NOTICE OF PROPOSED DEVELOPMENT

Notice is hereby given that an application has been made for planning approval for the following development:

SITE:

LAND ADJACENT TO 531 OLD FORCETT ROAD, DODGES FERRY (CT 178932/1)

PROPOSED DEVELOPMENT:

WAREHOUSE BUILDINGS AND SIX LOT SUBDIVISION

The relevant plans and documents can be inspected at the Council Offices at 47 Cole Street, Sorell during normal office hours, or the plans may be viewed on Council's website at www.sorell.tas.gov.au until **Tuesday 4th November 2025.**

Any person may make representation in relation to the proposal by letter or electronic mail (sorell.council@sorell.tas.gov.au) addressed to the General Manager. Representations must be received no later than **Tuesday 4th November 2025.**

APPLICATION NO: **5.2025.135.1**
DATE: **17/10/2025**

Part B: Please note that Part B of this form is publicly exhibited.

Full description of Proposal:	*Use:* Storage *Development:* Staged subdivision - 6 lots Development of warehouse buildings *Large or complex proposals should be described in a letter or planning report.*
Design and construction cost of proposal:	$ 13m

Is all, or some the work already constructed:	No: ☑ Yes: ☐

Location of proposed works:	Street address: Lot 1 Old Forcett Road Suburb: Dodges Ferry Postcode: 7173 Certificate of Title(s) Volume: 178932/1 Folio: & 119464/

Current Use of Site	Vacant

Current Owner/s:	Name(s) Tasmanian Land Holdings Pty Ltd & Jacqueline Edwards & Lynett

Is the Property on the Tasmanian Heritage Register?	No: ☑ Yes: ☐	*If yes, please provide written advice from Heritage Tasmania*
Is the proposal to be carried out in more than one stage?	No: ☑ Yes: ☐	*If yes, please clearly describe in plans*
Have any potentially contaminating uses been undertaken on the site?	No: ☑ Yes: ☐	*If yes, please complete the Additional Information for Non-Residential Use*
Is any vegetation proposed to be removed?	No: ☐ Yes: ☑	*If yes, please ensure plans clearly show area to be impacted*
Does the proposal involve land administered or owned by either the Crown or Council?	No: ☐ Yes: ☑	*If yes, please complete the Council or Crown land section on page 3*
If a new or upgraded vehicular crossing is required from Council to the front boundary please complete the Vehicular Crossing (and Associated Works) application form https://www.sorell.tas.gov.au/services/engineering/		

Part B continued: Please note that Part B of this form is publicly exhibited

Declarations and acknowledgements
• I/we confirm that the application does not contradict any easement, covenant or restriction specified in the Certificate of Title, Schedule of Easements or Part 5 Agreement for the land. • I/we consent to Council employees or consultants entering the site and have arranged permission and/or access for Council's representatives to enter the land at any time during normal business hours. • I/we authorise the provision of a copy of any documents relating to this application to any person for the purposes of assessment or public consultation and have permission of the copyright owner for such copies. • I/we declare that, in accordance with s52(1) of the *Land Use Planning and Approvals Act 1993*, that I have notified the owner(s) of the intention to make this application. • I/we declare that the information in this application is true and correct. *Details of how the Council manages personal information and how you can request access or corrections to it is outlined in Council's Privacy Policy available on the Council website.*
• I/we acknowledge that the documentation submitted in support of my application will become a public record held by Council and may be reproduced by Council in both electronic and hard copy format in order to facilitate the assessment process, for display purposes during public exhibition, and to fulfil its statutory obligations. I further acknowledge that following determination of my application, Council will store documentation relating to my application in electronic format only.
• Where the General Manager's consent is also required under s.14 of the *Urban Drainage Act 2013*, by making this application I/we also apply for that consent.

Applicant Signature:	Signature: ..... Date: 15 October 2025

Crown or General Manager Land Owner Consent
If the land that is the subject of this application is owned or administered by either the Crown or Sorell Council, the consent of the relevant Minister or the Council General Manager whichever is applicable, must be included here. This consent should be completed and signed by either the General Manager, the Minister, or a delegate (as specified in s52 (1D-1G) of the *Land Use Planning and Approvals Act 1993*). Please note: • If General Manager consent if required, please first complete the General Manager consent application form available on our website www.sorell.tas.gov.au • If the application involves Crown land you will also need a letter of consent. • Any consent is for the purposes of making this application only and is not consent to undertaken work or take any other action with respect to the proposed use or development.
I _____ being responsible for the administration of land at _____ declare that I have given permission for the making of this application for _____

Signature of General Manager, Minister or Delegate:	Signature: ..... Date: .....

RESULT OF SEARCH

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

SEARCH OF TORRENS TITLE

VOLUME	FOLIO
119464	1
EDITION	DATE OF ISSUE
3	13-Dec-2016

SEARCH DATE : 29-Jan-2025
SEARCH TIME : 03.45 PM

DESCRIPTION OF LAND

Town of DODGES FERRY
Lot 1 on Sealed Plan 119464
Derivation : Part of 300 Acres Gtd. to George Wise
Prior CT 39558/1

SCHEDULE 1

M606090 TRANSFER to JACQUELINE EDWARDS and LYNETTE NANCY PADMAN as tenants in common in equal shares Registered 13-Dec-2016 at noon

SCHEDULE 2

Reservations and conditions in the Crown Grant if any
SP119465 EASEMENTS in Schedule of Easements
SP119465 FENCING COVENANT in Schedule of Easements
M603827 MORTGAGE to Members Equity Bank Limited Registered 13-Dec-2016 at 12.01 PM

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

RESULT OF SEARCH

ASSISTANT RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

SEARCH OF TORRENS TITLE

VOLUME	FOLIO
178932	1
EDITION	DATE OF ISSUE
1	30-Apr-2025

SEARCH DATE : 19-Sep-2025
SEARCH TIME : 03.02 PM

DESCRIPTION OF LAND

Town of DODGES FERRY
Lot 1 on Plan 178932
Derivation : Part of 300 Acres Granted to George Wise
Prior CT 119465/1

SCHEDULE 1

C953147 TRANSFER to TASMANIAN LAND HOLDINGS PTY LTD
Registered 02-Feb-2010 at noon

SCHEDULE 2

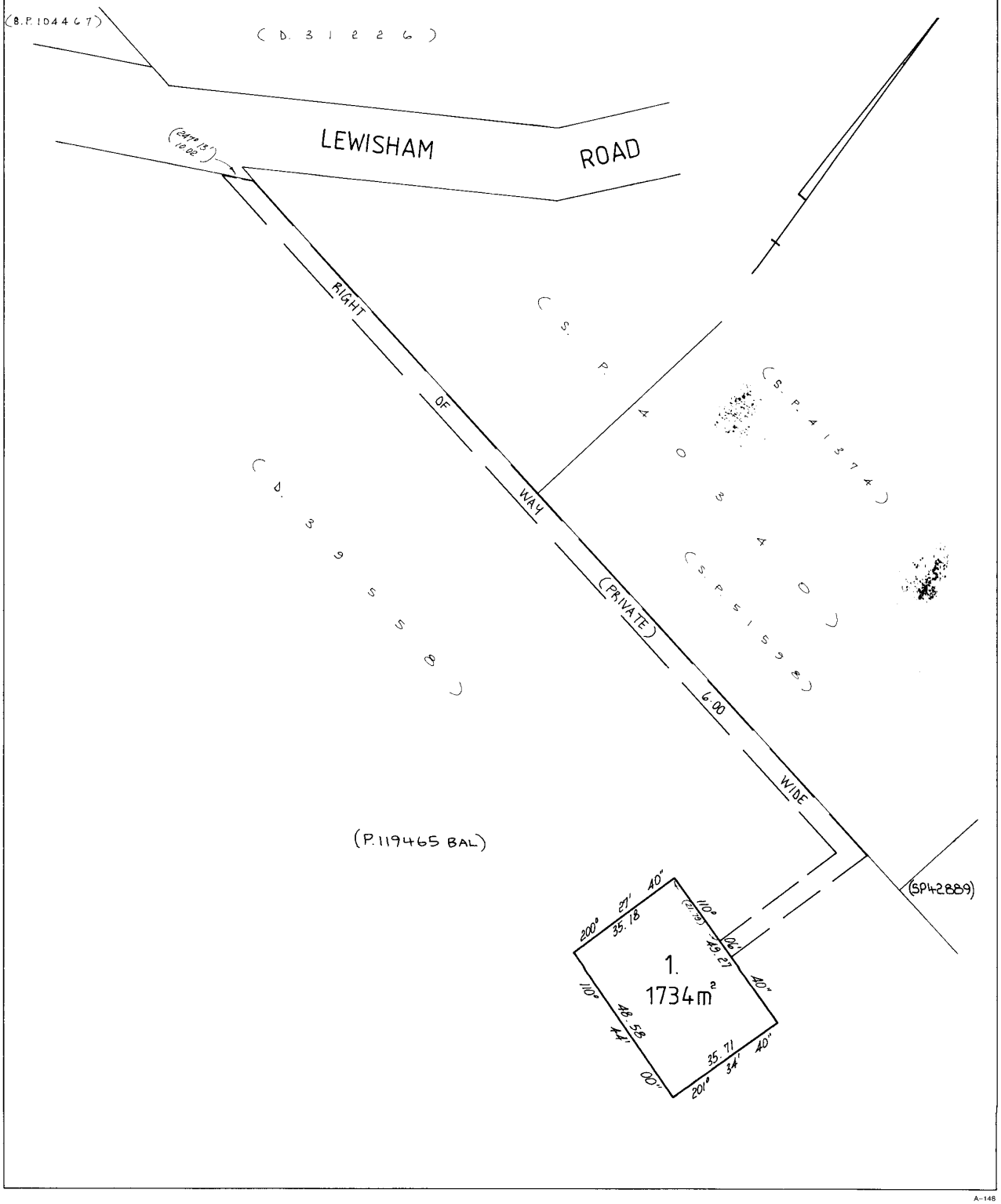
Reservations and conditions in the Crown Grant if any
SP119465 BURDENING EASEMENT: right of carriageway over the land marked Right of Way 6.00 wide on Plan 178932
C953177 MORTGAGE to Bank of Queensland Limited Registered 02-Feb-2010 at 12.01 PM

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

OWNER B. Beardon FOLIO REFERENCE F.B. ~~4564-29~~ 39558-1 GRANTEE Part of 300 acres granted to George Wise.	PLAN OF SURVEY BY SURVEYOR J. B. Medbury J.B. MEDBURY P/L., SURVEYORS OF 224 CAMPBELL ST., HOBART. LOCATION TOWN OF DODGES FERRY SCALE 1: 1000 LENGTHS IN METRES	REGISTERED NUMBER SP 119464 APPROVED 20 FEB 1996 EFFECTIVE FROM Recorder of Titles

MAPSHEET MUNICIPAL CODE No. 124	LAST UPI No. 2900829	LAST PLAN No. 039558	ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN

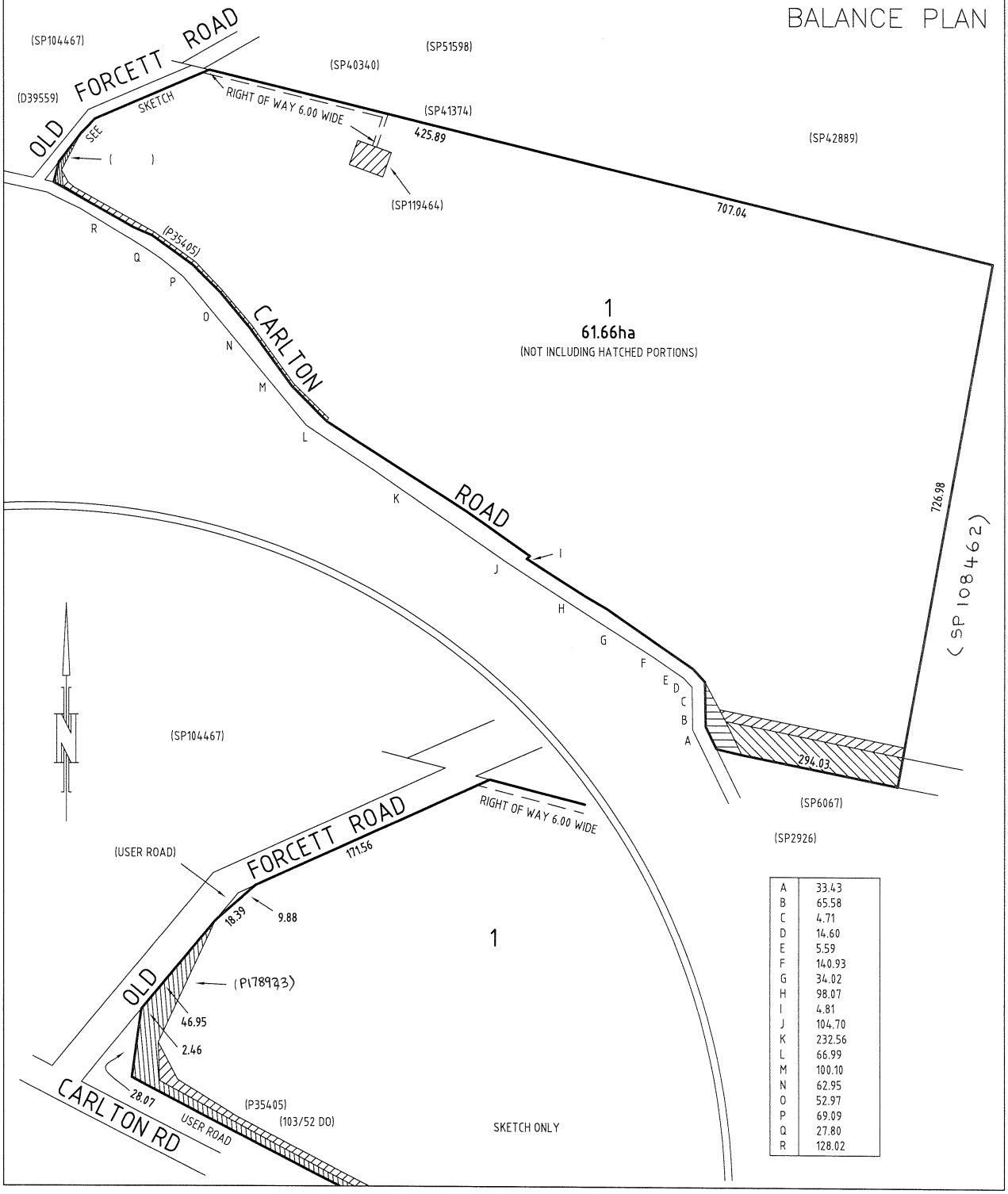


A-148

OWNER TASMANIAN LAND HOLDINGS PTY LTD FOLIO REFERENCE C.T.119465/1 GRANTEE PART OF 300 ACRES GRANTED TO GEORGE WISE	**PLAN OF TITLE** TOWN OF DODGES FERRY CONVERTED BY PLAN No. COMPILED BY: ROGERSON AND BIRCH SURVEYORS SCALE 1:5000 LENGTHS IN METRES	REGISTERED NUMBER **P178932** APPROVED 26 JUL 2022 Recorder of Titles

ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN

BALANCE PLAN



A	33.43
B	65.58
C	4.71
D	14.60
E	5.59
F	140.93
G	34.02
H	98.07
I	4.81
J	104.70
K	232.56
L	66.99
M	100.10
N	62.95
O	52.97
P	69.09
Q	27.80
R	128.02

SCHEDULE OF EASEMENTS

NOTE: THE SCHEDULE MUST BE SIGNED BY THE OWNERS & MORTGAGEES OF THE LAND AFFECTED. SIGNATURES MUST BE ATTESTED.

REGISTERED NUMBER

SP 119464

EASEMENTS AND PROFITS

PAGE 1 OF 1 PAGES

Each lot on the plan is together with:-
(1) such rights of drainage over the drainage easements shown on the plan (if any) as may be necessary to drain the stormwater and other surplus water from such lot; and
(2) any easements or profits a prendre described hereunder.
Each lot on the plan is subject to:-
(1) such rights of drainage over the drainage easements shown on the plan (if any) as passing through such lot as may be necessary to drain the stormwater and other surplus water from any other lot on the plan; and
(2) any easements or profits a prendre described hereunder.
The direction of the flow of water through the drainage easements shown on the plan is indicated by arrows.

Lot 1 is TOGETHER WITH a Right of Carriageway over the Right of Way (Private) 6.00 wide shown on the plan.

FENCING COVENANT

The owner of ~~each~~ the lot on the plan covenants with BARBARA REARDON (the Vendor) that the Vendor shall not be required to fence.

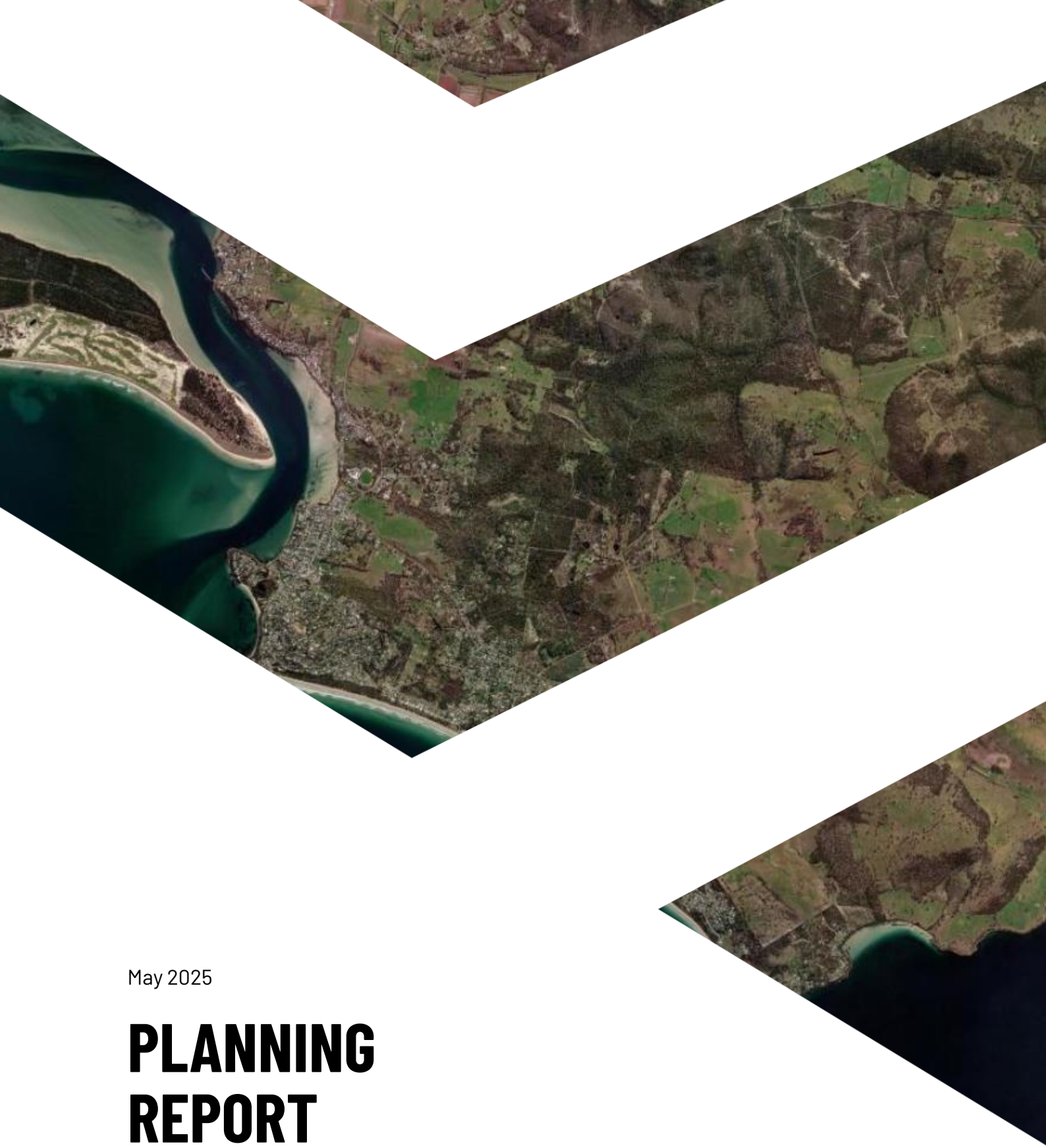
SIGNED by BARBARA REARDON)
the registered proprietor of the)
land contained in Certificate of Title)
volume 4564 folio 29 in the presence)
of:-)

Barbara Reardon

Solicitor
Law Clerk
Hobart

SUBDIVIDER :	BARBARA REARDON	PLAN SEALED BY :	Sorell Council
FOLIO REF :	CT 4564/29	DATE :	17th January 1996
SOLICITOR & REFERENCE :	**PIGGOTT WOOD & BAKER** JTT:HDM (14/7/95 3:41 PM)	REF No.	General Manager

NOTE: THE COUNCIL GENERAL MANAGER MUST SIGN THE CERTIFICATE FOR THE PURPOSE OF IDENTIFICATION.



May 2025

PLANNING REPORT

STAGED SUBDIVISION OF THE LAND - 6 LOTS OVER 2 STAGES TOGETHER WITH USE AND DEVELOPMENT OF THE LAND - STORAGE

Lot 1 Old Forcett Road DODGES FERRY

Woolcott LAND SERVICES

EAST COAST SURVEYING
CONSULTING SURVEYORS & LAND PLANNERS

Prepared by
Woolcott Land Services Pty Ltd
ABN 63 677 435 924

Launceston

Head office

P 03 6332 3760
E enquiries@woolcott.au
A 10 Goodman Court Invermay 7250

St Helens

East Coast office

P 03 6376 1972
E admin@ecosurv.com.au
A 52 Cecilia Street St Helens 7216

www.woolcott.au

Job Number: H191003

Prepared by: Michelle Schleiger (michelle@woolcott.au)
BUrbRegEnvPlan
Town Planner

Reviewed by: Brett Woolcott (brett@woolcott.au)
Registered Land Surveyor
Director

Rev.no	Description	Date
1	Review	24 October 2024
2	Draft	16 January 2025
3	Draft	20 January 2025
4	Draft review	29 January 2025
5	Review	10 June 2025
6	Review	31 July 2025
7	Review	24 September 2025
8	Final	15 October 2025

Annexures

Contents

1. Introduction

This report has been prepared in support of a planning permit application under Section 57 of the *Land Use Planning and Approvals Act 1993*.

Proposed development
Subdivision of the land to 6 Lots. Use and development of the land – Storage

This application is to be read in conjunction with the following supporting documentation:

Document	Consultant
Proposal plan - subdivision	Woolcott Land Services
Development plan	Caliban Consulting
Flood hazard report	Flüssig Engineers
Stormwater management plan	Flüssig Engineers
Onsite wastewater assessment	Geo-Environmental Solutions
Bushfire Hazard Assessment	Woolcott Land Services
Traffic impact assessment	Midson Traffic Pty Ltd

2. Subject site and proposal

2.1 Site details

Address	Lot 1 Old Forcett Road, Dodges Ferry TAS 7173 *531 Old Forcett Road, Dodges Ferry TAS 7173 (Right of way)*
Property ID	9464592 *1687182*
Title	178932/1 *119464/1*
Land area	61.66ha
Planning Authority	Sorell Council
Planning Scheme	Tasmanian Planning Scheme – Sorell (Scheme)
Easements	Right of way easement

Application status	Discretionary application
Existing Access	Single access from Old Forcett Road
Zone	Rural
General Overlay	None
Overlays	Airport obstacle limitation area Bushfire-prone areas Priority vegetation area Flood-prone areas Low landslip hazard band Waterway and coastal protection area
Existing development	Vacant Separate lot islanded within the parcel (CT. 119464/1)(not part of this development proposal)
Existing services and infrastructure	
Water	Not serviced
Sewer	Not serviced
Stormwater	Not serviced

2.2 Proposal

Development

It is proposed to develop (proposed) lots 1 through 5 with a series of buildings which will accommodate separate tenancies.

Lot 1 will have a building oriented to the frontage with two tenancies, while lots 2-5 will each have 3 tenancies to the building, laid out in an orderly fashion over the lots.

According to clause 6.2.1 each proposed use or development must be categorised into one of the Use Classes in Table 6.2 and clause 6.2.3 says that if a use or development fits a description of more than one Use Class, the most specific use applies. As such, the proposed buildings are nominated under the Use Class of Storage - Contractors Yard, that is, land used for the storage of materials incidental to the operation of the contractor's establishment or business. Each building and tenancy is designed and equipped for Storage as the dominant use with tradespeople and their particular needs in mind.

Each tenancy will have building access suitable for large vehicle deliveries or dispatch; an open storage area (this can be fitted with storage racking or other fit-out as appropriate), and administrative and staff spaces including bathroom and kitchen on the ground and mezzanine floors.

Windows and outdoor seating areas will be included and will promote passive surveillance qualities for the site and a level of incidental interaction between buildings conducive to security and safety.

The buildings will be 8.1m in height. The building facing Old Forcett Road (Lot 1) will have two tenancies of 16.2m width each, a total of 32.4m façade.
The remaining buildings will be in rows of 3 tenancies. There will be 20 tenancies over the whole site.

Car parking is included on the plan, commensurate to each building, or tenancy.

Subdivision

The proposal is for the staged subdivision of the land to 6 lots. Five of the lots will be used for development and Lot 6 will be a balance lot. Of the 61.72ha, 59.76ha will constitute the balance lot (Lot 6).
Stage 1 will be to create lot 6 and the super lot; vehicle access and stormwater connection.
Stage 2 will be the division of the super lot to 5 lots.
The subdivision proposal will result in the following:

Lot	Stage	Area	Frontage
1	2	2570m^2	61.18m to Old Forcett Road
2	2	3000m^2	None – right of way access
3	2	6000m^2	None – right of way access
4	2	6000m^2	None – right of way access
5	2	3002m^2	None – right of way access
6 Balance	1	59.83ha	Old Forcett Road and Carlton River Road

The proposed lots will be accessed by a proposed access point from Old Forcett Road and the existing access and Right of Way easement and access will continue to be available to 531 Old Forcett Road, which is islanded within the subject site. The proposed vehicle access will be made in Stage 1. The stormwater connection will also be made in Stage 1.

Stage 2 will be the creation of Lots 1-5. Lots 1-5 are designed to accommodate the proposed buildings and vehicle requirements in a minimal, consolidated and orderly way so as to make efficient use of the land while allowing for onsite servicing. Stage 2 will include all other infrastructure needed to facilitate the use of the buildings.

Plans supplied at Annexures 2 and 3 provide further detail on the subdivision and development proposal.

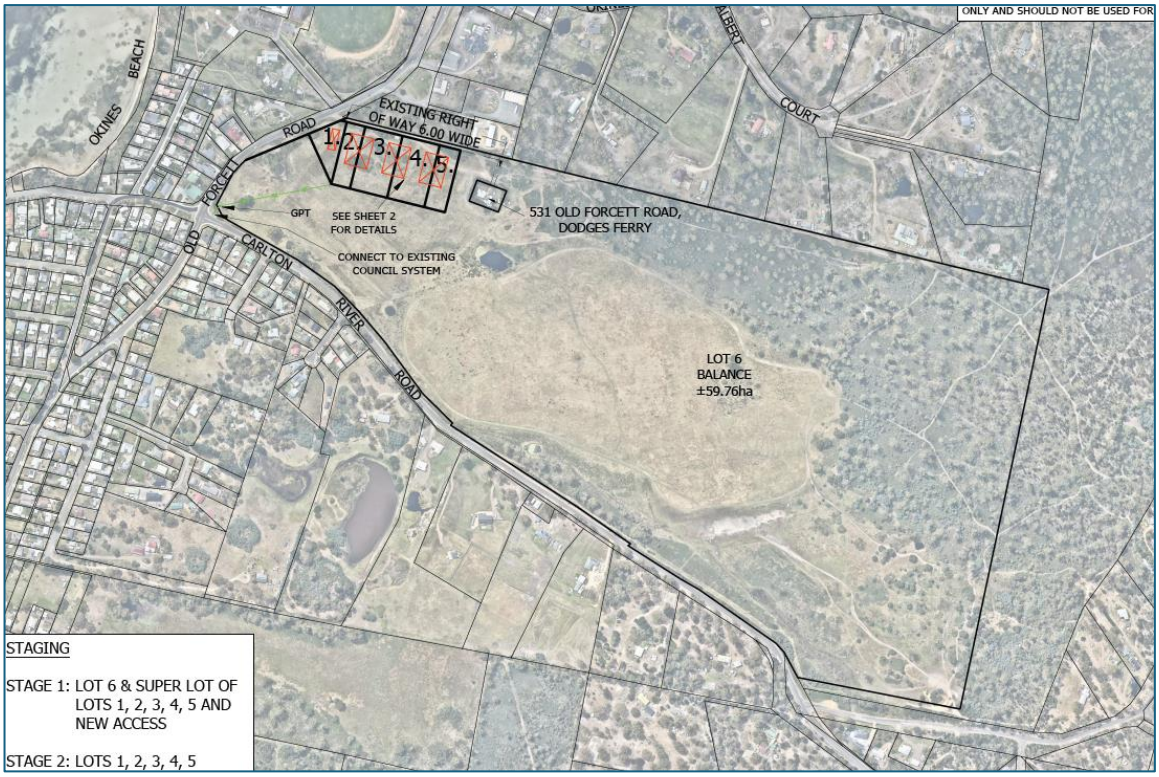


Figure 1 Extract of the proposal plan for subdivision

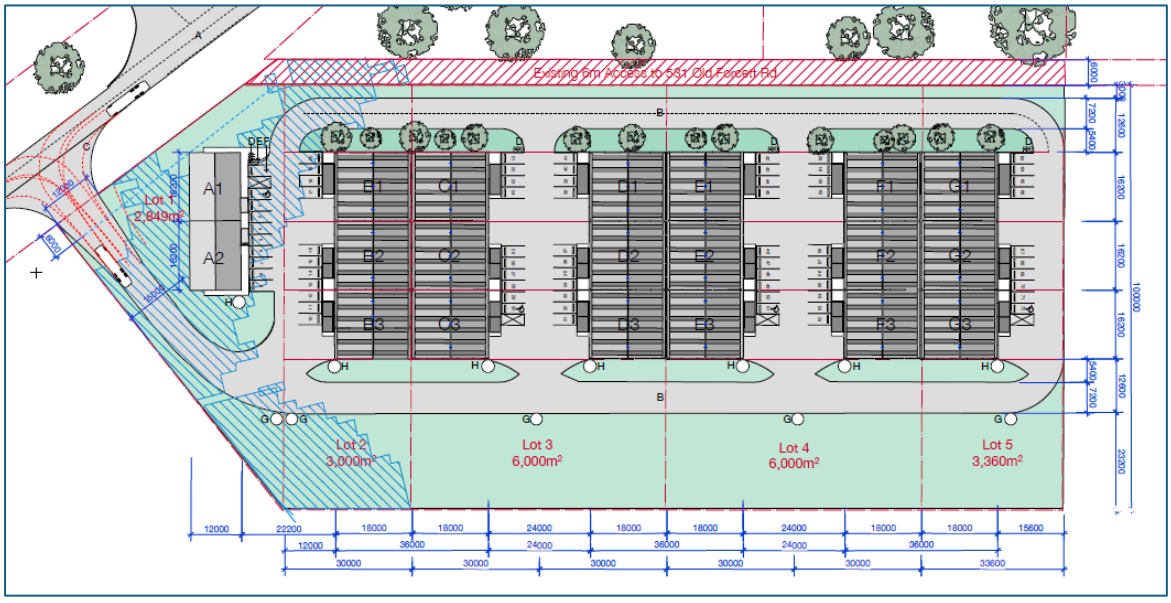


Figure 2 Site plan - building development.

2.3 Subject site

The site is a single lot of 61.66ha. An existing dwelling has been excised from the lot (islanded in the lot) which has a right of way easement for access to Old Forcett Road.

The subject site is vacant with scattered vegetation at the frontage (west) and more dense vegetation at the northern and eastern end of the site.

The site is gently sloped at the west with the eastern end steepening gradually over 340m from 20mAHD to 60mAHD. The land is shown as having various water courses (tributary and minor tributaries) over the land with several dams built.

The land is Class 5 under the land capability classification - Land unsuited to cropping and with slight to moderate limitations to pastoral use. This is consistent with the land capability of the surrounding area – now mostly developed to residential uses.

There is a section of land zoned as Local Business to the north that includes such businesses as a hotel, with a takeaway bottle shop, General retail and hire (mixed business), with possible Service station and automotive repairs, and a few large lot developments, potentially contactors yard or storage.

The surrounding land also includes vacant lots, and two lots owned by Council that are zoned Utility.

Figure 3 Aerial view of the subject site (Source: LIST)

3. Zoning and overlays

3.1 Zoning

The site is zoned Rural under the Scheme.

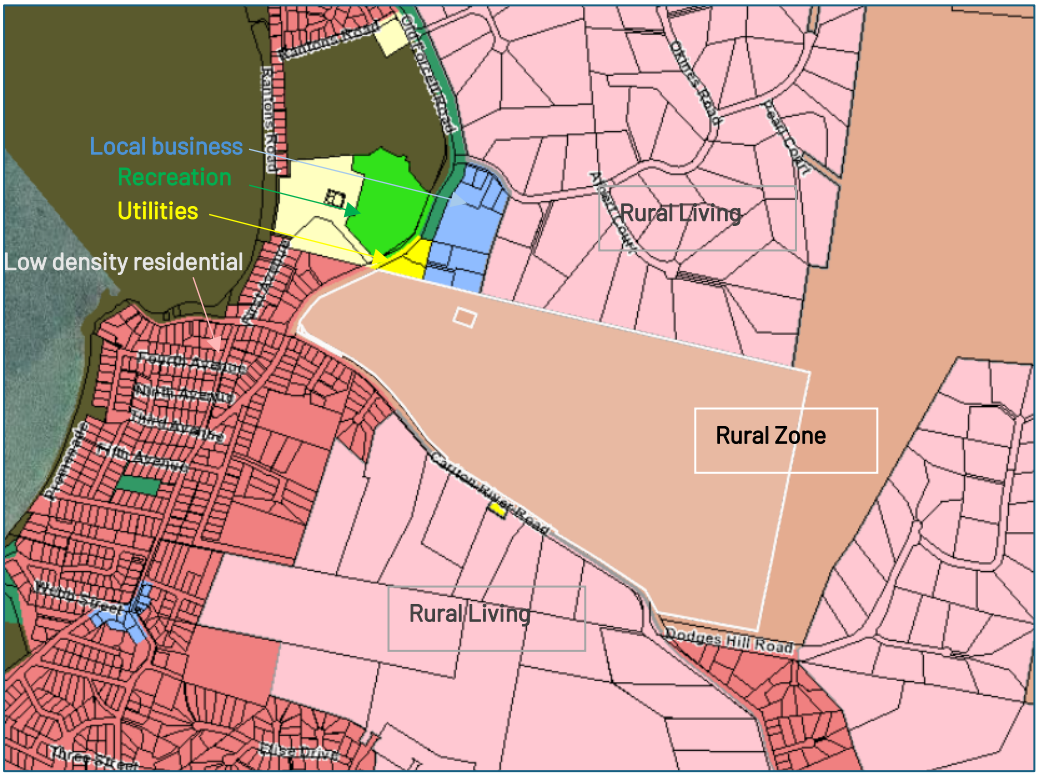


Figure 4 Zoning for the subject site (Source: LIST)

3.2 Overlays

The following image provides an indication of overlays as applied to the land. No General Overlays are applied.

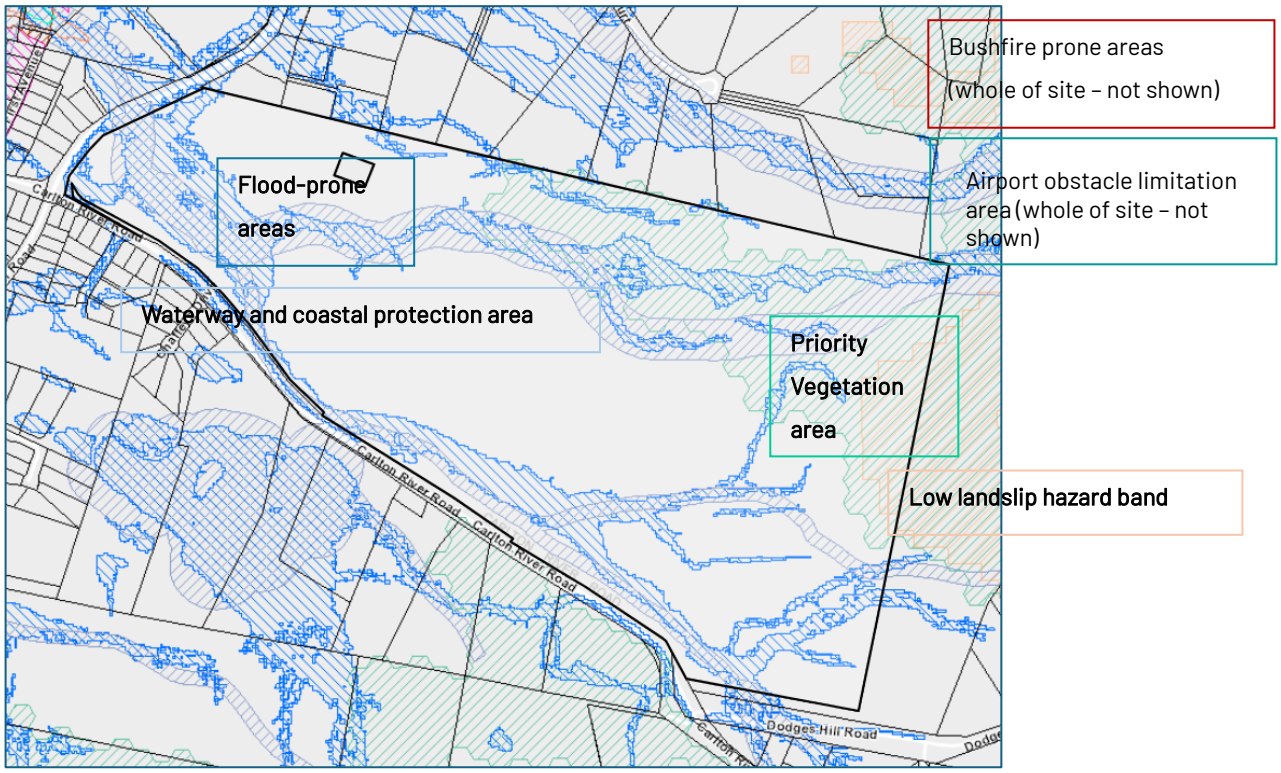


Figure 5 Overlays as they are applied to the subject site (Source: LIST)

4. Planning Scheme Assessment

4.1 Zone assessment

20.0 Rural Zone

20.1 Zone Purpose

20.1.1	To provide for a range of use or development in a rural location: a. where agricultural use is limited or marginal due to topographical, environmental or other site or regional characteristics; b. that requires a rural location for operational reasons; c. is compatible with agricultural use if occurring on agricultural land; and d. minimises adverse impacts on surrounding uses.
20.1.2	To minimise conversion of agricultural land for non-agricultural use.
20.1.3	To ensure that use or development is of a scale and intensity that is appropriate for a rural location and does not compromise the function of surrounding settlements.

7.10 Development not Required to be Categorised into a Use Class

7.10.1 An application for development that is not required to be categorised into one of the Use Classes under subclause 6.2.6 of this planning scheme and to which 6.8.2 applies, excluding adjustment of a boundary under subclause 7.3.1, may be approved at the discretion of the planning authority.

6.2.6 Notwithstanding subclause 6.2.1 of this planning scheme, development which is for subdivision, a sign, land filling, retaining walls or coastal protection works does not need to be categorised into one of the Use Classes.

RESPONSE

The application for subdivision is not required to be defined under a Use, according to 7.10.1, however, the subdivision application is directly related to the development proposal, which is proposed as 'Storage' Use Class.

The 'Storage' Use Class – (Contractor's Yard), is a Permitted Use under the Zone. The proposal is consistent with the Zone Purpose in that it provides for a range of development on land that has marginal agricultural value. The proposed use and development is less likely to be compatible if sited within an urban or residential area; the rural zone is better suited to the proposed use.

Notwithstanding, the land is not remote; it has proximity to urban development making it suitable for local employment opportunities and access to the transport network, essential for the proposed use and development.

The development uses less than 3 percent of the lot area, leaving ample room for other suitable use or development applications, (taking to account the provision for stormwater management and the land used for this). There is no further use or development proposed for the balance lot.

The proposed, as mentioned, uses a small proportion of the subject site and is compatible with the use and development in the neighbouring lots, in the Local Business Zone, being large warehouse type buildings on 2-4,000m^2 lots. The proposed is in similar proximity to any residential zones, the nearest being Rural Living, which are large lots providing rear setbacks that allow significant distance to the existing commercial development and the proposed. The proposed does not inhibit the function of the residential areas, and continued access to the contained lot of CT. 119464/1 is ensured. The land at CT.119464/1 is planted at the boundaries with mature trees, offering existing buffering to neighbouring use and development.

20.3 Use Standards

All standards under 20.3 relate only to a Discretionary Use proposal. The proposed is a Permitted use, therefore, the Use standards are not addressed.

20.4 Development Standards for Buildings and Works

20.4.1 Building height

Objective	
To provide for a building height that: a) is necessary for the operation of the use; and b) minimises adverse impacts on adjoining properties.	
Acceptable Solutions	Performance Criteria
A1 Building height must be not more than 12m.	P1 Building height must be necessary for the operation of the use and not cause an unreasonable impact on adjoining properties, having regard to: a) the proposed height of the building; b) the bulk and form of the building; c) the separation from existing uses on adjoining properties; and d) any buffers created by natural or other features.

Response

A1 The acceptable solution is achieved. The buildings are 8.1m in height.

20.4.2 Setbacks

Objective	
That the siting of buildings minimises potential conflict with use on adjoining sites.	
Acceptable Solutions	Performance Criteria

A1	Buildings must have a setback from all boundaries of: a) not less than 5m; or b) if the setback of an existing building is within 5m, not less than the existing building.	P1	Buildings must be sited to provide adequate vehicle access and not cause an unreasonable impact on existing use on adjoining properties, having regard to: a) the bulk and form of the building; b) the nature of existing use on the adjoining properties; c) separation from existing use on the adjoining properties; and d) any buffers created by natural or other features.
A2	Buildings for a sensitive use must be separated from an Agriculture Zone a distance of: a) not less than 200m; or b) if an existing building for a sensitive use on the site is within 200m of that boundary, not less than the existing building.	P2	Buildings for a sensitive use must be sited so as not to conflict or interfere with an agricultural use within the Agriculture Zone, having regard to: a) the size, shape and topography of the site; b) the prevailing setbacks of any existing buildings for sensitive uses on adjoining properties; c) the location of existing buildings on the site; d) the existing and potential use of adjoining properties; e) any proposed attenuation measures; and f) any buffers created by natural or other features.

Response

P1 The performance criteria are addressed as the proposed buildings will have nil setback to the proposed boundaries, where the buildings are adjoining.

The proposed buildings will have at least a 5m setback to all existing boundaries. The setback to neighbouring lots to the north will be 15.5m. The setback reduction is within the proposed lots and an effect of the efficient building set-out.

a. The proposed buildings are 8.1m in height and set out on the proposed lots in a compact and orderly fashion. The height of two storeys is not unreasonable in the surrounding context and well within the acceptable solution for building heights. The uniformity of the buildings provides visual and navigable certainty within the site.
b. The nearest developed land has a setback of 10m (approximate) to the shared boundary;
c. The distance between buildings is sufficient and separated by the vehicle path. Landscaping will mitigate visual effects to the proposed. There is no conflict between lots and users for vehicle access.
d. The adjoining properties to the north are zoned Utility and Local Business. The two lots zoned Utility appear vacant, no use or development is apparent and the zone dictates no future conflict in use and development. The next adjoining lot looks to be storage for

commercial purposes. The zone then changes to Rural Living; residential use and development is apparent, but with significant setback distances to the proposed. Distance between uses forms a buffer between them. Proposed landscaping and existing vegetation will soften any visual impacts.

A2 The acceptable solution is achieved. There is no Agriculture zoned land in 200m of the subject site.

20.4.3 Access for new dwellings

Objective	
That new dwellings have appropriate vehicular access to a road maintained by a road authority.	
Acceptable Solutions	Performance Criteria
A1 New dwellings must be located on lots that have frontage with access to a road maintained by a road authority.	P1 New dwellings must have legal access, by right of carriageway, to a road maintained by a road authority that is appropriate, having regard to: a) the number of users of the access; b) the length of the access; c) the suitability of the access for use by the occupants of the dwelling; d) the suitability of the access for emergency services vehicles; e) the topography of the site; f) the construction and maintenance of the access; g) the construction, maintenance and usage of the road; and h) (h) any advice from a road authority.

Response

Not applicable as the proposed does not include a dwelling.

20.5 Development Standards for Subdivision

20.5.1 Lot design

Objective	
To provide for subdivision that: a) relates to public use, irrigation or Utilities; or b) facilitates use and development for allowable uses in the zone.	
Acceptable Solutions	Performance Criteria
A1 Each lot, or a lot proposed in a plan of subdivision, must:	P1 Each lot, or a lot proposed in a plan of subdivision, must:

a) be required for public use by the Crown, a council or a State authority; b) be required for the provision of Utilities or irrigation infrastructure; c) be for the consolidation of a lot with another lot provided each lot is within the same zone; or d) be not less than 40ha with a frontage of no less than 25m and existing buildings are consistent with the setback and separation distance required by clause 20.4.2 A1 and A2.	a) have sufficient useable area and dimensions suitable for the intended purpose, excluding Residential or Visitor Accommodation, that: i. requires the rural location for operational reasons; ii. minimises the conversion of agricultural land for a non-agricultural use; iii. minimises adverse impacts on non-sensitive uses on adjoining properties; and iv. is appropriate for a rural location; or b) be for the excision of a dwelling or Visitor Accommodation existing at the effective date that satisfies all of the following: i. the balance lot provides for the sustainable operation of a Resource Development use, having regard to: a. not materially diminishing the agricultural productivity of the land; b. the capacity of the balance lot for productive agricultural use; and c. any topographical constraints to agricultural use; ii. an agreement under section 71 of the Act is entered into and registered on the title preventing future Residential use if there is no dwelling on the balance lot; iii. the existing dwelling or Visitor Accommodation must meet the setbacks required by subclause 20.4.2 A2 or P2 in relation to setbacks to new boundaries; iv. it is demonstrated that the new lot will not unreasonably confine or restrain the operation of any adjoining site used for agricultural use; and c) be provided with a frontage or legal connection to a road by a right of carriageway, that is sufficient for the intended use, having regard to: i. the number of other lots which have the land subject to the right of carriageway as their sole or principal means of access; ii. the topography of the site;

			iii. the functionality and useability of the frontage; iv. the anticipated nature of vehicles likely to access the site; v. the ability to manoeuvre vehicles on the site; vi. the ability for emergency services to access the site; and vii. the pattern of development existing on established properties in the area.
A2	Each lot, or a lot proposed in a plan of subdivision, must be provided with a vehicular access from the boundary of the lot to a road in accordance with the requirements of the road authority.	P2	Each lot, or a lot proposed in a plan of subdivision, is provided with reasonable vehicular access to a boundary of a lot or building area on the lot, if any, having regard to: a) the topography of the site; b) the distance between the lot or building area and the carriageway; c) the nature of the road and the traffic, including pedestrians; and d) the pattern of development existing on established properties in the area.

Response

P1 The performance criteria are addressed. The subdivision cannot meet the acceptable solution.

a. The proposed subdivision is made according to the proposed use. The plans for development include buildings suited to the proposed use of Storage (Contractors Yard) inclusive of vehicular access requirements and setbacks.
The subdivision will be staged. Stage 1 will take out the development area from the balance to allow transfer of ownership to a development entity. Stage 2, to create the multiple lots (1-5), will allow a level of staging to occur in the construction of the buildings based on potential separate ownership of the warehouse buildings. Buildings can be constructed to each lot, based on timing of construction and separate ownership potential.
Subdivision works for Stage 1 will include the stormwater infrastructure and connection, and, any works required to bring the vehicle crossing to required standard. Internal works (driveway etc. will be constructed as a part of the building construction, not subdivision).

The subject site is large enough to provide significant setbacks to other uses, to the east and south. The shared boundary to the north is with compatible uses and to the west, uses are separated by the road.

i. The proposed use requires a rural location insomuch as it is incompatible with high density residential zones. Alternative zones, such as Light Industrial, are not available within the surrounding area and provide a wider scope for

industrial activities. The Rural Zone is fit for purpose, and the proposed is compliant with the zone.

ii. The land is classed low in the Agricultural scale, Class 5, so the use of the land for agriculture is doubtful and likely to be minimal or constrained. There are other constraints to the use of the land for agricultural purposes, one being that there is residential land abutting at parts; forms of land use conflict between residential and agricultural activities are a potential concern. Notwithstanding this, the proposed makes use of less than 3 percent of the lot, and the proposed is efficiently laid out to have road access and to be orderly against the neighbouring and most compatible development. The conversion of potential agricultural land is minimised both in land area, and efficient use of the land.

iii. The proposed has distance to residential uses and is aligned with the most compatible uses at the north of the site. These commercial lots have reasonable setbacks and use and development (where it exists) is contained to the lot. The access strip for the proposed provides further separation. This is anticipated to be reasonable according to the use and development proposal.

iv. The proposed is appropriate to a rural location as the use requires some level of distance to sensitive uses and land area enough for access requirements. According to the Zone Purpose, the land is to provide for a range of use and development where agricultural use is limited or marginal. This land is more suited to providing supporting commercial business ventures (to the agricultural sector, for instance) than an agricultural (primary production) use.

P2 The performance criteria are addressed. Each lot will have vehicle access provided by right of way easement.

a. The site is generally flat and even – unencumbered access can be provided.

b. The distance from each lot to the carriageway varies; Lot 5 has a distance of 180m across the site. This distance will be made of sealed and trafficable access.

c. The TIA provided includes information pertaining to the nature of the transport network and pedestrian access.

d. The adjoining lots to the north are internal lots with access strips of approximately 130m.

4.2 Code Assessment

C1.0 Signs Code

No application for signage is included at this stage.

C2.0 Parking and Sustainable Transport Code

Please refer to the Traffic Impact Assessment at Annexure 5.

C3.0 Road and Railway Assets Code

Please refer to the Traffic Impact Assessment at Annexure 5.

C7.0 Natural Assets Code

C7.6 Development Standards for Buildings and Works

C7.6.1 Buildings and works within a waterway and coastal protection area or a future coastal refugia area

Response

P1.1 There are minor works proposed that will be within the overlay area. This will consist of stormwater pipes (underground) to the proposed detention area of the dam (proposed as a wetland in the Stormwater Management Plan prepared by Flussig at Annexure 6).

a. The prepared report from Flussig details risks during construction phase regarding impacts to water ways. A Soil and Water Management Plan should be in place prior to works (upon issue of planning permit) to ensure impacts are controlled during construction.

   The stormwater infrastructure within the overlay will be underground, requiring trenching. The SWMP will detail how this activity will be controlled. Ultimately, the dam is to be made to be a part of the stormwater treatment process with improvements made to the water system.

b. There is no riparian vegetation in the area of works affected by the overlay.

c. Streambank and streambeds do not exist – the tributaries are drainage lines with seasonal variation in hydrology.

d. There is currently no discernible in-stream habitat.

e. The proposed will cause no obstacle to the current drainage system

f. There is no fish passage in the system.

g. There is no filling of wetlands proposed. The dam is not identified as a wetland. The proposed includes the potential making of a wetland environment as a part of stormwater management.

h. There are no existing facilities to group to.

i. If a wetland is made as a part of a stormwater management system, enlarging the dam is likely to be required. The required cut and/or fill will be towards bettering the system, taking into account current drainage lines.

j. The building design has little bearing on the waterway in the context of the site.

k. Not applicable, the site is not coastal.

l. The potential making of the wetland would require maintenance but extensive future works are not anticipated at this stage.

m. The dam is not recognised as a wetland – not applicable.

n. Not applicable – not coastal.

P2.1 Not applicable.

P2.2 Not applicable.

P3 The performance criteria apply as a new point of discharge is proposed. Please refer to the Stormwater Management Plan at Annexure 6 for details on water quality management.

A4 The acceptable solution is achieved; dredging and reclamation is not proposed.

A5 (Reference to Flood Hazard Report by Flussig – Annexure 7)

C7.6.2 Clearance within a priority vegetation area

Response

A1 Not applicable – no clearing in the priority vegetation area is proposed.

C7.7 Development Standards for Subdivision

C7.7.1 Subdivision within a waterway and coastal protection area or a future coastal refugia area

Response

A1 Not applicable as no new lots are within the overlay area.

C7.7.2 Subdivision within a priority vegetation area

Response

A1 Not applicable as no new lots are within the overlay area.

C12.0 Flood-Prone Areas Hazard Code

Response

Please refer to the Flood Hazard Report provided by Flussig at Annexure 7.

C13.0 Bushfire-Prone Areas Code

Response

Please refer to Annexure 3 for a response to this Code.

C15.0 Landslip Hazard Code

C15.2 Application of this Code

C15.2.1 This code applies to: (a) use or development of land within a landslip hazard area;

Response

There are no works proposed within the overlay area, the Code does not apply.

C16.0 Safeguarding of Airports Code

C16.4 Use or Development Exempt from this Code

C16.4.1 The following use or development is exempt from this code:

(a) development that is not more than the AHD height specified for the site of the development in the relevant airport obstacle limitation area.

Response

The proposed is exempt. The AHD height specified is 152mAHD.

3. Conclusion

The proposal consists of a staged (2 stages) subdivision of the land to 6 lots, 5 of which will be developed for the commercial use of Storage. The development consists of 20 tenancies with associated vehicle access, pathways and parking.
The balance lot will remain vacant but works to allow for drainage will be made over this land.

The proposal is harmonious with the surrounding use and development with like for like development in proximity to the site, and suitable distance setbacks from low density residential use and development. The development will provide supply of much needed commercial infrastructure for the area in a suitable location and with appropriate levels of transport infrastructure.

The proposal is made according to the provisions of the Scheme and a planning permit is sought from Council accordingly.

Prepared for

Tasmanian Land Holdings Pty Ltd

Lot 1 Old Forcett Road Dodges Ferry

FLOOD HAZARD REPORT

FE_24059

09 September 2024

flüssig Engineers

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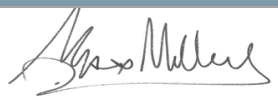
Document Initial Revision

REVISION 00	Staff Name	Signature	Date
Prepared by	Max W. Moller *Principal Hydraulic Engineer*		19/08/2024
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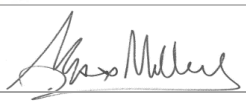
Authorised by	Max W. Möller *Principal Hydraulic Engineer*		09/09/2024

Document Revision History

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00	First issue	Max W. Möller	Max W. Möller	09.09.2024
01	Change in layout	Max W. Möller	Max W. Möller	14.10.2025

Contents

List of Tables

List of Figures

Acronyms

AEP: Annual Exceedance Probability
ARR: Australian Rainfall and Runoff
CC: Climate Change
TPS: Tasmanian Planning Scheme
DEM: Digital Elevation Model

1. Introduction

Flüssig Engineers has been engaged by **Tasmanian Land Holdings Pty Ltd** to undertake a site-specific flood hazard report for the site at Lot 1 Old Forcett Road, Dodges Ferry in the **Sorell Council** municipality. The purpose of this report is to determine the hydraulic characteristics on the existing and post-development scenarios and the flood hazard for the 1% AEP plus climate change (CC).

1.1 Development

The proposed site location is at Lot 1 Old Forcett Road, Dodges Ferry, located in the municipality of the **Sorell Council**. The site is approximately 61.7 ha.

The area of commercial/ industrial development in the current application is approximately 15,450 m^2. Due to the large area of the full site, this report will focus on this immediate development area. The proposed development consists of the subdivision of the north-west corner of the lot into 5 lots with areas of 2025 m^2, 2175 m^2, 4525 m^2, 4425 m^2 and 2300 m^2 with the construction of seven industrial buildings consisting of 5700 m^2 roofed impervious area and 7990 m^2 driveway and parking impervious area.

This development triggers the inundation code as the development falls within Sorell Council, flood prone area.

1.2 Objectives and Scope

This flood analysis has been written to meet the standards of the Tasmanian Planning Scheme - Sorell (TPS), with the intent of understanding the development risk with respect to riverine inundation. The objectives of this study are:

- Provide an assessment of the site's flood characteristics under the combined 1% AEP + CC scenario.
- Provide comparison of flooding for post-development against acceptable solution and performance criteria.
- Provide flood mitigation recommendations for a potential future development, where Relevant Planning Scheme Requirements

Table 1. TPS Planning Scheme Requirements

Planning Scheme Code	Objective
C12.5.1 Uses within a flood prone area	That a habitable building can achieve and maintain a tolerable risk from flood
C12.6.1 Building and works within a flood prone area	(a) building and works within a flood-prone hazard area can achieve and maintain a tolerable risk from flood; and (b) buildings and works do not increase the risk from flood to adjacent land and public infrastructure.
C12.7.1 Subdivision within a flood-prone hazard area	That subdivision within a flood-prone hazard area does not create an opportunity for use or development that cannot achieve a tolerable risk from flood.

2. Model Build

2.1 Overview of Catchment

The contributing catchment for the site at Lot 1 Old Forcett Road, Dodges Ferry is approximately 163 ha. The land use of the catchment is zoned predominantly Rural Resource with a section of the upper catchment zoned as Rural Living. The specific site is to be classified as Local Business zone.

Figure 1 below outlines the approximate contributing catchment for the site at Lot 1 Old Forcett Road, Dodges Ferry.

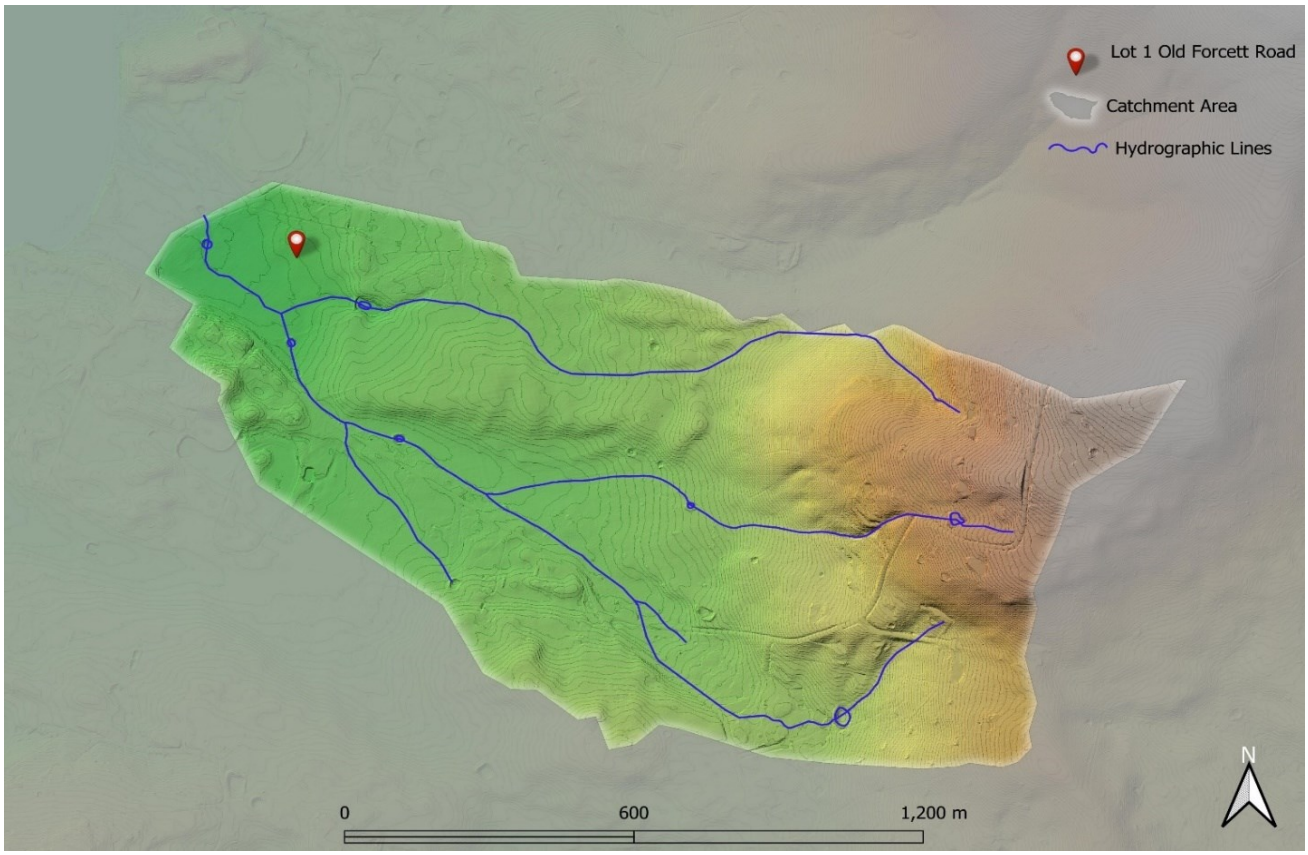

Figure 1. Contributing Catchment for the site at Lot 1 Old Forcett Road, Dodges Ferry

2.2 Hydrology

The following Table 2 states the adopted hydrological parameters for the RAFTS catchment, derived from best practice documents.

Table 2. Parameters for RAFTS catchment

Catchment Area (ha)	Initial Loss Perv/imp (mm)	Continuing Loss Perv/imp (mm/hr)	Manning's N pervious	Manning's N impervious	Non-linearity factor
163	29/1	3.7/0.0	0.045	0.02	-0.285

2.2.1 Design Rainfall Events

Figure 2 shows the box and whisker output for the 1% model run. The model shows that the 1% AEP 4.5-hour storm temporal pattern 5 was the worst-case storm. Therefore, this storm event was used within the hydraulic model. This particular storm event was selected as the worst-case scenario for further integration into the hydraulic model. The utilisation of this specific storm pattern ensures a comprehensive assessment of the system's response under conditions representing a high level of hydrological stress, thereby enhancing the model's ability to simulate and address extreme weather scenarios.

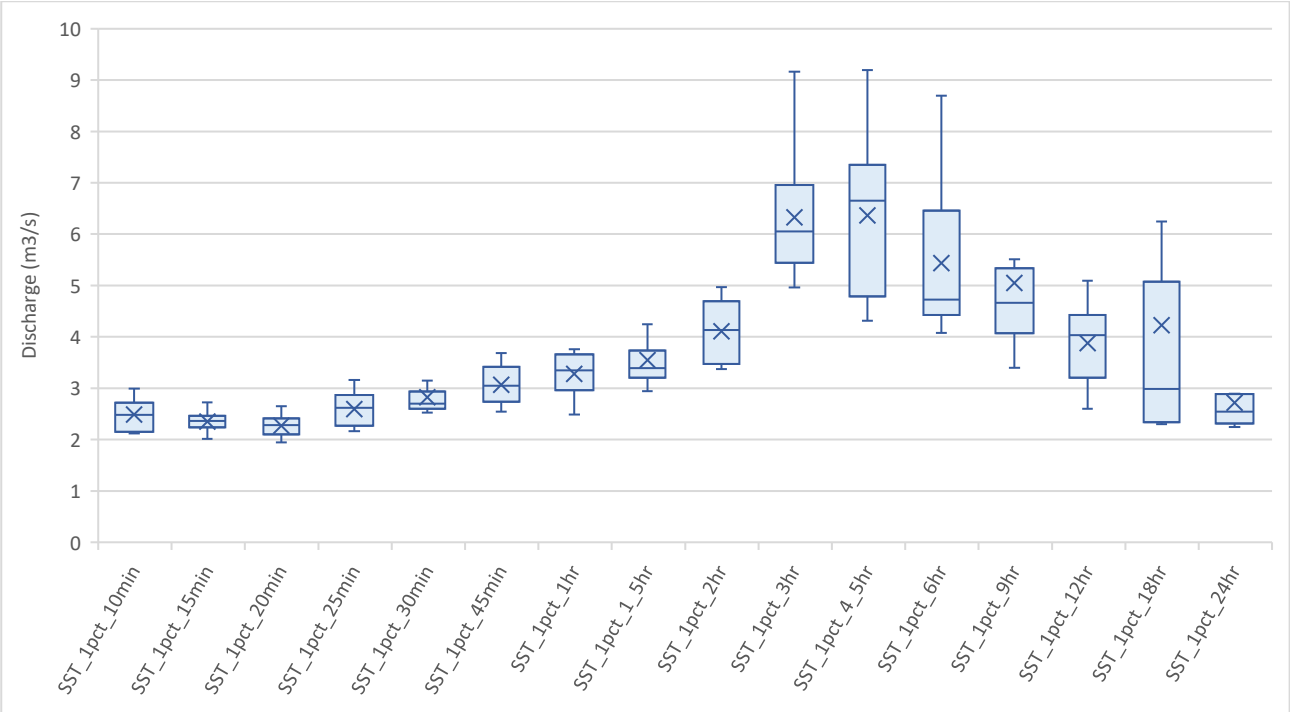

Figure 2. 1% AEP Box and Whisker Plot

2.2.2 Climate Change

As per the ARR 2019 Guide for Flood Estimation (Version 4.2), the recommended approach for estimating increases in rainfall due to climate change projections for the year 2100 scenario.

According to Table 3 of the guide, a multiplication factor of 1.58 is adopted for rainfall durations of 4.5 hour under the SSP5-8.5 2100 scenario for the localised catchment. This factor accounts for the anticipated intensification of extreme rainfall events due to climate change impacts and adopted by the Council. Table 3 below shows the applied climate change factor.

Table 3. Climate Change Increases

Parameter	Localised Catchment SSP5-8.5 @ 2100
4.5 hours	58% Increase

2.2.3 Calibration/Validation

This catchment has no stream gauge to calibrate the model against a real-world storm event. Similarly, there is little historical information available, and limited available past flood analysis undertaken to validate against the flows obtained in the model. A Regional Flood Frequency Estimation model (RFFE) has been used to calibrate our rain on grid rainfall estimation. The RFFE values are listed in Table 4 below.

Table 4. Regional Flood Frequency Estimation model (RFFE) v/s Flussig Result.

AEP (%)	Lower Confidence Limit (5%) (m^3/s)	Upper Confidence Limit (95%) (m^3/s)	Discharge (m^3/s)	Flussig Discharge (m^3/s)
50	0.31	1.79	0.74	0.88
20	0.64	3.56	1.50	1.72
10	0.86	5.64	2.21	2.57
5	1.04	8.67	3.06	3.54
2	1.27	14.7	4.46	5.18
1	**1.45**	**21.3**	**5.74**	**6.65**

Date/Time	2024-08-20 14:45
Catchment Name	Old Forcett
Latitude (Outlet)	-42.857
Longitude (Outlet)	147.621
Latitude (Centroid)	-42.858
Longitude (Centroid)	147.639
Catchment Area (km^2)	1.63
Distance to Nearest Gauged Catchment (km)	6.6
50% AEP 6 Hour Rainfall Intensity (mm/h)	4.870099
2% AEP 6 Hour Rainfall Intensity (mm/h)	9.913965
Rainfall Intensity Source (User/Auto)	Auto
Region	Tasmania
Region Version	RFFE Model 2016 v1
Region Source (User/Auto)	Auto
Shape Factor	0.85
Interpolation Method	Natural Neighbour
Bias Correction Value	0.27

2.3 Hydraulics

A 1D-2D hydraulic model was created to determine the flood level through the target area.

2.3.1 Survey

The 2D surface model was taken from a combination of LiDAR 2013 to create a 1m and cell size DEM. For the purposes of this report, 1m cells are enough to capture accurate flow paths. The DEM with hill shading can be seen below (Figure 3).

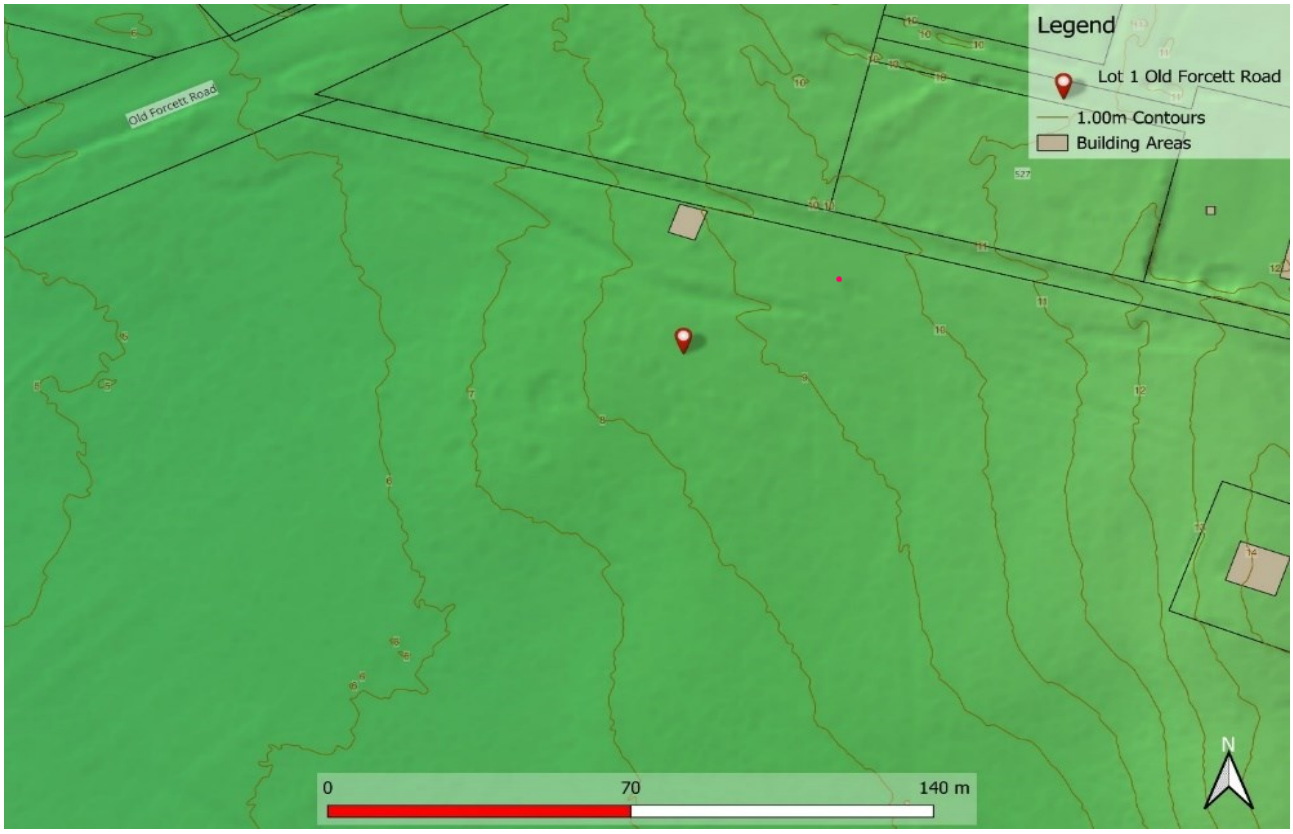

Figure 3. 1m DEM (Hillshade) of Lot 1 Old Forcett Road, Dodges Ferry.

2.3.2 Key Stormwater Assets including pipes and pits

Pipes and pits were modelled as 1D underground network within the catchment model included identified culverts and discharge outlets. All upstream stormwater infrastructure was included within the model to provide insight into the capacity of the stormwater system. Where data was missing, this was inferred from surrounding data and where invert levels were missing, a 600 mm cover was applied.

2.3.3 Roads

Roads often form the basis for overland flow in high frequency events; however the kerb and channel are not always picked up by DEM surface. To correct for the drainage lines, mesh polygons were used to delineate road corridors with the roads being incorporated a z-line along the gutter to ensure the kerb invert is represent in the mesh.

In our Digital Elevation Model (DEM), a "z-line" refers to a line representing a constant elevation or contour line. These lines connect the existing kerb points of equal elevation on the terrain surface, allowing for visualisation of the terrain's shape and elevation changes.

2.3.4 Buildings

Specifically, residential houses and commercial buildings were integrated into the DEM by elevating the corresponding grid cells representing these structures by a standardised height of 0.3 meters above the natural ground surface. Subsequently, the re-sampled grids were utilised to establish the Infoworks ICM model, thus forming a foundational framework for the subsequent analysis and simulation of flood dynamics.

This method allows for flow through the building if the flood levels/ pressure become great enough. The aim is to mimic flow through passageways such as doors, windows, and hallways.

2.3.5 Boundary Conditions

Infoworks ICM operates as a single-use software, streamlining the hydrology and hydraulic modelling processes within a unified framework. This unique feature eliminates the necessity for separate inflow boundary conditions, as the hydrology model seamlessly integrates with the hydraulic model through a 1D or 2D link.

The subdivision site is situated in the western area of the catchment. The catchment originates from above Dodges Hill Road to the east, approximately 160 mAHD higher than the site location and the mainstream with an average gradient of approximately 5-7 %.

Although the catchment area was 163 ha, due to the relative flat nature of the surrounding land at the downstream end of the catchment, the rain on grid model encapsulated a total area of 650 ha stretching from Heatherbell Road to the north all the way through to Neagarra Street to the south.

This approach improves the accuracy of the hydraulic model by accounting for overland flow paths and potential runoff contributions from adjacent areas, ensuring a more comprehensive representation of flood extents.

2.3.6 Structures

In the process of crafting a two-dimensional grid to depict the ground surface of the floodplain, we initiated by re-sampling high-resolution LiDAR data to generate a digital elevation model (DEM) through the utilisation of GIS software.

Within this procedure, the attention was directed towards identifying and incorporating pertinent features such as residential structures, industrial buildings, commercial buildings, walls, and roadways. Ensuring the comprehensive inclusion of these features within the re-sampled DEM was of utmost importance.

2.3.7 Structures Blockage

In alignment with the ARR2019 guidelines and insights gained from Project 11, specific blockage factors have been carefully determined for the culverts and major stormwater network servicing the surrounding area and situated under the Old Forcett Road.

For the above, a conservative blockage factor of 30% has been applied. This figure has been calculated based on a thorough assessment of the potential for debris accumulation, encompassing both natural materials such as branches, leaves, and the inclusion of sediment accumulation, as well as human-made obstructions that may impede the flow.

The choice of a 30% blockage factor is informed by site-specific observations, which collectively indicate a medium risk of blockage. The surrounding industrialised components, coupled with the area's topography, presents significant potential for lose materials and elements that could obstruct the inlet pits and underground pipe network, justifying the need for a conservative approach in modelling.

2.3.8 Roughness (Manning's n)

The model grid's roughness and equivalent Manning's n values were derived from land use data. Table 5 shows Manning's values used in the model. Values for this layer were derived from the ARR 2019 Guidelines. These parameters have proven effective in previous flood mapping projects undertaken in Tasmania.

Table 5. Manning's Coefficients (ARR 2019)

Land type	Roughness, Manning's N	Equivalent Manning's 'n' (1/Roughness)
Built up areas	8	0.125
Open space	28	0.025
Waterways	33	0.029
Roads	55	0.013
Houses/Buildings Roof	56	0.010

2.3.9 Walls

All significant fences and retaining structures were included as 2D linear wall structures within the 2D model. Fences were modelled 300 mm above the ground level.

2.3.10 Development Runoff

Stormwater runoff from the subdivision site has been assessed under pre- and post-development models to determine the potential impact of the subdivision at Lot 1 Old Forcett Road, Dodges Ferry has on the immediate local flows. As per planning guidelines it is a requirement that this does not have a negative impact from pre to post development.

3. Model Results

The result of 1% AEP + CC were run through the pre-development scenario to analyse the changes to flooding onsite and to surrounding properties.

3.1 Pre-Development Results

Figure 4 illustrates the existing lot layout together with the modelled pre-development flood extents. The hydraulic modelling results show that the site is influenced by two distinct overland flow paths.

- **Primary Overland Flow Path:**

  The major flow path enters the site along the eastern boundary, conveying runoff from the

adjoining upstream catchment. This flow travels through the site and discharges into an existing waterhole before continuing downstream via a series of culverts beneath Old Forcett Road. The relatively flat topography of the broader catchment contributes to shallow, slow-moving flow conditions in this area.

- **Secondary Overland Flow Path**:

  A secondary and less pronounced flow path is observed entering the site from the north-western corner. This minor path traverses the proposed development area, locally increasing surface flow depths during the 1% AEP storm event.

Within the pre-development condition, the modelled maximum flood depth is approximately 0.23 m, predominantly occurring in low-lying areas near the eastern drainage depression and the central portion of the site. The hydraulic regime reflects natural sheet flow behaviour typical of undeveloped terrain, with flow velocities generally low and limited ponding observed across the lot.

3.2 Post-Development Results

Figure 5 presents the post-development scenario, representing the proposed industrial subdivision comprising seven industrial units, associated driveways, and car parking areas. The post-development hydraulic modelling indicates a well-defined drainage pattern with localised depth increases confined within the proposed drainage corridor.

To effectively manage stormwater and protect built infrastructure, several mitigation measures have been incorporated into the design:

- **Flood Wall:**

  A 0.6 m high flood wall is proposed along the eastern boundary to control the existing major overland flow path, directing runoff through the designated driveway channel and away from the industrial units.

- **Open Drain:**

  A 1.5 m wide by 0.3 m deep open drain is recommended to be constructed parallel to the flood wall. This drain will facilitate smoother conveyance of stormwater, prevent ponding and ensure efficient flow transfer toward the existing downstream culverts.

- **Driveway Grading:**

  The driveway between Buildings A and B should be graded away from the buildings at a minimum slope of 2%, ensuring surface runoff drains toward the central alignment and not toward the building entries.

Under these design provisions, the modelled maximum flood depth within the site is 0.60 m, occurring only within the open drain adjacent to the flood wall. Outside this contained drainage channel, flood depths reduce significantly, with a maximum depth of approximately 0.19 m observed across the developed areas.

At the southern Lot 1 boundary cross-section, modelled flood depths increase slightly from 0.17 m in the pre-development case to 0.19 m post-development, representing a negligible variation within the accepted tolerance of the hydraulic model. Overall, the post-development configuration demonstrates that flood behaviour across the site remains controlled and contained, with no measurable increase in flood risk or adverse impacts to surrounding properties.

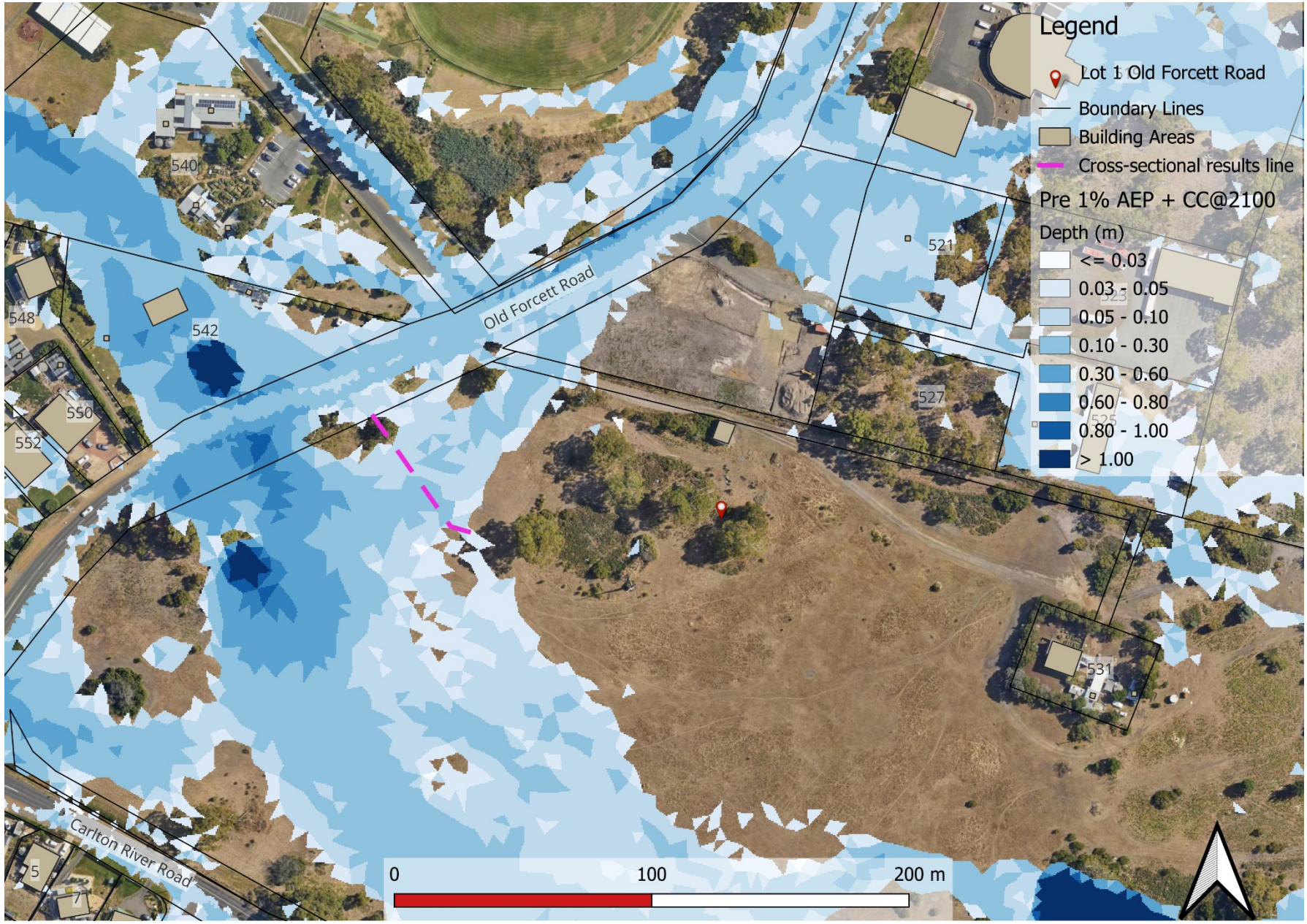

Figure 4. Pre-Development 1%+CC Flood Depths and extents

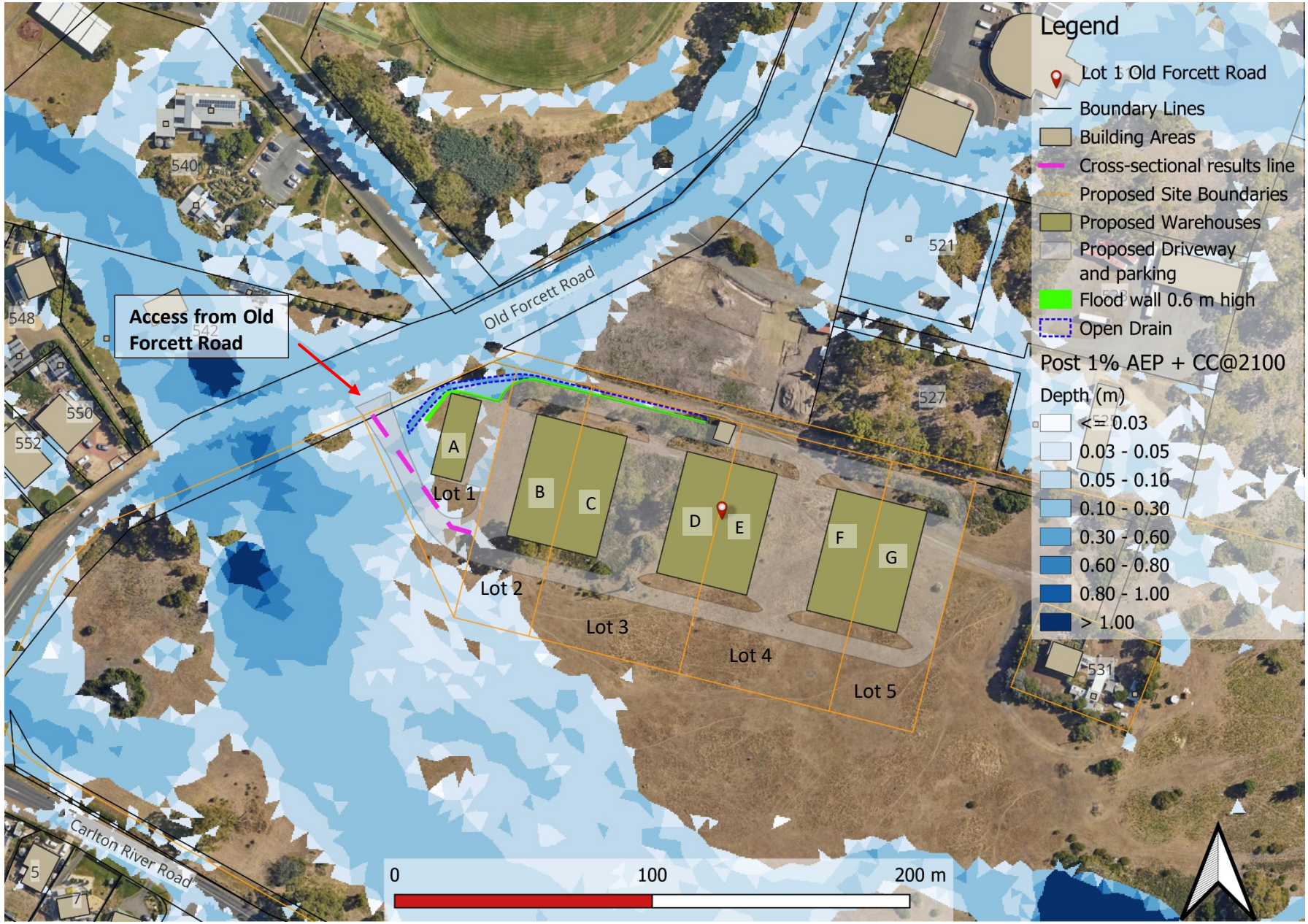

Figure 5. Post Development 1%+CC Flood Depth and extents

3.3 Displacement of Overland Flow on Third Party Property

Post-development flows in Figure 5 show that when compared against pre-development in Figure 4, there is no observed increase in flood depths and extents on neighbouring lots. Furthermore, the hazard ratings of H1 show no increase on neighbouring lots or public property between the pre and post development scenarios.

Therefore, the post-development model is assessed to have no overland flow displacement and has no negative impact on flood flow through nearby properties and the likelihood of any increased risk of detrimental impact resulting from future industrial development is low as the proposed industrial units within the lots are outside the flood extent.

3.4 Development Effects on Stormwater Discharge

Figure 7 below shows the discharge hydrograph at the cross-sectional result line on the proposed southern lot 1 boundary for the overland flow through the development area. The graph was captured in the model for both pre- and post-development runs and combined in graph format to demonstrate the change in net discharge and velocity.

There is an increase of 0.05 m/s in velocity from the pre-development velocity of 0.62 m/s to the post-development velocity of 0.67 m/s. This is mainly due flow path constricting from the new impervious areas the smoother concrete surface which allows slightly faster runoff than pervious surfaces.

There is an increase of 0.06 m^3/s in discharge from the pre-development discharge of 1.70 m^3/s to the post-development discharge of 1.76 m^3/s. This is mainly due to the addition of impervious areas in the proposed subdivision.

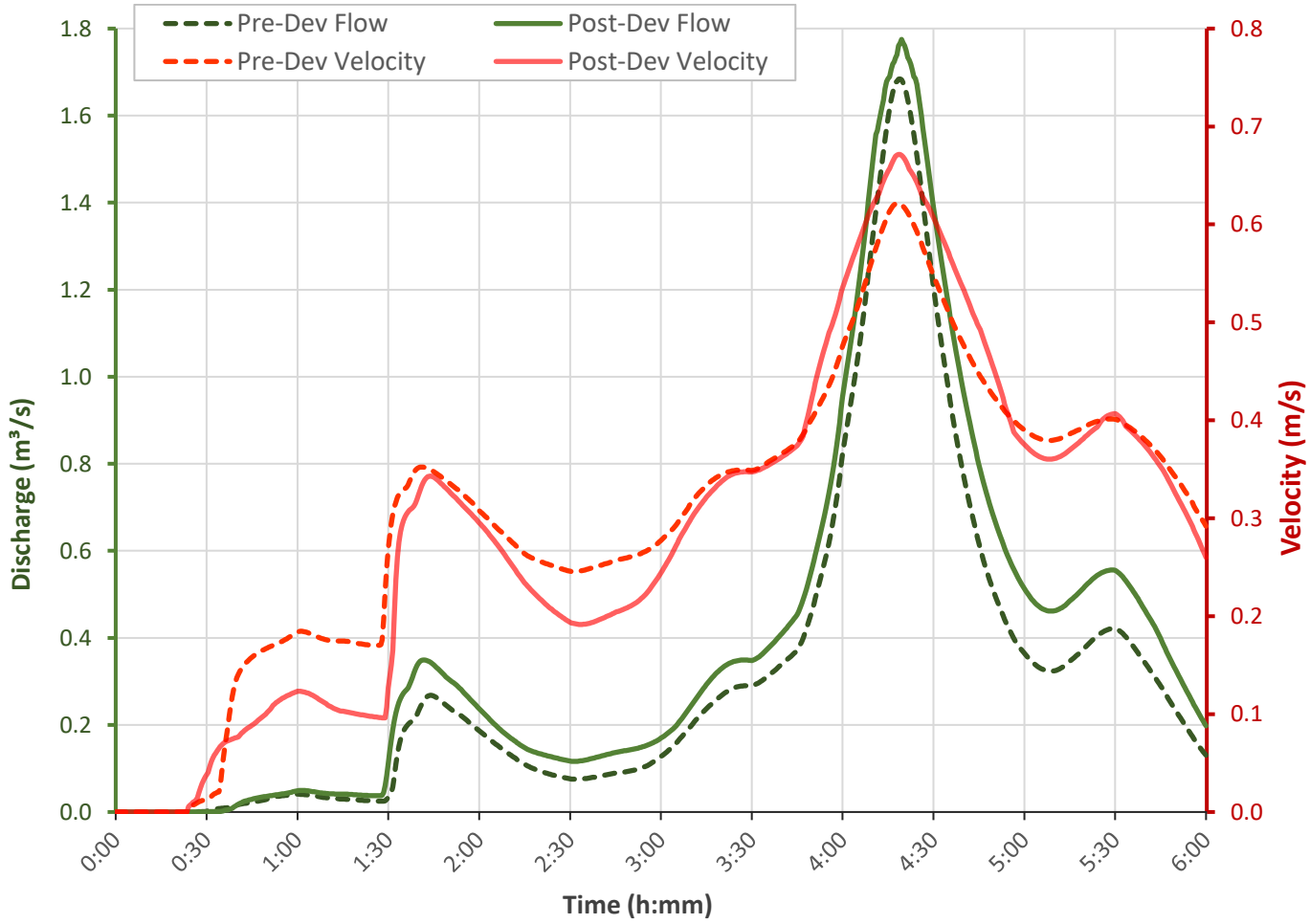

Figure 6. Pre and Post development net discharge/velocity 1% AEP + CC

3.5 Model Summary

Table 6. Pre-development and post-development at the cross-sectional line

	Pre-development	Post-development	Net Change
Depth (m)	0.17	0.19	0.02
Velocity (m/s)	0.62	0.67	0.05
Discharge (m^3/s)	1.70	1.76	0.06

3.6 New habitable buildings

To meet the performance criteria of the Building Regulations 2016, the construction of a new habitable building is required to have a habitable floor level >300mm above the >1% AEP + CC flood level. (The floor level >1% AEP + CC flood level + 300 mm does not apply for non-habitable areas).

The new development at Lot 1 Old Forcett Road must meet this regulation as shown in Table 7.

Table 7. Habitable Floor construction levels

Lot 1 Old Forcett Road	1% AEP + CC flood level (mAHD)	Minimum floor level required (mAHD)
Industrial Unit A	5.80	6.10

As shown in Table 7, the finished floor level for industrial unit A must be at 6.10 mAHD and a minimum of 350 mm separation with the ground level. Industrial units B, C, D, E, F and G are clear from inundation.

The proposed subdivision is at the concept stage with no building elevation data available. Any changes to the building layout, such as modifications to the footprint, orientation, or elevation, could affect flood behaviour on-site. Therefore, the FFL mentioned above applies only to the current layout based on the modelled ground levels and will need reassessment if the layout changes.

Table 8 below summaries pre and post development changes within each lot.

Table 8. Pre and post development flood characteristics

Lot	Unit	Max depth Pre-dev (m)	Max depth Post-dev (m)	Max Hazard Pre-dev	Max Hazard Post-dev	Max depths at building (m)
Lot 1	A	0.17	0.19	H1	H1	0.05
Lot 2	B	0.23	0.21	H1	H1	-
Lot 3	C, D	-	-	-	-	-
Lot 4	E, F	-	-	-	-	-
Lot 5	G	-	-	-	-	-

As evident from the above table, industrial units B, C, D, E, F and G are clear from inundation. However, industrial unit A within lot 1 is slightly affected with depths under 50 mm. These depths are minor and can be managed onsite. The proposed industrial unit A must be constructed a minimum 350 mm above ground level.

4. Flood Hazard

Maximum flood depths of 0.17 m and velocities of 0.62 m/s are observed at the cross-sectional results line at the proposed lot 1 southern boundary. This places the hazard rating in both lots as adopted by

Australian Flood Resilience and Design Handbook as a maximum H1 – *generally safe for people, vehicles and buildings* as shown in Appendix A – Hazard maps.

Maximum flood depths of 0.19 m and velocities of 0.67 m/s are observed at the cross-sectional results line at the proposed lot 1 southern boundary in the post-development scenario. The post-development scenario sees no change in existing hazard ratings as the proposed industrial units will not provide an opportunity to influence the natural overland flow path.

The maximum flood depths within the immediate areas of the proposed building envelopes in both lots under 100 mm which places those areas at a maximum hazard rating of H1-*Generally safe for people, vehicles and buildings.*

Access to the subdivision is a at a maximum hazard rating of H1. However, there are some small, localised areas in close proximity to the proposed driveway. These localised areas are within Old Forcett Road, outside the site of interest.

In conclusion, the industrial units and driveway within the proposed subdivision do not provide an opportunity for the development to increase the level of flood risk. A summary of the hazard ratings is shown in Figure 7.

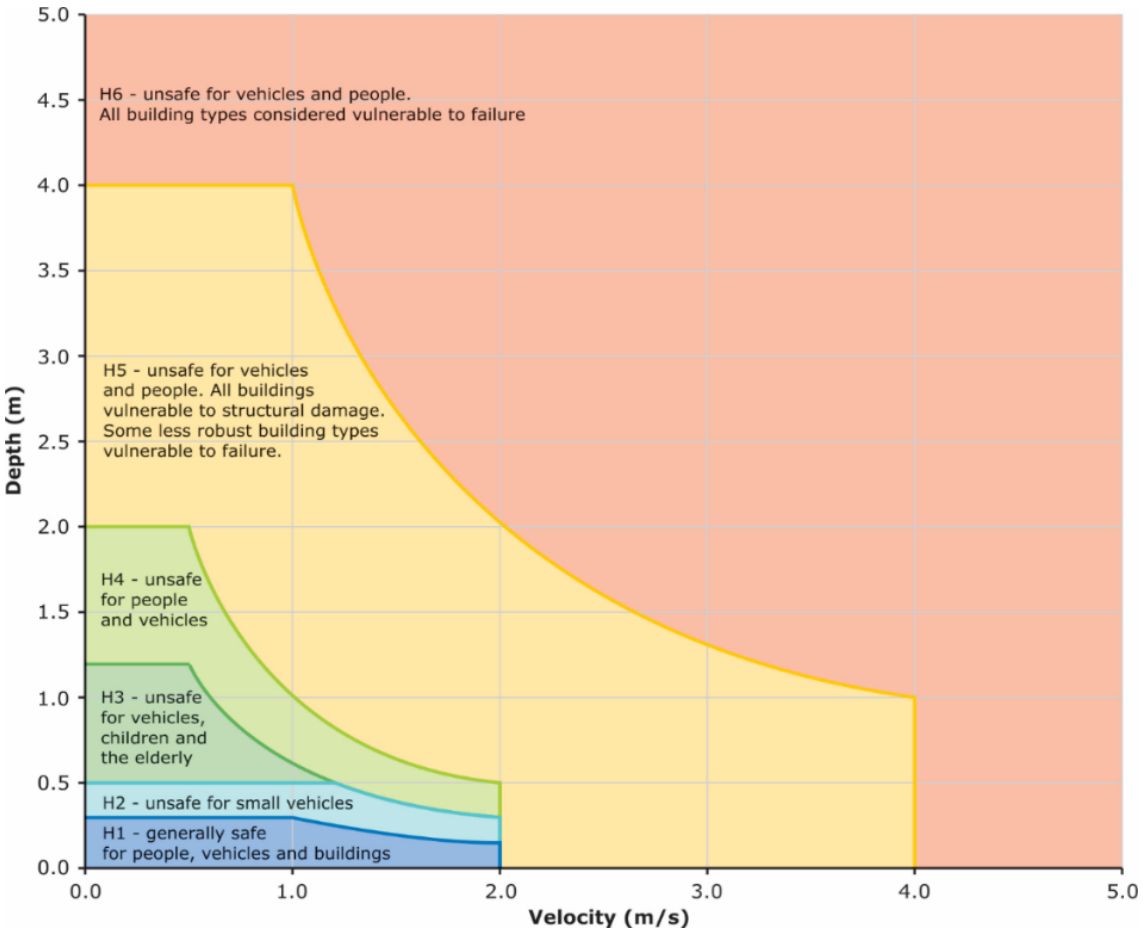

Figure 7. Hazard Categories Australian Disaster and Resilience Handbook

4.1 Tolerable Risk

The lot at Lot 1 Old Forcett Road, Dodges Ferry is susceptible to a moderate depths and slow-moving flood plain flow, with the majority of the immediate surrounding region in lot 1 classified as H1 in the 1% AEP + climate change event.

Following the inclusion of the seven industrial units within the five proposed subdivision lots, the hazard rating extents have remained at the maximum hazard rating of H1.

Therefore, it is deemed that the proposed subdivision does not provide an opportunity for development that cannot achieve a tolerable risk to flooding if recommendations in this report are followed.

It is recommended that any future developments within any lots of the proposed subdivision are covered under a separate flood report to assess the effect of any proposed buildings on flood risk and behaviour.

Table 9. Tasmanian Planning Scheme – Sorell summary C12.5.1

C12.5.1 Uses within a flood prone hazard area			
Objectives: That a habitable building can achieve and maintain a tolerable risk from flood			
Performance Criteria			
P1.1		**P1.1**	
A change of use that, converts a non-habitable building to a habitable building, or a use involving a new habitable room within an existing building, within a flood-prone hazard area must have a tolerable risk, having regard to:		Response from flood report	
(a)	the location of the building;	(a)	Proposed 5 lot subdivision including a proposed driveway and 7 industrial units located within a shallow overland flow path.
(b)	the advice in a flood hazard report;	(b)	Assuming recommendations of this report are implemented, no additional flood protection measures required for the life expectancy of the building.
(c)	any advice from a state authority, regulated entity or a council;	(c)	N/A
P1.2		**P1.2**	
A flood hazard report also demonstrates that:		Response from flood report	
(a)	any increase in the level of risk from flood does not require any specific hazard reduction or protection measures;	(a)	No increase in level of risk from pre-development scenario.
(b)	the use can achieve and maintain a tolerable risk from a 1% annual exceedance probability flood event for the intended life of the use without requiring any flood protection measures	(b)	Maximum hazard rating at the proposed development is H1 in both the pre-development and post-development scenarios.

Table 10. Tasmanian Planning Scheme – Sorell summary C12.6.1

C12.6.1 Building and works within a flood prone area			
Objective: (a) building and works within a flood-prone hazard area can achieve and maintain a tolerable risk from flood; and, (b) buildings and works do not increase the risk from flood to adjacent land and public infrastructure.			
Performance Criteria			
P1.1		**P1.1**	
Buildings and works within a flood-prone hazard area must achieve and maintain a tolerable risk from a flood, having regard to:		Response from flood report	
(a)	the type, form, scale and intended duration of the development;	(a)	Proposed 5 lot subdivision including a proposed driveway and 7 industrial units located within a shallow overland flow path.
(b)	whether any increase in the level of risk from flood requires any specific hazard reduction or protection measures;	(b)	Assuming recommendations of this report are implemented, no additional flood protection measures required for the life expectancy of a habitable building.
(c)	any advice from a State authority, regulated entity or a council; and	(c)	N/A
(d)	the advice contained in a flood hazard report.	(d)	Flood report and recommendations provided within.
Performance Criteria			
P1.2		**P1.2**	
A flood hazard report also demonstrates that the building and works:		Response from Flood Report	
(a)	do not cause or contribute to flood on the site, on adjacent land or public infrastructure; and	(a)	Does not increase flooding extents and depths within the site, on adjacent land or public infrastructure.
(b)	can achieve and maintain a tolerable risk from a 1% annual exceedance probability flood event for the intended life of the use without requiring any flood protection measures.	(b)	Assuming recommendations of this report the proposed site and development can achieve a tolerable risk to the 1% AEP storm event for the life expectancy of the building.

Table 11. Tasmanian Planning Scheme – Sorell summary C12.7.1

C12.7.1 Subdivision within a flood-prone hazard area			
Objectives: That subdivision within a flood-prone hazard area does not create an opportunity for use or development that cannot achieve a tolerable risk from flood.			
Performance Criteria			
A1		**P1**	
Each lot, or a lot proposed in a plan of subdivision, within a flood-prone hazard area, must not create an opportunity for use or development that cannot achieve a tolerable risk from flood, having regard to:		Response from flood report	
(a)	any increase in risk from flood for adjacent land.	(a)	No opportunity of an increase in flood risk on adjacent land if recommendations are followed and given the current building layout is followed.
(b)	the level of risk to use or development arising from an increased reliance on public infrastructure.	(b)	The use within the proposed subdivision would not provide an opportunity to increase the risk of additional reliance on public infrastructure.
(c)	the need to minimise future remediation works.	(c)	There is no need for significant remediation works if the recommendations within the report are followed. The proposed buildings are minimally affected by inundation except industrial unit 'A' which is affected by shallow depths under 50 mm.
(d)	any loss or substantial compromise by flood of access to the lot, on or off site;	(d)	Access to the subdivision is at a maximum hazard rating of H2 which is deemed tolerable. This small, localised area of H2 hazard is located within Old Forcett Road, outside the site of interest.
(e)	the need to locate building areas outside the flood-prone hazard area;	(e)	The industrial units B, C, D, E, F and G are located away from the flood inundation extents. Industrial unit 'A' within proposed lot 1 is subject to minor flood depths under 50 mm.
(f)	any advice from a state authority, regulated entity or a council; and	(f)	N/A
(g)	the advice contained in a flood hazard report.	(g)	Refer to this report and recommendations.

5. Conclusion

The Flood Hazard Report for the Lot 1 Old Forcett Road, Dodges Ferry development site has reviewed the potential post-development flood scenario.

The following conclusions were derived in this report:

1. A comparison of the post-development peak flows for the 1% AEP and storm surge event at 2100 were undertaken to address C12.5.1, C12.6.1 and C12.7.1 of the TPS – Sorell Council.
2. A slight increase of 0.02 m in flood depths at the property boundary from pre-development to post-development scenario.
3. An increase of 0.06 m^3/s in net discharge from pre- to post-development, riverine flood scenarios.
4. An increase of 0.05 m/s in velocity between pre- and post-development, riverine flood scenarios.
5. Hazard from flooding within proposed lots 1 and 2 are at category of H1 in lots for pre and post development scenario. No hazard ratings are observed in lots 3, 4 and 5.
6. The subdivision does not provide an opportunity for development that would cause unacceptable risk to flood.

6. Recommendations

Flüssig Engineers therefore recommends the following engineering design be adopted for the subdivision and future use to ensure the works meets the Inundation Code:

1. A 0.6 m minimum height solid wall is recommended to be constructed along the northern lot boundary as shown in Figure 5.
2. A 1.5 m wide, 0.3 m deep open drain is recommended to be constructed adjacent to the flood wall.
3. Industrial Unit A to be constructed a minimum of 350 mm above the ground level.
4. The proposed driveways should be constructed with a minimum gradient of 2% that directs runoff away from the habitable industrial units.
5. All future proposed structures not shown within this report will require a separate design and report addressing their impacts.
6. Future use of lot areas to be limited to areas deemed safe under the ARR Disaster Manual categories.
7. Road and access use be limited to use deemed safe under the ARR Disaster manual categories.

Under the requirements of this Flood Hazard Report, the proposed development and subdivision will meet current acceptable solutions and performance criteria under the Tasmanian Planning Scheme – Sorell.

7. Limitations

Flüssig Engineers were commissioned by **Tasmanian Land Holdings Pty Ltd** to prepare a site-specific Flood Hazard Report for Lot 1 Old Forcett Road, Dodges Ferry, in accordance with Clauses C12.5.1, C12.6.1, and C12.7.1 of the *Tasmanian Planning Scheme – Sorell 2021*. This report has been prepared to assess flood-related risks and behaviours associated with the proposed development and is considered suitable for its intended purpose at the time of preparation.

Any future amendments to the proposed building layout, including changes to the footprint, orientation, or finished floor levels, may alter local flood characteristics. Should such modifications occur, this report must be reviewed and updated to ensure the findings remain valid.

This document is to be used in full and not in part to support any other purpose beyond that specified herein, unless prior written approval is obtained from Flüssig Engineers. The firm accepts no responsibility for the accuracy of third-party data or documents provided for the preparation of this study.

This assessment is subject to the scope of engagement, the availability and reliability of data, and the following specific limitations:

- The hydraulic model represents a 1% Annual Exceedance Probability (AEP) event with a climate change (CC) allowance, based on the worst-case temporal storm pattern.
- All hydraulic and hydrologic parameters have been derived using industry best-practice guidelines and, where applicable, relevant local studies.
- All datasets and inputs provided by the client and government agencies have been assumed to be accurate and fit for purpose.
- The primary objective of this study is to evaluate the influence of the proposed subdivision on site-specific flood behaviour. It does not constitute a full catchment-wide flood study, and further investigation would be required for such an assessment.

8. References

- Australian Disaster Resilience Guideline 7-3: Technical flood risk management guideline: Flood hazard, 2014, Australian Institute for Disaster Resilience CC BY-NC
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- Antarctic Climate and Ecosystems CRC (ACE-CRC) 2010, Climate Futures for Tasmania Technical Report Extreme Events December 2010, ISBN 978-1-921197-09-3
- Australian Attorney-General's Department, 2015, National Emergency Risk Assessment Guidelines (NERAG) Handbook 10
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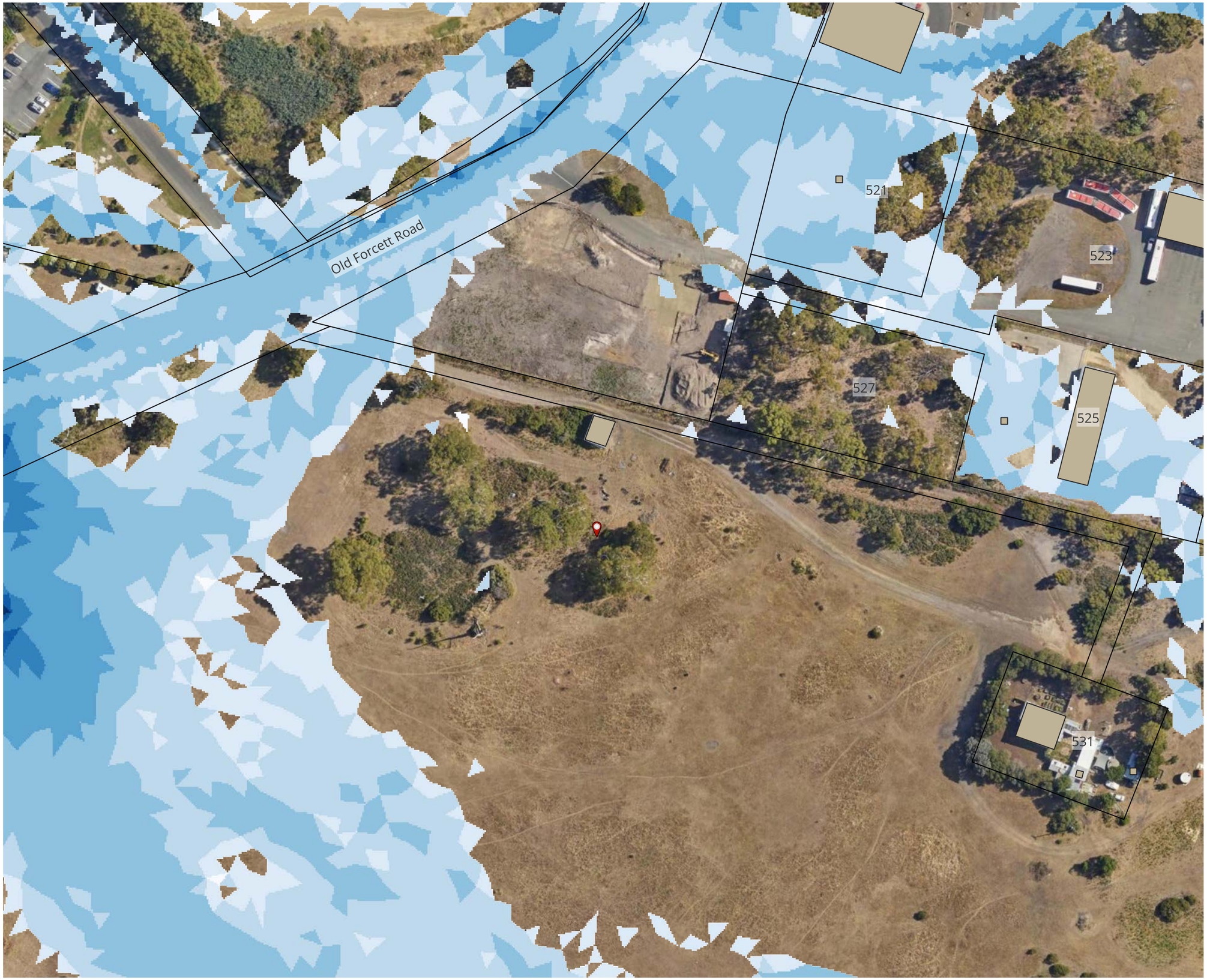
9. Appendices

Appendix A Flood Maps

PRE 1% AEP + CC @2100



Legend

- Lot 1 Old Forcett Road
- Boundary Lines
- BuildingFootprints

Pre 1% AEP + CC @2100

Depth (m)

- <= 0.03
- 0.03 - 0.05
- 0.05 - 0.10
- 0.10 - 0.30
- 0.30 - 0.60
- 0.60 - 0.80
- 0.80 - 1.00
- > 1.00

0 30 60 m

meters

N

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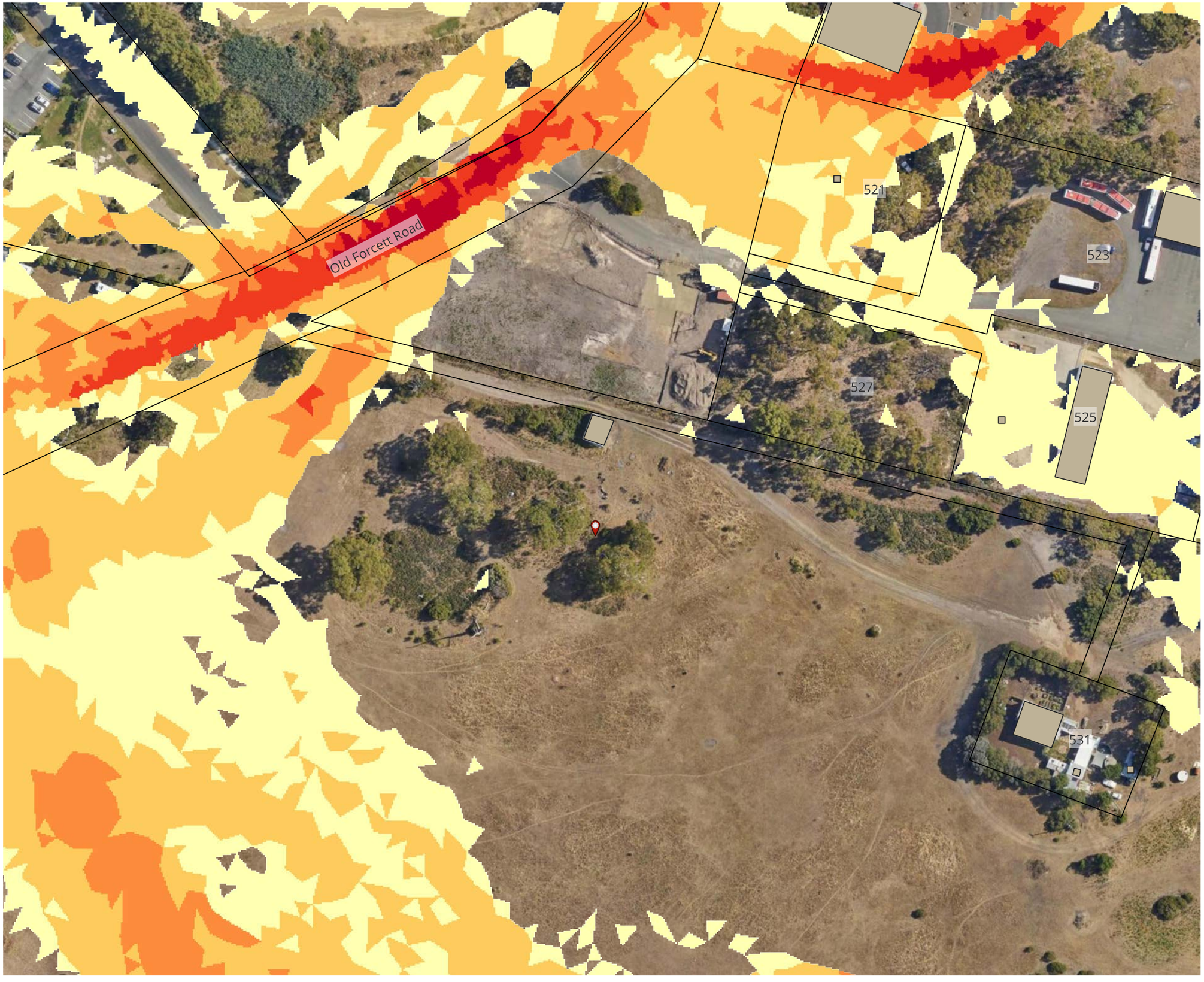
- 09-10-2025 - Flussig Engineers Map CRS: GDA94 / MGA zone 55 EPSG:28355

PRE 1% AEP + CC @2100



Legend

Lot 1 Old Forcett Road
Boundary Lines
BuildingFootprints

Pre 1% AEP + CC @2100

Velocity (m/s)
<= 0.50
0.50 - 1.00
1.00 - 1.50
1.50 - 2.00
> 2.00

0 30 60 m
meters

N

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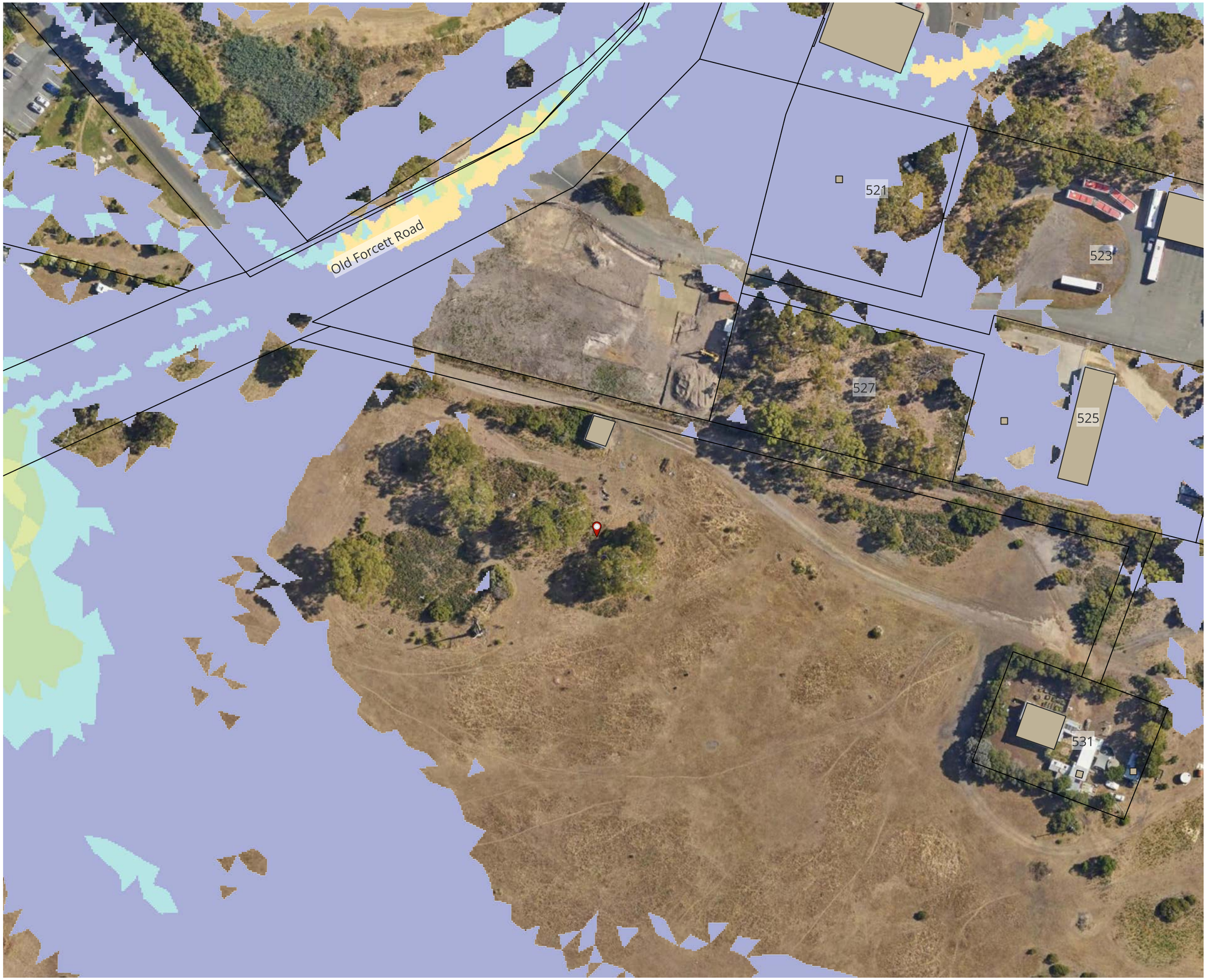
PRE 1% AEP + CC @2100



Legend

- Lot 1 Old Forcett Road
- Boundary Lines
- BuildingFootprints
- Pre 1% AEP + CC @2100

Hazard
- H1
- H2
- H3
- H4
- H5
- H6

0 30 60 m

meters

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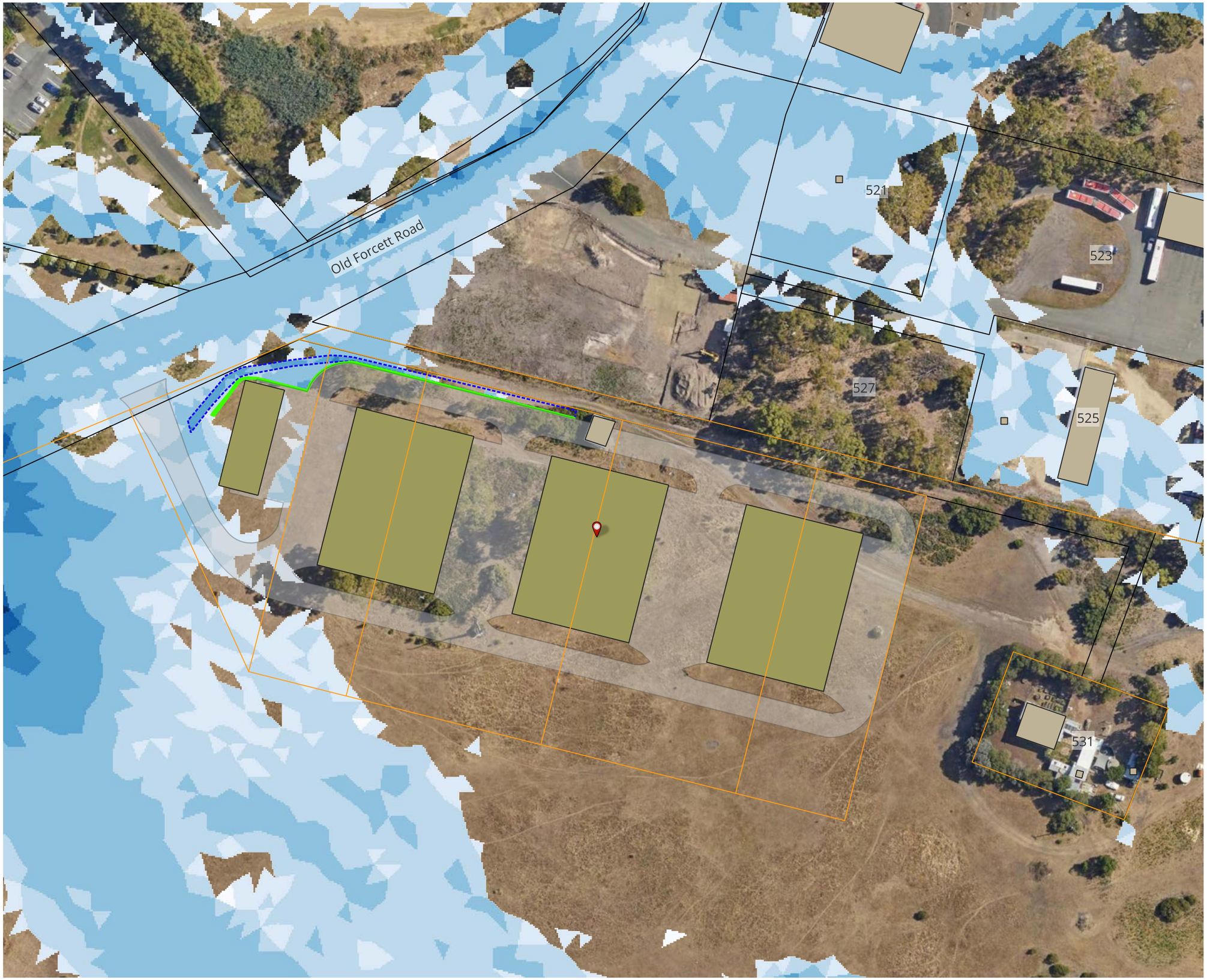
POST 1% AEP + CC @2100



Legend

- Lot 1 Old Forcett Road
- Boundary Lines
- BuildingFootprints
- Proposed Site Boundaries
- Proposed Warehouses
- Proposed Driveway and parking
- Flood wall 0.6 m high
- Open Drain

Post 1% AEP + CC @2100

Depth (m)

- <= 0.03
- 0.03 - 0.05
- 0.05 - 0.10
- 0.10 - 0.30
- 0.30 - 0.60
- 0.60 - 0.80
- 0.80 - 1.00
- > 1.00

0 30 60 m

meters

N

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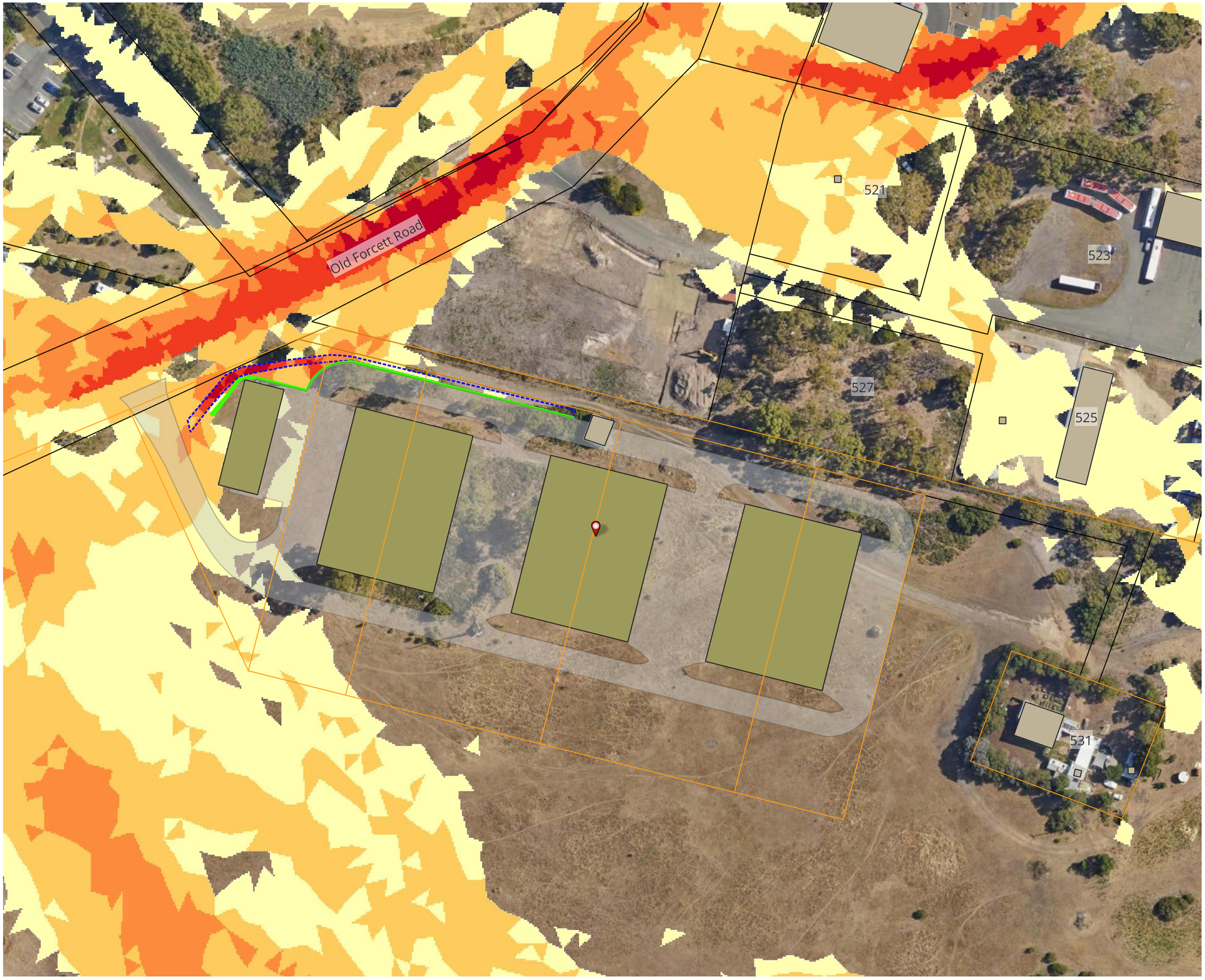
POST 1% AEP + CC @2100



Legend

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- Boundary Lines
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- Proposed Site Boundaries
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- Proposed Driveway and parking
- Flood wall 0.6 m high
- Open Drain

Post 1% AEP + CC @2100

Velocity (m/s)

- <= 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- > 2.00

0 30 60 m

meters

N

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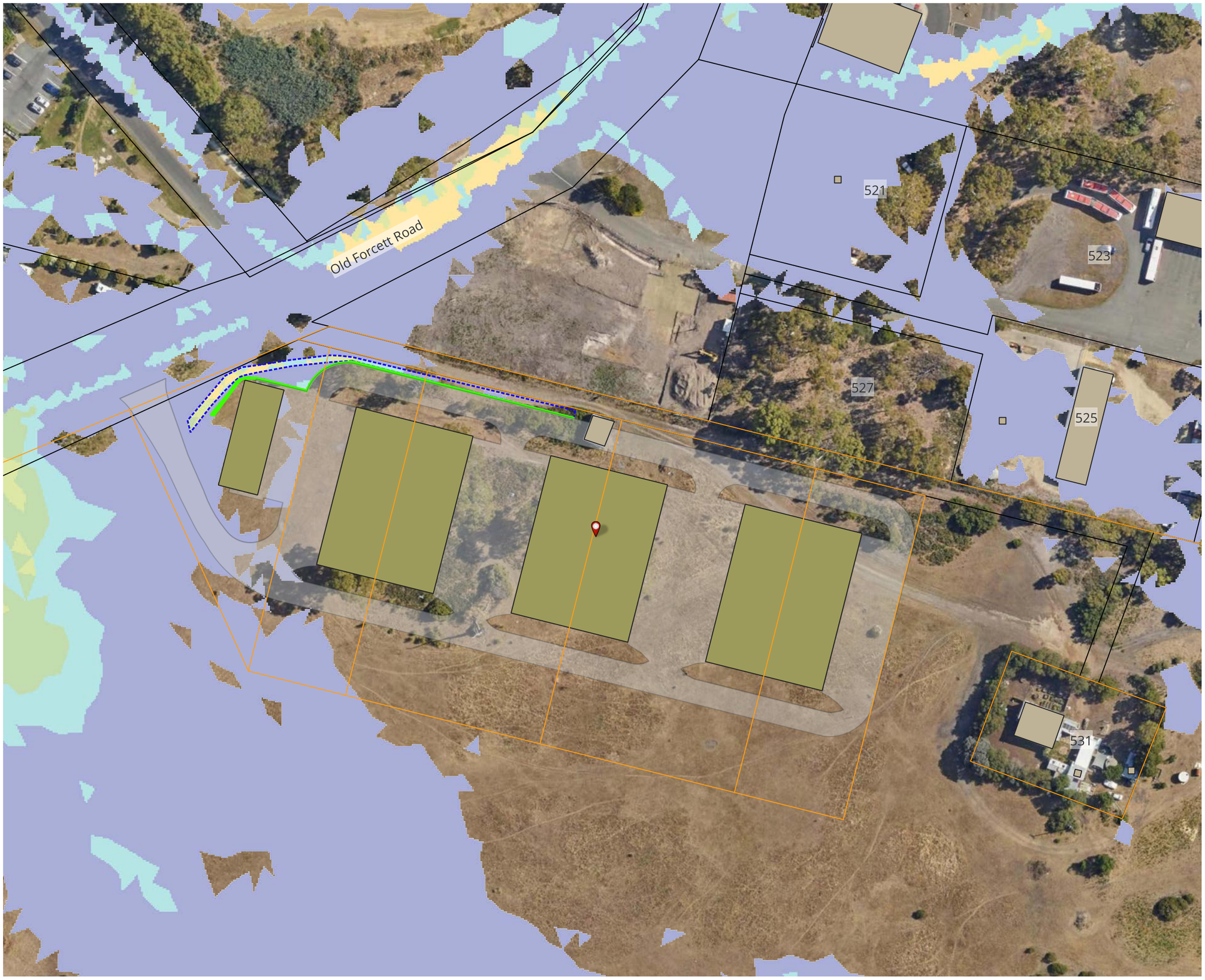

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- Lot 1 Old Forcett Road
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- Proposed Site Boundaries
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- Flood wall 0.6 m high
- Open Drain

Post 1% AEP + CC @2100

Hazard
- H1
- H2
- H3
- H4
- H5
- H6

0 30 60 m

meters

N

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Prepared for

Tasmanian Land Holdings Pty Ltd

Lot 1 Old Forcett Road Dodges Ferry TAS

STORMWATER MANAGEMENT PLAN

FE_24059

09 September 2024

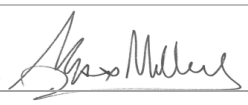
flüssig Engineers

L4/ 116 BATHURST ST
HOBART TASMANIA 7000
ABN: 16 639 276 181

Document Information

Title	Client	Document Number	Project Manager
Lot 1 Old Forcett Road, Dodges Ferry Stormwater Management Plan	**Tasmanian Land Holding Pty Ltd**	FE_24059	**Max W. Möller** *BEng, FIEAust, EngExec, CPEng,NER,APEC Engineer, IntPE(Aus.)* *Managing Director / Principal Hydraulic Engineer*

Document Initial Revision

REVISION 00	Staff Name	Signature	Date
Prepared by	Max W. Moller ***Principal Hydraulic Engineer***		12/08/2024
Prepared by	Ash Perera ***Senior Hydraulic Engineer***		19/08/2024
Prepared by	Manuri Alwis ***Civil Engineer***		19/08/2024
GIS Mapping	Damon Heather ***GIS Specialist***		02/09/2024
Prepared by	Christine Keane ***Senior Water Resources Analyst***		09/09/2024
Authorised by	Max W. Möller ***Principal Hydraulic Engineer***		09/09/2024

Document Revision History

Rev No.	Description	Reviewed by	Authorised by	Date
01	Change in Description- Section 2.1	Max W. Möller	Max W. Möller	20/01/2025
02	Layout Change	Rafael Upcroft	Max W. Möller	14/10/2025

Table of Contents

List of Figures

List of Tables

1. Introduction

Flüssig Engineers have been contracted by **Tasmanian Land Holdings Pty Ltd** to conduct a site-specific Stormwater Management Plan (SWMP) for the upcoming industrial unit subdivision located at Lot 1 Old Forcett Road, Dodges Ferry. This includes, among other tasks, analysing lot drainage, assessing stormwater drainage, and performing MUSIC Modelling to comply with specified stormwater quality standards. The objective of this report is to evaluate the hydraulic characteristics and capacity of the stormwater infrastructure for a 2% Annual Exceedance Probability (AEP) storm event, as well as to assess treatment measures for both existing and post-development scenarios.

1.1 Scope

This scope of work encompasses:

1. Assessing pre-construction drainage capacity and treatment for the existing site under a 2% Annual Exceedance Probability (AEP) storm event.
2. Evaluating post-construction drainage capacity and treatment for the new design under a 2% Annual Exceedance Probability (AEP) storm event.

2. Site Characteristics

2.1 Site Location

The proposed development is located in the municipality of the **Sorell Council.** The entire lot area is approximately 61.71 ha. The site is currently zoned Rural, and its immediate areas are zoned Rural Living, Low-density Residential, Utilities, Community Purpose and Recreation.

The development at Lot 1, Old Forcett Road Dodges Ferry lies within a catchment area that is approximately 163 ha which stretches from the peaks of Dodges Hill, with the development site situated at the northwestern end of the catchment. The average slope across this area is 6.0%.

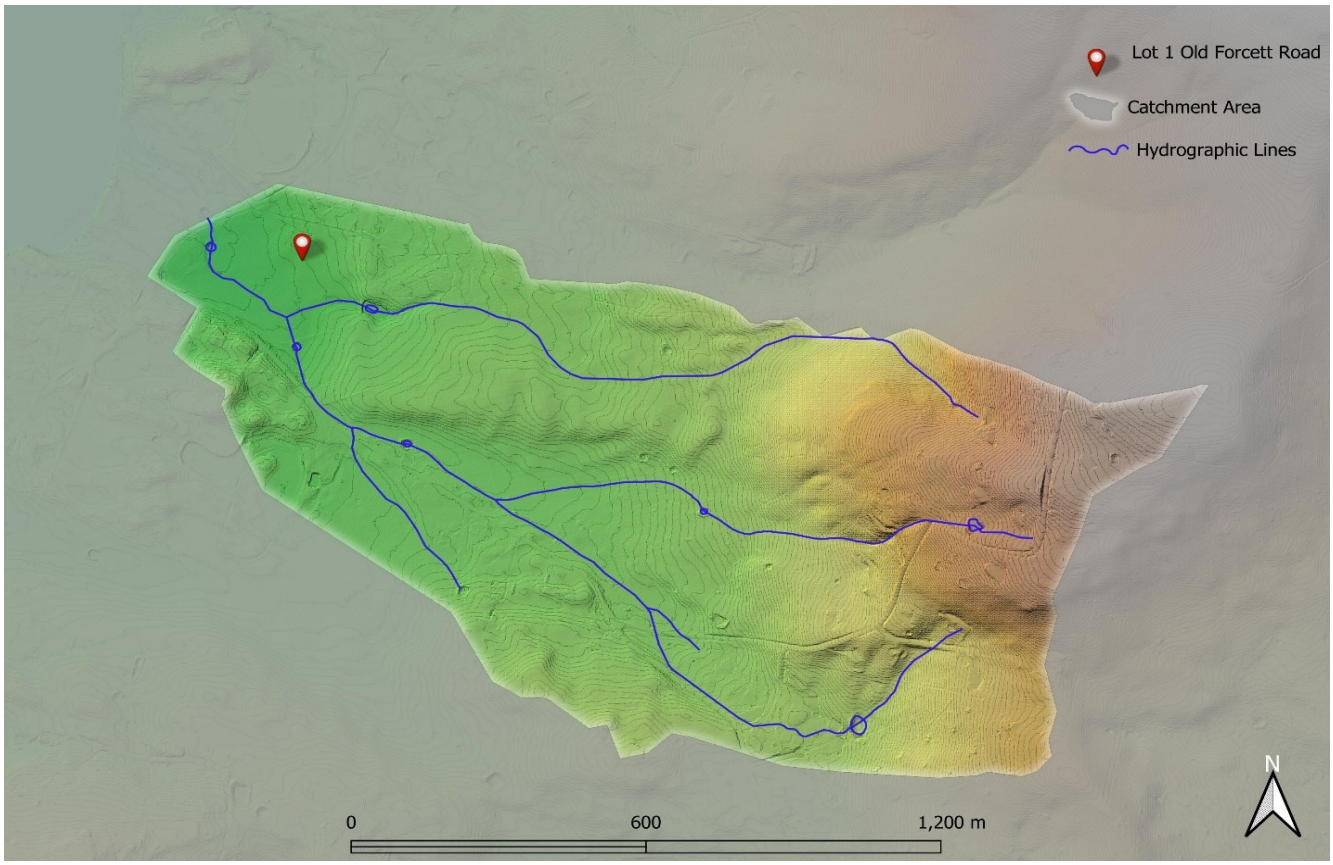


Figure 1. Development location, Lot 1, Old Forcett Road

2.2 Topography

Lot 1 Old Forcett Road Dodges Ferry is approximately 61.71 ha in area draining from approximately 50 mAHD to 5 mAHD. As can be seen by the topography in Figure 2, the area slopes in southern western direction towards the Old Forcett Road.

2.3 Survey Data

All survey data was undertaken by Woolcott Survey and supplied by the client as a processed AutoCAD file. The provided data has been incorporated into various software to undertake the analysis.

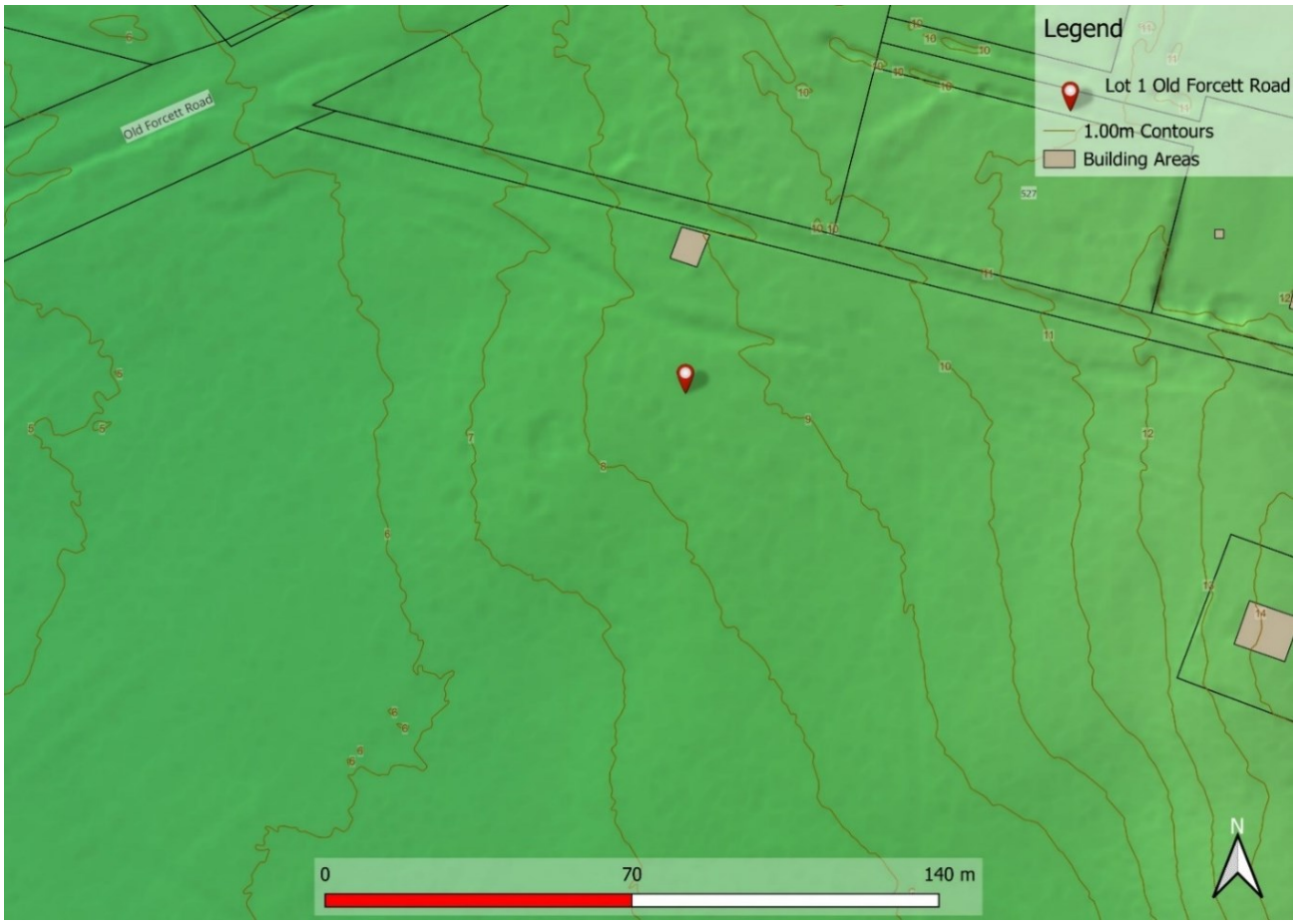


Figure 2. DEM (hillshade) of development area and surrounds

3. Proposal

3.1 Proposed Development

The proposed development involves the establishment of a commercial and industrial subdivision designed to accommodate twenty individual industrial units, along with associated concrete-paved driveways, parking areas, and access roads. The architectural and civil design for the development has been prepared by Caliban Consulting Pty Ltd, as illustrated in Figure 3 below.

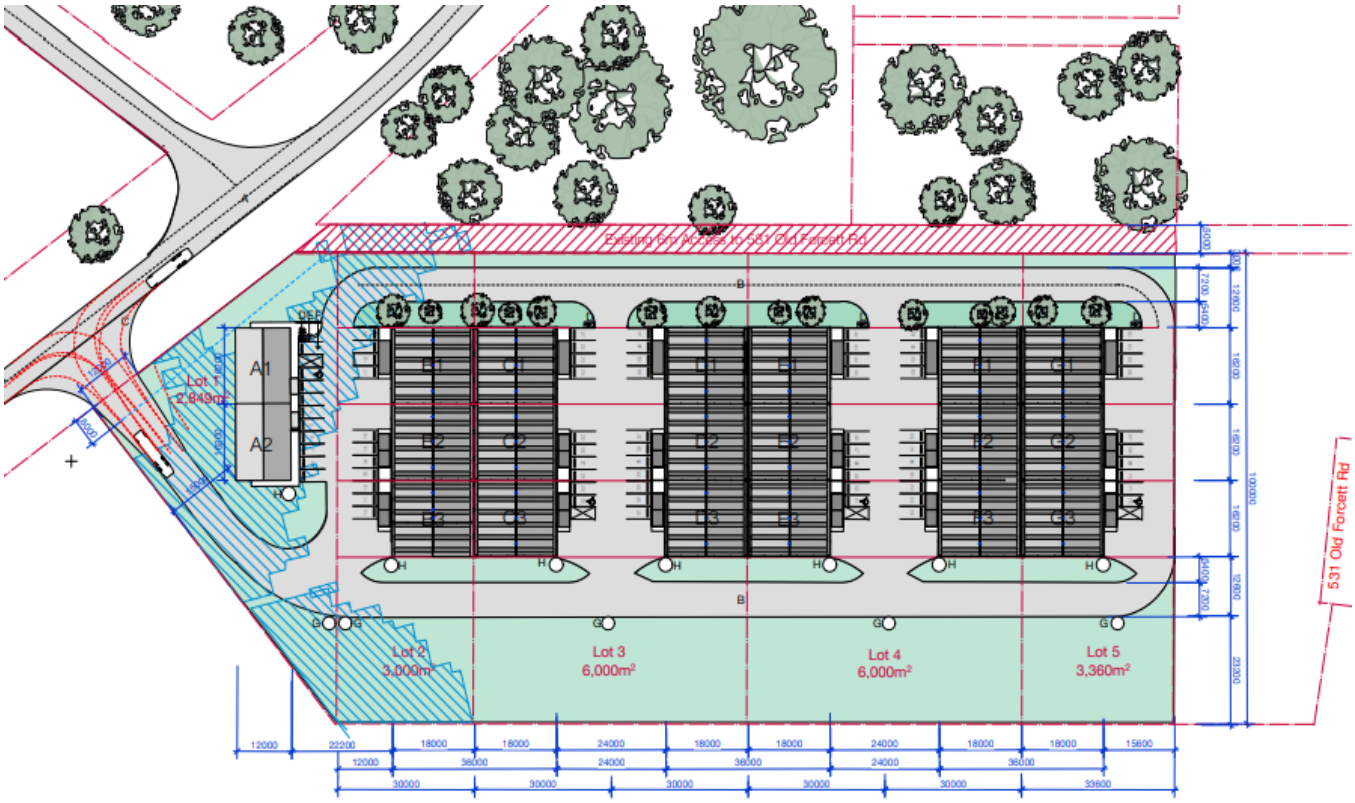


Figure 3. Proposed development (Caliban Consulting)

The total development footprint covered by the current application encompasses approximately 21,209 m^2. Given the considerable size of the overall site, this assessment focuses specifically on the portion of land directly associated with the proposed subdivision and industrial unit development.

The subdivision is planned to create five individual lots, with the following approximate land areas:

- Lot 1: 2,849 m^2
- Lot 2: 3,000 m^2
- Lot 3: 6,000 m^2
- Lot 4: 6,000 m^2
- Lot 5: 3,360 m^2

Within these lots, the proposed development includes approximately 5,700 m^2 of roofed impervious area (industrial buildings) and an additional 7,990 m^2 of impervious paved surfaces (driveways, car parks, and hardstand areas). These surfaces will generate stormwater runoff that will be managed through the drainage and stormwater systems outlined in this report.

4. Stormwater Quantity

4.1 Catchment Analysis

The catchment was modelled using the RAFTS hydrology module within InfoWorks ICM, a widely recognised software package for urban and rural flood modelling. The RAFTS model applies the Laurenson runoff-routing method, which estimates stormwater runoff based on key catchment characteristics such as area, slope, surface roughness, and percentage of impervious cover.

This approach enables a realistic simulation of how rainfall is converted to runoff and routed through the catchment, providing a reliable basis for assessing flow rates and drainage system performance under various design storm events. The Laurenson method is a well-established and validated technique, and its use is fully endorsed under Australian Rainfall and Runoff 2019 (ARR 2019) for hydrological analysis of

catchments larger than an individual residential lot, making it appropriate and consistent with best-practice industry standards for this assessment.

4.2 Design Intensity Storms

Design storm durations and temporal pattern were calculated using Australian Rainfall and Runoff 2019 (ARR19) guidelines, running ten temporal pattern events through each duration to determine the worst-case storm using the median temporal pattern. Figure 4 below shows the selected overland flow path 1% AEP 4.5-hour storm temporal pattern 5 as the worst-case median storm event.

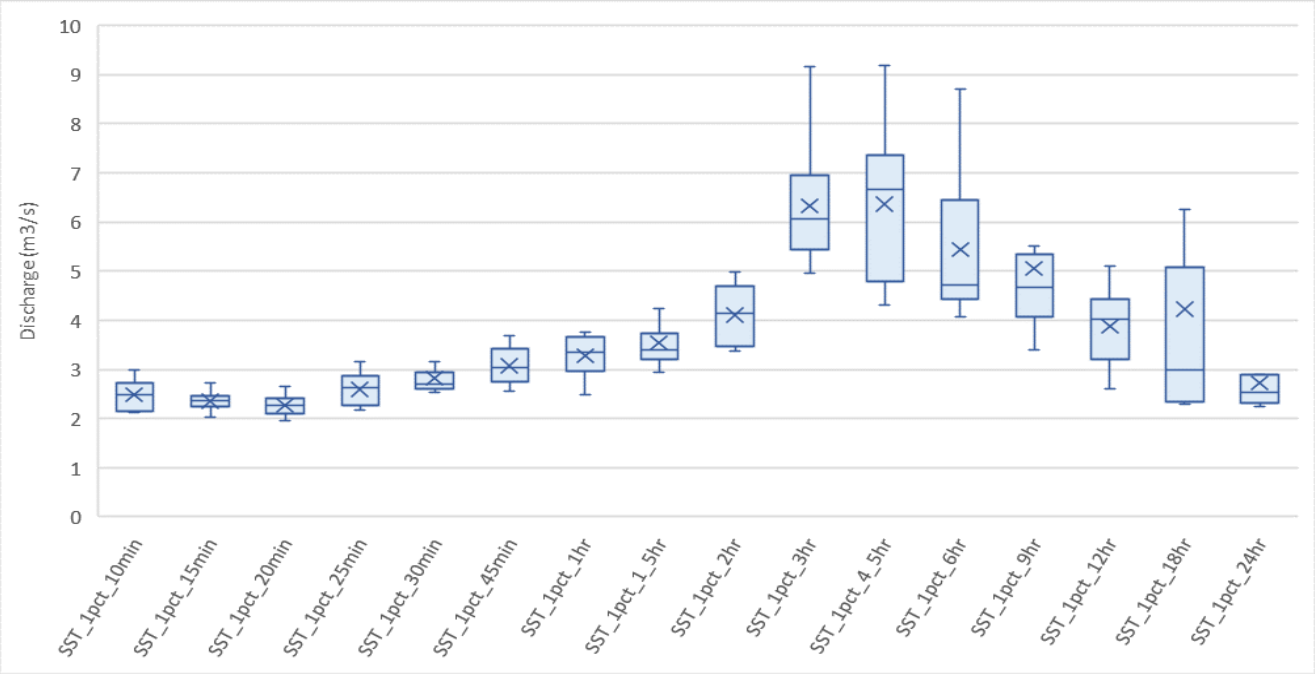


Figure 4. 1% Temporal Storms Box and Whisker Plot

4.3 Land use

Land use for the site, both pre- and post-development, were derived from plans and aerial imagery. Land use values are as follows in Table 1.

Table 1. Land Use Area

	Pre-Development		Post-Development	
Land Use	**Area (m²)**	**% Total land**	**Area (m²)**	**% Total land**
Total Impervious	-	0	13,690	2.27
Total Pervious	617,100	100	603,410	97.73

4.4 Manning's n and losses

Losses for this catchment were derived from ARR19 data hub. As per ARR2019, losses were taken at 60% of prescribed value to account for effective impervious area. See Table 2 for loss values. Manning's n values were taken directly from best practice manuals as shown in Table 3.

Table 2. Runoff Coefficients

Surface	Initial losses (IL) mm	Continuing Losses (CL) mm/ hr
Pervious	29	3.7
Impervious	1	0

Table 3. Manning's N coefficients

Land Use	Manning's n
Channel	0.025
Road	0.018
Gravel	0.025
Urban Yards	0.045
Buildings	0.3

4.5 Development Runoff

Stormwater runoff from the development site has been assessed under pre- and post-development models to determine the potential impact the development at Lot 1 Old Forcett Road Dodges Ferry has on the immediate local flows. As per planning guidelines it is a requirement that this does not worsen from pre to post development.

Using the above parameters, the site was calculated using Infoworks ICM software and ARR2019 best practice manuals. Site characteristics for the pre- and post-development model are summarised in Table 4.

Table 4. Site Characteristics

Catchment	Area (ha)	Average Slope (%)	Total Land use pervious/ impervious (ha)	Storm duration and pattern
Pre-Development	61.71	2.5	61.71 / 0.00	1% 4.5-hour storm 5
Post-Development	61.71	2.5	60.34 / 1.37	1% 4.5-hour storm 5

5. Model Results

The pre- and post-development scenarios were calculated using Infoworks ICM software against the 2% AEP storm event. The storm durations were derived from the worst case median temporal pattern for this event as 4.5 hour duration.

The pre and post conditions can be seen in Figure 5 below showing the peak discharge, where it can be seen that there is an increase in peak discharge from pre to post development.

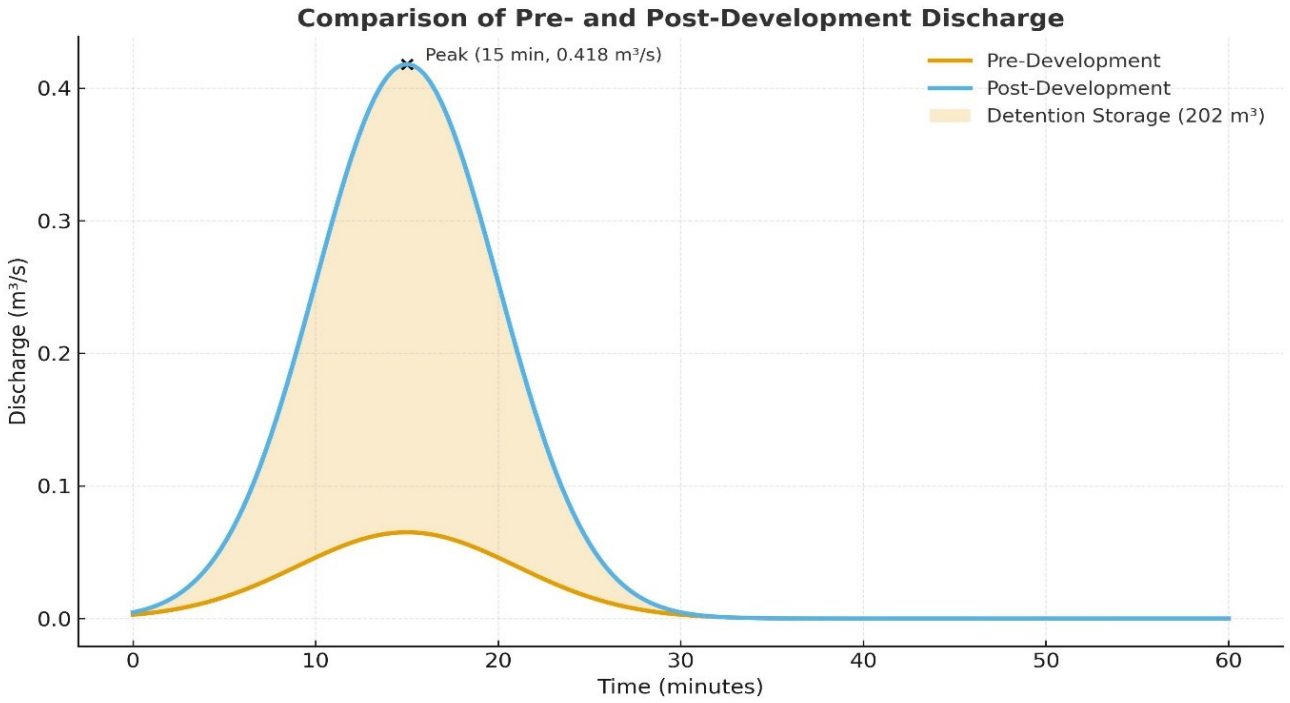


Figure 5. Site Discharge Curves Pre vs. Post Development

The post-development allowable site discharge must not exceed the pre-development site discharge. As can be seen from Table 5, this is exceeded in the 2% AEP by a total peak discharge of 0.418 m^3/s, more than the total allowable site discharge of 0.065 m^3/s. Therefore, the site must detain the difference using an onsite stormwater detention (OSD) system.

The required storage is the difference between the pre- and post-development curves shown in Figure 5. This area between the curve equates to a total detention storage requirement which can be seen in Table 5. The site discharge increase due to development needs to be treated or otherwise agreed. The sections below outline the requirements for the new roofs and concrete areas.

Table 5. Discharge volume rates pre- and post-development scenarios in 2% AEP storm event

	Discharge Volume (m^3/s)			Required Detention (m^3)
	Pre-Development	Peak post-Development	Permissible Site Discharge	
Roof (A-F)	0.027	0.174	0.027	84
Concrete hardstand	0.038	0.244	0.038	118
Total	0.065	0.418	0.065	202

5.1 Stormwater Detention

As can be seen from Table 5, after allowance has been made to detain impervious areas, the total volume discharged in the storm event still exceeds pre-development flows. Therefore, when referencing Table 5,

the proposed development will require minimum detention of 202 m^3. (Refer to "APPENDIX B Calculations").

Stormwater from the individual industrial units is managed via 7 x 12.5 m^3 detention tanks, providing a total detention capacity of 87.5 m^3 (This exceeds the 84 m^3 required as it allows for an air gap at the top of the tank for the overflow connection). Each unit's detention tank is connected to a network of drainage pipes, while runoff from the concrete hardstand areas is collected through several stormwater pits and directed to a proposed onsite wetland. This wetland will be formed from an existing dam with a capacity of 50.0 m^3 and is located towards the southwestern boundary of the lot.

The overflow from the wetland will discharge into a newly defined grassed open drain, which will convey flows towards the existing table drain alongside Old Forcett Road. From there, runoff will pass through the existing culvert crossing Old Forcett Road and integrate into the broader stormwater system. The detention requirement of 118 m^3 for the internal concrete hardstand is accommodated within the proposed wetland, which is to be increased in capacity up to a total volume of 170.0 m^3, featuring a 130.0 m^2 base and a 1.0 m extended detention depth.

Refer to Table 6 for stormwater detention tank maintenance. More detailed information regarding maintenance is provided in Section 6.6.

Table 6. Stormwater storage Maintenance

Task	Action	Frequency
General Cleaning – gutters, downpipe, filters etc.	Clear all debris from gutters and tank filters, and sediment pits. Ensure operational	Approximately every 3 months
Specialised cleaning and inspection	Inspect all gutters downpipes, inflow and outflow – flush if required. Inspect all filters replace if required. Inspect tanks for defects	Yearly
Maintenance	Perform detailed inspection and maintenance of tanks and associated infrastructure by a qualified person.	Every 5 years.

5.2 1% AEP Overland Flow Path (OFP)

As per Sorell Council requirements, runoff for the 1% AEP is not required to be captured by infrastructure nor detained onsite in an OSD. However, the 1% AEP storm must be able to drain through the site and not cause additional impedance on the neighbouring lots or future residents.

Figure 6 illustrates the pre-development scenario results for the 1% AEP combined with a 16.3% increase in rainfall due to climate change projected for the year 2100, have been analysed within the described model framework. These simulations were conducted to assess the prevailing flooding conditions on the site and adjacent properties. The existing ground characteristics of the site facilitate an unobstructed OFP through the site under 1% AEP flood conditions.

Figure 7 illustrates the post-development scenario results for the 1% AEP. Units A1 and A2 experience flood depths ranging from 0 to 0.1 m, while the remaining lots of the development remain unaffected by the 1% AEP OFP through the site. A 0.6 m high flood wall has been proposed along the northern edge of the proposed driveway to prevent the OFP from entering the site. For detailed flood modelling and recommendations, please refer to the FE_24059_Lot 1 Old Forcett Road Dodges Ferry Flood Report.

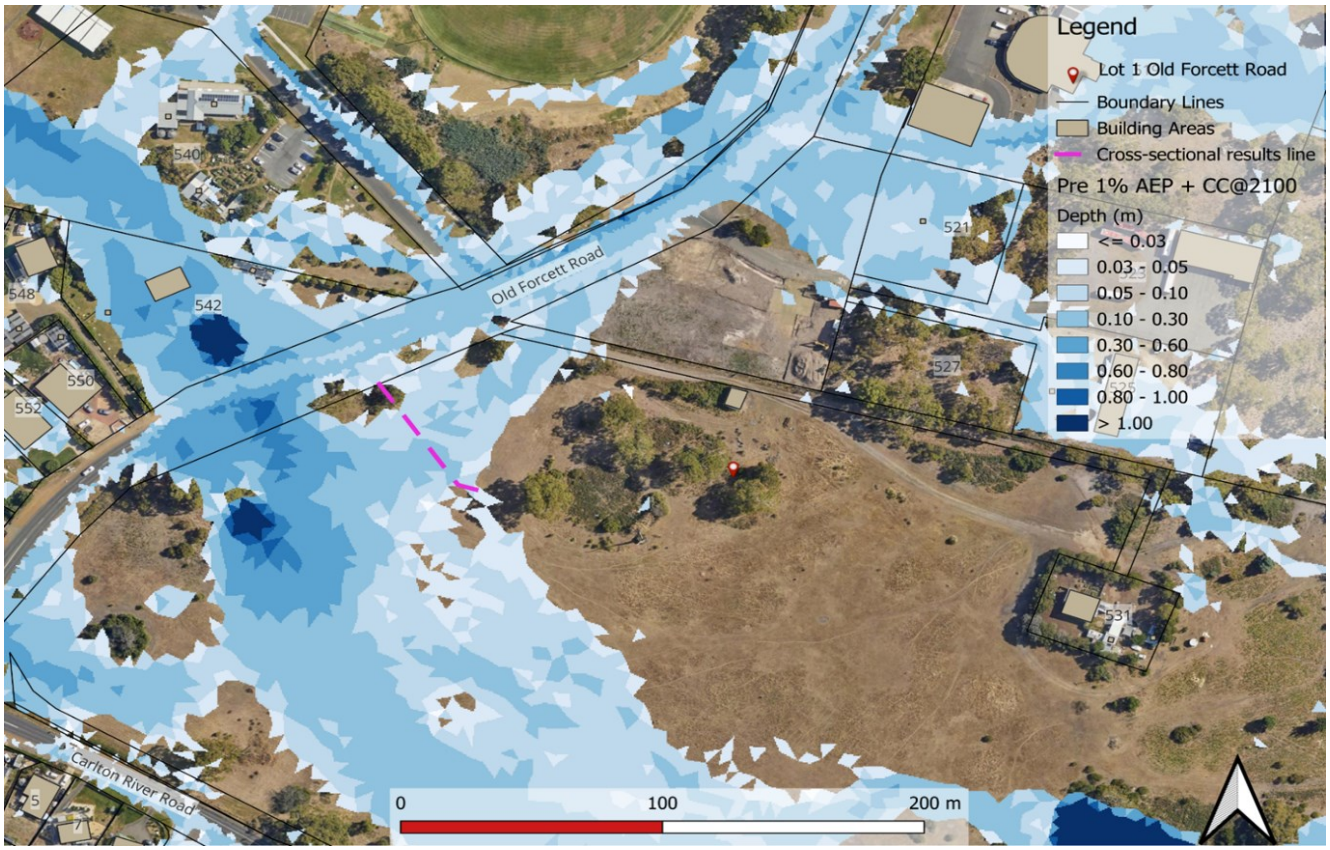


Figure 6. Pre-development 1% + CC OFP and extents

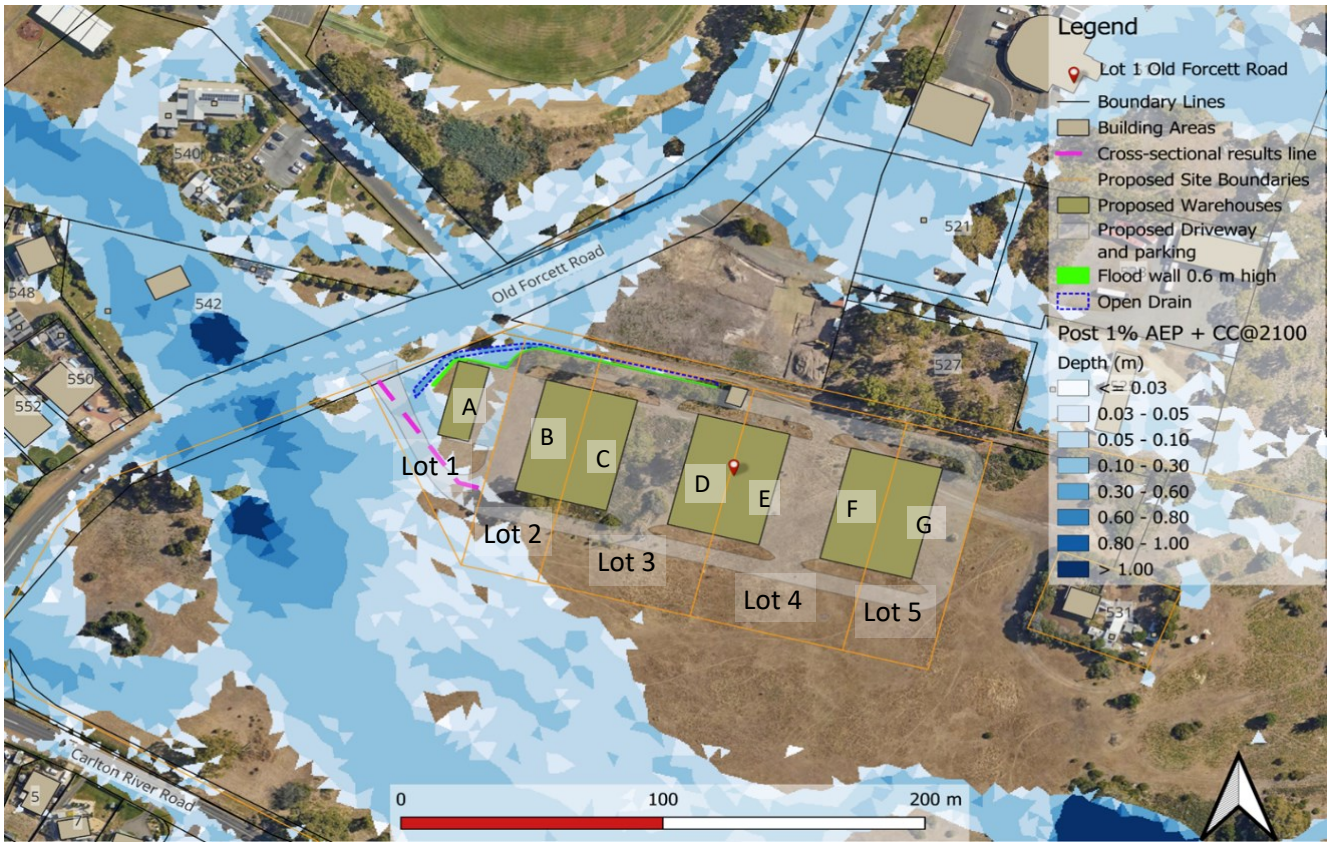


Figure 7. Post – development 1% + CC OFP and extents

5.3 Quantity Summary

The SWMP quantity report has been designed from the Tasmanian Planning Scheme and best practice design and guidelines. The following is a summary of the requirements for stormwater management for the development at Lot 1 Old Forcett Road, Dodges Ferry.

1. The proposed subdivision will be required to detain runoff from proposed impervious areas to pre-development discharge quantities, as per Sorell Council requirements. The proposed development requires a minimum total detention volume of 202 m^3. To meet this requirement, each industrial unit will be equipped with a 12.5 m^3 individual tank, totalling 87.5 m^3 (with 84 m^3 of effective detention volume) across the subdivision. Additionally, the detention requirement for the internal concrete hardstand of 118 m^3 will be managed by the proposed wetland. This brings the total proposed detention volume to 202 m^3 which aligns with the detention requirements.
2. The 1% AEP runoff overland flow paths can be directed from the development site via a proposed 0.6 m high flood which would be constructed along the northern edge of the proposed driveway. For detailed flood modelling and recommendations, please refer to the FE_24059_Lot 1 Old Forcett Road Dodges Ferry Flood Report.

6. Water Quality

Water quality modelling for the site has been undertaken with the urban stormwater improvement conceptualisation software MUSIC. The modelling conducted in MUSIC has been done in accordance with MUSIC Modelling Guidelines and the Tasmanian State Stormwater Strategy. This document provides a guide to water quality modelling methodology and outlines the assumptions that should be made when selecting input parameters.

Recommendations for the improvement of the water quality on site would include the diversion of stormwater flows from the development to a primary treatment system (treatment train). This would reduce the pollutants in the receiving waters further and be a safe design option if future usage of this sub catchment provides higher pollutant storm water runoff.

6.1 Stormwater Quality Treatment (construction phase)

During construction, many pollutants are generated from various sources. These pollutants can easily be captured in stormwater runoff and introduced into the downstream receiving environment polluting the waterways. Listed below are some of the main construction phase pollutants:

- Litter from construction – material packaging, paper, plastic, food packaging, off cuts etc.
- Sediment erosion and transports from excavated material and fresh surfaces.
- Hydrocarbons – equipment and machinery
- Toxic material – cement, solvents, paints, cleaning agents etc.
- pH altering substances – cement, cleaning agents etc

Construction phase pollutants should be planned and mitigated for by a designed site-specific SWMP as part of the drawing set. This should detail controls including but not limited to:

- Diversion of upslope water (where applicable)
- Stabilised exit/ entry points
- Minimise site disturbance where possible
- Implement sediment control along downslope boundaries
- Appropriate location and protection for stockpiles
- Capture on-site runoff that may contain pollutants

- Maintain control measures
- Stabilise site after disturbance (revegetate etc)

6.2 Stormwater Quality Modelling

Stormwater pollutant modelling for the Lot 01, Old Forcett Road Dodges Ferry subdivision was undertaken using Model for Urban Stormwater Improvement Conceptualisation (MUSIC) software, version 6.3.0, under the guidelines of the State Stormwater Strategy.

This model splits the catchment into the following typical areas:

- Roof area
- Internal concrete hardstand area

The following fraction impervious and land areas having been adopted in the modelling as per the concept design measurements. See Table 7 below for fraction imperviousness (fi).

Table 7. Adopted Fraction Impervious

Impervious area (ha)	Roof		Concrete	
	Area (ha)	fi	Area (ha)	fi
1.37	0.57	1	0.80	0.9

6.3 Council Planning Quality Removal Standards

Sorell Council has adopted the pollutant removal targets and best practice from the State Stormwater Strategy 2010. See Table 8 for target removal rates.

Table 8. State Stormwater Strategy Pollutant Removal Targets

Parameter (kg/ year)	Result Pollutant Retention on Developed Site
Total Suspended Solids (TSS)	80%
Total Phosphorous (TP)	45%
Total Nitrogen (TN)	45%
Gross Pollutants	90%

6.4 Treatment Train

To meet the stormwater pollutant removal targets identified in the preceding section and to account for the physical and spatial constraints of the site, the stormwater management system has been designed to incorporate a constructed wetland, as illustrated in Figure 8.

The proposed system functions as a combined wetland and detention basin, providing both water quality treatment and flow attenuation for the industrial development. The total combined storage volume of the system is approximately 170 m^3, carefully designed to achieve the dual objectives of pollutant reduction and peak flow control.

Under normal operating conditions, low-flow events will be directed through the wetland for treatment of suspended solids, nutrients, and other typical urban stormwater pollutants. During minor storm events, the wetland will temporarily fill, with water levels rising to utilise the additional detention storage situated above the permanent wetland pool. This configuration allows for efficient management of both water quality and quantity within a single integrated system.

Routine maintenance and inspection will be essential to ensure ongoing performance. Following significant rainfall events, the wetland will require cleaning, vegetation management, and potential repair works to remove accumulated sediment, maintain hydraulic functionality, and preserve the treatment efficiency of the system over time.

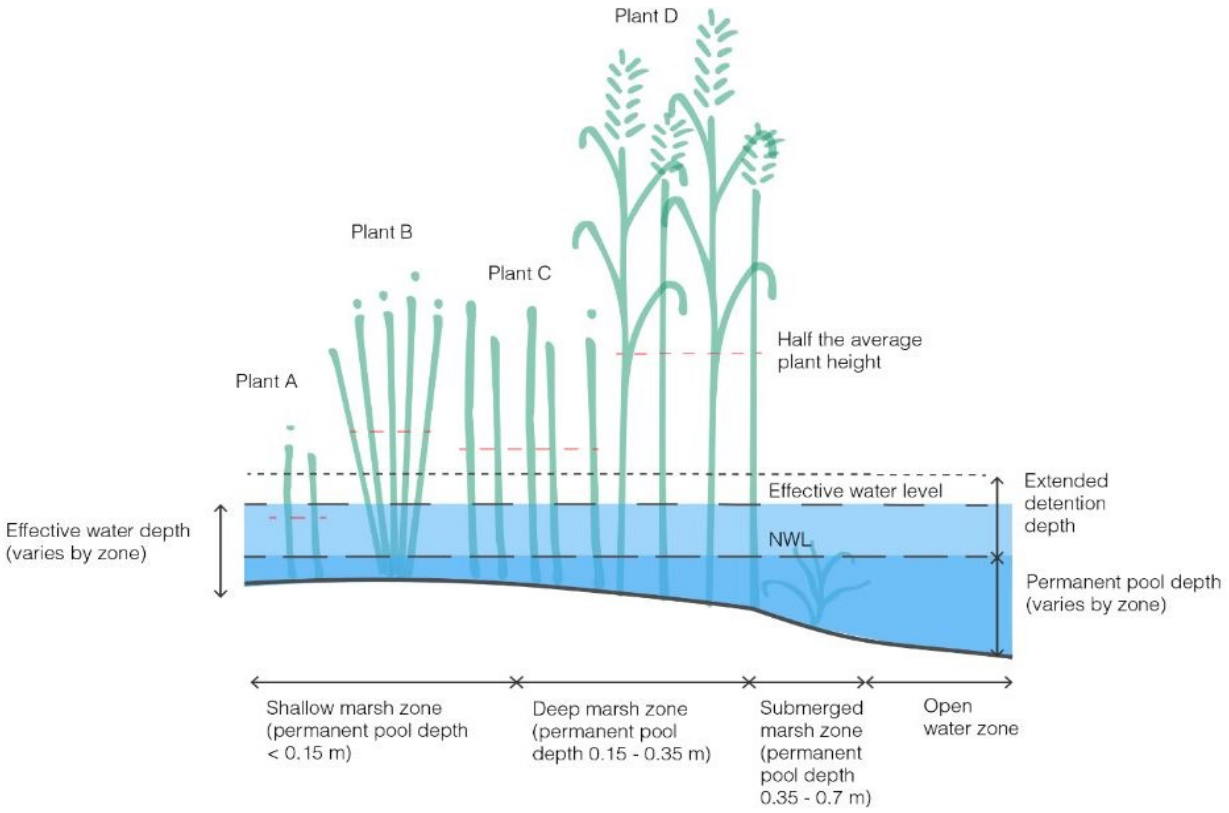


Figure 8. Wetland detention combination

6.5 Quality Results

The MUSIC (Model for Urban Stormwater Improvement Conceptualisation) pollutant load reduction results are summarised in Table 9 below. These results show the expected reduction in key pollutants such as total suspended solids (TSS), total phosphorus (TP), and total nitrogen (TN) achieved through the proposed stormwater management measures.

When compared with the State Stormwater Strategy target load reductions, the results demonstrate that the proposed treatment train, as outlined in the preceding sections and illustrated in Figure 9 below, effectively achieves and, in most cases, exceeds the required reduction targets. This confirms that the stormwater system has been designed to meet best-practice standards, ensuring high water quality performance and compliance with the state's environmental objectives for urban development.

Table 9. Pollutant Removal Achieved vs Targets

Parameter (kg/year)	Target Load Reduction (%)	MUSIC Modelled Load Reduction (%)	State Stormwater Targets Achieved (Y/N)
Total Suspended Solids (TSS)	80.0	89.1	Y
Total Phosphorous (TP)	45.0	81.2	Y
Total Nitrogen (TN)	45.0	66.5	Y
Total Pollutants (GP)	90.0	99.2	Y

Based on the water quality assessment undertaken using the MUSIC (Model for Urban Stormwater Improvement Conceptualisation) software, it was determined that the pollutant reduction targets can be effectively achieved by directing runoff from the proposed concrete hardstand areas into the constructed wetland.

Treatment Train Effectiveness - Receiving Node

	Sources	Residual Load	% Reduction
Flow (ML/yr)	5.16	2.04	60.5
Total Suspended Solids (kg/yr)	1040	113	89.1
Total Phosphorus (kg/yr)	2.06	0.386	81.2
Total Nitrogen (kg/yr)	11.7	3.93	66.5
Gross Pollutants (kg/yr)	199	1.66	99.2

Figure 9. MUSIC Treatment Train Effectiveness Result

6.6 Wetland Maintenance

To ensure the long-term and reliable operation of all proposed stormwater treatment systems, the developer or site owner will be responsible for carrying out regular inspection and maintenance activities. These actions are necessary to ensure that all components of the system remain functional, efficient, and compliant with the intended design performance over time.

Routine maintenance will involve activities such as the removal of accumulated sediment, inspection of vegetation health within the wetland, clearing of debris from inlets and outlets, and repairs to any structural elements as required.

The specific maintenance tasks, recommended frequencies, and responsibilities are outlined in Table 10 below, which provides guidance on the ongoing management of each treatment element to ensure it continues to operate effectively throughout the life of the development.

Table 10. Concept Maintenance Plan

Task	Action	Frequency
General Inspection	Clear all sediment and debris, check for erosion and vegetation growth, ensure operational	Approximately every 3 months
Specialised cleaning and inspection	Inspect all storage, inlets and outlets – clean and flush if required. Visually inspect main device for defects	Yearly
Maintenance	Perform detailed inspection and maintenance of wetland and associated infrastructure by a qualified person.	Every 5 years.

The above maintenance plan is generic and based on removal rates and best practice advice. Specific maintenance plans should be created for each specific mechanism upon purchasing or confirmation of design.

6.7 Quality Summary

Flüssig Engineers recommends the following actions to ensure the ongoing protection of stormwater quality for the development:

1. Implement strict construction controls to prevent sediment, litter, and contaminants entering the stormwater system during site works.
2. Prepare and follow a maintenance plan outlining inspection frequency, cleaning procedures, and responsible personnel.
3. Inspect and clean gross pollutant traps, pits, and inlets after major storm events to maintain hydraulic efficiency.
4. Monitor wetland vegetation health and replant where necessary to preserve treatment performance.
5. Remove accumulated sediment from the wetland and forebay areas at least every two years or as needed.
6. Maintain access tracks and safety signage to ensure safe inspection and maintenance activities.
7. Review system performance annually and update maintenance practices based on site observations or changes in land use.
8. Allow flexibility in treatment selection, noting that any alternative treatment system must achieve equal or better pollutant removal rates than those modelled in the MUSIC assessment.

7. Conclusion

The post-development stormwater quantity and quality scenarios for the Stormwater Management Plan at Lot 1 Old Forcett Road, Dodges Ferry have been assessed in accordance with the Sorell Council Stormwater Guidelines, the Tasmanian Planning Scheme, and the Tasmanian State Stormwater Strategy. These assessments ensure that post-development runoff from the site complies with relevant design and environmental performance standards.

The key findings and conclusions from this investigation are as follows:

1. Post-development peak flow analysis: Comparison of pre- and post-development peak flows for the 2% AEP storm event indicates an increase in site discharge, requiring mitigation through detention.
2. Detention storage requirement: A minimum detention volume of 202 m^3 is necessary to offset the increase in runoff and maintain acceptable downstream flow conditions.
3. Overland flow path assessment: The 1% AEP overland flow path has been modelled across the site, demonstrating that runoff can be safely conveyed without adverse impacts to adjacent properties or on-site infrastructure.
4. Water quality performance: A constructed wetland system, designed and sized using MUSIC, will provide passive treatment of stormwater, achieving pollutant removal efficiencies consistent with State strategy targets.

In summary, the proposed Stormwater Management Plan ensures that the development will achieve compliance with current best-practice standards for both stormwater quantity and quality control, supporting sustainable site drainage and protection of downstream environments.

8. Limitations

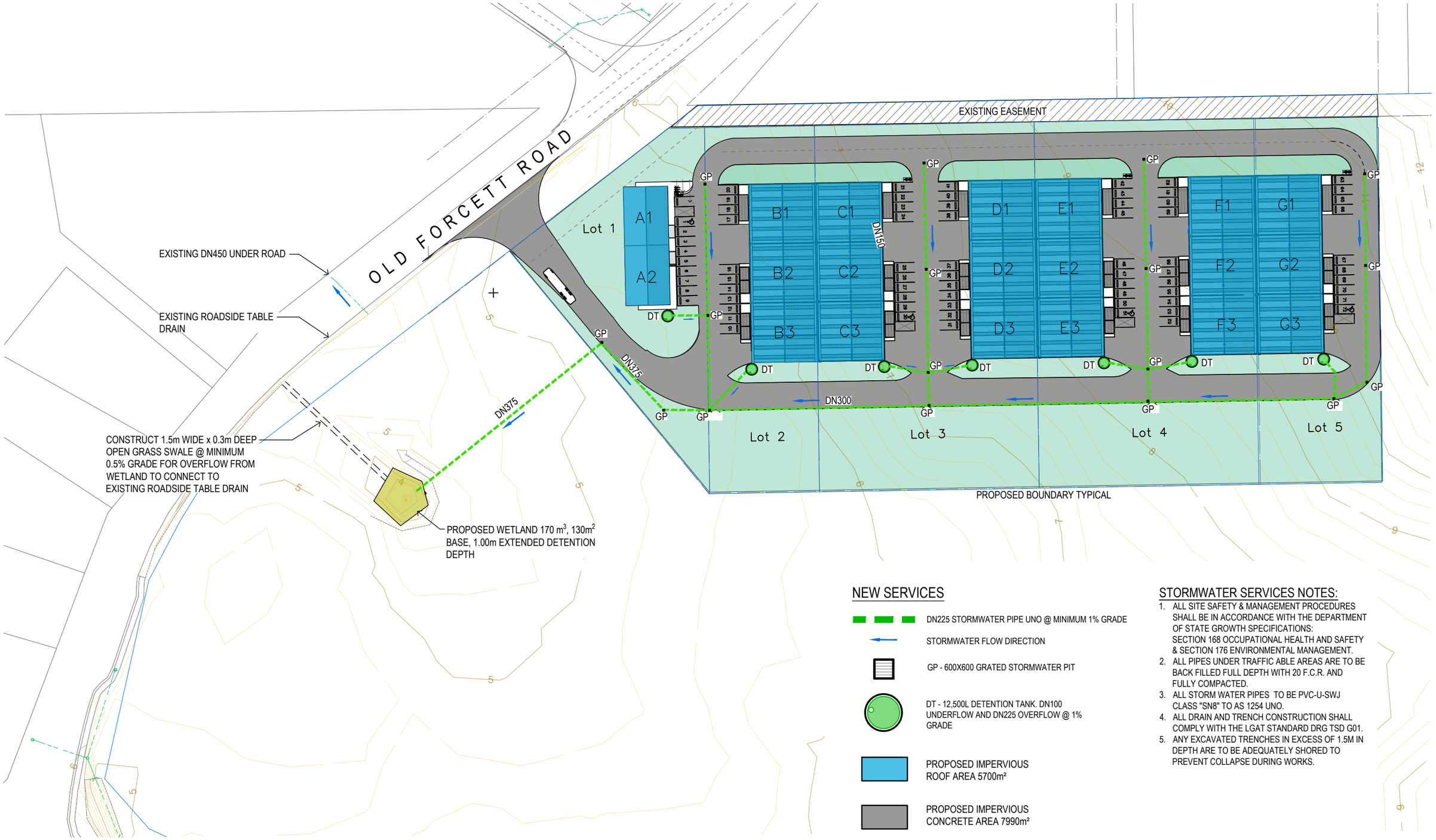
Flüssig Engineers were commissioned by Tasmanian Land Holdings Pty Ltd to undertake a detailed stormwater management assessment for the proposed development located at Old Forcett Road, Dodges Ferry. The purpose of this report is to provide a site-specific Stormwater Management Plan (SWMP) that addresses both water quantity and quality requirements in accordance with local and state stormwater design standards.

This assessment has been completed using the best available data and information provided at the time of the study. The report and its findings are considered fit for purpose under current site conditions and proposed development plans. However, should there be any changes to the design layout, surface treatments, catchment configuration, or drainage network, the stormwater management plan must be reviewed and updated to ensure ongoing compliance with design objectives and regulatory requirements.

This document is to be read and applied in its entirety, as partial use or selective referencing may lead to misinterpretation of the analysis and conclusions. The report must not be used, reproduced, or adapted for any purpose other than that stated herein, unless explicit written consent has been obtained from Flüssig Engineers.

Furthermore, Flüssig Engineers accepts no responsibility or liability for the accuracy, completeness, or reliability of third-party data or documentation supplied for use in this assessment, including survey information, design drawings, or hydrological inputs. The validity of this report therefore depends on the accuracy of the source information provided at the time of preparation.

APPENDIX A: SITE PLAN



NEW SERVICES

- DN225 STORMWATER PIPE UNO @ MINIMUM 1% GRADE
- STORMWATER FLOW DIRECTION
- GP - 600X600 GRATED STORMWATER PIT
- DT - 12,500L DETENTION TANK. DN100 UNDERFLOW AND DN225 OVERFLOW @ 1% GRADE
- PROPOSED IMPERVIOUS ROOF AREA 5700m²
- PROPOSED IMPERVIOUS CONCRETE AREA 7990m²

STORMWATER SERVICES NOTES:

1. ALL SITE SAFETY & MANAGEMENT PROCEDURES SHALL BE IN ACCORDANCE WITH THE DEPARTMENT OF STATE GROWTH SPECIFICATIONS: SECTION 168 OCCUPATIONAL HEALTH AND SAFETY & SECTION 176 ENVIRONMENTAL MANAGEMENT.
2. ALL PIPES UNDER TRAFFIC ABLE AREAS ARE TO BE BACK FILLED FULL DEPTH WITH 20 F.C.R. AND FULLY COMPACTED.
3. ALL STORM WATER PIPES TO BE PVC-U-SWJ CLASS "SN8" TO AS 1254 UNO.
4. ALL DRAIN AND TRENCH CONSTRUCTION SHALL COMPLY WITH THE LGAT STANDARD DRG TSD G01.
5. ANY EXCAVATED TRENCHES IN EXCESS OF 1.5M IN DEPTH ARE TO BE ADEQUATELY SHORED TO PREVENT COLLAPSE DURING WORKS.

STORMWATER DETENTION CONCEPT PLAN

SCALE 1: 1000

NOT FOR CONSTRUCTION

CONCEPT ONLY - DRAWINGS MUST BE USED IN CONJUNCTION WITH FLUSSIG ENGINEERS REPORT

REV:	DESCRIPTION:	BY:	DATE:
01	LAYOUT UPDATE	RU	09.10.25

STATUS: CONCEPT

flussig ENGINEERS
e: admin@flussig.com.au
p: (03) 6288 7704
w: www.flussig.com.au
a: 116 Bathurst St, Level 4 Hobart, 7000, TASMANIA

CLIENT: TASMANIAN LAND HOLDINGS PTY LTD

PROJECT: PROPOSED NEW DEVELOPMENT

SITE: LOT 1 OLD FORCETT RD, DODGES FERRY TAS 7173

TITLE: STORMWATER DETENTION CONCEPT PLAN

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
AS SHOWN	09.10.2025	RU	MM

PROJECT NO:	DRAWING NO:	REVISION:
FE-24059	C-100	01

APPENDIX B: ONSITE DETENTION CALCULATIONS

flüssig Engineers

Lot 1 Old Forcett Road, Dodges Ferry TAS 7173
Tasmanina Land Holdings PTY LTD

Project No.: 24059
Designed: RU
Proposed Roof

STORMWATER DETENTION V5.05

Flussig Engineers

Location: **Dodges Ferry, TAS, 7173**
Site: **5700m² with tc = 20 and tcs = 15 mins.**
PSD: **AEP of 2%, Above ground PSD = 27.21L/s**
Storage: **AEP of 2%, Above ground volume = 83.86m³**

Design Criteria

(Custom AEP IFD data used)

Location = Dodges Ferry, TAS, 7173
Method = E (A)RI 2001,A(E)P 2019

PSD annual exceedance probabiliy (APE) = 2 %
Storage annual exceedance probabiliy (APE) = 2 %

Storage method = A (A)bove,(P)ipe,(U)nderground,(C)ustom

Site Geometry

Site area (As) = 5700 m² = 0.57 Ha
Pre-development coefficient (Cp) = 0.30
Post development coefficient (Cw) = 1.00

Total catchment (tc) = 20 minutes
Upstream catchment to site (tcs) = 15 minutes

Coefficient Calculations

Pre-development

Zone	Area (m²)	C	Area * C
Concrete	0	0.90	0
Roof	0	1.00	0
Gravel	0	0.50	0
Garden	5700	0.30	1710
Total	5700 m²		1710

Cp = ΣArea*C/Total = 0.300

Post development

Zone	Area (m²)	C	Area * C
Concrete	0	0.90	0
Roof	5700	1.00	5700
Gravel	0	0.50	0
Garden	0	0.30	0
Total	5700 m²		5700

Cw = ΣArea*C/Total = 1.000

Permissible Site Discharge (PSD) (AEP of 2%)

PSD Intensity (I) = 55.0 mm/hr For catchment tc = 20 mins.
Pre-development (Qp = Cp*I*As/0.36) = 26.11 L/s
Peak post development (Qa = 2*Cw*I*As/0.36) = 174.06 L/s =(3.167 x I) Eq. 2.24

Storage method = A (A)bove,(P)ipe,(U)nderground,(C)ustom
Permissible site discharge (Qu = PSD) = 27.214 L/s

Above ground - Eq 3.8

$0 = PSD^2 - 2*Qa/tc*(0.667*tc*Qp/Qa + 0.75*tc+0.25*tcs)*PSD + 2*Qa*Qp$
Taking x as = PSD and solving
a = 1.0 b = -361.2 c = 9088.9
PSD = $-b \pm \sqrt{(b^2-4ac)}/(2a)$
PSD = 27.214 L/s

Below ground pipe - Eq 3.3

$Qp = PSD*[1.6*tcs/\{tc*(1-2*PSD/(3*Qa))\}-0.6*tcs^{2\cdot67}/\{tc*(1-2*PSDp/(3*Qa))\}^{2\cdot67}]$
= 26.11
PSD = 27.029 L/s

Below ground rectangular tank - Eq 3.4

t =tcs/(tc*(1-2*PSD/(3*Qa))) = 0.834
$Qp = PSD*[0.005-0.455*t+5.228*t^2-1.045*t^3-7.199*t^4+4.519*t^5]$
= 26.11
PSD = 26.211 L/s

STORMWATER DETENTION V5.05

Design Storage Capacity (AEP of 2%)

Above ground (Vs) = $[0.5*Qa*td-[(0.875*PSD*td)(1-0.917*PSD/Qa)+(0.427*td*PSD^2/Qa)]]*60/10^3$ m^3 Eq 4.23

Below ground pipe (Vs) = $[(0.5*Qa-0.637*PSD+0.089*PSD^2/Qa)*td]*60/10^3$ m^3 Eq 4.8

Below ground rect. tank (Vs) = $[(0.5*Qa-0.572*PSD+0.048*PSD^2/Qa)*td]*60/10^3$ m^3 Eq 4.13

td (mins)	I (mm/hr)	Qa (L/s)	Above Vs (m^3)	Pipe Vs (m^3)	B/G Vs (m^3)
5	103.3	327.1	42.17		
14	67.2	212.8	70.47		
19	56.7	179.4	76.87		
23	50.5	160.0	79.95		
28	44.7	141.6	82.24		
32	41.1	130.1	83.24		
37	37.4	118.4	83.80		
41	35.0	110.8	83.85		
46	32.4	102.8	83.54		
50	30.7	97.3	83.09		

Table 1 - Storage as function of time for AEP of 2%

Type	td (mins)	I (mm/hr)	Qa (L/s)	Vs (m^3)
Above	39.7	35.7	113.1	**83.86**
Pipe				
B/ground				

Table 2 - Storage requirements for AEP of 2%

Frequency of operation of Above Ground storage

Qop2 = 0.75 Cl 2.4.5.1

Qp2 =Qop2*Qp1 (where Qp1=PSD) = 20.41 L/s at which time above ground storage occurs

$I = 360*Qp2/(2*Cw*As*10^3)$ = 6.4 mm/h Eq 4.24

Period of Storage

Time to Fill:

Above ground (tf) = $td*(1-0.92*PSD/Qa)$ Eq 4.27

Below ground pipe (tf) = $td*(1-2*PSD/(3*Qa))$ Eq 3.2

Below ground rect. tank (tf) = $td*(1-2*PSD/(3*Qa))$ Eq 3.2

Time to empty:

Above ground (te) = $(Vs+0.33*PSD^2*td/Qa*60/10^3)*(1.14/PSD)*(10^3/60)$ Eq 4.28

Below ground pipe (te) = $1.464/PSD*(Vs+0.333*PSD^2*td/Qa*60/10^3)*(10^3/60)$ Eq 4.32

Below ground rect. tank (te) = $2.653/PSD*(Vs+0.333*PSD^2*td/Qa*60/10^3)*(10^3/60)$ Eq 4.36

Storage period (Ps = tf + te) Eq 4.26

Type	td (mins)	Qa (L/s)	Vs (L/s)	tf (mins)	te (mins)	Ps (mins)
Above	39.7	113.1	83.9	30.9	62.1	93.1
Pipe						
B/ground						

Table 3 - Period of Storage requirements for AEP of 2%

Orifice

Permissible site discharge (Qu=PSD) = 27.21 L/s (Above ground storage)

Orifice coefficient (CD) = 0.61 For sharp circular orifice

Gravitational acceration (g) = 9.81 m/s^2

Maximum storage depth above orifice (H) = 2400 mm

Orifice flow (Q) = $CD*Ao*\sqrt{(2*g*H)}$

Therefore:

Orifice area (Ao) = 6501 mm^2

Orifice diameter ($D = \sqrt{(4*Ao/\pi)}$) = 91.0 mm

STORMWATER DETENTION V5.05

Flussig Engineers

Location: **Dodges Ferry, TAS, 7173**
Site: **7990m² with tc = 20 and tcs = 15 mins.**
PSD: **AEP of 2%, Above ground PSD = 38.15L/s**
Storage: **AEP of 2%, Above ground volume = 117.56m³**

Design Criteria

(Custom AEP IFD data used)

Location = Dodges Ferry, TAS, 7173
Method = E (A)RI 2001,A(E)P 2019

PSD annual exceedance probabiliy (APE) = 2 %
Storage annual exceedance probabiliy (APE) = 2 %

Storage method = A (A)bove,(P)ipe,(U)nderground,(C)ustom

Site Geometry

Site area (As) = 7990 m² = 0.799 Ha
Pre-development coefficient (Cp) = 0.30
Post development coefficient (Cw) = 1.00

Total catchment (tc) = 20 minutes
Upstream catchment to site (tcs) = 15 minutes

Coefficient Calculations

Pre-development

Zone	Area (m²)	C	Area * C
Concrete	0	0.90	0
Roof	0	1.00	0
Gravel	0	0.50	0
Garden	7990	0.30	2397
Total	7990 m²		2397

Cp = ΣArea*C/Total = 0.300

Post development

Zone	Area (m²)	C	Area * C
Concrete	7990	0.90	7191
Roof	0	1.00	0
Gravel	0	0.50	0
Garden	0	0.30	0
Total	7990 m²		7191

Cw = ΣArea*C/Total = 0.900

Permissible Site Discharge (PSD) (AEP of 2%)

PSD Intensity (I) = 55.0 mm/hr For catchment tc = 20 mins.
Pre-development (Qp = Cp*I*As/0.36) = 36.60 L/s
Peak post development (Qa = 2*Cw*I*As/0.36) = 243.99 L/s =(4.439 x I) Eq. 2.24

Storage method = A (A)bove,(P)ipe,(U)nderground,(C)ustom
Permissible site discharge (Qu = PSD) = 38.148 L/s

Above ground - Eq 3.8

$0 = PSD^2 - 2*Qa/tc*(0.667*tc*Qp/Qa + 0.75*tc+0.25*tcs)*PSD + 2*Qa*Qp$
Taking x as = PSD and solving
a = 1.0 b = -506.3 c = 17858.8
$PSD = -b \pm \sqrt{(b^2-4ac)}/(2a)$
PSD = 38.148 L/s

Below ground pipe - Eq 3.3

$Qp = PSD*[1.6*tcs/\{tc*(1-2*PSD/(3*Qa))\}-0.6*tcs^{2\cdot67}/\{tc*(1-2*PSDp/(3*Qa))\}^{2\cdot67}]$
= 36.60
PSD = 37.889 L/s

Below ground rectangular tank - Eq 3.4

t =tcs/(tc*(1-2*PSD/(3*Qa))) = 0.834
$Qp = PSD*[0.005-0.455*t+5.228*t^2-1.045*t^3-7.199*t^4+4.519*t^5]$
= 36.60
PSD = 36.741 L/s

STORMWATER DETENTION V5.05

Flussig Engineers

Design Storage Capacity (AEP of 2%)

Above ground (Vs) = $[0.5*Qa*td-[(0.875*PSD*td)(1-0.917*PSD/Qa)+(0.427*td*PSD^2/Qa)]]*60/10^3$ m^3 Eq 4.23
Below ground pipe (Vs) = $[(0.5*Qa-0.637*PSD+0.089*PSD^2/Qa)*td]*60/10^3$ m^3 Eq 4.8
Below ground rect. tank (Vs) = $[(0.5*Qa-0.572*PSD+0.048*PSD^2/Qa)*td]*60/10^3$ m^3 Eq 4.13

td (mins)	I (mm/hr)	Qa (L/s)	Above Vs (m^3)	Pipe Vs (m^3)	B/G Vs (m^3)
5	103.3	458.5	59.11		
14	67.2	298.3	98.79		
19	56.7	251.5	107.76		
23	50.5	224.3	112.07		
28	44.7	198.5	115.27		
32	41.1	182.3	116.68		
37	37.4	166.0	117.47		
41	35.0	155.3	117.53		
46	32.4	144.0	117.11		
50	30.7	136.4	116.47		

Table 1 - Storage as function of time for AEP of 2%

Type	td (mins)	I (mm/hr)	Qa (L/s)	Vs (m^3)
Above	39.7	35.7	158.6	**117.56**
Pipe				
B/ground				

Table 2 - Storage requirements for AEP of 2%

Frequency of operation of Above Ground storage

Qop2 = 0.75 Cl 2.4.5.1
Qp2 =Qop2*Qp1 (where Qp1=PSD) = 28.61 L/s at which time above ground storage occurs
I = $360*Qp2/(2*Cw*As*10^3)$ = 6.4 mm/h Eq 4.24

Period of Storage

Time to Fill:

Above ground (tf) = td*(1-0.92*PSD/Qa) Eq 4.27
Below ground pipe (tf) = td*(1-2*PSD/(3*Qa)) Eq 3.2
Below ground rect. tank (tf) = td*(1-2*PSD/(3*Qa)) Eq 3.2

Time to empty:

Above ground (te) = $(Vs+0.33*PSD^2*td/Qa*60/10^3)*(1.14/PSD)*(10^3/60)$ Eq 4.28
Below ground pipe (te) = $1.464/PSD*(Vs+0.333*PSD^2*td/Qa*60/10^3)*(10^3/60)$ Eq 4.32
Below ground rect. tank (te) = $2.653/PSD*(Vs+0.333*PSD^2*td/Qa*60/10^3)*(10^3/60)$ Eq 4.36

Storage period (Ps = tf + te) Eq 4.26

Type	td (mins)	Qa (L/s)	Vs (L/s)	tf (mins)	te (mins)	Ps (mins)
Above	39.7	158.6	117.6	30.9	62.1	93.1
Pipe						
B/ground						

Table 3 - Period of Storage requirements for AEP of 2%

Orifice

Permissible site discharge (Qu=PSD) = 38.15 L/s (Above ground storage)
Orifice coefficient (CD) = 0.61 For sharp circular orifice
Gravitational acceration (g) = 9.81 m/s^2
Maximum storage depth above orifice (H) = 1000 mm
Orifice flow (Q) = $CD*Ao*\sqrt{(2*g*H)}$

Therefore:
Orifice area (Ao) = 14119 mm^2
Orifice diameter ($D = \sqrt{(4*Ao/\pi)}$) = 134.1 mm

<u>Contact Project Manager:</u> **Max Moller**

flüssig Engineers

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ONSITE WASTEWATER ASSESSMENT

Lot 1 Old Forcett Road

Dodges Ferry

January 2025

Updated October 2025

GES

GEO-ENVIRONMENTAL

SOLUTIONS

Investigation Details

Client:	Woolcott Surveys
Site Address:	Lot 1 Old Forcett Road, Dodges Ferry
Date of Inspection:	15/05/2024
Proposed Works:	Sub-division
Investigation Method:	AMS Power Probe - Direct Push
Inspected by:	A. Plummer

Site Details

Certificate of Title (CT):	119465/1
Title Area:	Approx. 61.26ha ha
Applicable Planning Overlays:	Bushfire-prone areas, Flood-prone Areas, Airport obstacle limitation area
Slope & Aspect:	1° SW facing slope
Vegetation:	Grass & Weeds

Background Information

Geology Map:	MRT 1:250000
Geological Unit:	Quaternary Sediments
Climate:	Annual rainfall 500mm
Water Connection:	Tank
Sewer Connection:	Unserviced-On-site required
Testing and Classification:	AS1547:2012

Investigation

A number of auger holes were completed to identify the distribution of, and variation in soil materials on the site. Representative excavations at the approximate location indicated on the site plan were chosen for testing and classification according to AS1547-2012 (see profile summary).

Soil Profile Summary

BH1 & 2 Depth (m)	BH3 Depth (m)	BH4 Depth (m)	USCS	Description
0.00 – 0.20	0.00 – 0.20	0.00 – 0.20	SW	**SAND**: dark grey, single grain, dry medium dense consistency
0.20 – 0.40	0.20 – 0.40	0.20 – 0.40	SW	**SAND**: light grey, single grain, dry medium dense consistency
0.40 – 0.90	0.40 – 0.80	0.40 – 1.20	CI	**SANDY CLAY**: yellow brown, slightly moist stiff, common clayey sand lenses
0.90 – 1.60		1.20 – 1.80	CI	**SANDY CLAY**: yellow brown and grey, moist stiff consistency
1.60 – 1.70	0.80 – 1.20	1.80 – 2.00	SC	**CLAYEY SAND**: yellow brown, slightly moist dense

Soil Profile Notes

The natural soil has formed from Quaternary sediments and consists of sandy topsoil overlying sandy clay subsoil.

Dispersion Testing

A disturbed sample was collected and tested from each lot using the Emerson Dispersion Test. The results showed that the clay soils on site are non-dispersive at Class 8. No specific dispersive soil management measures will be required.

Site Summary

The site is situated within the municipality of Sorell Council and consists of a relatively large title (approx. 61.7ha) that borders on both Old Forcett Rd and Carlton River Rd. The area of proposed development is approx. 21,209m^2 located in the north-western section of the title where a subdivision is proposed, creating 5 lots with areas of 2849m^2, 3000m^2, 6000m^2, 6000m^2 and 3360m^2. Each lot will be assessed for the suitability of onsite wastewater.

Hydrological Balance and Wastewater Disposal

The capability of the proposed new lots to support a typical residential dwelling and on-site wastewater disposal must be evaluated to ensure environmental values are maintained. Modelling of wastewater application on the proposed lots were undertaken utilising the Trench program, long term weather average for Dodges Ferry and estimated wastewater output from the proposed development.

According to AS1547-2012 for on-site wastewater management the natural soil is classified as **Clay LOAM (Category 4).** These soils have a moderate permeability and CEC for retention of nutrients. It is proposed that the wastewater be secondary treated using a package treatment system (e.g. AWTS) to reduce the land application area required. A conservative Design Loading Rate (DLR) of 10L/m^2/day has therefore been assigned.

The proposed development consists of seven industrial buildings each divided into an arrangement of individual units. The expected wastewater load of each building is outlined below, assuming each unit will have up to 6 staff. It is proposed that each building have a separate wastewater treatment system.

	Unit(s)	**Total people**	**Hydraulic load (L/person/day)**	**Wastewater output (L/day)**
Lot 1	A1, A2	12	20	240
Lot 2	B1, B2, B3	18	20	360
Lot 3	C1, C2, C3	18	20	360
Lot 3	D1, D2, D3	18	20	360
Lot 4	E1, E2, E3	18	20	360
Lot 4	F1, F2, F3	18	20	360
Lot 5	G1, G2, G3	18	20	360

Using a DLR of 10L/m^2/day, an absorption area of at least 36m^2 will be required for each building in Lots 2 to 5. The building on Lot 1 will require an absorption area of at least 24m^2. Each building will also require a 100% reserve area to be set aside and kept free from development for any future wastewater requirements. There is sufficient space on the proposed lots to accommodate the area required for onsite wastewater disposal (refer to attached plan).

Lot 1 is partially covered by a Flood-Prone Hazard Area overly. The wastewater application area within this lot will either need to be located outside of the overlay or installed as a raised bed with sufficient height to prevent inundation. The wastewater area is currently located outside of the overlay.

The following minimum setback distances are required to comply with Building Act 2016:

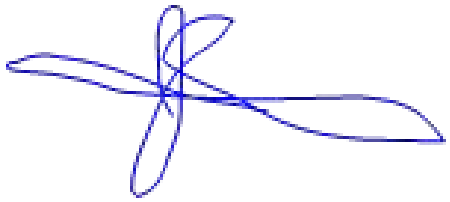
Upslope or level buildings:	2m
Downslope buildings:	2.25m
Upslope or level boundaries:	1.5m
Downslope boundaries:	2.5m
Downslope surface water:	100m

Conclusions

The current subdivision proposal allows for sufficient space on the proposed lots to be created for the installation and successful operation of a wastewater treatment system, with adequate setbacks in regards boundaries and sensitive features.

It is recommended that each building have a separate onsite wastewater system, each comprising of a package treatment system (e.g. AWTS) with the treated wastewater applied to an absorption bed. There is sufficient space available on each lot to accommodate the required absorption area as well as 100% reserve.

Therefore, each lot can accommodate the areas expected for onsite wastewater and no serious geotechnical impediments were identified for future use on the lots and as such the land is suitable for the proposed subdivision.



Dr John Paul Cumming B.Agr.Sc (hons) PhD CPSS GAICD
Director

GES P/L

Land suitability and system sizing for on-site wastewater management

Trench 3.0 (Australian Institute of Environmental Health)

Assessment Report

Site assessment for on-site waste water disposal

Assessment for	Woolcott Surveys	Assess. Date	3-Jul-24
		Ref. No.	
Assessed site(s)	Lot 1 Old Forcett Rd Dodges Ferry	Site(s) inspected	15-May-24
Local authority	Sorell	Assessed by	John Paul Cumming

This report summarises wastewater volumes, climatic inputs for the site, soil characteristics and sustem sizing and design issues. Site Capability and Environmental sensitivity issues are reported separately, where 'Alert' columns flag factors with high (A) or very high (AA) limitations which probably require special consideration for system design(s). Blank spaces on this page indicate data have not been entered into TRENCH.

Wastewater Characteristics

'astewater volume (L/day) used for this assessment = 360 (using a method independent of the no. of bedrooms)
Septic tank wastewater volume (L/day) = 120
Sullage volume (L/day) = 240
Total nitrogen (kg/year) generated by wastewater = 1.3
'otal phosphorus (kg/year) generated by wastewater = 0.7

Climatic assumptions for site (Evapotranspiration calculated using the crop factor method)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean rainfall (mm)	51	47	50	55	53	55	54	58	51	61	58	67
Adopted rainfall (R, mm)	51	47	50	55	53	55	54	58	51	61	58	67
Retained rain (Rr, mm)	46	43	45	49	47	49	49	52	46	55	52	60
Max. daily temp. (deg. C)												
Evapotrans (ET, mm)	130	110	91	63	42	29	32	42	63	84	105	126
Evapotr. less rain (mm)	**84**	**67**	**46**	**14**	**-5**	**-20**	**-17**	**-10**	**17**	**29**	**53**	**66**

Annual evapotranspiration less retained rain (mm) = 324

Soil characterisitics

Texture = Clay loam Category = 4 Thick. (m) = 1.8
Adopted permeability (m/day) = 0.78 Adopted LTAR (L/sq m/day) = 10 Min depth (m) to water = 5

Proposed disposal and treatment methods

Proportion of wastewater to be retained on site:	All wastewater will be disposed of on the site
The preferred method of on-site primary treatment:	In a package treatment plant
The preferred method of on-site secondary treatment:	In-ground
The preferred type of in-ground secondary treatment:	Evapotranspiration bed(s)
The preferred type of above-ground secondary treatment:	None
Site modifications or specific designs:	Not needed

Suggested dimensions for on-site secondary treatment system

Total length (m) =	17
Width (m) =	2
Depth (m) =	0.6
Total disposal area (sq m) required =	36
comprising a Primary Area (sq m) of:	36
and a Secondary (backup) Area (sq m) of:	

Sufficient area is available on site

To enter comments, click on the line below 'Comments'. (This yellow-shaded box and the buttons on this page will not be printed.)

Comments

Using an total occupancy of 18people using 20L/day/person an absorption area of at least 36sqm will be required. The system should have the capacity to cope with predicted climatic and loading events.

GES P/L

Land suitability and system sizing for on-site wastewater management

Trench 3.0 (Australian Institute of Environmental Health)

Site Capability Report

Site assessment for on-site waste water disposal

Assessment for	Woolcott Surveys	Assess. Date	3-Jul-24
		Ref. No.	
Assessed site(s)	Lot 1 Old Forcett Rd Dodges Ferry	Site(s) inspected	15-May-24
Local authority	Sorell	Assessed by	John Paul Cumming

This report summarises data relating to the physical capability of the assessed site(s) to accept wastewater. Environmental sensitivity and system design issues are reported separately. The 'Alert' column flags factors with high (A) or very high (AA) site limitations which probably require special consideration in site acceptability or for system design(s). Blank spaces indicate data have not been entered into TRENCH.

Alert	Factor	Units	Value	Confid level	Limitation Trench	Limitation Amended	Remarks
	Expected design area	sq m	2,000	V. high	Low		
	Density of disposal systems	/sq km	10	Mod.	Very low		
	Slope angle	degrees	1	High	Very low		
	Slope form	Straight simple		High	Low		
	Surface drainage	Mod. good		High	Low		
	Flood potential	Site floods <1:100 yrs		High	Very low		
	Heavy rain events	Infrequent		High	Moderate		
A	Aspect (Southern hemi.)	Faces SE or SW		V. high	High		
	Frequency of strong winds	Common		High	Low		
	Wastewater volume	L/day	360	High	Low		
	SAR of septic tank effluent		1.0	High	Low		
	SAR of sullage		1.6	High	Low		
	Soil thickness	m	1.8	V. high	Very low		
	Depth to bedrock	m	1.8	V. high	Low		
	Surface rock outcrop	%	0	V. high	Very low		
	Cobbles in soil	%	0	V. high	Very low		
	Soil pH		5.5	High	Low		
	Soil bulk density	gm/cub. cm	1.4	High	Very low		
	Soil dispersion	Emerson No.	8	V. high	Very low		
	Adopted permeability	m/day	0.78	Mod.	Moderate		
	Long Term Accept. Rate	L/day/sq m	10	High	Low	Moderate	

To enter comments, click on the line below 'Comments' . (This yellow-shaded box and the buttons on this page will not be printed.)

Comments

The site has the capability to accept secondary treated wastewater

GES P/L

Land suitability and system sizing for on-site wastewater management

Trench 3.0 (Australian Institute of Environmental Health)

Environmental Sensitivity Report

Site assessment for on-site waste water disposal

Assessment for	Woolcott Surveys	Assess. Date	3-Jul-24
		Ref. No.	
Assessed site(s)	Lot 1 Old Forcett Rd Dodges Ferry	Site(s) inspected	15-May-24
Local authority	Sorell	Assessed by	John Paul Cumming

This report summarises data relating to the environmental sensitivity of the assessed site(s) in relation to applied wastewater. Physical capability and system design issues are reported separately. The 'Alert' column flags factors with high (A) or very high (AA) limitations which probably require special consideration in site acceptability or for system design(s). Blank spaces indicate data have not been entered into TRENCH.

Alert	Factor	Units	Value	Confid level	Limitation Trench	Limitation Amended	Remarks
A	Cation exchange capacity	mmol/100g	50	High	High		
	Phos. adsorp. capacity	kg/cub m	0.6	High	Moderate		
	Annual rainfall excess	mm	-324	High	Very low		
	Min. depth to water table	m	5	High	Very low		
	Annual nutrient load	kg	2.0	High	Very low		
	G'water environ. value	Agric non-sensit		V. high	Low		
	Min. separation dist. required	m	2	High	Very low		
	Risk to adjacent bores	Very low		V. high	Very low		
	Surf. water env. value	Agric non-sensit		V. high	Low		
	Dist. to nearest surface water	m	100	V. high	High	Low	
	Dist. to nearest other feature	m	200	V. high	Very low	Low	
	Risk of slope instability	Very low		V. high	Very low		
	Distance to landslip	m	500	V. high	Very low		

To enter comments, click on the line below 'Comments'. (This yellow-shaded box and the buttons on this page will not be printed.)

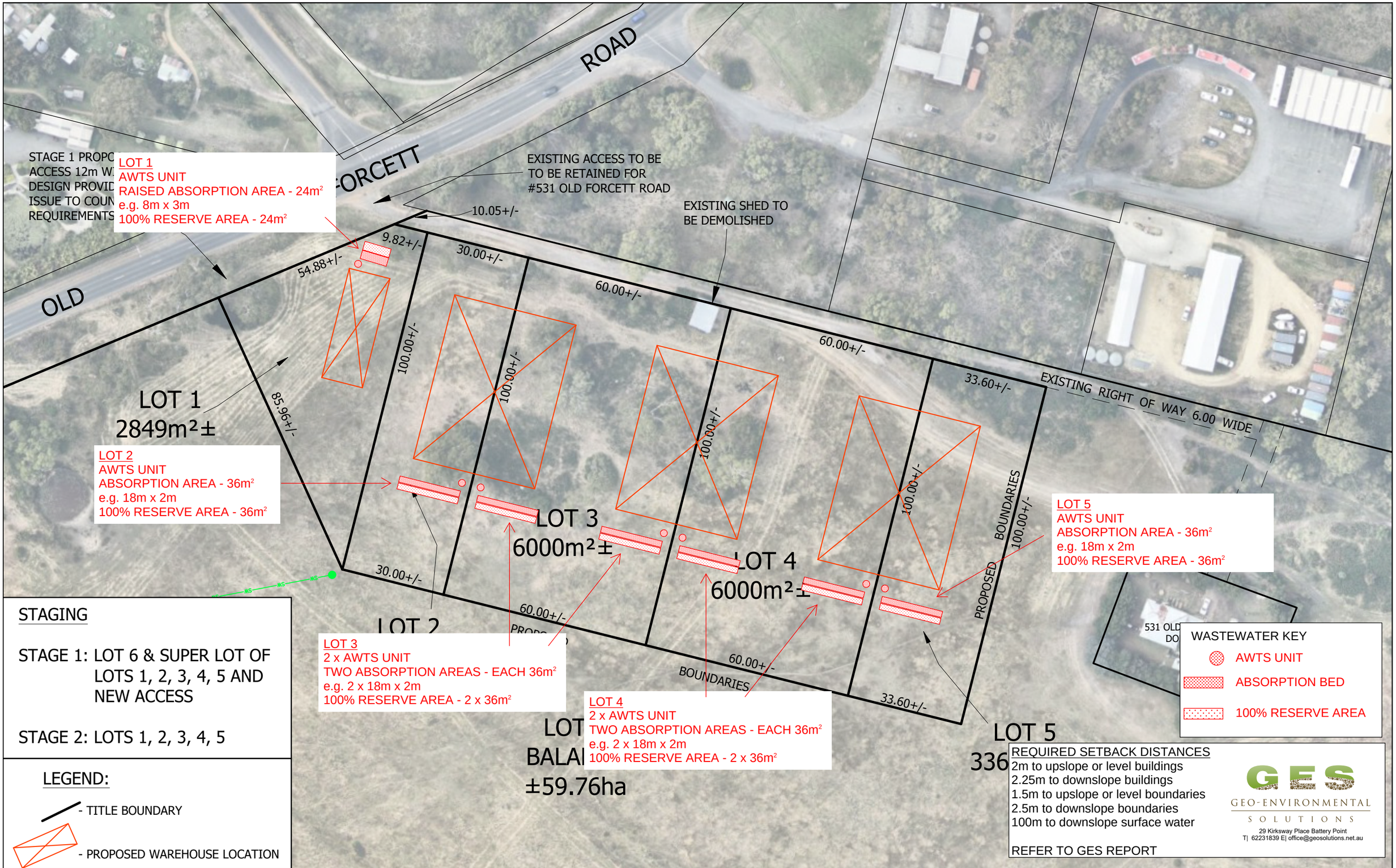
Comments

Demonstration of wastewater system compliance to *Building Act 2016 Guidelines for On-site Wastewater Disposal*

Acceptable Solutions	**Performance Criteria**	**Compliance**
A1 Horizontal separation distance from a building to a land application area must comply with one of the following: a) be no less than 6m; or b) be no less than: (i) 3m from an upslope building or level building; (ii) If primary treated effluent to be no less than 4m plus 1m for every degree of average gradient from a downslope building; (iii) If secondary treated effluent and subsurface application, no less than 2m plus 0.25m for every degree of average gradient from a downslope building.	P1 a) The land application area is located so that (i) the risk of wastewater reducing the bearing capacity of a building's foundations is acceptably low.; and (ii) is setback a sufficient distance from a downslope excavation around or under a building to prevent inadequately treated wastewater seeping out of that excavation	Complies with P1 Land application area will be located with minimum separation distance of 2m to an upslope building. The risk of wastewater reducing the bearing capacity of the building's foundations is considered acceptably low.
A2 Horizontal separation distance from downslope surface water to a land application area must comply with (a) or (b) (a) be no less than 100m; or (b) be no less than the following: (i) if primary treated effluent 15m plus 7m for every degree of average gradient to downslope surface water; or (ii) if secondary treated effluent and subsurface application, 15m plus 2m for every degree of average gradient to down slope surface water.	P2 Horizontal separation distance from downslope surface water to a land application area must comply with all of the following: a) Setbacks must be consistent with AS/NZS 1547 Appendix R; b) A risk assessment in accordance with Appendix A of AS/NZS 1547 has been completed that demonstrates that the risk is acceptable.	Complies with A2 (a) Land application area located > 100m from downslope surface water

A3 Horizontal separation distance from a property boundary to a land application area must comply with either of the following: (a) be no less than 40m from a property boundary; or (b) be no less than: (i) 1.5m from an upslope or level property boundary; and (ii) If primary treated effluent 2m for every degree of average gradient from a downslope property boundary; or (iii) If secondary treated effluent and subsurface application, 1.5m plus 1m for every degree of average gradient from a downslope property boundary.	P3 Horizontal separation distance from a property boundary to a land application area must comply with all of the following: (a) Setback must be consistent with AS/NZS 1547 Appendix R; and (b) A risk assessment in accordance with Appendix A of AS/NZS 1547 has been completed that demonstrates that the risk is acceptable.	Complies with A3 (b) (i) Land application area will be located with a minimum separation distance of 1.5m from an upslope or level property boundary Complies with A3 (b) (iii) Land application area will be located with a minimum separation distance of 2.5m of downslope property boundary
A4 Horizontal separation distance from a downslope bore, well or similar water supply to a land application area must be no less than 50m and not be within the zone of influence of the bore whether up or down gradient.	P4 Horizontal separation distance from a downslope bore, well or similar water supply to a land application area must comply with all of the following: (a) Setback must be consistent with AS/NZS 1547 Appendix R; and (b) A risk assessment completed in accordance with Appendix A of AS/NZS 1547 demonstrates that the risk is acceptable	Complies with A4 No bore or well identified within 50m

A5 Vertical separation distance between groundwater and a land application area must be no less than: (a) 1.5m if primary treated effluent; or (b) 0.6m if secondary treated effluent	P5 Vertical separation distance between groundwater and a land application area must comply with the following: (a) Setback must be consistent with AS/NZS 1547 Appendix R; and (b) A risk assessment completed in accordance with Appendix A of AS/NZS 1547 that demonstrates that the risk is acceptable	Complies with A5 (b)
A6 Vertical separation distance between a limiting layer and a land application area must be no less than: (a) 1.5m if primary treated effluent; or (b) 0.5m if secondary treated effluent	P6 Vertical setback must be consistent with AS/NZS1547 Appendix R.	Complies with A6 (b)
A7 nil	P7 A wastewater treatment unit must be located a sufficient distance from buildings or neighbouring properties so that emissions (odour, noise or aerosols) from the unit do not create an environmental nuisance to the residents of those properties	Complies



STAGING

STAGE 1: LOT 6 & SUPER LOT OF LOTS 1, 2, 3, 4, 5 AND NEW ACCESS

STAGE 2: LOTS 1, 2, 3, 4, 5

LEGEND:

- TITLE BOUNDARY
- PROPOSED WAREHOUSE LOCATION

Notes:

All dimensions and areas are approximate only and subject to survey.

PROPOSED SUBDIVISION (6 LOTS)

LOT 1 OLD FORCETT ROAD DODGES FERRY

C.T.119465/1

N

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Job Number	Drawn	File name	Date	Scale	Edition	Sheet
H191003	BMW	H191003_PROPOSALPLAN_V9.2.DWG	08/10/25	1:1000@A3	V9.2	2/2

MIDSON traffic pty ltd

Woolcott Land Services

Lot 1, Old Forcett Rd, Dodges Ferry
Traffic Impact Assessment

October 2025

CELEBRATING 15 YEARS
2008 - 2023

Contents

Figure Index

Table Index

1. Introduction

1.1 Background

Midson Traffic were engaged by Woolcott Land Services to prepare a traffic impact assessment for a proposed warehouse facility at Lot 1 Old Forcett Road, Dodges Ferry.

1.2 Traffic Impact Assessment (TIA)

A traffic impact assessment (TIA) is a process of compiling and analysing information on the impacts that a specific development proposal is likely to have on the operation of roads and transport networks. A TIA should not only include general impacts relating to traffic management, but should also consider specific impacts on all road users, including on-road public transport, pedestrians, cyclists and heavy vehicles.

This TIA has been prepared in accordance with the Department of State Growth (DSG) publication, *Traffic Impact Assessment Guidelines*, August 2020. This TIA has also been prepared with reference to the Austroads publication, *Guide to Traffic Management,* Part 12: *Integrated Transport Assessments for Developments*, 2020.

Land use developments generate traffic movements as people move to, from and within a development. Without a clear understanding of the type of traffic movements (including cars, pedestrians, trucks, etc), the scale of their movements, timing, duration and location, there is a risk that this traffic movement may contribute to safety issues, unforeseen congestion or other problems where the development connects to the road system or elsewhere on the road network. A TIA attempts to forecast these movements and their impact on the surrounding transport network.

A TIA is not a promotional exercise undertaken on behalf of a developer; a TIA must provide an impartial and objective description of the impacts and traffic effects of a proposed development. A full and detailed assessment of how vehicle and person movements to and from a development site might affect existing road and pedestrian networks is required. An objective consideration of the traffic impact of a proposal is vital to enable planning decisions to be based upon the principles of sustainable development.

This TIA also addresses the relevant clauses of C2.0, *Parking and Sustainable Parking Code*, and C3.0, *Road and Railway Assets Code*, of the Tasmanian Planning Scheme – Sorell, 2021.

1.3 Statement of Qualification and Experience

This TIA has been prepared by an experienced and qualified traffic engineer in accordance with the requirements of Council's Planning Scheme and The Department of State Growth's, *Traffic Impact Assessment Guidelines*, August 2020, as well as Council's requirements.

The TIA was prepared by Keith Midson. Keith's experience and qualifications are briefly outlined as follows:

- 29 years professional experience in traffic engineering and transport planning.
- Master of Transport, Monash University, 2006
- Master of Traffic, Monash University, 2004

- Bachelor of Civil Engineering, University of Tasmania, 1995
- Engineers Australia: Fellow (FIEAust); Engineering Executive (EngExec)

1.4 Project Scope

The project scope of this TIA is outlined as follows:

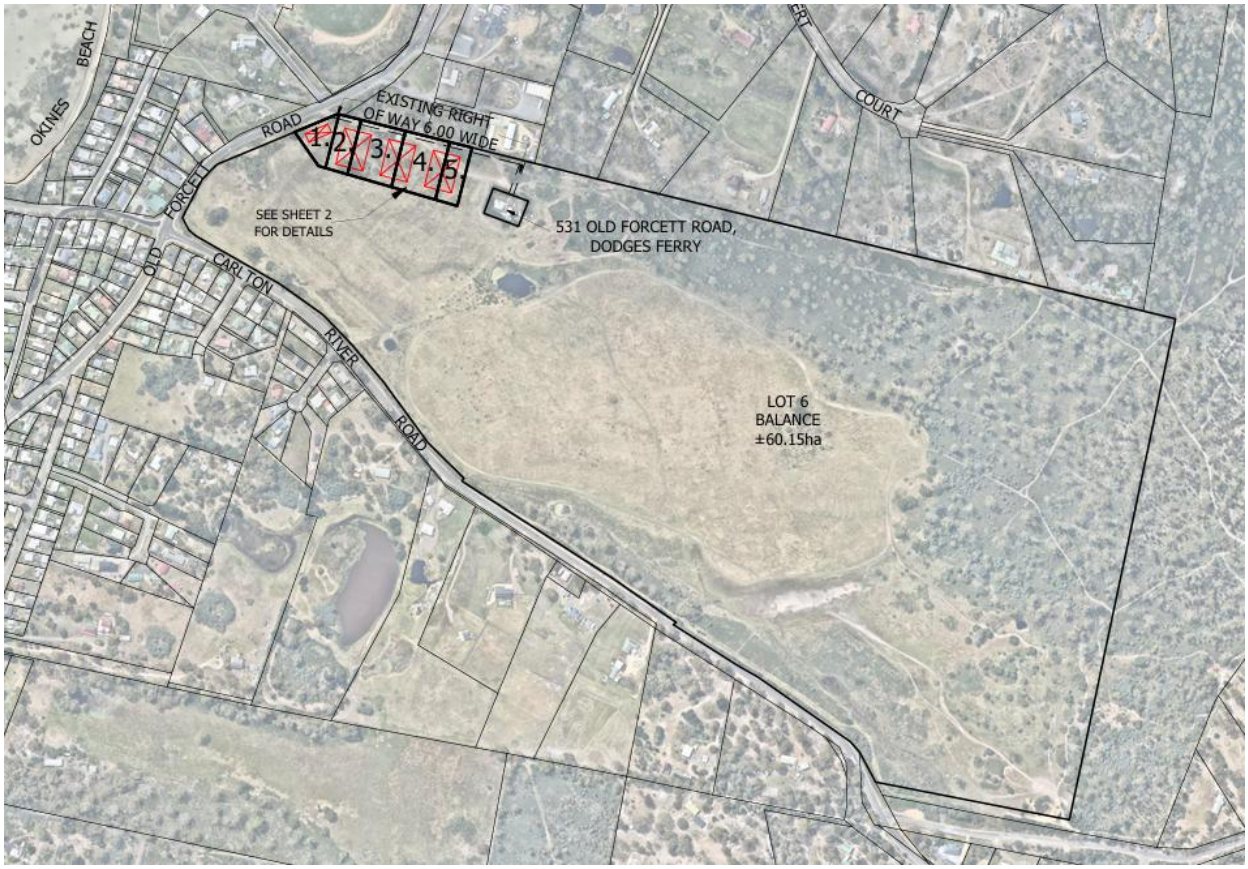
- Review of the existing road environment in the vicinity of the site and the traffic conditions on the road network.
- Provision of information on the proposed development with regards to traffic movements and activity.
- Identification of the traffic generation potential of the proposal with respect to the surrounding road network in terms of road network capacity.
- Review of the parking requirements of the proposed development. Assessment of this parking supply with Planning Scheme requirements.
- Traffic implications of the proposal with respect to the external road network in terms of traffic efficiency and road safety.

1.5 Subject Site

The subject site comprises of 5 cojoined lots within a broader subdivision of land. The subject site is located from Old Forcett Road, Dodges Ferry.

The subject site and surrounding road network is shown in Figure 1.

Figure 1 Subject Site & Surrounding Road Network



1.6 Reference Resources

The following references were used in the preparation of this TIA:

- Tasmanian Planning Scheme – Sorell, 2021 (Planning Scheme)
- Austroads, *Guide to Traffic Management,* Part 12: *Integrated Transport Assessments for Developments*, 2020
- Austroads, Guide to Road Design, Part 4A: Unsignalised and Signalised Intersections, 2021
- Department of State Growth, *Traffic Impact Assessment Guidelines*, 2020
- Transport NSW, *Guide to Traffic Impact Assessment*, 2024 (TfNSW Guide)
- Australian Standards, AS2890.1, *Off-Street Parking*, 2004 (AS2890.1)
- Australian Standards, AS2890.2, *Off-street Commercial Vehicle Facilities*, 2018

2. Existing Conditions

2.1 Transport Network

For the purposes of this report, the transport network consists of Old Forcett Road only. Other roads such as Carlton River Road and Okines Road were considered in the broader context of the network but not examined in detail.

Old Forcett Road is a major collector road that connects between Carlton Beach Road and the Arthur Highway. It is approximately 5.9 kilometres in length. At the intersection with Carlton River Road, Old Forcett Road becomes Carlton Beach Road leading into the Dodges Ferry commercial area. The traffic volume of Old Forcett Road is 5,300 vehicles per day[1].

Old Forcett Road provides primary access for the Dodges Ferry and Carlton Beach areas. The road provides access from Arthur Highway to these areas, providing a key link for commuter, recreational, school and residential traffic for these areas. Old Forcett Road near the subject site has a posted speed limit of 60-km/h (reducing to 50-km/h near Carlton Beach Road).

Old Forcett Road adjacent to the subject site is shown in Figure 2.

Figure 2 Old Forcett Road

2.2 Road Safety Performance

Crash data can provide valuable information on the road safety performance of a road network. Existing road safety deficiencies can be highlighted through the examination of crash data, which can assist in determining whether traffic generation from the proposed development may exacerbate any identified issues.

[1] Sorell Council traffic data, 2014.

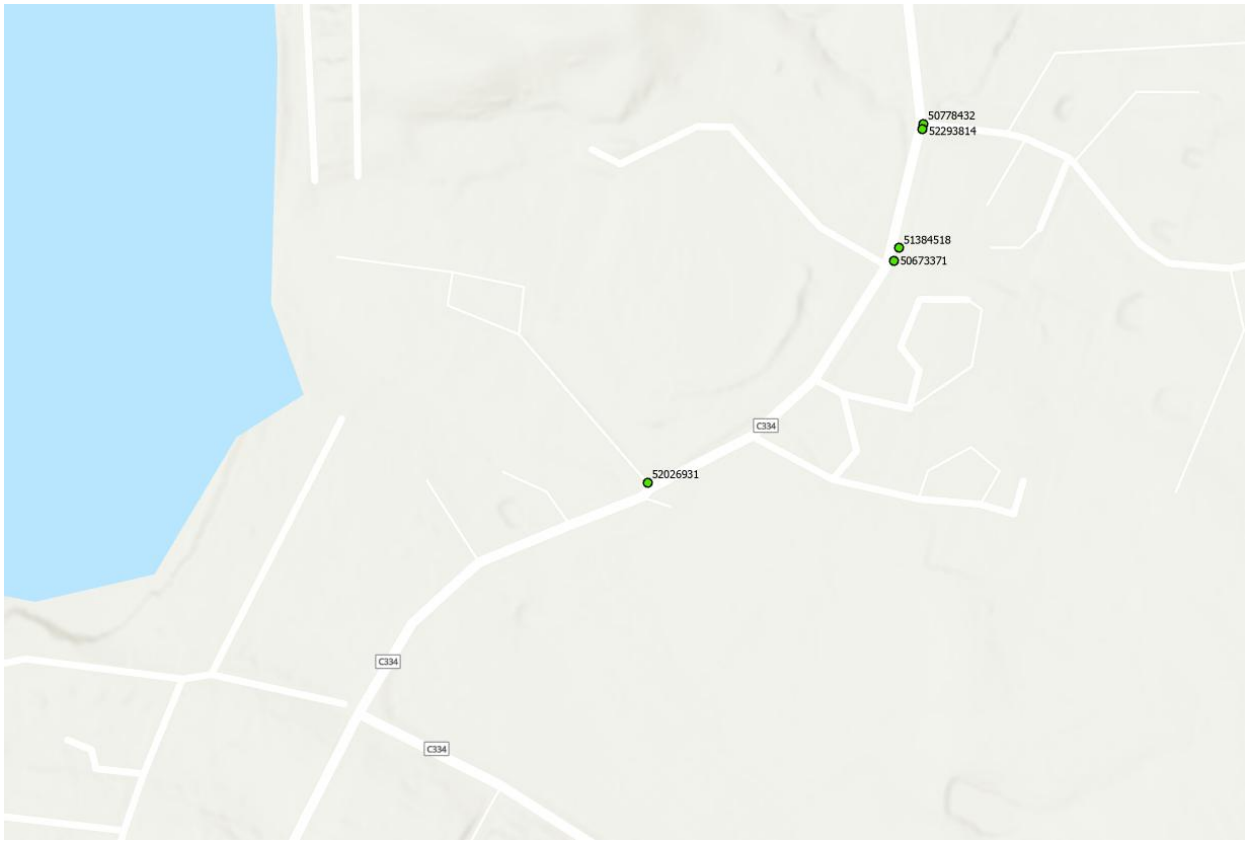
Crash data was obtained from the Department of State Growth for a 5+ year period between 1st January 2020 and 31st December 2024 for Old Forcett Road between Okines Road and Carlton River Road.

The findings of the crash data is summarised as follows:

- A total of 5 crashes were reported during this time.
- Severity. All crashes resulted in property damage only.
- Day of week. One crash was reported on each weekday. No crashes were reported on weekend days.
- Time of day. 3 crashes were reported between 9:00am and 3:00pm. 2 crashes were reported after 7:00pm.
- Crash types. 2 crashes involved 'other-manoeuvring' collisions; 1 crash involved a 'rear-end' collision; 1 crash involved a 'right-rear' collision; 1 crash did not have a crash type recorded.
- Crash locations. 1 crash was reported at the Okines Road intersection; 1 crash was reported within the school access road immediately west of Old Forcett Road; 3 crashes were reported at midblock locations. The crash locations are shown in Figure 3.
- Vulnerable road users. No crashes involved vulnerable road users (pedestrians, cyclists or motorcyclists).

The crash data does not indicate that there are any existing road safety issues associated with the network that might be exacerbated by traffic generated by the proposed development.

Figure 3 Crash Locations



Source: Department of State Growth

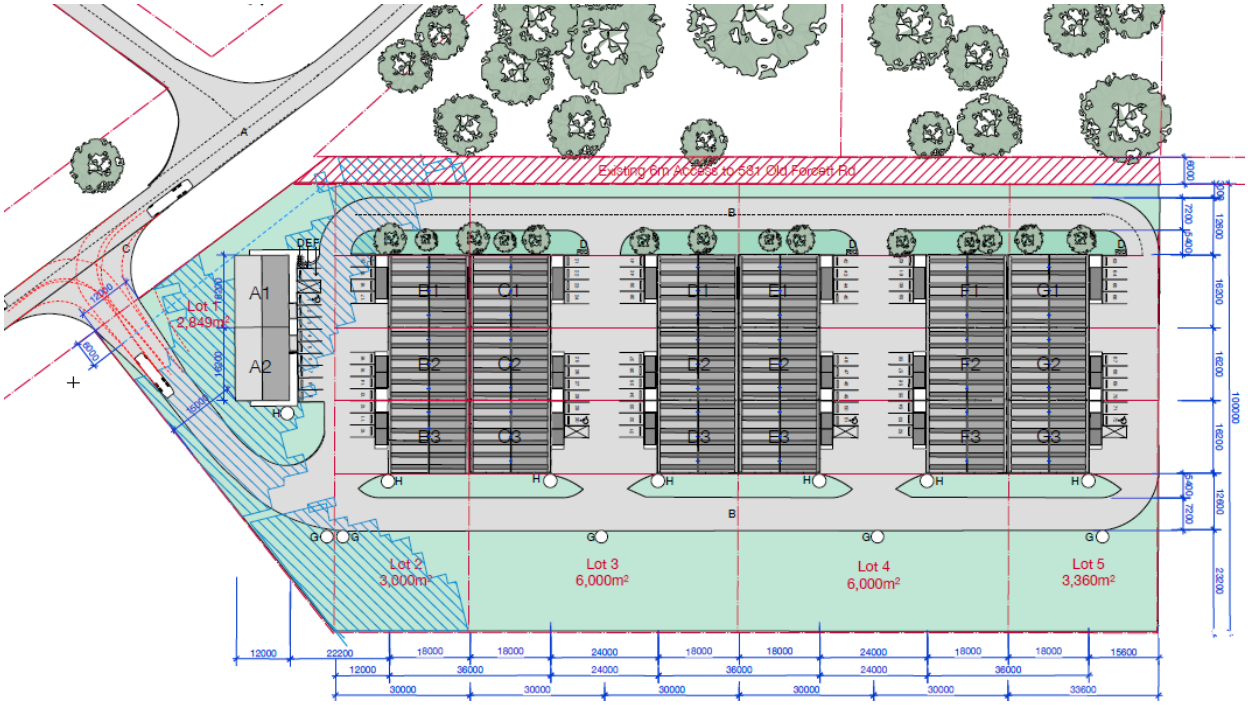
3. Proposed Development

3.1 Development Proposal

The proposed development involves the construction of four warehouse buildings. The total area of the buildings is 5,832 m^2. A total of 20 tenancies will be contained within the buildings, with individual floor areas of 194 m^2 to 292 m^2. A total of 72 on-site car parking spaces are proposed.

The proposed development is shown in Figure 4.

Figure 4 Proposed Development Plans



4. Traffic Impacts

4.1 Trip Generation

The TIA Guide states that warehouses generate 4 trips per day for each 100 m^2 of gross floor area, with a peak of 0.5 trips per hour for every 100 m^2 of gross floor area.

This equates to traffic generation of 233 vehicles per day with a peak of 29 vehicles per hour.

4.2 Trip Assignment

Based on the connectivity of the site with the connecting road network, the majority of movements at the development's access will be left-in/ right-out at Old Forcett Road.

4.3 Access Impacts

Access to the site is via a new vehicular driveway located approximately 50 metres southwest and opposite the school access.

The Acceptable Solution A1.4 of Clause C3.5.1 of the Planning Scheme states " *Vehicular traffic to and from the site, using an existing vehicle crossing or private level crossing, will not increase by more than the amounts in Table C3.1*".

Table C3.1 specifies a maximum increase of 20% or 40 vehicle movements per day, whichever is greater. The existing traffic volume utilising the access is negligible, therefore the traffic generation associated with the proposed development exceeds 40 vehicle movements per day and the Acceptable Solution A1.4 of Clause C3.5.1 of the Planning Scheme is not met.

The Performance Criteria P1 of Clause C3.5.1 of the Planning Scheme states:

> *"Vehicular traffic to and from the site must minimise any adverse effects on the safety of a junction, vehicle crossing or level crossing or safety or efficiency of the road or rail network, having regard to:*
>
> *(a) any increase in traffic caused by the use;*
>
> *(b) the nature of the traffic generated by the use;*
>
> *(c) the nature of the road;*
>
> *(d) the speed limit and traffic flow of the road;*
>
> *(e) any alternative access to a road;*
>
> *(f) the need for the use;*
>
> *(g) any traffic impact assessment; and*
>
> *(h) any advice received from the rail or road authority".*

The following is relevant to the proposed development:

a. Increase in traffic. The increase in traffic will be 233 vehicles per day, with a peak generation of 29 vehicles per hour. The peak generation represents an average of 1 vehicle movement every two minutes which can be absorbed at the access at a high level of efficiency.

b. Nature of traffic. The traffic will be commercial/ industrial in nature. This is compatible with existing traffic that is currently utilising Old Forcett Road, noting commercial properties to the north of the subject site.

c. Nature of road. Old Forcett Road is a major collector road that provides access between the Arthur Highway and Dodges Ferry. In a local context it provides property access to residential and commercial properties along its length near the subject site.

d. Speed limit and traffic flow. Near the subject site, Old Forcett Road has a posted speed limit of 60-km/h. It carries a traffic flow of approximately 5,300 vehicles per day. The speed limit and traffic flow of Old Forcett Road is compatible with the access requirements of the proposed development.

e. Alternative access. No alternative access is considered possible or necessary.

f. Need for use. The access is required to service the parking and loading areas associated with the proposed development.

g. Traffic impact assessment. This report documents the findings of a traffic impact assessment.

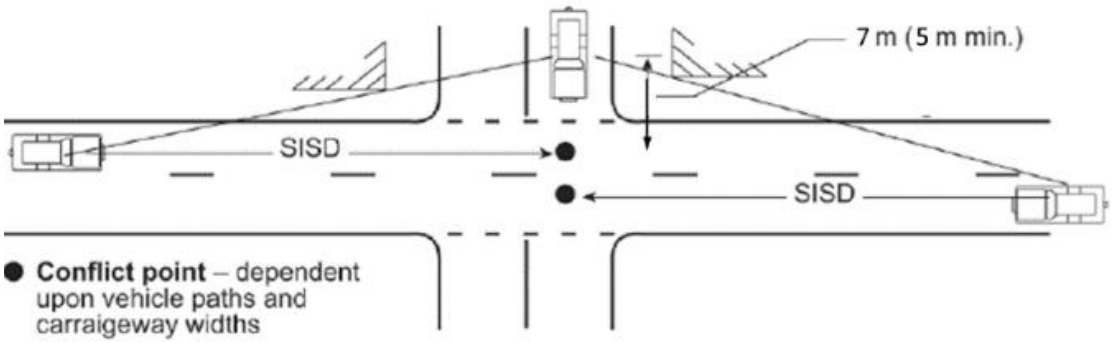
h. Road authority advice. Council requires a TIA to be prepared for the proposed development.

Based on the above assessment, the access arrangements associated with the proposed development satisfy the requirements of Performance Criteria P1 of Clause C3.5.1 of the Planning Scheme.

4.4 Sight Distance

The access to the proposed development will effectively be a road junction on Old Forcett Road. Austroads Part 4A provides guidelines for the provision of sight distance at a road junction. Safe Intersection Sight Distance (SISD) is the minimum sight distance which should be provided on the major road at any intersection. SISD provides sufficient distance for a driver of a vehicle on the major road to observe a vehicle on a minor road approach moving into a collision situation (e.g. in the worst case, stalling across the traffic lanes), and to decelerate to a stop before reaching the collision point. All possible conflict points arising from vehicles entering from the minor road should be assessed. The Austroads SIDD requirements are shown in Figure 5.

Figure 5 Austroads SISD Requirements



Assuming the 85th percentile speed is equal to the posted speed limit of 60-km/h, the required SISD is 114 metres (for an alerted reaction time of 1.5 seconds). The available sight distance is approximately 180 metres to the northeast and 125 metres to the southwest along Old Forcett Road, therefore the Austroads SISD requirements are satisfied.

4.5 Junction Capacity Analysis

The proposed development's site access is located opposite the existing junction that services Dodges Ferry Primary School and Okines Community House.

4.5.1 Existing Junction Movements

Turning movement surveys were undertaken at the junction on 27th August 2025 between 2:00pm and 5:00pm. The surveys are summarised in Table 1.

Table 1 Old Forcett Rd/ School Access Turning Movement Surveys

Time	Approach	Left Turn	Through	Right Turn
2:00 - 3:00pm	Old Forcett Rd north	-	313 vph	19 vph
	Old Forcett Rd south	21 vph	280 vph	-
	School Access	25 vph	-	23 vph
3:00 - 4:00pm	Old Forcett Rd north	-	264 vph	7 vph
	Old Forcett Rd south	5 vph	235 vph	-
	School Access	18 vph	-	9 vph
4:00 - 5:000pm	Old Forcett Rd north	-	412 vph	3 vph
	Old Forcett Rd south	4 vph	320 vph	-
	School Access	7 vph	-	6 vph

4.5.2 Background Traffic Growth

Historic traffic data from Sorell Council indicates that Old Forcett Road has a compound growth rate of approximately 1.0% per annum. It is also understood that other new developments are proposed in the surrounding area, including a new recreational facility (swimming pool) is proposed adjacent to the site to the north. An increased traffic growth rate of 1.5% per annum has therefore been applied to account for further development in the area.

Whilst the school is unlikely to have any significant growth, a nominal background growth of 1.0% per annum has been applied to the school access.

The peak traffic generation was superimposed onto the intersection across all three peak hour periods, with a distribution that is dominated by movements to/ from the north on Old Forcett Road. A 50%/ 50% in/ out split was assumed.

Using these growth rates, and including the traffic generated by the proposed development, the turning movements associated with the junction in 2035 are summarised in Table 2.

Table 2 2035 Old Forcett Rd/ School Access Turning Movement Surveys

Time	Approach	Left Turn	Through	Right Turn
2:00 - 3:00pm	Old Forcett Rd north	12 vph	363 vph	22 vph
	Old Forcett Rd south	24 vph	324 vph	3 vph
	School Access	27 vph	0 vph	25 vph
	Development Access	3 vph	0 vph	12 vph
3:00 - 4:00pm	Old Forcett Rd north	12 vph	306 vph	8 vph
	Old Forcett Rd south	6 vph	274 vph	3 vph
	School Access	20 vph	0 vph	10 vph
	Development Access	12 vph	0 vph	3 vph
4:00 - 5:000pm	Old Forcett Rd north	12 vph	478 vph	3 vph
	Old Forcett Rd south	5 vph	371 vph	3 vph
	School Access	8 vph	0 vph	7 vph
	Development Access	3 vph	0 vph	12 vph

4.5.3 Traffic Modelling

Traffic modelling was undertaken using SIDRA Intersection software for the proposed access junction under 2035 conditions. SIDRA uses complex analytical traffic models coupled with iterative approximation technique to provide estimates of capacity and performance of intersections. SIDRA is endorsed as a modelling tool by Austroads.

One of the key SIDRA outputs is an indication of level of service (LOS) at intersections. The LOS concept describes the quality of traffic service in terms of 6 levels, with level of service A (LOS A) representing the best operating condition (ie. at or close to free flow) and level of service F (LOS F) representing the worst (i.e. forced flow). Other key outputs of SIDRA include average movement delay and 95th percentile queue lengths[2].

The level of service method used in the modelling is the Delay method, where level of service is based solely on average movement delay, including geometric delay, as summarised in Table 3.

[2] This is the queue length not exceeded 95% of the time.

Table 3 SIDRA LOS Performance standards

Level of Service	Sign Control (Give Way & Stop)
LOS A	$d \leq 10$
LOS B	$10 < d \leq 15$
LOS C	$15 < d \leq 25$
LOS D	$25 < d \leq 35$
LOS E	$35 < d \leq 50$
LOS F	$50 < d$

The lowest target level of service considered acceptable for an urban environment is LOS D, which corresponds to a maximum delay of 50 seconds for give-way controlled intersections. LOS E and F represent the junction operating at capacity, with forced flow conditions.

The 2035 junction SIDRA modelling results of the junction are summarised in Table 4, Table 5 and Table 6 for the three time periods respectively. It can be seen that junction operates at LOS C during all periods. A maximum queue length of 2 cars can be expected on the southern approach of Old Forcett Road. The proposed development access operates at a high level of efficiency with minimal associated queues and delays.

Table 4 2035 SIDRA Junction Modelling 2:00-3:00pm

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m
South: Old Forcett Rd								
2	T	341	0.0	0.178	2.3	LOS A	1.6	11.0
3	R	3	0.0	0.178	10.7	LOS B	1.6	11.0
Approach		344	0.0	0.178	2.3	NA	1.6	11.0
East: Development Access								
4	L	3	0.0	0.054	18.6	LOS C	0.2	1.3
6	R	13	0.0	0.054	18.9	LOS C	0.2	1.3
Approach		16	0.0	0.054	18.8	LOS C	0.2	1.3
North: Old Forcett Rd								
7	L	13	0.0	0.203	8.2	LOS A	0.0	0.0
8	T	382	0.0	0.203	0.0	LOS A	0.0	0.0
Approach		395	0.0	0.203	0.3	NA	0.0	0.0
All Vehicles		755	0.0	0.203	1.6	NA	1.6	11.0

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.

Table 5 2035 SIDRA Junction Modelling 3:00-4:00pm

Movement Performance - Vehicles								
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
South: Old Forcett Rd								
2	T	288	0.0	0.151	1.7	LOS A	1.2	8.5
3	R	3	0.0	0.151	10.2	LOS B	1.2	8.5
Approach		292	0.0	0.151	1.8	NA	1.2	8.5
East: Development Access								
4	L	3	0.0	0.043	15.8	LOS C	0.2	1.1
6	R	13	0.0	0.043	16.1	LOS C	0.2	1.1
Approach		16	0.0	0.043	16.0	LOS C	0.2	1.1
North: Old Forcett Rd								
7	L	13	0.0	0.172	8.2	LOS A	0.0	0.0
8	T	322	0.0	0.172	0.0	LOS A	0.0	0.0
Approach		335	0.0	0.172	0.3	NA	0.0	0.0
All Vehicles		642	0.0	0.172	1.4	NA	1.2	8.5

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.

Table 6 2035 SIDRA Junction Modelling 4:00-5:00pm

Movement Performance - Vehicles								
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
South: Old Forcett Rd								
2	T	391	0.0	0.204	3.5	LOS A	2.1	14.8
3	R	3	0.0	0.204	11.9	LOS B	2.1	14.8
Approach		394	0.0	0.204	3.5	NA	2.1	14.8
East: Development Access								
4	L	3	0.0	0.078	24.6	LOS C	0.3	1.8
6	R	13	0.0	0.078	24.9	LOS C	0.3	1.8
Approach		16	0.0	0.078	24.8	LOS C	0.3	1.8
North: Old Forcett Rd								
7	L	13	0.0	0.265	8.2	LOS A	0.0	0.0
8	T	503	0.0	0.265	0.0	LOS A	0.0	0.0
Approach		516	0.0	0.265	0.2	NA	0.0	0.0
All Vehicles		925	0.0	0.265	2.0	NA	2.1	14.8

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.

4.6 Pedestrian Impacts

The proposed development is unlikely to attract any pedestrian movements in the surrounding network.

The Acceptable Solution A1 of Clause C2.6.5 of the Planning Scheme states:

> *"Uses that require 10 or more car parking spaces must:*
>
> *(a) have a 1m wide footpath that is separated from the access ways or parking aisles, excluding where crossing access ways or parking aisles, by:*

(i) a horizontal distance of 2.5m between the edge of the footpath and the access way or parking aisle; or

(ii) protective devices such as bollards, guard rails or planters between the footpath and the access way or parking aisle; and

(b) be signed and line marked at points where pedestrians cross access ways or parking aisles".

Footpaths are provided along the building frontages, separating the parking spaces from the buildings. Clear paths are also provided in front of building entrances. No marked crossing locations are provided within the car park design at internal aisles and junctions. The car parking design therefore satisfies (a) of Acceptable Solution A1 of Clause C2.6.5 of the Planning Scheme, but not (b).

The Performance Criteria P1 of Clause C2.6.5 of the Planning Scheme states:

"Safe and convenient pedestrian access must be provided within parking areas, having regard to:

(a) the characteristics of the site;

(b) the nature of the use;

(c) the number of parking spaces;

(d) the frequency of vehicle movements;

(e) the needs of persons with a disability;

(f) the location and number of footpath crossings;

(g) vehicle and pedestrian traffic safety;

(h) the location of any access ways or parking aisles; and

(i) any protective devices proposed for pedestrian safety".

The following is relevant with respect to the development:

a. Characteristics of site. The site is an industrial development. Parking within the driveway will be for staff and little parking activity will occur during general activities associated with the access (truck movements, etc). The movement of vehicles and pedestrians only relates to activity associated with the industrial estate and would be expected by all road users. Vehicle speeds will be very low by virtue of the short and narrow access that services the development. Furthermore, the proposed development consists of 20 separate tenancies and the parking associated with each tenancy will be located immediately adjacent. This will effectively remove the need for pedestrians to walk through the site between tenancies.

b. Nature of the use. The use is industrial, which is consistent with land use in the surrounding area.

c. Number of parking spaces. A total of 65 on-site parking spaces are proposed.

d. Frequency of vehicle movements. The peak traffic generation will be 29 vehicles per hour, which represents slightly less than 1 vehicle every two minutes on average. The low traffic generation coupled with the low vehicle speeds will result in an acceptable safety environment for shared use between pedestrians and vehicles.

e. Needs of persons with a disability. Not applicable.

f. Location and number of footpath crossings. Not applicable.

g. Vehicle and pedestrian safety. Parking within the driveway will be for staff and little parking activity will occur during general activities associated with the access (truck movements, etc). The movement of vehicles and pedestrians only relates to activity associated with the industrial estate and would be expected by all road users. A 1-metre footpath is provided between the parking spaces and the building entrances. As noted in d above, the low traffic generation coupled with the low vehicle speeds will result in an acceptable safety environment for shared use between pedestrians and cars.

h. Location of access ways or parking aisles. The development has a relatively simple layout with a main driveway access and 4 aisles connecting to the access. Parking is accessed at 90-degrees to the aisles. There are 4 internal T-junctions within the site.

i. Protective devices. No pedestrian protective devices are included in the design.

Based on the above assessment, the development meets the requirements of Performance Criteria P1 of Clause C2.6.5 of the Planning Scheme.

4.7 Road Safety Impacts

No significant road safety impacts are foreseen for the proposed development. This is based on the following:

- The surrounding road transport network is capable of absorbing the relatively small traffic generation of the proposed development. Noting specifically that the peak generation is 29 vehicles per hour, which represents slightly less than 1 vehicle every three minutes on average.
- The access is located on a section of Old Forcett Road that has a relatively straight alignment with clear sight distance in both directions.
- The crash history of the surrounding road network near the subject site does not indicate that there are any specific road safety issues that are likely to be exacerbated by the proposed development.

5. Parking Assessment

5.1 Parking Provision

The proposed development provides a total of 72 on-site parking spaces.

5.2 Empirical Parking Demand

The TIA Guide is a nationally recognised reference resource for the determination of parking demands associated with various land uses. The TIA Guide recommends a parking rate of 1 space per 300m^2 of gross floor area for 'warehouses'.

This equates to a parking demand of 19 parking spaces. The provision of 72 spaces satisfies this likely demand.

5.3 Planning Scheme Requirements

The Acceptable Solution A1 of Clause C2.5.1 of the Planning Scheme states:

> *"The number of on-site car parking spaces must be no less than the number specified in Table C2.1, excluding if:*
>
> *(a) the site is subject to a parking plan for the area adopted by council, in which case parking provision (spaces or cash-in-lieu) must be in accordance with that plan;*
>
> *(b) the site is contained within a parking precinct plan and subject to Clause C2.7;*
>
> *(c) the site is subject to Clause C2.5.5; or*
>
> *(d) it relates to an intensification of an existing use or development or a change of use where:*
>
> *(i) the number of on-site car parking spaces for the existing use or development specified in Table C2.1 is greater than the number of car parking spaces specified in Table C2.1 for the proposed use or development, in which case no additional on-site car parking is required; or*
>
> *(ii) the number of on-site car parking spaces for the existing use or development specified in Table C2.1 is less than the number of car parking spaces specified in Table C2.1 for the proposed use or development, in which case on-site car parking must be calculated as follows:*
>
> *N = A + (C- B)*
>
> *N = Number of on-site car parking spaces required*
>
> *A = Number of existing on site car parking spaces*
>
> *B = Number of on-site car parking spaces required for the existing use or development specified in Table C2.1*

C= Number of on-site car parking spaces required for the proposed use or development specified in Table C2.1".

In this case, sub-points (a), (b), (c), and (d) are not applicable. The car parking requirements in Table C2.1 for 'Storage' (warehousing) is 1 space per 200 m^2 of site area or 1 space per 2 employees, whichever is greater.

This equates to a requirement for 77 spaces (staff numbers are unknown – based on a total site area of approximately 15,450 m^2). The provision of 72 spaces does not satisfy the requirements of Acceptable Solution A1 of Clause C2.5.1 of the Planning Scheme.

The Performance Criteria P1 of Clause C2.5.1 of the Planning Scheme states:

"The number of on-site car parking spaces for uses, excluding dwellings, must meet the reasonable needs of the use, having regard to:

(a) the availability of off-street public car parking spaces within reasonable walking distance of the site;

(b) the ability of multiple users to share spaces because of: (i) variations in car parking demand over time; or (ii) efficiencies gained by consolidation of car parking spaces;

(c) the availability and frequency of public transport within reasonable walking distance of the site;

(d) the availability and frequency of other transport alternatives;

(e) any site constraints such as existing buildings, slope, drainage, vegetation and landscaping;

(f) the availability, accessibility and safety of on-street parking, having regard to the nature of the roads, traffic management and other uses in the vicinity;

(g) the effect on streetscape; and

(h) any assessment by a suitably qualified person of the actual car parking demand determined having regard to the scale and nature of the use and development".

a. Off-street public parking. Not applicable, there are no nearby off-street public parking areas.
b. Shared parking. Not applicable. The development is a homogenous land use.
c. Public transport. Not applicable.
d. Alternative transport. Not applicable.
e. Site constraints. Not applicable.
f. On street parking. Not applicable. On-street parking is not generally available along Old Forcett Road.
g. Streetscape. Not applicable.

h. Parking demands. Parking demands associated with the proposed development will be lower than Planning Scheme requirements. The empirical parking demands are set out in Section 5.2. Importantly, the requirements of Table C2.1 of the Planning Scheme relies on total site area, which does not translate particularly well to the likely parking demands of the land use. The gross floor area of the buildings associated with the warehouses are a more reliable indicator of parking demand as set out in Section 5.2.

Based on the above assessment, the parking provision associated with the proposed development satisfies the requirements of Performance Criteria P1 of Clause C2.5.1 of the Planning Scheme. Specifically, the parking demands associated with the development will be lower than the generic planning scheme requirements. The Acceptable Solution shortfall of 5 spaces is resolved by a lower parking demand associated with the nature of the proposed development.

5.4 Car Parking Layout

The Acceptable Solution A1.1 of Clause C2.6.2 of the Planning Scheme states:

"Parking, access ways, manoeuvring and circulation spaces must either:

(a) comply with the following:

(i) have a gradient in accordance with Australian Standard AS 2890 - Parking facilities, Parts 1-6;

(ii) provide for vehicles to enter and exit the site in a forward direction where providing for more than 4 parking spaces;

(iii) have an access width not less than the requirements in Table C2.2;

(iv) have car parking space dimensions which satisfy the requirements in Table C2.3;

(v) have a combined access and manoeuvring width adjacent to parking spaces not less than the requirements in Table C2.3 where there are 3 or more car parking spaces;

(vi) have a vertical clearance of not less than 2.1m above the parking surface level; and

(vii) excluding a single dwelling, be delineated by line marking or other clear physical means; or

(b) comply with Australian Standard AS 2890- Parking facilities, Parts 1-6".

The car parking was assessed against the requirements of A1.1(b), using AS2890.1 and AS2890.2 as detailed in the following sections.

5.4.1 Driveway Grade

Section 2.5.3(b) of AS2890.1 states the following regarding the maximum grade of straight ramps:

i. Longer than 20 metres – 1 in 5 (20%) maximum.

ii. Up to 20 metres long – 1 in 4 (25%) maximum. The allowable 20 m maximum length shall include any parts of the grade change transitions at each end that exceed 1 in 5 (20%).

The maximum grade of the access is well below the maximum AS2890.1 requirements.

5.4.2 Parking Grade

Section 2.4.6 of AS2890.1 states that the maximum grades within a car park shall be:

- Measured parallel to the angle of parking 1 in 20 (5%)
- Measured in any other direction 1 in 16 (6.25%)

The grades of the parking spaces are effectively level, thus complying with the AS2890.1 grade requirements.

5.4.3 Parking Dimensions

AS2890.1 define the parking as User Class 2, *Medium term parking*. This accounts for customer parking associated with the tenancies within the development. Staff parking is classified as User Class 1A.

The requirements for User Class 2 (the largest of the two parking types associated with the development) are as follows:

- Space length 5.4 metres
- Space width 2.5 metres
- Aisle width 5.8 metres

All parking spaces comply with AS2890.1 requirements, noting that the aisle with and space width exceed minimum requirements (2.6 metres and 7.1 metres respectively).

5.4.4 Driveway Width

AS2890.1 defines the access as 'Category 2' access facility (Class 2 parking with 25 to 100 spaces fronting onto a local road). The AS2890.1 minimum driveway width requirement for a Category 2 access is 6.0 to 9.0 metres.

The available width complies with this requirement at the driveway, therefore the access width complies with the requirements of AS2890.1.

The width was also assessed against the requirements of AS2890.2. For an access servicing HRV's and larger vehicles connecting to a minor road, the minimum width requirement 12.5 metres. The provided width of 12 metres can adequately accommodate the swept paths of Heavy Rigid Vehicles.

5.4.5 AS2890.1 & AS2890.2 Assessment Summary

The parking space dimensions and manoeuvring areas comply with the requirements of AS2890.1. The development therefore complies with the requirements of Acceptable Solution A1.1(b) of Clause C2.6.2 of the Planning Scheme.

5.5 Accessible Parking

The proposed development provides one disabled parking space, located within the parking area closest to the main access within lot 1 of the site. The disabled parking provision complies with the requirements of the BCA Code.

The dimensions and layout of the accessible parking spaces comply with the requirements of AS2890.6 (specifically noting the requirement for a 'shared space' adjacent to the accessible parking space).

5.6 Commercial Parking

The proposed warehouses will provide access to heavy vehicles.

The Acceptable Solution A1 of Clause C2.6.6 of the Planning Scheme states: "*The area and dimensions of loading bays and access way areas must be designed in accordance with Australian Standard AS 2890.2–2002, Parking facilities, Part 2: Off-street commercial vehicle facilities, for the type of vehicles likely to use the site*".

The development provides access to each warehouse facility for commercial vehicles. No specific loading bays are provided, with loading and unloading activities confined to within each of the warehouse tenancies if required.

AS2890.2 requires that the loading bay service area is dependent on a combination of:

(a) The maximum size of vehicle likely to use the facility.
(b) The frequency with which vehicles of different classification use the facility; and
(c) Whether the public road from which the facility is accessed is a major or minor road.

The following points are relevant for the site:

- Swept paths of an 8.8 metre truck (Heavy Rigid Vehicle, HRV), the design vehicle) were tested through the site, to and from Old Forcett Road. This relates to the operation of the warehouses. Swept paths of HRV vehicles within the site are detailed in Figure 6.
- The frequency of access to the site will be several times per day by vehicles of differing sizes.
- Access into the site is via a major road. This access (which is in its exiting location for the current site) has been assessed to be appropriate in following sections of AS2890.2

AS2890.2 requirements and recommendations that the use of the service area for regular use of a major road (Old Forcett Road) are as follows:

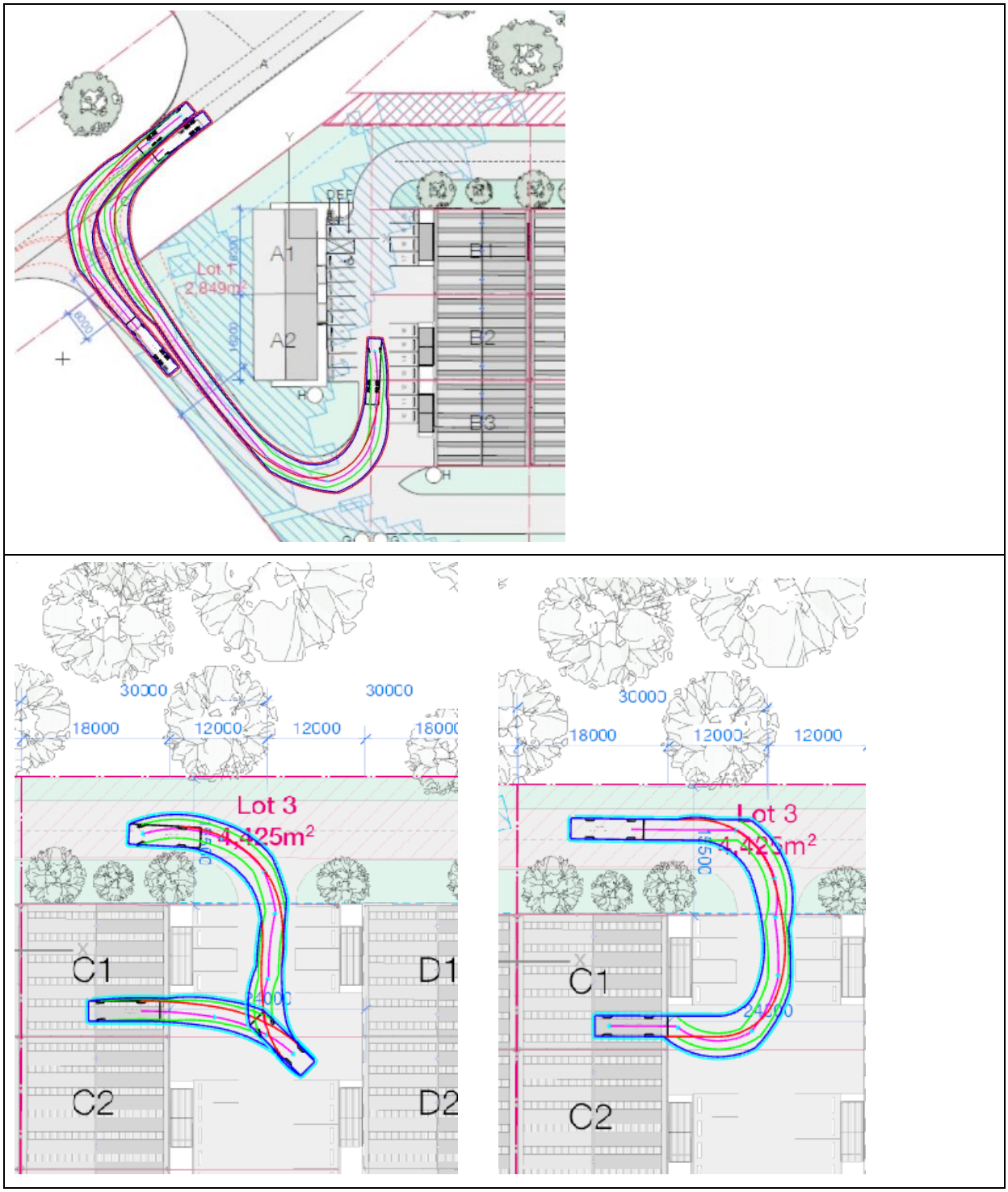
(a) A service area unobstructed by other vehicles or on-site activities shall be provided.
(b) All manoeuvring associated with parking, loading and unloading shall be able to be confined to the service area.
(c) Both entry and exit at the property boundary shall be in the forward direction.
(d) Circulation roadways shall be provided to connect the access driveway with the service area.
(e) Wherever practicable, separate entry and exit access driveways should be provided.

In this case, the following is applicable:

(a) The service area and access driveway has been tested to enable the swept path of anHRV.
(b) It is not possible to separate the service areas from the car parking areas associated with the site due to the constrained nature of the site.
(c) Entry and exit at Old Forcett Road is in a forward direction.
(d) Circulation roadways are not specifically provided, however a wide aisle width facilitates the safe and efficient movement of heavy vehicles within the parking areas of the site.
(e) One access is provided on Old Forcett Road that provides entry and exit to the site.

The proposed access and manoeuvring arrangements therefore comply with 3.2.3 of AS2890.2. Acceptable Solution A1 of Clause C2.6.6 of the Planning Scheme is met.

Figure 6 Typical Heavy Rigid Vehicle Swept Paths



6. Conclusions

This traffic impact assessment (TIA) investigated the traffic and parking impacts of a proposed warehouse development at Lot 1 Old Forcett Road, Dodges Ferry.

The key findings of the TIA are summarised as follows:

- The development will comprise of 4 building structures with 20 individual tenancies.
- The traffic generation of the development is likely to be 233 vehicles per day with a peak generation of 29 vehicles per hour.
- The development's access on service road meets the requirements of Performance Criteria P1 of Clause C3.5.1 of the Planning Scheme.
- Junction capacity modelling demonstrates that the proposed development's access with Old Forcett Road intersection will operate efficiently. SIDRA analysis for 2035 conditions shows the junction operating at Level of Service C across all assessed time periods, which exceeds the minimum acceptable standard of LOS D for urban environments. Maximum queuing is limited to 2 vehicles on the southern approach, while the proposed development access operates with minimal delays and negligible queuing impacts.
- The pedestrian infrastructure within the on-site car park meets the requirements of Performance Criteria P1 of Clause C2.6.5 of the Planning Scheme.
- The car parking provision of 65 on-site parking spaces meets the requirements of Performance Criteria P1.1 of Clause C2.5.1 of the Planning Scheme.
- The car parking layout of the development meets the requirements of Acceptable Solution A1.1(b) of Clause C2.6.2 of the Planning Scheme.

Based on the findings of this report the proposed development is supported on traffic grounds.

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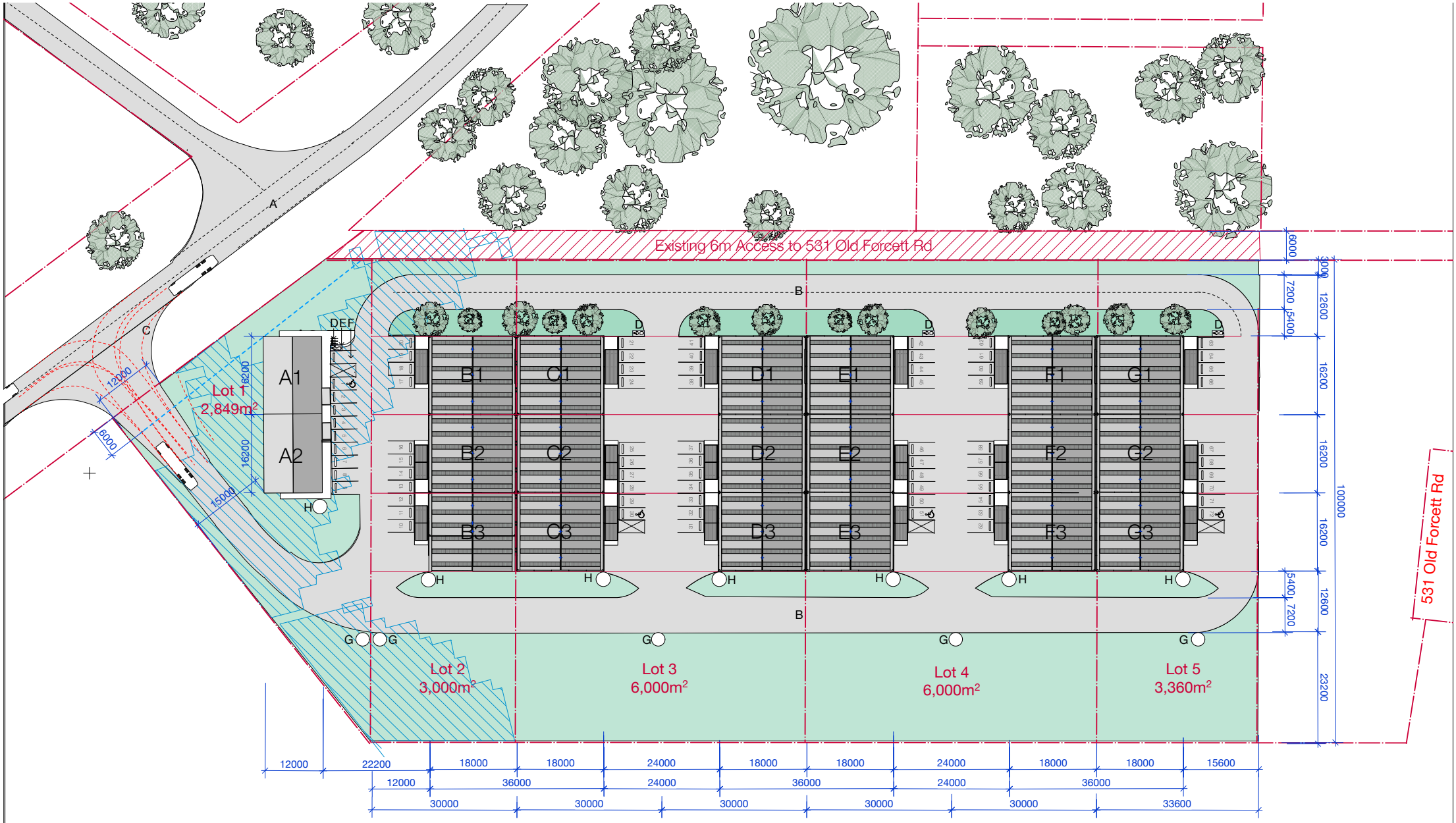
Document Status

Revision	Author	Review	Date
0	Keith Midson	Zara Kacic-Midson	21 January 2025
1	Keith Midson	Zara Kacic-Midson	4 September 2025
2	Keith Midson	Zara Kacic-Midson	8 October 2025



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Drawing

No.: OFR1 DA00
Date: 04 Oct 2025
Scale: 1:500 @ A2
1:1,000 @ A4

Dodges Ferry Commercial Units

Lot 1, Old Forcett Rd, Dodges Ferry

Site Plan

vL

Key

A. Old Forcett Road
B. Sealed Accesway
C. Large Rigid Truck Sweep Path
D. Motorcycle Bay
E. Bicycle Bay
F. Loading Bay
G 10.0KL/Lot, Static Fire Water
H 12.5KL RW Tanks

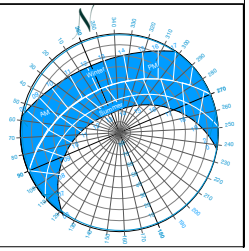
Flood Prone Overlay

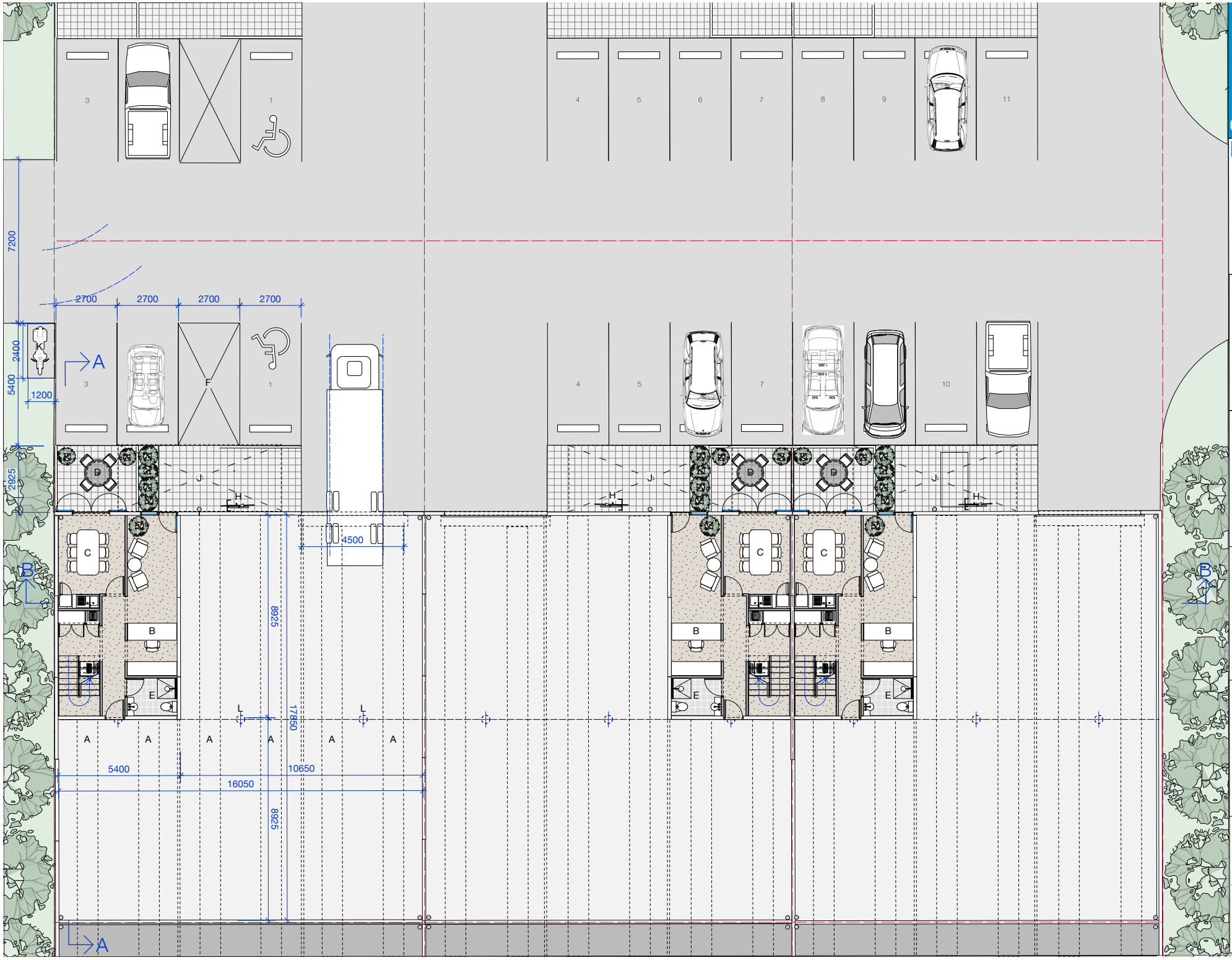
Existing R.O.W. to 531 Old Forcett Rd

Areas

Site Area 21,209m²

Units	No.	NLA	Subtotal
A	2 x	189m² =	378m²
B - G	18 x	330m² =	5,940m²
Total NLA			6,318m²





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Dodges Ferry Commercial Park

Old Forcett Rd, Dodges Ferry

Ground Plan B-F

Drawing

No.: OFR1 DA01
Date: 14 Oct 2025
Scale: 1:100 @ A2
1:200 @ A4

vF

Key

A. Clear Sheeting over
B. Reception
C. Lunch Room
D. Courtyard
E. DP WC & Shower
F. DP Parking Access Area
G. Rolladoor
H. Bicycle Stand
J. Canopy over
K. Motorcycle Bay
L. Ridge Roof Ventilators over

Areas

Per Unit	
Warehouse	238m²
Offices	92m²
Total	330m²

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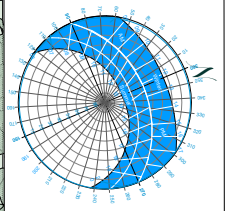

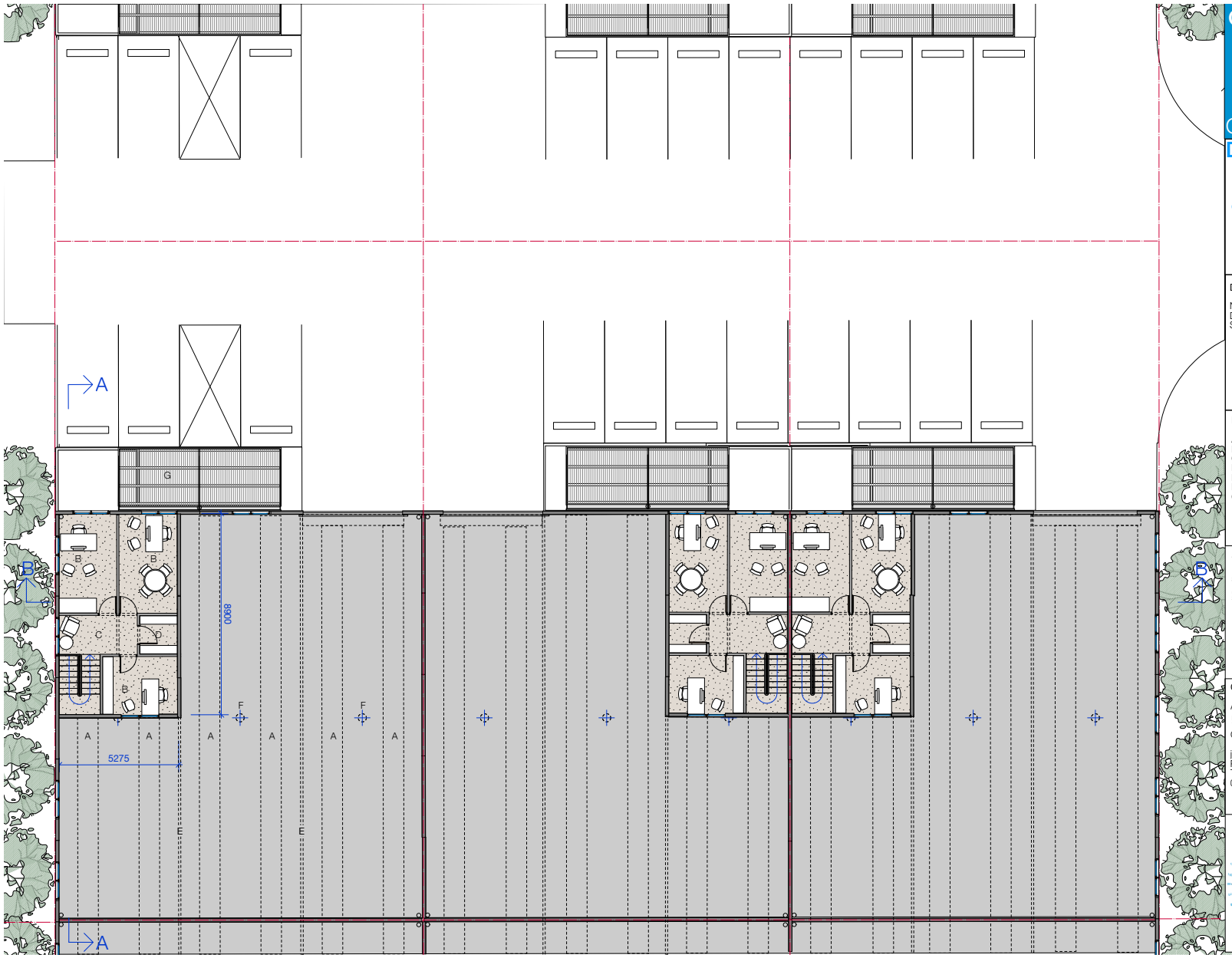

CALIBAN

CONSULTING

Dodges Ferry Commercial Park

Old Forcett Rd, Dodges Ferry

Mezzanine Plan

Drawing

No.: OFR1 DA02
Date: 20 Dec 2023
Scale: 1:100 @ A2
1:200 @ A4

vE

Key

A. Clear Sheeting over
B. Offices
C. Waiting Area
D. Store
E. Truss over
F. Roof Ventilator over
G. Clear Canopy

Areas

Per Unit	
Warehouse	238m²
Offices	92m²
Total	330m²

Contacts:

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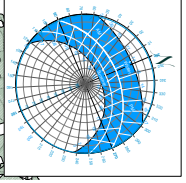

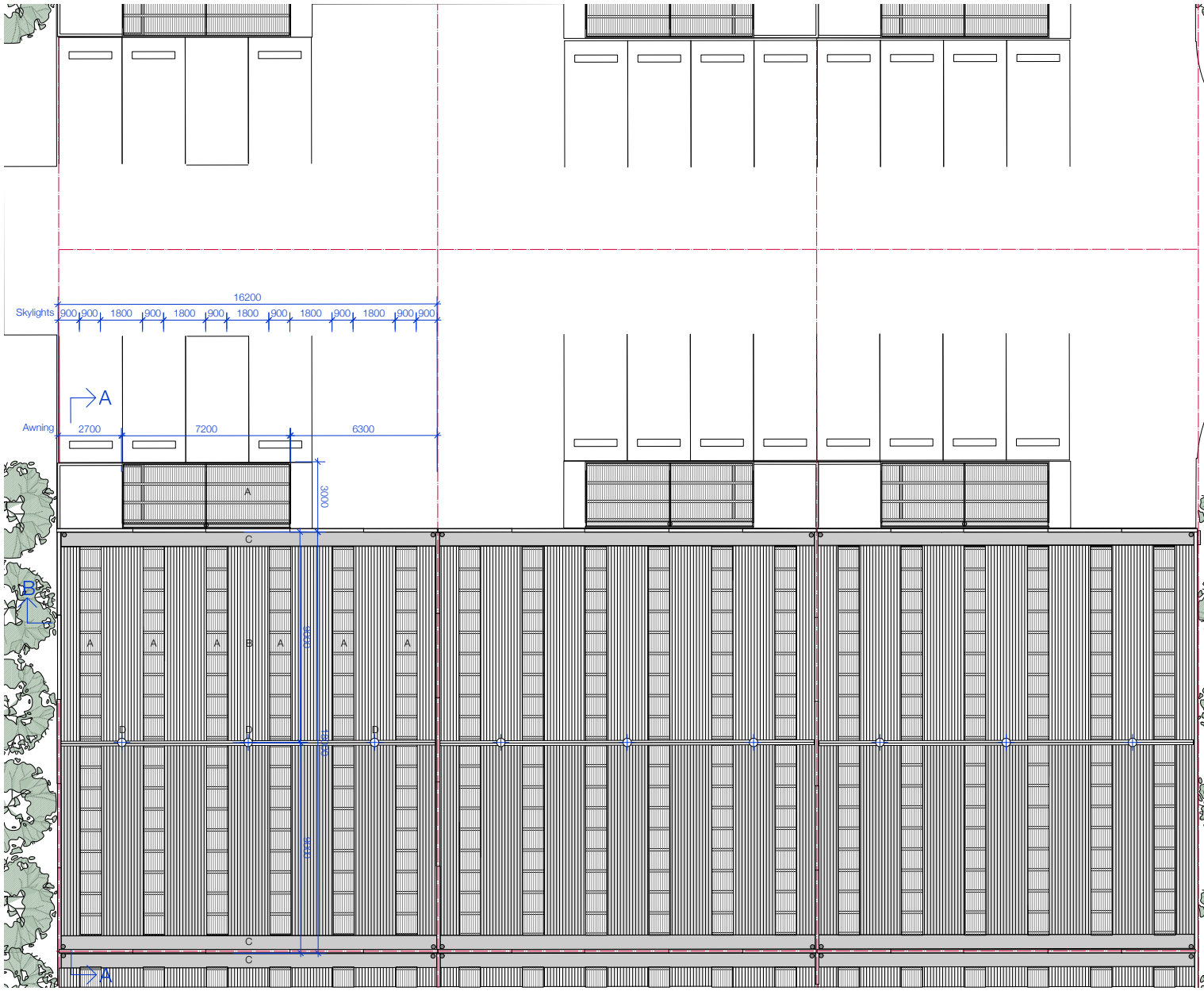

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Dodges Ferry Commercial Park

Old Forcett Rd, Dodges Ferry

Roof Plan

Drawing

No.: OFR1 DA03
Date: 20 Dec 2023
Scale: 1:100 @ A2
1:200 @ A4

vE

Key

A. Clear Polycarb. Sheeting
B. 'Surfmist' Kliplock Roofing
C. 600mm wide Box-Gutters
D. Roof Ventilators

Areas

Per Unit	
Warehouse	238m²
Offices	92m²
Total	330m²

Contacts:

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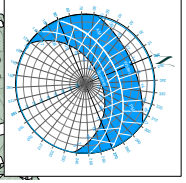

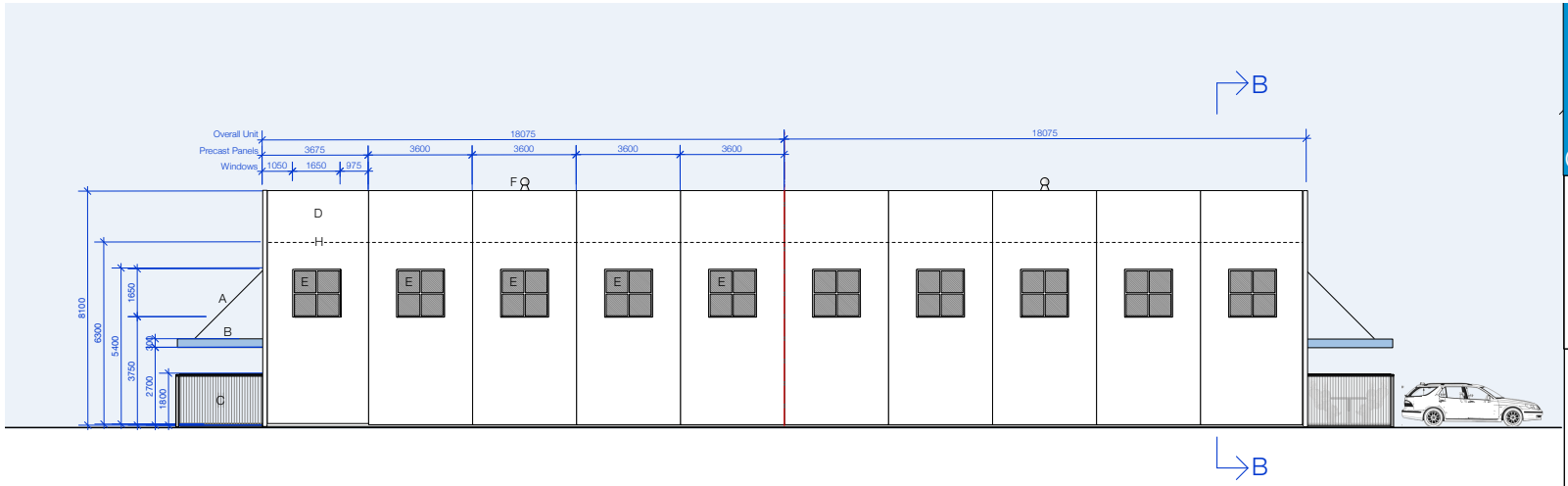

South Elevations
(All Blocks)

West Elevations
(C,E & G Units)

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Industrial Units

Lot 1, Old Forcett Rd, Dodges Ferry

S&W Elevations

Drawing

No.: OFR1 DA04
Date: 22 Jan 2025
Scale: 1:100 @ A2
1:200 @ A4

vB

Key

A. Canopy suspension cables
B. Clear sheeting canopy
C. Translucent sheeting fence
D. Precast concrete panels
E. White PC alum. windows
F. Roof ventilators
G Level of mezzanine
H Line of soffit of roof truss
J Tenant's signage (to sep DA)
K 'Surfmist' rolladoor

Areas

Per Unit	
Warehouse	238m²
Offices	92m²
Total	330m²

Contacts:

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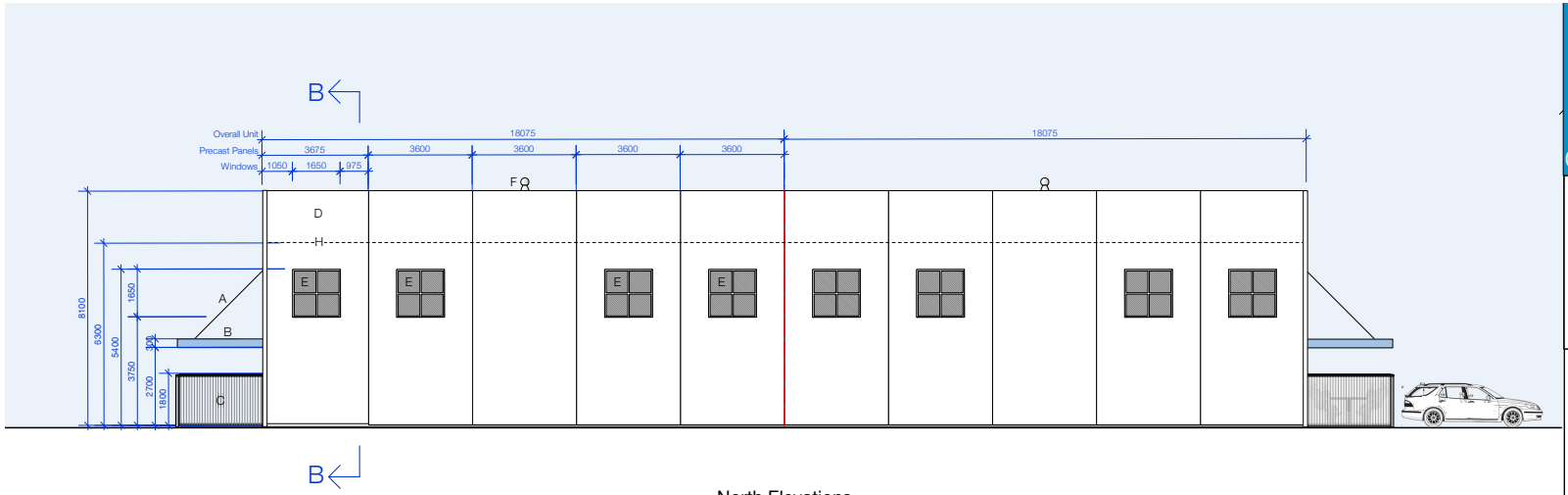
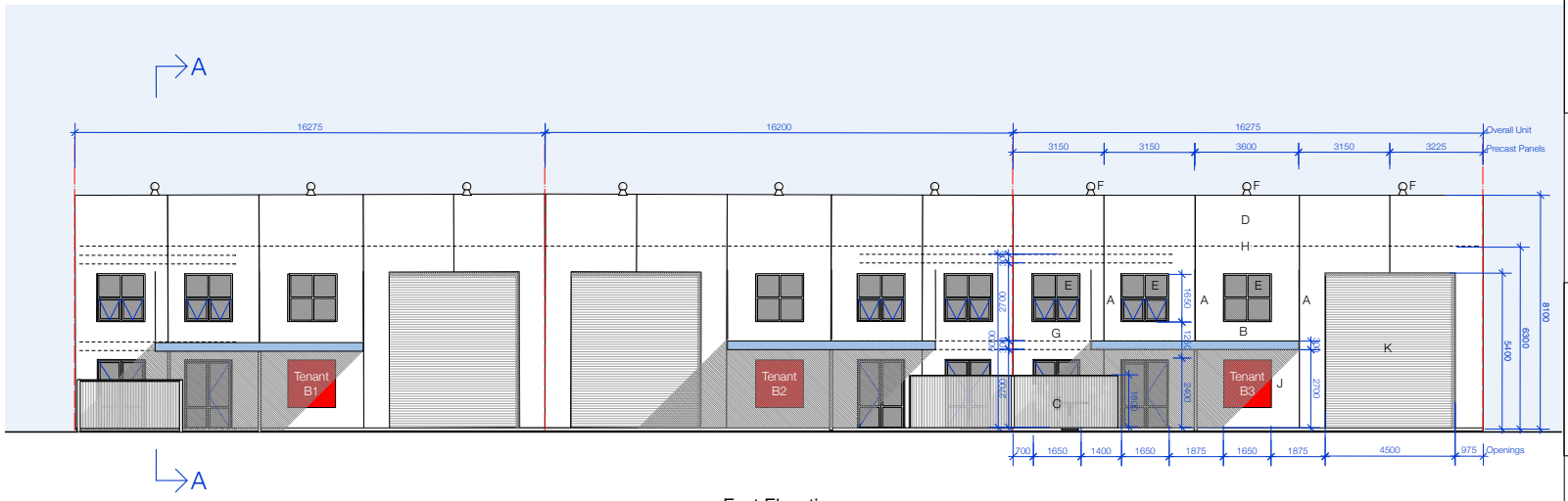


North Elevations
(All Blocks)



East Elevations
(B,D & F Units)

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Industrial Units

Lot 1, Old Forcett Rd, Dodges Ferry

N&E Elevations

Drawing

No.: OFR1 DA05
Date: 22 Jan 2025
Scale: 1:100 @ A2
1:200 @ A4

vB

Key

A. Canopy suspension cables
B. Clear sheeting canopy
C. Translucent sheeting fence
D. Precast concrete panels
E. White PC alum. windows
F. Roof ventilators
G Level of mezzanine
H Line of soffit of roof truss
J Tenant's signage (to sep DA)
K 'Surfmist' rolladoor

Areas

Per Unit	
Warehouse	238m²
Offices	92m²
Total	330m²

Contacts:

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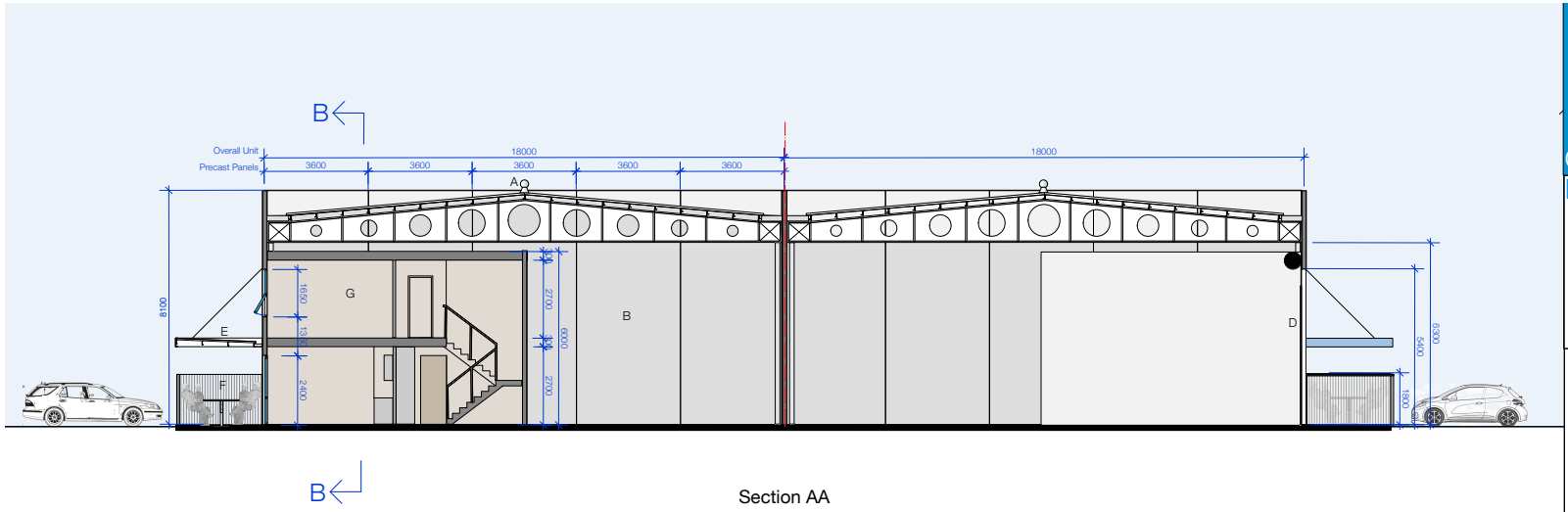

Section AA

Section BB

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Dodges Ferry Commercial Park

Old Forcett Rd, Dodges Ferry

Sections

Drawing

No.: OFR1 DA06
Date: 20 Dec 2023
Scale: 1:100 @ A2
1:200 @ A4

vE

Key

A. Roof Ventilators
B. Precast Concrete Panels
C. White PC Alum. Windows
D. 'Surfmist' Rolladoor
E. Clear roofed canopy
F. Translucent Sheeting
G. Office Mezzanine

Areas

Per Unit	
Warehouse	238m²
Offices	92m²
Total	330m²

Contacts:

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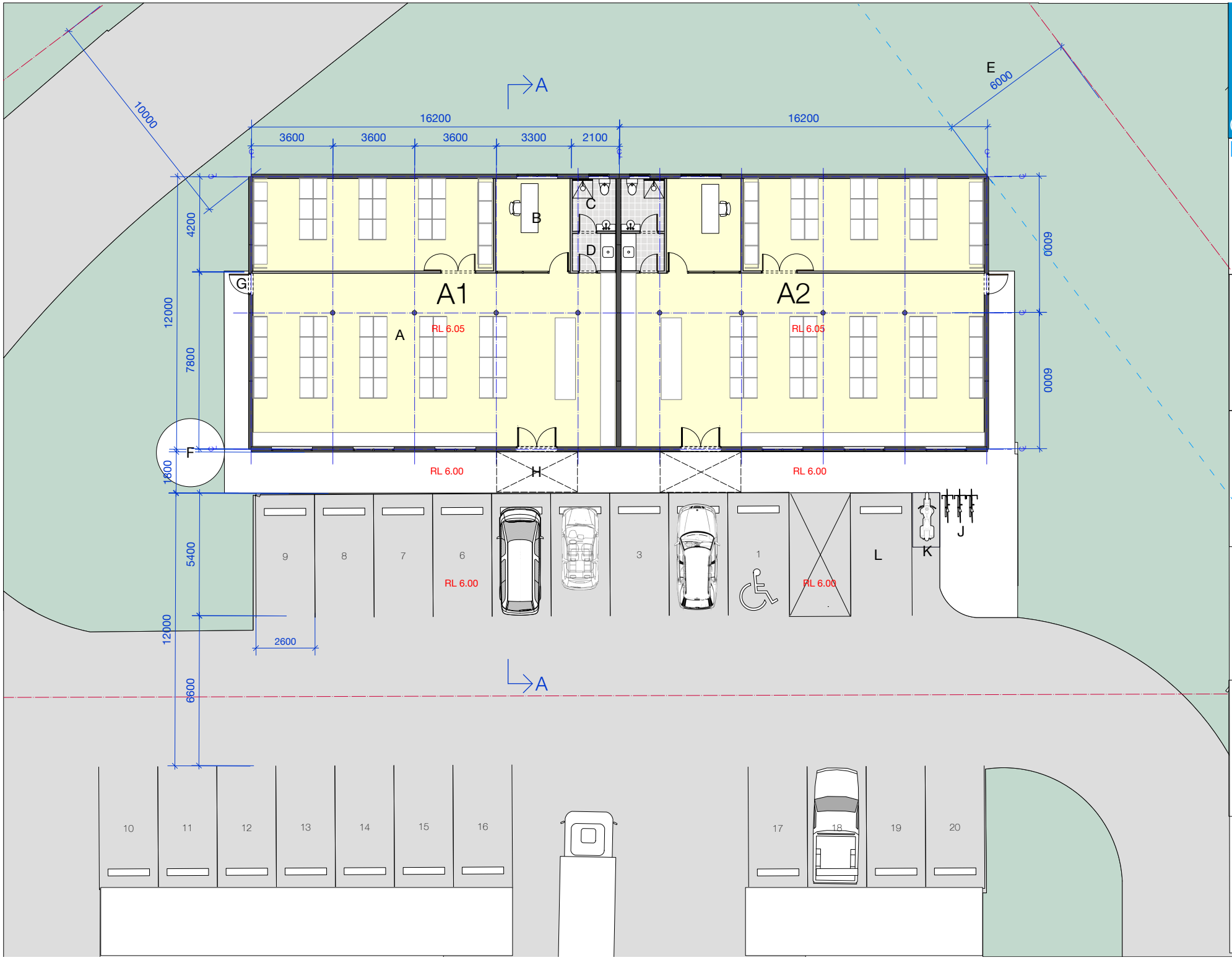

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Dodges Ferry Commercial Park

Old Forcett Rd, Dodges Ferry

Units A1&2 Plan

Drawing

No.: OFR1 DA10
Date: 04 Oct 2025
Scale: 1:100 @ A2
1:200 @ A4

vF

Key

A. Store Room
B. Ofice
C. Accessible Bathroom
D. Kitchenette
E. Lanscaping Zone
F. 2.5KL RW Tanks
G Fire Egress
H. Canopy over
J. Bicycle Parking Bay
K Motorcycle Parking Bay
L Loading Bay

Areas

Lot Area	2,849m²
Unit A1	189m²
Unit A2	189m²
Total	378m²

Contacts:

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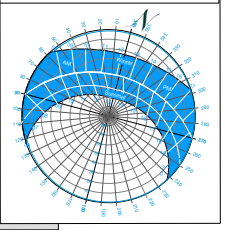

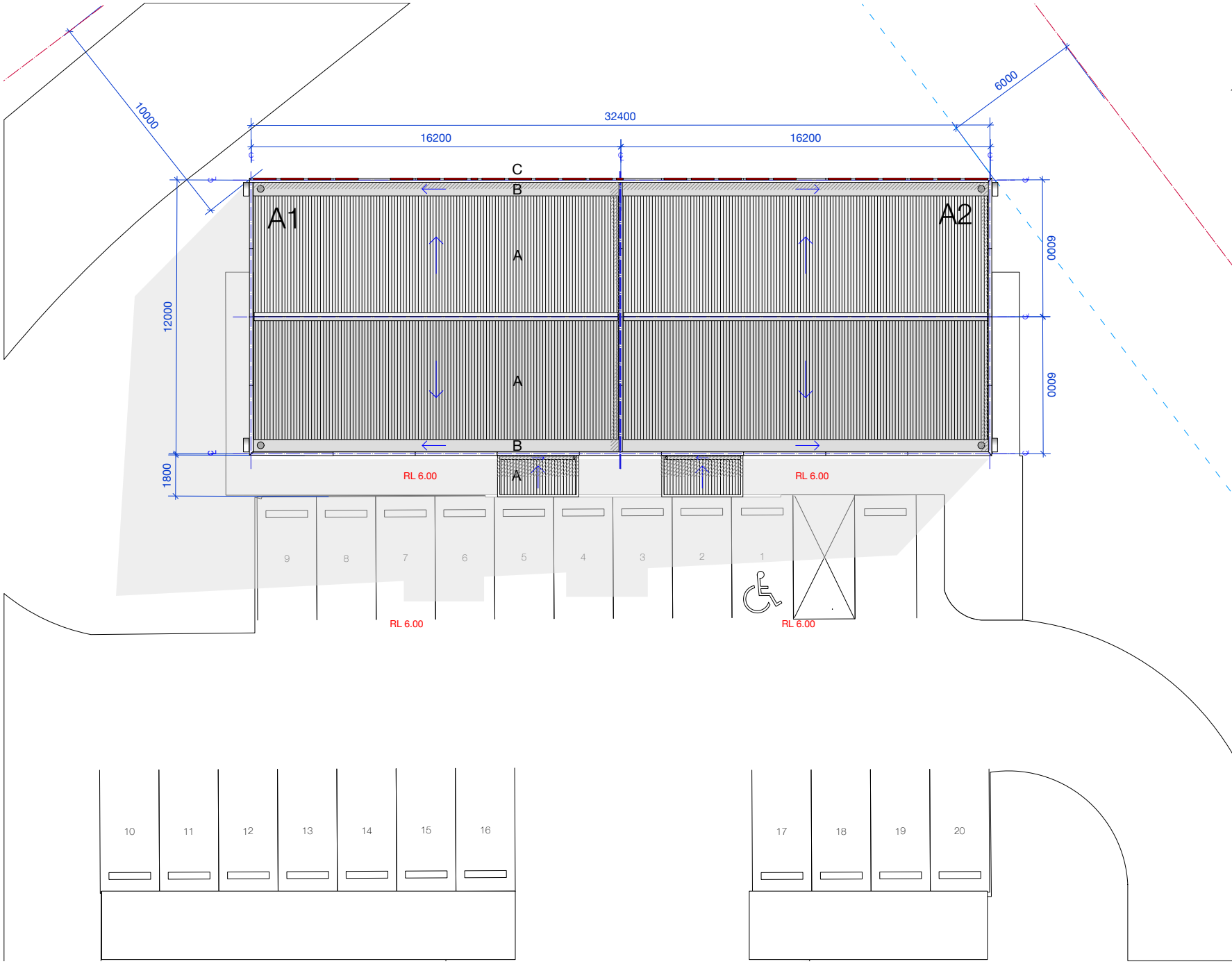

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Dodges Ferry Commercial Park

Old Forcett Rd, Dodges Ferry

Units A1&2 Roof Plan

Drawing

No.: OFR1 DA11
Date: 04 Oct 2025
Scale: 1:100 @ A2
1:200 @ A4

vF

Key

A. 'Surfmist' Colorbond @5°
B. 600 wide SS Box Gutter
C. Singage to later DA

Areas

Lot Area	2,849m²
Unit A1	189m²
Unit A2	189m²
Total	378m²

Contacts:

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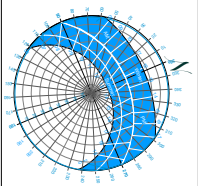
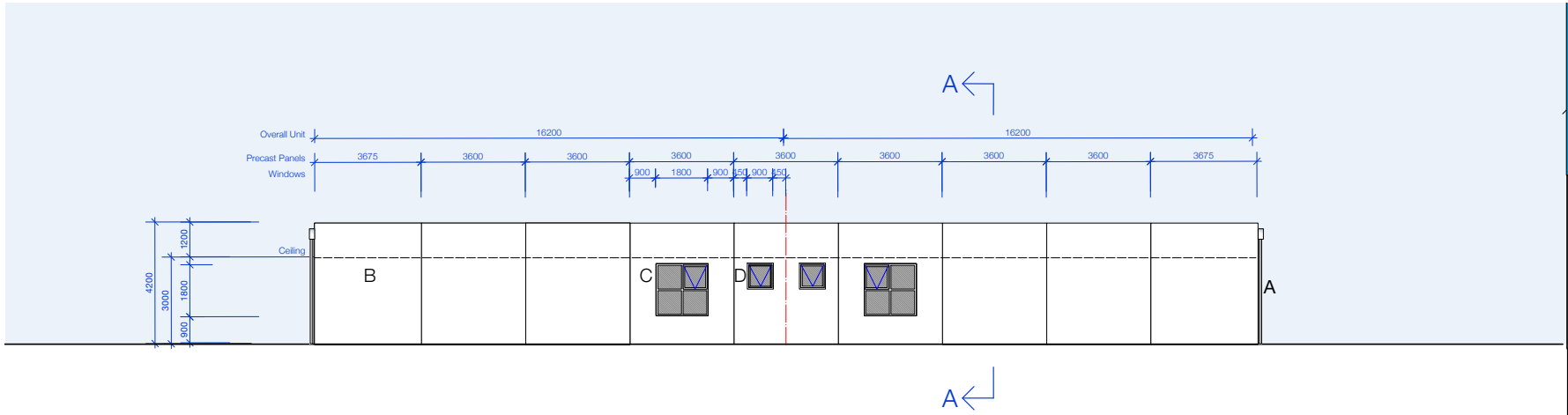
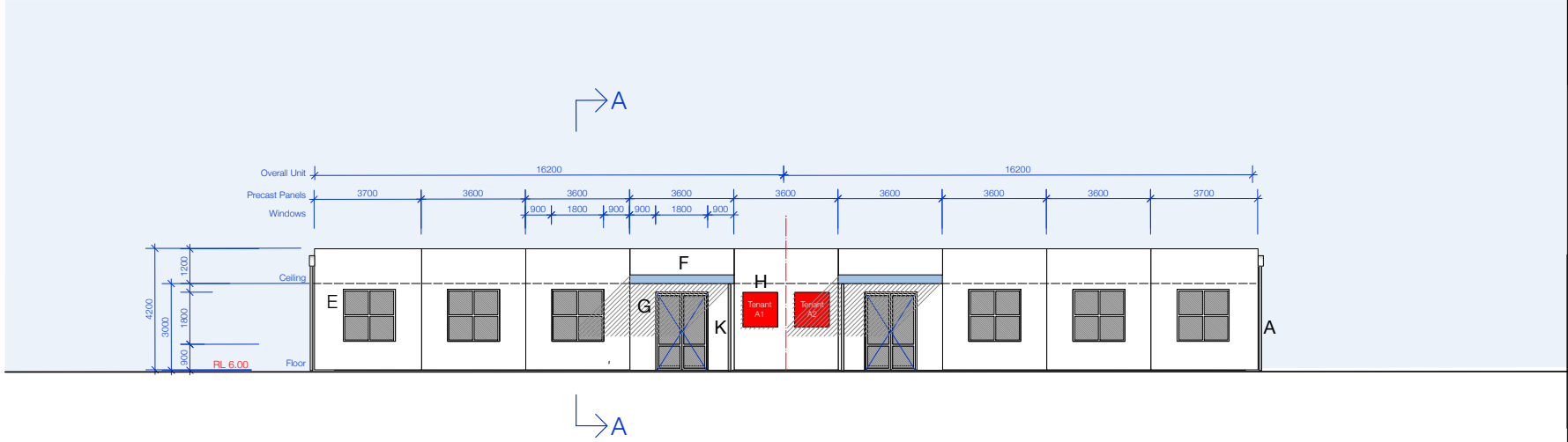




North Elevation



South Elevation

CALIBAN CONSULTING

Dodges Ferry Commercial Park

Old Forcett Rd, Dodges Ferry

Unit A1&2 N&S Elev's

Drawing

No.: OFR1 DA13
Date: 04 Oct 2025
Scale: 1:100 @ A2
1:200 @ A4

vF

Key

A. SS Downpipe
B. Precast Conc Painted White
C. Fixed Glazing, with Awning
D. Nat.Ano. Al. Awning WIndow
E. Nat.Anod. Al. Fixed Glazing
F. MS Canopy 'Sky Blue' Paint
G N/A Glazed Hinged Doors
H. Tenant Signage

Areas

Lot Area	2,849m²
Unit A1	189m²
Unit A2	189m²
Total	378m²

Contacts:

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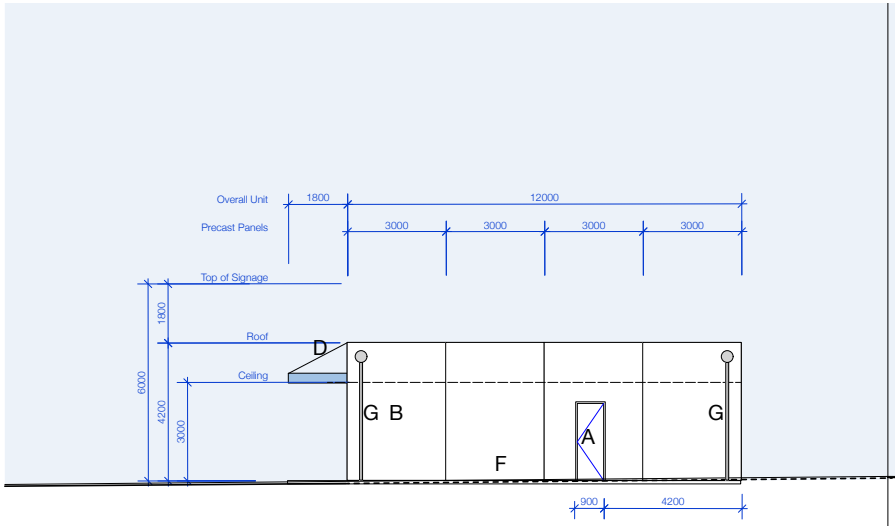
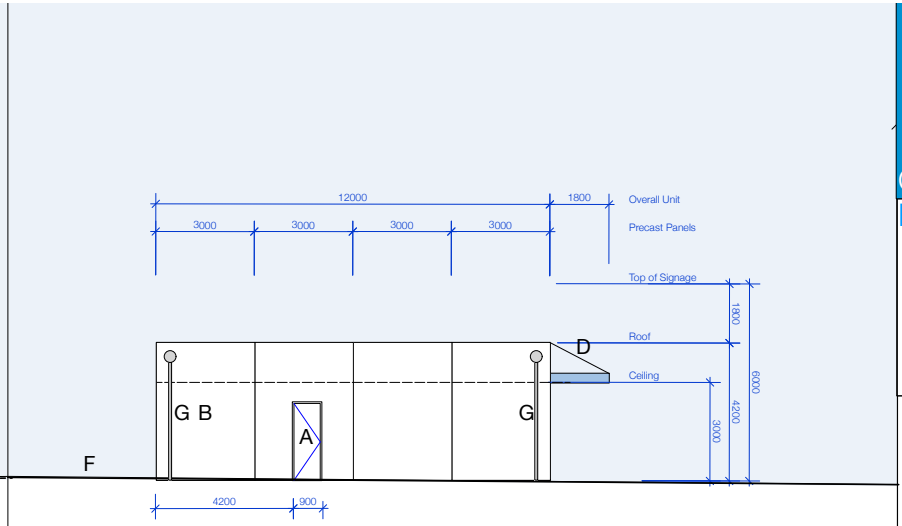
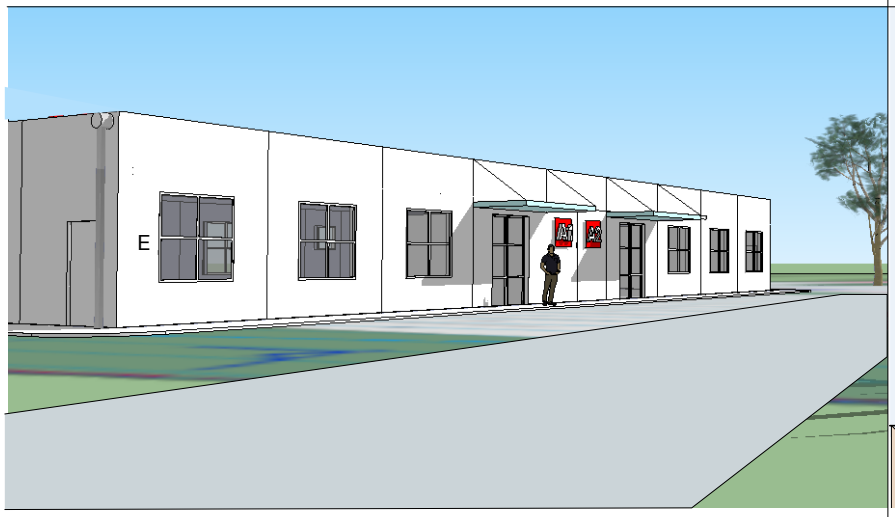


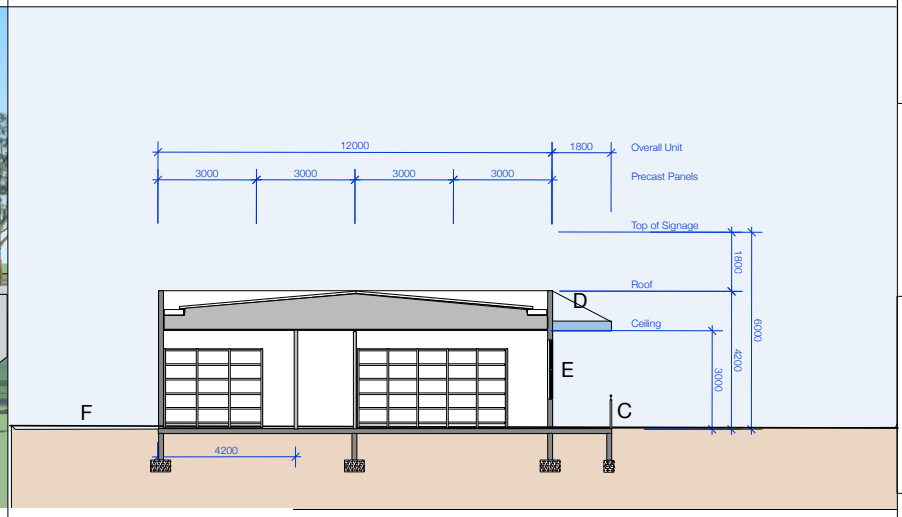
East Elevation



West Elevation



View from the West



Section AA

CALIBAN CONSULTING

Dodges Ferry Commercial Park

Old Forcett Rd, Dodges Ferry

Units A1&2 E/W Elev's

Drawing

No.: OFR1 DA12
Date: 04 Oct 2025
Scale: 1:100 @ A2
1:200 @ A4

vF

Key

A. SC Door, painted white
B. Precast Conc Painted White
C. SS Railing to AS1428.1
D. MS Canopy 'Sky Blue' Paint
E. Nat.Anod. Al. Fixed Glazing
F. Existing ground level
G. SS Downpipes

Areas

Lot Area	2,849m²
Unit A1	189m²
Unit A2	189m²
Total	378m²

Contacts:

Architect: John Lewis
Board of Architects of Tasmania No. 1134
Tasmanian Architect License 927751479
Caliban Consulting Pty Ltd

john.lewis@vetica.net
P.O. Box 219, Orford,
Tasmania, 7190
0418 445 313

THIS PLAN WAS PREPARED FOR PRELIMINARY DISCUSSION ONLY AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE.

OKINES ROAD

ALBERT COURT

OKINES BEACH ROAD

FORCETT ROAD

OLD CARLTON RIVER ROAD

EXISTING RIGHT OF WAY 6.00 WIDE

1. 2. 3. 4. 5.

GPT

SEE SHEET 2 FOR DETAILS

CONNECT TO EXISTING COUNCIL SYSTEM

531 OLD FORCETT ROAD, DODGES FERRY

LOT 6
BALANCE
±59.76ha

STAGING

STAGE 1: LOT 6 & SUPER LOT OF LOTS 1, 2, 3, 4, 5 AND NEW ACCESS

STAGE 2: LOTS 1, 2, 3, 4, 5

Notes:

All dimensions and areas are approximate only and subject to survey.

PROPOSED SUBDIVISION (6 LOTS)

LOT 1 OLD FORCETT ROAD DODGES FERRY
C.T.119465/1

N

Woolcott LAND SERVICES
10 Goodman Court Invermay TAS 7248
PO Box 593 Mowbray Heights TAS 7248
Phone (03) 6332 3760
Fax (03) 6332 3764
Email: enquiries@woolcott.au

Job Number H191003

Drawn	File name	Date	Scale	Edition	Sheet
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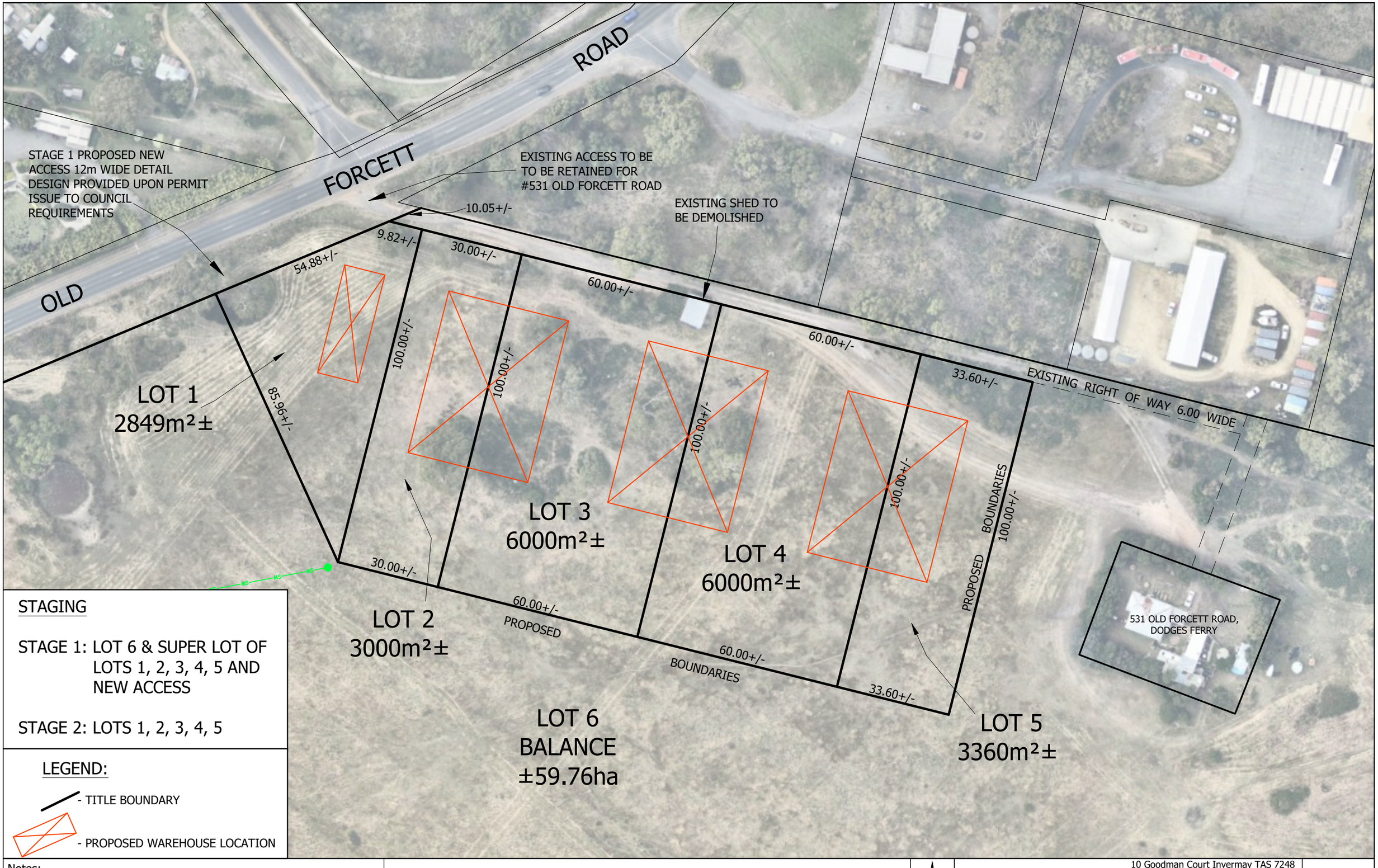

STAGING

STAGE 1: LOT 6 & SUPER LOT OF LOTS 1, 2, 3, 4, 5 AND NEW ACCESS

STAGE 2: LOTS 1, 2, 3, 4, 5

LEGEND:

- TITLE BOUNDARY
- PROPOSED WAREHOUSE LOCATION

Notes:

All dimensions and areas are approximate only and subject to survey.

PROPOSED SUBDIVISION (6 LOTS)

LOT 1 OLD FORCETT ROAD DODGES FERRY

C.T.119465/1

N

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Job Number	Drawn	File name	Date	Scale	Edition	Sheet
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