 0.5	forestry tube	
Dlj	Dianella caerulea 'Little Jess'	0.4 x 0.4	150mm	
Dlr	Dianella revoluta 'Little Rev'	0.4 x 0.4	150mm	
Et	Enchylaena tomentosa (Ruby Saltbush)	1.0 x 1.0	forestry tube	
Go	Goodenia ovata 'Little Goodie'	0.5 x 0.6	150mm	
Gj	Grevillea juniperina 'Gold Cluster'	0.3 x 0.9	150mm	
Llt	Lomandra labill 'Evergreen Baby'	0.4 x 0.4	150mm	
Pm	Lomandra longifolia 'Tanika'	0.5 x 0.5	150mm	
Pa	Poa morrisii (Velvet Tussock Grass)	0.8 x 0.5	forestry tube	
Tt	Pennisetum alopecuroides 'Nafray'	0.6 x 0.6	150mm	
Wlh	Themeda triandra (Kangaroo Grass)	0.7 x 0.6	forestry tube	
	Westringia fruticosa 'Low Horizon'	0.3 x 0.7	150mm	
Rain Garden				
	Carex appressa (Tall Sedge)	1.2 x 0.5	forestry tube	50% of total plant cover @ 6 no/m2
	Ficinia nodosa (Knobby Club Rush)	0.6 x 0.8	forestry tube	
	Poa poiformis (Coastal Tussock Grass)	0.7 x 0.7	forestry tube	
	Brachyscome multifida (Native daisy)	0.2 x 0.5	forestry tube	50% of total plant cover @ 6 no/m2
	Chrysocephalum semipapposum (Clustered Everlasting)	0.8 x 1.0	forestry tube	
	Dianella revoluta (Blue Flax Lily)	0.6 x 0.5	forestry tube	
	Lomandra longifolia (Spiny Headed Mat Rush)	1.0 x 1.0	forestry tube	

No.	Issue	Drawn	Date
01	Preliminary	CK	18.07.2025
02	Town Planning	CK	12.09.2025

Craigieburn Fire Station

99 - 117 Lygon Drive
Craigieburn

Planting Plan



project no:	3590
drawing no:	L3
issue:	02
sheet no:	3 of 5
designed by:	GM
date:	12.09.2025
scale:	1:300 @ A3

0 1 2 6m

Legend

- Tree planting in 1200 mm wood mulched circles within grassed areas
- Tree planting in wood mulched garden bed area
- Shrub planting within wood/stone mulched garden bed area
- Groundcover planting within wood/stone mulched garden bed area
- Grass seeding
- Timber edge, Refer L2
- Steel edge, Refer L2
- Roof over (Refer to Architect's Documentation)
- Hardstand concrete vehicular paving (Refer to Architect's Documentation)
- Plain grey concrete pedestrian paving
- Exposed aggregate concrete pedestrian paving
- 75mm compacted depth selected 14mm max size gravel topping paving on 75mm compacted depth F.C.R. base
- Secure slat screen palisade fencing, 2100mm nom. height (Refer to Architect's Documentation)
- Opaque timber paling fencing, 2100mm nom. height (Refer to Architect's Documentation)
- Auto slide gate (Refer to Architect's Documentation)
- Existing fencing
- Flag pole (Refer to Architect's Documentation)
- Water hydrants
- FRV corporate signage bollard (Refer to Architect's Documentation)

Plant Schedule

KEY	BOTANICAL NAME (COMMON NAME)	MATURE SIZE HEIGHTxWIDTH	PURCHASE SIZE
Trees			
CC	Corymbia citriodora 'Scentuous'	7 x 5	150mm
CEN	Corymbia eximia nana	6 x 7	150mm
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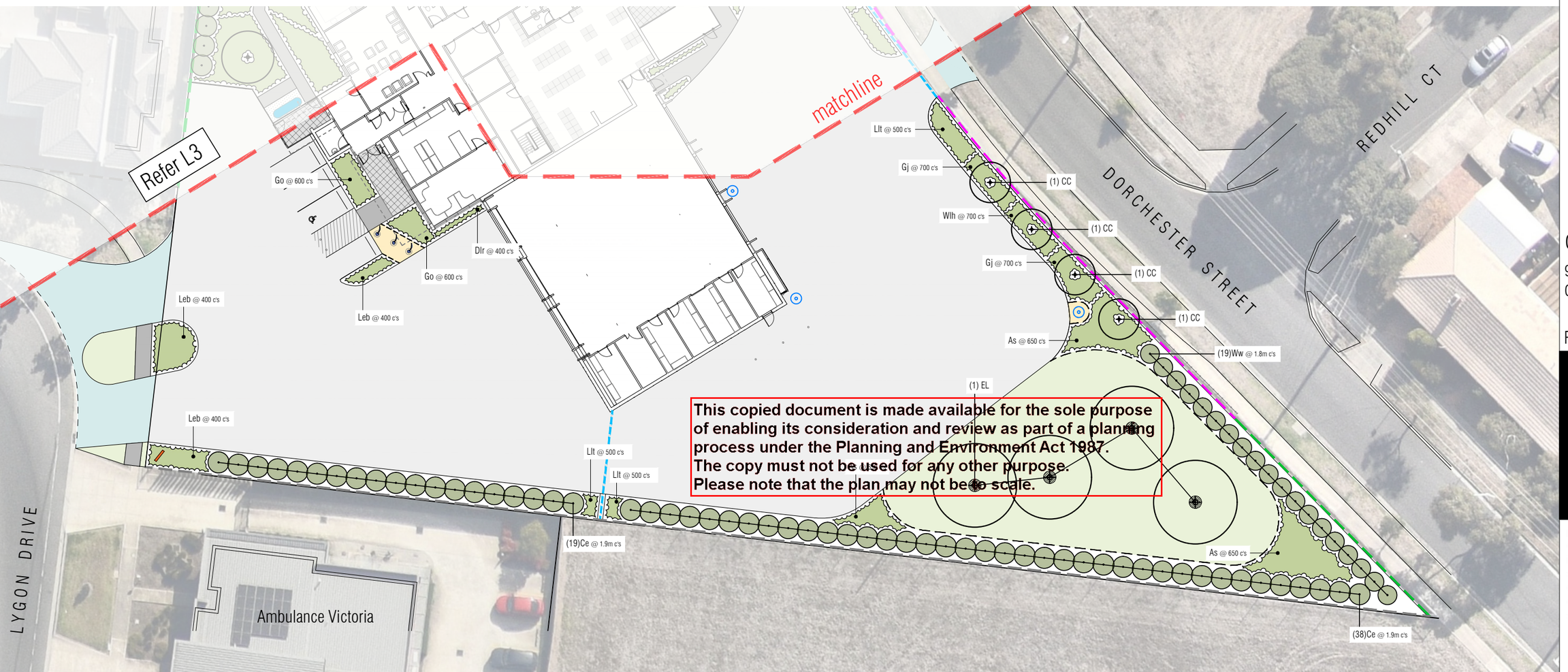
HF	Hakea francisiana (Pink Spike Hakea)	5 x 3	150mm
LT	Lagerstroemia 'Tuscarora'	6 x 4	150mm
Shrubs			
Ce	Callistemon citrinus 'Endeavour'	3.0 x 2.5	150mm
Ci	Callistemonv ssp. 'Icy Burst'	1.5 x 0.8	150mm
Cm	Callistemon viminalis 'Macarthur'	1.8 x 1.5	150mm
Rs	Rhagodia spinensis (Hedge Saltbush)	0.6 x 1.5	150mm
Ww	Westringia fruticosa x eremicola 'Wynyabbie Gem'	1.5 x 2.0	150mm
Groundcovers			
As	Atriplex semibaccata (Creeping Saltbush)	0.5 x 0.8	forestry tube
Cp	Correa pulchella 'Fire Balls'	0.3 x 0.8	150mm
Da	Dianella admixta (Black-Anther Flax-Lily)	0.5 x 0.5	forestry tube
Dlj	Dianella caerulea 'Little Jess'	0.4 x 0.4	150mm
Dlr	Dianella revoluta 'Little Rev'	0.4 x 0.4	150mm
Et	Enchylaena tomentosa (Ruby Saltbush)	1.0 x 1.0	forestry tube
Go	Goodenia ovata 'Little Goodie'	0.5 x 0.6	150mm
Gj	Grevillea juniperina 'Gold Cluster'	0.3 x 0.9	150mm
Leb	Lomandra labill 'Evergreen Baby'	0.4 x 0.4	150mm
Llt	Lomandra longifolia 'Tanika'	0.5 x 0.5	150mm
Pm	Poa morrisii (Velvet Tussock Grass)	0.8 x 0.5	forestry tube
Pa	Pennisetum alopecuroides 'Nafray'	0.6 x 0.6	150mm
Tt	Themeda triandra (Kangaroo Grass)	0.7 x 0.6	forestry tube
Wlh	Westringia fruticosa 'Low Horizon'	0.3 x 0.7	150mm



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No.	Issue	Drawn	Date
01	Preliminary	CK	18.07.2025
02	Town Planning	CK	12.09.2025

Craigieburn Fire Station

99 - 117 Lygon Drive
Craigieburn

Planting Plan

project no:	3590
drawing no:	L4
issue:	02
sheet no:	4 of 5
designed by:	GM
date:	12.09.2025
scale:	1:400 @ A3

0 2 4 8m

TREES


Corymbia citriodora
'Scentuous'


Corymbia eximia nana


Eucalyptus leucoxylon
'Rosea'


Hakea francisiana
(Pink Spike Hakea)


Lagerstroemia 'Tuscarora'

SHRUBS


Callistemon citrinus
'Endeavour'


Callistemonv 'Icy Burst'


Callistemon 'Macarthur'


Rhagodia spinensis
(Hedge Saltbush)


Westringia fruticosa x eremicola
'Wynyabbie Gem'

GROUNDCOVERS


Atriplex semibaccata
(Creeping Saltbush)


Correa pulchella 'Fire Balls'


Dianella admixta
(Black-Anther Flax-Lily)


Dianella caerulea 'Little Jess'


Dianella revoluta 'Little Rev'


Enchylaena tomentosa
(Ruby Saltbush)


Goodenia ovata
'Little Goodie'


Grevillea juniperina
'Gold Cluster'


Lomandra labill
'Evergreen Baby


Lomandra longifolia 'Tanika'
(Spiny-headed Mat Rush)


Poa morrisii
(Velvet Tussock Grass)


Pennisetum alopecuroides
'Nafray'


Themeda triandra
(Kangaroo Grass)


Westringia fruticosa
'Low Horizon'

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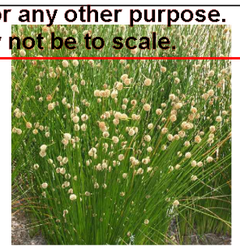
RAINGARDEN PLANTING


Brachyscome multifida
(Native Daisy)


Carex appressa (Tall Sedge)


Chrysocephalum semipapposum
(Clustered Everlasting)


Dianella revoluta
(Blue Flax Lily)


Ficinia nodosa
(Knobby Club Rush)


Lomandra longifolia
(Spiny Head Mat Rush)


Poa poiformis
(Coastal Tussock Grass)

No.	Issue	Drawn	Date
01	Preliminary	CK	18.07.2025
02	Town Planning	CK	12.09.2025

Craigieburn Fire Station

99 - 117 Lygon Drive
Craigieburn

Plant Material Images

project no:	3590
drawing no:	L5
issue:	02
sheet no:	5 of 5
designed by:	GM
date:	12.09.2025

[redacted]

[redacted]

Fire Rescue Victoria
Infrastructure Delivery, Corporate Services
L4, 215 Spring Street
MELBOURNE VIC 3002

Dear [redacted]

PROPOSED FIRE STATION
99-107 LYGON DRIVE, CRAIGIEBURN
SWEPT PATH DIAGRAMS

The applicant has engaged [redacted] to prepare a letter assessing fire appliance access to and from the site for a town planning application for a proposed fire station at 99-107 Lygon Drive, Craigieburn.

The fire station includes a 3-bay motor room for fire appliances, rest/recline rooms plus amenities, a gymnasium as well as provision for bicycle and car parking spaces.

Three separate vehicle accesses are proposed onto the site as follows:

Dorchester Street

- A 5.8 metres wide vehicle crossover to the North that is suitable for cars only.
- A 5.0 metres wide vehicle crossover to the South that is suitable for cars and on the rare occasion for fire appliance entry to the site.

Lygon Drive

- Separate 6.0 metres wide entry and exit vehicles crossovers onto Lygon Drive, separated by a concrete island. The access is primarily for fire appliances entering and exiting the site, service vehicle access (i.e. Waste collection) and the occasional visitor to the site.

Swept path diagrams were prepared using Autodesk Vehicle Tracking v25 for the 11.7 metres Ladder Platform Scania P124G (Car 172) listed in the FRV Fire Appliance Dimensions table, illustrating its ingress and egress via Lygon Drive to the motor room bays. The dimensions table is included in Appendix A.

The diagrams attached in Appendix B confirm there is adequate clearance for the fire appliance to circulate the site and access the motor room bays in a single manoeuvre, whilst entering and exiting the site in a forward direction.

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[redacted]

[redacted] considers the motor room bay access for the proposed fire station at 99-107 Lygon Drive, Craigieburn is satisfactory from a traffic engineering perspective.

Yours faithfully,

[redacted]

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[redacted]

APPENDIX A
Appliance Dimensions

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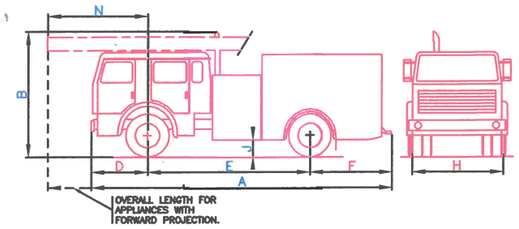
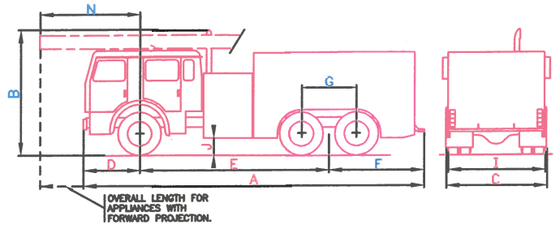
CAD FILE No. AD00293

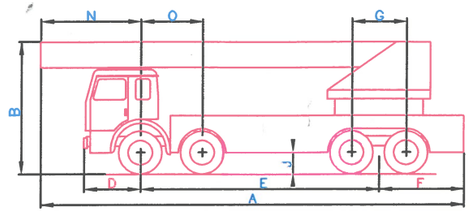
OF

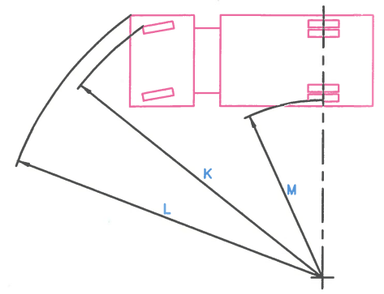
DO NOT SCALE. IF IN DOUBT, ASK

ITEM	DESCRIPTION	QTY	MAT'L	REF









LEGEND

- A OVERALL LENGTH.
- B OVERALL HEIGHT.
- C OVERALL WIDTH.
- D FRONT OVER HANG.
- E WHEEL BASE.
- F REAR OVER HANG.
- G TANDEM REAR AXLE CENTRE.
- H FRONT TRACK WIDTH.
- I REAR TRACK WIDTH.
- J GROUND CLEARANCE BETWEEN FRONT AND REAR AXLE.
- K OUTSIDE FRONT WHEEL TURNING RADIUS.
- L OUTSIDE MAXIMUM TURNING RADIUS.
- M INSIDE MINIMUM TURNING RADIUS.
- N FORWARD PROJECTION
- O TANDEM STEER AXLE CENTRE

*NOTE: AXLE LOADS FOR PUMPER TANKER CAR'S 122–127 ARE WITHOUT CREW.

APPLIANCE TYPE		APPLIANCE DIMENSIONS (METRES)															AXLE LOADING (TONNES)			
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	FRONT	REAR	GROSS	AXLE CONFIG.
MARK 5 PUMPER	SCANIA P94 CAR 001	8.13	3.06	2.50	1.540	4.500	2.085	N/A	2.380	2.470	0.350	8.32	8.93	4.52	N/A	N/A	5.46	7.34	12.80	4 X 2
	SCANIA P94 CARS 002–026	8.27	3.06	2.50	1.540	4.500	2.230	N/A	2.380	2.470	0.280	8.32	8.93	4.52	N/A	N/A	5.68	7.22	12.90	4 X 2
	SCANIA P310 CARS 027–042	8.27	3.06	2.50	1.540	4.500	2.230	N/A	2.380	2.470	0.280	8.32	8.93	4.52	N/A	N/A	5.68	7.22	12.90	4 X 2
	SCANIA P320 CARS 043–046 & 060–068	8.29	3.10	2.50	1.590	4.500	2.200	N/A	2.380	2.470	0.240	8.15	8.83	4.32	N/A	N/A	5.86	7.68	13.54	4 X 2
PUMPER TANKER	FREIGHTLINER FL80 CARS 340–350	8.75	3.26	2.50	1.000	5.486	2.210	1.295	2.290	2.455	0.425	9.90	10.19	5.80	N/A	N/A	4.98	10.48	15.46	6 X 4
	SCANIA P340 CARS 100–114	8.65	3.30	2.50	1.455	4.778	2.417	1.355	2.380	2.470	0.290	8.94	9.59	5.08	N/A	N/A	6.56	10.94	17.50	6 X 4
	SCANIA P360 CAR 115	8.65	3.30	2.50	1.455	4.775	2.420	1.355	2.380	2.470	0.290	9.189	9.817	5.381	N/A	N/A	6.68	10.94	17.62	6 X 4
	SCANIA P370 CARS 116–121	8.76	3.30	2.50	1.535	4.800	2.400	1.350	2.380	2.445	0.300	9.006	9.645	5.161	N/A	N/A	7.00	11.98	18.98	6 X 4
	SCANIA P370 CARS 122–127	8.83	3.18	2.50	1.456	4.775	2.400	1.350	2.380	2.470	0.448	9.043	9.645	5.177	N/A	N/A	*6.44	*12.54	*18.98	6 X 4
ULTRA LARGE PUMPER	SCANIA 113M CARS 390 & 391	8.88	3.24	2.50	1.585	4.800	2.495	N/A	2.360	2.425	0.290	8.47	9.26	4.55	N/A	N/A	5.28	8.72	14.00	4 X 2
	SCANIA P94 CAR 392	8.71	3.22	2.50	1.540	4.700	2.465	N/A	2.380	2.470	0.185	8.66	9.26	4.79	N/A	N/A	5.74	8.64	14.38	4 X 2
	SCANIA P410 CAR 393																			
WATER TANKER	ACCO 2350G CARS 052, 053, 054 & 056	7.96	3.20	2.50	1.710	4.040	2.210	N/A	2.310	2.450	0.290	7.64	8.46	4.07	N/A	N/A	4.86	7.95	12.81	4 X 2
LADDER PLATFORM	SCANIA P94 CAR 171	8.80	3.60	2.50	1.540	4.700	2.560	N/A	2.385	2.475	0.183	8.825	9.41	4.96	N/A	N/A	6.78	9.80	16.58	4 X 2
	SCANIA P124 CAR 172	11.70	3.84	2.50	1.550	6.577	3.510	1.350	2.450	2.500	0.300	12.95	13.55	8.70	1.64	1.940	9.68	17.36	27.04	8 X 4
	SCANIA P420 CAR 173	11.73	3.78	2.55	1.51	6.550	3.55	1.36	2.42	2.52	0.270	12.18	12.82	7.78	1.63	1.940				8 X 4
	SCANIA P400 CARS 174 & 175	10.66	3.74	2.60	1.594	5.78	3.285	1.36	2.41	2.50	0.31	10.41	11.07	6.18	N/A	1.930	10.96	15.88	26.84	8 X 4
	SCANIA P410 CARS 176 & 177	10.60	3.80	2.50	1.57	5.78	3.20	1.365	2.40	2.50	0.31	10.41	11.07	6.18	N/A	1.94	10.86	16.34	27.20	8 X 4
AERIAL/PUMPER	T/SQUIRT CAR 375	8.96	3.46	2.50	1.620	4.400	2.075	N/A	2.360	2.425	0.480	7.40	8.15	3.50	2.480	N/A	5.86	8.83	14.69	4 X 2
	T/SQUIRT CAR 376	9.225	3.30	2.50	1.027	5.512	2.130	N/A	2.330	2.480	0.315	9.885	10.13	5.80	1.583	N/A	4.86	8.66	13.52	4 X 2
	T/SQUIRT CARS 377 & 378	9.04	3.57	2.50	1.515	4.500	2.400	N/A	2.350	2.470	0.360	8.280	8.90	4.46	2.140	N/A	6.14	9.58	15.72	4 X 2
	T/SQUIRT CARS 379 & 380	8.90	3.61	2.50	1.540	4.500	2.260	N/A	2.380	2.470	0.300	8.280	8.90	4.46	2.140	N/A	6.22	9.40	15.62	4 X 2
HEAVY RESCUE	ACCO 2350G CAR 185	7.40	3.26	2.47	1.800	4.040	1.560	N/A	2.310	2.450	0.360	7.74	8.63	4.17	N/A	N/A	4.96	5.76	10.72	4 X 2
	ACCO 2350G CARS 186–190	7.83	3.21	2.50	1.800	4.040	1.990	N/A	2.310	2.450	0.360	7.74	8.63	4.17	N/A	N/A	4.74	6.40	11.14	4 X 2
	SCANIA P320 CARS 191–196	9.65	3.15	2.45	1.900	5.300	2.350	N/A	2.380	2.400	0.360	9.21	9.90	5.05	N/A	N/A	6.49	7.47	13.96	4 X 2
BREATHING APPARATUS	SCANIA P320 CAR 250	10.43	3.45	2.50	1.625	5.700	3.100	N/A	2.380	2.470	0.260	10.12	10.79	5.88	N/A	N/A	6.18	7.68	13.86	4 X 2
HAZMAT	SCANIA P320 CAR 260	11.00	3.60	2.50	1.625	6.100	3.270	N/A	2.380	2.470	0.270	10.62	11.42	6.45	N/A	N/A	6.14	8.38	14.52	4 X 2
TRANSPORTERS	ACCO 2350G CARS 165–168	8.98	3.7–4.2	2.50	1.700	5.000	2.280	N/A	2.310	2.445	0.275	9.30	10.04	5.51	N/A	N/A	5.40	8.50	13.90	4 X 2
	ACCO 2350G CARS 160–164	8.80	3.7–4.2	2.50	1.510	5.000	2.650	N/A	2.380	2.470	0.330	10.49	12.11	6.02	N/A	N/A	6.50	10.00	16.50	4 X 2
COMMAND COMMUNICATION UNIT	CAR 091	12.50	4.19	2.50	2.700	6.150	3.650	N/A	2.390	2.460	0.330	10.49	12.11	6.02	N/A	N/A	5.86	10.76	16.62	4 X 2

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PLEASE NOTE:

ALL DIMENSIONS IN METRES.
ALL AXLE MASSES IN TONNES.
TURNING RADIUS TAKEN AT A SPEED OF 0 TO 5km/h
ALL INFORMATION SUBJECT TO CHANGE WITHOUT NOTICE
APPLIANCE WIDTH EXCLUDES MIRRORS.
(TYPICAL MIRROR PROJECTION 350mm EACH SIDE).

[redacted]

FIRE RESCUE VICTORIA

PROJECT: APPLIANCE DIMENSIONS

DRG. TITLE: OVERALL DIMENSIONS AND AXLE LOADS

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE IN MILLIMETRES
TOLERANCES FOR STRUCTURAL DIMENSIONS ±2mm
TOLERANCES FOR MACHINED DIMENSIONS ±0.5mm
TOLERANCES FOR ANGULAR DIMENSIONS ±0.5°

THIRD ANGLE PROJECTION | ASSEMBLY No. | OF

A1 | SCALE NTS | DATE 26–04–2021 | CHECKED [redacted]

CAD FILE No. AD00293 | REV. B

APPENDIX B
Swept Path Diagrams

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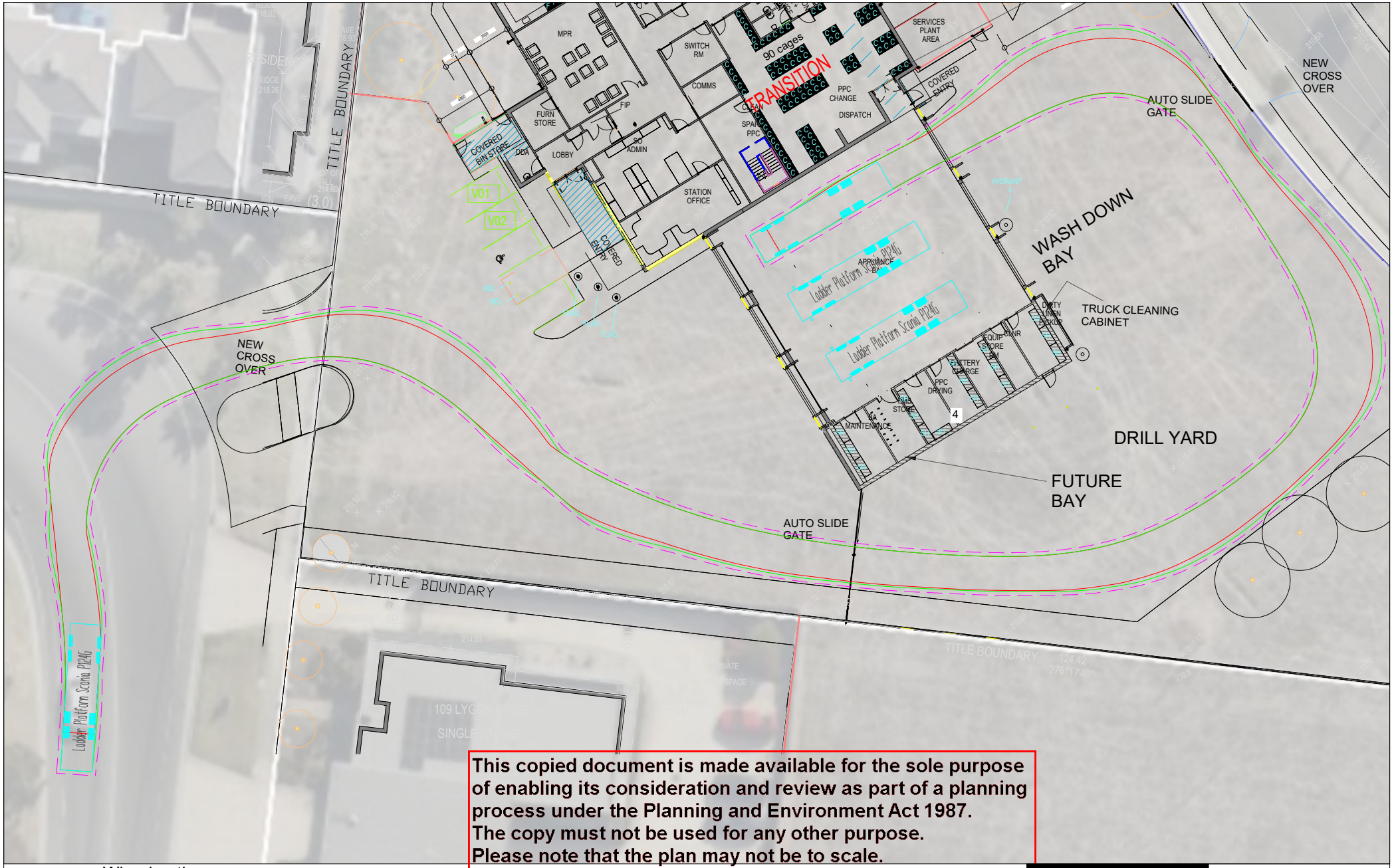

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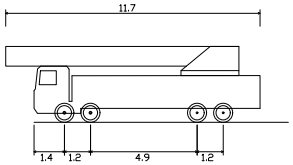
Wheel path
Vehicle Overhang
Vehicle Overhang + 300mm Clearance

Swept Path Diagram Prepared using Autodesk Vehicle Tracking v25



Ladder Platform Scania P124G	
Overall Length	11.700m
Overall Width	2.500m
Overall Body Height	3.840m
Min Body Ground Clearance	0.417m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.950m
Wall to Wall Turning Radius	13.550m

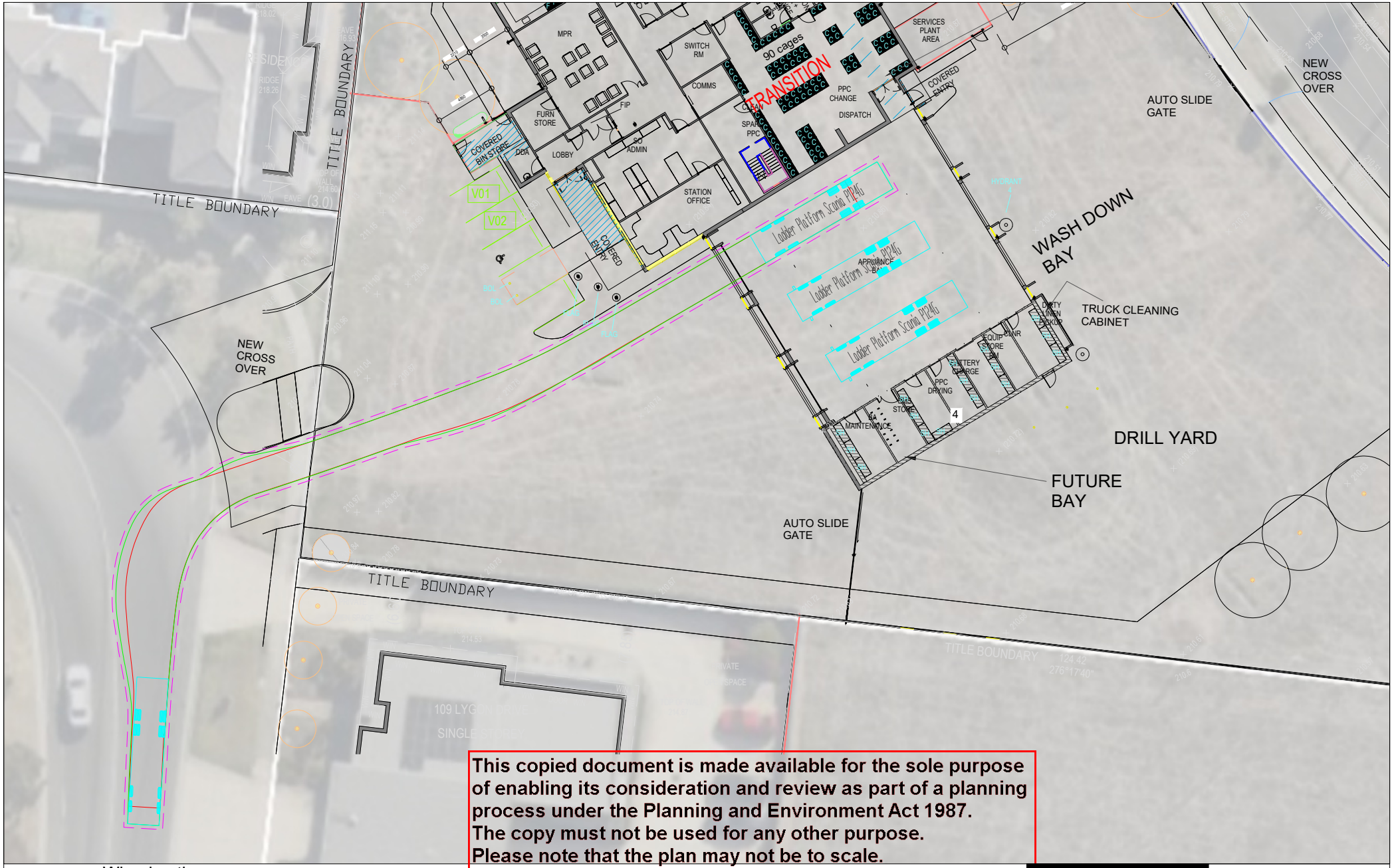
N

Issue	Appd	Date	Comments
A	MS	25/06/25	Original Issue

PROPOSED FIRE STATION (FRV CRAIGIEBURN)
99-107 LYGON DRIVE, CRAIGIEBURN

Scale 0 4 8
1:400 @ A4

Drawing No : 25MET0261
Sheet No : 1 Issue : A



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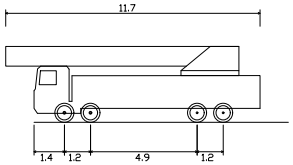
Swept Path Diagram Prepared using Autodesk Vehicle Tracking v25



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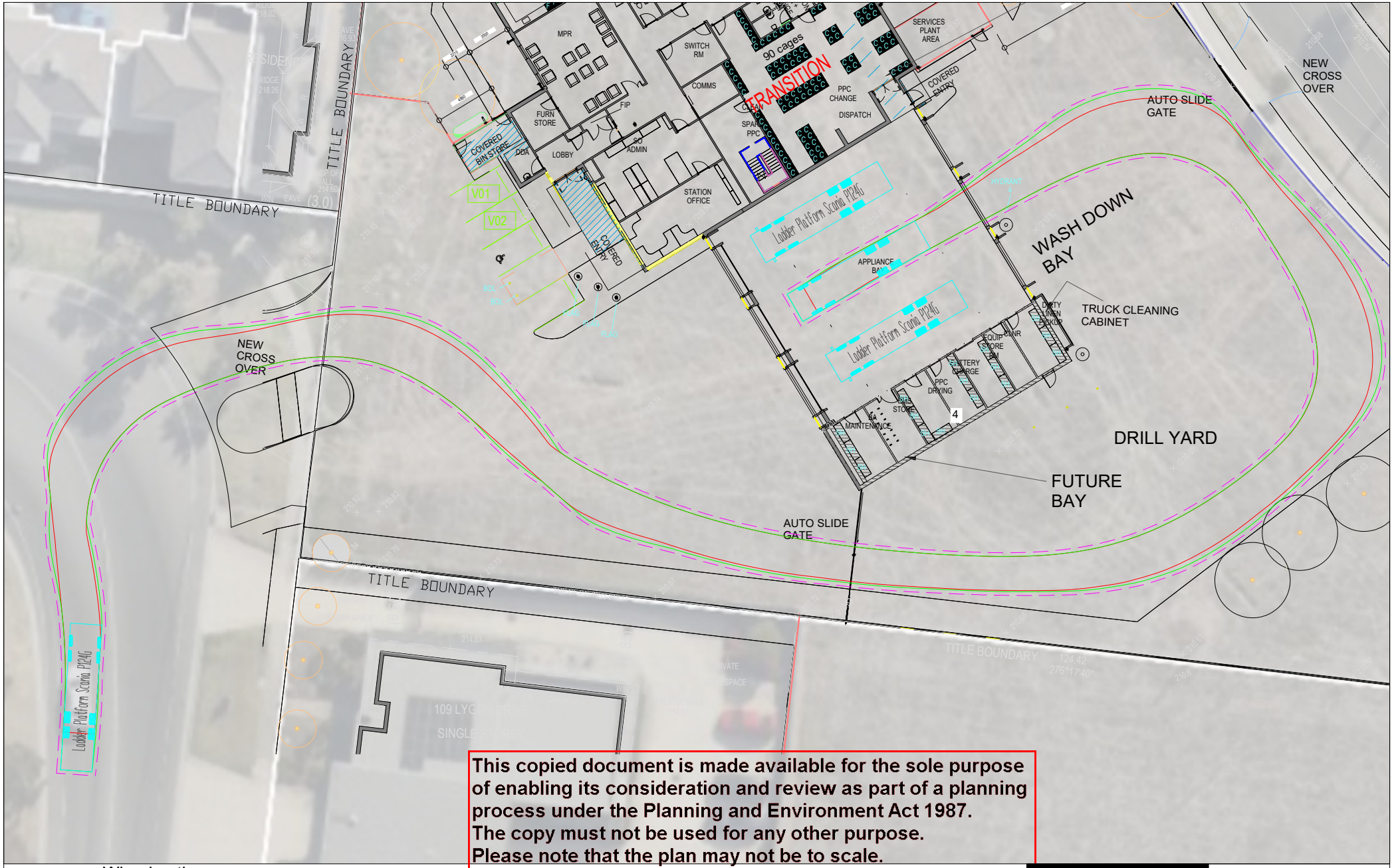
PROPOSED FIRE STATION (FRV CRAIGIEBURN)
99-107 LYGON DRIVE, CRAIGIEBURN

Scale 0 4 8
1:400 @ A4

Drawing No : 25MET0261
Sheet No : 2 Issue : A



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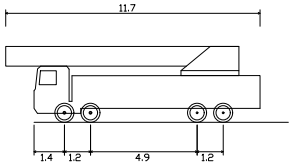

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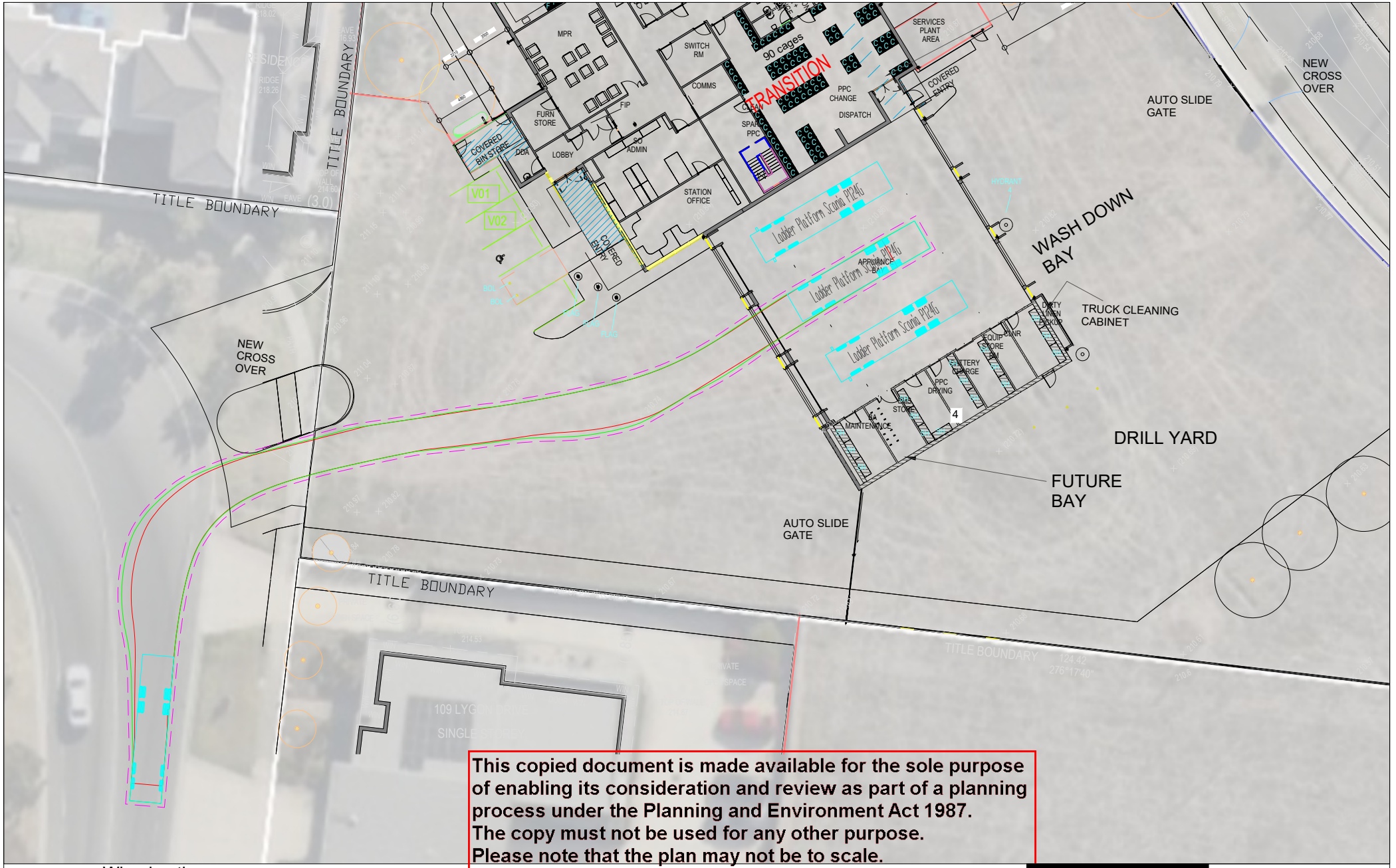
A	MS	25/06/25	Original Issue

PROPOSED FIRE STATION (FRV CRAIGIEBURN)
99-107 LYGON DRIVE, CRAIGIEBURN

Scale 0 4 8
1:400 @ A4

Drawing No : 25MET0261
Sheet No : 3 Issue : A



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Wheel path
Vehicle Overhang
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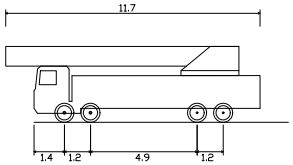
Swept Path Diagram Prepared using Autodesk Vehicle Tracking v25



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N

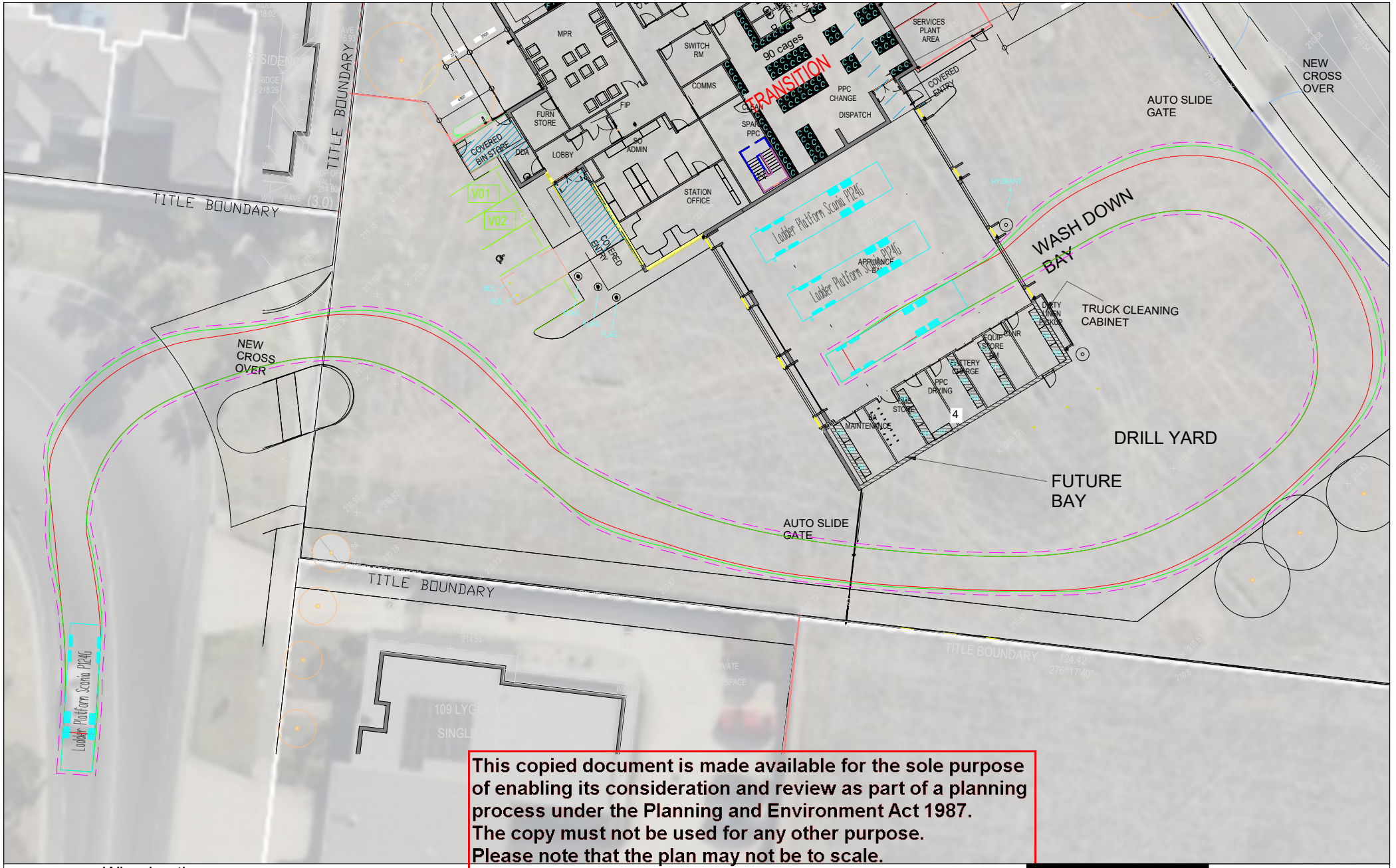
Issue	Appd	Date	Comments
A	MS	25/06/25	Original Issue

PROPOSED FIRE STATION (FRV CRAIGIEBURN) 99-107 LYGON DRIVE, CRAIGIEBURN

Scale 0 4 8 1:400 @ A4

Drawing No : 25MET0261

Sheet No : 4 Issue : A



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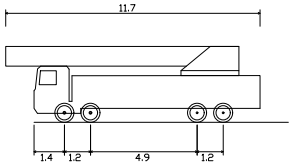
Vehicle Overhang + 300mm Clearance

Swept Path Diagram Prepared using Autodesk Vehicle Tracking v25



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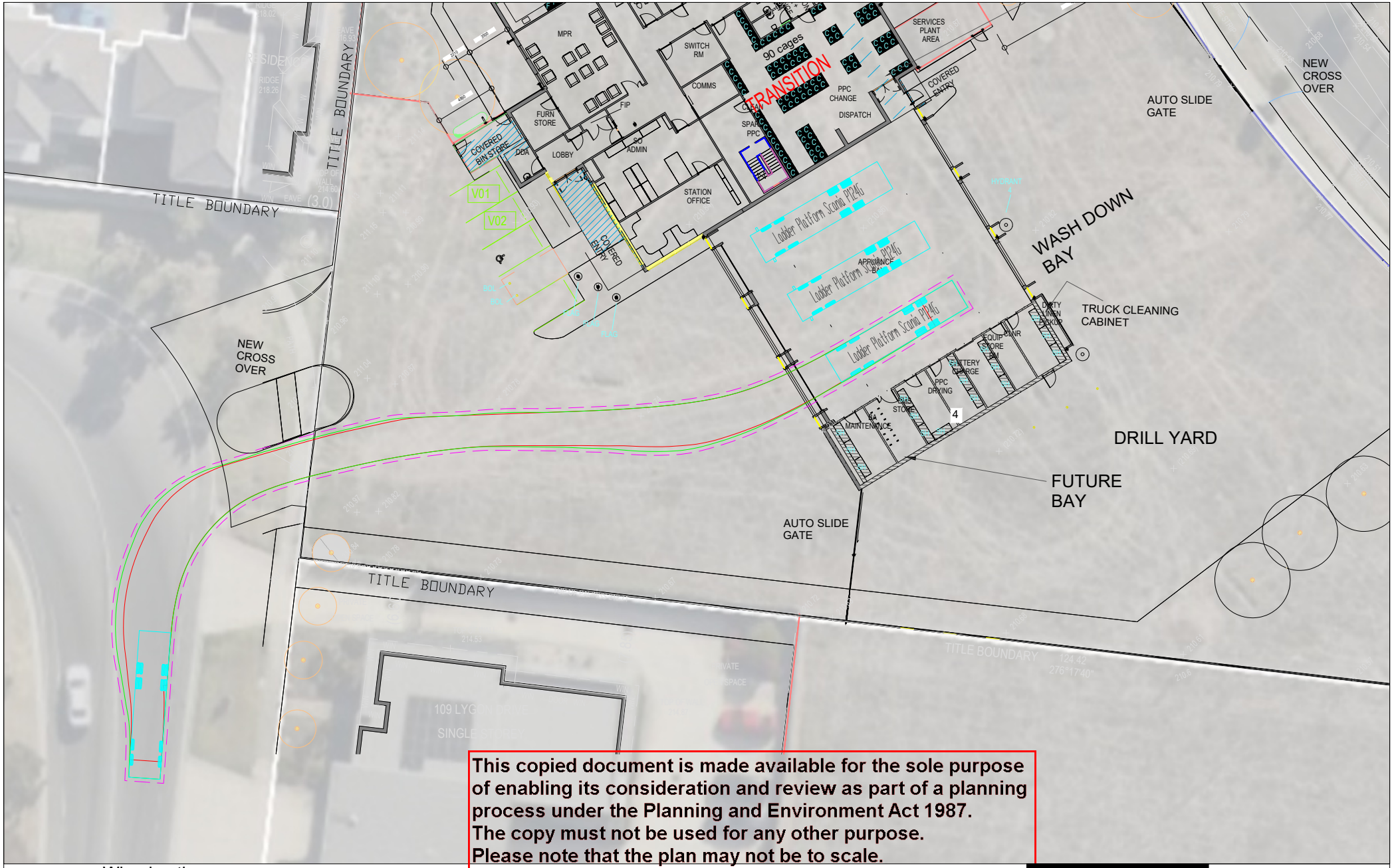
PROPOSED FIRE STATION (FRV CRAIGIEBURN)
99-107 LYGON DRIVE, CRAIGIEBURN

Scale 0 4 8
1:400 @ A4

Drawing No : 25MET0261
Sheet No : 5 Issue : A



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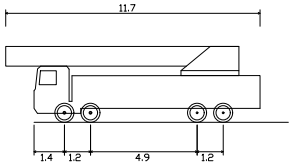
Wheel path
Vehicle Overhang
Vehicle Overhang + 300mm Clearance

Swept Path Diagram Prepared using Autodesk Vehicle Tracking v25



Ladder Platform Scania P124G	
Overall Length	11.700m
Overall Width	2.500m
Overall Body Height	3.840m
Min Body Ground Clearance	0.417m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.950m
Wall to Wall Turning Radius	13.550m

N

Issue	Appd	Date	Comments
A	MS	25/06/25	Original Issue

PROPOSED FIRE STATION (FRV CRAIGIEBURN)
99-107 LYGON DRIVE, CRAIGIEBURN

Scale 0 4 8
1:400 @ A4

Drawing No : 25MET0261
Sheet No : 6 Issue : A

Sustainability Management Plan

FRV Fire Station No 80

99-107 Lygon Drive

Craigieburn, VIC 3064

Prepared by

[redacted]

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ISSUE REGISTER

STATUS	REVISION	DATE	AUTHOR
Issued for Town Planning (draft)	A	22-09-2025	[redacted]

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EXECUTIVE SUMMARY

The purpose of this Sustainability Management Plan (SMP) is to show the sustainable design initiatives proposed for the FRV Fire Station No.80 Craigieburn at the planning stage. The project is subject to the ESD requirements of Hume City Council. The station is located at 99-107 Lygon Drive, Craigieburn. At the planning stage, the proposed development has been assessed against Hume City Council Planning Scheme requirements and the National Construction Code energy efficiency regulations.

Table 1 below is a checklist showing compliance with the various environmentally sustainable design requirements.

Table 1 : SMP Checklist for FRV Fire Station No.80 Craigieburn

Item	In Documents / Will be achieved	Required / Recommended by	Reference if Applicable
J1V3 Assessment for all conditioned components of the development	✓	National Construction Code and BESS	Refer to Section 3.2 and Appendix A
Water Sensitive Urban Design	✓	Hume City Council planning scheme	Refer to Section 4.4 and Appendix B.2.
BESS sustainability tool assessment	✓	Hume City Council planning scheme requires ESD	Refer to Section 3.3 and Appendix B.1.
An SMP describing sustainable initiatives for the development, targets and implementation	✓	Hume City Council planning response	Refer to Section 4

The implementation of the initiatives within the Sustainability Management Plan are the responsibility of the design team and the lead and sub-contractors.

Where operational practices are required, they will be carried out by the FRV management of the FRV Fire Station No.80 Craigieburn.

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INTRODUCTION

The purpose of this Sustainability Management Plan (SMP) is to show the sustainable design initiatives proposed for the FRV Fire Station No.80 Craigieburn at the planning stage. The project is subject to the ESD requirements of Hume City Council. The station is located at 99-107 Lygon Drive, Craigieburn. At the planning stage, the proposed development has been assessed against Hume City Council Planning Scheme requirements and the National Construction Code energy efficiency regulations.

PERFORMANCE REQUIREMENTS

3.1 NATIONAL CONSTRUCTION CODE 2022 PART J – CLASS TYPE

This development is an education development and contains the following class types (to ultimately be confirmed by the building surveyor):

- Class 3 Temporary Accommodation
- Class 5 office

Refer to Appendix A for preliminary J1V3 modelling showing compliance with the NCC Part J.

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3.2 BESS ASSESSMENT

Built Environment Sustainability Scorecard (BESS) is an assessment tool created by CASBE council which is now widely used to benchmark proposed building developments. Based on the initiatives listed in Section 4 below, an initial BESS assessment has been undertaken for the FRV Fire Station No.80 Craigieburn design. The results of the BESS assessment are shown below.

Table 2 : BESS Minimum Requirements and Calculated Scores for FRV Fire Station No.80 Craigieburn Design

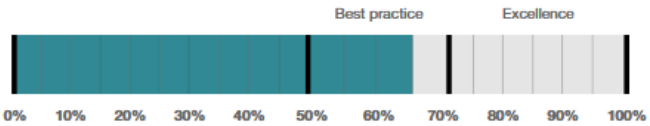
BESS Report

Built Environment Sustainability Scorecard

This BESS report outlines the sustainable design commitments of the proposed development at 99 Lygon Dr Craigieburn Victoria 3064. The BESS report and accompanying documents and evidence are submitted in response to the requirement for a Sustainable Design Assessment or Sustainability Management Plan at Hume City Council.

Note that where a Sustainability Management Plan is required, the BESS report must be accompanied by a report that further demonstrates the development's potential to achieve the relevant environmental performance outcomes and documents the means by which the performance outcomes can be achieved.

Your BESS Score

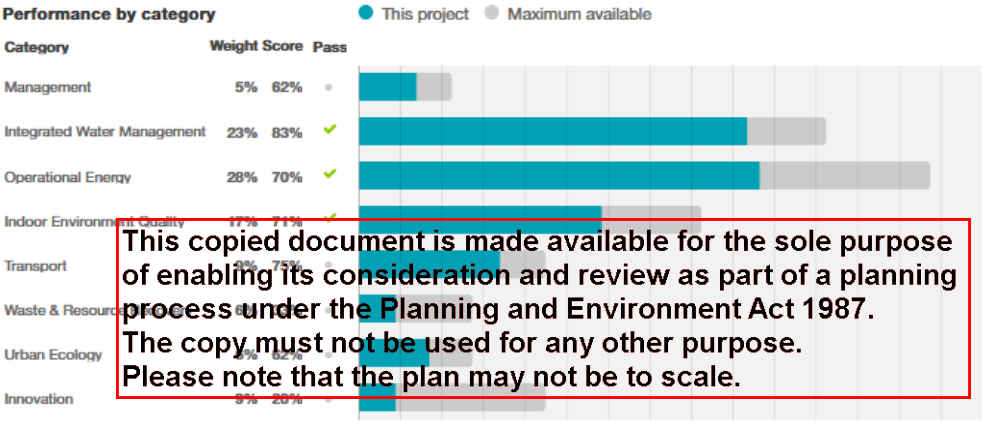


66%

Project details

Name	FRV Craigieburn Station 80
Address	99 Lygon Dr Craigieburn Victoria 3064
Project ID	E3CF11C6-R1
BESS Version	BESS-9
Site type	Non-residential development
Account	[redacted]
Application no.	
Site area	7,513 m²
Building floor area	1,153 m²
Date	22 September 2025
Software version	2.1.0-B.600

Performance by category



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Refer to Appendix B.1 and B.2 for the BESS and STORM calculations respectively.

[redacted]

ESD INITIATIVES

4.1 INDOOR ENVIRONMENT QUALITY

Table 3 : IEQ Sub-Categories and Initiatives

IEQ Sub-Categories	Proposed FRV Fire Station No.80 Craigieburn Initiatives	Performance Target	Schedule of Initiatives and Responsibility
Daylight	75% of usable floor area spaces achieve a daylight factor of greater than 2%	BESS benchmarking Refer to Appendix C for daylight calculations	Design phase: Architect Construction phase: Builder, window contractor
Hazardous Materials	No hazardous waste shall be used in construction materials	No hazardous waste shall be used in construction materials	Implemented as part of construction of design drawings (mechanical contractor responsibility)
Acoustics	All mechanical equipment shall meet the Australian Standards for noise levels	To meet Australian Standards for noise levels	Design phase: Architect Construction phase: Builder
Natural Ventilation	Openable doors and windows will supply natural ventilation to habitable spaces. Where not practicable ventilation shall meet CO2 concentrations of maximum 700ppm and/or 100% above AS1668 outside air levels	Achieve BESS best practice Achieve NCC requirements	Design phase: Architect and mechanical engineer Construction phase: Builder
Low VOC and Low Formaldehyde Emissions	Paints in the project shall be Low VOC as defined by Green Star Joinery shall be low formaldehyde as E1 or E0 as defined by Green Star	90% of paints in the project shall be Low VOC as defined by Green Star Low formaldehyde as E1 or E0 as defined by Green Star	Design phase: Architect, Electrical, Mechanical, Hydraulic Construction phase: Builder, Electrical, Mechanical, Hydraulic

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4.2 ENERGY EFFICIENCY

Table 4 : Energy Efficiency Sub-Categories and Initiatives

Energy Efficiency Sub-Categories	Proposed FRV Fire Station No.80 Craigieburn Initiatives	Performance Target and Implementation	Schedule of Initiatives and Responsibility
Operating Energy and Building Fabric	J1V3 assessment shows an improvement of over 20% of NCC Part J benchmarks	20% improvement on NCC Part J	Design phase: Architect Construction phase: Builder
Heating and Cooling	Cooling shall be provided via air conditioning systems to all habitable spaces. The minimum nominated COP for the systems is minimum 3.5	COP of 3.5	Design phase: Architect, mechanical designer Construction phase: Builder, mechanical contractor
Lighting Power Density	Lighting power density shall be 20% lower than those stipulated by the National Construction Code in Part J6 for all NCC class types components. LED lighting will be implemented	Lighting power density of <= 3.5w/m^2 shall be implemented to meet the 20% reduction target. National Construction Code requirements. BESS benchmarking (refer Appendix B.1)	Design phase: Architect, Electrical Designer Construction phase: Electrical Contractor
Domestic Hot Water	Domestic hot water shall be heat pumps with minimum COP of 2.5	BESS benchmarking (refer Appendix B.1)	Design phase: Architect, hydraulic designer Construction phase: Hydraulic contractor
External Lighting	External lighting will be controlled via a time switch and motion detection – where practicable	BESS benchmarking (refer Appendix B.1)	Design phase: Architect, Electrical Designer Construction phase: Electrical Contractor
Solar PV	A solar PV system of minimum 25kW shall be provided	BESS benchmarking (refer Appendix B.1)	Design phase: Architect, Electrical Designer Construction phase: Electrical Contractor

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4.3 WATER EFFICIENCY

Table 5 : Water Efficiency Sub-Categories and Initiatives

Water Efficiency Sub-Categories	Proposed FRV Fire Station No.80 Craigieburn Initiatives	Performance Target	Schedule of Initiatives and Responsibility
Minimising Amenity Water Demand	The fittings and fixtures proposed for the development will meet the following Star Ratings under the Water Efficiency Labelling Scheme: Toilets – 4 Star Basin Taps – 5 Star Kitchen Taps – 5 Star Showers – 3 Star (between 6 to 7.5 l/min) Dishwashers – 5 Star	As per star rating targets specified. BESS benchmarking (refer Appendix B.1)	Design phase: Architect / Hydraulic Designer Construction phase: Builder and hydraulic contractor
Heat Rejection Water	Air conditioning units shall use air-cooled condenser components	No water to be used in cooling.	Design phase: Architect / Mechanical Designer Construction phase: Builder and Mechanical Contractor
Water Efficient Landscaping	Water efficient garden	The landscape schedule is yet to be finalised however drought tolerant tree, shrub and grass species shall make up the majority of the landscaping	Design phase: Architect / Landscape Designer Construction phase: Builder and Landscape Contractor
Rainwater Harvesting	Satellite rainwater tanks around the site combine to provide a 7.5kL (minimum) rainwater harvesting system. The tanks will be connected to minimum 500m2 of roof area	BESS benchmarking (refer Appendix B.1)	Design phase: Architect / Hydraulic Designer Construction phase: Builder and hydraulic contractor

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[redacted]

4.4 STORMWATER MANAGEMENT

Table 6 : Stormwater Management Sub-Categories and Initiatives

Stormwater Management Sub-Categories	Proposed FRV Fire Station No.80 Craigieburn Initiatives	Performance Target	Schedule of Initiatives and Responsibility
STORM rating	The calculated STORM rating is 105%. Refer to Appendix B.2 for the STORM report.	A minimum of 100% in STORM.	Design phase: Architect / ESD Consultant / Hydraulic Designer / Civil Designer / Landscape Consultant Construction phase: Builder, civil contractor, landscape contractor and hydraulic contractor
Discharge to Sewer	Low flow fittings and fixtures shall be used and shall reduce the discharge to sewer.	The fittings and fixtures proposed for the development will meet the following Star Ratings under the Water Efficiency Labelling Scheme: Toilets – 4 Star Basin Taps – 6 Star Kitchen Taps – 5 Star Showers – 3 Star (between 7.5 and 9 l/min) Dishwashers – 5 Star	Implemented as part of construction of design drawings (contractor responsibility)
Watercourse Pollution	Raingardens are proposed for the development to meet the watercourse pollution requirements of Council. These raingardens will be designed to have minimal maintenance and sustainable plantations. Refer to Appendix B for the STORM report, rain garden cross sections and maintenance plans.	A minimum of 100% in STORM.	Design phase: Architect / ESD Consultant / Hydraulic Designer / Civil Designer / Landscape Consultant Construction phase: Builder, civil contractor, landscape contractor and hydraulic contractor

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4.5 BUILDING MATERIALS

Table 7 : Building Materials Sub-Categories and Initiatives

Building Materials Sub-Categories	Proposed FRV Fire Station No.80 Craigieburn Initiatives	Performance Target and Implementation	Schedule of Initiatives and Responsibility
Storage for Recycling Waste	Appropriate bin storage space including space for recycling bins has been allocated.	Refer to Waste Design Assessment for details.	Design phase: Architect Construction phase: Builder
Environmental Toxicity	Both refrigerants and insulation materials shall be specified to be non-ozone depleting in both composition and manufacture.	Zero ozone depleting materials used in both composition and manufacture.	Design phase: Architect Construction phase: Builder

4.6 TRANSPORT

Table 8 : Transport Sub-Categories and Initiatives

Transport Sub-Categories	Proposed FRV Fire Station No.80 Craigieburn Initiatives	Performance Target and Implementation	Schedule of Initiatives and Responsibility
Bicycle Parking	14 bike racks are provided and end of trip facilities are available inherently in fire station design	BESS benchmarking (refer Appendix B.1).	Design phase: Architect Construction phase: Builder
Electric Vehicle Parking and Charging	Electric vehicle parking and charging shall be provided for car park	BESS benchmarking (refer Appendix B.1)	Design phase: Architect, Electrical Designer Construction phase: Electrical Contractor
Electric Fire Vehicle Charging	Electric fire vehicle charging shall be provided	BESS benchmarking (refer Appendix B.1)	Design phase: Architect, Electrical Designer Construction phase: Electrical Contractor

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4.7 WASTE MANAGEMENT

Table 8 : Waste Management Sub-Categories and Initiatives

Waste Management Sub-Categories	Proposed FRV Fire Station No.80 Craigieburn Initiatives	Performance Target and Implementation	Schedule of Initiatives and Responsibility
Construction Environmental Management Plan	A construction environmental Design Assessment will be required to be implemented by the lead contractor.	Production and implementation of an EMP.	Architectural preliminaries to require a CEMP Lead contractor responsibility
Waste Management Plan	Construction phase environmental Design Assessment to be implemented.	Minimum 80% of construction waste to be reused or recycled. BESS benchmarking (refer Appendix B.1)	Architectural preliminaries to require a WMP Lead contractor responsibility
Operational Waste	Green and garden waste and recycling waste shall be separated from general waste and disposed / re-used accordingly	Waste initiatives, requirements and instructions for both garden waste and recycling shall be incorporated into the building users guide.	Architect in the design phase and schooling in the operation phase

4.8 URBAN ECOLOGY

Table 9 : Urban Ecology Sub-Categories and Initiatives

Urban Ecology Sub-Categories	Proposed FRV Fire Station No.80 Craigieburn Initiatives	Performance Target and Implementation	Schedule of Initiatives and Responsibility
Landscaped Areas	Landscaping will be provided as shown in Landscape drawings.	The landscape schedule is yet to be finalised however drought tolerant tree, shrub and grass species shall make up the majority of the landscaping.	Design phase: Architect / Landscape Architect Construction phase: Builder / Landscape Contractor

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[redacted]

4.9 CONSTRUCTION AND BUILDING MANAGEMENT

Table 10 : Construction and Building Management Sub-Categories and Initiatives

Construction and Building Management Sub-Categories	Proposed FRV Fire Station No.80 Craigieburn Initiatives	Performance Target and Implementation	Schedule of Initiatives and Responsibility
Construction Environmental Design Assessment	A construction environmental Design Assessment will be required to be implemented by the lead contractor.	Production and implementation of an EMP.	Architectural preliminaries to require a CEMP Lead contractor responsibility
Stormwater Construction Design Assessment	A stormwater construction Design Assessment will be implemented as part of the construction environmental Design Assessment.	Council requirements.	Architectural preliminaries to require a SMP Lead contractor responsibility
Building User Guide	A building user guide to be handed over to all owners after construction.	Sustainability and maintenance information to be included in building user guide.	Lead contractor responsibility

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CONCLUSION

The ESD components for the FRV Fire Station No.80 Craigieburn development have been proposed with reference to current construction code standards, the industry benchmarking tool BESS and Hume City Council Planning Scheme ESD requirements. At the planning stage, the proposed design meets best practice as set out by these requirements.

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APPENDIX A – PRELIMINARY NCC PART J ASSESSMENT

J1V3 REQUIREMENTS AND MODELLING INPUTS

The purpose of this component of the SMP is to show compliance of the proposed FRV Fire Station No.80 Craigieburn design with the energy efficiency requirements of the National Construction Code 2022. This report shows, based on the documentation used in the calculation and associated assumptions, the proposed FRV Fire Station No.80 Craigieburn design complies with the requirements and will meet an overall J1V3 improvement of 20%.

Compliance has been shown using the verification method J1V3. Computer simulation energy modelling has been undertaken using IES Virtual Environment Software Version 2022. Three models were created and each yielded an annual energy calculation for the purposes of comparison. The figure below shows the calculation requirements for the J1V3 method with regards to the three models that are required to be produced.

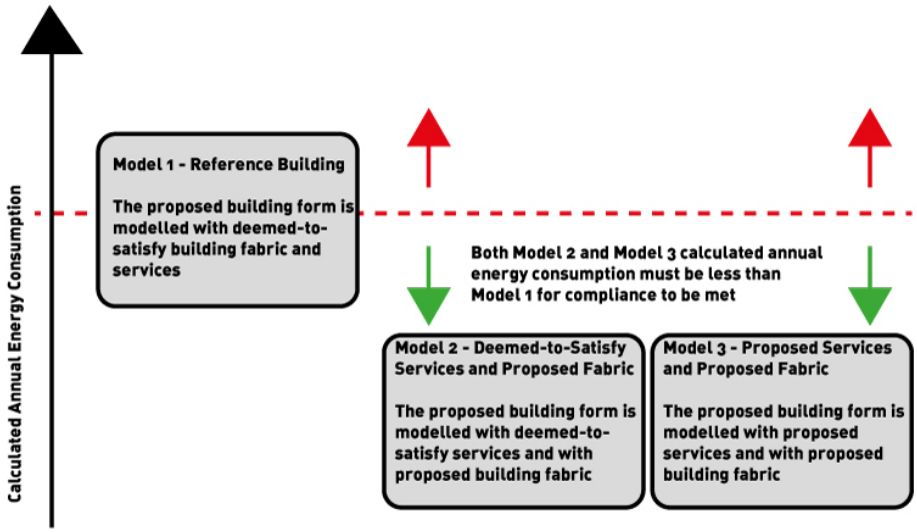

Figure 1 Illustration of the 3 Model Calculation System Required by J1V3

Component Of Calculation	Annual Energy Use
Heating, Cooling & Comfort Ventilation – Electricity Reference fabric & services kWh Heating,	152,264
Heating, Cooling & Comfort Ventilation – Electricity Proposed fabric & reference services kWh	143,605
Heating, Cooling & Comfort Ventilation – Electricity Proposed fabric & services kWh	138,348
Hot Water – Gas Reference MJ	18,557
Hot Water – Gas Proposed MJ	4,965
Lighting Reference – kWh	49,694
Lighting Proposed – kWh	36,413

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Component Of Calculation	Annual Energy Use
Peak Thermal Cooling Load – Reference Fabric and Services kW	66.4
Peak Thermal Cooling Load Proposed Fabric and Services kW	59.8

The development meets the J1V3 and modelling requirements with the following building fabric requirements.

- Lightweight steel external walls with R3.5 value for whole system. R3.0 insulation to be added and thermal break tape
- Internal walls with no insulation added
- Floors below are concrete slab on ground with no additional insulation
- The roof / ceiling structure is metal deck roof with R6.0 whole system.
- Windows are required to have window system thermal performance values of:
    - Glazing Properties - U value = 2.0 max and SHGC =0.4-0.45 range
- Roof Glazing is required to have system thermal performance values of:
    - Glazing Properties - U value = 2.7 max and SHGC =0.3 range

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APPENDIX B – BESS AND WATER SENSITIVE URBAN DESIGN

B.1 BESS ASSESSMENT

The BESS calculation is attached on the overleaf.

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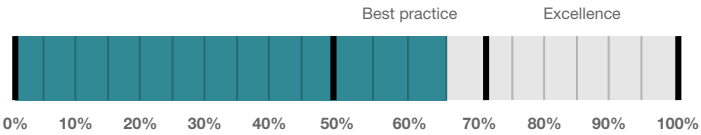
BESS Report

Built Environment Sustainability Scorecard

This BESS report outlines the sustainable design commitments of the proposed development at 99 Lygon Dr Craigieburn Victoria 3064. The BESS report and accompanying documents and evidence are submitted in response to the requirement for a Sustainable Design Assessment or Sustainability Management Plan at Hume City Council.

Note that where a Sustainability Management Plan is required, the BESS report must be accompanied by a report that further demonstrates the development's potential to achieve the relevant environmental performance outcomes and documents the means by which the performance outcomes can be achieved.

Your BESS Score

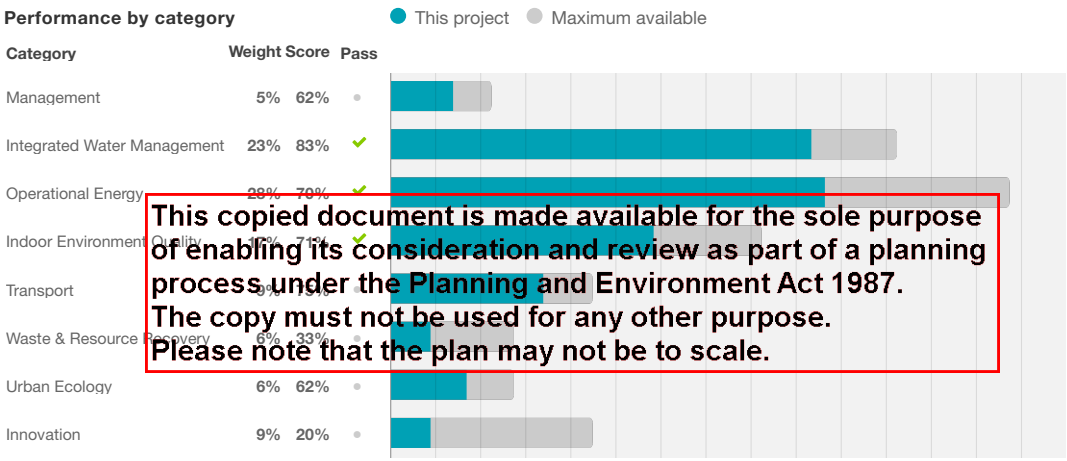


66%

Project details

Name	FRV Craigieburn Station 80
Address	99 Lygon Dr Craigieburn Victoria 3064
Project ID	E3CF11C6-R1
BESS Version	BESS-9
Site type	Non-residential development
Account	[redacted]
Application no.	
Site area	7,513 m²
Building floor area	1,153 m²
Date	22 September 2025
Software version	2.1.0-B.600

Performance by category



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Buildings

Name	Height	Footprint	% of total footprint
FRV Building	1	1,153 m^2	100%

Dwellings & Non Res Spaces

Non-Res Spaces

Name	Quantity	Area	Building	% of total area
Other building				
Non-Residential Space 1	1	1,153 m^2	FRV Building	100%
Total	**1**	**1,153 m^2**	**100%**	

Supporting Evidence

Shown on Floor Plans

Credit	Requirement	Response	Status
Management 3.2	Annotation: Individual utility meters to be provided to all individual commercial tenancies	To be printed Refer to SMP	✔
Management 3.3	Annotation: Sub-meters to be provided to all major common area services (list each)	To be printed Refer to SMP	✔
Integrated Water Management 2.1	Location of any stormwater management systems (rainwater tanks, raingardens, buffer strips)	To be printed Refer to Architectural Landscape Plans	✔
Integrated Water Management 3.1	Annotation: Water efficient garden details	To be printed Refer to Architectural Landscape Plans	✔
Operational Energy 4.2	Location and size of solar photovoltaic system	To be printed Refer to Architectural Plans	✔
Transport 1.4	Location of non-residential bicycle parking spaces	To be printed Refer to Architectural Landscape Plans	✔
Transport 1.5	Location of non-residential visitor bicycle parking spaces	To be printed Refer to Architectural Landscape Plans	✔
Transport 1.6	Location of showers, change rooms and lockers as nominated	To be printed Refer to Architectural Plans	✔
Transport 2.1	Location of electric vehicle charging infrastructure	To be printed Refer to Architectural Plans	✔
Waste & Resource Recovery 2.2	Location and size of [illegible]	To be printed Refer to Architectural Plans	✔
Urban Ecology 1.1	Location and size of communal spaces	To be printed Refer to Architectural Plans	✔
Urban Ecology 2.1	Location and size of vegetated areas	To be printed Refer to Architectural Landscape Plans	✔

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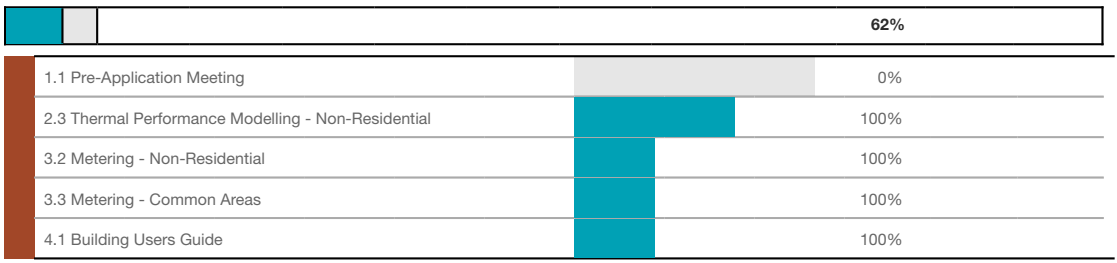
Supporting Documentation

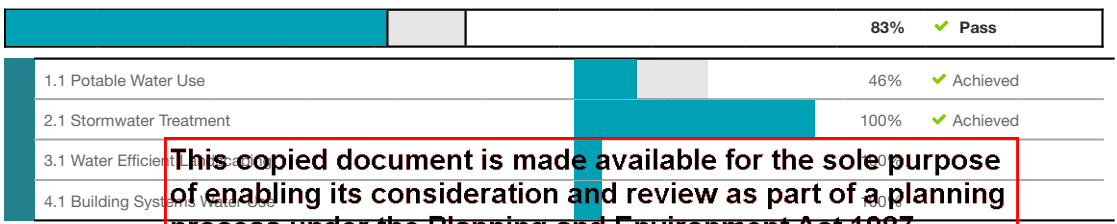
Credit	Requirement	Response	Status
Management 2.3a	Section J glazing assessment	To be printed Refer to SMP Refer to SMP	✔
Management 2.3b	Preliminary modelling report	To be printed Refer to SMP Refer to SMP	✔
Integrated Water Management 2.1	STORM report or MUSIC model	To be printed Refer to SMP Refer to SMP	✔
Operational Energy 1.1	Energy Report showing calculations of reference case and proposed buildings	To be printed Refer to SMP Refer to SMP	✔
Operational Energy 3.7	Average lighting power density and lighting type(s) to be used	To be printed Refer to SMP Refer to SMP	✔
Operational Energy 4.2	Specifications of the solar photovoltaic system(s)	To be printed Refer to SMP Refer to SMP	✔
Indoor Environment Quality 1.4	A short report detailing assumptions used and results achieved.	To be printed Refer to SMP Refer to SMP	✔

Credit summary

Management Overall contribution 4.5%



IWM Overall contribution 22.5%



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Operational Energy Overall contribution 27.5%

	Minimum required 50%	70%	Pass
1.1 Thermal Performance Rating - Non-Residential		26%	
2.1 Greenhouse Gas Emissions		100%	
2.2 Peak Demand		100%	
2.6 Electrification		100%	
2.7 Energy consumption		100%	
3.1 Carpark Ventilation		N/A	Scoped Out
			No enclosed car parks
3.2 Hot Water - Non-Residential		100%	
3.7 Internal Lighting - Non-Residential		100%	
4.1 Combined Heat and Power (cogeneration / trigeneration)		N/A	Scoped Out
			No cogeneration or trigeneration system in use.
4.2 Renewable Energy Systems - Solar		100%	
4.4 Renewable Energy Systems - Other		0%	

IEQ Overall contribution 16.5%

	Minimum required 50%	71%	Pass
1.4 Daylight Access - Non-Residential		75%	Achieved
2.3 Ventilation - Non-Residential		78%	Achieved
3.4 Thermal comfort - Shading - Non-Residential		66%	
3.5 Thermal Comfort - Ceiling Fans - Non-Residential		0%	
4.1 Air Quality - Non-Residential		100%	

Transport Overall contribution 9.0%

	75%
1.4 Bicycle Parking - Non-Residential	100%
1.5 Bicycle Parking - Non-Residential Visitor	100%
1.6 End of Trip Facilities - Non-Residential	100%
2.1 Electric Vehicle Infrastructure	100%
2.2 Car Share Scheme	0%
2.3 Motorbikes / Mopeds	0%

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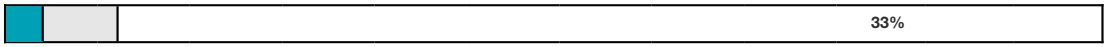
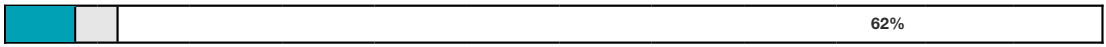
Waste & Resource Recovery Overall contribution 5.5%



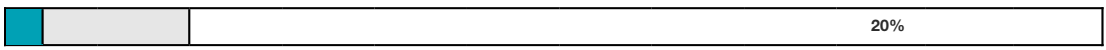
1.1 Construction Waste - Building Re-Use	0%
2.1 Operational Waste - Food & Garden Waste	0%
2.2 Operational Waste - Convenience of Recycling	100%

Urban Ecology Overall contribution 5.5%



1.1 Communal Spaces	100%
2.1 Vegetation	100%
2.2 Green Roofs	0%
2.3 Green Walls and Facades	0%
3.2 Food Production - Non-Residential	0%

Innovation Overall contribution 9.0%



1.1 Innovation	20%

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Credit breakdown

Management Overall contribution 4.5%

62%

1.1 Pre-Application Meeting	0%
Score Contribution	This credit contributes 37.5% towards the category score.
Criteria	Has an ESD professional been engaged to provide sustainability advice from schematic design to construction? AND Has the ESD professional been involved in a pre-application meeting with Council?
Question	Criteria Achieved ?
Project	No
2.3 Thermal Performance Modelling - Non-Residential	100%
Score Contribution	This credit contributes 25% towards the category score.
Criteria	Has a preliminary facade assessment been undertaken in accordance with NCC2022 Section J4D6?
Question	Criteria Achieved ?
Other building	Yes
Criteria	Has preliminary modelling been undertaken in accordance with either NCC2022 Section J (Energy Efficiency), NABERS or Green Star?
Question	Criteria Achieved ?
Other building	Yes
3.2 Metering - Non-Residential	100%
Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Have utility meters been provided for all individual commercial tenants?
Question	Criteria Achieved ?
Other building	Yes
3.3 Metering - Common Areas	100%
Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Have all major common area services been separately submetered?
Question	Criteria Achieved ?
Other building	Yes
4.1 Building User Guide	100%
Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Will a building users guide be produced and issued to occupants?
Question	Criteria Achieved ?
Project	Yes

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IWM Overall contribution 22.5%

83% ✔ Pass

Do you have a reticulated third pipe or an on-site water recycling system?:	No
Are you installing a swimming pool?:	No
Stormwater profile	
Which stormwater modelling software are you using?:	Melbourne Water STORM tool
STORM score achieved:	105
Flow:	-
Total Suspended Solids:	-
Total Phosphorus:	-
Total Nitrogen:	-
Rainwater tank profile	
What is the total roof area connected to the rainwater tank?: Rainwater Tank 1	500 m²
Tank Size: Rainwater Tank 1	7,500 Litres
Irrigation area connected to tank: Rainwater Tank 1	500 m²
Is connected irrigation area a water efficient garden?: Rainwater Tank 1	Yes
Other external water demand connected to tank?: Rainwater Tank 1	0.0 Litres/Day
Fixtures, fittings & connections profile	
Building:	FRV Building
Showerhead:	4 Star WELS (>= 6.0 but <= 7.5)
Bath:	Scope out
Kitchen Taps:	>= 5 Star WELS rating
Bathroom Taps:	>= 5 Star WELS rating
Dishwashers:	>= 5 Star WELS rating
WC:	>= 4 Star WELS rating
Urinals:	Scope out
Washing Machine Water Efficiency:	Scope out
Which non-potable water source is the dwelling/space connected to?:	233710
Non-potable water source connected to Toilets:	Yes
Non-potable water source connected to Washing machine):	Yes
Non-potable water source connected to Water Systems:	Yes

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1.1 Potable Water Use 46% ✔ Achieved

Score Contribution	This credit contributes 31.2% towards the category score.
Criteria	What is the reduction in total potable water use due to efficient fixtures, appliances, rainwater use and recycled water use? To achieve points in this credit there must be >25% potable water reduction.
Output	Reference
Project	2408 kL
Output	Proposed (excluding rainwater and recycled water use)
Project	1935 kL
Output	Proposed (including rainwater and recycled water use)
Project	1689 kL
Output	% Reduction in Potable Water Consumption
Project	29 %
Output	% of connected demand met by rainwater
Project	43 %
Output	How often does the tank overflow?
Project	Never / Rarely
Output	Opportunity for additional rainwater connection
Project	397 kL

2.1 Stormwater Treatment — 100% ✔ Achieved

Score Contribution	This credit contributes 56.2% towards the category score.
Criteria	Has best practice stormwater management been demonstrated?
Output	Min STORM Score
Project	100
Output	STORM Score
Project	105

3.1 Water Efficient Landscaping — 100%

Score Contribution	This credit contributes 6.2% towards the category score.
Criteria	Will water efficient landscaping be installed?
Question	Criteria Achieved ?
Project	Yes

4.1 Building Systems Water Use — 100%

Score Contribution	This credit contributes 6.2% towards the category score.
Criteria	Where applicable, have measures been taken to reduce potable water consumption by [illegible] systems?
Question	Criteria Achieved ?
Project	Yes

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Operational Energy Overall contribution 27.5%

		Minimum required 50%	70%	✔ Pass

Project profile	
Use the BESS Deem to Satisfy (DtS) method for Non-residential spaces?:	No
Are you installing any renewable energy system(s) (other than solar photovoltaic)?:	Yes
Energy Supply:	All-electric
Solar Photovoltaic system profile	
System Size (lesser of inverter and panel capacity): Solar Photovoltaic system 1	25.0 kW peak
Orientation (which way is the system facing)?: Solar Photovoltaic system 1	North-East
Inclination (angle from horizontal): Solar Photovoltaic system 1	30.0 Angle (degrees)
Non-residential buildings profile	
Heating, Cooling & Comfort Ventilation Electricity Reference fabric and Reference services:	152,264 kWh
Heating, Cooling & Comfort Ventilation Electricity Proposed fabric and Reference services:	143,605 kWh
Heating, Cooling & Comfort Ventilation Electricity Proposed fabric and Proposed services:	128,362 kWh
Heating Wood Reference fabric and Reference services:	0.0 MJ
Heating Wood Proposed fabric and Reference services:	0.0 MJ
Heating Wood Proposed fabric and Proposed services:	0.0 MJ
Hot Water Electricity - Reference:	16,557 kWh
Hot Water Electricity - Proposed:	4,965 kWh
Lighting Electricity - Reference:	49,694 kWh
Lighting Electricity - Proposed:	36,413 kWh
Peak Thermal Cooling Load Reference:	66.4 kW
Peak Thermal Cooling Load Proposed:	59.8 kW

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1.1 Thermal Performance Rating - Non-Residential		26%
Score Contribution	This credit contributes 34.8% towards the category score.	
Criteria	What is the % reduction in heating and cooling energy consumption against the reference case (NCC2022 Section J)?	
Output	Total Improvement	
Other building	5 %	

2.1 Greenhouse Gas Emissions		100%
Score Contribution	This credit contributes 8.7% towards the category score.	
Criteria	What is the % reduction in annual greenhouse gas emissions against the benchmark?	
Output	Reference Building with Reference Services (BCA only)	
Other building	133,369 kg CO2	
Output	Proposed Building with Proposed Services (Actual Building)	
Other building	105,328 kg CO2	
Output	% Reduction in GHG Emissions	
Other building	21 %	

2.2 Peak Demand		100%
Score Contribution	This credit contributes 4.3% towards the category score.	
Criteria	What is the % reduction in the instantaneous (peak-hour) demand against the benchmark?	
Output	Peak Thermal Cooling Load - Baseline	
Other building	66.4 kW	
Output	Peak Thermal Cooling Load - Proposed	
Other building	59.8 kW	
Output	Peak Thermal Cooling Load - % Reduction	
Other building	9 %	

2.6 Electrification		100%
Score Contribution	This credit contributes 13% towards the category score.	
Criteria	Is the development all-electric?	
Question	Criteria Achieved?	
Project	Yes	

2.7 Energy consumption		100%
Score Contribution	This credit contributes 17.4% towards the category score.	
Criteria	What is the % reduction in annual energy consumption against the benchmark?	
Output	Reference Building with Reference Services (BCA only)	
Other building	1,067,352 MJ	
Output	Proposed Building with Proposed Services (Actual Building)	
Other building	842,816 MJ	
Output	% Reduction in total energy	
Other building	21 %	

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3.1 Carpark Ventilation		N/A	Scoped Out
			No enclosed car parks
This credit was scoped out	No enclosed car parks		
3.2 Hot Water - Non-Residential		100%	
Score Contribution	This credit contributes 4.3% towards the category score.		
Criteria	What is the % reduction in annual energy consumption (gas and electricity) of the hot water system against the benchmark?		
Output	Reference		
Other building	59,605 MJ		
Output	Proposed		
Other building	17,874 MJ		
Output	Improvement		
Other building	70 %		
3.7 Internal Lighting - Non-Residential		100%	
Score Contribution	This credit contributes 8.7% towards the category score.		
Criteria	Does the maximum illumination power density (W/m2) in at least 90% of the area of the relevant building class meet the requirements in Table J7D3a of the NCC 2022 Vol 1?		
Question	Criteria Achieved ?		
Other building	Yes		
4.1 Combined Heat and Power (cogeneration / trigeneration)		N/A	Scoped Out
			No cogeneration or trigeneration system in use.
This credit was scoped out	No cogeneration or trigeneration system in use.		
4.2 Renewable Energy Systems - Solar		100%	
Score Contribution	This credit contributes 4.3% towards the category score.		
Criteria	What % of the estimated energy consumption of the building class it supplies does the solar power system provide?		
Output	Solar Power - Energy Generation per year		
Other building	30,622 kWh		
Output	% of Building's Energy		
Other building	18 %		
4.4 Renewable Energy Systems - Other		0%	
Score Contribution	This credit contributes 4.3% towards the category score.		
Criteria	Does another form of renewable energy (not solar) provide 5% of the estimated energy consumption of the building class it supplies?		
Question	Other Renewable Energy - Energy Generation per year		
Other building			

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IEQ Overall contribution 16.5%

	Minimum required 50%	71%	✔ Pass

1.4 Daylight Access - Non-Residential		75%	✔ Achieved
Score Contribution	This credit contributes 35.3% towards the category score.		
Criteria	What % of the nominated floor area has at least 2% daylight factor?		
Question	Percentage Achieved?		
Other building	75 %		
2.3 Ventilation - Non-Residential		78%	✔ Achieved
Score Contribution	This credit contributes 35.3% towards the category score.		
Criteria	What % of the regular use areas are effectively naturally ventilated?		
Question	Percentage Achieved?		
Other building	75 %		
Criteria	What increase in outdoor air is available to regular use areas compared to the minimum required by AS 1668.2:2012?		
Question	Percentage Achieved?		
Other building	0 %		
Criteria	What CO2 concentrations are the ventilation systems designed to achieve, to monitor and to maintain?		
Question	Value		
Other building	700 ppm		
3.4 Thermal comfort - Shading - Non-Residential		66%	
Score Contribution	This credit contributes 17.6% towards the category score.		
Criteria	What percentage of east, north and west glazing to regular use areas is effectively shaded?		
Question	Percentage Achieved?		
Other building	50 %		
3.5 Thermal Comfort - Ceiling Fans - Non-Residential		0%	
Score Contribution	This credit contributes 5.9% towards the category score.		
Criteria	What percentage of regular use areas in naturally ventilated		
Question	Percentage Achieved?		
Other building			
4.1 Air Quality - Non-Residential		100%	
Score Contribution	This credit contributes 5.9% towards the category score.		

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Criteria	Do all paints, sealants and adhesives meet the maximum total indoor pollutant emission limits?
Question	Criteria Achieved ?
Other building	Yes

Criteria	Does all carpet meet the maximum total indoor pollutant emission limits?
Question	Criteria Achieved ?
Other building	Yes

Criteria	Does all engineered wood meet the maximum total indoor pollutant emission limits?
Question	Criteria Achieved ?
Other building	Yes

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Transport Overall contribution 9.0%

75%

1.4 Bicycle Parking - Non-Residential	100%
Score Contribution	This credit contributes 25% towards the category score.
Criteria	Have the planning scheme requirements for employee bicycle parking been exceeded by at least 50% (or a minimum of 2 where there is no planning scheme requirement)?
Question	Criteria Achieved ?
Other building	Yes
Question	Bicycle Spaces Provided ?
Other building	7

1.5 Bicycle Parking - Non-Residential Visitor	100%
Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Have the planning scheme requirements for visitor bicycle parking been exceeded by at least 50% (or a minimum of 1 where there is no planning scheme requirement)?
Question	Criteria Achieved ?
Other building	Yes
Question	Bicycle Spaces Provided ?
Other building	7

1.6 End of Trip Facilities - Non-Residential	100%
Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Where adequate bicycle parking has been provided. Is there also: * 1 shower for the first 5 employee bicycle spaces plus 1 to each 10 employee bicycles spaces thereafter, * changing facilities adjacent to showers, and * one secure locker per employee bicycle space in the vicinity of the changing / shower facilities?
Question	Number of showers provided ?
Other building	1
Question	Number of lockers provided ?
Other building	7
Output	Min Showers Required
Other building	1
Output	Min Lockers Required
Other building	7

2.1 Electric Vehicle Infrastructure	100%
Score Contribution	This credit contributes 25% towards the category score.
Criteria	Are facilities provided for the charging of electric vehicles?
Question	Criteria Achieved ?
Project	Yes

2.2 Car Share Scheme	0%

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Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Has a formal car sharing scheme been integrated into the development?
Question	Criteria Achieved ?
Project	No

2.3 Motorbikes / Mopeds 0%

Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Are a minimum of 5% of vehicle parking spaces designed and labelled for motorbikes (must be at least 5 motorbike spaces)?
Question	Criteria Achieved ?
Project	No

Waste & Resource Recovery Overall contribution 5.5%

33%

1.1 Construction Waste - Building Re-Use 0%

Score Contribution	This credit contributes 33.3% towards the category score.
Criteria	If the development is on a site that has been previously developed, has at least 30% of the existing building been re-used?
Question	Criteria Achieved ?
Project	No

2.1 Operational Waste - Food & Garden Waste 0%

Score Contribution	This credit contributes 33.3% towards the category score.
Criteria	Are facilities provided for on-site management of food and garden waste?
Question	Criteria Achieved ?
Project	No

2.2 Operational Waste - Convenience of Recycling 100%

Score Contribution	This credit contributes 33.3% towards the category score.
Criteria	Are the recycling facilities at least as convenient for occupants as facilities for general waste?
Question	Criteria Achieved ?
Project	Yes

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Urban Ecology Overall contribution 5.5%

62%

1.1 Communal Spaces	100%
Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Is there at least the following amount of common space measured in square meters : * 1m² for each of the first 50 occupants * Additional 0.5m² for each occupant between 51 and 250 * Additional 0.25m² for each occupant above 251?
Question	Common space provided
Other building	100 m²
Output	Minimum Common Space Required
Other building	53 m²

2.1 Vegetation	100%
Score Contribution	This credit contributes 50% towards the category score.
Criteria	How much of the site is covered with vegetation, expressed as a percentage of the total site area?
Question	Percentage Achieved ?
Project	30 %

2.2 Green Roofs	0%
Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Does the development incorporate a green roof?
Question	Criteria Achieved ?
Project	No

2.3 Green Walls and Facades	0%
Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Does the development incorporate a green wall or green façade?
Question	Criteria Achieved ?
Project	No

3.2 Food Production - Non-Residential	0%
Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	What area of space per occupant is dedicated to food production?
Question	Food Production Area
Other building	
Output	Min Food Production Area
Other building	15 m²

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Innovation Overall contribution 9.0%

20%

Project Initiative	
Initiative: Electric Truck Charging	O
Description: Electric Truck Charging	Electric truck charging shall be provided for electric fire vehicle fleet vehicles
Points Targeted: Electric Truck Charging	2
Points: Electric Truck Charging	-

1.1 Innovation	20%

Score Contribution	This credit contributes 100% towards the category score.
Criteria	What percentage of the Innovation points have been claimed (10 points maximum)?

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B.2 WATER SENSITIVE URBAN DESIGN

The STORM calculation is shown below.

Melbourne Water **STORM Rating Report**

TransactionID:	0
Municipality:	HUME
Rainfall Station:	HUME
Address:	99-117 Lygon Drive
	Craigiburn
	VIC 3064
Assessor:	[redacted]
Development Type:	Other
Allotment Site (m2):	7,513.00
STORM Rating %:	105

Description	Impervious Area (m2)	Treatment Type	Treatment Area/Volume (m2 or L)	Occupants / Number Of Bedrooms	Treatment %	Tank Water Supply Reliability (%)
Roof Area - Rainwater Harvesting	500.00	Rainwater Tank	7,500.00	30	148.10	74.00
Roof Area - Rain Garden	1,255.00	Raingarden 100mm	10.00	0	104.00	0.00
Hard Scape - Rain Garden	3,560.00	Raingarden 100mm	25.00	0	100.00	0.00

The landscape plan on the overleaf shows the nominated raingarden and rainwater tanks together with the car park detention system.

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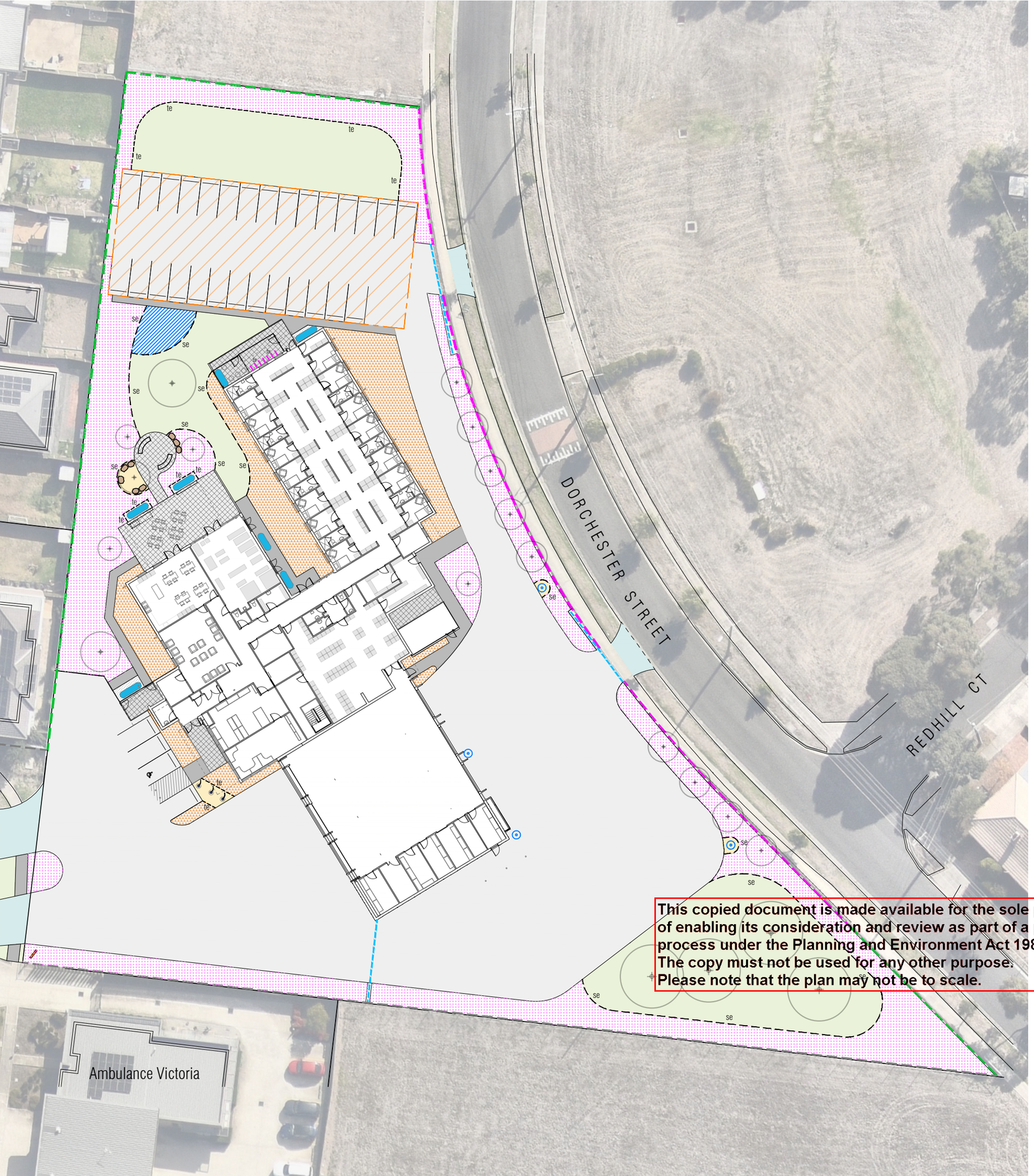
[redacted]



Legend

- Tree planting (Refer L3 + L4)
- Grass seeding
- Raingarden (35 m²)
- Garden bed area - 75mm depth wood mulch
- Garden bed area - 50mm depth 20mm Granite Oaklands stone mulch (or approved equivalent)
- Timber edge
- Steel edge
- Roof over (Refer to Architect's Documentation)
- Hardstand concrete vehicular paving (Refer to Architect's Documentation)
- Plain grey concrete pedestrian paving
- Exposed aggregate concrete pedestrian paving
- 75mm compacted depth selected 14mm max size gravel topping paving on 75mm compacted depth F.C.R. base
- Secure slat screen palisade fencing, 2100mm nom. height (Refer to Architect's Documentation)
- Opaque timber paling fencing, 2100mm nom. height (Refer to Architect's Documentation)
- Auto slide gate (Refer to Architect's Documentation)
- Existing fencing
- Flag pole (Refer to Architect's Documentation)
- Undergrund stormwater retention
- Rainwater tanks
- Water hydrants
- Bike racks, 7 No.
- FRV corporate signage bollard (Refer to Architect's Documentation)

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No.	Issue	Drawn	Date
01	Preliminary	CK	18.07.2025
02	Town Planning	CK	12.09.2025

Craigieburn Fire Station

99 - 117 Lygon Drive
Craigieburn

Landscape Layout Plan

project no:	3590
drawing no:	L2
issue:	02
sheet no:	2 of 5
designed by:	GM
date:	12.09.2025
scale:	1:500 @ A3

0 4 8 12m

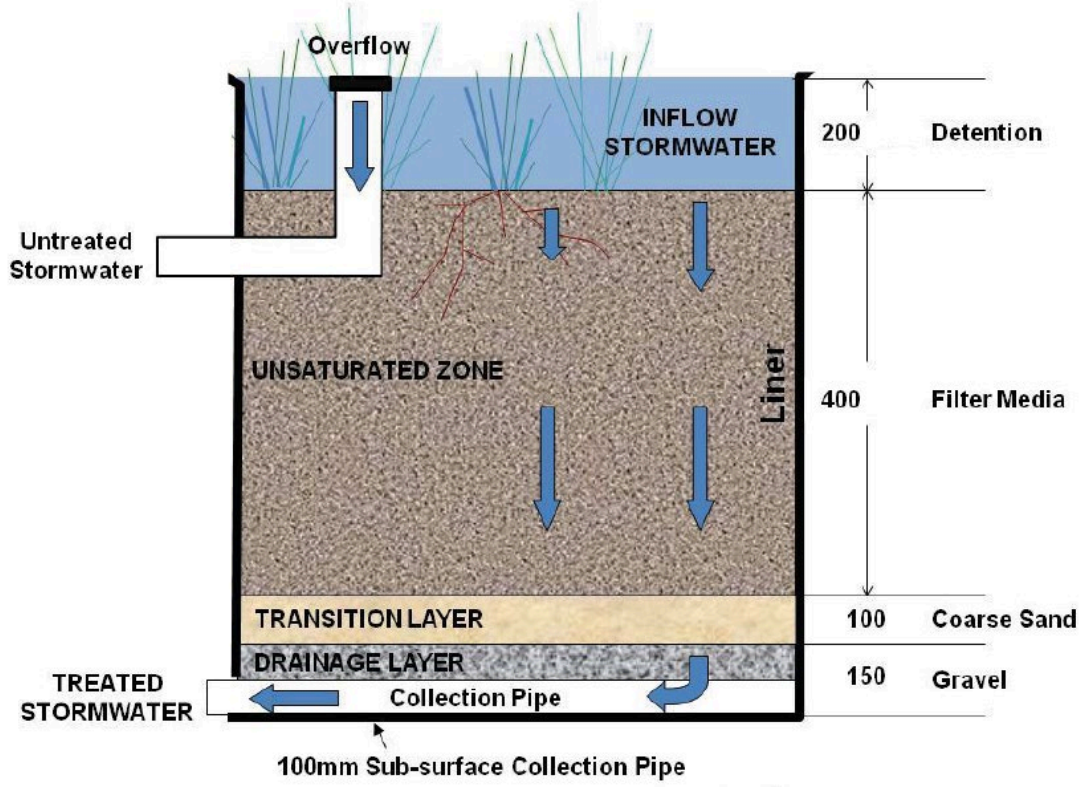
The proposed raingarden system shall be implemented and maintained in accordance with the following sections.

B.3 DETAILS OF WATER TREATMENT

Confirming that the water treatment quality standards of Urban Stormwater Best Practice Environmental Management Guidelines, CSIRO 1999 are met by this design.

The diagrams on the overleaf show the cross section and isometric section of the rain gardens proposed for the development. The raingardens will be built and maintained in accordance with the document on Melbourne Water's website. Refer to overleaf for attached document.

Raingardens will be maintained half yearly as a part of the FRV maintenance plan.



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B.4 RAINGARDEN QUALITY, FILTRATION AND MAINTENANCE

The filtration of the raingardens will meet the water quality standards as per Green Star Benchmarks. The following table shows the standards.

Pollutant	**Reduction Target** (% of the typical urban annual load).
	A
Total Suspended Solids (TSS)[1]	80%
Gross Pollutants	85%
Total Nitrogen (TN)[2]	30%
Total Phosphorus (TP)[2]	30%
Total Petroleum Hydrocarbons[3]	60%
Free Oils[3]	90%

[1] Load based on the following particulate size distribution (by mass): 20% <20 µm; 20% 20-60 µm; 20% 60-150 µm; 20% 150-400 µm; 20% 400-2000 µm

[2] Load includes particulate and dissolved fraction.

[3] This requirement is not applicable where the site contains less than a total of 200m2 of uncovered areas where vehicles are likely to transit and/or park e.g. roads, loading docks, refuelling bays, car parking etc.

A raingarden maintenance plan has been specified for the proposed St Catherine of Siena Catholic Primary School and is attached on the overleaf.

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Tips for undertaking maintenance

Things to look for and how to fix them.

Scour or erosion	**Weeds**
Erosion and scour reduce the overall area of treatment by directing flows to certain areas only. Erosion or scour can be re-profiled with hand tools, limiting the damage to adjacent vegetation. If fill material is required to create a flat surface, use an appropriate raingarden planting media mix. If erosion / scour keeps happening at the inlet, place some small rocks where erosion occurs.	Weeds can take over the plants which are needed in the raingarden for treatment. Hand pull weeds and dispose of appropriately. Plant bare patches if needed. Weeding should take place before the plants flower to reduce the likelihood of seed dispersal and further regeneration.
Rubbish, leaf litter or sediment	**Moss or clay on surface**
A lot of rubbish or leaf litter at the inlet or on the surface of the raingarden can affect how well water can enter and filter through the raingarden. This material can be removed easily by hand or with tongs / rakes. Collected litter should be placed into bags or similar for disposal.	Moss or clay on the surface of the raingarden can result in a crust forming which prevents water from filtering and being treated. Use hand tools to scrape off the clay or moss and dispose of appropriately. Check raingarden drains.
Uneven surface	**Raingarden outlets not draining**
An uneven surface may result in some areas not getting wet during rain events, reducing the area of treatment. Depressions or mounds can be flattened with hand tools, limiting the damage to vegetation.	Blockages of outlet pits and pipes can cause a flooding risk for the property as water is unable to leave the raingarden. Blockages are typically caused by sediment, leaf litter and rubbish. Blockages should be removed manually, by hand or with hand tools such as tongs and shovels. Large blockages in pits may require vacuuming or other appropriate machinery.
Elevated surface level / lots of excess sediment on surface	**Impermeable liner**
If sediment has entered the system and has raised the level of the surface, this reduces the amount of water which can be filtered. Use hand tools to remove/scrape sediment from around the plants. Remove sediment from the raingarden and dispose of appropriately.	An impermeable liner (e.g. geotextile or flexible membrane) is sometimes used to ensure water does not move into the surrounding soils. This may be required if the surrounding soils are very sensitive to any added moisture (e.g. sodic soils, shallow groundwater or close proximity to significant structures such as building foundations).
Unhealthy or dying plants / bare patches	**Raingarden holding water on the surface because of blocked planting media**
Good plant cover is critical for raingardens so if plants are looking stressed in dry periods, irrigation may be required. Remove (prune) any areas affected by disease or pests. If the plants are dying and have created bare patches, the plants need to be replaced. If the plants keep struggling, replace with a plant type which is growing well in the raingarden.	Generally raingardens should be able to filter water at a rate of ~100mm per hour. If the surface of the raingarden is clogged (by clay or moss etc.) or the underlying filter media is not appropriate then water will not be able to drain through the system to be treated. If the surface is clogged use hand tools to scrape off the clay or moss. If this doesn't fix the drainage issue remove an area of planting media to expose the filter media. Check that water can pass through the filter media by pouring water on its exposed surface. If the water can drain then replace the top planting media and check for blockages elsewhere. If the water does not drain the filter media will need to be replaced.

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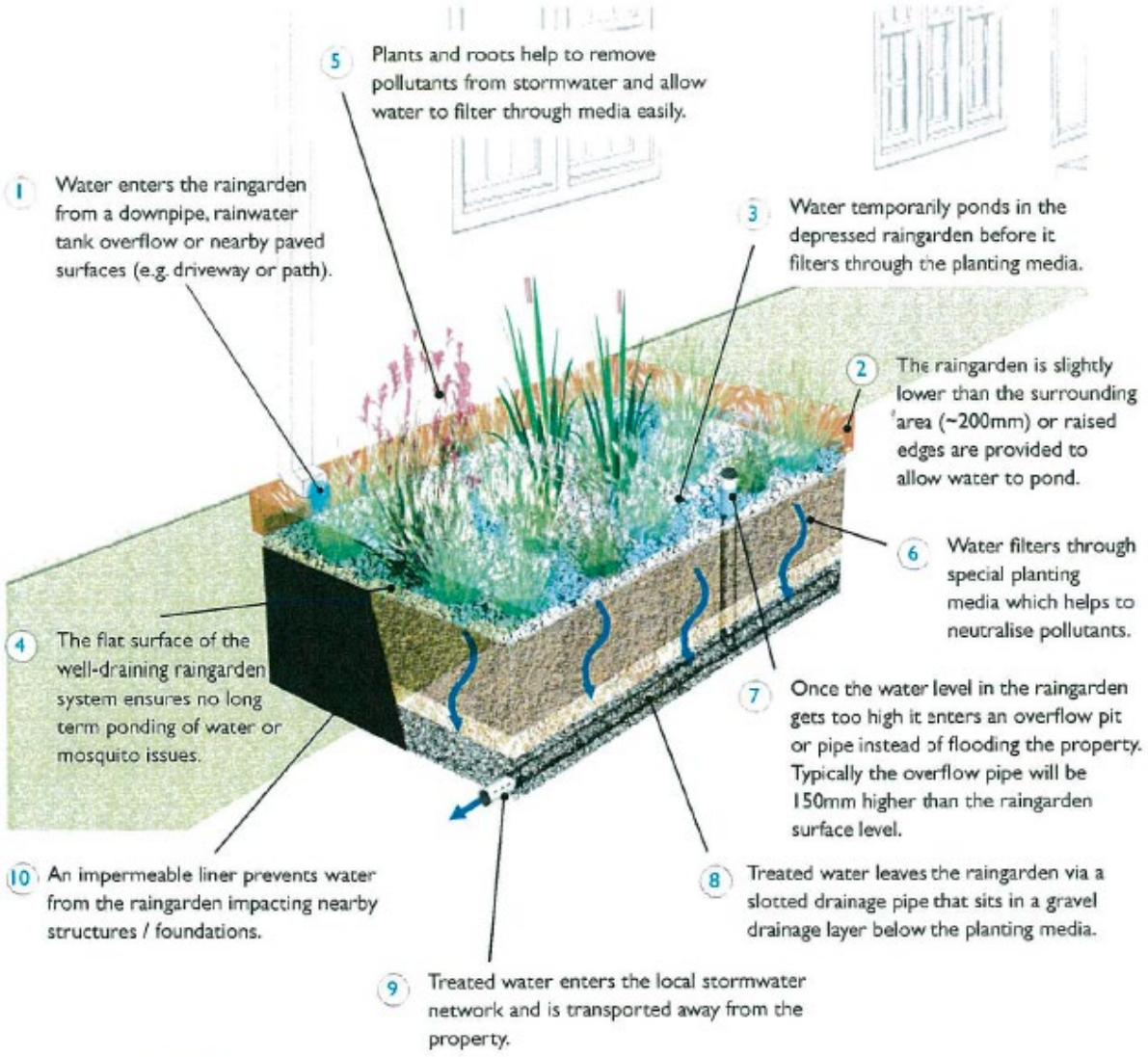
[redacted]

Raingarden Maintenance

This diagram depicts an in-ground raingarden. Raised bed raingardens are also common (refer to photograph).





Note: It is important not to add fertiliser, compost or floatable mulch to a raingarden as the nutrients will pass through the raingarden and pollute the Bay. The plants best suited to raingardens will grow well in the planting media and take nutrients for their growth from the water entering the raingarden.

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[redacted]

Maintenance Checklist



The property owner is responsible for checking the maintenance items in this checklist at the recommended frequency at the bottom of the table. The maintenance log at the bottom of the page should be filled in once each maintenance check is complete. Upkeep of this maintenance log should continue throughout the life of the raingarden.

Item	Raingarden element	Inspection item	Y/N	Likely maintenance task
1	Raingarden inlet	Is there scour or erosion where water enters the raingarden?		Re-profile with hand tools, place gravel or stones at the inlet.
		Is there rubbish, leaf littter or sediment blocking the inlet?		Remove by hand and dispose responsibly.
2	Raingarden surface level	Is the level of the raingarden surface sitting less than 5 cm below the raingarden edges/borders?		Remove sediment from the surface so it is sitting about 10-20 cm below surrounding areas.
3	Raingarden temporary detention	Is there moss or clay on the surface of the raingarden which seem to be slowing the filtration of flows?		Remove the crust from the top of the raingarden and check water will filter through exposed media.
4	Raingarden surface	Are there areas which appear to be higher and are not getting wet during rain events?		Smooth out surface so it is flat with hand tools.
		Are there areas which have been eroded away or scoured?		
5	Plants	Are the plants looking unhealthy or dying?		Prune diseased sections, irrigate and/or replace dead plants. If plants keep dying, replace with a different type which is doing well. Do not use fertilizer to improve plant health as this will pollute the raingarden.
		Are there bare patches forming between plants?		
		Are there weeds present?		Remove weeds by hand and dispose responsibly.
6	Planting media	Is the raingarden holding water for more than a couple of hours after the rain has stopped?		Remove and replace the top 100 mm of planting material (loamy sand).
7	Overflow pit / pipe	Is there anything blocking the top of the overflow pit / pipe preventing water from entering?		Remove blockages and dispose responsibly.
8	Underdrainage	Is there rain draining to the bottom of the raingarden following heavy rain?		Flush the underdrain or uncover it to check for blockages.
9	Stormwater network connection	Is there water ponding in the overflow pit or pipe and not entering the stormwater network?		Remove blockages and dispose responsibly.

Maintenance frequency

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
			x						x		

+ after heavy rainfall

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[redacted]

APPENDIX C – DAYLIGHT ASSESSMENT

A daylight assessment has been undertaken as required by the BESS assessment process using the IES VE Software.

The analysis showed that daylight targets of 2% daylight factor is achieved for over 75% of the floor area (plant areas excluded).

Element	Description
Weather file	VIC Melbourne 948680 (RMY)
Sky	Standard Overcast Sky CIE
Software	Integrated Environmental Solutions – Virtual Environment 2021 with Radiance Toolkit
Working Plane	Daylight factors taken at working plane level – Generally 1.1m from floor level
Reflectances	1. Ground plane: 0.1 2. External walls and obstructions: 0.4 3. Floor: 0.3 4. Wall: 0.7 5. Ceiling: 0.8
External Glazing VLT	Double glazing low-e with VLT 55% Note- this is similar to the glass selected to meet the energy efficiency requirements for these spaces
Roof Glazing VLT	Double glazing low-e with VLT 40% Note- this is similar to the glass selected to meet the energy efficiency requirements for these spaces

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STORM Rating Report

TransactionID: 0

Municipality: HUME

Rainfall Station: HUME

Address: 99-117 Lygon Drive

Craigiburn

VIC 3064

Assessor: [redacted]

Development Type: Other

Allotment Site (m2): 7,513.00

STORM Rating %: 105

Description	Impervious Area (m2)	Treatment Type	Treatment Area/Volume (m2 or L)	Occupants / Number Of Bedrooms	Treatment %	Tank Water Supply Reliability (%)
Roof Area - Rainwater Harvesting	500.00	Rainwater Tank	7,500.00	30	148.10	74.00
Roof Area - Rain Garden	1,255.00	Raingarden 100mm	10.00	0	104.00	0.00
Hard Scape - Rain Garden	3,560.00	Raingarden 100mm	25.00	0	100.00	0.00

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Date Generated: 08-Sep-2025

Program Version: 1.0.0

Stormwater Management Plan (SMP)

Prepared in accordance with Clause 53.18 and Clause 19.03-3L of the Hume Planning Scheme

1. Project Overview

- Site Address: 99 – 107 Lygon Drive Craigieburn Vic 3064

- Applicant/Developer: FRV

- Planning Permit Reference P26756

- Zoning and Overlays:

  - The Site is in a General Residential Zone.
  - There are no overlays effecting the site

- Development Description: (4 Appliance Fire Station)

2. Objectives

This SMP aims to:

- Meet the Best Practice Environmental Management Guidelines (BPEMG) for stormwater quality.

- Minimise the impact of stormwater runoff on receiving waters.

- Prevent chemical and toxicant pollution from industrial activities.

- Support urban cooling, greening, and amenity through integrated water management.

3. Stormwater Quality Management (Clause 53.18 - Standard W2)

3.1 Treatment Measures

- Rainwater Tanks: (3 x 5,000L tanks connected to toilets and for landscape irrigation)

- Draught tolerant – low maintenance Native planting -refer to landscape drawings

  - Exposed aggregate concrete pedestrian paving: ~202 m2
  - Gravel topping paving: ~ 28 m2
  - Plain grey concrete pedestrian paving: ~138 m2
  - Hardstand concrete vehicular paving: ~3,145m2
  - Stone mulched garden bed area: ~316 m2
  - Wood mulch garden bed area: ~1.170 m2
  - Grass seeding: ~1000 m2

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- Trees: 21 no.
- Shrubs: 171 no.

Design Approaches to be incorporated in Design Development

- Where possible, retain natural landform and drainage paths, existing vegetation and rock formations to ensure natural hydrology of a site remains stable
- On-site infiltration of water will be maximized by limiting the impervious surfaces
- Innovative, efficient water reuse systems are encouraged
- Outfall drains are to be constructed to slow flows and disguise pipe outlets, so that the waterway retains as natural an appearance as possible
- Seating and paths are to be located above the1:10 flood level, and recreational structures such as shelters, are located above the 1:100-year flood level
- Rain gardens and Bioretention systems located near the staff car park car parks
- Buffer strips to the edges of driveway to filter storm water and facilitate passive irrigation
- New trees planted to support Urban Forest Strategy tree canopy tree target of 20%
- Kerb inlets are to be designed as part of the civil construction plans.
- Where surface drainage is used, design is to consider the prevailing soil conditions, including the properties of Hume's clay soil profile.
- Appropriately shaped and sized swales or dry creek beds are to be utilized to capture and transport water to an approved point of discharge

3.2 STORM Modelling Summary

- Model Used: STORM

- Performance Targets:

  - 80% reduction in suspended solids

  - 45% reduction in total phosphorus

  - 45% reduction in total nitrogen

  - 70% reduction in litter

- Results: (Include summary table or attach report)

4. Pollution Prevention (Clause 53.18 – Standard W2)

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- Chemical Storage: Bunded and roofed areas:

  - These are proposed to be detailed as a condition of permit

-

- Loading Bays: Located undercover

- Spill Management: Spill kits, isolation valves:

  - These are proposed to be detailed as a condition of permit

- EPA Guidelines Compliance: Refer to EPA publications 1698, 1699, 1700

5. Site Management Plan (Clause 53.18 - Standard W3)

The Following are proposed to be developed as condition of permit

- Erosion and Sediment Control: Silt fences, sediment basins
- Construction Waste Management: Designated bins, concrete washout areas
- Stormwater Protection During Construction: Temporary bunds, diversion drains
- Site Management Plan

6. Industrial Stormwater Policy Compliance (Clause 19.03-3L)

- Use of Hume's Industrial Stormwater Code of Practice:

- Deemed-to-Comply Tools / Integrated Water management Tools Used:

- Permeable paving to maximise rainwater infiltration into the ground
- Passive irrigation of Street trees and landscape areas
- 3 x 5k lt Rainwater tanks for
  - garden watering
  - and toilet use

- IWM and WSUD assets include

- Other methods that collect litter and sediments to prevent them entering the stormwater systems
- Raingardens and Bioretention swales and systems
- Buffer strips to waterway reserves and infiltration beds
- Kerb inlets
- Tree pits

7. Plans and Drawings

- Please see attached

- Site Plan with Drainage Layout
- Landscape Plan with WSUD Features

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- Engineering Drawings, including LPD, are proposed to be developed as a condition of the planning permit.

8. Maintenance and Monitoring

- Maintenance Schedule: (quarterly inspections, annual cleaning)

- Responsible Party: (Fire Rescue Victoria)

- Monitoring Plan (to be provided as a permit):

- Align with State Emergency Management Plan (SEMP) guidelines:
- The SEMP outlines responsibilities for essential services, which include maintenance of infrastructure like drainage systems, particularly for storm mitigation.
- Address State and Local Requirements:
- The plan would need to comply with water management regulations and stormwater offsets frameworks established by authorities like the Department of Energy, Environment and Climate Action (DEECA) and local councils.
- Focus on On-Site and Potential Off-Site Solutions:
- Maintenance would involve regular tasks like drain and culvert clearance to prevent blockages and ensure compliance with engineering standards.
- Incorporate Risk Management:
- FRV, as a participating agency under the SEMP, will manage risks related to its facilities, including potential flooding and the impact of stormwater.

9. Declaration

I declare that this Stormwater Management Plan has been prepared in accordance with the requirements of Clause 53.18 and Clause 19.03-3L of the Hume Planning Scheme.

[redacted]

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[redacted]

FRV FS80 – 99-107 Lygon Drive, Craigieburn 3064

Waste Management Plan

Prepared for
Fire Rescue Victoria (FRV)

JOB number: 22013
1 July 2025

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Revision P2 June 2025

Project Information:

FRV FS80 – 99-107 Lygon Drive, Craigieburn 3064

Waste Management Plan

Document Information:

Client: Fire Rescue Victoria (FRV)

1 Sept 2023	Revision P1	Issue for Ministerial Review
27 June 2025	Revision P2	issue for FRV review
1 July	Revision P3	issue for Hume City Council

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Revision P2 June 2025

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1. Introduction

1.1 Background

[redacted] was commissioned by Fire Rescue Victoria (FRV) to prepare the town planning application. The below waste management plan data is based on FRV experience and past projects to accompany a Planning Permit Application currently being sought for a proposed Fire Station (FS80) at 99-107 Lygon Drive Craigieburn.

The proposal includes a new 3 bay, combined 3 FRV plus station amenities and at-grade car parking. Access to the site is proposed via both Lygon Drive and Dorchester Street (ingress for Appliance vehicles and access to on-site car parking) and Dorchester Road (egress for FRV Staff) Waste Management via Lygon Drive.

1.2 Scope of Works

The following assessment has been undertaken on waste management data provided by FRV and responds to the waste management elements:

- Waste Systems
- Waste Generation Rates
- Waste Capacity & Collection Information
- Bin, Storage & Collection Area Details
- Signage
- Waste Related Amenity

1.3 Notes

- Waste generation calculations presented in this report are estimates only.
- The site operator shall make all necessary adjustments to the waste management plan as required, based on the observed regular post construction operation.
- The 'Operator' or 'Site Operator' refers to the FRV. Management may be via use of staff and/or sub-contractors / private companies as required.
- This plan does not consider waste management associated with the demolition and/or construction stages of the project
- This report is not intended to determine/forecast any associated waste related operational costs.

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2. Waste Management Plan

2.1 Waste Systems

Garbage & Recycling

Garbage and recycling waste generated by the development shall be sorted on-site by staff into the following waste streams:

Garbage / General Waste	General waste (placed in tied plastic bags) shall be placed within bins contained in the waste / bin store area. Internally, waste receptacles will be provided for the temporary storage of general waste.
Co-Mingled Recycling	All paper and non-paper recyclables (PET, glass, aluminum, steel, and HDPE containers) shall be commingled and placed into recycle collection bins located within the bin store area.

Other Waste Streams

Other waste streams to be included and / or considered by the development include:

Hard Waste	A private collection service can be arranged for any hard waste items.
Garden Waste	A private contractor engaged by the Site Operator will be responsible for removing any associated green waste from private spaces as part of any landscaping management services.
Food Organics	A Sustainability Victoria audit found that approximately 35% of the garbage bin is made up of food waste. Hume City Council currently does not provide a food organics collection service. Nonetheless, given the nature of the development (on-site living quarters and meals preparation), the development should allow for the provision of a 240L food organics bin to ensure future food organics collection services can be utilized.
E-Waste	An E-waste ban to landfill commenced in July 2019, as such the development has made provision for the temporary storage of e-waste. A nominal 240L bin will be placed within development to accommodate small e-waste items (i.e., irons, toasters, coffee machines, hair dryers, electric tools, household batteries, computers, laptops, mice, keyboards, routers, small printers, toys, game consoles, cameras, portable audio and video devices, remote controls). Larger e-waste items should be placed within the hard waste collection area. Items that are still in working may be donated or sold. Information on recycling e- waste including how to dispose, donate or re-use is available on the Sustainability Victoria website (https://www.sustainability.vic.gov.au/Campaigns/eWaste).
Emergency Medical Waste	1 x 240L Emergency medical Response - Medical Trade Waste Weekly disposal
Other Waste	Any specific waste resulting from the site operation will be disposed of under a separate management plan.

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2.2 Waste Generation Rates & Estimates

Table 2.1 provides a summary of the weekly (7 day) garbage and recycling waste generation rates for the proposed development while Table 2.2 provides an assessment of the waste generation estimates as they pertain to proposed development.

Table 2.1: Waste Generation Rates

Source	Generation Rates	
	Garbage	Recycling
Fire Station	50L per bed	50L per bed

Table 2.2 provides an assessment of the waste generation estimates as they pertain to proposed development.

Table 2.2: Development Waste Generation Estimates

Waste Type	Generation Estimates
Garbage	1100 L
Co-mingled Recycling	1100 L
Hard Waste	Not Applicable [2]
Garden Waste	Private Contractor [3]
Food Organics	Allowance for 240 L per week
Emergency Medical Waste	Allowance for 240 L per week

1. Litres per Week (L/week)
2. Hard waste to be collected as needed
3. A private contractor engaged by the Site Operator will be responsible for removing any associated green waste from private spaces as part of any landscaping management services.
4. Allowance has been made for the future collection of food organics

The above waste generation represent estimates based on industry accepted rates. Should this garbage allowance be exceeded, the initial course of action should be to review on-site waste practices to ensure the following:

- If general waste is being exceeded, ensure that recyclable waste is separated as appropriate.
- Should recycling be exceeded, staff are instructed to ensure that all cardboard boxes and plastic containers are crushed or flattened before being placed into the recycle bin(s). Mechanical devices are available to assist in the reduction of recyclable waste volumes.

Following this, an audit on the waste being generated can be used to either increase capacity of the on-site waste bins (where possible) or increase the frequency of collections. Conversely, waste audits may also be undertaken to review waste generation with a view to reducing waste collection frequency if the estimated waste generation rates are excessive and do not meet operational demands.

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2.3 Collection Responsibilities

Council waste collection services are limited to a 240L of garbage and 240L of recyclable waste per rateable commercial business. As such, the commercial components of the development will be subject to private waste collection

Waste collections should be arranged to occur outside of peak commuter traffic periods and at differing times to Council's waste collection schedule.

Other Waste Collection Responsibilities

Green Waste

A private contractor engaged by the Site Operator will be responsible for removing any associated green waste from common and private spaces as part of any landscaping management services.

Hard Waste

A private collection service can be arranged for any hard waste items on an as needed basis.

Food Organics

Food organics will not be collected at this time; however, provision exists for the for the adoption of a food organics program when and if Council implement such a collection program.

E-Waste

A private contractor engaged by the Site Operator will be responsible for removing any E-waste on an as needed basis.

2.4 Waste Capacity

Based on the waste estimates provided in Table 2.2, Table 2.3 assesses the number and type of bins required to service the development.

Table 2.3: Waste Capacity & Collection Frequency

Waste Type	Bin Type / Size	Collections (per week)	No. of Bins	Weekly Capacity	Estimated
Garbage	1100 L	1	1	1100 L	800 L
Recycling	1100 L	1	1	1100 L	800 L
Hard Waste	Not Applicable	As required	Not Applicable	-	-
E-Waste	240 L	As required	2	480 L	240 L
Food Organics	240 L	Provision Only	2	480 L	240 L

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2.5 Bin Details

Table 2.5 provides details of the bins used for waste storage including size (capacity and dimensions) and colour. All bins associated with the development shall be sourced and provided by the site operator. Information on bin suppliers is provided in Section 4 of this report.

Table 2.5: Bin Details

Type	Capacity (Litres)	Colour Coding		Dimensions			Floor Area Required
		Body	Lid [2]	Height	Width	Depth	
Garbage	1100 L	Green	Burgundy	1.3m	1.2m	1.1m	1.32m² per bin
Recycling	1100 L	Green	Yellow	1.3m	1.2m	1.1m	1.32m² per bin
E-Waste	240 L	Not Applicable	Not Applicable	1.1m	0.6m	0.7m	0.42m² per bin
Food Organics	240 L	Green	Light Green	1.1m	0.6m	0.7m	0.42m² per bin
EMR	24l L	Yellow	Yellow	1.1m	0.6m	0.7m	0.42m² per bin

1. Bin colours (in particular bin bodies) for private waste collections are typically set by the private contractor who supplies the bins as part of their collection services. Bins are generally coloured to match the branding of the waste collection company.
2. Lid colours for bins may are also typically set by the private contractor who supplies the bins however lid colors are generally in accordance with the colour coding outlined in AS 4123.7-2006.

The following figures provide a visual example of the typical waste collection bins required to service the development.

Figure 2.1: Typical 240L Bin



Figure 2.2: Typical 1100L Bin



(Note: Colour not indicative of those required by Hume Council)

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2.6 Bin Storage & Collection Area Details

Bin Storage Area Details

The site provides ample outdoor areas to house the bins required (2 x 1100L bins for general and co-mingled recycling waste and the provision for 2 x 240L food organics bin). An e-waste bin should be accommodated within the development out of the elements.

Regulations & OHS

The site operator and private waste contractors are governed by relevant Occupational Health and Safety (OH&S) legislation including compliance with Work safe Victoria's Occupational Health and Safety Guidelines for the Collection, Transport and Unloading of Non-hazardous Waste and Recyclable Materials.

Details are available via the Work safe website with the link provided.

(http://www.worksafe.vic.gov.au/pages/forms-and-publications/forms-and-publications/non-hazardous-waste- and-recyclable-materials)

Vehicle Access and Adequacy

Given the nature of the development, the site is able to accommodate any waste collection vehicle via the Lygon Drive access with ingress and egress possible in a forward direction.

2.7 Signage

Bins will be clearly marked and signed to ensure correct disposal of the varying waste streams. Additional visual prompts may assist in the correct disposal.

Signage examples are available on the Sustainability Victoria website (www.sustainability.com.au).

2.8 Other Information

It is noted that post development (or as constructed) conditions or operator preferences can see the amendment of the bin types and numbers as specified in this report. As discussed in Section 2.1 of this report, additional waste streams may also be introduced at the discretion of the site operators to improve environmental and waste management.

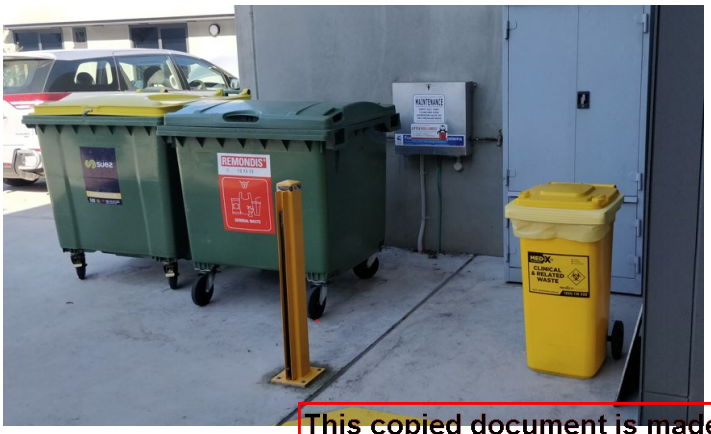

Figure 1 Typical FRV Waste Storage Arrangement

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3. Waste Related Amenity

3.1 Ventilation, Vermin Prevention & Washing Facilities

The on-site bin store area shall be ventilated naturally.

Staff shall regularly clean the bins and ensure bins are not overfilled and that lids are kept closed.

3.2 Noise Minimization

The following measures will assist in the minimization of waste related noise:

- Collection bins shall be equipped with rubber castors for deduced noise during transfer.
- Private waste collection should follow the criteria as outlined in the Victorian EPA Noise Control Guidelines (Section 5 & 6 - Publication 1254.2, May 2021)

3.3 Litter Prevention

The following measures will assist in the management and prevention of litter for which the operator shall be responsible for:

- Ensuring that the on-site waste areas are secure to avoid any unauthorized use and/or waste dumping within the on-site waste areas whilst maintaining adequate access for residents, staff and operators.
- Preventing the overfilling of bins.

3.4 Waste Minimization

The operator shall encourage the minimization of waste through the implementation of strategies and the supply of information to all staff. Useful tips for reducing waste are available online on the Sustainable Living Guide (www.sustainablelivingguide.com.au).

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4. Supplementary Information

4.1 Contact Information

Below is a courtesy listing of some common contractors and equipment suppliers. The site operators are not obliged to procure goods and/or services from these companies.

Table 4.1: Contact Information

Category	Organization / Company Name	Use	Contact Information
Local Government / Authority	City of Hume	Council	(03) 9205 2200
	Solution for Workplace Health and	OH&S consultant	0425 802 669
Private Waste Collectors	Citywide Waste	Waste Collection	(03) 9261 5000
	SUEZ Environment	Waste Collection	13 13 35
	VISY Waste Management	Waste Collection	(03) 9359 7447
	Veolia Environmental Services	Waste Collection	132 955
Equipment suppliers	Sulo MGB Australia-	Bin supplier	1300 364 388

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[redacted]

November 2025

Biodiversity Assessment, 99 Lygon Street, Craigieburn, Victoria



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Prepared for:

Fire Rescue Victoria

[redacted]

[redacted]

Document Control

Project name	Biodiversity Assessment, 99 Lygon Street, Craigieburn, Victoria
Project number	2734
Project manager	[redacted]
Report title	Biodiversity Assessment, 99 Lygon Street, Craigieburn, Victoria
Report author	[redacted]
Site assessor	
Report reviewer	[redacted]
Other staff	N/A
Mapping	[redacted]
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Cover Photograph

A photograph of vegetation within the study area taken during the current assessment.

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Executive Summary

[redacted] was engaged by Fire Rescue Victoria to undertake a Biodiversity Assessment at 99 Lygon Street, Craigieburn, Victoria (the study area). The Biodiversity Assessment was undertaken to determine the ecological values of the study area, and to support a planning permit application for the development of a fire station.

The study area is located within the Hume City Council municipality. It is zoned General Residential Zone Schedule – 1 within the Hume Planning Scheme. The study area is not covered by any overlays relevant to this report, such as Environmental Significance, Vegetation Protection or Significant Landscape Overlays.

Department of Energy, Environment and Climate Action (DEECA) mapping shows that the study area occurs within the Victorian Volcanic Plain bioregion of Victoria. DEECA modelling of the vegetation within the study area suggests it was historically covered by Ecological Vegetation Class (EVC) 132: Plains Grassland. No remnant patches of native vegetation, or scattered trees, were recorded within the study area.

Fifty-six flora species were recorded during the assessment. This comprised three indigenous species, and 53 exotic species. The study area generally consisted of a community of exotic pasture grasses such as Toowoomba Canary-grass *Phalaris aquatica*, Yorkshire Fog *Holcus lanatus* and Chilean Needle-grass *Nasella neesiana*. Some broad-leafed weeds such as Ribwort *Plantago majora*, Curled Dock *Rumex Crispus* and Flatweed *Hypochaeris radicata* were also observed. One individual plant, each of Kangaroo Grass *Themeda triandra* and Common Tussock-grass *Poa labillardierei,* were observed within the study area.

Seventeen threatened flora species have been recorded within three kilometres of the study area, although none were observed during the current assessment. It is unlikely that the study area provides habitat to any threatened flora species as the study area is highly modified from its natural state. No threatened ecological communities were recorded during the current assessment. The proposed development of the study area is unlikely to impact any threatened flora species or threatened ecological communities.

Four fauna species were recorded within the study area during the current assessment. This comprised four birds (three native and one introduced). All of these species are common to the area.

Seventeen threatened fauna species have been recorded within three kilometres of the study area. However, there are no publicly available historic records of threatened fauna species within the study area and none were observed during the current assessment. The majority of species identified within the three-kilometre search radius are unlikely to visit the site, as it is highly modified from its natural state. The proposed development of the study area is unlikely to significantly impact any threatened fauna species.

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In this context, and based on the relevant legislation and policies, the following recommendations are made:



- To obtain regulatory approval:
    - Provide this report to the responsible authority to demonstrate that the development will not impact patches of native vegetation or scattered indigenous trees in accordance with the *Guidelines for the Removal, Destruction or Lopping of Native Vegetation*.
- Post approval, subject to regulatory approvals:
    - Prepare a Construction Environment Management Plan (or equivalent) which includes:
        - Protection of retained scattered trees within the study (if any); and
        - Using clean fill (if required);
        - Avoiding off-site impacts; and
        - Measures to minimise impacts associated with weed introduction and spread targeting noxious weeds such as:
            - Blackberry *Rubus fruticosus*;
            - Chilean Needle-grass *Nasella neesiana;*
            - Flax-leaved Broom *Genista linifolia;*
            - Patterson's Curse *Echium plantagineum;* and,
            - Spear Thistle *Cirsium vulgare*.

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Introduction

[redacted] was engaged by Fire Rescue Victoria to undertake a Biodiversity Assessment at 99 Lygon Street, Craigieburn, Victoria (the study area). The Biodiversity Assessment was undertaken to determine the ecological values of the study area, and to support a planning permit application for the development of a fire station.

The assessment addresses the requirements of Clause 52.17 of the Hume Planning Scheme. Clause 52.17 requires mapping and assessing the location, extent and quality of native vegetation in accordance with the *Guidelines for the Removal, Destruction or Lopping of Native Vegetation* (Department of Environment Land Water and Planning 2017). The Biodiversity Assessment also identifies the likely ecological constraints of the study area and recommends mitigation measures and offset requirements based on other relevant legislation and policies, where appropriate.

Therefore, the purpose of the Biodiversity Assessment is to:

- Determine the ecological values of the study area;
- Evaluate the extent and quality of native vegetation within the study area, required under the *Guidelines for the Removal, Destruction or Lopping of Native Vegetation* (Department of Environment Land Water and Planning 2017);
- Evaluate any impacts that are likely to occur to any ecological values as a result of the proposed development at the study area; and,
- Make recommendations to avoid or mitigate impacts to identified ecological values, as appropriate.

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Methods

Desktop Assessment

In order to determine the ecological values that have previously been recorded within the study area, and its vicinity, the following databases and literature were consulted:

- The Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) Protected Matters Search Tool to determine Matters of National Environmental Significance (MNES), under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act), that are modelled to occur in the vicinity of the study area (Department of Climate Change Energy the Environment and Water 2025a);
- Planning Maps to identify the planning zones and overlays relating to environmental matters e.g. Vegetation Protection Overlays or Environmental Significance Overlays (Department of Transport and Planning 2025);
- The NatureKit webpage (Department of Energy Environment and Climate Action 2025d) from the Department of Energy, Environment, and Climate Action (DEECA) to identify the historic and current Ecological Vegetation Classes (EVCs);
- The Victorian Biodiversity Atlas (Department of Energy Environment and Climate Action 2025f) for records of threatened[1] flora and fauna within three kilometres of the study area;
- Nearmap aerial photography to understand previous land use (Nearmap 2025);
- The Native Vegetation Information Management System (NVIM) to determine biodiversity offset requirements (Department of Energy Environment and Climate Action 2025c);
- The 'Weeds of National Significance' database (Department of Climate Change Energy the Environment and Water 2025b);and,
- Other relevant legislation and policies (as required).

Site Assessment

A site assessment was undertaken on 30 October 2025 by [redacted] Liam is suitably qualified and experienced to undertake such assessments and holds a current Vegetation Quality Assessments (Habitat Hectares) Accreditation with DEECA (Department of Energy Environment and Climate Action 2025e).

All flora species observed within the study area were recorded, with the exception of planted vegetation that was not considered a 'weed' (i.e. planted vegetation that was not spreading or reproducing). Where a species was not able to be confidently identified in the field, a sample was collected and later identified. Plants were identified to species level wherever possible, however, some plants that were planted, cultivars, hybrids, or plants that did not contain suitable fertile material used for identification were recorded to genus level.

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[1] Threatened flora and fauna includes species listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999 (Cth)*, and the *Flora and Fauna Guarantee Act 1988 (Vic*).



Vegetation communities such as EVCs and nationally significant vegetation communities were recorded (if observed) and compared with their corresponding benchmarks or thresholds to ensure that they were accurately assigned.

A list of all fauna species observed within, and immediately surrounding, the study area was produced. This list consists of species seen, heard, or identified by other evidence of their presence (e.g. feathers, scats). Leica 12 X 50 binoculars and call mimicry/playback were used to assist in the identification species.

The species, size (Diameter and Breast Height and Tree Protection Zone) and location of all 'scattered' indigenous trees was recorded using an iPad mini tablet that has an internal Global Positioning System (GPS) and the GIS Pro application (accuracy +/- 5 metres). The presence of hollows and birds' nests was also noted.

The presence of fauna habitat was noted, particularly in relation to potential habitats for threatened species. The greatest amount of time was spent surveying the highest quality fauna habitats (e.g. trees, water bodies, crevices or underground debris) during the assessment.

Guidelines for the Removal, Destruction or Lopping of Native Vegetation

The *Guidelines for the Removal, Destruction or Lopping of Native Vegetation* (the Guidelines) (Department of Environment Land Water and Planning 2017) are required to be addressed under Clause 52.17 of the Planning Scheme. The Guidelines require that information regarding the biodiversity values of the site were obtained through:

- Site-based information that was measured or observed at a site, including:
  - Extent of native vegetation patches;
  - Large trees;
  - Native vegetation condition assessed in accordance with the *Vegetation Quality Assessment Manual – Guidelines for Applying the Habitat Hectares Scoring Method* (Department of Sustainability and Environment 2004);
  - Ecological Vegetation Classes (EVC); and
  - Sensitive wetlands and coastal areas.
- Landscape scale information that cannot be measured or observed at the site and includes maps and models procured from DEECA.

The Guidelines require a Habitat Hectare assessment in instances where the impact is to be assessed under the Detailed Assessment Pathway. It was not possible to determine the risk-based pathway for the loss of native vegetation prior to the site assessment, and we therefore opted to complete the Habitat Hectare assessment in accordance with the methodology prescribed within the *Vegetation Quality Assessment Manual – Guidelines for Applying the Habitat Hectares Scoring Method* (Department of Sustainability and Environment 2004) where patches[2] of vegetation were observed.

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[2] A 'patch' is defined as an area with at least 25% cover abundance of perennial native vegetation, or a group (i.e. three or more) trees forming a continuous canopy.



All indigenous vegetation was assessed, and then assigned a quality rating based on the Habitat Hectare score (Department of Sustainability and Environment 2004). In addition, the location and species of indigenous 'scattered trees'[3], and any 'large trees'[4] within patches were mapped.

Limitations and Qualifications

The following limitations and qualifications apply to this report:

- The results of the desktop assessment are reliant on data obtained from various databases and other reports. These databases all have internal vetting procedures, however the accuracy of these historical data and some of the results provided within these reports cannot be verified. The desktop assessment does, however, rely on the most accurate data available.
- As with all ecological assessments, a greater survey effort is likely to yield additional flora and fauna records. Where these additional flora and fauna records may alter the recommendations made within this report (e.g. where additional threatened species may utilise habitats within the study area, or where threatened species may be impacted by the proposed development), further assessment has been recommended within this report, depending on the implications of relevant policies and legislation.
- Some flora and fauna species may only be recorded during certain times or seasons (e.g. plants that only contain above-ground biomass and are only visible annually, nocturnal mammals and birds, migratory birds, or fauna identified through seasonal breeding calls such as some frog species).

On the basis of the above, the author has made an informed decision about the likely presence of threatened species that may be present, or that may utilise habitats within the study area, based on a desktop assessment, a review of the species' biology, and an understanding of the ecological values of the local area.

Despite the limitations to the assessment listed above, the results gained by both a desktop and a field-assessment are adequate to address the purposes of this report.

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[3] Scattered trees are defined as a native canopy tree that does not form a patch

[4] Large trees are defined as meeting the size threshold specified in the bioregional EVC Benchmark

[redacted]

Results

The Study Area

Study Area Description and Land Use History

The study area is located in the centre of Craigieburn, between an area of commercial shops, businesses and residential developments. Malcolm Creek is located approximately one kilometre north of the study area, and Aitken Creek is approximately 1.5 kilometres west of the study area. Native vegetation, located within the Craigieburn Grassland Reserve, occurs approximately three kilometres to the east of the study area.

The study area itself comprised an empty lot, it was flat and dominated by exotic grasses. The road reserves consisted of mown lawns and planted street trees. The site has been subject to historic degradation from the spreading of piles of soil in 2022 (Nearmap 2025).

Local Planning Controls

The study area is located within the Hume City Council municipality. It is zoned General Residential Zone Schedule – 1 within the Hume Planning Scheme. The study area is not covered by any overlays relevant to this report, such as Environmental Significance, Vegetation Protection or Significant Landscape Overlays (Department of Environment Land Water and Planning 2025).

Flora

Flora Communities

The study area is located within the Victorian Volcanic Plain bioregion of Victoria. DEECA modelling of the vegetation within the study area suggest it was historically covered by Ecological Vegetation Class (EVC) 132: Plains Grassland (Department of Energy Environment and Climate Action 2025d). EVC 132: Plains Grassland is described as '*treeless vegetation mostly less than one metre tall dominated by largely graminoid and herb life forms.* [It] *occupies fertile cracking basalt soils prone to seasonal waterlogging in areas receiving at least 500 mm annual rainfall'* (Department of Energy Environment and Climate Action 2025a). EVC 132: Plains Grassland is listed as Endangered within the bioregion.

Current vegetation modelling, by DEECA, suggests that some of this EVC persists within the north of the study area, however, no patches of native vegetation were recorded within the study area, as discussed below.

Flora Species

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Fifty-six flora species were recorded during the assessment. This comprised three indigenous species, and 53 exotic species.

The study area generally consisted of a community of exotic grasses including Toowoomba Canary-grass *Phalaris aquatica*, Yorkshire Fog *Holcus lanatus* and Chilean Needle-grass *Nasella neesiana* (Plate 1). Some broad-leafed weeds such as Ribwort *Plantago majora*, Curled Dock *Rumex Crispus* and Flatweed *Hypochaeris radicata* were also observed. One plant each of Kangaroo Grass *Themeda*

triandra and Common Tussock-grass *Poa labillardierei* were observed within the study area (Plate 2). Some Common Blown-grass *Lachnagrostis filiformis* was observed growing between the exotic pasture grasses (Plate 3).

Other noxious weeds observed on site included Paterson's Curse *Echium plantagineum*, Blackberry *Rubus fruticosus*, Flax-leaved Broome *Genista linifolia* and Spear Thistle *Cirsium vulgare* (Plate 4).

Vegetation Quality Assessment

No patches of native vegetation were recorded within the study area; a Vegetation Quality Assessment was not undertaken.

Tree Assessment

No scattered trees were recorded within the study area.

Threatened Flora Species and Ecological Communities

Seventeen threatened flora species have previously been recorded within three kilometres of the study area (Department of Energy Environment and Climate Action 2025f) (Figure 2). An additional 17 threatened flora species are predicted to occur within the study area based on the Protected Matters Search Tool (Department of Climate Change Energy the Environment and Water 2025a). A consolidated list of these threatened flora species, as well as their conservation status under the EPBC Act, the *Flora and Fauna Guarantee Act 1988* (Vic) (FFG Act) Threatened List (Department of Energy Environment and Climate Action 2025b), their preferred habitats and the likelihood of occurrence for each species is provided in Table A3.

No threatened flora species have previously been recorded within the study area, and none were recorded during the current assessment. Most threatened flora species recorded in the locality consist of species persisting in the nearby Craigieburn Grassland Reserve. It is unlikely that the study area provides significant habitat to any threatened flora species due to the historic and ongoing land modification and vegetation clearance.

The modelling used by the Protected Matters Search Tool suggests that up to four nationally significant vegetation community may also occur within the study area:

- Natural Temperate Grassland of the Victorian Volcanic Plain (Critically Endangered);
- Grassy Eucalypt Woodland of the Victorian Volcanic Plain (Critically Endangered);
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Critically Endangered); and,
- Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia (Endangered).

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The vegetation within the study area is not representative of these threatened ecological communities, based on its and weediness.

[redacted]

Fauna

Fauna Species and Habitats

Four fauna species were recorded within the study area during the current assessment. This comprised four birds (three native and one introduced). All of these species are common to the area. It is likely that skinks and snakes would occur within the study area, amongst areas containing understorey vegetation and organic litter or debris. It is also expected that a greater diversity of fauna species would be recorded with a greater amount of time on-site.

The open areas within the study area are likely to provide habitat to generalist species, such as Australian Magpie *Gymnorhina tibicen* and Australian Raven *Corvus coronoides*, which are widespread and common species throughout open paddocks throughout Victoria. This habitat has low ecological value, as it is generally homogenous and lacks important components of structure, floral diversity and fauna resources that a diverse range of species might exploit.

Threatened Fauna Species and Communities

Seventeen threatened fauna species have previously been recorded within three kilometres of the study area (Department of Energy Environment and Climate Action 2025f) (Figure 2). A further 26 threatened fauna species are predicted to occur within the study area, based on the Protected Matters Search Tool (Department of Climate Change Energy the Environment and Water 2025a). A consolidated list of these threatened fauna species, as well as their conservation status under the EPBC Act and the FFG Act Threatened List (Department of Energy Environment and Climate Action 2025b), their preferred habitats and the likelihood of occurrence for each species is provided in Table A4.

No threatened fauna species were recorded within the study area during the current assessment (Table A4, Figure 2). Many of the species modelled to occur by the Protected Matters Search Tool, and recorded within the three-kilometre buffer area, are pelagic or marine species that are dependent on habitats that are not provided by the study area. None of these species are likely to be impacted by the proposed development of the study area (Table A4).

There are no records, from the Victorian Biodiversity Atlas, of threatened fauna species within the study area (Department of Energy Environment and Climate Action 2025f), and none were observed within the study area during the current assessment. Of the threatened fauna species identified within the three-kilometre search radius. Mobile species such as White-throated Needletail *Hirundapus caudacutus* may overfly the study area but are unlikely to find habitat within the study area itself.

The study area does not provide any habitat to threatened fauna species.

No fauna communities listed under the Victorian FFG Act were recorded within the study area.

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Discussion

A detailed summary of the legislation that was considered when preparing this report is provided in Appendix 2. The discussion presented in this section of the report does not reiterate information provided in Appendix 2, but summarises the results and recommendations arising from the interpretation of this legislation.

Environment Protection and Biodiversity Conservation Act 1999 (Cth)

The desktop assessment identified 18 threatened flora and 31 threatened fauna species, as well as up to four threatened ecological communities, listed under the EPBC Act, which may occur within the study area.

Almost all of the EPBC Act-listed flora and fauna species that were identified during the desktop assessment, are, in fact, unlikely to occur due to the absence of suitable habitats or the degraded nature of habitats within the study area. White-throated Needletails may overfly the study area however the use of the study area is likely to be opportunistic, and these species do not rely on the study area for important parts of their life cycle.

A referral to the Commonwealth DCCEEW is not recommended for the project.

Flora and Fauna Guarantee Act 1988 (Vic)

The desktop assessment identified 30 flora species and 44 fauna species listed under the FFG Act that may occur within the study area (Tables A3 and A4). As stated above, there is a moderate likelihood that some mobile animals, with large home ranges may utilise or fly over the study area on occasion. However, the development of the study area is unlikely to significantly impact any threatened flora or fauna species that have been recorded in the wider landscape (as discussed within this report).

A Permit is required for the removal of 'generally protected flora' from public land from DEECA in development situations. An action is exempt from requiring a Permit to take 'generally protected flora' from private land, where the flora is being taken by the landowner, or with the permission of the landowner (Department of Energy Environment and Climate Action 2024a). The study area is located on private land and the road reserves have little likelihood of supporting 'generally protected flora, and a *Permit to Take Protected Flora* is therefore not required.

Planning and Environment Act 1987 (Vic)

Due to the presence of native vegetation within the study area, the proposed development would require a planning permit from the Hume City Council under Clause 52.17 prior to the removal, destruction or lopping of native vegetation (Department of Environment, Land, Water and Planning 2025). The applicant is generally required to demonstrate how it has applied the three-step approach to avoid, minimise and offset impacts to native vegetation; however, in this case no patches of native vegetation and no scattered trees were present within the study area (discussed below)

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Catchment and Land Protection Act 1994 (Vic)

Primary considerations of the *Catchment and Land Protection Act 1994* (Vic) relate to soil and water conservation, as well as the management of pest plants and animals. Eleven weed species that are listed as 'noxious' within the Melbourne Water Catchment Management Area were present within the study area (Table A1, Appendix 1):

- Blackberry, Flax-leaved Broom, Paterson's Curse and Spear Thistle which are listed as 'Regionally Controlled' within the catchment. The proponent is required to 'control the spread' of all 'regionally controlled' species from their property; and,
- Chilean Needle-grass which is listed as 'Restricted'. There are restrictions on the 'trade' of these species.

Blackberry, Flax-leaved Broom and Chilean Needle-grass are also listed as 'Weeds of National Significance' although there are no additional legislative obligations manage weeds under this listing.

The project should aim to remove these plants when construction commences, and ensure they are removed during the future landscaping and maintenance of the study area. It is expected that weed management would form part of best practice land management and *Catchment and Land Protection Act 1994* (Vic). As a minimum, this should include:

- Protection of retained native vegetation within the study area;
- Using clean fill (if required);
- Controlling weeds prior to the commencement of works, during works and after works are complete;
- Landscaping of undeveloped areas with indigenous species, consistent with the EVC Benchmark; and
- Avoiding downstream and off-site impacts through erosion and sediment control measures.

Wildlife Act 1975 (Vic)

It is likely that some locally common species of fauna will be displaced by the proposed development. Furthermore, there remains a low likelihood that animals may be accidentally injured when disturbing soil and removing vegetation. All native vertebrate wildlife is protected under the *Wildlife Act 1975* (Vic), and therefore contractors must use due care when removing vegetation and fill from the study area. It is recommended that a zoologist or wildlife handler salvage any wildlife from grasses and topsoil prior to their removal (if required).

Guidelines for the Removal, Destruction or Lopping of Native Vegetation

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The Three-step Approach

Applicants who wish to remove native vegetation must generally demonstrate how the application meets the three-step approach to:

1. Avoid the removal, destruction or lopping of native vegetation;



2. Minimise impacts from the removal, destruction or lopping of native vegetation that cannot be avoided; and
3. Provide an offset to compensate for the biodiversity impact from the removal, destruction or lopping of native vegetation (Department of Environment Land Water and Planning 2017).

Avoidance and Minimisation Statement

Avoidance is generally demonstrated through appropriate development design.

However, as no patches of vegetation or scattered trees were recorded within the study area, it is considered that the project meets in the intent of the *Guidelines for the Removal, Destruction or Lopping of Native Vegetation*.

Offsets

No patches or native vegetation or scattered trees were present within the study area, and therefore no offsets are required.

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Plates



Plate 1. Much of the vegetation within the study area consisted of exotic grasses (30 October 2025).


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Plate 2. One Kangaroo Grass tussock was recorded within the study area (30 October 2025).



Plate 3. Some small amounts of Common Blown-grass were recorded within the study area (30 October 2025).



Plate 4. Paterson's Curse was dominant in some areas (30 October 2025).

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Figures

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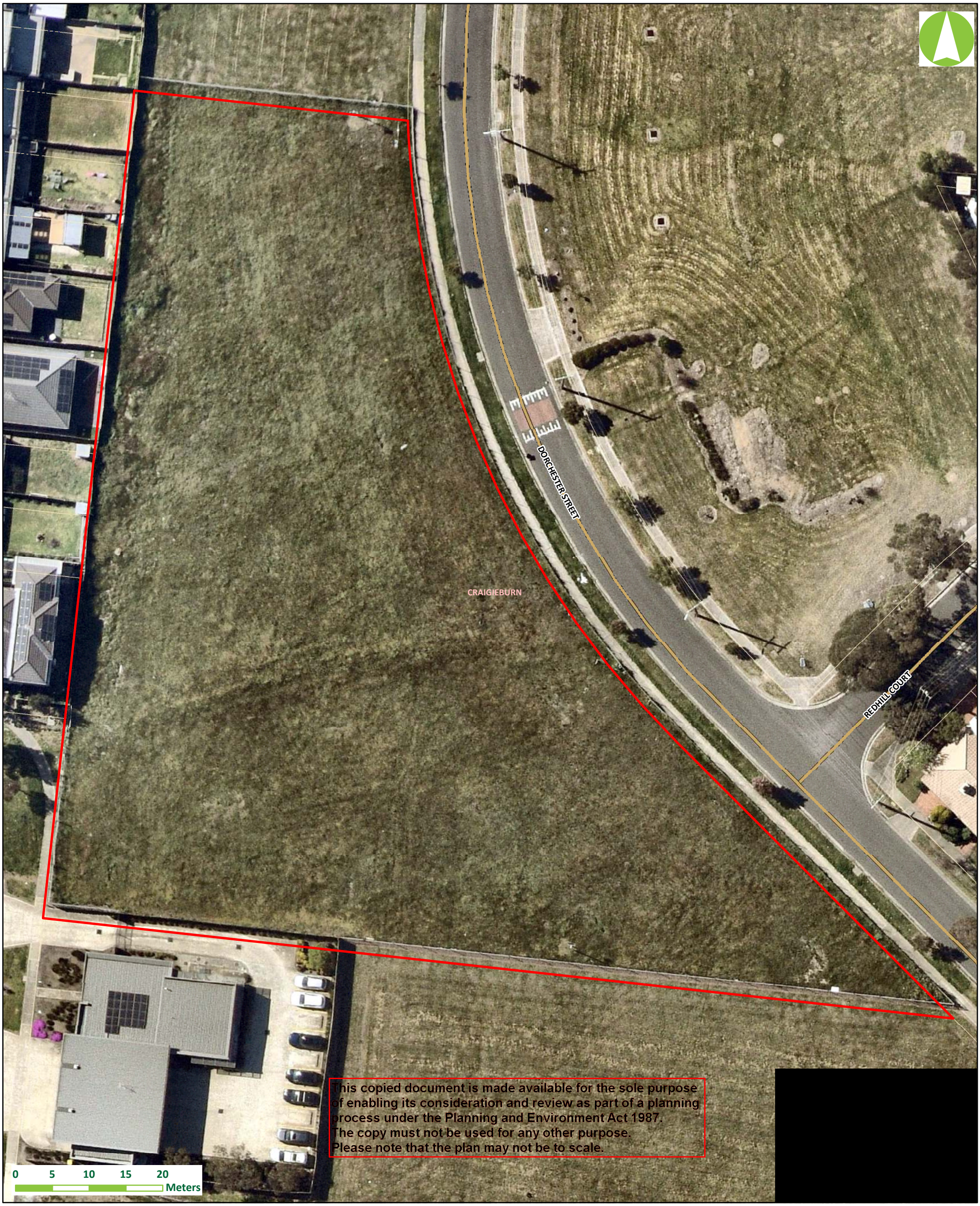
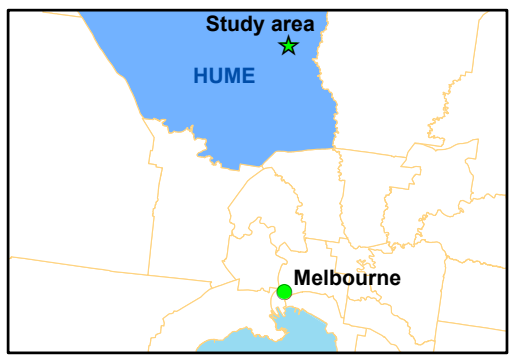


Figure 1: Results of the current assessment

99 Lygon Drive, Craigieburn, Victoria

Legend

- Study Area
- Patches of Native Vegetation
- Large Trees in Patches
- Scattered Trees



P/N 2734 Figure 1. October 2025. Aerial Imagery: Neamap 2024, dated 15 October 2025

Figure 2: Threatened flora and fauna within 3kms of the study area.

99 Lygon Drive, Craigieburn, Victoria

Legend

Study Area
3km Study Area Buffer

Common Name

- Black Falcon
- Blue-billed Duck
- Caspian Tern
- Common Sandpiper
- Diamond Firetail
- Latham's Snipe
- Little Eagle
- Little Egret
- Musk Duck
- Plumed Egret
- Southern Whiteface
- Speckled Warbler
- White-throated Needletail
- Brown Toadlet
- Growling Grass Frog
- Amethyst Hairstreak Butterfly
- Golden Sun Moth
- Austral Crane's-bill
- Basalt Peppercress
- Basalt Podolepis
- Fragrant Saltbush
- Giant Honey-myrtle
- Glaucous Flax-lily
- Large-fruit Yellow-gum
- Matted Flax-lily
- Mugga
- Pale-flower Crane's-bill
- Plump Swamp Wallaby-grass
- River Swamp Wallaby-grass
- Rye Beetle-grass
- Spotted Gum
- Sticky Wattle
- Swamp Everlasting
- Western Golden-tip
- Public Land



Note: some threatened species points have been shifted for display purposes

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Appendices

Appendix 1. Flora and Fauna Tables

Table A1. Flora species recorded within the study area

Origin	Common Name	Scientific Name	Weeds of National Significance	Noxious Weeds Classification
*	Annual Meadow-grass	*Poa annua*	-	-
*	Annual Veldt-grass	*Ehrharta longiflora*	-	-
*	Aster-weed	*Symphyotrichum subulatum*	-	-
*	Barley Grass	*Hordeum leporinum*	-	-
*	Bearded Oat	*Avena barbata*	-	-
*	Big Heron's-bill	*Erodium botrys*	-	-
*	Blackberry	*Rubus fruticosus*	Yes	Controlled
*	Black Nightshade	*Solanum nigrum*	-	-
*	Buck's-horn Plantain	*Plantago coronopus*	-	-
*	Burr Medic	*Medicago polymorpha*	-	-
*	Cape Weed	*Arctotheca calendula*	-	-
*	Chickweed	*Stellaria media*	-	-
*	Chilean Needle-grass	*Nassella neesiana*	Yes	Restricted
*	Cocksfoot	*Dactylis glomerata*	-	-
	Common Blown-grass	*Lachnagrostis filiformis*	-	-
*	Common Centaury	*Centaurium erythraea*	-	-
*	Common Heron's-bill	*Erodium cicutarium*	-	-
*	Common Mouse-ear Chickweed	*Cerastium glomeratum*	-	-
*	Common Peppercress	*Lepidium africanum*	-	-
*	Common Sow-thistle	*Sonchus oleraceus*	-	-
	Common Tussock-grass	*Poa labillardierei*	-	-
*	Common Vetch	*Vicia sativa*	-	-
#	Couch	*Cynodon dactylon*	-	-
*	Curled Dock	*Rumex crispus*	-	-
*	Flatweed	*Hypochaeris radicata*	-	-
*	Flax-leaved Broom	*Genista linifolia*	Yes	Controlled
*	Flaxleaf Fleabane	*Erigeron bonariensis*	-	-

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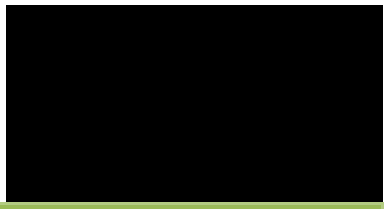

Origin	Common Name	Scientific Name	Weeds of National Significance	Noxious Weeds Classification
*	Garden Dandelion	*Taraxacum officinale* spp. agg.	-	-
*	Great Brome	*Bromus diandrus*	-	-
	Kangaroo Grass	*Themeda triandra*	-	-
*	Large Quaking-grass	*Briza maxima*	-	-
*	Lesser Quaking-grass	*Briza minor*	-	-
*	Onion Grass	*Romulea rosea*	-	-
*	Onion Weed	*Asphodelus fistulosus*	-	-
*	Panic Veldt-grass	*Ehrharta erecta*	-	-
*	Paspalum	*Paspalum dilatatum*	-	-
*	Paterson's Curse	*Echium plantagineum*	-	Controlled
*	Perennial Rye-grass	*Lolium perenne*	-	-
*	Pimpernel	*Lysimachia arvensis*	-	-
*	Prickly Lettuce	*Lactuca serriola*	-	-
*	Quicksilver Grass	*Aira cupaniana*	-	-
*	Red Brome	*Bromus rubens*	-	-
*	Red-flower Mallow	*Modiola caroliniana*	-	-
*	Ribwort	*Plantago lanceolata*	-	-
*	Rough Sow-thistle	*Sonchus asper*	-	-
*	Small-flower Mallow	*Malva parviflora*	-	-
*	Soft Brome	*Bromus hordeaceus*	-	-
*	Spear Thistle	*Cirsium vulgare*	-	Controlled
*	Squirrel-tail Fescue	*Vulpia bromoides*	-	-
*	Subterranean Clover	*Trifolium subterraneum*	-	-
*	Sweet Melilot	*Melilotus indicus*	-	-
*	Sweet Vernal-grass	*Anthoxanthum odoratum*	-	-
*	Tall Fleabane	*Erigeron sumatrensis*	-	-
*	Toowoomba Canary-grass	*Phalaris aquatica*	-	-
*	Twiggy Turnip	*Brassica fruticulosa*	-	-
*	Yorkshire Fog	*Holcus lanatus*	-	-

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Table Notes:

* – Exotic # – naturalised

This table does not include ornamental plants, trees or shrubs that were not spreading or reproducing beyond where they were planted.

[redacted]

Table A2. Fauna species recorded within the study area

Origin	Common Name	Species Name
Birds		
	Australian Magpie	*Cracticus tibicen*
	Australian Raven	*Corvus coronoides*
	Magpie lark	*Grallina cyanoleuca*
*	Common Starling	*Sturnus vulgaris*

Definitions

* - Introduced species

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Table A3. Threatened flora species that have previously been recorded within, or within three kilometres of the study area (Department of Energy Environment and Climate Action 2025f), or that has habitat that may occur within the vicinity of the study area (Department of Climate Change Energy the Environment and Water 2025a).

Common Name	Species Name	EPBC Act Status	FFG Act Status	Habitat Preferences	Most Recent Record	Habitat Present on Site	Likelihood of Presence*
Adamson's Blown-grass	*Lachnagrostis adamsonii*	Endangered	Endangered	Slow moving creeks, wetlands, depressions and drains on poorly drained soils	NPR	No	Unlikely
Austral Crane's-bill	*Geranium solanderi var. solanderi*	-	Endangered	Damp to dryish, usually sheltered sites, in grassy woodlands, often along drainage lines or in seepage areas.	2025 (11)	No	Unlikely
Basalt Peppercress	*Lepidium hyssopifolium*	Endangered	Endangered	Occurs in south-eastern Australia, mainly in Victoria and New South Wales. It grows in native grasslands and grassy woodlands, often on fertile basalt soils.	2018 (350)	No	Unlikely
Basalt Podolepis	*Podolepis linearifolia*	-	Endangered	Heavy clay soils in grasslands but also recorded for grassy woodlands, open forests and around swamps	2016 (1)	No	Unlikely
Button Wrinklewort	*Rutidosis leptorhynchoides*	Endangered	Endangered	Basaltic grasslands, plains grassland, grassy wetlands.	NPR	No	Unlikely
Clover Glycine	*Glycine latrobeana*	Vulnerable	Vulnerable	Grassy woodland; plains grassland; box woodland; dry sclerophyll forest	NPR	No	Unlikely

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Common Name	Species Name	EPBC Act Status	FFG Act Status	Habitat Preferences	Most Recent Record	Habitat Present on Site	Likelihood of Presence*
Fragrant Leek-orchid	*Prasophyllum suaveolens*	Endangered	Critically Endangered	Endemic to the basalt plains of south-western Victoria where it grows in grassland and grassy woodland on brown water-retentive clay loams.	NPR	No	Unlikely
Fragrant Saltbush	*Rhagodia parabolica*	-	Vulnerable	Sandstone cliffs, open woodlands	2025 (22)	No	Unlikely
Giant Honey-myrtle	*Melaleuca armillaris subsp. armillaris*	-	Endangered	Mainly confined to near-coastal sandy heaths, scrubs slightly raised above saltmarsh, riparian scrubs, rocky coastlines and foothill outcrops eastwards from about Marlo. Occurrences to the west are naturalised.	2025 (6)	No	Unlikely
Glaucous Flax-lily	*Dianella longifolia var. grandis*	-	Critically Endangered	Dry open-forests and woodlands in the north-east (Beechworth, Whitfield etc.), with isolated occurrences near Mt Macedon, Eltham-Hurstbridge area, Eildon and Orbost.	2021 (3)	No	Unlikely
Green-striped Greenhood	*Pterostylis chlorogramma*	Vulnerable	Endangered	Open forest and woodland	NPR	No	Unlikely
Large-fruit Yellow-gum	*Eucalyptus leucoxylon subsp. megalocarpa*	-	Critically Endangered	Open forests and woodlands on dry, well drained soils	2016 (1)	No	Unlikely

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Common Name	Species Name	EPBC Act Status	FFG Act Status	Habitat Preferences	Most Recent Record	Habitat Present on Site	Likelihood of Presence*
Large-headed Fireweed	*Senecio macrocarpus*	Vulnerable	Critically Endangered	Largely confined to remnant Themeda grasslands on loamy clay soils derived from basalt from near Melbourne west to Skipton. Also known from auriferous ground near Stawell.	NPR	No	Unlikely
Matted Flax-lily	*Dianella amoena*	Endangered	Critically Endangered	Grassy Wetland; Red Gum woodland; plains grassland; grassy woodlands.	2025 (183)	No	Unlikely
Mugga	*Eucalyptus sideroxylon subsp. sideroxylon*	-	Endangered	Woodlands on poor, shallow soils, including sands, gravels, ironstones and clays	2018 (2)	No	Unlikely
Pale-flower Crane's-bill	*Geranium* sp. 3	-	Endangered	Open dry, grassy areas of woodland and forest in disjunct patches located at Stawell, Yan Yean and Eltham.	2016 (3)	No	Unlikely
Plump Swamp Wallaby-grass	*Amphibromus pithogastrus*	-	Critically Endangered	Shallow, seasonally inundated depressions (e.g. gilgais) on water-retentive clay soils supporting grasslands and grassy woodlands	2018 (20)	No	Unlikely
River Swamp Wallaby-grass	*Amphibromus fluitans*	Vulnerable	-	Beside swamps in grassy low open forest, riparian scrub. Required moist soils, tolerates inundation.	2020 (2)	No	Unlikely
Rye Beetle-grass	*Tripogonella loliiformis*	Endangered	Critically Endangered	Usually occurring on shallow soils overlying rock.	2018 (26)	No	Unlikely

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Common Name	Species Name	EPBC Act Status	FFG Act Status	Habitat Preferences	Most Recent Record	Habitat Present on Site	Likelihood of Presence*
Slender Plum-orchid	*Thelymitra orientalis*	-	Critically Endangered	Grows in damp heathy flats and seepage areas usually in peaty white sands	NPR	No	Unlikely
Spiny Peppercress	*Lepidium aschersonii*	Vulnerable	Endangered	Heavy clay soil near salt lakes on volcanic plain, but with outlying records from near Lake Omeo and the Grampians	NPR	No	Unlikely
Spiny Rice-flower	*Pimelea spinescens subsp. spinescens*	Critically Endangered	Critically Endangered	Grassland or open shrubland on basalt-derived soils west of Melbourne.	NPR	No	Unlikely
Spotted Gum	*Corymbia maculata*	-	Vulnerable	Indigenous to the Tara Range, south of Buchan, but also widely used as a street tree	2018 (2)	No	Unlikely
Sticky Wattle	*Acacia howittii*	-	Vulnerable	Grows in moist forest	2025 (3)	No	Unlikely
Sunshine Diuris	*Diuris fragrantissima*	Endangered	Critically Endangered	Plains grasslands on the Keilor Plains	NPR	No	Unlikely
Swamp Everlasting	*Xerochrysum palustre*	Vulnerable	Critically Endangered	Seasonal or permanent wetlands	2017 (1)	No	Unlikely
Swamp Fireweed	*Senecio psilocarpus*	Vulnerable	-	High-quality herb-rich wetlands on plains	NPR	No	Unlikely
Trailing Hop-bush	*Dodonaea procumbens*	Vulnerable	-	Low lying areas in eucalypt woodlands and forests in sandy and clay soil. Often waterlogged	NPR	No	Unlikely
Western Golden-tip	*Goodia medicaginea*	-	Endangered	Woodlands and dry open forests	2017 (1)	No	Unlikely
White Sunray	*Leucochrysum albicans subsp. tricolor*	Endangered	Endangered	Volcanic grasslands	NPR	No	Unlikely

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Table Notes:

NPR – Not previously recorded

*** Likelihood of Presence Definitions**:

Unlikely – Site does not contain habitat and/or it is outside the species' known, current distribution.

Low –Site contains some marginal habitat, but the species was not observed and has not been recently recorded in previous surveys in the area.

Moderate – Site contains preferred habitat that may support a population of the species. However, other factors, such as fragmentation, disturbance or predators may be impacting any local population.

High - Site contains the preferred habitat which is likely to support the species.

Present – Preferred habitat is present on the site, and the species was observed on the site, or recently recorded at the site.

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Table A4. Threatened fauna species that have previously been recorded within, or within three kilometres of the study site (Department of Energy Environment and Climate Action 2025f), or that has habitat that may occur within the vicinity of the site (Department of Climate Change Energy the Environment and Water 2025a).

Common Name	Species Name	EPBC Act Status	FFG Act Status	Habitat Preferences	Most Recent Record	Habitat Present on Site	Likelihood of Presence*
Birds							
Blue-billed Duck	*Oxyura australis*	-	Vulnerable	Well-vegetated freshwater swamps, large dams, lakes. More open waters in winter.	2021 (46)	No	Unlikely
Musk Duck	*Biziura lobata*	-	Vulnerable	Permanent swamps with dense vegetation, more open waters in non-breeding season.	1981 (17)	No	Unlikely
White-throated Needletail	*Hirundapus caudacutus*	Vulnerable	Vulnerable	Aerial insectivore that rarely lands to perch, often sleeping on the wing	1981 (4)	No	Unlikely
Australian Painted-snipe	*Rostratula australis*	Endangered	Critically Endangered	Uncommon summer migrant to Victoria. Lowlands on shallow freshwater swamps with emergent vegetation, and flooded salt marshes.	NPR	No	Unlikely
Plains-wanderer	*Pedionomus torquatus*	Critically Endangered	Critically Endangered	Sparse, treeless, lightly grazed native grasslands/herbfields with bare ground, old cereal crops, low shrubland.	NPR	No	Unlikely
Eastern Curlew	*Numenius madagascariensis*	Critically Endangered	Critically Endangered	Estuaries, tidal mudflats, mangroves, shallow river margins, coastal or inland	NPR	No	Unlikely
Curlew Sandpiper	*Calidris ferruginea*	Critically Endangered	Critically Endangered	Estuaries, tidal mudflats, mangroves, shallow river margins, coastal or inland	NPR	No	Unlikely
Sharp-tailed Sandpiper	*Calidris acuminata*	Vulnerable	Not threatened	[illegible]	NPR	No	Unlikely
Latham's Snipe	*Gallinago hardwickii*	Vulnerable	[illegible]	Wet grasslands, open and wooded swamps.	2023 (48)	No	Unlikely

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Common Name	Species Name	EPBC Act Status	FFG Act Status	Habitat Preferences	Most Recent Record	Habitat Present on Site	Likelihood of Presence*
Common Sandpiper	*Actitis hypoleucos*	-	Vulnerable	Estuaries, tidal mudflats, mangroves, shallow river margins, coastal or inland	1980 (1)	No	Unlikely
Common Greenshank	*Tringa nebularia*	Endangered	Endangered	Estuaries, tidal mudflats, mangroves, shallow river margins, coastal or inland	NPR	No	Unlikely
Caspian Tern	*Hydroprogne caspia*	-	Vulnerable	Coastal, offshore waters, beaches estuaries, some inland birds	1980 (2)	No	Unlikely
Australasian Bittern	*Botaurus poiciloptilus*	Endangered	Critically Endangered	Reed beds, dense vegetation of freshwater swamps and creeks.	NPR	No	Unlikely
Plumed Egret	*Ardea intermedia plumifera*	-	Critically Endangered	Freshwater wetlands, pastures and croplands, tidal mudflats and floodplains.	2021 (4)	No	Unlikely
Little Egret	*Egretta garzetta*	-	Endangered	Tidal mudflats, saltmarshes, mangroves, freshwater wetlands.	1980 (3)	No	Unlikely
Little Eagle	*Hieraaetus morphnoides*	-	Vulnerable	Woodlands, Forests	1981 (11)	No	Unlikely
Black Falcon	*Falco subniger*	-	Critically Endangered	Woodland, scrub, shrubland and grassland types in arid and semi-arid zones.	1977 (1)	No	Unlikely
Grey Falcon	*Falco hypoleucos*	-	Vulnerable	Shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast	NPR	No	Unlikely
Gang-gang Cockatoo	*Callocephalon fimbriatum*	Endangered	Endangered	They inhabit cool, wet forests, particularly alpine bushland, but may visit urban parks and gardens if	NPR	No	Unlikely

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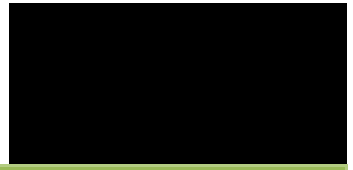

Common Name	Species Name	EPBC Act Status	FFG Act Status	Habitat Preferences	Most Recent Record	Habitat Present on Site	Likelihood of Presence*
Swift Parrot	*Lathamus discolor*	Critically Endangered	Critically Endangered	Winter migrant from Tasmania. Generally prefers Box-Ironbark forests and woodlands inland of the Great Dividing Range during winter.	NPR	No	Unlikely
Blue-winged Parrot	*Neophema chrysostoma*	Vulnerable	-	A range of habitats from coastal, sub-coastal and inland areas, right through to semi-arid zones	NPR	No	Unlikely
Brown Treecreeper	*Climacteris picumnus*	Vulnerable	-	Dry woodland; forest clearings, eucalypts along streams.	NPR	No	Unlikely
Painted Honeyeater	*Grantiella picta*	Vulnerable	Vulnerable	Open box-ironbark forests and woodlands, particularly where trees are infested with mistletoe.	NPR	No	Unlikely
Regent Honeyeater	*Anthochaera phrygia*	Critically Endangered	Critically Endangered	Depends on nectar and insects from Box-Ironbark Eucalypt forests. Only breeding habitat lies in Northeast Victoria and central coast of NSW	NPR	No	Unlikely
Speckled Warbler	*Pyrrholaemus sagittatus*	-	Endangered	Drier woodlands with tussocks, branches and rocks.	1978 (3)	No	Unlikely
Southern Whiteface	*Aphelocephala leucopsis*	Vulnerable	-	Dry open forests and woodland and inland scrubs of mallee, mulga and saltbush	1981 (1)	No	Unlikely
Hooded Robin	*Melanodryas cucullata*	Endangered	Vulnerable	Lightly timbered woodland, mainly dominated by acacia and/or eucalypts.	NPR	No	Unlikely
Diamond Firetail	*Stagonopleura guttata*	Vulnerable	Vulnerable	Open grassy woodland, heath and farmland or grassland with scattered trees	1977 (1)	No	Unlikely
Mammals							

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Common Name	Species Name	EPBC Act Status	FFG Act Status	Habitat Preferences	Most Recent Record	Habitat Present on Site	Likelihood of Presence*
Spot-tailed Quoll	*Dasyurus maculatus maculatus*	Endangered	Endangered	Forests including large intact areas of vegetation for foraging.	NPR	No	Unlikely
Yellow-bellied Glider	*Petaurus australis*	Vulnerable	Vulnerable	Occur in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils	NPR	No	Unlikely
New Holland Mouse	*Pseudomys novaehollandiae*	Vulnerable	Endangered	Heathlands, woodlands with a heathy understorey, open forest and vegetated sand dunes - in areas with soft, deep sandy soil in which to make burrows.	NPR	No	Unlikely
Grey-headed Flying-fox	*Pteropus poliocephalus*	Vulnerable	Vulnerable	Roost sites commonly occur in gullies, in vegetation with dense canopy cover and close to water.	NPR	No	Unlikely
Frogs							
Brown Toadlet	*Pseudophryne bibronii*	-	Endangered	Forests, woodlands, shrublands, grassland and heaths, sheltering under moist leaf litter and other debris in boggy soaks and depressions.	1962 (1)	No	Unlikely
Growling Grass Frog	*Litoria raniformis*	Vulnerable	Vulnerable	Permanent lakes, swamps, dams and lagoons.	2022 (1)	No	Unlikely
Reptiles							
Pink-tailed Worm-Lizard	*Aprasia parapulchella*	Vulnerable	Endangered	Favours areas with native grasses and partially buried rock. Shelters beneath rocks and in tunnels. Isolated population near Bendigo.	NPR	No	Unlikely
Striped Legless Lizard	*Delma impar*	Vulnerable	Endangered	Lowland native grassland typically dominated by native tussock forming	NPR	No	Unlikely

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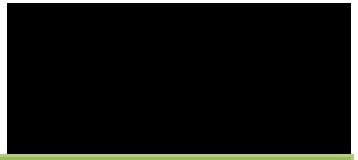

Common Name	Species Name	EPBC Act Status	FFG Act Status	Habitat Preferences	Most Recent Record	Habitat Present on Site	Likelihood of Presence*
				grasses. Typically occurs on deep cracking clay soils.			
Swamp Skink	*Lissolepis coventryi*	-	Endangered	Low lying wetlands including swamp margins, tea tree thickets.	NPR	No	Unlikely
Grassland Earless Dragon	*Tympanocryptis pinguicolla*	Endangered	Critically Endangered	Shelters in crevices and invertebrate holes in treeless grassland habitats. Not seen in Victoria since 1960s.	NPR	No	Unlikely
Fish							
Australian Grayling	*Prototroctes maraena*	Vulnerable	Endangered	Clear gravelly streams; deep slow flowing pools.	NPR	No	Unlikely
Murray Cod	*Maccullochella peelii*	Vulnerable	Endangered	Small clear, rocky, upland streams with riffle and pool structure on the upper western slopes of the Great Dividing Range to large, meandering, slow-flowing, often silty rivers in the alluvial lowland reaches of the Murray-Darling Basin.	NPR	No	Unlikely
Yarra Pygmy Perch	*Nannoperca obscura*	Endangered	Vulnerable	Slow flowing creeks or still lakes with abundant aquatic vegetation and log snags	NPR	No	Unlikely
Invertebrates							
Amethyst Hairstreak Butterfly	*Jalmenus icilius*	-	Endangered	A range of habitats where food species occur. These species include a range of Acacias and Cassias.	2021 (3)	No	Unlikely
Golden Sun Moth	*Synemon plana*	Vulnerable	Vulnerable	Tussock grasslands preferably dominated by Wallaby Grasses and Spear Grasses.	2020 (2374)	No	Unlikely

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Table Notes:

This table excludes species listed exclusively as 'migratory' or 'marine' under the EPBC Protected Matters Search results.

NPR – Not previously recorded

*** Likelihood of Presence Definitions:**

Unlikely – Site does not contain habitat and/or it is outside the species' known, current distribution. Birds and bats may fly over.

Low –Site contains some marginal habitat, but the species was not observed and has not been recorded in previous recent surveys in the area. Birds and bats may fly over.

Moderate – Site contains preferred habitat that may support a population of the species. Birds and bats may opportunistically or seasonally forage at the site.

High – Site contains preferred habitat which is likely to support the species. Birds and bats are likely to regularly (at least seasonally) forage or roost at the site.

Present – Preferred habitat is present on the site, and the species was observed on the site, or recently recorded on the site.

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Appendix 2. Legislation

Commonwealth Legislation

***Environment Protection and Biodiversity Conservation Act 1999* (Cth)**

The *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) is to provide for the conservation of 'Matters of National Environmental Significance'. The Act defines eight Matters of National Environmental Significance:

- World Heritage properties;
- National Heritage Places;
- Ramsar wetlands of international significance;
- Nationally listed threatened species and ecological communities;
- Listed migratory species;
- Commonwealth marine areas;
- The Great Barrier Reef Marine Park; and,
- Nuclear actions.

Under the Act, actions that are likely to have a significant impact upon Matters of National Environmental Significance require approval from the Federal Environment Minister. This approval is sought through a referral process for a particular action. An action includes any project, development, undertaking, activity or series of activities. Consideration of the requirement for an 'EPBC Referral' to the Minister has been made within this report.

State Legislation

Environmental Effects Act

The *Environment Effects Act 1978* (Vic) provides for assessment of proposed projects (works) that are capable of having a significant effect on the environment. The Act does this by enabling the Minister administering the Environment Effects Act to decide that an Environment Effects Statement (EES) should be prepared.

The Minister might typically require a proponent to prepare an EES when:

- There is a likelihood of regionally or State significant adverse effects on the environment;
- There is a need for integrated assessment of potential environmental effects (including economic and social effects) of a project and relevant alternatives; and,
- Normal statutory processes would not provide a sufficiently comprehensive, integrated and transparent assessment (Department of Sustainability and Environment 2007).

Referral criteria: individual potential environmental effects:

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- Individual types of potential effects on the environment that might be of regional or State significance, and they must not be referral of any other area;
- Potential clearing of 10 ha or more of native vegetation from an area that:
    - is of an Ecological Vegetation Class identified endangered by the Department of Sustainability and Environment (in accordance with Appendix 2 of Victoria's Native Vegetation Management Framework); or



  - is, or is likely to be, of very high conservation significance (as defined in accordance with Appendix 3 of Victoria's Native Vegetation Management Framework); and
  - is not authorised under an approved Forest Management Plan or Fire Protection Plan
- Potential long-term loss of a significant proportion (e.g. 1 to 5 percent depending on the conservation status of the species) of known remaining habitat or population of a threatened species within Victoria;
- Potential long-term change to the ecological character of a wetland listed under the Ramsar Convention or in 'A Directory of Important Wetlands in Australia';
- Potential extensive or major effects on the health or biodiversity of aquatic, estuarine or marine ecosystems, over the long term;
- Potential extensive or major effects on the health, safety or well-being of a human community, due to emissions to air or water or chemical hazards or displacement of residences; and,
- Potential greenhouse gas emissions exceeding 200,000 tonnes of carbon dioxide equivalent per annum, directly attributable to the operation of the facility (Department of Sustainability and Environment 2007).

***Flora and Fauna Guarantee Act 1988* (Vic)**

The *Flora and Fauna Guarantee Act 1998* (Vic) (FFG Act) provides a legal framework for enabling and promoting the conservation of all Victoria's native flora and fauna, and to enable management of potentially threatening processes on public land. The Act lists native species, communities, and processes that threaten native flora and fauna, under Schedules of the Act. This enables the assessor and regulators to establish management measures to mitigate impacts on listed values within Victoria.

The FFG Act was amended in 2021 and now contains an obligation or duty on public authorities and ministers to consider potential biodiversity impacts when exercising their functions. The FFG Act requires ministers and public authorities (including Councils) reasonably consider the objectives of the Act where projects may impact upon biodiversity, so far as is consistent with the proper exercising of their functions.

The types of potential impacts on biodiversity that should be considered include:

- Long and short term impacts;
- Detrimental and beneficial impacts;
- Direct and indirect impacts;
- Cumulative impacts; and,
- Potentially threatening processes (Department of Environment Land Water and Planning 2021).

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It is therefore anticipated that legal consideration and review as part of FFG Act when considering the approval for the project.

The FFG Act also lists species as 'protected flora' on public land. Flora listed as 'Protected' under the FFG Act includes three categories:

1. Flora listed as 'threatened' on the FFG Act (discussed above);
2. Members of communities which are listed as threatened on the FFG Act; and



3. Declared Protected Flora.

The 'incidental take' of declared flora taxa within these categories may require a permit from the DEECA, as discussed below. The FFG Act provides two different categories for declared flora taxa: 'generally protected flora' and 'restricted use protected flora'. These categories can include whole families or genera. 'Generally protected flora' includes all plants from the family *Orchidaceae* (i.e. orchids) and 'Restricted use protected flora' includes, for example, most species of genus Acacia (wattles), most species of family Asteraceae (daisies), family *Ericaceae* (heaths), all of class *Polypodiopsida* (ferns) except Austral Bracken *Pteridium esculentum*, and all genus *Thysanotus* (fringe-lilies) among other species and groups (Department of Energy Environment and Climate Action 2024a).

A 'Permit to Take Protected Flora' is required to 'take' listed flora species that are members of listed communities or protected flora from public land. 'Taking' flora is defined as any action which results in the removal or death of a native plant. A permit is not required under the FFG Act for private land, unless listed species are present and the land is declared 'critical habitat' for the species. On public land the permit is issued by DEECA.

An evaluation of the likelihood of the presence of significant flora and fauna species on the subject site, including those listed under the FFG Act that have previously been recorded in the vicinity of the site, has been undertaken.

***Planning and Environment Act 1987* (Vic)**

The *Planning and Environment Act 1987* (Vic) (P&E Act), later amended by the *Planning and Environment (Planning Schemes) Act 1996* (Vic) provides the foundation of planning schemes in Victoria. Planning schemes set out policies and provisions for the development and protection of land within each municipality in Victoria.

The *Planning and Environment (Planning Schemes) Act 1996* provides for the Minister for Planning to prepare a set of standard provisions for planning schemes called the Victoria Planning Provisions (VPP). The VPP is a state-wide reference document or template from which planning schemes are sourced and constructed. Incorporation of references such as the *Guidelines for the Removal Destruction or Lopping of Native Vegetation* into Section 12 of the VPP ensures that all municipalities must consider this policy. Local zones and overlays, such as Environmental Significance Overlays, may be incorporated into Section 30 and 40 of the planning provisions by each Council, but only remain relevant within that municipality.

The objectives of the P&E Act are to integrate local land use, development planning and development policy with environmental, social, economic, conservation and resource management policies at State, regional and municipal levels through a set of planning schemes. The Act also establishes a clear procedure for public participation in decision making in amending planning schemes.

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Some important sections of the planning scheme, in relation to the ecological values of a site, include:

- Section 12 of the State Planning Policy Framework, which identifies, and aims to protect, key biodiversity assets from inappropriate development;

- Clause 52.17 which identifies where native vegetation removal is exempt from requiring a planning permit; and
- Clause 66 which identifies all of the mandatory referral authorities. In particular, the Victorian Department of Energy, Environment and Climate Action is identified as the recommending referral authority if a proponent proposes:
    - *'To remove, destroy or lop native vegetation in the Detailed Assessment Pathway as defined in the Guidelines for the removal, destruction or lopping of native vegetation;*
    - *To remove, destroy or lop native vegetation if a property vegetation plan applies to the site; and*
    - *To remove, destroy or lop native vegetation on Crown land which is occupied or managed by the responsible authority' (Department of Transport and Planning 2025).*

***Catchment and Land Protection Act 1994* (Vic)**

The *Catchment and Land Protection Act 1994* (Vic) (CALP Act) is the principle legislation relating to the management of pest plants and animals in Victoria. Under this Act, landowners have a responsibility to avoid causing or contributing to land degradation. Where possible, landowners are required to conserve soil, protect water resources, eradicate 'regionally prohibited' weeds, prevent the growth and spread of 'regionally controlled' weeds and control pest animals. The CALP Act lists the species that are considered weeds and pest animals.

***Wildlife Act 1975* (Vic)**

Victoria's *Wildlife Act 1975* (Vic) and the *Wildlife Regulations 2002* (Vic) protect all indigenous vertebrate fauna, some non-indigenous vertebrate fauna, and some invertebrate fauna listed as 'threatened' under the FFG Act. The *Wildlife Act 1975* (Vic) prevents intentional injury to wildlife and stipulates that a licence should be granted where there is a possibility that wildlife are injured, or where wildlife is to be kept, relocated or traded.

In most cases, where the proponent is planning to develop a site, a planning permit approval provides this licencing approval, however, this report advises if an additional permit is required. Circumstances where this legislation may not be relevant is where fish are involved, on public land where additional regulatory approval is required, or where other permits are required (such as where fauna are required to undergo invasive procedures or installation of telemetry systems).

Fisheries Act 1995 (Vic)

The *Fisheries Act 1995* (Vic) provides the legislative framework for the regulation, management conservation of Victorian fish species and their habitats. As with the Victorian *Wildlife Act 1975* described above, the key method to ensure compliance is through licencing. Where fish, or their habitats, are likely to be impacted, this report will identify additional requirements.

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Other relevant policy

***Guidelines for the Removal, Destruction or Lopping of Native Vegetation* (Department of Environment Land Water and Planning 2017c)**

The *Guidelines for the Removal, Destruction or Lopping of Native Vegetation* (Department of Environment Land Water and Planning 2017) were released by DELWP in December 2017. A permit to remove native vegetation under clause 52.16 and 52.17 of the Victoria Planning Provisions is required unless:

- The table of exemptions to this clause specifically states that a permit is not required;
- It is native vegetation or an area specified in the schedule to the clause;
- A Native Vegetation Precinct Plan corresponding to the land is incorporated into the relevant planning scheme; or
- Bushfire exemptions apply in bushfire prone areas (Department of Environment Land Water and Planning 2017).

The Guidelines describe the permitting process for applications to remove native vegetation on private and public property within Victoria. A key strategy of the State Planning Policy Framework, relating to biodiversity, is to ensure that there is no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation. This is achieved through iteratively applying the three-step approach:

1. Avoiding the removal, destruction or lopping of native vegetation.
2. Minimising impacts from the removal, destruction or lopping of native vegetation that cannot be avoided.
3. Providing an offset to compensate for the biodiversity impact from the removal, destruction or lopping of native vegetation (Department of Environment Land Water and Planning 2017; p. 4).

Native vegetation is defined in the Victoria Planning Provisions as 'plants that are indigenous to Victoria, including trees, shrubs, herbs and grasses' (Department of Environment Land Water and Planning 2017).

Native vegetation is further classified into two categories (Department of Environment Land Water and Planning 2017):

- A remnant patch of native vegetation (measured in hectares) is either:
    - An area of vegetation where at least 25 per cent of the total perennial understorey plant cover is native, or
    - Any area with three or more native canopy trees where the dripline of each tree touches the dripline of at least one other tree forming a continuous canopy, or
    - Any mapped wetland included in the *Current Wetlands Map*, available in DELWP systems and tools.

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OR

- A scattered tree (measured in number of trees), is a native canopy tree that does not form a patch (Department of Environment Land Water and Planning 2017).

In addition, a canopy tree with a Diameter at Breast Height (DBH) greater than or equal to the large tree benchmark for the relevant bioregional EVC is defined as a large tree. Large trees can be either a large scattered tree or a large tree within a patch.

The contribution that is made by native vegetation to the biodiversity values of Victoria is determined through an assessment of both site-based information and landscape scale information.

At a site-based level, the contribution is determined through an assessment of:

- The extent of native vegetation;
- The number of large trees (either within a patch or scattered trees), relative to the appropriate EVC benchmark;
- The native vegetation condition, which is determined through a Habitat Hectare assessment
- The conservation status of the Ecological Vegetation Class (EVC) to which the vegetation can be classified; and,
- The presence of sensitive wetlands and coastal areas.

At a landscape scale, the value of the vegetation is determined with reference to its strategic context in the Victorian landscape. This is determined by the vegetation's 'Strategic Biodiversity Score' (SBS) and its 'Habitat Importance Score' (HIS) for its value to rare and threatened species (Department of Environment Land Water and Planning 2017).

All native vegetation within Victoria has a SBS that has been determined through spatial modelling, based on its rarity, level of depletion, species habitats, and condition and connectivity (Department of Environment Land Water and Planning 2017). SBS scores are between 0 and 1 and are used to determine the offset required for the loss of that vegetation. Native vegetation only has a HIS score if it is habitat for a particular rare or threatened species (Department of Environment Land Water and Planning 2017). There are two types of rare or threatened species habitats that may be provided by native vegetation:

- **Highly localised habitats for rare or threatened species** – where impact to this particular patch of native vegetation could result in a significant biodiversity impact, such as a breeding colony or species with a limited geographic extent.

- **Dispersed rare or threatened species habitats** – where habitat for the threatened species has become depleted or fragmented over time (Department of Environment Land Water and Planning 2017).

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The HIS is used to apply the decision guidelines in relation to the removal of a patch of native vegetation and to determine offset requirements (Department of Environment Land Water and Planning 2017).

Applications to remove native vegetation are categorised against one of three assessment pathways. These pathways are categorised as:

- Basic – limited impacts on biodiversity.

- Intermediate – could impact on large trees, endangered EVCs, and sensitive wetlands and coastal areas.
- Detailed – could impact on large trees, endangered EVCs, sensitive wetlands and coastal areas, and could significantly impact on habitat for rare or threatened species (Department of Environment Land Water and Planning 2017).

This is initially determined in two ways, based on the 'location map' and the extent risk of the vegetation proposed to be removed. The location risk is determined with reference to the *Native Vegetation Location Risk* map available on DEECA's website. This map shows whether native vegetation is classified as Location 1, 2 or 3.

The extent risk is determined based on the amount of native vegetation that is proposed for removal and includes the area (in hectares) of impact to native vegetation, the number of scattered trees, and the number of large trees (Table A5).

Table A5. Assessment pathways for removal of remnant patches of native vegetation (Department of Environment Land Water and Planning 2017).

Extent	Location		
	Location 1	Location 2	Location 3
Less than 0.5 hectares and not including any large trees	Basic	Intermediate	Detailed
Less than 0.5 hectares and including one or more large trees	Intermediate	Intermediate	Detailed
0.5 hectares or more	Detailed	Detailed	Detailed

All applications to remove native vegetation must include the following information:

1. Information about the native vegetation to be removed, including:
    a. The assessment pathway and reason for the assessment pathway;
    b. A description of the native vegetation to be removed;
    c. Maps showing the native vegetation and property in context;
    d. The offset requirement, determined in accordance with section 5 of the Guidelines that will apply if the native vegetation is approved to be removed.
2. Topographic and land information relating to the native vegetation to be removed;
3. Recent, dated photographs of the native vegetation to be removed;
4. Details of any other native vegetation approved to be removed, or that was removed without the required approval, on the same property or contiguous land in the same ownership as the applicant, in the five year period before the application for a permit is lodged;
5. An 'Avoid and Minimise' statement;

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6. A copy of any Property Vegetation Plan contained within an agreement made pursuant to section 69 of the *Conservation, Forests and Lands Act 1987* (Vic) that applies to the native vegetation to be removed;
7. Where the removal of native vegetation is to create defendable space, a written statement explaining why the removal of native vegetation is necessary;
8. If the application is under Clause 52.16, a statement that explains how the proposal responds to the Native Vegetation Precinct Plan considerations at decision guideline 8, and
9. An offset statement providing evidence that an offset that meets the offset requirements for the native vegetation to be removed has been identified, and can be secured in accordance with the Guidelines (Department of Environment Land Water and Planning 2017; p. 20-21).

If the application will be assessed under the Detailed Assessment Methodology, the following additional requirements apply:

10. A site assessment report of the native vegetation to be removed, including:
    a. A habitat hectare assessment of any patches of native vegetation, including the condition, extent (in hectares), Ecological Vegetation Class and bioregional conservation status.
    b. The location, number, circumference (in centimetres measured at 1.3 metres above ground level) and species of any large trees within patches.
    c. The location, number, circumference (in centimetres measured at 1.3 metres above ground level) and species of any scattered trees, and whether each tree is small or large.
11. Information about impacts on rare or threatened species habitat, including:
    a. The relevant section of the Habitat importance map for each rare or threatened species requiring a species offset.
    b. For each rare or threatened species that the native vegetation to be removed is habitat for, according to the Habitat importance maps: - the species' conservation status - the proportional impact of the removal of native vegetation on the total habitat for that species - whether their habitats are highly localised habitats, dispersed habitats, or important areas of habitat within a dispersed species habitat (Department of Environment Land Water and Planning 2017; p. 22).

Ten decisions guidelines are identified within the Guidelines that the responsible or referral authority must consider when deciding on an application to remove native vegetation. These are summarised as follows:

1. The degree to which the application avoids and minimises impacts to native vegetation, and where vegetation is proposed to be removed, the highest quality vegetation is avoided;
2. The role that the vegetation to be removed has in relation to landscape services such as erosion control, ground water quality, water and salinity;
3. The role of the vegetation in the preservation of landscape features;
4. Whether any part of the native vegetation to be removed, destroyed or lopped is protected under the *Aboriginal Heritage Act 2006* (Vic);

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5. The need to remove, destroy or lop native vegetation to create defendable space to reduce the risk of bushfire to life and property, having regard to other available bushfire risk mitigation measures;
6. Whether the native vegetation to be removed is in accordance with any Property Vegetation Plan that applies to the site;
7. Whether an offset that meets the offset requirements for the native vegetation to be removed has been identified and can be secured in accordance with the Guidelines;
8. Whether the application is consistent with a Native Vegetation Precinct Plan (where relevant);
9. For applications in both the Intermediate and Detailed Assessment Pathway only, the impacts on biodiversity values that would occur as a result of vegetation removal; and,
10. For applications in the Detailed Assessment Pathway only, the impacts on habitat for rare or threatened species (Department of Environment Land Water and Planning 2017).

Offset requirements

In all cases where native vegetation is approved for removal, the proponent is liable for the security of an offset site that meets the requirements under the Guidelines. An offset can be either a:

- First party offset – on the same property as the proposed removal of native vegetation, or on another property owned or managed (in the case of Crown land) by the party requiring the offset, or
- Third party offset – on another party's property. Third party offsets are traded as native vegetation credits.

In most cases a third party offset is the simplest and most cost effective means of securing the required offset.

There are three components to offset requirements:

1. Offset type (general or species).
2. Offset amount (measured in general or species habitat units).
3. Offset attributes.

Two types of offset are identified: General Offsets and Specifies Offsets. Specific Offsets may only be required if the native vegetation to be removed is habitat for rare or threatened species that are identified in an Intermediate or Detailed Assessment Pathway application (Department of Environment Land Water and Planning 2017). To determine this, a 'Specific Biodiversity Equivalence Score' is calculated by multiplying the habitat hectares with the HIS for each species that may be impacted. For each of the species, this figure is divided by the sum of all the Specific Biodiversity Value Scores calculated for the remaining vegetation under investigation to give a specific offset threshold for each species. If the amount of vegetation removed exceeds this threshold, then a Specific Offset is required. If it does not exceed the threshold, then only a General Habitat Offset is required (Table A6)(Department of Environment Land Water and Planning 2017).

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Table A6 summarises the offset requirements for each of the Assessment Pathways and offset types.

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Table A6. Offset requirements for the removal of native vegetation

Assessment Pathway	Offset Type	Offset amount		Offset attributes	
		Risk Adjusted Biodiversity Equivalence	Species Habitat Requirement	Vicinity	Strategic Biodiversity Score
Basic Assessment Pathway	General offset	1.5 times the general biodiversity equivalence score[1] of the native vegetation to be removed.	No restrictions.	In the same Catchment Management Authority boundary as the native vegetation to be removed.	At least 80 per cent of the SBS of the native vegetation to be removed.
Intermediate or Detailed Assessment Pathway	General offset	1.5 times the general biodiversity equivalence score of the native vegetation to be removed.	No restrictions.	In the same Catchment Management Authority boundary as the native vegetation to be removed.	At least 80 per cent of the SBS of the native vegetation to be removed.
	Specific offset	For each species impacted, 2 times the specific biodiversity equivalence score of the native vegetation to be removed.	Likely habitat for each rare or threatened species that a specific offset is required for, according to the specific-general offset test.	No restrictions.	No restrictions.

[1] The general biodiversity equivalence score is determined by multiplying the vegetation's habitat hectare score by its SBS.

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Chemical-Specific Construction Site Environmental Management Plan (CSEMP)

Site Address: 99–107 Lygon Drive, Craigieburn

This Chemical-Specific Construction Site Environmental Management Plan (CSEMP) has been prepared in accordance with the Melbourne Water Site EMP Kit and guidance notes. It addresses the management of chemicals and potential contaminants during construction, with a focus on preventing pollution of stormwater and the surrounding environment.

1. Site-Specific Chemical Management Measures

1.1 Prohibition of On-Site Washdown

No trucks or firefighting equipment will be washed down on site.
- All vehicles and equipment, including firefighting appliances, will be washed down off-site at appropriately licensed facilities.
- Signage will be installed at site entry points and within the contractor's compound to reinforce this requirement.
- Site induction and toolbox talks will include this prohibition.

1.2 Chemical Storage and Handling

- All chemicals, fuels, and hazardous materials will be stored in bunded areas at least 10 metres from drainage lines or stormwater inlets.
- Spill kits will be provided and maintained on site.
- All staff will be trained in spill response procedures.

1.3 Refuelling and Maintenance

- Refuelling and minor maintenance will be conducted in designated, bunded areas only.
- Drip trays will be used during refuelling to capture any spills.

1.4 Emergency Response

- An emergency response plan for chemical spills will be maintained on site and communicated to all personnel.
- Any chemical spill will be reported immediately and managed in accordance with EPA Victoria and Melbourne Water requirements.

2. Environmental Protection Measures

- Regular inspections will be conducted to ensure compliance with chemical management protocols.
- Any non-compliance will be rectified immediately and reported to the site supervisor.

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3. Justification

These measures are implemented to eliminate the risk of chemical contamination of soil, groundwater, and stormwater, in line with best practice and regulatory requirements.

This statement is to be included in the narrative section of the Melbourne Water Site EMP template and referenced in the risk assessment checklist under “Chemicals and Waste.” For further detail, refer to the Melbourne Water EMP Kit and Guidance Notes: https://www.melbournewater.com.au/building-and-works/developer-guides-and-resources/standards-and-specifications/develop-site

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Report on
Geotechnical Investigation and Site History Assessment

Craigieburn Fire Station
92-110 Dorchester Street, Craigieburn

Prepared for
Fire Rescue Victoria

Project : 212584.00
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Report on Geotechnical Investigation and Site History Assessment
Craigieburn Fire Station
92-110 Dorchester Street, Craigieburn

1. Introduction

This report presents the results of a geotechnical investigation and site history assessment undertaken for the proposed Craigieburn Fire Station at 92-110 Dorchester Street, Craigieburn. The investigation was commissioned by [redacted] of Fire Rescue Victoria via Purchase Order 4500348676 dated 15 March 2022 and was undertaken in accordance with [redacted] proposal 212584.00.P.001.Rev1 dated 10 March 2022.

At this stage of the project, specific details of the proposed development are not known, except that the fire station is likely to comprise a one or two storey building, with associated pavements.

The aim of the investigation was to assess the subsurface profile conditions across the site to provide geotechnical comments and preliminary recommendations to assist in the due diligence process. The recommendations in this report should be reviewed once specific details of the proposed development are known, and if appropriate, additional investigations may be required.

2. Scope of Works

The agreed scope of works is presented in the DP proposal 212584.00.P.001.Rev1 and generally consisted of the following:

- Excavate and sample 16 – 20 test pits to a maximum depth of 3 m or shallower if refusal is encountered;
- Collect disturbed soil samples and/or push tube samples at selected depths in the test pits to assist with soil identification and for laboratory testing;
- Undertake geotechnical laboratory testing to evaluate relevant engineering properties of the samples. It is noted that the California Bearing Ratio (CBR) test results are pending at the time of writing and will be issued as an addendum to this report when available;
- Undertake a site history assessment;
- Prepare a report presenting the factual data of the investigation, together with comments to assist in the due diligence process.

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3. Site Description

The proposed development site at 92-110 Dorchester Street, Craigieburn is shown on Drawing 1 in Appendix B.

At the time of the investigation, the site was vacant land covered with grass. Some trees were located along the western boundary. The site is bordered by vacant land to the north and south, Dorchester Street to the east and residential buildings to the west, a brick building associated with Ambulance Victoria is located near the south western site boundary.

The site surface sloped gently down from north to south, with a level difference of approximately 1 m across the site. The site was trafficable to the rubber tyred vehicles at the time of the investigation.

4. Geological Setting and Hydrogeology

4.1 Geology

Reference to the Geological Survey of Victoria's 1:63,360 Sunbury map indicates that the site is underlain by Quaternary age, Newer Volcanics Basalt. Typically, the Newer Volcanics comprise residual clays of high plasticity and variable thickness overlying variably weathered basalt.

Basalt cobbles and boulders can be expected to be found embedded in the residual clay. The top of rock often contains a variable mixture of rock and clay before generally continuous fractured rock is encountered. Sub-basaltic soil deposits might be encountered as well as intra-basalt paleo soil or volcanic ash layers. It is noted that the depth to basalt rock can vary significantly over relatively short horizontal distances.

4.2 Acid Sulfate Soils

Acid sulfate soil mapping data of the area provided by the CSIRO indicates an extremely low probability of occurrence of acid sulfate soils (ASS) at the site. It is also noted the elevation of the site is approximately RL 211 (AHD), and therefore highly unlikely to have been subject to the brackish estuarine conditions mostly associated with ASS formation.

4.3 Groundwater

The Visualising Victoria's Groundwater (VVG) website (https://www.vvg.org.au/) indicates that the depth to groundwater in the vicinity of the site is likely to be between 5 m and 10 m below the site surface.

Note that groundwater levels can vary due to seasonal fluctuations, climatic effects and other factors.

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5. Site History

5.1 Site History

The sources of information detailed in Table 1 were accessed and reviewed to assess the history of the site and the surrounding area.

Table 1: Historical Information Sources

Source	Location of Source	Year / Date of Information Source	Details
Aerial Photographs	DELWP and Metromap	1963, 1975, 2001, 2009, 2014, 2022	Refer to Section 5.2
EPAV Priority Sites Register search	EPAV	28 February 2022	Refer to Section 5.3
EPAV list of Certificates and Statements of Environmental Audit	EPAV	26 April 2022	Refer to Section 5.4

An integrity assessment of the site history information is provided in Section 5.5, and a summary of the site history is presented in Section 5.6.

5.2 Aerial Photographs

Aerial photographs were sourced from DELWP and Metromap. Copies of the relevant aerial photographs are presented in Appendix D. The information gathered from the review of aerial photographs was limited to identification of macro evidence depicted on the photographs, summarised in Table 2.

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Table 2: Summary of Historical Aerial Photographs

Year	Site	Surrounding Land Use
1963	The site comprised undeveloped open land, possibly used for grazing. A boundary between lots was present along the western boundary.	The surrounding area also comprised open land likely used for grazing
1975	No significant changes occurred	No significant changes occurred
2001	Dorchester street was present along the eastern site boundary. The site itself remained undeveloped.	Several suburban streets and courts were present to the east, with residential dwellings along them. An early learning centre was present to the south east.
2009	Several trees were present along the northern portion of the western site boundary.	A carpark and several small commercial buildings were present on the east side of Dorchester Street. The Craigieburn Health Service centre was present to the south east of the site.
2014	All trees were removed from the site.	The carpark and buildings on the eastern side of Dorchester Street, adjacent to the site were demolished and removed. Large commercial warehouses and associated roadways and car parks were present to the west of the site.
2022	A small number of trees were present along the western site boundary.	Residential dwellings and apartments were present immediately to the west of the site, and an Ambulance Victoria building was present to the south west.

5.3 Priority Sites Register

A search of the EPAV Priority Sites Register (PSR) indicated that currently, the site is not present on the register and therefore none of the following have been issued:

- Clean Up Notice pursuant to section 62A) of the Environment Protection Act 1970;
- Pollution Abatement Notice pursuant to section 31A or 31B (relevant to land and/or groundwater) of the Environment Protection Act 1970;
- Environment Action Notice pursuant to Section 274 of the Environment Protection Act 2017;
- Site Management Order (related to land and groundwater) pursuant to Section 275 of the Environment Protection Act 2017;
- Improvement Notices (related to land and groundwater) pursuant to Section 271 of the Environment Protection Act 2017; or
- Prohibition Notices (related to land and groundwater) pursuant to Section 272 of the Environment Protection Act 2017.

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The closest site on the register was a former landfill located 1.5 km south east of the site along Craigieburn road, which is estimated to have closed in 1996.

The relevant PSR extract (valid as at 28 February 2022) is provided in Appendix D.

5.4 Certificates and Statements of Environmental Audit

A search of the issued EPAV list of environmental audits in the surrounding area was undertaken using the EPAV website. No Environmental Audits were identified within 2 km of the site.

5.5 Site History Integrity Assessment

The information used to establish the history of the site was sourced from reputable and reliable reference documents, many of which were official records held by Government departments/agencies. The databases maintained by various Government agencies potentially can contain high quality information, but some of these do not contain any data at all.

In particular, aerial photographs provide high quality information that is generally independent of memory or documentation. They are only available at intervals of several years, so some gaps exist in the information from this source. The observed site features are open to different interpretations and can be affected by the time of day and/or year at which they were taken, as well as specific events such as flooding. Care has been taken to consider different possible interpretations of aerial photographs and to consider them in conjunction with other lines of evidence.

5.6 Summary of Site History

Based upon the site history review, it would appear that no development has occurred at the site, and that the site has comprised open land from as early as the 1960s. Residential development of the area to the east occurred by 2001, and commercial and residential development of the land to the west occurred after 2009.

6. Potential for contamination

With reference to the Potentially Contaminated Land Planning Practice Note (DELWP, 2021), the site is considered to have a low potential for contamination as no high or medium potentially contaminating land uses have been identified to have occurred at or adjacent to the site.

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7. Field Investigation Methodology

The test pit excavations were undertaken on 12 and 13 April 2022 and comprised the excavation of 20 test pits, designated TP01 to TP20. Approximate test pit locations are shown on Drawing 1 in Appendix B.

The test pits were excavated using a 14 tonne excavator and were extended to refusal depths of between 1.2 m and 2.7 m below the existing surface. Refusal generally occurred on weathered basalt rock. Disturbed, bulk and push tube samples were collected from the test pits for a visual assessment and selected geotechnical laboratory testing at DP's NATA accredited laboratory.

On completion, the test pits were backfilled with the excavated spoil and the surface levelled as far as practicable. Dynamic Cone Penetrometer tests (DCP's) were undertaken adjacent to test pits to assess the near surface soil consistency.

The field work was performed in the presence of a DP geotechnical engineer who was responsible for field work co-ordination, logging of the strata encountered, sample collection and liaising with subcontractors engaged by DP.

Test pit coordinates and surface levels were recorded using a dGPS unit referenced to MGA94 Zone 55 H and the AHD.

8. Field Work Results

8.1 Subsurface Conditions

Descriptions of the subsurface conditions encountered in the test pits are presented on the logs given in Appendix C. These logs should be read in conjunction with the standard "Notes About This Report" and notes on the descriptions and classification of soils in Appendix A.

The subsurface profile comprised very stiff to hard residual clay overlying weathered basalt rock. The basalt rock was encountered at depths of between 1.2 m and 2.6 m. Cobbles and boulders were encountered in some of the test pits within the clay layer from depths of between 0.8 m and 1.8 m.

A summary of the typical conditions encountered in the test pits is presented in Table 3.

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Table 3: Generalised Subsurface Profile

Test Pit No	Topsoil Depth Interval (m)	Residual Clay Depth Interval (m)	Depth to Basalt Cobbles and Boulders (m)	Top of Basalt Rock / Boulders (m)
TP01	0.0 – 0.2	0.2 – 2.6*	1.6	2.6
TP02	0.0 – 0.3	0.3 – 1.25*	0.9	1.25
TP03	0.0 – 0.3	0.3 – 1.2*	0.8	1.2
TP04	0.0 – 0.3	0.3 – 1.6*	1.3	1.6
TP05	0.0 – 0.3	0.3 – 1.4*	1	1.4
TP06	0.0 – 0.3	0.3 – 1.3*	1	1.3
TP07	0.0 – 0.5	0.5 – 2.2*	N/A	2.2
TP08	0.0 – 0.3	0.3 – 2.5*	N/A	2.5
TP09	0.0 – 0.4	0.4 – 2.2*	N/A	2.2
TP10	0.0 – 0.3	0.3 – 1.9*	N/A	1.9
TP11	0.0 – 0.4	0.4 – 2.7*	N/A	2.7
TP12	0.0 – 0.3	0.3 – 1.9*	N/A	1.9
TP13	0.0 – 0.3	0.3 – 2.1*	1.8	2.1
TP14	0.0 – 0.3	0.3 – 2.4*	N/A	2.4
TP15	0.0 – 0.4	0.4 – 2*	N/A	2
TP16	0.0 – 0.4	0.4 – 1.8*	1.2	1.8
TP17	0.0 – 0.3	0.3 – 2.3*	1.8	2.3
TP18	0.0 – 0.4	0.4 – 1.8*	1.7	1.8
TP19	0.0 – 0.3	0.3 – 1.5*	1.4	1.5
TP20	0.0 – 0.4	0.4 – 2.0*	N/A	2

Notes:
*Denotes Refusal Depth
N/A – Not Encountered

8.2 Groundwater

No free groundwater was observed in the test pit excavations to a maximum depth of 2.7 m during excavation. However, it is noted that the test pits were only left open for a relatively short period of time, and groundwater inflows can occur relatively slowly over a longer period.

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Groundwater levels can vary due to a range of factors like weather, seasonal fluctuations, climatic effects, pumping of wells, construction of basements, leaking services and a number of other natural and man-made factors such as the proximity of underground utilities or basements.

It is noted that groundwater level monitoring over a period of time would be required to enable the provision of a "design groundwater level", as groundwater levels vary seasonally, following rainfall events and with changes in local drainage conditions.

9. Laboratory Testing

9.1 Geotechnical Laboratory Testing and Results

Selected samples were submitted to the DP NATA accredited soil laboratory for testing. Shrink-swell index tests were undertaken on push tube samples to assist in the assessment of soil reactivity and site classification. Standard compaction and California Bearing Ratio (CBR) tests were organised for pavement design purpose and Atterberg Limits and moisture content testing was undertaken for the assessment of general soil properties. Standard Compaction and California Bearing Ratio (CBR) test results were not available at the time of writing.

The available laboratory test results are summarised in Table 4. The NATA test certificates are attached in Appendix E.

Table 4: Moisture Content, Atterberg Limits and Shrink Swell Index Results

Sample Location	Sample Depth (m)	General Sample Description	In situ Moisture Content (%)	Atterberg Limits			Linear Shrinkage (%)	Shrink Swell Index (%)
				Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)		
TP02	0.8 – 0.9	Silty Clay	23.4	64	19	45	12.5	-
TP04	0.5 – 0.87	Silty Clay	28.8	-	-	-	-	4.7
TP10	0.3 – 0.4	Silty Clay	17.9	54	16	38	13	-
TP14	0.3 – 0.4	Silty Clay	22.8	60	19	41	12	-
TP16	0.6 – 0.93	Silty Clay	25.4	-	-	-	-	4.6

The results of the Atterberg limits tests indicate that the residual clays are of typically high plasticity and are like to exhibit some reactive or expansive behaviours (i.e. shrinkage on drying and swelling on wetting).

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10. Geotechnical Comments and Recommendations

10.1 Proposed Development and Appreciation of Site Conditions

It is understood that the proposed fire station development is to comprise a one to two storey, 6 bay station with ancillary facilities such as bedrooms, kitchen, living areas, lobby, gym and court yard facilities. Associated vehicle parking would also be located on site as part of the development. The planned locations of the aforementioned structures on the site was not known at the time of writing. No basements are proposed as part of the development.

Based on the results of the investigation, the site is underlain by a subsurface profile consisting of very stiff to hard, residual silty clay, with cobbles and boulders, underlain by Quaternary age basalt rock.

Based on the proposed scale of the building and encountered ground conditions, it is considered that the shallow footings should be suitable.

The natural clays are assessed as reactive and susceptible to shrink-swell movements on changes in moisture content (i.e. shrinkage on drying and swelling on wetting). This reactivity will need to be considered in the design of any shallow footings.

No free groundwater was observed in the test pits during excavation; however, as mentioned above the test pits were only left open for a relatively short period of time.

10.2 Preliminary Site Classification to AS 2870

Site classification in accordance with AS2870-2011 “Residential Slabs and Footings” is normally used to assist in the selection of standard footings for residential style buildings. However, the use of standard footings as presented in AS2870-2011 is only applicable for footings founded within the natural ground (or engineered fill) and for structures with a loading and construction style similar to that of a residential dwelling. Although not strictly applicable to the proposed structure, the site classification can assist in the engineering design of suitable footing systems.

Shrink-swell index tests were performed on samples of natural clay recovered from test pits TP04 (between 0.5 to 0.87 m) and TP16 (between 0.6 to 0.93 m) and returned index values of 4.7 % and 4.6 % respectively. Based on these shrink-swell index results and the location of the site a site classification of Class H2 may be adopted for the design of footings founded in the natural ground in accordance with AS2870.

Site classification should also consider the effects of site works in accordance with Section 2.5 of AS 2870-2011. Where cutting is to exceed 0.5 m deep or filling is to exceed 0.4 m thickness, the impact of such works can result in more severe reactive conditions. Further advice should be sought if earthworks are proposed on this site.

It is recommended that precautions be taken to control moisture variations close to buildings. Such precautions may include the use of paving around building perimeters, careful management of tree planting, avoidance of services beneath buildings and prompt repairs of any leaking services. Guidelines regarding these precautions are also presented in AS2870.

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10.3 Excavation Conditions

Excavations are expected to be mainly for shallow foundations, services and similar. Based on the local geology and the geotechnical investigation findings, shallow excavations are generally anticipated to encounter predominantly natural silty clay with cobbles and boulders.

The clays should be excavatable using conventional earthmoving plant such as hydraulic excavators and backhoes, although given the presence of boulders within the clay, some over-excavation should be expected. The use of ripper/breaker attachments will be required to loosen cobbles and boulders or the weathered basalt rock prior to excavation.

While groundwater was not observed, seepage or perched groundwater may be encountered within typical shallow excavation depths for footings or services. Any perched water that may flow into excavations should be directed to a sump for pumping out.

Personnel should not enter any confined excavations in excess of 1.5 m deep unless the excavations are battered or shored appropriately. Shallower excavations, particularly in uncontrolled fill (if encountered), may also need to be battered or shored, and will need to be assessed at the time of construction.

10.4 Batter Slopes

A maximum temporary batter angle of 1:1 (H:V) is recommended for unsupported temporary batters in the residual clay, excavated up to 2 m in height. Steeper slope may be possible within the weathered basalt, but these would depend on the orientation of joints and defects, which can only be assessed during excavation.

Notwithstanding the above, some sloughing or shallow batter face slumping may occur with some loss of material, following periods of heavy or prolonged rainfall. Face deterioration would be exacerbated if surface water is allowed to flow over unprotected batters. Any cobbles or boulders that may be exposed in the batter faces and are considered to be at risk of falling should be removed.

Water seeps appearing on excavation faces will reduce the face stability and may lead to instability. The faces of excavations should be examined for any such evidence which would require remedial measures. If seeps are observed steps should be taken to either drain the source of the water or isolate the area. In particular water seeps can be associated with saturated backfilled service trenches and collapse of near surface excavation faces as a result of such seeps is not uncommon.

10.5 Foundations

The structure may be supported on spread footings founded within natural very stiff or better residual silty clay.

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Shallow foundations should not be founded within any uncontrolled fill (if encountered), but may be founded within engineered fill i.e. placed and compacted under suitable engineering inspection and testing.

Given the highly reactive nature of the natural clays, stiffened raft footing systems are generally preferred over strip footings for lightly loaded structures.

Spread footings can be proportioned using the maximum allowable bearing pressures given in Table 5.

Table 5: Allowable Bearing Pressures for Spread Footings

Foundation Material	Maximum Allowable Bearing Pressure (kPa)	
	Pad Footing	Strip Footing
Residual Clay – Very stiff, Silty CLAY	200	150

Settlement of pad footings founded in soils proportioned using the allowable bearing pressures presented in Table 5 are expected to be in the range of 0.5% to 1% of the footing width. However, the shrink and swell movements of the reactive clay are likely to exceed elastic settlements. It is recommended that settlements be reviewed once the footing details, loading and layout are known.

Footing excavations should be inspected by a geotechnical engineer during construction to confirm that the founding conditions are consistent with the design assumptions.

Wherever practicable, it is recommended that footings for an individual structure be founded within similar materials to reduce the potential for differential settlement unless such movement is considered and accommodated within the design of the structure.

10.6 Subgrade Conditions and Pavements

While specific details of the proposed pavements are not yet known, it is anticipated that pavements would be rigid concrete pavements and/or flexible asphalt pavements. Pavements should be supported on a prepared subgrade comprising the natural clay or engineered fill.

Building floor slabs and pavements may be supported on a subgrade comprising the natural residual clay or engineered fill. While not encountered in the test pits, uncontrolled fill is considered unsuitable as a subgrade material and as such it should be removed or replaced with engineered fill, if encountered during construction.

For floor slabs founded on the residual clay, consideration will need to be given to the highly reactive nature of the clay subgrade, as discussed previously in this report, and should be of sufficient stiffness to accommodate the shrink swell movements that are expected from an H2 site.

Based on experience with similar soils on other sites, it is considered that a subgrade CBR value of 3% may be adopted for the preliminary design of pavements on a natural residual clay subgrade, provided good surface and subsurface drainage conditions are maintained. The CBR value will be confirmed once the laboratory test results are available.

Based on previous experience with residual basaltic clays potentially expansive subgrade soils should be expected. Pavements on expansive subgrades can be susceptible to deterioration from shrink swell effects due to changes in soil moisture content. The risk of moisture changes, for example due to seasonal effects, can be reduced by the inclusion of a low permeability capping layer over the subgrade, and this is recommended.

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The capping layer should have a minimum thickness of 150 mm and comprise a VicRoads Type A fill material, or similar, with the following typical properties:

- a laboratory soaked CBR ≥ 6 % and a CBR swell ≤ 1.5%;
- permeability ≤ 5 x 10^{-9} m/s;
- Plasticity Index in the range of 6 to 25 %;
- PI x %passing 0.425 mm sieve ≤ 1000;
- %passing 75µm sieve in the range of 10 to 40%; and
- Less than 20% retained on the 37.5 mm sieve (this will allow the implementation of conventional compaction control testing).

The capping layer should extend at least 1.5 m behind the edge of the slab or pavement. A drainage system that reduces the potential for water infiltrating the subgrade should be implemented, including subsurface drainage and exaggerated grades to promote run off. Drains should be designed to function wholly with the capping layer, which may require thickening of the capping layer to encapsulate the drains.

10.7 Subgrade Preparation

It is recommended that the following procedures be adopted for the preparation of subgrades for floor slabs, pavements and engineered fill:

- Remove any uncontrolled fill and topsoil containing significant organic matter or other deleterious material to expose the natural subgrade;
- The prepared surface should be proof rolled to check for any unstable areas with several passes of a minimum 12 tonne static weight roller. The surface should not exhibit excessive deformation or springing under proof roll. Proof rolling should be witnessed by a DP engineer and if fill is being placed, a hold point put on placement of fill until the stripped surface is approved;
- Any excessively wet, soft or weak areas identified during the proof rolling process that do not respond to further compaction may be ripped and allowed to dry out and then re-compacted, or removed and replaced with select fill in layers not exceeding 200 mm loose thickness. Should extensive soft or weak areas be encountered, further geotechnical advice should be sought;
- To assist in achieving uniform compaction near the edges of excavations, side slopes should be battered not steeper than 1H:1V and the filling keyed into the excavation side walls; and
- Suitable fill, where required, should be placed in layers not exceeding 200 mm loose thickness, each layer moisture conditioned to within a moisture ratio of 85% and 115% of SOMC and compacted to achieve a density ratio of 98% Standard in accordance with AS1289 5.1.1 and 5.4.1.

Care should be taken to control the soil moisture content to within the recommended range. Where imported crushed rock is to be used as select fill, some relaxation of the moisture ratio criteria may be considered, provided that the required density ratio is achieved.

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Subgrade preparation should be carried out during dry weather conditions. Provision should be made for effective diversion and removal of all surface water from the prepared subgrade from any source.

It is recommended that subgrade preparation, fill placement and compaction be performed in the presence of a suitably experienced person and the level of compaction be checked by field density testing. Where engineered fill is to support buildings or other structures, it is recommended that the fill be placed under Level 1 Inspection and Testing requirements as defined in AS3798-2007 “Guidelines on earthworks for commercial and residential developments”.

10.8 Engineered Fill Materials

The suitability of particular materials for use as engineered fill will depend on the particular application and the required outcome. Imported materials such as crushed rock, clayey sand, sandy clay or weathered sedimentary rock would be considered as suitable in most applications.

The clays that may be sourced from on site, or nearby sites, are considered suitable for use as engineered fill beneath flexible pavements, embankments or similar. However, as discussed previously in this report, these clays are reactive and susceptible to shrink swell movements on changes in moisture content, particularly when placed near to the surface. For this reason, the use of site won clay as engineered fill beneath buildings or movement sensitive structures should be avoided, unless structures are designed to be able to tolerate the expected differential movements and strict control of moisture content to within the recommended range is able to be maintained.

The use of low reactive fill materials is generally preferred beneath buildings or movement sensitive structures, including rigid pavements. As a general guide, the material properties presented in section 10.6 should provide a suitable low reactive engineered fill material, although such material would need to be imported. Materials that do not comply with all of the criteria suggested in section 10.6 may also be considered for use as engineered fill, depending on the particular application proposed and precautions adopted.

Potential sources of imported filling should be assessed by an appropriate regime of laboratory tests, if suppliers do not already have representative test data.

Select fill materials beneath pavements should have a CBR value not less than the design value adopted for the pavement, or else the pavements should be redesigned for the actual CBR value of the fill material, and further advice sought.

10.9 Earthquake Classification

Based on the depth to rock encountered in the test pits and in accordance with the requirements of Australian Standard AS 1170.4-2007 “Structural Design Actions - Earthquake Actions in Australia”, the site sub-soil is considered to correlate to Class Be. For the Melbourne area the hazard factor (Z) is 0.09.

10.10 Vegetation, Site Drainage and Maintenance

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Appropriate consideration should be given to the effects of landscaping and tree planting on the long term foundation and pavement performance. As outlined in AS 2870, it is the owner that is responsible for maintenance of drainage, and failure to undertake appropriate maintenance could lead to unacceptable building and pavement performance.

According to AS 2870-2011, trees should not be planted closer than 0.75 x the mature height of the tree to buildings on reactive sites. These distances should be increased by a further 50% for rows or groups of trees. The inclusion of paving around the perimeter of the building can also reduce soil moisture variations and the potential for shrink swell movements of the soils at the edges of the building. These precautions reduce, but do not eliminate, the risk of damage to the building arising from reactive clays.

The presence of trees could also affect the performance of pavements, and it is suggested that similar buffer distances to those outlined in AS2870 be maintained from pavements.

Leaking services can accentuate the ground movements with service trenches often providing a conduit for water beneath structures. As a result, services should not be located closer than about 1 m to buildings, except where they have to pass/enter beneath the structure, which they should do at right angles. Service trenches should be 'plugged' by hand tamped moist (but not wet) clay for a distance of 1 m along the trench where the services pass beneath the building and they should be graded to drain away from structures.

10.11 Site Management

The natural basaltic clay generally swells and softens when exposed to periods of wet weather, which can result in difficult conditions for the movement construction traffic and the performance of earthworks. Should the clay be exposed to extended periods of warm dry weather, shrinkage cracks can develop from the surface. The presence of these cracks can allow water to penetrate deeper into the clay profile when wet weather does occur, and deeper softening of the clay can also result.

The implementation of the following precautions should reduce the risk of excessive deterioration of the clay subgrade during construction:

- Minimise the size of the areas that are stripped of topsoil to those where proposed works are imminent. Deterioration of the clay surface is more likely the longer the clay is exposed to the elements. Where extended exposure is unavoidable, it may be prudent to leave areas 100 mm to 150 mm high before final stripping just prior construction;
- The stripped subgrade should be graded to promote runoff and any surface water diverted. When wet weather is expected, the surface should be sealed with a smooth drum roller and suitably graded to prevent the ponding of water. More generally, it is considered good practice to seal exposed surfaces in this manner at the end of earthworks operations each day;
- During drier periods, the exposed clay surface should be kept moist with regular dousing by a water truck to reduce the potential for shrinkage cracks to develop;
- Where exposure of the subgrade for longer periods is expected and a greater level of protection is warranted, a 150 mm thick layer of crushed rock or capping material is suggested.

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11. References

DELWP. (2021). *Potentially Contaminated Land, Planning Practice Note* . 30 July 2021: Department of Environment, Land, Water and Planning.

12. Limitations

[redacted] has prepared this report for this project at 92-110 Dorchester Street, Craigieburn in accordance with DP's proposal 212584.00.P.001.Rev1 dated 10 March 2022 and acceptance received from Rhyannon Warren of Fire Rescue Victoria via purchase order 4500348676 dated 15 March 2022. The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of Fire Rescue Victoria and their agents for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations.

The assessment of atypical safety hazards arising from this advice is restricted to the geotechnical components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

The scope of work for this investigation/report did not include the assessment of surface or sub-surface materials or groundwater for contaminants, within or adjacent to the site. Should evidence of fill of unknown origin be noted in the report, and in particular the presence of building demolition materials, it should be recognised that there may be some risk that such fill may contain contaminants and hazardous building materials.

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Appendix A

Notes About this Report
Notes Soil Descriptions
Notes Sampling Methods
Notes Symbols & Abbreviations

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Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.



Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

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About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

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Description and Classification Methods

The methods of description and classification of soils and rocks used in this report are generally based on Australian Standard AS1726:2017, Geotechnical Site Investigations. In general, the descriptions include strength or density, colour, structure, soil or rock type and inclusions.

Soil Types

Soil types are described according to the predominant particle size, qualified by the grading of other particles present:

Type	Particle size (mm)
Boulder	>200
Cobble	63 - 200
Gravel	2.36 - 63
Sand	0.075 - 2.36
Silt	0.002 - 0.075
Clay	<0.002

The sand and gravel sizes can be further subdivided as follows:

Type	Particle size (mm)
Coarse gravel	19 - 63
Medium gravel	6.7 - 19
Fine gravel	2.36 – 6.7
Coarse sand	0.6 - 2.36
Medium sand	0.21 - 0.6
Fine sand	0.075 - 0.21

Definitions of grading terms used are:

- Well graded - a good representation of all particle sizes
- Poorly graded - an excess or deficiency of particular sizes within the specified range
- Uniformly graded - an excess of a particular particle size
- Gap graded - a deficiency of a particular particle size with the range

The proportions of secondary constituents of soils are described as follows:

In fine grained soils (>35% fines)

Term	Proportion of sand or gravel	Example
And	Specify	Clay (60%) and Sand (40%)
Adjective	>30%	Sandy Clay
With	15 – 30%	Clay with sand
Trace	0 - 15%	Clay with trace sand

In coarse grained soils (>65% coarse)
- with clays or silts

Term	Proportion of fines	Example
And	Specify	Sand (70%) and Clay (30%)
Adjective	>12%	Clayey Sand
With	5 - 12%	Sand with clay
Trace	0 - 5%	Sand with trace clay

In coarse grained soils (>65% coarse)
- with coarser fraction

Term	Proportion of coarser fraction	Example
And	Specify	Sand (60%) and Gravel (40%)
Adjective	>30%	Gravelly Sand
With	15 - 30%	Sand with gravel
Trace	0 - 15%	Sand with trace gravel

The presence of cobbles and boulders shall be specifically noted by beginning the description with 'Mix of Soil and Cobbles/Boulders' with the word order indicating the dominant first and the proportion of cobbles and boulders described together.

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Soil Descriptions

Cohesive Soils

Cohesive soils, such as clays, are classified on the basis of undrained shear strength. The strength may be measured by laboratory testing, or estimated by field tests or engineering examination. The strength terms are defined as follows:

Description	Abbreviation	Undrained shear strength (kPa)
Very soft	VS	<12
Soft	S	12 - 25
Firm	F	25 - 50
Stiff	St	50 - 100
Very stiff	VSt	100 - 200
Hard	H	>200
Friable	Fr	-

Cohesionless Soils

Cohesionless soils, such as clean sands, are classified on the basis of relative density, generally from the results of standard penetration tests (SPT), cone penetration tests (CPT) or dynamic penetrometers (PSP). The relative density terms are given below:

Relative Density	Abbreviation	Density Index (%)
Very loose	VL	<15
Loose	L	15-35
Medium dense	MD	35-65
Dense	D	65-85
Very dense	VD	>85

Soil Origin

It is often difficult to accurately determine the origin of a soil. Soils can generally be classified as:

- Residual soil - derived from in-situ weathering of the underlying rock;
- Extremely weathered material – formed from in-situ weathering of geological formations. Has soil strength but retains the structure or fabric of the parent rock;
- Alluvial soil – deposited by streams and rivers;
- Estuarine soil – deposited in coastal estuaries;
- Marine soil – deposited in a marine environment;
- Lacustrine soil – deposited in freshwater lakes;
- Aeolian soil – carried and deposited by wind;
- Colluvial soil – soil and rock debris transported down slopes by gravity;
- Topsoil – mantle of surface soil, often with high levels of organic material.
- Fill – any material which has been moved by man.

Moisture Condition – Coarse Grained Soils

For coarse grained soils the moisture condition should be described by appearance and feel using the following terms:

- Dry (D) — Non-cohesive and free-running.
- Moist (M) — Soil feels cool, darkened in colour.
  Soil tends to stick together.
  Sand forms weak ball but breaks easily.
- Wet (W) — Soil feels cool, darkened in colour.
  Soil tends to stick together, free water forms when handling.

Moisture Condition – Fine Grained Soils

For fine grained soils the assessment of moisture content is relative to their plastic limit or liquid limit, as follows:

- 'Moist, dry of plastic limit' or 'w <PL' (i.e. hard and friable or powdery).
- 'Moist, near plastic limit' or 'w ≈ PL (i.e. soil can be moulded at moisture content approximately equal to the plastic limit).
- 'Moist, wet of plastic limit' or 'w >PL' (i.e. soils usually weakened and free water forms on the hands when handling).
- 'Wet' or 'w ≈ LL' (i.e. near the liquid limit).
- 'Wet' or 'w > LL' (i.e. wet of the liquid limit).

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Sampling

Sampling is carried out during drilling or test pitting to allow engineering examination (and laboratory testing where required) of the soil or rock.

Disturbed samples taken during drilling provide information on colour, type, inclusions and, depending upon the degree of disturbance, some information on strength and structure.

Undisturbed samples are taken by pushing a thin-walled sample tube into the soil and withdrawing it to obtain a sample of the soil in a relatively undisturbed state. Such samples yield information on structure and strength, and are necessary for laboratory determination of shear strength and compressibility. Undisturbed sampling is generally effective only in cohesive soils.

Test Pits

Test pits are usually excavated with a backhoe or an excavator, allowing close examination of the in-situ soil if it is safe to enter into the pit. The depth of excavation is limited to about 3 m for a backhoe and up to 6 m for a large excavator. A potential disadvantage of this investigation method is the larger area of disturbance to the site.

Large Diameter Augers

Boreholes can be drilled using a rotating plate or short spiral auger, generally 300 mm or larger in diameter commonly mounted on a standard piling rig. The cuttings are returned to the surface at intervals (generally not more than 0.5 m) and are disturbed but usually unchanged in moisture content. Identification of soil strata is generally much more reliable than with continuous spiral flight augers, and is usually supplemented by occasional undisturbed tube samples.

Continuous Spiral Flight Augers

The borehole is advanced using 90-115 mm diameter continuous spiral flight augers which are withdrawn at intervals to allow sampling or in-situ testing. This is a relatively economic means of drilling in clays and sands above the water table. Samples are returned to the surface, or may be collected after withdrawal of the auger flights, but they are disturbed and may be mixed with soils from the sides of the hole. Information from the drilling (as distinct from specific sampling by SPTs or undisturbed samples) is of relatively low reliability, due to the remoulding, possible mixing or softening of samples by groundwater.

Non-core Rotary Drilling

The borehole is advanced using a rotary bit, with water or drilling mud being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be determined from the cuttings, together with some information from the rate of penetration. Where drilling mud is used this can mask the cuttings and reliable identification is only possible from separate sampling such as SPTs.

Continuous Core Drilling

A continuous core sample can be obtained using a diamond tipped core barrel, usually with a 50 mm internal diameter. Provided full core recovery is achieved (which is not always possible in weak rocks and granular soils), this technique provides a very reliable method of investigation.

Standard Penetration Tests

Standard penetration tests (SPT) are used as a means of estimating the density or strength of soils and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289, Methods of Testing Soils for Engineering Purposes - Test 6.3.1.

The test is carried out in a borehole by driving a 50 mm diameter split sample tube under the impact of a 63 kg hammer with a free fall of 760 mm. It is normal for the tube to be driven in three successive 150 mm increments and the 'N' value is taken as the number of blows for the last 300 mm. In dense sands, very hard clays or weak rock, the full 450 mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form.

- In the case where full penetration is obtained with successive blow counts for each 150 mm of, say, 4, 6 and 7 as:

  4, 6, 7

- In the case where the test is discontinued before the full penetration depth, say after 15 blows for the first 150 mm and 30 blows for the next 40 mm as:

  15, 30/40 mm

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The results of the SPT tests can be related empirically to the engineering properties of the soils.

Dynamic Cone Penetrometer Tests / Perth Sand Penetrometer Tests

Dynamic penetrometer tests (DCP or PSP) are carried out by driving a steel rod into the ground using a standard weight of hammer falling a specified distance. As the rod penetrates the soil the number of blows required to penetrate each successive 150 mm depth are recorded. Normally there is a depth limitation of 1.2 m, but this may be extended in certain conditions by the use of extension rods. Two types of penetrometer are commonly used.

- Perth sand penetrometer - a 16 mm diameter flat ended rod is driven using a 9 kg hammer dropping 600 mm (AS 1289, Test 6.3.3). This test was developed for testing the density of sands and is mainly used in granular soils and filling.
- Cone penetrometer - a 16 mm diameter rod with a 20 mm diameter cone end is driven using a 9 kg hammer dropping 510 mm (AS 1289, Test 6.3.2). This test was developed initially for pavement subgrade investigations, and correlations of the test results with California Bearing Ratio have been published by various road authorities.

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Introduction

These notes summarise abbreviations commonly used on borehole logs and test pit reports.

Drilling or Excavation Methods

C	Core drilling
R	Rotary drilling
SFA	Spiral flight augers
NMLC	Diamond core - 52 mm dia
NQ	Diamond core - 47 mm dia
HQ	Diamond core - 63 mm dia
PQ	Diamond core - 81 mm dia

Water

▷	Water seep
▽	Water level

Sampling and Testing

A	Auger sample
B	Bulk sample
D	Disturbed sample
E	Environmental sample
U_{50}	Undisturbed tube sample (50mm)
W	Water sample
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
PL	Point load strength Is(50) MPa
S	Standard Penetration Test
V	Shear vane (kPa)

Description of Defects in Rock

The abbreviated descriptions of the defects should be in the following order: Depth, Type, Orientation, Coating, Shape, Roughness and Other. Drilling and handling breaks are not usually included on the logs.

Defect Type

B	Bedding plane
Cs	Clay seam
Cv	Cleavage
Cz	Crushed Zone
Ds	Decomposed seam
F	Fault
J	Joint
Lam	Laminations
Pt	Parting
Sz	Sheared Zone
V	Vein

Orientation

The inclination of defects is always measured from the perpendicular to the core axis.

h	horizontal
v	vertical
sh	sub-horizontal
sv	sub-vertical

Coating or Infilling Term

cln	clean
co	coating
he	healed
inf	infilled
stn	stained
ti	tight
vn	veneer

Coating Descriptor

ca	calcite
cbs	carbonaceous
cly	clay
fe	iron oxide
mn	manganese
slt	silty

Shape

cu	curved
ir	irregular
pl	planar
st	stepped
un	undulating

Roughness

po	polished
ro	rough
sl	slickensided
sm	smooth
vr	very rough

Other

fg	fragmented
hd	hard
pl	plastic

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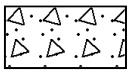
Symbols & Abbreviations

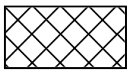
Graphic Symbols for Soil and Rock

General

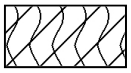

Asphalt

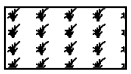

Road base

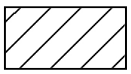

Concrete

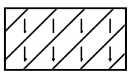

Filling

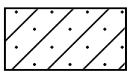
Soils


Topsoil

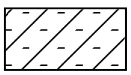

Peat

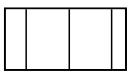

Clay

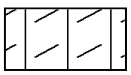

Silty clay

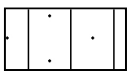

Sandy clay

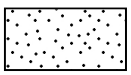

Gravelly clay


Shaly clay


Silt


Clayey silt


Sandy silt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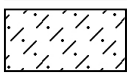
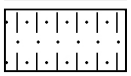
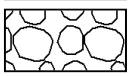
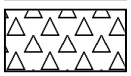

Clayey sand


Silty sand


Gravel

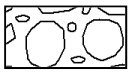

Sandy gravel


Cobbles, boulders

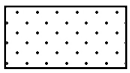

Talus

Sedimentary Rocks


Boulder conglomerate


Conglomerate


Conglomeratic sandstone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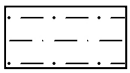
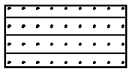
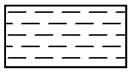
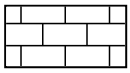

Siltstone

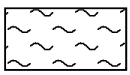

Laminite

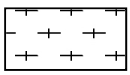

Mudstone, claystone, shale


Coal


Limestone

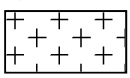
Metamorphic Rocks

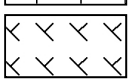

Slate, phyllite, schist

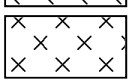

Gneiss

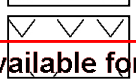

Quartzite

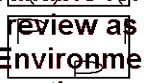
Igneous Rocks


Granite


Dolerite, basalt, andesite


Dacite, epidote


Tuff, breccia


Porphyry

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Appendix B

Test Pit Location Plan
Site Photographs

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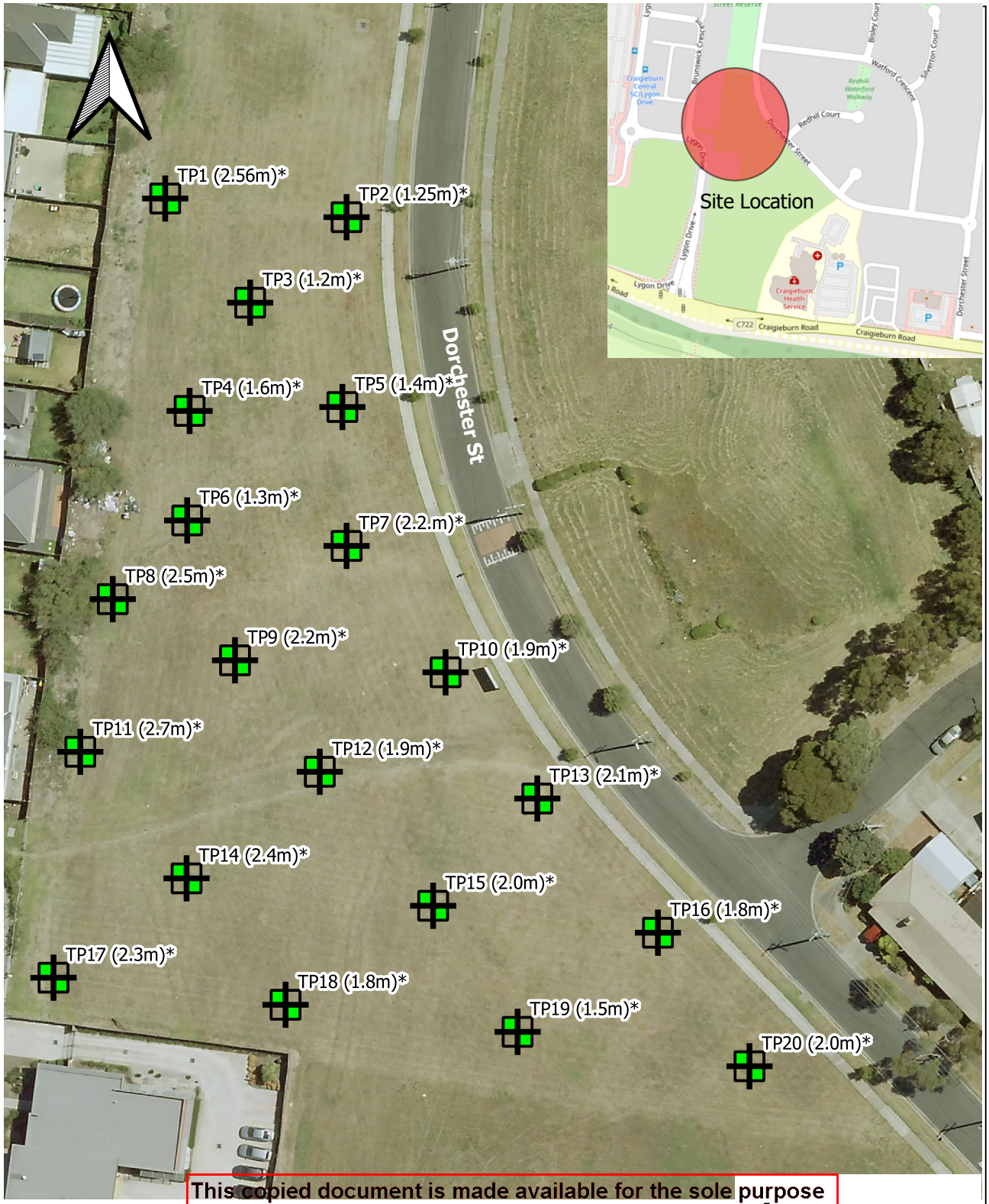

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[redacted]

Test Pit Location Plan
92 - 110 Dorchester St
Craigieburn

PROJECT:	212584.00
DWG No:	1
REV:	0
CLIENT: Fire Rescue Victoria	DATE: April 2022



Photo 1: facing North



Photo 2: Facing South

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	Site Photographs	Project No. : 212584.00
	92-110 Dorchester Street Craigieburn	Plate No: 1
	Client: **Fire Rescue Victoria**	Date: April 2022

Appendix C

Test Pit Logs
Test Pit Photographs

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TEST PIT LOG

CLIENT: Fire Rescue Victoria
PROJECT: Craigieburn Fire Station
LOCATION: 92-110 Dorchester Street, Craigieburn

SURFACE LEVEL: 211.4 m AHD
EASTING: 5837265
NORTHING: 316210

PIT No: TP 01
PROJECT No: 212584.00
DATE: 12/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per 100mm)
		Silty CLAY (CH): high plasticity, brown, with fine to medium sand and rootlets, grassed covered; w<PL, very stiff to hard; TOPSOIL		D	0.0				
					0.1				
	0.2	Silty CLAY (CH): high plasticity, pale brown and pale grey, w≯PL, very stiff to hard; RESIDUAL							
211					0.3				
				U_{63}	0.45		pp = 230-280		
					0.5				
				D	0.6				
					0.7		pp = 240-300		
	1								1
					1.0		pp = 320-360		
210		From 1.6m: with cobbles and boulders			1.3		pp = 360-410		
					1.8				
				D	1.9				
	2								2
209									
	2.56	Pit discontinued at 2.56m. Refusal.							

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RIG: 14T Excavator with 450 mm wide bucket
LOGGED: [redacted]
SURVEY DATUM: MGA94 Zone 55 H

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

[redacted]

TEST PIT LOG

CLIENT: Fire Rescue Victoria
PROJECT: Craigieburn Fire Station
LOCATION: 92-110 Dorchester Street, Craigieburn

SURFACE LEVEL: 211.2 m AHD
EASTING: 5837261
NORTHING: 316235

PIT No: TP 02
PROJECT No: 212584.00
DATE: 12/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per 100mm)
211	0.0	Silty CLAY (CH): high plasticity, brown, with fine to medium sand and rootlets, grassed covered; w<PL, very stiff to hard; TOPSOIL		D	0.0				
					0.1				
	0.3	Silty CLAY (CH): high plasticity, pale brown and pale grey, w≥PL, very stiff to hard; RESIDUAL			0.3		pp = 500-570		
				B					
					0.6		pp >600		
					0.8				
				D					
		From 0.9m: with cobbles and boulders			0.9		pp >600		
210	1								1
	1.25	Pit discontinued at 1.25m. Refusal.							
209	2								2

5 10 15 20

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RIG: 14T Excavator with 450 mm wide bucket
LOGGED: [redacted]
SURVEY DATUM: MGA94 Zone 55 H

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

[redacted]

TEST PIT LOG

CLIENT: Fire Rescue Victoria
PROJECT: Craigieburn Fire Station
LOCATION: 92-110 Dorchester Street, Craigieburn

SURFACE LEVEL: 211.3 m AHD
EASTING: 5837256
NORTHING: 316223

PIT No: TP 03
PROJECT No: 212584.00
DATE: 12/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per 100mm)
211	0.0	Silty CLAY (CH): high plasticity, brown, with fine to medium sand and rootlets, grassed covered; w<PL, very stiff to hard; TOPSOIL		D	0.0				
	0.1				0.1				
	0.3	Silty CLAY (CH): high plasticity, pale brown and pale grey, w≥PL, very stiff to hard; RESIDUAL		D	0.3		pp = 240-280		
	0.4				0.4				
	0.6				0.6		pp = 320-420		
		From 0.8m: with boulders and cobbles							
	0.9				0.9		pp = 360-410		
210	1.2	Pit discontinued at 1.2m. Refusal.							
209									

5 10 15 20

1 2

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RIG: 14T Excavator with 450 mm wide bucket
LOGGED: [redacted]
SURVEY DATUM: MGA94 Zone 55 H

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

[redacted]

TEST PIT LOG

CLIENT: Fire Rescue Victoria
PROJECT: Craigieburn Fire Station
LOCATION: 92-110 Dorchester Street, Craigieburn

SURFACE LEVEL: 211.2 m AHD
EASTING: 5837236
NORTHING: 316215

PIT No: TP 04
PROJECT No: 212584.00
DATE: 12/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per 100mm)
211	0.0	Silty CLAY (CH): high plasticity, brown, with fine to medium sand and rootlets, grassed covered; w<PL, stiff to very stiff; TOPSOIL		D	0.0				
					0.1				
	0.3	Silty CLAY (CH): high plasticity, pale brown and pale grey, w≥PL, very stiff to hard; RESIDUAL							
					0.5		pp = 170-230		
				D / U_{63}					
					0.87		pp = 450-490		
210	1	From 1.3m: with cobbles and boulders			1.0				1
				D					
					1.1		pp = 320-380		
	1.6	Pit discontinued at 1.6m. Refusal.							
209	2								2

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RIG: 14T Excavator with 450 mm wide bucket
LOGGED: [redacted]
SURVEY DATUM: MGA94 Zone 55 H

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

[redacted]

TEST PIT LOG

CLIENT: Fire Rescue Victoria
PROJECT: Craigieburn Fire Station
LOCATION: 92-110 Dorchester Street, Craigieburn

SURFACE LEVEL: 211.1 m AHD
EASTING: 5837235
NORTHING: 316236

PIT No: TP 05
PROJECT No: 212584.00
DATE: 12/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per 100mm)
211	0.0	Silty CLAY (CH): high plasticity, brown, with fine to medium sand and rootlets, grassed covered; w<PL, very stiff to hard; TOPSOIL		D	0.0 – 0.1				
	0.3	Silty CLAY (CH): high plasticity, pale brown and pale grey, w≥PL, very stiff to hard; RESIDUAL		D	0.3 – 0.4		pp = 300-310		
				D	0.6 – 0.7		pp = 320-400		
					0.9		pp = 360-450		
210	1	From 1m: with cobbles and boulders							1
	1.4	Pit discontinued at 1.4m. Refusal.							
209	2								2

5 10 15 20

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RIG: 14T Excavator with 450 mm wide bucket
LOGGED: [redacted]
SURVEY DATUM: MGA94 Zone 55 H

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

[redacted]

TEST PIT LOG

CLIENT: Fire Rescue Victoria
PROJECT: Craigieburn Fire Station
LOCATION: 92-110 Dorchester Street, Craigieburn

SURFACE LEVEL: 211.1 m AHD
EASTING: 5837220
NORTHING: 316212

PIT No: TP 06
PROJECT No: 212584.00
DATE: 12/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per 100mm)
211	0.0	Silty CLAY (CH): high plasticity, brown, with fine to medium sand, w<PL, hard; TOPSOIL		D	0.0 – 0.1				
	0.3	Silty CLAY (CH): high plasticity, pale brown and pale grey, w≯PL, very stiff to hard; RESIDUAL		D	0.3 – 0.4		pp = 330-340		
				B	0.6		pp = 360-410		
					0.9		pp = 380-420		
210	1	From 1m: with cobbles and boulders							1
	1.3	Pit discontinued at 1.3m. Refusal.							
209	2								2

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RIG: 14T Excavator with 450 mm wide bucket [redacted]

SURVEY DATUM: MGA94 Zone 55 H

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

[redacted]

TEST PIT LOG

CLIENT: Fire Rescue Victoria
PROJECT: Craigieburn Fire Station
LOCATION: 92-110 Dorchester Street, Craigieburn

SURFACE LEVEL: 211.1 m AHD
EASTING: 5837216
NORTHING: 316235

PIT No: TP 07
PROJECT No: 212584.00
DATE: 12/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per 100mm)
211	0.0	Silty CLAY (CH): high plasticity, brown, with fine to medium sand and rootlets, grassed covered; w<PL, very stiff to hard; TOPSOIL		D	0.0 – 0.1				
	0.5	Silty CLAY (CH): high plasticity, pale brown and pale grey, w≥ PL, very stiff to hard; RESIDUAL		D	0.5 – 0.6		pp = 340-400		
				U_{63}	0.6 – 0.8		pp = 400-420		
				D	0.8 – 0.9				
210	1			D	1.2 – 1.3		pp >600		
				D	1.8 – 1.9		pp >600		
209	2								
	2.2	Pit discontinued at 2.2m. Refusal.							

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RIG: 14T Excavator with 450 mm wide bucket

SURVEY DATUM: MGA94 Zone 55 H

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Fire Rescue Victoria
PROJECT: Craigieburn Fire Station
LOCATION: 92-110 Dorchester Street, Craigieburn

SURFACE LEVEL: 211 m AHD
EASTING: 5837209
NORTHING: 316205

PIT No: TP 08
PROJECT No: 212584.00
DATE: 12/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per 100mm)
211	0.0	Silty CLAY (CH): high plasticity, brown, with fine to medium sand and rootlets, grassed covered; w<PL, very stiff; TOPSOIL		D	0.0				
					0.1				
	0.3	Silty CLAY (CH): high plasticity, pale brown and pale grey, w≥PL, very stiff to hard; RESIDUAL		D	0.3		pp = 280-320		
					0.4				
					0.7		pp = 390-320		
210	1			D	1.0		pp = 290-340		1
					1.1				
					1.4		pp = 320-400		
					1.9		pp = 360-420		
209	2			D	2.0				2
					2.3		pp = 440-520		
	2.5	Pit discontinued at 2.5m. Refusal.							

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RIG: 14T Excavator with 450 mm wide bucket

SURVEY DATUM: MGA94 Zone 55 H

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

[redacted]

TEST PIT LOG

CLIENT: Fire Rescue Victoria
PROJECT: Craigieburn Fire Station
LOCATION: 92-110 Dorchester Street, Craigieburn

SURFACE LEVEL: 211 m AHD
EASTING: 5837200
NORTHING: 316221

PIT No: TP 09
PROJECT No: 212584.00
DATE: 12/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per 100mm)
211		Silty CLAY (CH): high plasticity, brown, with fine to medium sand and rootlets, grassed covered; w<PL, very stiff; TOPSOIL		D	0.0 0.1				
	0.4	Silty CLAY (CH): high plasticity, pale brown and pale grey, w≥PL, very stiff to hard; RESIDUAL		D	0.4 0.5		pp = 240-310		
210	1			U_{63}	0.82		pp = 330-350		1
					1.3		pp = 400-430		
		with fine to coarse angular basalt gravel		D	1.7 1.8				
209	2								2
	2.2	Pit discontinued at 2.2m. Refusal.							

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RIG: 14T Excavator with 450 mm wide bucket

SURVEY DATUM: MGA94 Zone 55 H

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

TEST PIT LOG

CLIENT: Fire Rescue Victoria
PROJECT: Craigieburn Fire Station
LOCATION: 92-110 Dorchester Street, Craigieburn

SURFACE LEVEL: 210.9 m AHD
EASTING: 5837198
NORTHING: 316250

PIT No: TP 10
PROJECT No: 212584.00
DATE: 12/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per 100mm)
									5 10 15 20
		Silty CLAY (CH): high plasticity, brown, with fine to medium sand and rootlets, grassed covered; w<PL, very stiff; TOPSOIL		D	0.0				
					0.1				
	0.3	Silty CLAY (CH): high plasticity, pale brown and pale grey, w≥PL, very stiff to hard; RESIDUAL		D	0.3		pp >600		
					0.4				
					0.7		pp = 540-600		
210	1			D	1.0		pp = 490-540		1
					1.1				
					1.4		pp >600		
209	1.9	Pit discontinued at 1.9m. Refusal.							2
208									

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RIG: 14T Excavator with 450 mm wide bucket

SURVEY DATUM: MGA94 Zone 55 H

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

[redacted]

TEST PIT LOG

CLIENT: Fire Rescue Victoria
PROJECT: Craigieburn Fire Station
LOCATION: 92-110 Dorchester Street, Craigieburn

SURFACE LEVEL: 211 m AHD
EASTING: 5837184
NORTHING: 316200

PIT No: TP 11
PROJECT No: 212584.00
DATE: 12/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per 100mm)
211		Silty CLAY (CH): high plasticity, brown, with fine to medium sand and rootlets, grassed covered; w<PL, very stiff; TOPSOIL		D	0.0 0.1				
	0.4	Silty CLAY (CH): high plasticity, pale brown and pale grey, w≥ PL, very stiff to hard; RESIDUAL		D	0.4 0.5		pp = 220-230		
					0.8		pp = 210-270		
210	1			U_{63}	1.0				1
					1.2		pp = 240-260		
					1.5		pp = 260-280		
209	2				2.0		pp = 300-340		2
					2.5		pp = 320-360		
	2.7	Pit discontinued at 2.7m. Refusal							

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RIG: 14T Excavator with 450 mm wide bucket

SURVEY DATUM: MGA94 Zone 55 H

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

[redacted]

TEST PIT LOG

CLIENT: Fire Rescue Victoria
PROJECT: Craigieburn Fire Station
LOCATION: 92-110 Dorchester Street, Craigieburn

SURFACE LEVEL: 210.9 m AHD
EASTING: 5837177
NORTHING: 316230

PIT No: TP 12
PROJECT No: 212584.00
DATE: 13/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per 100mm)
210	0.0	Silty CLAY (CH): high plasticity, brown, with fine to medium sand and rootlets, grassed covered; w<PL, very stiff; TOPSOIL		D	0.0 – 0.1				
	0.3	Silty CLAY (CH): high plasticity, pale brown and pale grey, w≥PL, very stiff to hard; RESIDUAL		D	0.3 – 0.4		pp = 300-340		
					0.6		pp = 380-420		
					0.9		pp = 400-420		
					1.2		pp = 440-500		
		with fine to medium angular basaltic gravel		D	1.7 – 1.8				
209	1.9	Pit discontinued at 1.9m. Refusal.							
208									

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RIG: 14T Excavator with 450 mm wide bucket

SURVEY DATUM: MGA94 Zone 55 H

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

[redacted]

TEST PIT LOG

CLIENT: Fire Rescue Victoria
PROJECT: Craigieburn Fire Station
LOCATION: 92-110 Dorchester Street, Craigieburn

SURFACE LEVEL: 210.8 m AHD
EASTING: 5837180
NORTHING: 316260

PIT No: TP 13
PROJECT No: 212584.00
DATE: 13/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per 100mm)
		Silty CLAY (CH): high plasticity, brown, with fine to medium sand and rootlets, grassed covered; w<PL, very stiff; TOPSOIL		D	0.0 0.1				
	0.3	Silty CLAY (CH): high plasticity, pale brown and pale grey, w≥PL, very stiff to hard; RESIDUAL		D	0.3 0.4 0.5		pp = 400-420		
210				B / U_{63}	0.7		pp = 430-450		
	1								1
					1.3		pp = 420-480		
					1.6		pp >600		
209		From 1.8m: with boulders and cobbles							
	2								2
	2.1	Pit discontinued at 2.1m. Refusal.							
208									

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RIG: 14T Excavator with 450 mm wide bucket

SURVEY DATUM: MGA94 Zone 55 H

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

[redacted]

TEST PIT LOG

CLIENT: Fire Rescue Victoria
PROJECT: Craigieburn Fire Station
LOCATION: 92-110 Dorchester Street, Craigieburn

SURFACE LEVEL: 210.7 m AHD
EASTING: 5837167
NORTHING: 316213

PIT No: TP 14
PROJECT No: 212584.00
DATE: 13/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per 100mm)
									5 10 15 20
		Silty CLAY (CH): high plasticity, brown, with fine to medium sand and rootlets, grassed covered; w<PL, very stiff; TOPSOIL		D	0.0				
					0.1				
	0.3	Silty CLAY (CH): high plasticity, pale brown and pale grey, w≥PL, very stiff to hard; RESIDUAL		D	0.3		pp = 360-420		
					0.4				
					0.5		pp = 420-440		
210				B					
	1				1.0				1
					1.2				
				U_{63}					
					1.41		pp >600		
209					1.7		pp >600		
	2								2
		with fine to coarse angular basalt gravel			2.2				
				D	2.3				
	2.4	Pit discontinued at 2.4m. Refusal.							
208									

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[redacted]

RIG: 14T Excavator with 450 mm wide bucket

SURVEY DATUM: MGA94 Zone 55 H

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

[redacted]

TEST PIT LOG

CLIENT: Fire Rescue Victoria
PROJECT: Craigieburn Fire Station
LOCATION: 92-110 Dorchester Street, Craigieburn

SURFACE LEVEL: 210.8 m AHD
EASTING: 5837165
NORTHING: 316249

PIT No: TP 15
PROJECT No: 212584.00
DATE: 13/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per 100mm)
		Silty CLAY (CH): high plasticity, brown, with fine to medium sand and rootlets, grassed covered; w<PL, very stiff; TOPSOIL		D	0.0				
					0.1				
	0.4	Silty CLAY (CH): high plasticity, pale brown and pale grey, w≥PL, very stiff; RESIDUAL		D	0.4		pp = 200-300		
					0.5				
210					0.7		pp = 260-330		
	1			D	1.0		pp = 280-300		1
					1.1				
					1.3		pp = 320-340		
		with fine to coarse angular basalt gravel		D	1.6				
209					1.7				
	2	2.0 Pit discontinued at 2.0m. Refusal.							2
208									

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RIG: 14T Excavator with 450 mm wide bucket

SURVEY DATUM: MGA94 Zone 55 H

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

[redacted]

TEST PIT LOG

CLIENT: Fire Rescue Victoria
PROJECT: Craigieburn Fire Station
LOCATION: 92-110 Dorchester Street, Craigieburn

SURFACE LEVEL: 210.6 m AHD
EASTING: 5837165
NORTHING: 316282

PIT No: TP 16
PROJECT No: 212584.00
DATE: 13/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per 100mm)
210	0.0	Silty CLAY (CH): high plasticity, brown, with fine to medium sand and rootlets, grassed covered, w<PL, very stiff; TOPSOIL		D	0.0 0.1				
	0.4	Silty CLAY (CH): high plasticity, brown, minus sand, w≥ PL, hard; RESIDUAL		D+ B + U_{63}	0.4		0.4-0.5m: D 0.4-0.9m: B 0.6-0.93m: U_{63}		
	1	From 1.2m: with cobble / boulders			0.93 1.0		pp >600		1
209				D	1.1				
					1.5		pp >600		
	1.8	Pit discontinued at 1.8m. Refusal.							
208	2								2

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RIG: 14T Excavator with 450 mm wide bucket

SURVEY DATUM: MGA94 Zone 55 H

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

[redacted]

TEST PIT LOG

CLIENT: Fire Rescue Victoria
PROJECT: Craigieburn Fire Station
LOCATION: 92-110 Dorchester Street, Craigieburn

SURFACE LEVEL: 210.8 m AHD
EASTING: 5837157
NORTHING: 316199

PIT No: TP 17
PROJECT No: 212584.00
DATE: 13/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per 100mm)
									5 10 15 20
		Silty CLAY (CH): high plasticity, brown, with fine to medium sand and rootlets, grassed covered; w<PL, very stiff; TOPSOIL		D	0.0				
					0.1				
	0.3	Silty CLAY (CH): high plasticity, pale brown and pale grey, w≥PL, very stiff; RESIDUAL		D	0.3		pp = 250-340		
					0.4				
					0.6		pp = 260-300		
210									
				D	0.9		pp = 290-330		
	1				1.0				1
					1.3		pp = 290-340		
					1.6		pp = 320-450		
209		with fine to medium angular gravel and cobbles		D	1.8				
	2				1.9				2
	2.3	Pit discontinued at 2.3m. Refusal.							
208									

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[redacted]

RIG: 14T Excavator with 450 mm wide bucket

SURVEY DATUM: MGA94 Zone 55 H

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

[redacted]

TEST PIT LOG

CLIENT: Fire Rescue Victoria
PROJECT: Craigieburn Fire Station
LOCATION: 92-110 Dorchester Street, Craigieburn

SURFACE LEVEL: 210.7 m AHD
EASTING: 5837155
NORTHING: 316231

PIT No: TP 18
PROJECT No: 212584.00
DATE: 13/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per 100mm)
210	0.0	Silty CLAY (CH): high plasticity, brown, with fine to medium sand and rootlets, grassed covered; w<PL, very stiff; TOPSOIL		D	0.0				
					0.1				
	0.4	Silty CLAY (CH): high plasticity, pale brown and pale grey, w≥ PL, very stiff; RESIDUAL		D	0.4		pp = 320-400		
					0.5				
					0.7		pp = 280-300		
	1			D	1.0		pp = 290-310		1
					1.1				
209		From 1.7m: with boulders and cobbles			1.3		pp = 380-410		
	1.8	Pit discontinued at 1.8m. Refusal.							
	2								2
208									

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RIG: 14T Excavator with 450 mm wide bucket

SURVEY DATUM: MGA94 Zone 55 H

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

[redacted]

TEST PIT LOG

CLIENT: Fire Rescue Victoria
PROJECT: Craigieburn Fire Station
LOCATION: 92-110 Dorchester Street, Craigieburn

SURFACE LEVEL: 210.6 m AHD
EASTING: 5837151
NORTHING: 316265

PIT No: TP 19
PROJECT No: 212584.00
DATE: 13/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per 100mm)
		Silty CLAY (CH): high plasticity, brown, with fine to medium sand and rootlets, grassed covered; w<PL, very stiff - hard; TOPSOIL		D	0.0 0.1				
	0.3	Silty CLAY (CH): high plasticity, pale brown and pale grey, w≥PL, very stiff - hard; RESIDUAL		D	0.3 0.4		pp = 410-430		
210					0.6		pp = 330-340		
	1			D	0.9 1.0		pp = 230-280		1
		From 1.4m: with boulder and cobbles			1.2		pp = 340-400		
	1.5	Pit discontinued at 1.5m. Refusal.							
209									
	2								2
208									

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RIG: 14T Excavator with 450 mm wide bucket

SURVEY DATUM: MGA94 Zone 55 H

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

[redacted]

TEST PIT LOG

CLIENT: Fire Rescue Victoria
PROJECT: Craigieburn Fire Station
LOCATION: 92-110 Dorchester Street, Craigieburn

SURFACE LEVEL: 210.5 m AHD
EASTING: 5837147
NORTHING: 316295

PIT No: TP 20
PROJECT No: 212584.00
DATE: 13/4/2022
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per 100mm)
									5 10 15 20
		Silty CLAY (CH): high plasticity, brown, with fine to medium sand and rootlets, grassed covered; w<PL, very stiff - hard; TOPSOIL		D	0.0				
					0.1				
	0.4	Silty CLAY (CH): high plasticity, pale brown and pale grey, w≥PL, very stiff - hard; RESIDUAL		D	0.4		pp >600		
210					0.5				
				B / U_{63}	0.82		pp = 350-420		
	1				1.0				1
					1.2		pp = 240-280		
209					1.5		pp = 350-410		
				D	1.6				
	2								2
208	2.5	Pit discontinued at 2.5m. Refusal.							

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[redacted]

RIG: 14T Excavator with 450 mm wide bucket

SURVEY DATUM: MGA94 Zone 55 H

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

[redacted]



Photo 1 : TP01



Photo 2 : TP01 – Test Pit Spoil

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CLIENT: Fire Rescue Victoria	**Test Pit Photographs**	PROJECT No:	212584.00
OFFICE: Melbourne	**Craigieburn Fire Station**	PLATE No:	1
DATE: April 2022	**92 – 110 Dorchester St, Craigieburn**	REVISION:	A



Photo 3 : TP02



Photo 4 : TP02 – Test Pit Spoil

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CLIENT: Fire Rescue Victoria	**Test Pit Photographs**	PROJECT No:	212584.00
OFFICE: Melbourne	**Craigieburn Fire Station**	PLATE No:	2
DATE: April 2022	**92 – 110 Dorchester St, Craigieburn**	REVISION:	A



Photo 5 : TP03



Photo 6 : TP03 – Test Pit Spoil

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CLIENT: Fire Rescue Victoria	**Test Pit Photographs**	PROJECT No: 212584.00
OFFICE: Melbourne	**Craigieburn Fire Station**	PLATE No: 3
DATE: April 2022	**92 – 110 Dorchester St, Craigieburn**	REVISION: A



Photo 7 : TP04



Photo 8 : TP04

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CLIENT: Fire Rescue Victoria	**Test Pit Photographs**	PROJECT No: 212584.00
OFFICE: Melbourne	**Craigieburn Fire Station**	PLATE No: 4
DATE: April 2022	**92 – 110 Dorchester St, Craigieburn**	REVISION: A



Photo 9 : TP05



Photo 10 : TP05 – Test Pit Spoil

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CLIENT: Fire Rescue Victoria	**Test Pit Photographs**	PROJECT No:	212584.00
OFFICE: Melbourne	**Craigieburn Fire Station**	PLATE No:	5
DATE: April 2022	**92 – 110 Dorchester St, Craigieburn**	REVISION:	A



Photo 11 : TP06



Photo 12 : TP06 Test Pit Soil

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CLIENT: Fire Rescue Victoria	**Test Pit Photographs**	PROJECT No:	212584.00
OFFICE: Melbourne	**Craigieburn Fire Station**	PLATE No:	6
DATE: April 2022	**92 – 110 Dorchester St, Craigieburn**	REVISION:	A



Photo 13 : TP07



Photo 14 : TP07 Test Pit Spoil

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CLIENT: Fire Rescue Victoria	**Test Pit Photographs**	PROJECT No:	212584.00
OFFICE: Melbourne	**Craigieburn Fire Station**	PLATE No:	7
DATE: April 2022	**92 – 110 Dorchester St, Craigieburn**	REVISION:	A



Photo 15 : TP08



Photo 16 : TP08 Test Pit Spoil

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CLIENT: Fire Rescue Victoria	**Test Pit Photographs**	PROJECT No:	212584.00
OFFICE: Melbourne	**Craigieburn Fire Station**	PLATE No:	8
DATE: April 2022	**92 – 110 Dorchester St, Craigieburn**	REVISION:	A



Photo 17 : TP09



Photo 18 : TP09 Test Pit Spoil

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CLIENT: Fire Rescue Victoria	**Test Pit Photographs**	PROJECT No:	212584.00
OFFICE: Melbourne	**Craigieburn Fire Station**	PLATE No:	9
DATE: April 2022	**92 – 110 Dorchester St, Craigieburn**	REVISION:	A



Photo 19 : TP10



Photo 20 : TP10 Test Pit Spoil

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CLIENT: Fire Rescue Victoria	**Test Pit Photographs**	PROJECT No: 212584.00
OFFICE: Melbourne	**Craigieburn Fire Station**	PLATE No: 10
DATE: April 2022	**92 – 110 Dorchester St, Craigieburn**	REVISION: A



Photo 21 : TP11



Photo 22 : TP11 Test Pit Spoil

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[redacted]	CLIENT: Fire Rescue Victoria	**Test Pit Photographs**	PROJECT No: 212584.00
	OFFICE: Melbourne	**Craigieburn Fire Station**	PLATE No: 11
	DATE: April 2022	**92 – 110 Dorchester St, Craigieburn**	REVISION: A



Photo 23 : TP12



Photo 24 : TP12 Test Pit Spoil

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CLIENT: Fire Rescue Victoria	**Test Pit Photographs**	PROJECT No: 212584.00
OFFICE: Melbourne	**Craigieburn Fire Station**	PLATE No: 12
DATE: April 2022	**92 – 110 Dorchester St, Craigieburn**	REVISION: A



Photo 25 : TP13



Photo 26 : TP13 Test Pit Spoil

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[redacted]	CLIENT: Fire Rescue Victoria	**Test Pit Photographs**	PROJECT No: 212584.00
	OFFICE: Melbourne	**Craigieburn Fire Station**	PLATE No: 13
	DATE: April 2022	**92 – 110 Dorchester St, Craigieburn**	REVISION: A



Photo 27 : TP14



Photo 28 : TP14 Test Pit Spoil

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[redacted]	CLIENT: Fire Rescue Victoria	**Test Pit Photographs**	PROJECT No: 212584.00
	OFFICE: Melbourne	**Craigieburn Fire Station**	PLATE No: 14
	DATE: April 2022	**92 – 110 Dorchester St, Craigieburn**	REVISION: A



Photo 29 : TP15



Photo 30 : TP15 Test Pit Spoil

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[redacted]	CLIENT: Fire Rescue Victoria	**Test Pit Photographs**	PROJECT No: 212584.00
	OFFICE: Melbourne	**Craigieburn Fire Station**	PLATE No: 15
	DATE: April 2022	**92 – 110 Dorchester St, Craigieburn**	REVISION: A



Photo 31 : TP16



Photo 32 : TP16 Test Pit Spoil

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[redacted]	CLIENT: Fire Rescue Victoria	**Test Pit Photographs**	PROJECT No: 212584.00
	OFFICE: Melbourne	**Craigieburn Fire Station**	PLATE No: 16
	DATE: April 2022	**92 – 110 Dorchester St, Craigieburn**	REVISION: A



Photo 33 : TP17



Photo 34 : TP17 Test Pit Spoil

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[redacted]	CLIENT: Fire Rescue Victoria	**Test Pit Photographs**	PROJECT No: 212584.00
	OFFICE: Melbourne	**Craigieburn Fire Station**	PLATE No: 17
	DATE: April 2022	**92 – 110 Dorchester St, Craigieburn**	REVISION: A



Photo 35 : TP18



Photo 36 : TP18 Test Pit Spoil

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CLIENT: Fire Rescue Victoria	**Test Pit Photographs**	PROJECT No:	212584.00
OFFICE: Melbourne	**Craigieburn Fire Station**	PLATE No:	18
DATE: April 2022	**92 – 110 Dorchester St, Craigieburn**	REVISION:	A



Photo 37 : TP19



Photo 38 : TP19 Test Pit Spoil

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CLIENT: Fire Rescue Victoria	**Test Pit Photographs**	PROJECT No:	212584.00
OFFICE: Melbourne	**Craigieburn Fire Station**	PLATE No:	19
DATE: April 2022	**92 – 110 Dorchester St, Craigieburn**	REVISION:	A



Photo 39 : TP20



Photo 40 : TP20 Test Pit Spoil

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CLIENT: Fire Rescue Victoria	**Test Pit Photographs**	PROJECT No: 212584.00
OFFICE: Melbourne	**Craigieburn Fire Station**	PLATE No: 20
DATE: April 2022	**92 – 110 Dorchester St, Craigieburn**	REVISION: A

Appendix D

Site History Documents

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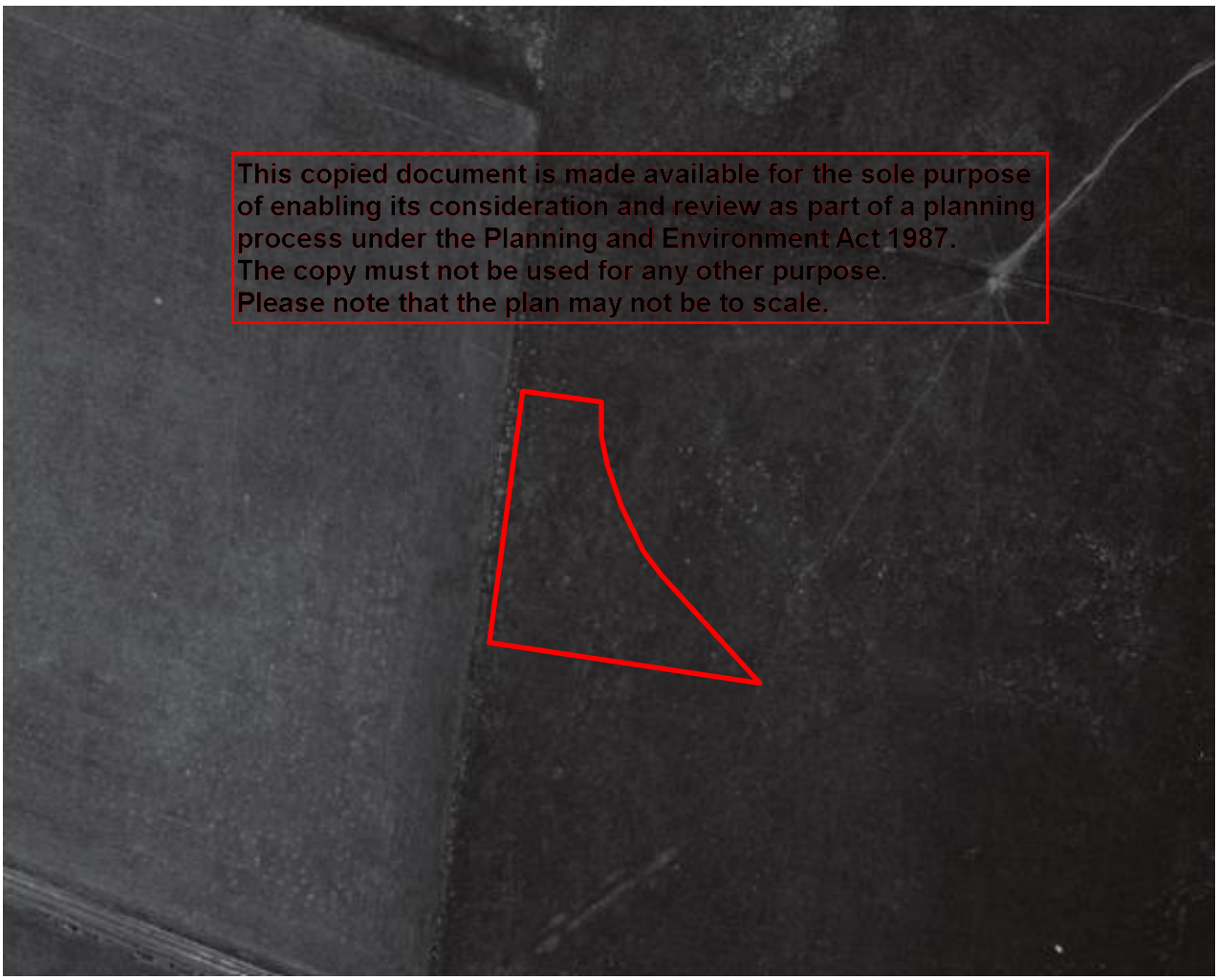
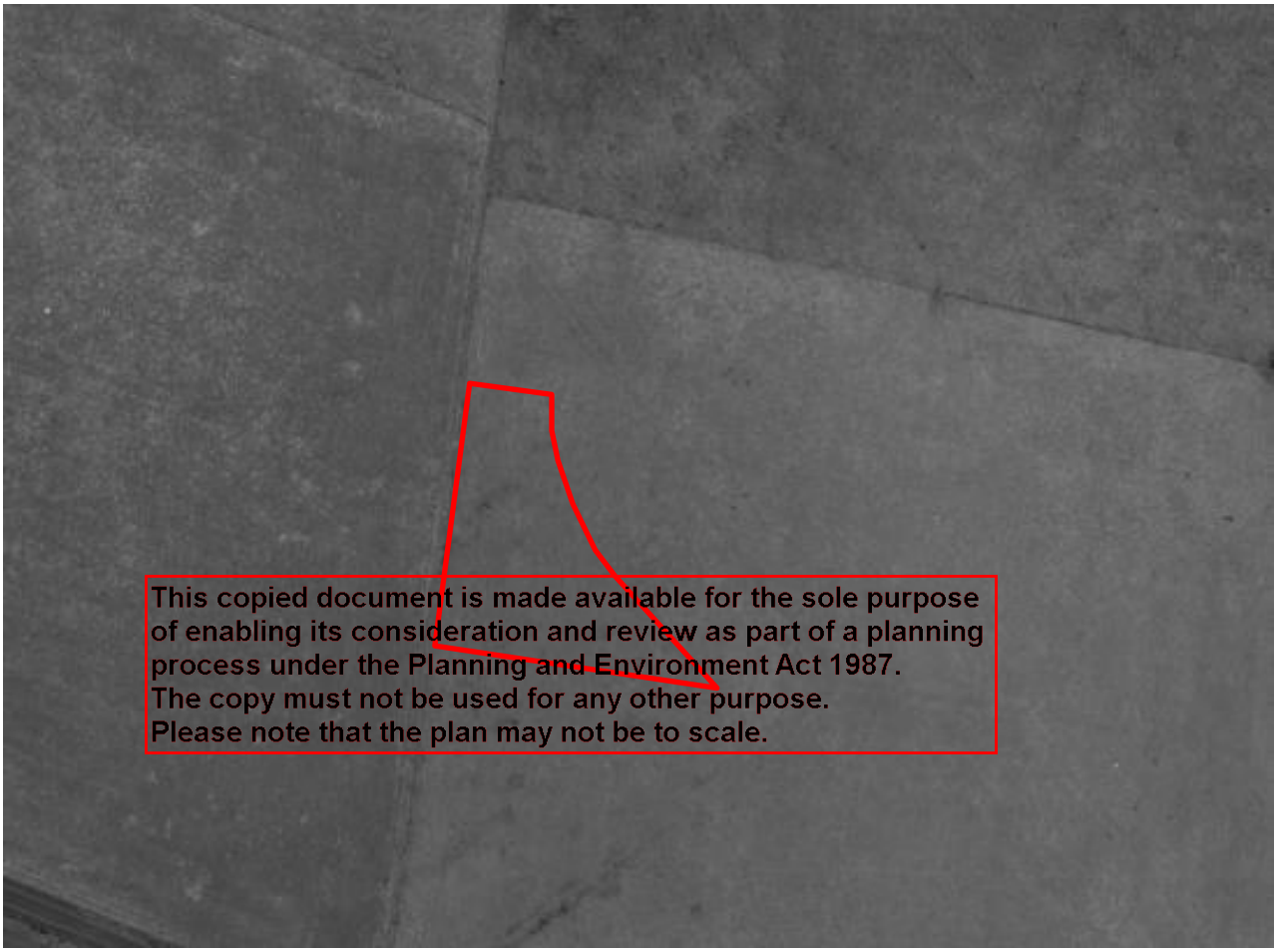




1963 Aerial Photo
Sourced from DELWP

Site History Assessment	PROJECT:	212584.00
Craigieburn Fire Station	PLATE No:	1
92-110 Dorchester Street, Craigieburn	REV:	0
CLIENT: Fire Rescue Victoria	DATE:	Apr 2022



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1975 Aerial Photo
Sourced from DELWP

Site History Assessment	PROJECT:	212584.00
Craigieburn Fire Station	PLATE No:	2
92-110 Dorchester Street, Craigieburn	REV:	0
CLIENT: Fire Rescue Victoria	DATE:	Apr 2022



February 2001 Aerial Photo
Sourced from Metromap

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[redacted]

Site History Assessment

Craigieburn Fire Station

92-110 Dorchester Street, Craigieburn

CLIENT: Fire Rescue Victoria

PROJECT:	212584.00
PLATE No:	3
REV:	0
DATE:	Apr 2022



November 2009 Aerial Photo
Sourced from Metromap

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[redacted] an may not be to scale

[redacted]	**Site History Assessment**	PROJECT:	212584.00
	Craigieburn Fire Station	PLATE No:	4
	92-110 Dorchester Street, Craigieburn	REV:	0
	CLIENT: Fire Rescue Victoria	DATE:	Apr 2022



January 2014 Aerial Photo
Sourced from Metromap

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[redacted]

Site History Assessment

Craigieburn Fire Station

92-110 Dorchester Street, Craigieburn

CLIENT: Fire Rescue Victoria

PROJECT:	212584.00
PLATE No:	5
REV:	0
DATE:	Apr 2022



January 2022 Aerial Photo
Sourced from Metromap

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[redacted]

Site History Assessment	PROJECT:	212584.00
Craigieburn Fire Station	PLATE No:	6
92-110 Dorchester Street, Craigieburn	REV:	0
CLIENT: Fire Rescue Victoria	DATE:	Apr 2022

Appendix E

Geotechnical Laboratory Test Results

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Material Test Report

[redacted]

Report Number: **212584.00-1**
Issue Number: 1
Date Issued: 27/04/2022
Client: [redacted]
Project Number: 212584.00
Project Name: Craigieburn Fire Station
Project Location: 92-110 Dorchester Street, Craigieburn VIC
Work Request: 4420
Sample Number: ME-4420A
Date Sampled: 13/04/2022
Dates Tested: 14/04/2022 - 22/04/2022
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP02 , Depth: 0.80-0.90m**
Material: Silty Clay

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	64		
Plastic Limit (%)	19		
Plasticity Index (%)	**45**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	12.5		
Cracking Crumbling Curling	Cracking		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	23.4

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Results relate only to the items tested/sampled.

Material Test Report



Report Number:	**212584.00-1**
Issue Number:	1
Date Issued:	27/04/2022
Client:	Fire Rescue Victoria
	456 Albert Street, East Melbourne VIC 3002
Project Number:	212584.00
Project Name:	Craigieburn Fire Station
Project Location:	92-110 Dorchester Street, Craigieburn VIC
Work Request:	4420
Sample Number:	ME-4420C
Date Sampled:	13/04/2022
Dates Tested:	14/04/2022 - 14/04/2022
Sampling Method:	Sampled by Engineering Department
	The results apply to the sample as received
Sample Location:	**TP04, Depth: 0.50-0.87m**
Material:	Silty Clay

Shrink Swell Index (AS 1289 7.1.1 & 2.1.1)	
Iss (%)	**4.7**
Visual Description	Silty Clay
* Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.	

Core Shrinkage Test	
Shrinkage Strain - Oven Dried (%)	**7.1**
Estimated % by volume of significant inert inclusions	1
Cracking	Uncracked
Crumbling	No
Moisture Content (%)	25.3

Swell Test	
Initial Pocket Penetrometer (kPa)	300
Final Pocket Penetrometer (kPa)	160
Initial Moisture Content (%)	28.8
Final Moisture Content (%)	31.8
Swell (%)	**2.7**
* NATA Accreditation does not cover the performance of pocket penetrometer readings.	

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Results relate only to the items tested/sampled.

Material Test Report

Report Number: **212584.00-1**
Issue Number: 1
Date Issued: 27/04/2022
Client: Fire Rescue Victoria
456 Albert Street, East Melbourne VIC 3002
Project Number: 212584.00
Project Name: Craigieburn Fire Station
Project Location: 92-110 Dorchester Street, Craigieburn VIC
Work Request: 4420
Sample Number: ME-4420E
Date Sampled: 13/04/2022
Dates Tested: 14/04/2022 - 22/04/2022
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP10 , Depth: 0.30-0.40m**
Material: Silty Clay

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	54		
Plastic Limit (%)	16		
Plasticity Index (%)	**38**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	13.0		
Cracking Crumbling Curling	Cracking		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	17.9

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Results relate only to the items tested/sampled.

Material Test Report

Report Number: **212584.00-1**
Issue Number: 1
Date Issued: 27/04/2022
Client: Fire Rescue Victoria
456 Albert Street, East Melbourne VIC 3002
Project Number: 212584.00
Project Name: Craigieburn Fire Station
Project Location: 92-110 Dorchester Street, Craigieburn VIC
Work Request: 4420
Sample Number: ME-4420F
Date Sampled: 13/04/2022
Dates Tested: 14/04/2022 - 22/04/2022
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP14 , Depth: 0.30-0.40m**
Material: Silty Clay

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	60		
Plastic Limit (%)	19		
Plasticity Index (%)	**41**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	12.0		
Cracking Crumbling Curling	Cracking		

Moisture Content (AS 1289 2.1.1)	
Moisture Content (%)	22.8

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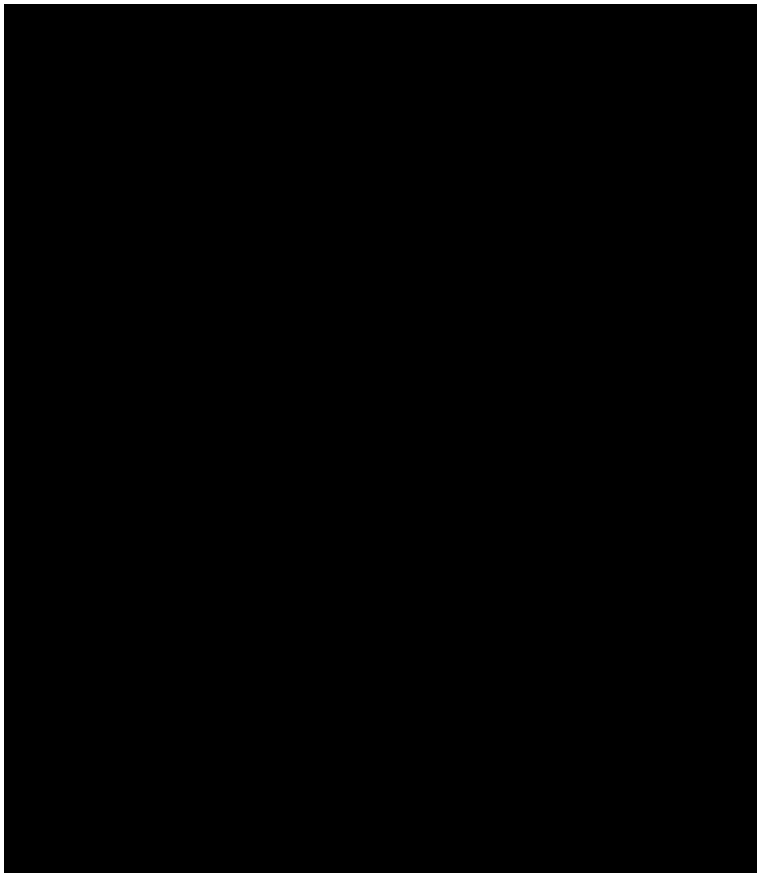
Results relate only to the items tested/sampled.

Material Test Report



Report Number: **212584.00-1**
Issue Number: 1
Date Issued: 27/04/2022
Client: Fire Rescue Victoria
456 Albert Street, East Melbourne VIC 3002
Project Number: 212584.00
Project Name: Craigieburn Fire Station
Project Location: 92-110 Dorchester Street, Craigieburn VIC
Work Request: 4420
Sample Number: ME-4420G
Date Sampled: 13/04/2022
Dates Tested: 14/04/2022 - 14/04/2022
Sampling Method: Sampled by Engineering Department
The results apply to the sample as received
Sample Location: **TP16, Depth: 0.60-0.93m**
Material: Silty Clay

Shrink Swell Index (AS 1289 7.1.1 & 2.1.1)	
Iss (%)	**4.6**
Visual Description	Silty Clay
* Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.	

Core Shrinkage Test	
Shrinkage Strain - Oven Dried (%)	**5.6**
Estimated % by volume of significant inert inclusions	1
Cracking	Uncracked
Crumbling	No
Moisture Content (%)	21.8

Swell Test	
Initial Pocket Penetrometer (kPa)	600
Final Pocket Penetrometer (kPa)	150
Initial Moisture Content (%)	25.4
Final Moisture Content (%)	31.5
Swell (%)	**5.2**
* NATA Accreditation does not cover the performance of pocket penetrometer readings.	

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Results relate only to the items tested/sampled.

5-6-2 Statement of Site Management – Craigieburn Fire Station

1. Project Overview

- Site Address: 99 – 107 Lygon Drive Craigieburn Vic 3064

- Applicant/Developer: FRV

- Planning Permit Reference P26756

This statement outlines how the construction site for the proposed Craigieburn Fire Station, located between Lygon Drive and Dorchester Street, will be managed prior to and during the construction period. The site will be managed in accordance with a Construction Site Environmental Management Plan (CSEMP), which will be submitted to and approved by the Responsible Authority prior to commencement of works.

Site Preparation and Management Overview

Prior to construction, the site will be secured with appropriate fencing and signage. Environmental controls will be installed to prevent off-site impacts. During construction, the site will be actively monitored and maintained to ensure compliance with environmental protection standards.

CSEMP Requirements

1. Erosion and Sediment Control

• Silt fences, sediment traps, and check dams will be installed to prevent sediment runoff.

• Exposed soil will be stabilised using mulch, geotextile fabric, or temporary turf.

• Earthworks will be staged to minimise disturbed areas and avoid wet weather periods.

2. Stormwater Management

• Stormwater inlets will be protected using filter socks or gravel bags.

• Clean water will be diverted away from construction zones.

• Bunding will be installed around stockpiles and hazardous materials to prevent contamination.

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3. Litter, Concrete, and Construction Waste

• Covered bins and skip containers will be provided for general waste and recyclables.

• Daily site clean-ups will be conducted to prevent wind-blown litter.

• A designated concrete washout area with impermeable lining will be established to prevent alkaline runoff.

• All chemicals and fuels will be stored in bunded areas with spill kits available on site.

Monitoring and Compliance

• Weekly site inspections will be conducted by the Site Supervisor.

• Erosion and sediment controls will be checked after rainfall events.

• Waste disposal and spill management procedures will be audited monthly.

• All workers will receive environmental inductions and regular toolbox talks.

This plan ensures that environmental risks are effectively managed throughout the construction period, protecting surrounding land, waterways, and community amenity.

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8. Avoid and Minimize Statement

Project: Proposed Fire Station FRV 80

Address: 99 – 107 Lygon Drive Craigieburn

Prepared in accordance with the Guidelines for the removal, destruction or lopping of native vegetation (DELWP, 2017).

a) Avoidance Measures

The siting and design of the proposed fire station have been developed to avoid the removal of native vegetation wherever feasible, consistent with Step 1 of the three-step approach outlined in the Guidelines (Section 2.2). Specific measures include:

- Strategic site selection: The site is located within an urban growth zone with limited remnant native vegetation, reducing the likelihood of biodiversity impact.
- Design optimisation: The building footprint, access points, and service corridors have been positioned to avoid mapped native vegetation patches identified in preliminary assessments.
- Use of existing infrastructure corridors: Utility alignments have been planned to follow existing disturbed areas, avoiding additional vegetation clearance.

These efforts reflect the principle of "avoidance" as required under Clause 12.01 of the State Planning Policy Framework and Clause 52.17 of the Victorian Planning Provisions.

b) Minimisation Measures

Where vegetation removal is unavoidable due to operational or safety requirements of the fire station, the following actions will be taken to minimise impacts, in line with Step 2 of the Guidelines:

- Retention of non-conflicting vegetation: Trees and understorey vegetation not interfering with fire station operations will be retained.
- Construction controls: Protective fencing and signage will be installed around retained vegetation during construction to prevent accidental damage.
- Restricted access zones: Machinery movement will be confined to designated areas to reduce soil compaction and root disturbance.
- Revegetation and landscaping: Native species will be used in post-construction landscaping to restore ecological function and visual amenity.

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These minimisation strategies are consistent with the Guidelines' requirement to reduce impacts on biodiversity and other values of native vegetation (Section 6.4).

Offset Statement – 99–107 Lygon Drive, Craigieburn

Client: FRV

Based on a review of the site at 99–107 Lygon Drive, Craigieburn, there is currently no native vegetation present within the project area. As a result, the proposed development will not result in the removal, destruction, or lopping of native vegetation.

Accordingly, in line with the Guidelines for the removal, destruction or lopping of native vegetation (DELWP, 2017) and Clause 52.17 of the Victorian Planning Provisions, no offset is required for this project.

Should further evidence or site assessment documentation be required, this can be provided upon request.

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Valuer-General Victoria Market Valuation Report

Date of Report: 22 December 2021



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92-110 Dorchester Street, Craigieburn VIC 3064

VICTORIA State Government | Environment, Land, Water and Planning

Department of Environment, Land, Water and Planning

[redacted]

Valuer-General Victoria Reference: S142479

Valuation Report

92-110 Dorchester Street, Craigieburn VIC 3064



Assessment of Current Market Value

in accordance with instructions from

Fire Rescue Victoria

as at 13 December 2021

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VICTORIA State Government

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Appendix 2. Copy of Certificate of Title

Appendix 3. Extract of Planning Scheme Maps and Ordinances

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[redacted]

1. Executive Summary

Address	92-110 Dorchester Street, Craigieburn, VIC 3064
Instructions	In accordance with the written instructions dated 10 December 2021, an inspection has been carried out to establish the current market value for the purchase of the subject property by Fire Rescue Victoria.
Instructed By	[redacted]
Registered Proprietor	[redacted]
Title Details	The subject property is held as an estate in Fee-Simple contained in Certificate of Title: Volume: 09903 Folio: 738 Lot: T PS: 212816J
Encumbrances	The subject property is affected by any encumbrance created by Section 98 Transfer of Land Act or Section 24 Subdivision Act 1988.
Title Land Area	7,712 square metres
Property Details	The subject property comprises an irregular shaped, generally level parcel of GRZ1 zoned land measuring approximately 7,712 square metres with substantial frontage to Dorchester Street. The parcel of land is currently vacant and unoccupied. The property borders the Craigieburn Comprehensive Development Zone which has seen a large amount of growth and development, including shopping centres, recreational and municipal facilities. The property is located on the western side of Dorchester Street within the suburb of Craigieburn, approximately 25 radial kilometres north west of the Melbourne Central Business District (CBD). The property was listed for sale via Expression of Interest on 18 October 2021 through Gross Waddell ICR Pty Ltd- Melbourne with an expected selling price around $6,000,000.
Planning	Scheme: Hume Planning Scheme Zoning: General Residential Zone - Schedule 1 Overlay(s): Nil
Date of Inspection	13 December 2021
Date of Valuation	13 December 2021

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[redacted]

[redacted]

Valuation	Subject to the overriding stipulations contained within the body of this report, the current market value of the subject property, as at 13 December 2021 has been assessed as:

[redacted]

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[redacted]

[redacted]

2. Introduction

2.1. Property Address

92-110 Dorchester Street, Craigieburn, VIC 3064

2.2. Instructions

In accordance with written instructions dated 10 December 2021, an inspection of the subject property has been carried out to assess the current market value of the subject property, for the purposes of setting a reserve for the purchase of the property by Fire Rescue Victoria.

Appendix 1 - Copy of Instructions

2.3. Agency Details

[redacted]

2.4. Relevant Statute

Valuation of Land Act 1960.

2.5. Definition of Market Value

We have adopted the International Valuation Standards Committee definition of "**Current Market Value**" for the purpose of this assessment;

"The estimated amount for which an asset or liability should exchange on the valuation date between a willing buyer and a willing seller in an arm's length transaction, after proper marketing and where the parties had each acted knowledgeably, prudently and without compulsion."

2.6. Purpose of Valuation

The purpose of this valuation is to assess the current market value for the purchase of the freehold interest in the subject property.

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2.7. Terms of Sale

The valuation has been assessed on the basis of a 'cash' sales, comprising of a 10% deposit and the balance payable at settlement in 90/120 days.

[redacted]

[redacted]

2.8. Critical Assumptions

The valuation is predicated upon the following critical assumptions:

- The Title Plan area (derived) and dimensions for the subject property (Lot T on PS 212816J) have been adopted as being correct in making the assessment of value;
- The value of the subject property has been assessed assuming usual market sale conditions;
- A preliminary site investigation report has not been provided with our instructions, therefore the suitability of the site for Fire Rescue Victoria has not been confirmed; and
- The assessment has been made on the basis that the subject property is not contaminated. In the event that contamination is disclosed to a level which would adversely affect the present or future use of the property, Valuer-General Victoria should be notified and the assessment will be reviewed.

Should any of the above assumptions be determined to be incorrect, [redacted] reserves the right to review and if necessary, amend this valuation advice.

2.9. Date of Inspection

13 December 2021.

2.10. Date of Valuation

13 December 2021 .

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[redacted]

[redacted]

3. Legal Description

3.1. Registered Proprietor

The registered proprietor as Sole Proprietor of an estate in fee simple in the land is [redacted]

3.2. Occupier

The property is vacant as at the date of inspection.

3.3. Title Details

A search of the Certificate of Title dated 14 December 2021 has been undertaken and the valuation is based upon the understanding that no dealings or changes have occurred since the date of search. The property is contained within Certificate of Title Volume 09903 Folio 738 and more particularly being described as Lot T on Plan of Subdivision 212816J.

Appendix 2 - Copy of Certificate of Title

3.4. Encumbrances

The Subject property is affected by any encumbrance created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988.

No further encumbrance advice in relation to the property has been sought, and for the purposes of this assessment, it has been assumed that the subject property is unaffected by any other easements, encumbrances, covenants or caveats which have not been disclosed on the Title.

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[redacted]

3.5. Site Dimensions and Area

According to the Plan of Subdivision (extract shown in Diagram 1 that follows), the site dimensions and land area of the subject property are as follows:

Northern boundary	37.36 metres
Southern boundary	124.42 metres
Eastern boundary	239.45 metres (94.27+92.05+53.13)
Western boundary	113.19 metres
Title Area (as per Title)	**7,712 square metres**

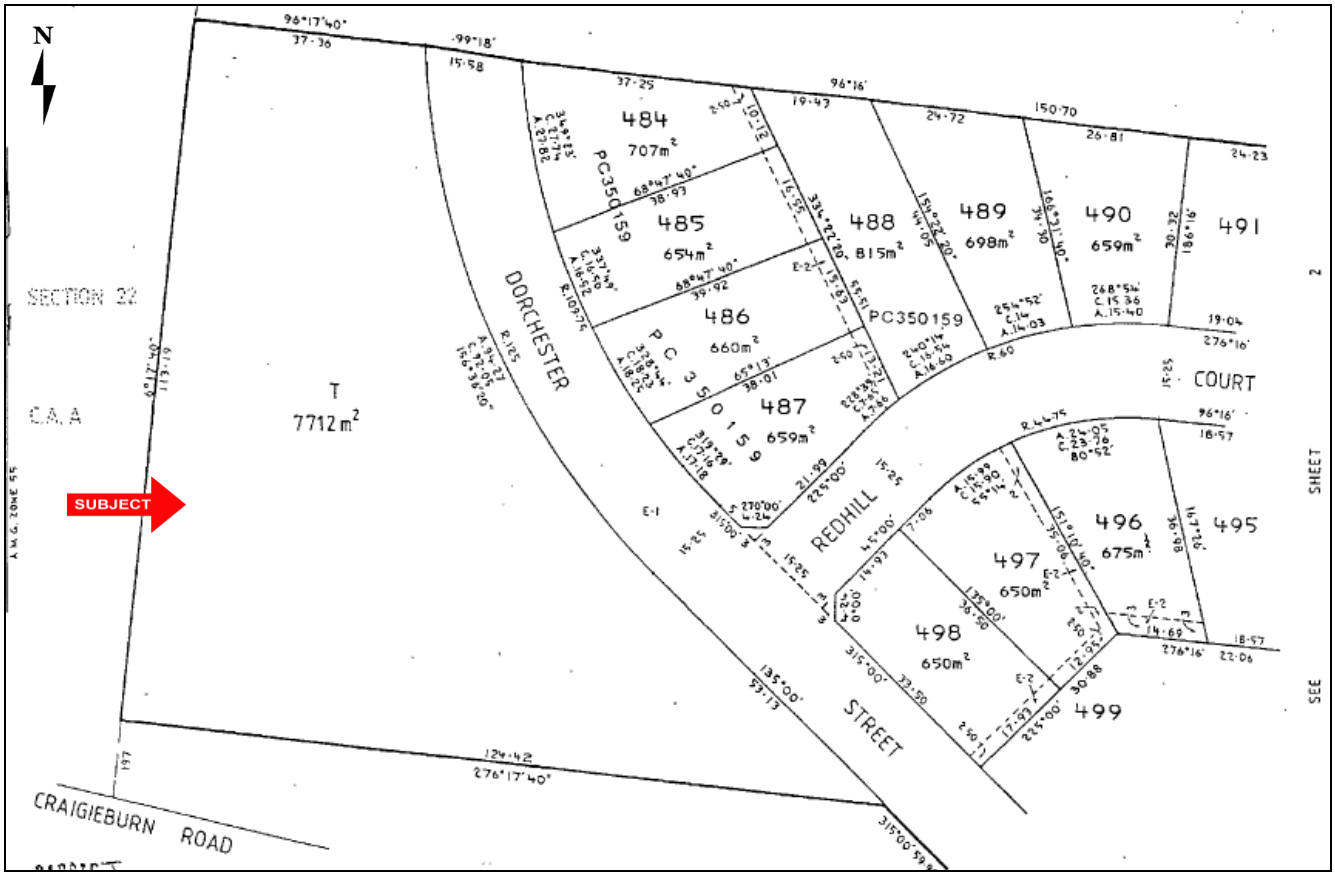

Diagram 1: *Extract of Plan of Subdivision 212816J Showing the Subject Land (Lot T)*

Practical identification of the land sufficient for valuation purposes was possible however due to the overall shape of the property, distances of boundaries, topography and vegetation, actual boundaries could not be verified and this assessment relies upon the Title dimensions and area being correct.

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4. Statutory Planning

4.1. Local Authority

Hume City Council.

4.2. Zoning

The subject property is zoned "**General Residential Zone - Schedule 1 (GRZ1)**" under the Hume Planning Scheme.



Diagram 2: Hume Planning Scheme Zone Map Extract
Source: https://mapshare.vic.gov.au/vicplan

The planning scheme sets out the Purpose of the **General Residential Zone - Schedule 1 (GRZ1)** as follows:

- To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies;
- 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; and
- To allow educational, recreational, religious, community and a limited range of other non-residential uses to serve local community needs in appropriate locations.

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[redacted]

4.3. Planning Overlays

The property is not affected by any overlays.

It should be noted that a Planning Certificate has not been sought and assessment of the existing zoning was made after perusal of the Department of Environment, Land, Water & Planning approved electronic version of the relevant Planning Scheme at http://services.land.vic.gov.au/maps/pmo.jsp. The Town Planning information should be checked by obtaining a Certificate in accordance with the Planning and Environment Act 1987.

Appendix 3 - Extract of Planning Scheme Maps and Ordinances

4.4. Current Use

The subject property's current use as vacant land is a permitted use within the provisions of the planning ordinance.

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[redacted]

5. Property Details

5.1. Location

The subject property is located at 92-110 Dorchester Street within the suburb of Craigieburn, approximately 25 radial kilometres north west of the Melbourne Central Business District (CBD). The subject is positioned on the western side of Dorchester Street.

A map showing the approximate location of the subject property is illustrated below:

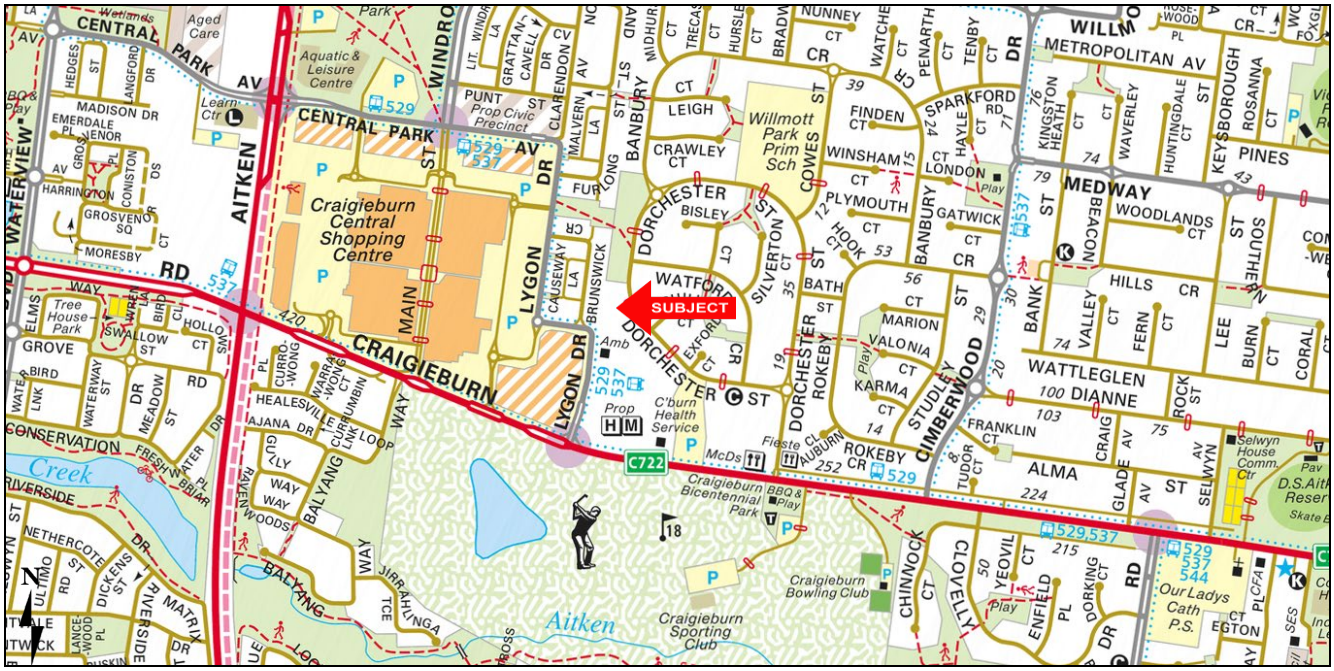

Diagram 3: Location Map of Subject Property
Source: https://online.melway.com.au/melway

Surrounding development immediately comprises a mixture of circa 1990 brick veneer detached houses as well as contemporary townhouse developments. Immediately north of the subject is the Dorchester Street Reserve, Craigieburn Central Shopping Mall is located to the west and Craigieburn Health Service and Craigieburn Public Golf Course are located to the south of the subject.

5.1.1. Proximity to Services and Amenities

Local retail enterprises are located within Craigieburn Central Shopping Mall, approximately 450 radial metres west of the subject. The shopping centre comprises several major anchor tenants such as Coles, ALDI, Big W, Kmart, JB Hi-Fi, Woolworths and United Cinemas. Additionally, the Craigieburn Health Service Hospital, including the Australian Clinical Labs, is located 150 radial metres south of the subject, accessed via Craigieburn Road.

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The property has good access to public transport, with Craigieburn Station located approximately 2.3 radial kilometres south east of the subject which operates the Craigieburn Line and the Seymour – Melbourne via Broadmeadows V-Line train. The nearest bus stop is located on Craigieburn Road located 370 radial metres south west of the subject and carries route 537 Craigieburn Station - Craigieburn West via Craigieburn Central SC and 541 Broadmeadows Station - Craigieburn North (Mt Ridley Rd).

[redacted]

5.1.2. Access and Linkages

The property has good access to major arterial roadways. Craigieburn road is located approximately 280 radial metres south of the subject providing users access to the Hume Freeway, carrying high volumes of traffic, located approximately 2.1 radial kilometres east of the subject. Further, Mickleham Road is located approximately 3.2 radial kilometres west of the subject.

5.2. Site Description

The subject property is irregular in shape and level in contour.

5.3. Services

	Available	Connected
Electricity	✓	Unknown
Water	✓	Unknown
Sewerage	✓	Unknown
Gas	✓	Unknown
Telecommunications	✓	Unknown

Dorchester Street is a fully constructed bitumen two lane Collector Road with concrete kerbing, channels, footpaths and crossovers.

Access to the subject site is considered good.

5.4. Contamination Status

A Site Contamination and Environment Compliance Report was not provided with your instructions. Inquiries have revealed that the subject land is not listed on the Environment Protection Authority's Priority Sites Register dated 19 October 2021. In addition, the site is not listed on the issued Certificates and Statements of Environmental Audit as at 14 December 2021.

Beyond these preliminary investigations the likelihood of any site contamination cannot be determined due to a lack of expertise in this field by Valuer-General Victoria. Consequently, no responsibility can be accepted by Valuer-General Victoria for the effect that such conditions may have on the value of the property.

The assessment has been made on the basis that the subject property is not contaminated. In the event that contamination is disclosed to a level which would adversely affect the present or future use of the property, Valuer-General Victoria should be notified and the assessment will be reviewed.

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[redacted]

5.5. Photographs

	
Northerly Aspect	Southerly Aspect
	
Outlook of Subject Site	Outlook of Subject Site

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