32-34 Georges Bay Esplanade
St Helens Tasmania 7216
T: 03 6376 7900 | ABN 96 017 131 248

Break O'Day COUNCIL

Development Applications

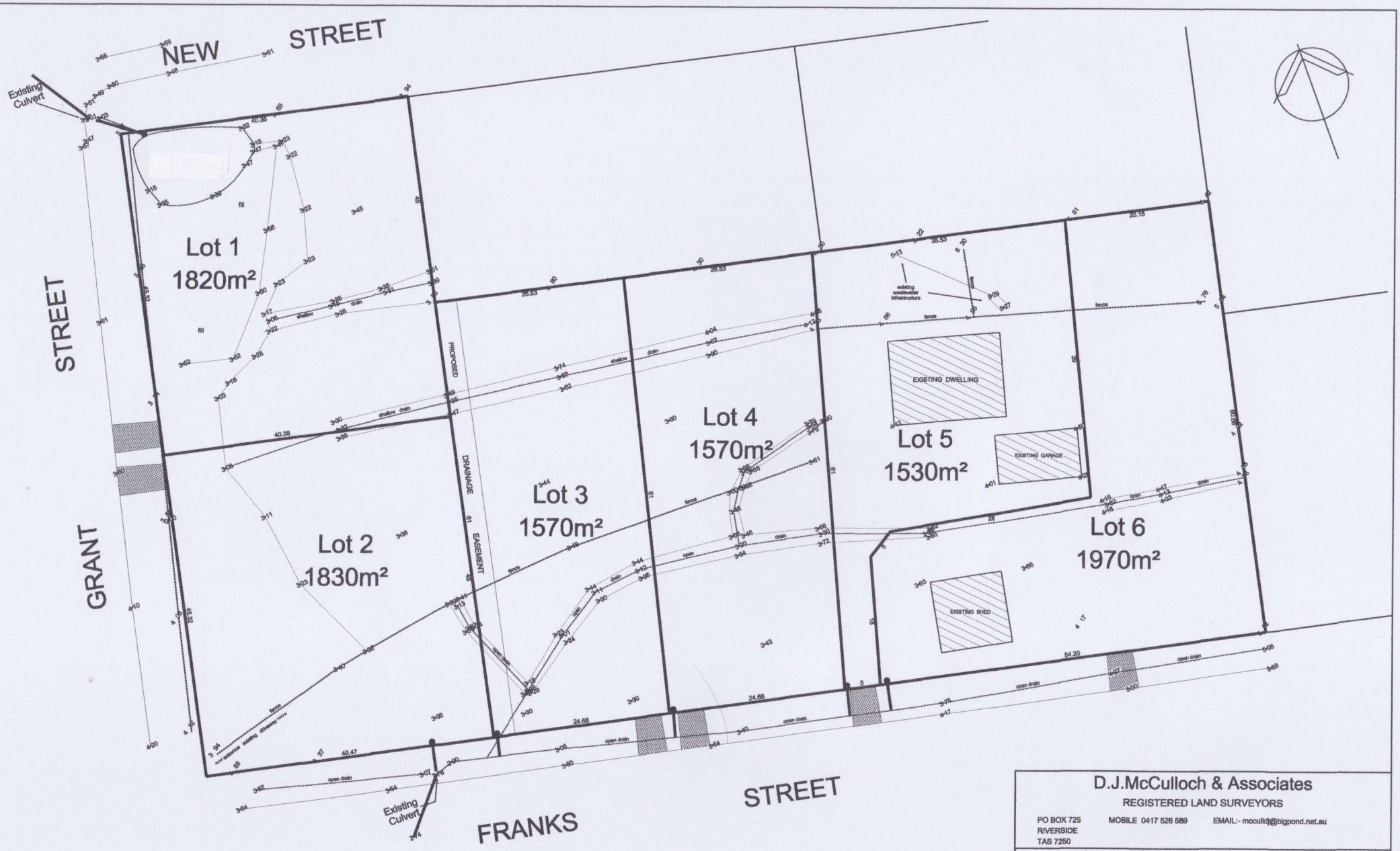
Notice is hereby given under Section 57(3) of the *Land Use Planning & Approvals Act 1993* that an application has been made to the Break O' Day Council for a permit for the use or development of land as follows:

DA Number	DA 2024 / 00134
Applicant	Chris Triebe and Associates Town Planning Services
Proposal	Subdivision - 6 Lot Subdivision
Location	70 Grant Street, Falmouth (CT 164048/100)

Plans and documents can be inspected at the Council Office by appointment, 32 – 34 Georges Bay Esplanade, St Helens during normal office hours or online at www.bodc.tas.gov.au.

Representations must be submitted in writing to the General Manager, Break O'Day Council, 32 -34 Georges Bay Esplanade, St Helens 7216 or emailed to admin@bodc.tas.gov.au, and referenced with the Application Number in accordance with section 57(5) of the abovementioned Act during the fourteen (14) day advertised period commencing on Saturday 16th May 2026 **until 5pm Friday 29th May 2026.**

John Brown
GENERAL MANAGER



NOTES
ALL DIMENSIONS & AREAS ARE SUBJECT TO THE FINAL TITLE SURVEY

D.J.McCulloch & Associates
REGISTERED LAND SURVEYORS
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PROPOSED SUBDIVISION
70 GRANT STREET, FALMOUTH
LAND OWNER - 70 GRANT STREET PTY LTD
TITLE REFERENCE - F/R 164048/100
PLAN PURPOSE : DEVELOPMENT APPLICATION FOR PLANNING PERMIT
PLANNING AUTHORITY - BREAK O'DAY COUNCIL

SCALE 1: 500 (A3)	D.McCulloch 17/07/2024	Plan Number	
Job No. 1926-2411	Registered Land Surveyor Date	1124-01DA	

Written Submission Addressing the *Tasmanian Planning Scheme – Break O'Day*

for a

6-Lot Residential Subdivision and removal of some existing outbuildings

at

70 Grant Street, Falmouth, 7215

70 Grant Street, Falmouth

20 July 2024

as amended 08 January 2025, 22 September 2025 and 15 April 2026

Written and submitted by:

Chris Triebe BBus (MarMgt)Hons, GradDip Env&Plan of

Chris Triebe & Associates Town Planning Services Limited

PO Box 313 St Helens Tasmania 7216

0417 524 392

CONTENTS

FIGURES

1. INTRODUCTION

1.1 Report Overview

Mr and Mrs Shane and Fiona Voorham as directors of 70 Grant Street Pty Ltd engaged Chris Triebe and Associates Town Planning Services to prepare and submit a development application for the creation of a 6-lot residential subdivision. The lots will consist in sizes ranging from approximately 1,530m^2 to 1970m^2, with the existing buildings located in the eastern Lots 5 and 6. The partially serviced development site is zoned Low Density Residential under the current Planning Scheme, with the existing dwelling and outbuildings surrounded by grass maintained in a mown/slashed state.

This application will retain the existing Residential Use and does not propose the construction or demolition of any buildings. However, the smaller outbuildings as well as the 2 shipping containers and associated roofing will be removed from the site. The purpose of this report is to demonstrate compliance with the *Tasmanian Planning Scheme – Break O'Day* and the *Break O'Day Local Provisions Schedule* (the Planning Scheme) as well as the *Land Use Planning and Approvals Act 1993* (the Act), the *Local Government (Building and Miscellaneous Provisions) Act 1993* and all relevant State legislation.

2. DEVELOPMENT SITE

2.1 Ownership and Title Information

The development site is in the name of 70 Grant Street Pty Ltd, recognised as Certificate of Title 164048 Folio 100 and PID 3191738. The current Folio Plan shows the Title encapsulates approximately 1.03 hectares. A recent copy of the Company Extract is attached demonstrating Mr and Mrs Voorham's connection to that company, the company's registered address as 21 Barrack Street, Deloraine, Tasmania 7304 and the principal place of business as 25B Morrison Street, Falmouth, Tasmania 7215. The current fourth edition of the Folio Text was issued 25 January 2023 while the date upon which the Sealed Plan became effective is 01 June 2012.

2.1.1 Benefitting and Burdening Easements

Schedule 2 of the Folio Text identifies the following:

- SP 164048 Fencing Provision;
- 22/4290 Conveyance made Subject to Boundary Fences Condition; and
- 107542 Boundary Fences Condition in Transfer: this is the Memorandum of Transfer 09^{00}hrs on 24 April 1945 between Mr RG Douglas, as Vendor and Mr W Singline the Younger, as Purchaser and stipulates the conditions of that Contract of Sale.

There are no unregistered dealings or other notations.

2.2 Development Site

The 'L'-shaped, slightly sloping, unserviced and fenced property of approximately 10,300m^2 fronts New, Grant and Frank Streets. The existing property access is via an existing crossover

constructed on the south-western boundary corner of Grant and Frank Streets though the primary frontage is New Street. The development site is surrounded by Titles that are similarly zoned Low Density. The amended site plan drawn by Mr Dallas McCulloch of D J M^{c}Culloch Surveying dated 09 December 24 and identified as Job Number 1926-2411 and Plan Number 1924—01.1DA demonstrates the current property slopes down from the 6.42m contour at the north-eastern boundary corner, to the 3.03m contour near the south-western boundary corner of Lot 1.

The existing Title is not burdened by any drainage easements or Restrictive Covenants though has a Fencing Provision stating the original subdividers Messers David and Murray Schier, are not required to fence.

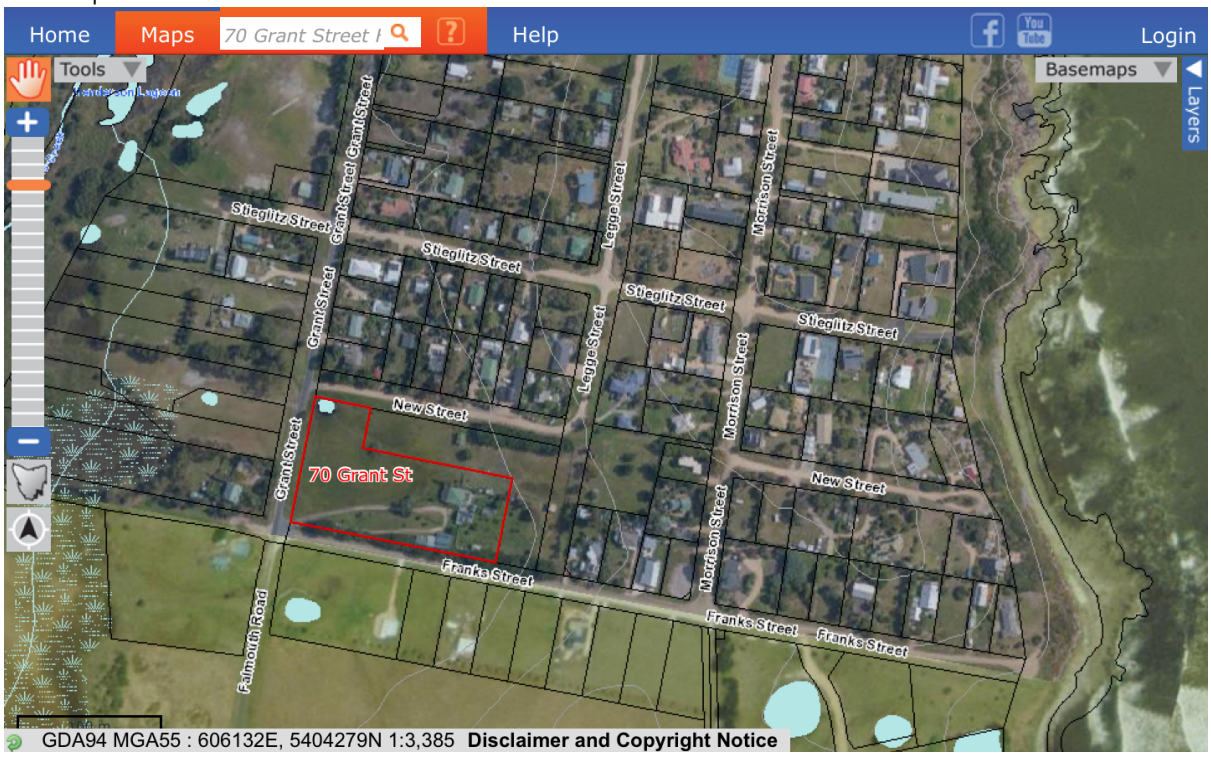

Figure 1: LISTmap image showing existing pattern of subdivision

2.3 Existing Use and Development

The Property Information Report notes the site contains an existing single storey, 2 bedroom, imitation tile and brick clad dwelling with deck of approximately 158m^2, a garage of 80m^2 as well as a number of smaller garden sheds beside the dwelling. Two shipping containers with a roof are located beside the existing large outbuilding and beside the Franks Street boundary. The property is maintained in a mown state.

The site is not serviced by any reticulated water or sewer systems while power is connected via an overhead cable from the pole beside the south boundary and within the New Street road reserve. An underground telephone line runs inside and roughly parallel with the existing western Title boundary. A review of the NBN website confirms the site is connected via nbn® Fixed Wireless (https://www.nbnco.com.au/learn/rollout-map?lat=-41.3333291&lng=148.2569464&addressString=8%20Atlas%20Drive,%20Saint%20Helens%20TAS,%20Australia&addressCategory=HOME&zoom=16 viewed 13^{05}hrs 19 July 2024)

2.4 Legislation

The application is for the creation of a 6-lot residential subdivision and removal of existing outbuildings; any use or development of land for which a Planning Scheme applies, requires the issuance of a Planning Permit unless a valid permit exists for those works. The *Land Use Planning and Approvals Act 1993* (the Act): defines 'use' "…[with] relation to land, includes the manner of utilising land but does not include the undertaking of development…" this proposal therefore requires the issuance of a Planning Permit.

The application will also require assessment against the *Local Government (Building & Miscellaneous Provisions) Act 1993*. In particular, the Clauses of PART 3 – Subdivisions, Division 1 – Interpretation; Section 80 is applicable because subsection (3) states:

"…For the purpose of determining whether any land constitutes a block for subdivision purposes, a block is –

(a) the whole of an existing lot on a plan lodged with the Recorder of Titles or the Registrar of Deeds not later than 12 months after the date of commencement of the *Land Use Planning and Approvals Act 1993*; or

(b) the whole of an original Crown grant; or

(c) the whole of the land that is identified by description in a folio of the Register kept under the *Land Titles Act 1980*; or

(d) the whole of the land that is identified by description in a deed; or

(e) a fragmented or subdivided portion of land referred to in this subsection that can be verbally identified for transfer, or retention in the folio of that Register, by description of any other blocks in that folio..."

This proposal complies with (3)(c) above, because the existing site is identified as Certificate of Title 18411 Folio 9, a folio of the Register kept under the *Land Titles Act 1980*.

Furthermore, Division 2 - Plans of subdivision Section 81 Subdivision states:

(1) An owner of land must not subdivide the land except in accordance with –
  (a) a previously approved plan; or
  (b) a plan of subdivision which has been approved by the granting of a permit under the *Land Use Planning and Approvals Act 1993*.

In accordance with the above subclause (b), the site plan drawn by Dallas M^{c}Culloch is submitted with this application.

2.5 Proposal

This development application is for the creation of a 6-lot residential subdivision. The lots will consist in sizes ranging from approximately 1,530m^2 to 1970m^2, with the existing buildings located within the eastern Lots 5 and 6. The predominantly unserviced development site is zoned Low Density Residential under the current Planning Scheme, with the existing dwelling and outbuildings located toward the eastern and southern Title boundaries; the whole site is maintained in a mown/slashed state. Figure 2 below indicates the 7 outbuildings that will be removed prior to the future development of proposed lot 4, 5 and 6.

Future Lot 1 will have a primary frontage to New Street and a secondary frontage to Grant Street. Lot 2 will have a primary frontage to Frank Street and secondary frontage to Grant Street while Lots 3, 4, 5 and 6 will have sole frontages to Frank Street only. In accordance with the Break O'Day Council Policy No AM02 *Public Open Space Contributions Policy*, the developers will request a payment of cash in lieu for the physical provision of public open space in accordance with Section 117 (2) of the *Local Government (Building and Miscellaneous Provisions) Act 1993*.

This response has been written with reference to the reports and documents submitted with the application, addressing the requirements of the *Tasmanian Planning Scheme – Break O'Day* and the *Break O'Day Local Provisions Schedule*, the Planning Scheme applicable to the Break O'Day municipality.

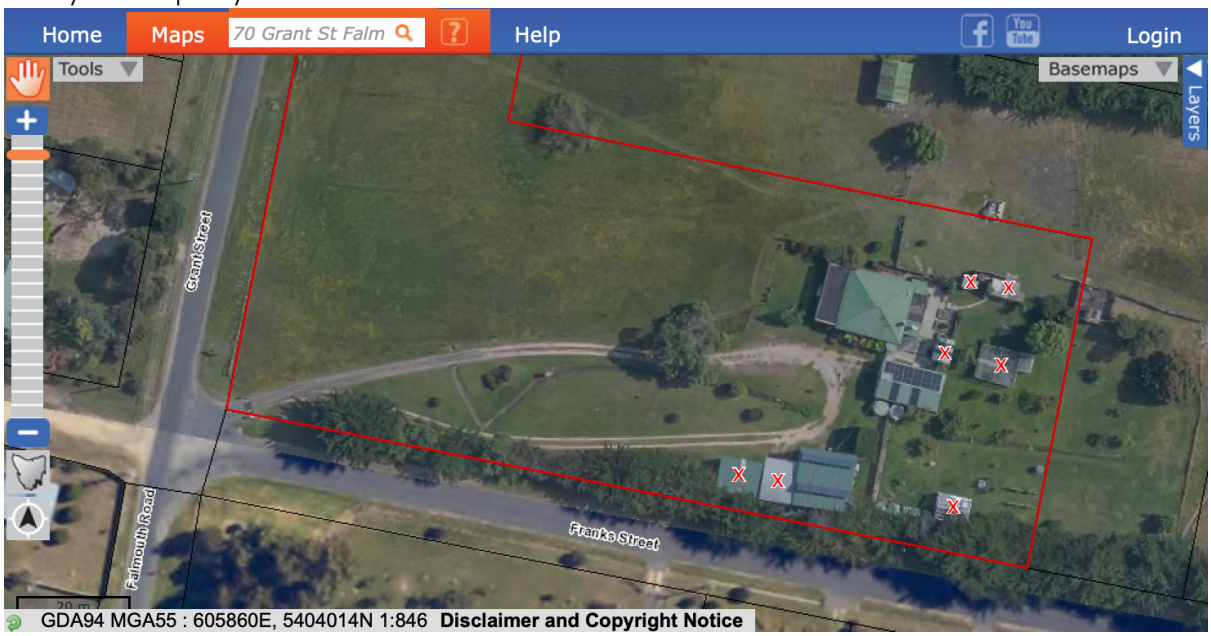

Figure 2: showing buildings to be removed

2.6 Discretions

The application is discretionary on the following Clauses:

10.6.1 P1 Lot design – not contain a 15m by 10m area with side boundary setbacks
10.6.1 P1 Lot design – frontage less than 20m
10.6.3 P2 Services – site not serviced by reticulated sewerage infrastructure
C12.7.1 P1 Subdivision within a flood-prone hazard area – unable to locate building areas, vehicle access or services fully outside flood-prone hazard areas;

3. ZONE

3.1: 10.0 Low Density Residential Zone

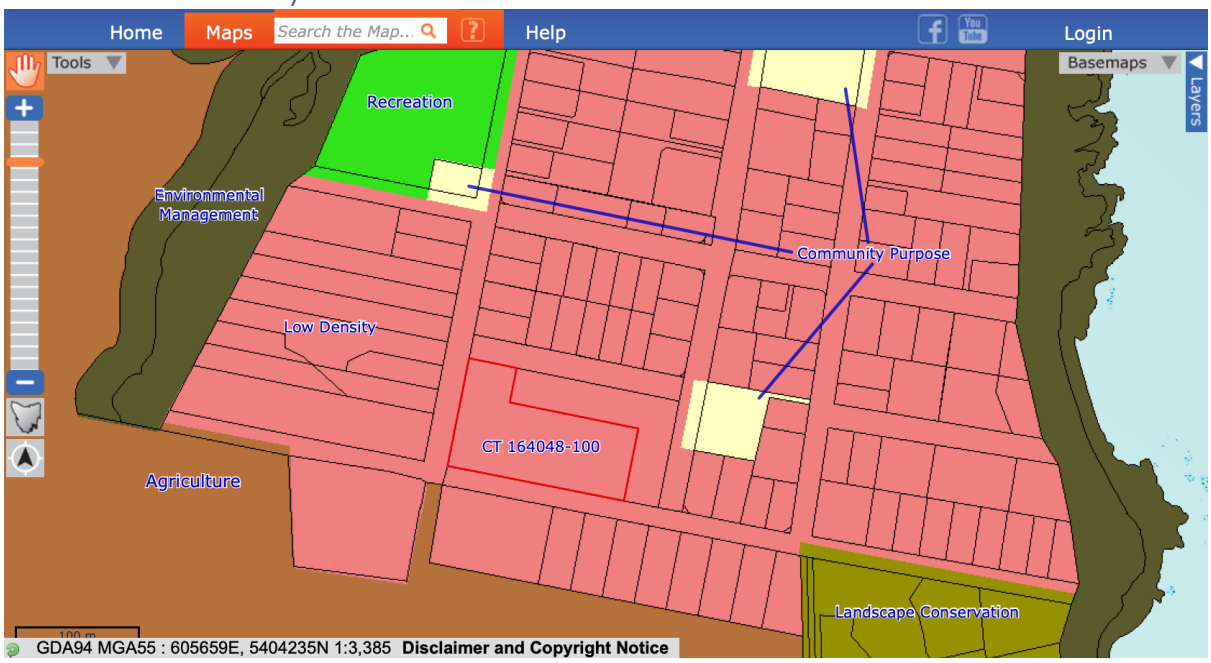

Figure 3: LISTmap image showing current zoning

10.1 Zone Purpose

The purpose of the Low Density Zone is:

10.1.1. To provide for residential use or development in residential areas where there are infrastructure or environmental constraints that limit the density, location or form of development.

10.1.2 To provide for non-residential use that does not cause an unreasonable loss of amenity, through scale, intensity, noise, traffic generation and movement, or other off site impacts.

10.1.3 To provide for Visitor Accommodation that is compatible with residential character.

10.2 Use Table

In accordance with this Use Table, the proposed subdivision for Residential use is deemed a qualified No Permit Required Use if for a single dwelling.

10.3 Use Standards

10.3.1 Discretionary uses

Objective: That Discretionary uses do not cause an unreasonable loss of amenity to adjacent sensitive uses.

Not Applicable

In accordance with Use Table 10.2, the Residential Use for a single dwelling only is a qualified No Permit Required Use.

10.4 Development Standards for Dwellings

Not applicable

The application is for the creation of a 6-lot residential subdivision only and does not propose any development, ensuring this Clause is not applicable.

10.5 Development Standards for Non-dwellings

Not applicable

The application is for the creation of a 6-lot residential subdivision only and does not propose any development.

10.6 Subdivision

10.6.1 Lot design

Objective: To ensure:

(a) has an area and dimensions appropriate for use and development in the zone;
(b) is provided with appropriate access to a road; and
(c) contains areas which are suitable for residential development

P1 – Performance Criterion

The amended site plan drawn by Dallas McCulloch and dated 09 December 2024 confirms each lot proposed in the plan of subdivision will exceed 1,500m^2 and contain an area of 10m by 15m. The application is discretionary because the proposed Lots 3, 4 and 6 will be unable to provide the necessary boundary setbacks, the subdivision is not for a public use by the Crown, a Council or State Authority, the provision of Utilities or for the consolidation of one lot with another. However, this proposal will be suitable for the continued Residential Use having regard to the following:

(a) the relevant requirements for development of buildings on the lots: this application is proposing the subdivision of the existing Title only. Although not all proposed lots will be able to contain the 10m by 15m with the necessary setbacks, each lot exceeds the minimum 1,500m^2 acceptable solution. This means adequate space will be available for suitable vehicular access and manoeuvring and private open space. The report provided by Enviro-Tech Consultants Pty Ltd dated 07 May 24 and amended June 24 confirms the ground is suitable for the on-site discharge of both waste and stormwater;

(b) the intended location of buildings on the lots: the application is discretionary on this subclause because the subdivision is not for a government agency, the provision of Utilities or for the consolidation of 2 or more Titles. This application does not propose the construction of any buildings though each lot proposed is larger than the minimum acceptable solution 1,500m^2. As this is a residential subdivision, the building area provided on each lot, will enable a dwelling to be constructed. For this reason, it is put to the Planning Authority each lot proposed in this application will have an

adequate area on which future developers may construct buildings associated with the existing Residential Use;

(c) the topography of the site: the existing and unserviced Title is cleared of standing vegetation and maintained in a mown state. In addition, the site has a gentle down slope from the north-eastern boundary corner to the north-western boundary corner. The documents accompanying this report confirm the existing topography of the site will not prevent habitable buildings and those appurtenant to, from being built;

(d) adequate provision of private open space: the site plan supporting this report confirms each proposed Title will have an area greater than the minimum 1,500m^2 acceptable solution, ensuring future developers of the individual Titles will have adequate areas to provide private open space;

(e) the pattern of development existing on established properties in the area: Figure 3 below demonstrates existing residential subdivisions in yellow as well as 2 recently approved in orange near to the development site. Those shown were approved under previous Planning Schemes and therefore encompass smaller areas than that proposed in this application; and

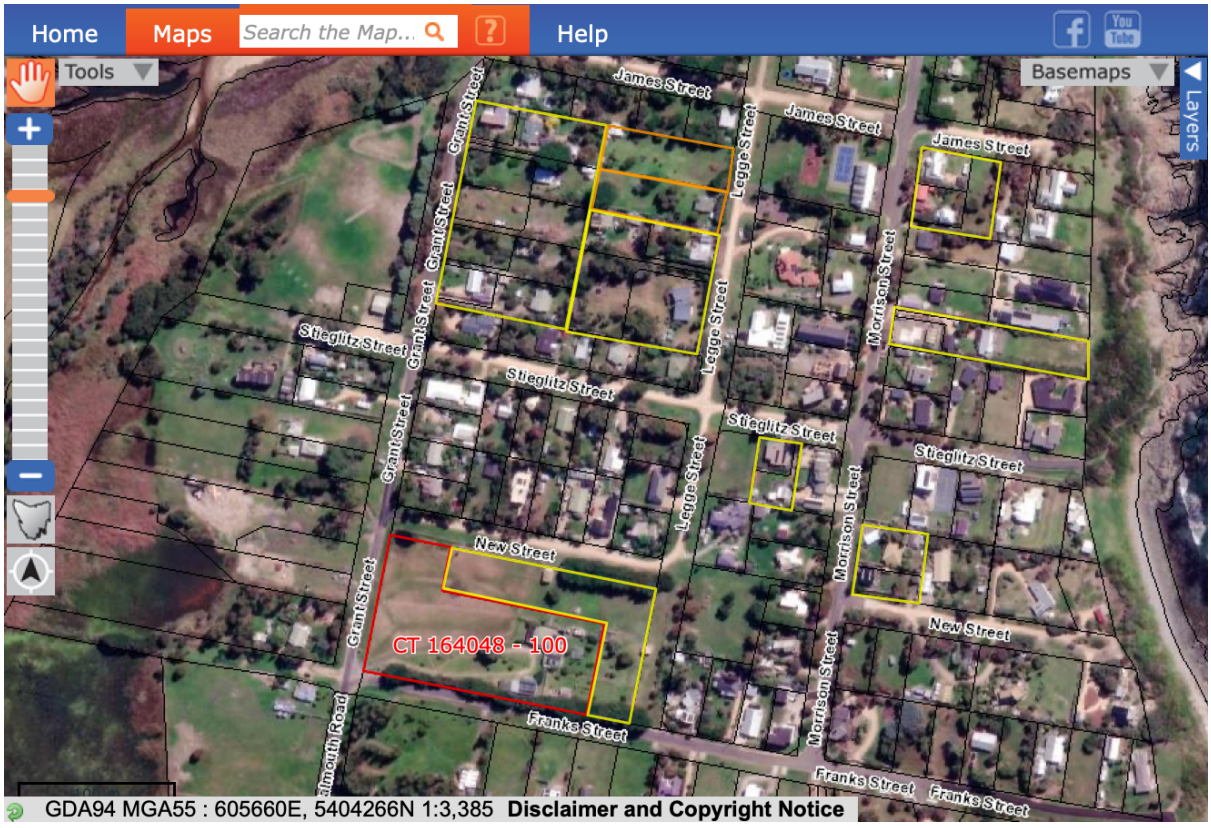

Figure 4: LISTmap image showing existing subdivisions near the development site

(f) any constraints to development: a review of the Planning Scheme mapping indicates the existing Title is not burdened by any overlays and the amended Geotechnical Investigation report has assessed the soil profile for the potential disposal of water within the site. This report has also assessed each lot for future on-site stormwater management and confirmed each lot will be suitable for the future construction of a dwelling. In a pre-emptive email to the Regulated Entity dated 15 May 2024, the Senior Development Assessment Officer confirmed the site is not serviced by any

reticulated water systems; Council may still refer this application during their assessment. Therefore, the development site does not contain any known constraints to development and each lot exceeds 1,200m^2. This proposal complies with this discretion.

P2 – Performance Criterion

The application is discretionary on this subclause because the primary frontage proposed for Lot 5 will have a maximum 5m width while the frontages for the remaining Titles are between 24.68m and 54.2m

The reduced Lot 5 frontage width still ensures each lot proposed on the plan of subdivision, excluding for public open space, a riparian or littoral reserve or Utilities, has been provided with a frontage or legal connection to a road by a right of carriageway, that will be sufficient for the intended use, having regard to the following:

(a) the width of frontage proposed, if any: all lots proposed in this subdivision are for Residential Use only. The provision of a single frontage with a minimum width of 5m ensures a variety of privately owned vehicles normally associated with a Residential Use including SUV, sports cars or utilities towing caravans, may still access the property. In addition, this minimum width complies with that required by emergency vehicles;

(b) the number of other lots which have the land subject to the right of carriageway as their sole or principal means of access: Lot 5 is the only internal lot in the proposed subdivision, with the axe-handle providing access only for Lot 5 off Franks Street. Lots 3, 4 and 6 will also have their crossovers onto Franks Street while Lots 1 and 2 will be accessed off Grant Street; the remaining lots all have frontages in excess of 20m;

(c) the topography of the site: the existing and unserviced Title is maintained in a mown state and while cleared of standing vegetation, has an established row of Macrocarpa pines planted inside the existing southern Title boundary. These trees will be removed at some point in the future. The garden surrounding the dwelling contains ornamental shrubs. The site has a gentle down slope from the north-eastern boundary corner to the north-western boundary corner. The topography of the site will not adversely impact the sight distances of any of the crossovers being constructed in the proposed locations;

(d) the functionality and useability of the frontage: Franks Street is a recently sealed through road provided with an open swale drain between it and the future primary frontages of Lots 2, 3, 4, 5 and 6. It is put to the Planning Authority, the functionality of the frontages of the future and aforementioned lots will be improved by the sealed road while a suitable crossover with culvert pipe may be constructed in accordance with the relevant Tasmanian Standard Drawing. The crossovers have been appropriately located on Lots 3, 4, 5 and 6 to ensure the longer-term useability of these frontages are maintained;

(e) the ability to manoeuvre vehicles on the site: the site plan submitted with this report shows the 5m frontage continues through the 'throat' leading to the internal part of Lot 5 where it extends for approximately 18m before widening. Although this lot will encompass approximately 1,530m^2, the almost square area with the existing garage and shed encompasses approximately 1,420m^2. Therefore, adequate space will be available within this proposed Title to enable vehicles of a size normally associated with a Residential Use, to manoeuvre on-site to enter and leave in a forward direction; and

(f) the pattern of development existing on established properties in the area and is not less than 3.6m wide: as may be viewed in Figure 4 above, at least 11 established properties in the area have frontages less than 20m that are similar to that proposed for Lot 5. These properties include 92, 96, 100 Grant Street, 34 James Street, 38, 44 and 65 Legge Street, 29 Morrison Street and 48 Stieglitz Street. 32 and 34 Franks Street are not shown in the above Figure. However, all these frontages are greater than 3.6m in width.

This demonstrates compliance with this discretion.

A3 – Acceptable Solution

The site plan submitted with this report confirms each lot proposed in the plan of subdivision, will be provided with a vehicular access from the boundary of the lot to either Franks or Grant Streets. The crossovers will be constructed in accordance with the requirements of the Road Authority.

10.6.2 Roads

Objective: That the arrangement of new roads within a subdivision provides:

(a) the provision of safe, convenient and efficient connections to assist accessibility and mobility of the community;
(b) the adequate accommodation of vehicular, pedestrian, cycling and public transport traffic; and
(c) the efficient ultimate subdivision of the entirety of the land and of surrounding land.

A1 – Acceptable Solution

The submitted site plan confirms the proposed subdivision neither requires nor proposes the construction of any new roads.

10.6.3 Services

Objective: That the subdivision of land provides services for the future use and development of the land.

A1 – Acceptable Solution

The development site is located approximately 3.2 kilometres south-east of CT 61951 Folio 1 or 23170 Tasman Highway, Scamander, the southern-most Title serviced by the Scamander Water Scheme. This ensures each proposed lot in this plan of subdivision is unable to:

(a) be connected to a full water supply service if the frontage of the lot is within 30m of a full water supply service; or
(b) be connected to a limited water supply service if the frontage of the lot is within 30m of a limited water supply service.

However, the preliminary emailed response from the Regulated Entity accompanying this application advised the following:

"*TasWater has assessed the application and has determined that the proposed development does not require a submission from TasWater, as the proposed development will not;*

a. Increase the demand for water supplied by TasWater; or

b. *Increase the amount of sewage or toxins that is to be removed by, or discharged into, TasWater sewerage infrastructure; or*
c. *Damage or interfere with TasWater works; or*
d. *Adversely affect TasWater operations*."

This complies with this acceptable solution.

P2 – Performance Criterion

The application is discretionary on this subclause due to Falmouth not being serviced by a reticulated sewerage system. However, the submitted Geo-Environmental Solutions On-Site Wastewater Assessment authored by Dr JP Cumming and dated July 2025 confirmed each lot proposed in this plan of subdivision, excluding for public open space, a riparian or littoral reserve or Utilities, is capable of accommodating an on-site wastewater treatment system adequate for the future use and development of the land.

Figure 5: Western and eastern views along existing stormwater disposal in Frank Street including headwall

A3 – Acceptable Solution

Franks, Grant and New Streets are each serviced by existing open stormwater spoon drains. The submitted site plan has shown an outlet from each proposed lot, into the open spoon drain running along Franks Street. This is in accordance with Section 2 of Council's Asset Management Policy *AM05 Stormwater Connection*. It is put to the Planning Authority this would be the preferred option due to the submitted Geotechnical Site Investigation demonstrating the proximity of the water table, to ground level. The removal of potential stormwater runoff from future buildings on the proposed lots will provide more area for the on-site disposal of future wastewater;

4. CODES

The Planning Scheme Overlay Maps were reviewed 14 May 2024 and showed the development site is not burdened by any overlays.

C1.0Signs Code

Not Applicable

C1.1 Code Purpose

The purpose of the Signs Code is:

C1.1.1: To provide for appropriate advertising and display of information for business and community activity.

C1.1.2: To provide for well-designed signs that are compatible with the visual amenity of the surrounding area.

C1.1.3: To ensure that signage does not disrupt or compromise safety and efficiency of vehicular or pedestrian movement.

C1.2 Application of this Code

C1.2.1: Unless otherwise stated in a Particular Purpose Zone, this Code applies to all development for signs, unless the following clauses apply:

(a) C1.4.2; or

(b) C1.4.3.

C1.2.2: This Code does not apply to Use.

C1.4 Development Exempt from this Code

A number of exemptions are listed in this Clause as well as Table C1.4 Exempt Signs. Due to the extensive list, they have not been listed though have been reviewed and are not applicable.

This application is solely seeking approval for the 6 lot residential subdivision of an existing residential lot and neither proposes nor requires the installation or alteration of any form of signage. This Code is therefore not applicable.

C2.0 Parking and Sustainable Transport Code

Not Applicable

C2.1 Code Purpose

The purpose of the Parking and Sustainable Transport Code is:

C2.1.1: To ensure that an appropriate level of parking facilities is provided to service use and development.

C2.1.2: To ensure that cycling, walking and public transport are encouraged as a means of transport in urban areas.

C2.1.3: To ensure that access for pedestrians, vehicles and cyclists is safe and adequate.

C2.1.4: To ensure that parking does not cause an unreasonable loss of amenity to the surrounding area.

C2.1.5: To ensure that parking spaces and accesses meet appropriate standards.

C2.1.6: To provide for parking precincts and pedestrian priority streets.

C2.2 Application of this Code

In accordance with C2.2.1, this Code is applicable to all Use and development unless stated otherwise in a particular purpose zone, or sub-clause C2.2.2, C2.2.3 or C2.2.4.

C2.4 Use or Development Exempt from this Code

C2.4.1: There are no exemptions to this Code.

It is put to the Planning Authority that although this Code applies to all Use and development unless otherwise listed in Subclause C2.2 above. Although this application does not propose the construction of any buildings, it does propose the placement of fill on particular parts of the property, which is defined as development by the Act. However, the required parking for the vehicles associated with the existing on-site dwelling, will not be impacted and the application for the creation of an additional 5 lots does not require additional vehicle parking. This Code has therefore not been addressed.

4.1: C3.0 Road and Railway Assets Code

This Code is applicable because 1 relocated and 5 new vehicular accesses onto Council's maintained roads, are proposed. A Traffic Impact Assessment (TIA) dated October 2024 and authored by Mr Keith Midson of Midson Traffic Pty Ltd accompanies this application.

C3.1 Code Purpose

The purpose of the Road and Railway Assets Code is:

C3.1.1: To protect the safety and efficiency of the road and railway networks; and

C3.1.2: To reduce conflicts between sensitive uses and major roads and the rail network.

C3.2 Application of this Code

C3.2.1: This Code applies to a Use or development that:

(a) will increase the amount of vehicular traffic or the number of movements of vehicles longer than 5.5m using an existing vehicle crossing or private level crossing;
(b) will require a new vehicle crossing or private level crossing;
(c) involves a subdivision or habitable building within a road or railway attenuation area if for a sensitive use.

C3.4 Use or Development Exempt from this Code

C3.4.1: There are no exemptions from this code.

C3.5 Use Standards

C3.5.1: Traffic generation at a vehicle crossing, level crossing or new junction

Objective: To minimise any adverse effects on the safety and efficiency of the road or rail network from vehicular traffic generated from the site at an existing or new vehicle crossing or level crossing or new junction.

A1.1 – Not Applicable

The development site is not on or near a category 1 road or a limited access road.

A1.2 – Acceptable Solution

As this proposal involves the relocation of an existing crossover and construction of 5 new crossovers onto category 5 roads, a letter to the Road Authority accompanies this application seeking the written consent.

A1.3 – Not Applicable

This application neither requires nor proposes a new private level crossing to serve the future subdivision.

A1.4 – Acceptable Solution

This proposal is for the creation of a 6-lot residential subdivision from the existing Title. The sole existing crossover servicing Lot 100 will be relocated while an additional 5 crossovers are proposed. It is put to the Planning and/or Road Authority, the existing crossover is servicing a single dwelling; the relocated crossover will also only service a single dwelling. This statement is based on the above response provided to 10.2 Use Table whereby this application is for a qualified No Permit Required Use and not a Discretionary Use.

A1.5 – Not Applicable

All lots proposed in this subdivision will have a frontage with sufficient width that will enable vehicles commonly associated with a Residential Use, to enter and leave either road in a forward direction.

C3.6 Development Standards for Buildings or Works

C3.6.1 Habitable buildings for sensitive uses within a road or railway attenuation area

Objective: To minimise the effects of noise, vibration, light and air emissions on sensitive uses within a road or railway attenuation area, from existing and future major roads and the rail network.

A1 – Not Applicable

This application does not propose the construction of any habitable buildings for sensitive uses.

C3.7 Development Standard for Subdivision

C3.7.1: Subdivision for sensitive uses within a road or railway attenuation area

Objective: To minimise the effects of noise, vibration, light and air emissions on lots for sensitive uses within a road or railway attenuation area, from existing and future major roads and the rail network.

A1 – Acceptable Solution

A review of the Planning Scheme Mapping demonstrates neither Frank, Grant or New Streets are located within road or railway attenuation areas.

C4.0 Electricity Transmission Infrastructure Protection Code

Not Applicable

C4.1 Code Purpose

The purpose of the Electricity Transmission Infrastructure Protection Code is:

C4.1.1: To protect use and development against hazards associated with proximity to electricity transmission infrastructure.

C4.1.2: To ensure that use and development near existing and future electricity transmission infrastructure does not adversely affect the safe and reliable operation of that infrastructure.

C4.1.3: To maintain future opportunities for electricity transmission infrastructure.

C4.2 Application of this Code

C4.2.1 This Code applies to Use or development of land within the following areas:

(a) electricity transmission corridor, and if for:
  (i) buildings or works;
  (ii) a sensitive Use contained within a building;
  (iii) Use listed in Table C4.1; or
  (iv) subdivision; and

(b) communications station buffer, and if for:
  (i) buildings or works; or
  (ii) subdivision; and

(c) substation facility buffer area, and if for:
  (i) a sensitive Use contained within a building;
  (ii) a Use listed in Table C4.1;
  (iii) buildings or works within 5m of a substation facility; or
  (iv) subdivision.

C4.4 Use or Development Exempt from this Code

The exemptions listed under subclause C4.4.1 was reviewed though not applicable.

In accordance with C4.2.1 the development site is not located within an electricity transmission corridor, a communications station buffer area or a substation facility buffer area as shown on a Planning Scheme map. This Code is therefore not applicable to this application.

C5.0 Telecommunications Code

Not Applicable

C5.1 Code Purpose

The purpose of the Telecommunications Code is:

C5.1.1: To provide for telecommunication networks as a service for the community.

C5.1.2: To ensure that facilities are co-located where practicable.

C5.1.3: To ensure that facilities use mitigation measures to avoid an unreasonable loss of visual amenity.

C5.2 Application of this Code

C5.2.1: Unless otherwise stated in a particular purpose zone, this Code applies to all development for telecommunication facilities.

C5.2.2: This Code does not apply to use.

C5.4 Use or Development Exempt from this Code

C5.4.1: There are no exemptions from this Code.

Not Applicable

This application does not propose development for telecommunication facilities ensuring this Code is not applicable.

C6.0 Local Historic Heritage Code

Not Applicable

C6.1 Code Purpose

The purpose of the Local Historic Heritage Code is:

C6.1.1: To recognise and protect:

(a) the local historic heritage significance of local places, precincts, landscapes and areas of archaeological potential; and

(b) significant trees.

C6.1.2: This Code does not apply to the Aboriginal heritage values.

C6.2 Application of this Code

C6.2.1: This Code applies to:

(a) development on land within any of the following, as defined in this Code:

(i) a local heritage place;
(ii) a local heritage precinct;
(iii) a local historic landscape precinct; and
(iv) for excavation only, a place or precinct of archaeological potential; and

(b) the lopping, pruning, removal or destruction of a significant tree as defined in this Code.

C6.2.2: If a site is listed as a local heritage place and also within a local heritage precinct or local historic landscape precinct, it is only necessary to demonstrate compliance with the standards for the local heritage place unless demolition, buildings and works are proposed for an area of the site outside the identified specific extent of the local heritage place.

C6.2.3: This Code does not apply to a registered place entered on the Tasmanian Heritage Register, unless for the lopping, pruning, removal or destruction of a significant tree as defined in this Code.

C6.2.4: This Code does not apply to use.

C6.4 Development Exempt from this Code

C6.4.1: Development described in Table C6.4.1 is exempt from this Code provided it meets the number of corresponding qualifications not listed.

Not Applicable

As this application is proposing a Residential subdivision that does not include any development, this Code is not applicable in accordance with subclause C6.2.4 of the Planning Scheme.

C7.0 Natural Assets Code

Not Applicable

C7.1 Code Purpose

The purpose of the Natural Assets Code is:

C7.1.1: To minimise impacts on water quality, natural assets including native riparian vegetation, river condition and the natural ecological function of watercourses, wetlands and lakes.

C7.1.2: To minimise impacts on coastal and foreshore assets, native littoral vegetation, natural coastal processes and the natural ecological function of the coast.

C7.1.3: To protect vulnerable coastal areas to enable natural processes to continue to occur, including the landward transgression of sand dunes, wetlands, saltmarshes and other sensitive coastal habitats due to sea-level rise.

C7.1.4: To minimise impacts on identified priority vegetation.

C7.1.5: To manage impacts on threatened fauna species by minimising clearance of significant habitat.

C7.2 Application of this Code

C7.2.1: This Code applies to development on land within the following areas:

(a) a waterway and coastal protection area;
(b) a future coastal refugia area; and
(c) a priority vegetation area only if within the following zones:
    (i) Rural Living Zone;
    (ii) Rural Zone;
    (iii) Landscape Conservation Zone;
    (iv) Environmental Management Zone;
    (v) Major Tourism Zone;
    (vi) Utilities Zone;
    (vii) Community Purpose Zone;
    (viii) Recreation Zone;
    (ix) Open Space Zone;
    (x) Future Urban Zone;
    (xi) Particular Purpose Zone; or
    (xii) General Residential Zone or Low Density Residential Zone, only if an application for subdivision.

The Planning Scheme Mapping was reviewed and confirmed the development site is not burdened by any overlays as well as the application not proposing any development. In addition, the application does not require the disturbance of any ground or existing vegetation. In accordance with subclause C7.2.1 this Code is therefore not applicable.

C8.0 Scenic Protection Code

Not Applicable

C8.1 Code Purpose

The purpose of the Scenic Protection Code is:

C8.1.1: To recognise and protect landscapes that are identified as important for their scenic values.

C8.2 Application of this Code

C8.2.1: This Code applies to development on land within a scenic protection area or scenic road corridor and only if within the following zones:

(a) Rural Living Zone;
(b) Rural Zone;
(c) Agriculture Zone;
(d) Landscape Conservation Zone;
(e) Environmental Management Zone; or
(f) Open Space Zone.

C8.2.2: This Code does not apply to Use.

C8.4 Use or Development Exempt from this Code

C8.4.1 The exemptions listed under this Clause refer to exotic trees, hedgerows, agricultural buildings, structures and works on land within the Agricultural and Rural Zones. It also refers to subdivision not involving works, development associated with the Telecommunications Code and development or works associated with road construction within a scenic road corridor. None of the above apply to this application.

The application proposes a 6 lot Residential subdivision of an existing single Title within the Low Density Residential Zone of Falmouth. A review of the Planning Scheme mapping confirms the property is not burdened by the Scenic Road Corridor Overlay ensuring this Code is not applicable.

C9.0 Attenuation Code

Not Applicable

C9.1 Code Purpose

The purpose of the Attenuation Code is:

C9.1.1 To minimise adverse impacts on the health, safety and amenity of sensitive use from activities which have the potential to cause emissions.

C9.1.2 To minimise the likelihood for sensitive use to conflict with, interfere with, or constrain, activities which have the potential to cause emissions.

C9.2 Application of this Code

C9.2.1: This Code applies to:

(a) activities listed in Tables C9.1 and C9.2;
(b) sensitive uses; and
(c) subdivision if it creates a lot where a sensitive Use could be established, within an attenuation area.

C9.2.2: The Code does not apply to attenuation areas between the activities listed in Tables C9.1 and C9.2 where those activities occur within the Light Industrial Zone, General Industrial Zone, Port and Marine Zone, and Utilities Zone.

C9.2.3: The Code does not apply to sensitive uses occurring within the Light Industrial Zone, General Industrial Zone, Port and Marine Zone, and Utilities Zone.

C9.2.4: The Code does not apply to a plant nursery or controlled environment agriculture activities occurring within the Rural Zone and Agriculture Zone.

The development site is located within the Low Density Residential Zone of Falmouth and not knowingly within an attenuation distance listed in either Tables C9.1 and C9.2. No other listed

activities are known to operate within the attenuation distances listed, ensuring this Code is not applicable to this proposal.

C10.0 Coastal Erosion Hazard Code

Not Applicable

C10.1 Code Purpose

The purpose of the Coastal Erosion Hazard Code is:

C10.1.1: To ensure that Use or development subject to risk from coastal erosion is appropriately located and managed, so that:

(a) people, property and infrastructure are not exposed to an unacceptable level of risk;

(b) future costs associated with options for adaptation, protection, retreat or abandonment of property and infrastructure are minimised;

(c) it does not increase the risk from coastal erosion to other land or public infrastructure; and

(d) works to protect land from coastal erosion are undertaken in a way that provides appropriate protection without increasing risks to other land.

C10.1.2: To provide for appropriate use or development that relies upon a coastal location to fulfil its purpose.

C10.2 Application of this Code

C10.2.1: This Code applies to:

(a) use and development of land within a coastal erosion hazard area; or

(b) development identified in a report, that is lodged with an application, or required in response to a request under Section 54 of the Act, as located on an actively mobile landform within the coastal zone.

C10.2.2: The Planning Authority may only make a request under subclause C10.2.1(b) where it reasonably believes, based on information in its possession, that the land is located on an actively mobile landform within the coastal zone.

C10.2.3: For the purposes of C10.5.1, Residential and Visitor Accommodation are not Use Classes that are reliant on a coastal location.

The site visit dated 25 January 2024 as well as the Geotechnical Site Investigation for Foundations and Wastewater completed by Enviro-Tech Consultants Pty Ltd confirm the development site is not located within a coastal dunal system. Furthermore, a review of the Planning Scheme mapping confirms the site is not burdened by any Coastal Erosion Hazard Bands. This ensure this Code is not applicable to this application.

C11.0 Coastal Inundation Hazard Code

Not Applicable

C11.1 Code Purpose

The purpose of the Coastal Inundation Hazard Code is:

C11.1.1: To ensure that use or development subject to risk from coastal inundation is appropriately located and managed so that:

(a) people, property and infrastructure are not exposed to an unacceptable level of risk;

(b) future costs associated with options for adaptation, protection, retreat or abandonment of property and infrastructure are minimised;

(c) it does not increase the risk from coastal inundation to other land or public infrastructure; and

(d) works to protect land from coastal inundation are undertaken in a way that provides appropriate protection without increasing risks to other land.

C11.1.2: To provide for appropriate use or development that relies upon a coastal location to fulfil its purpose.

C11.2 Application of this Code

C11.2.1: This Code applies to Use and development of land within a coastal inundation hazard area.

C11.2.2: This Code applies to land in a coastal inundation investigation area where a suitably qualified person has provided a land survey showing an AHD for the land that falls within one of the coastal inundation hazard band levels shown in the coastal inundation hazard bands AHD levels list in the relevant Local Provisions Schedule and the standards relevant to each band apply.

C11.2.3: This Code does not apply to land in a coastal inundation investigation area where a suitably qualified person has provided a land survey showing an AHD for the land in excess of the low hazard band level relevant for that land, as shown in the coastal inundation hazard bands AHD levels list in the relevant Local Provisions Schedule.

C11.2.4: For the purposes of C11.5.1 and C11.5.2, the proposed Residential Use is not a Use Class reliant on a coastal location.

This Code is not applicable due to the development site not shown as being within a coastal inundation hazard area on a Planning Scheme map.

4.2: C12.0 Flood-Prone Areas Hazard Code

Following the receipt of Council's flooding documentation, the site is shown to be prone to flooding. The original Geotechnical Site Investigation for Foundations and Wastewater authored by Kris Taylor of Enviro-Tech Consultants Pty Ltd dated 07 May 2024 and the Flood Study Report – Revision 1 authored by Murray Nagle of PDA and dated 02 September 25, accompany this report.

C12.1 Code Purpose

The purpose of the Flood-Prone Areas Hazard Code is:

C12.1.1: To ensure that use or development subject to risk from flood is appropriately located and managed, so that:

(a) people, property and infrastructure are not exposed to an unacceptable level of risk;

(b) future costs associated with options for adaptation, protection, retreat or abandonment of property and infrastructure are minimised; and

(c) it does not increase the risk from flood to other land or public infrastructure.

C12.1.2: To preclude development on land that will unreasonably affect flood flow or be affected by permanent or periodic flood.

C12.2 Application of this Code

C12.2.1: This Code applies to development of land within a flood-prone hazard area.

C12.2.2: This Code applies to Use of land within a flood-prone hazard area if for:

(a) a change of Use that converts a non-habitable building to a habitable building; or

(b) a new habitable room within an existing building.

C12.2.3: This Code applies to Use in a habitable building, or development of land, identified in a report prepared by a suitably qualified person, that is lodged with an application for a permit, or required in response to a request under section 54 of the Act, as subject to risk from flood or that has the potential to cause increased risk from flood.

C12.2.4: The Planning Authority may only make a request under Clause C12.2.3 where it reasonably believes, based on information in its possession, that the land is subject to risk from flood or has the potential to cause increased risk from flood.

C12.2.5: This Code does not apply to land subject to the Coastal Inundation Hazard Code.

The Planning Scheme Overlays and the Geotechnical Site Investigation were reviewed and confirm the development site is identified as being prone to flooding. An additional Flood Study Report authored by Murray Nagle of PDA and dated 02 September 2025 was commissioned and submitted. The exemptions listed under C12.4.1 were reviewed though not listed and confirmed none are applicable.

C12.5 Use Standards

C12.5.1 Uses within a flood-prone hazard area

Objective: That a habitable building can achieve and maintain a tolerable risk from flood.

P1.1 Not Applicable

The application is discretionary on this subclause because an acceptable solution was not offered. However, this application is for a residential subdivision only and no buildings, habitable or otherwise, are proposed, making this subclause not applicable.

C12.5.2 Critical use, hazardous use or vulnerable use

Objective: That critical, hazardous and vulnerable uses, located within a flood-prone hazard area can achieve and maintain a tolerable risk from flood.

P1 – Not Applicable

The application is discretionary on this subclause because an acceptable solution was not offered. However, this application is for a residential subdivision only that does not propose a critical, hazardous, or vulnerable use.

C12.6 Development Standards for Buildings and Works

C12.6.1 Buildings and works within a flood-prone hazard area

Objective: That:

(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.

Not Applicable

This application is for the development of a residential subdivision that does not propose any buildings or works, ensuring this subclause is not applicable.

C12.7 Development Standards for Subdivision

C12.7.1 Subdivision within a flood-prone hazard area

Objective: 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.

P1 – Performance Criterion

The application is discretionary on this subclause because all proposed lots are unable to contain a building area, vehicle access, wholly located outside a flood-prone hazard area. However, the aforementioned Flood Study Report confirms each lot proposed in the plan of subdivision, within a flood-prone hazard area, will not create an opportunity for use or development that cannot achieve a tolerable risk from flood, having regard to the following:

(a) any increase in risk from flood for adjacent land;

(b) the level of risk to use or development arising from an increased reliance on public infrastructure;

(c) the need to minimise future remediation works;

(d) any loss or substantial compromise by flood of access to the lot, on or off site;

(e) the need to locate building areas outside the flood-prone hazard area; and

(f) any advice from a State authority, regulated entity or a council.

As stated above, the purpose of this application is solely seeking the issuance of a Planning Permit for the development of a 6 lot residential subdivision. It does not propose the construction of any buildings or works except for that associated with the construction of crossovers for the individual lots.

The original Geotechnical Site Investigation for Foundations and Wastewater dated May 2024, was amended following receipt of Council's RFI. The amended Version 2 accompanying this report confirms the future residential use and development on each proposed lot will comply with subclause C12.7.1 P1 of the Planning Scheme.

C13.0 Bushfire-Prone Areas Code

Not Applicable

E13.1 Code Purpose

The purpose of the Bushfire-Prone Areas Code is:

C13.1.1: to ensure that use and development is appropriately designed, located, serviced, and constructed, to reduce the risk to human life and property, and the cost to the community, caused by bushfires.

C13.2 Application of this Code

C13.2.1: This Code applies to:

(a) subdivision of land that is located within, or partially within, a bushfire-prone area; and

(b) a use, on land that is located within, or partially within, a bushfire-prone area, that is a vulnerable use or hazardous use.

A review of the Planning Scheme Overlay Maps on the electronic LIST database (https://maps.thelist.tas.gov.au/listmap/app/list/map?bookmarkId=913802 viewed 14 May 2024), does not identify the site as being prone to bushfire. In accordance with subclause C13.2.1 (a) above, this Code is therefore not applicable to this application.

C14.0 Potentially Contaminated Land Code

Not Applicable

C14.1 Purpose of the Potentially Contaminated Land Code

The purpose of the Potentially Contaminated Land Code is:

C14.1.1: To ensure that Use or development of potentially contaminated land does not adversely impact on human health or the environment.

C14.2 Application of this Code

C14.2.1: This Code applies to a sensitive use, a use listed in a Use Class in Table C14.1 as one of the specified Uses, or development, on land that:

(a) is shown on an overlay map in the relevant Local Provisions Schedule as within an area of potentially contaminated land;

(b) the planning authority knows to have been used for a potentially contaminating activity, by reference to:

(i) a notice issued in accordance with Part 5A of the Environmental Management and Pollution Control Act 1994; or

(ii) a previous permit;

(c) the Planning Authority reasonably suspects may be contaminated by reference to:

(i) a notice issued in accordance with Part 5A of the Environmental Management and Pollution Control Act 1994; or

(ii) advice from the Director that it is likely that contamination has migrated onto the land; or

(d) has been identified as having been used, or may have been used, for a potentially contaminating activity, or as land onto which it is likely that contamination from a potentially contaminating activity has migrated:

(i) in a report lodged with the application; or

(ii) in a report prepared by a site contamination practitioner in response to a request under Section 54 of the Act.

C14.2.2: The Planning Authority may only make a request under Clause C14.2.1(d)(ii) where it reasonably believes, based on information in its possession that the land has been used, or may have been used, for one of the potentially contaminating activities listed in Table C14.2, or as land onto which it is likely that contamination from a potentially contaminating activity has migrated.

The development site is located within the Low Density Residential Zone of Falmouth with Table 14.2 Potentially Contaminating Activities reviewed though none knowingly considered relevant. It is put to the Planning Authority this property has not been knowingly used for any such listed activity ensuring this Code is not applicable.

C15.0 Landslip Hazard Code

Not Applicable

C15.1 Code Purpose

The purpose of the Landslip Hazard Code is:

C15.1.1: To ensure that a tolerable risk can be achieved and maintained for the type, scale and intensity and intended life of use or development on land within a landslip hazard area.

C15.2 Application of this Code

C15.2.1: This Code applies to:

(a) use or development of land within a landslip hazard area; or
(b) use or development of land identified in a report, that is lodged with an application, or required in response to a request under Section 54 of the Act, as having potential to cause or contribute to a landslip.

C15.2.2: The Planning Authority may only make a request under Clause C15.2.1(b) where it reasonably believes, based on information in its possession, that the Use or development of land has the potential to cause or contribute to landslip.

The Planning Scheme Overlays were reviewed along with the list of exemptions. While none of the latter apply, the former demonstrated the development site is not located within or partially within an area identified as being prone to land instability. For this reason, this Code is not applicable and has not been addressed.

C16.0 Safeguarding of Airports Code

This Code is applicable due to the LIST stating it is covered by the Overlay.

C16.1 Code Purpose

The purpose of the Safeguarding of Airports Code is:

C16.1.1: To safeguard the operation of airports from incompatible use or development.

C16.1.2: To provide for use and development that is compatible with the operation of airports in accordance with the appropriate future airport noise exposure patterns and with safe air navigation for aircraft approaching and departing an airport.

C16.2 Application of this Code

C16.2.1: This Code applies to:
(a) a sensitive Use within an airport noise exposure area; and
(b) development within an airport obstacle limitation area.

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.

This application is for a 6-lot residential subdivision that does not propose the construction of any buildings. In accordance with the exemption listed under C16.4.1 (a) of the Planning Scheme, this development will therefore be less than the AHD height specified ensuring this Code is not applicable.

5. CONCLUSION

The submitted application is seeking Planning approval for the demolition of 7 existing outbuildings and the creation of a 6-lot residential subdivision from an existing 1.03ha residential Title within the coastal village of Falmouth. The application has presented the creation will enable dwellings and wastewater systems to be constructed within the Title boundaries and vehicles appropriate to a Residential Use, to enter and leave.

The proposed lots range in size from 1530m^2 to 1,970m^2, are of a size similar to those within the village boundaries as well as being in excess of the minimum area required by the acceptable solution. Being located near the entrance to the Falmouth village, the lot sizes are appropriate to ensure the existing amenity of this village will not be adversely impacted by the proposed.

The application demonstrates compliance with the relevant acceptable solutions and 4 discretions of the development standards and uses of the *Tasmanian Planning Scheme – Break O'Day*, the *Break O'Day Local Provisions Schedule* and the *Local Government (Building and Miscellaneous Provisions) Act 1993*. The application is respectfully submitted for consideration for planning approval in accordance with Section 57 of the *Land Use Planning and Approvals Act 1993*.

6. APPENDICES

a. Certificate of Title: CT 164048 – 100:
    1. Folio Text;
    2. Folio Plan;
    3. Schedule of Easements
    4. Survey Notes
    5. Property Information Report;
    6. Torrens Scanned Dealing – 107542;
b. Company history report;
c. Plan Number: 1124-01DA amended 09 December 2024;
d. Letter seeking written consent for new vehicle crossings;
e. Email to and from the Regulated Entity regarding reticulated water infrastructure dated 15 May 2024;
f. Geotechnical Site Investigation for Foundations and Wastewater, amended dated 07 May 2024;
g. Flood Study Report – Revision 1, Murray Nagle, PDA Surveyors, Engineers & Planners, 02 September 2025;
h. Amended Figure 8 from the Flood Study Report – Revision 1, with supporting letter;
i. On-site Wastewater Assessment, JP Cumming, Geo-Environmental Solutions, July 2025;
j. Traffic Impact Assessment dated 09 October 2024;

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CONSULTANTS
Geotechnical & Environmental Services

GEOTECHNICAL SITE INVESTIGATION FOR FOUNDATIONS AND WASTEWATER

70 GRANT STREET - FALMOUTH
PROPOSED NEW SUBDIVISION

Client:	**Shane and Fiona Voorham**
Certificate of Title:	**164048/100**
Investigation Date:	**Tuesday, 7 May 2024**

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Refer to this Report As

Enviro-Tech Consultants Pty. Ltd. 2024. Geotechnical Site Investigation for Foundations and Wastewater Report for a Proposed New Subdivision, 70 Grant Street - Falmouth. Unpublished report for Shane and Fiona Voorham by Enviro-Tech Consultants Pty. Ltd., 07/05/2024.

Report Distribution

This report has been prepared by Enviro-Tech Consultants Pty. Ltd. for the use by parties involved in the proposed development of the property named above.

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Limitations of this report

In some cases, variations in actual Site conditions may exist between subsurface investigation boreholes. This report only applies to the tested parts of the Site, and if not specifically stated otherwise, results should not be interpreted beyond the tested areas.

The Site investigation is based on the observed and tested soil conditions relevant to the inspection date and design plans provided for the field investigation works. Subsurface conditions may change laterally and vertically between test Sites, so discrepancies may occur between what is described in the reports and what is exposed by subsequent excavations. No responsibility is therefore accepted for any difference in what is reported, and actual Site and soil conditions for parts of the investigation Site which were not assessed at the time of inspection.

No responsibility is accepted for subsequent works carried out or activities onsite or through climate variability including but not limited to placement of fill, uncontrolled earthworks, altered drainage conditions or changes in groundwater levels.

This report has been prepared based on provided plans detailed herein. Should there be any significant changes to these plans, then this report should not be used without further consultation which may include drilling new investigation holes to cover the revised building footprint. This report should not be applied to any project other than indicated herein.

At the time of construction, if conditions exist which differ from those described in this report, it is recommended that the base of all footing excavations be inspected to ensure that the founding medium meets that requirement referenced herein or stipulated by an engineer before any footings are poured.

This report contains soil classification information prepared in accordance with AS2870 as well as AS2870 extracts which may be used as general guidance for plumbing design. The hydraulic designer is to use their own judgment in the application of this information and this report must be read in in conjunction with hydraulic plans for the proposed development.

An assessment of building settlement was not within the scope of works.

Document Status

Rev No	Author	Status		Review Person / Date	
			Investigation Date	Name	Report Date
V1	K Taylor	Preliminary Draft	7th May 2024	K Taylor Enviro-Tech Consultants Pty. Ltd.	02/09/2024
V2	K Taylor	Preliminary Draft	7th May 2024	K Taylor Enviro-Tech Consultants Pty. Ltd.	31/10/2024
V2	K Taylor	Final With Form 55	7th May 2024	K Taylor Enviro-Tech Consultants Pty. Ltd.	18/12/2024

Site Investigation

The Site investigation is summarised in Table 1.

Table 1 Summary of Site Investigation

Client	**Shane and Fiona Voorham**
Project Address	70 Grant Street - Falmouth
Council	Break O'day
Planning Scheme	
Inundation, Erosion or Landslip Overlays	None
Proposed	New Subdivision
Investigation	Fieldwork was carried out by an Engineering Geologist on the 7/5/2024
Site Topography	The building site has a near level gradient of approximately 1% (1°) to the northwest
Soil Profiling	A total of 6 boreholes were investigated at the Site.
Site Drainage	The Site receives overland flow runoff directly from the southeast. The six boreholes were used for permeameter testing and assessing static groundwater levels.
Investigation Depths	The target excavation depth was estimated at 2.3 m. Borehole logs and photos are presented in Appendix B & C.
Soil moisture and groundwater	All recovered soil at the site ranged from moist to wet. Groundwater was encountered at 0.3 to 1 m below ground surface.
Geology	According to 1:25,000 Mineral Resources Tasmania geological mapping (accessed through The LIST), the geology comprises: Devonian Porphyry with phenocrysts of plagioclase, quartz, biotite, K-feldspar, hypersthene and augite, in a very fine-grained groundmass. Single cooling unit of rhyodacite, with sporadic basal rhyolitic pyroclastics.

Soil Profiles

The geology of the Site has been recorded and described in accordance with Australian Standard AS1726 for Geotechnical Site Investigations which includes the Unified Soil Classification System (USCS). Soil layers and where applicable, bedrock layers are summarised in Table 2.

Groundwater

Groundwater levels were gauged in all six boreholes approximately 3 weeks after standing, with the resulting groundwater contouring, groundwater flow paths and depth to groundwater mapped in Appendix A.

Table 2 Soil Summary Table

#	Layer	Details	USCS	BH01	BH02	BH03	BH04	BH05	BH06
1	Sandy CLAY	Sandy CLAY, very dark brown, well sorted, medium plasticity, medium grained sand, S	Cl	0-0.2 DS@0.1	0-0.1	0-0.1		0-0.2	0-0.2
2	CLAY	CLAY with sand, dark brown, mottled yellowish brown, well sorted, medium plasticity, St	Cl	0.2-0.3	0.1-0.6 DS@0.3	0.1-0.2			
3	SAND	SAND trace clay, dark greenish grey, well sorted, D-VD	SW			0.2-0.4			
4	SAND	SAND trace clay, white, well sorted, D	SW			0.4-0.6			
5	Sandy CLAY	Sandy CLAY, white, well sorted, medium plasticity, VSt-H	Cl				0-0.4		
6	Sandy CLAY	Sandy CLAY, very dark brown, well sorted, medium plasticity, F-St	Cl		0.6-0.7		0.4-0.8 DS@0.5		
7	Clayey SAND	Clayey SAND, light yellowish brown, well sorted, medium grained sand, with silt, trace , 5 % , MD	SC	0.3-0.6 DS@0.5		0.6-0.9			
8	Clayey SAND	Clayey SAND trace silt, greenish grey, mottled olive brown, well sorted, medium grained sand, MD	SC	0.6-0.9					
9	Clayey SAND	Clayey SAND trace silt, light greenish grey, well sorted, fine grained sand, D	SC	0.9-1.5 DS@1.1		0.9-1.7 DS@1.2			
10	Clayey SAND	Clayey SAND trace silt, light grey, well sorted, MD	SC					0.2-0.9 DS@0.5	0.2-0.4
11	SAND	SAND with clay, trace silt, dark grey, mottled brownish yellow, well sorted, fine to medium grained sand, MD-D	SC		0.7-1 DS@0.8 DS@0.9		0.8-1.3	0.9-1	0.4-1
12	SAND	SAND trace clay, white, well sorted, fine grained sand, D-VD	SW					1-1.6 DS@1.2	
13	Clayey SAND	Clayey SAND trace silt, white, mottled brownish yellow, well sorted, fine grained sand, D	SC	1.5-2.1 DS@1.9	1-1.2	1.7-2.1	1.3-1.5		1-1.2
14	SAND	SAND with clay, trace silt, white, well sorted, fine to medium grained sand, D-VD	SC		1.2-1.5	2.1-2.4		1.6-2	1.2-1.5

Consistency[1] **VS** Very soft; **S** Soft; **F** Firm; **St** Stiff; **Vst** Very Stiff; **H** Hard. Consistency values are based on soil strengths AT THE TIME OF TESTING and is subject to variability based on field moisture condition
Density[2] **VL** Very loose; **L** Loose; **MD** Medium dense; **D** Dense; **VD** Very Dense
DS Disturbed sample
PV Pocket vane shear test
FV Downhole field vane shear test
U50 Undisturbed 48mm diameter core sample collected for laboratory testing.
REF Borehole refusal
INF DCP has continued through this layer and the geology has been inferred.

Groundwater was struck at a range of depths from 0.2 (BH06) to 1.0m (BH05). Standing water levels were gauged at depths ranging from 0.12 m (BH02) to 0.47 m (BH04). Following excavation of the boreholes, groundwater levels raised within the three weeks in all boreholes from the depths at which water was initially struck. The amount at which groundwater raised within the boreholes ranged from 0.2 m to 0.7 m. The increase in water level is likely to have been due to groundwater pressurisation within the confined aquifer beneath the clay.

A total of 6 permeameter tests were performed at the Site. Despite the high proportion of SAND, particularly at depth, very low subsurface drainage rates were observed across the Site owing to the shallow poorly drained CLAY and Sandy CLAY soils and the high-water table.

[1] Soil consistencies are derived from a combination of field index, DCP and shear vane readings.
[2] Soil density descriptions presented in engineering logs are derived from the DCP testing.

Recommendations

Stormwater Management

Stormwater drainage soaks will require a detention tank due to sluggish groundwater flow. Given the pressurised groundwater, during wet periods, groundwater will surface in some parts of the Site where trenches are dug. Trenches should therefore be avoided in these areas which are delineated by red hatching in the stormwater manage map presented in Appendix A. In these red hatched areas, it is recommended that stormwater is soaked into vegetated swale drains or raised beds.

On other parts of the lot not delineated with red hatching, stormwater soakage trenches will have limited effectiveness due to the very low permeability soils and the high-water table. Effective storage volume depth is limited to 0.3 m in yellow hatched areas and 1.0 m in green hatched areas. Detention tanks are likely to be required to facilitate the required storage capacity in the yellow hatched areas. Within the green and yellow hatched areas, it will be important to prove that the stormwater will discharge into the underlying sandy layers to ensure soakage does not surface.

Stormwater absorption within the allocated yellow and green hatched areas is estimated only based on inferred groundwater depths. The effectiveness of any stormwater absorption system in these areas will need to be proven through further soil permeability testing.

Wastewater

Given the very shallow groundwater and poorly drained subsoils, there is limited capacity for a septic system across much of the subdivision area, with depths to groundwater potentially allowing for a septic in Lots 5 and 6 and possibly Lot 4 depending on prioritization with stormwater management. Within the green hatched area (stormwater and wastewater management map in Appendix A), septic tanks are permissible subject to regulations including but not limited to setbacks, groundwater depths etc. Further soil and permeameter testing will be required to confirm the drainage capacity for design.

A shallow in ground system may be permissible within the yellow hatched zone pending further soil and permeameter testing to confirm drainage rates and soil type.

Based on preliminary findings, the saturated soil permeability between surface and 1.5 m depth is estimated at 0.3 to 3.1 mm/hour (0.07 to 0.7m/day).

It is recommended that these assertions are backed up with more groundwater information to prove that rising groundwater will not cause a problem across the Site.

Filling Works

In the case where filling works are proposed at the Site:

- Where readily available, SAND or Crushed rock FILL is always recommended rather than fill containing SILT or CLAY.
- Any proposed filling works must be in accordance with AS3798 'Earthworks for Residential and Commercial Developments'.
- Before placing fill for landscaping, all topsoil should be removed from the filled area.
- Ideally, the fill should be free draining and placed to prevent water ponding. The fill should be placed in layers no greater than 150mm height and suitably compacted.

Dispersive soils

The results presented in Attachment D indicate that moderately dispersive soils are present at the Site.

Given the low gradient of the surfaces, no management is required. Cuts are not expected at the Site, and therefore overall risk from tunnel erosion is LOW.

Building Pad Preparation

Any organic matter or other deleterious materials will need to be removed from the building envelope.

Unless otherwise stated in an engineering report, fill or loose, soft, low bearing capacity soil should either be removed from the building pad, or otherwise footings should ideally be established to the base of this material.

Earthworks should be carried out in accordance with AS3798 'Earthworks for Residential and Commercial Developments'. Unsuitable materials in structural fill are listed in AS2870 Section 4.3.

The findings from a groundwater study will greatly assist in determining potential standing water levels both short term and long term due to climate change.

Pad Preparation – Compaction

Apart from the topsoil layers, there is no added benefit in compacting soils at the Site. The soils appear to have been laid down in a marine of fluvial setting and are already well packed. Any imported fill will need to be compacted.

Building foundations

Subject to further Site classification, it is likely that all buildings will require piers to be bored into the underlying sandy soils. Buildings may be raised with a suspended floor, or fill may be imported to ensure the buildings are raised above the moist clay soils. Given the Site is poorly drained, cut off drains will generally be required upgradient of the building envelope.

Suitable bearing capacity for bored piers is expected to be achieved just below the water table at approximately 1m depth where the ground becomes increasingly dense. Further soil classification is required to confirm allowable bearing capacities and Site classification.

Kris Taylor, BSc (hons)

Environmental & Engineering Geologist

References

AS 1289.6.3.2-2003 Soil strength and consolidation tests - Determination of the penetration resistance of a soil - 9 kg dynamic cone penetrometer test, Standards Australia, Sydney, Retrieved from SAI Global

AS 1289.7.1.1-2003 Methods of testing soils for engineering purposes Method 7.1.1: Soil reactivity tests—Determination of the shrinkage index of a soil—Shrink-swell index, Standards Australia, Sydney, Retrieved from SAI Global

AS 1726-2017, Geotechnical Site investigations, Standards Australia, Sydney, Retrieved from SAI Global

AS 2870-2011, Residential slabs and footings, Standards Australia, Sydney, Retrieved from SAI Global

AS4055 (2021). Australian Standard. Prepared by Committee BD-099, Wind Loads for Housing. Approved on behalf of the Council of Standards Australia on 1st June 2021 and published on 25th June 2021.

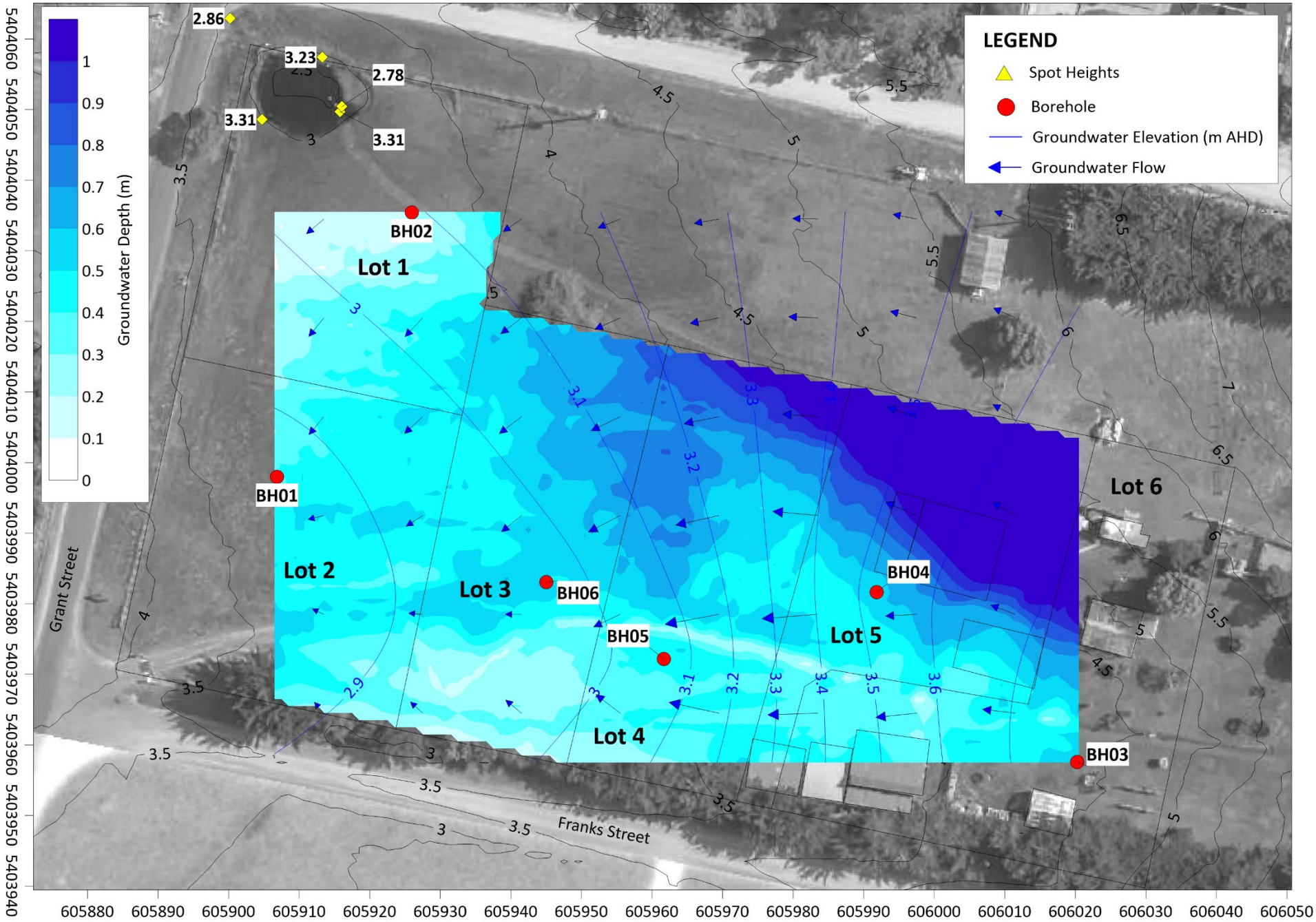
DPIPWE 2009. Dispersive Soils and their Management. Technical Reference Manual. Sustainable Land Use Department of Primary Industries Water and Environment.

Webster, S.L., Brown, R.W. and Porter, J.R. (1994) Force Projection Site Evaluation Using the Electric Cone Penetrometer (ECP) and the Dynamic Cone Penetrometer (DCP). Technical Report No. GL-94-17, Air Force Civil Engineering Support Agency, US Air Force, Tyndall Air Force Base, FL.

Appendix A Mapping

Site Borehole Locations

Groundwater Mapping




STORMWATER MANAGEMENT
Stormwater trenches not recomended in this zone due to artesian groundwater and dispersive soils. Absorption into shallow sandy fill above clay is recomended
Stormwater trench* with limited storage capacity not exceeding 0.3 m thickness.
Stormwater trench* with limited storage capacity not exceeding 1.0 m thickness. Where setbacks and loadings allow, septic system is permissible.
*Stomwater absorption trenches must be excavated through clay layers into underlying sandy soils. Agregate must intersect the underlying sands.
WASTEWATER MANAGEMENT
Raised beds only
Shallow (<0.3m) in ground*
Septic acceptable (to intercept sand layers)*
*Subject to further soil testing
Lot 1
Lot 2
Lot 3
Lot 4
Lot 5
Lot 6
Grant Street
Franks Street
5404060
5404050
5404040
5404030
5404020
5404010
5404000
5403990
5403980
5403970
5403960
5403950
5403940
605880
605890
605900
605910
605920
605930
605940
605950
605960
605970
605980
605990
606000
606010
606020
606030
606040
606050

Appendix B Borehole Logs

enviro·tech CONSULTANTS

Positioning: GDA94 & mAHD

ASSESSMENT: Geotechnical Site Investigation
STRUCTURE: New Subdivision
EASTING: 605906.87 **ACCURACY**
NORTHING: 5403998 **HORIZ:** 0.03m **VERT:** 0.03m

Borehole BH01
DATE TESTED: 7/05/2024
LOGGED BY: M. Scalisi
ELEVATION: 3.07

LOCATION: 70 Grant Street - Falmouth
CLIENT: Shane and Fiona Voorham

EQUIPMENT: Power Auger
ESTIMATED GROUND m (m AHD):

DEPTH (m)	GRAPHIC	DESCRIPTION	DENSITY CONSIST. STRENGTH	LAYER	ELEVATION (mAHD)	MOISTURE Index	MOISTURE %	MOISTURE Well	SAMPLE	TEST	Cu (kPa)	UCS (kg/cm²)	BLOW COUNT	DCP blows /100mm
0.0	CI	Sandy CLAY, very dark brown, well sorted, medium plasticity, medium grained sand	soft	1	2.9	Moist		13/07/202	DS				1.0	
	CI	CLAY with sand, dark brown, mottled yellowish brown, well sorted, medium plasticity	stiff	2									1.0	
	SC	Clayey SAND, light yellowish brown, well sorted, medium grained sand, with silt, trace , 5 %	medium dense	7	2.7								3.0	
0.5					2.5				DS				4.0	
	SC	Clayey SAND trace silt, greenish grey, mottled olive brown, well sorted, medium grained sand		8	2.3								4.0	
													4.0	
1.0	SC	Clayey SAND trace silt, light greenish grey, well sorted, fine grained sand		9	2.1								5.0	
					1.9	Wet			DS				5.0	
					1.7								5.0	
1.5			dense										9.0	
	SC	Clayey SAND trace silt, white, mottled brownish yellow, well sorted, fine grained sand		13	1.5								10.0	
					1.3				DS				11.0	
2.0					1.1								11.0	
		Borehole Ended At Target Depth			0.9								12.0	
		End of borehole at 2.1m depth.											12.0	

DCP blows /100mm: 0 5 10 15 20

GROUNDWATER: Encountered at 0.6 m Below Ground Surface

PAGE 1 of 1

TESTING: Penetrometer: AS 1289.6.3.2; Permeameter: AS 1289.6.7.3

Where penetrometer blows per 100mm are less than 1, the distance travelled per blow is measured and converted back to blows per 100mm.

DS: disturbed sample; PV: pocket vane; PP: pocket penotrometer; FV: downhole field vane; U50: undisturbed 50mm sample; REF: DCP refusal

enviro·tech CONSULTANTS

Positioning: GDA94 & mAHD

ASSESSMENT: Geotechnical Site Investigation

STRUCTURE: New Subdivision

EASTING: 605925.94 **ACCURACY**

NORTHING: 5404035.44 **HORIZ:** 0.02m **VERT:** 0.02m

Borehole BH02

DATE TESTED: 7/05/2024

LOGGED BY: M. Scalisi

ELEVATION: 3.21

LOCATION: 70 Grant Street - Falmouth

CLIENT: Shane and Fiona Voorham

EQUIPMENT: Power Auger

ESTIMATED GROUND m (m AHD):

DEPTH (m)	GRAPHIC	DESCRIPTION	DENSITY CONSIST. STRENGTH	LAYER	ELEVATION (mAHD)	MOISTURE Index	MOISTURE %	MOISTURE Well	SAMPLE	TEST	Cu (kPa)	UCS (kg/cm²)	BLOW COUNT	DCP blows /100mm
0.0	CI	Sandy CLAY, very dark brown, well sorted, medium plasticity, medium grained sand	soft	1	3.1			14/					1.0	
	CI	CLAY with sand, dark brown, mottled yellowish brown, well sorted, medium plasticity	stiff	2	2.9	Moist			DS				3.0	
0.5					2.7								4.0	
													3.0	
													3.0	
	CI	Sandy CLAY, very dark brown, well sorted, medium plasticity		6	2.5								3.0	
	SC	SAND with clay, trace silt, dark grey, mottled brownish yellow, well sorted, fine to medium grained sand	medium dense to dense	11	2.3				DS				4.0	
1.0													8.0	
									DS				7.0	
	SC	Clayey SAND trace silt, white, mottled brownish yellow, well sorted, fine grained sand	dense	13	2.1	Wet							9.0	
													13.0	
	SC	SAND with clay, trace silt, white, well sorted, fine to medium grained sand	very dense	14	1.9								18.0	
													16.0	
1.5					1.7								17.0	

Refusal in very dense, white Clayey SAND trace silt

End of borehole at 1.5m depth.

GROUNDWATER: Encountered at 0.6 m Below Ground Surface

PAGE 1 of 1

TESTING: Penetrometer: AS 1289.6.3.2; Permeameter: AS 1289.6.7.3

Where penetrometer blows per 100mm are less than 1, the distance travelled per blow is measured and converted back to blows per 100mm.

DS: disturbed sample; PV: pocket vane; PP: pocket penotrometer; FV: downhole field vane; U50: undisturbed 50mm sample; REF: DCP refusal

enviro·tech CONSULTANTS

Positioning: GDA94 & mAHD

ASSESSMENT: Geotechnical Site Investigation

STRUCTURE: New Subdivision

EASTING: 606020.27 **ACCURACY**

NORTHING: 5403957.59 **HORIZ:** 0.03m **VERT:** 0.03m

Borehole BH03

DATE TESTED: 7/05/2024

LOGGED BY: M. Scalisi

ELEVATION: 4.25

LOCATION: 70 Grant Street - Falmouth

CLIENT: Shane and Fiona Voorham

EQUIPMENT: Power Auger

ESTIMATED GROUND m (m AHD):

DEPTH (m)	GRAPHIC	DESCRIPTION	DENSITY CONSIST. STRENGTH	LAYER	ELEVATION (mAHD)	MOISTURE Index	MOISTURE %	MOISTURE Well	SAMPLE	TEST	Cu (kPa)	UCS (kg/cm²)	BLOW COUNT	DCP blows /100mm
0.0	CI	Sandy CLAY, very dark brown, well sorted, medium plasticity, medium grained sand	soft	1	4.2	Slightly Moist		15/07/2023					1.0	
	CI		stiff	2									4.0	
	SW	CLAY with sand, dark brown, mottled yellowish brown, well sorted, medium plasticity	dense to very dense	3	4.0								9.0	
	SW	SAND trace clay, dark greenish grey, well sorted											17.0	
0.5	SW	SAND trace clay, white, well sorted	dense	4	3.8	Dry							14.0	
	SC	Clayey SAND, light yellowish brown, well sorted, medium grained sand, with silt, trace , 5 %	medium dense	7	3.6	Slightly Moist							12.0	
					3.4								4.0	
1.0	SC	Clayey SAND trace silt, light greenish grey, well sorted, fine grained sand	dense	9	3.2	Wet			DS				4.0	
					3.0								5.0	
					2.8								8.0	
1.5					2.6								9.0	
	SC	Clayey SAND trace silt, white, mottled brownish yellow, well sorted, fine grained sand		13	2.4	Moist							11.0	
2.0					2.2								12.0	
	SC	SAND with clay, trace silt, white, well sorted, fine to medium grained sand	very dense	14	2.0	Wet							12.0	
					1.8								12.0	
		Borehole Ended At Target Depth End of borehole at 2.4m depth.												

GROUNDWATER: Encountered at 0.9 m Below Ground Surface

TESTING: Penetrometer: AS 1289.6.3.2; Permeameter: AS 1289.6.7.3

Where penetrometer blows per 100mm are less than 1, the distance travelled per blow is measured and converted back to blows per 100mm.

DS: disturbed sample; PV: pocket vane; PP: pocket penotrometer; FV: downhole field vane; U50: undisturbed 50mm sample; REF: DCP refusal

enviro·tech CONSULTANTS

Positioning: GDA94 & mAHD

ASSESSMENT: Geotechnical Site Investigation

STRUCTURE: New Subdivision

EASTING: 605991.86 **ACCURACY**

NORTHING: 5403981.62 **HORIZ:** 0.03m **VERT:** 0.03m

Borehole BH04

DATE TESTED: 7/05/2024

LOGGED BY: M. Scalisi

ELEVATION: 4.02

LOCATION: 70 Grant Street - Falmouth

CLIENT: Shane and Fiona Voorham

EQUIPMENT: Power Auger

ESTIMATED GROUND m (m AHD):

DEPTH (m)	GRAPHIC	DESCRIPTION	DENSITY CONSIST. STRENGTH	LAYER	ELEVATION (mAHD)	MOISTURE Index	MOISTURE %	MOISTURE Well	SAMPLE	TEST	Cu (kPa)	UCS (kg/cm²)	BLOW COUNT	DCP blows /100mm
0.0	CI	Sandy CLAY, white, well sorted, medium plasticity	very stiff to hard	5	3.9 / 3.7	Slightly Moist		16/07/2023	DS				5.0, 8.0, 10.0, 7.0	
0.5	CI	Sandy CLAY, very dark brown, well sorted, medium plasticity	firm to stiff	6	3.5 / 3.3								3.0, 3.0, 2.0, 3.0	
1.0	SC	SAND with clay, trace silt, dark grey, mottled brownish yellow, well sorted, fine to medium grained sand	medium dense	11	3.1 / 2.9	Wet							5.0, 6.0, 6.0, 6.0, 6.0	
	SC	Clayey SAND trace silt, white, mottled brownish yellow, well sorted, fine grained sand	dense	13	2.7	Moist							11.0, 12.0	
1.5		Refusal in dense, white mottled brownish yellow Clayey SAND trace silt End of borehole at 1.5m depth.			2.5									

DCP blows /100mm: 0, 5, 10, 15, 20

GROUNDWATER: Encountered at 0.8 m Below Ground Surface

PAGE 1 of 1

TESTING: Penetrometer: AS 1289.6.3.2; Permeameter: AS 1289.6.7.3

Where penetrometer blows per 100mm are less than 1, the distance travelled per blow is measured and converted back to blows per 100mm.

DS: disturbed sample; PV: pocket vane; PP: pocket penotrometer; FV: downhole field vane; U50: undisturbed 50mm sample; REF: DCP refusal

enviro·tech CONSULTANTS

Positioning: GDA94 & mAHD

ASSESSMENT: Geotechnical Site Investigation

STRUCTURE: New Subdivision

EASTING: 605961.66 **ACCURACY**

NORTHING: 5403972.18 **HORIZ:** 0.02m **VERT:** 0.02m

Borehole BH05

DATE TESTED: 7/05/2024

LOGGED BY: M. Scalisi

ELEVATION: 3.37

LOCATION: 70 Grant Street - Falmouth

CLIENT: Shane and Fiona Voorham

EQUIPMENT: Power Auger

ESTIMATED GROUND m (m AHD):

DEPTH (m)	GRAPHIC	DESCRIPTION	DENSITY CONSIST. STRENGTH	LAYER	ELEVATION (mAHD)	MOISTURE Index	MOISTURE %	MOISTURE Well	SAMPLE	TEST	Cu (kPa)	UCS (kg/cm²)	BLOW COUNT	DCP blows /100mm
0.0	CI	Sandy CLAY, very dark brown, well sorted, medium plasticity, medium grained sand	soft	1	3.3								1.0	
													1.0	
					3.1			17/07/2023					3.0	
													4.0	
0.5	SC	Clayey SAND trace silt, light grey, well sorted	medium dense	10	2.9	Moist			DS				5.0	
													5.0	
					2.7								4.0	
													4.0	
					2.5								4.0	
	SC	SAND with clay, trace silt, dark grey, mottled brownish yellow, well sorted, fine to medium grained sand		11									7.0	
1.0					2.3								15.0	
	SW	SAND trace clay, white, well sorted, fine grained sand	dense to very dense	12	2.1				DS				17.0	
													15.0	
													15.0	
1.5					1.9	Wet							14.0	
	SC	SAND with clay, trace silt, white, well sorted, fine to medium grained sand	very dense	14	1.7									
					1.5									
2.0					1.3									
		Refusal in very dense, white Clayey SAND trace silt												
		End of borehole at 2m depth.												

GROUNDWATER: Encountered at 1 m Below Ground Surface

PAGE 1 of 1

TESTING: Penetrometer: AS 1289.6.3.2; Permeameter: AS 1289.6.7.3

Where penetrometer blows per 100mm are less than 1, the distance travelled per blow is measured and converted back to blows per 100mm.

DS: disturbed sample; PV: pocket vane; PP: pocket penotrometer; FV: downhole field vane; U50: undisturbed 50mm sample; REF: DCP refusal

enviro·tech CONSULTANTS

Positioning: GDA94 & mAHD

ASSESSMENT: Geotechnical Site Investigation

STRUCTURE: New Subdivision

EASTING: 605945.01 **ACCURACY**

NORTHING: 5403983.05 **HORIZ:** 0.02m **VERT:** 0.02m

Borehole BH06

DATE TESTED: 7/05/2024

LOGGED BY: M. Scalisi

ELEVATION: 3.41

LOCATION: 70 Grant Street - Falmouth

CLIENT: Shane and Fiona Voorham

EQUIPMENT: Power Auger

ESTIMATED GROUND m (m AHD):

DEPTH (m)	GRAPHIC	DESCRIPTION	DENSITY CONSIST. STRENGTH	LAYER	ELEVATION (mAHD)	MOISTURE Index	MOISTURE %	MOISTURE Well	SAMPLE	TEST	Cu (kPa)	UCS (kg/cm²)	BLOW COUNT	DCP blows /100mm
0.0	CI	Sandy CLAY, very dark brown, well sorted, medium plasticity, medium grained sand	soft	1	3.3	Moist							1.0	
													1.0	
	SC	Clayey SAND trace silt, light grey, well sorted	medium dense	10	3.1								4.0	
								18/07/2023					5.0	
0.5					2.9								5.0	
	SC	SAND with clay, trace silt, dark grey, mottled brownish yellow, well sorted, fine to medium grained sand	medium dense to dense	11	2.7	Wet							5.0	
													4.0	
					2.5								4.0	
													3.0	
1.0													8.0	
	SC	Clayey SAND trace silt, white, mottled brownish yellow, well sorted, fine grained sand		13	2.3								8.0	
													12.0	
	SC	SAND with clay, trace silt, white, well sorted, fine to medium grained sand	dense	14	2.1	Moist							12.0	
													11.0	
1.5					1.9								12.0	

Refusal in dense, white Clayey SAND trace silt

End of borehole at 1.5m depth.

GROUNDWATER: Encountered at 0.2 m Below Ground Surface

PAGE 1 of 1

TESTING: Penetrometer: AS 1289.6.3.2; Permeameter: AS 1289.6.7.3

Where penetrometer blows per 100mm are less than 1, the distance travelled per blow is measured and converted back to blows per 100mm.

DS: disturbed sample; PV: pocket vane; PP: pocket penotrometer; FV: downhole field vane; U50: undisturbed 50mm sample; REF: DCP refusal

Appendix C Core Photographs

BH01

BH02

*** 1 metre core tray length**

BH03

BH04

*** 1 metre core tray length**

BH05

BH06

*** 1 metre core tray length**

Appendix D Geotechnical Testing

Dynamic Cone Penetrometer (DCP)

Dynamic cone penetrometer (DCP) testing was conducted according to AS 1289.6.3.2 with the results presented in Appendix B.

Soil Dispersion (Emerson aggregate test)

Select soil samples were tested for sodicity using the Emerson Class number method according to AS1289.3.8.1. The results presented in Table 3 demonstrate that:

- The sandy alluvial soils logged at the Site are highly varied in distribution and the soil dispersion pattern is similarly not uniform.
- There is no pattern in soil dispersion with with depth, spatially or based on soil colours.
- There is an isolated occurrence of severely dispersive Emerson Class 1 soil at the Site.
- Most of the soil is Emerson Class 2 or 3 and is slightly to moderately dispersive.
- Given the shallow gradient of the Site, and only an isolated occurrence of Class 1 soil, no particular dispersive soil erosion management measures are required.

Table 3 Summary of the Emerson class results.

Layer	Soil	Depth	Sample ID	Emersion Class	Date Tested	Water	pH
1	Sandy CLAY	0.1	BH01 0.1	Class 8	9/05/2024	DI 18°C	
2	CLAY	0.3	BH02 0.3	Class 1	9/05/2024	DI 18°C	6.96
6	Sandy CLAY	0.5	BH04 0.5	Class 8	9/05/2024	DI 18°C	
7	Clayey SAND	0.5	BH01 0.5	Class 3	9/05/2024	DI 18°C	6.98
10	Clayey SAND	0.5	BH05 0.5	Class 2	9/05/2024	DI 18°C	7.04
11	SAND	0.8	BH02 0.8	Class 3	9/05/2024	DI 18°C	7.91
11	SAND	0.9	BH02 0.9	Class 2	9/05/2024	DI 18°C	
9	Clayey SAND	1.1	BH01 1.1	Class >4	9/05/2024	DI 18°C	
9	Clayey SAND	1.2	BH03 1.2	Class 2	9/05/2024	DI 18°C	7.63
12	SAND	1.2	BH05 1.2	Class 2	9/05/2024	DI 18°C	7.15
13	Clayey SAND	1.9	BH01 1.9	Class >4	9/05/2024	DI 18°C	

Permeameter Testing

Permeameter testing was carried out in all boreholes. Basic particle size analysis has been conducted to derive a soil category. A soil auger was used to excavate the Soil to prepare for the test to ensure the well is effectively draining. The reported preliminary water table height (not confirmed) has been used at the permeameter test depth given the water table is limiting at the Site. Results are presented Table 4.

Table 4 Permeameter testing results, soil classification and wastewater category.

Hole ID	Hole Depth (m)	Hole Diameter (mm)	Test Duration (mins)	Flow Rate (cm3/min)	K/sat (m/day)	K/sat (mm/hr)	Limiting Layer (above the water table)	Category
BH01	0.9	65	10.0	26.0	2.0E-02	0.8	Clay Loam	4
BH02	0.8	65	13.3	7.4	6.7E-03	0.3	Medium Clay	6
BH03	1	65	18.0	61.6	4.0E-02	1.7	Sandy clay loam	4
BH04	0.8	65	17.0	34.3	3.1E-02	1.3	Sandy Clay	5
BH05	1	65	30.0	15.0	9.8E-03	0.408	Sandy Clay	5
BH06	0.8	65	15.0	83.1	7.5E-02	3.1	Sandy clay loam	4

Appendix E Geotechnical Interpretation

Interpretation of CBR from DCP

The DCP-CBR correlation method selected for the site is based on soil type (Webster et al. 1992) with values presented in Table 5. As per method recommendations, CBR values are capped at 15% for high-plasticity clays, 20% for medium-plasticity clays, and 25% for low-plasticity clays.

Individual soil layers are characterised based on CBR values with findings presented in Table 6. The topsoil Layer 1 is of poor quality and should be stripped from paved areas and areas proposed for building. This soil will be suitable for use as a topsoil where needed. As a general rule of thumb, the darker clay layers have a lower CBR value compared with the lighter coloured sands.

Table 5 CBR values based on general DCP correlation methods from Webster et al. (1992)

Depth from (m)	BH01	BH02	BH03	BH04	BH05	BH06
0	1	1	1	13	1	1
0.1	1	6	9	20	1	1
0.2	6	9	21	20	6	8
0.3	8	6	43	19	8	10
0.4	8	6	35	6	10	10
0.5	8	6	30	6	10	10
0.6	10	6	8	3	8	8
0.7	10	8	8	6	8	8
0.8	10	18	10	10	8	6
0.9	21	15	18	13	15	18
1	25	21	21	13	38	18
1.1	28	33	28	13	43	30
1.2	28	46	30	13	38	30
1.3	30	40	30	28	38	28
1.4	30	43	30	30	35	30

Table 6 CBR values for individual soil layers presented as a range and average (bracketed).

#	Layer	BH01	BH02	BH03	BH04	BH05	BH06
1	Sandy CLAY	1	1	1		1	1
2	CLAY	6	6-9 (7)	9			
3	SAND			21-43 (32)			
4	SAND			30-35 (33)			
5	Sandy CLAY				13-20 (18)		
6	Sandy CLAY		6		3-6 (5)		
7	Clayey SAND	8		8-10 (9)			
8	Clayey SAND	10					
9	Clayey SAND	21-30 (27)		18-30 (26)			
10	Clayey SAND					6-10 (8)	8-10 (9)
11	SAND		8-18 (14)		10-13 (12)	15	6-18 (10)
12	SAND					35-43 (38)	
13	Clayey SAND		21-33 (27)		28-30 (29)		18-30 (24)
14	SAND		40-46 (43)				28-30 (29)

CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

Form 55

To: Shane and Fiona Voorham *Owner /Agent*

70 Grant Street *Address*

Falmouth 7215 *Suburb/postcode*

Qualified person details:

Qualified person: Kris Taylor

Address: 162 Macquarie Street

Hobart 7000

Phone No: 036224 9197

Fax No:

Licence No: NA

Email address: office@envirotechtas.com.au

Qualifications and Insurance details: Bachelor of Science with honours in geology, 25 years environmental geology experience, PI Insurance to $2,000,000 in environmental geology

(description from Column 3 of the Director's Determination - Certificates by Qualified Persons for Assessable Items

Speciality area of expertise: Site and soil evaluation and land application system design*

(description from Column 4 of the Director's Determination - Certificates by Qualified Persons for Assessable Items)

Details of work

Address: 70 Grant Street

Falmouth 7215

Lot No: 100

Certificate of title No: 164048/10

The assessable item related to this certificate: Site and soil evaluation for wastewater management

(description of the assessable item being certified)
Assessable item includes –
- *a material;*
- *a design*
- *a form of construction*
- *a document*
- *testing of a component, building system or plumbing system*
- *an inspection, or assessment, performed*

Certificate details:

Certificate type: On-site wastewater management

(description from Column 1 of Schedule 1 of the Director's Determination - Certificates by Qualified Persons for Assessable Items n)

This certificate is in relation to the above assessable items, at any stage, as part of – *(tick one)*

- (•) building work, plumbing work or plumbing installation or demolition work

OR

- ( ) a building, temporary structure or plumbing installation

In issuing this certificate the following matters are relevant –

Documents:

Enviro-Tech Consultants Pty. Ltd. 2024. Geotechnical Site Investigation for Foundations and Wastewater Report for a Proposed New Subdivision, 70 Grant Street - Falmouth. Unpublished report for Shane and Fiona Voorham by Enviro-Tech Consultants Pty. Ltd., 13/05/2024

Site 'On-site wastewater design report' (CKEMP Design)

References:

Substance of Certificate: *(what it is that is being certified)*

- An assessment of Site and soil conditions for on-site wastewater management and design

Scope and/or Limitations

*Site and soil evaluation by Enviro-Tech Consultants Pty. Ltd.
Land application system design is assessed in a separate 'On-site wastewater report' by a licensed building service designer:
- Chris Fysh Licensed Building Services Designer - Civil / Hydraulic (License No: 479819732)

I certify the matters described in this certificate.

Qualified person:

Signed: 

Certificate No:

Date: 7/05/2024

CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

Form 55

To: Shane and Fiona Voorham *Owner /Agent*

70 Grant Street *Address*

Falmouth 7215 *Suburb/postcode*

Qualified person details:

Qualified person: Kris Taylor

Address: 162 Macquarie Street

Hobart 7000

Phone No: 036224 9197

Fax No:

Licence No: NA

Email address: office@envirotechtas.com.au

Qualifications and Insurance details: Bachelor of Science with Honours in Geology. Lloyd's Underwriters: soil and rock mechanics, soil and rock testing

(description from Column 3 of the Director's Determination - Certificates by Qualified Persons for Assessable Items

Speciality area of expertise: Geo-technical Reports

(description from Column 4 of the Director's Determination - Certificates by Qualified Persons for Assessable Items)

Details of work: Geotechnical Site Investigation

Address: 70 Grant Street

Falmouth 7215

Lot No: 100

Certificate of title No: 164048/10

The assessable item related to this certificate: Geotechnical Site Investigation written in accordance with AS1726 by a geotechncial practitioner with appropriate experience, training and qualifications.*

(description of the assessable item being certified)
Assessable item includes –
- *a material;*
- *a design*
- *a form of construction*
- *a document*
- *testing of a component, building system or plumbing system*
- *an inspection, or assessment, performed*

Certificate details:

Certificate type: Geotechnical including landslide risk assessment in accordance with "Practice Note Guidelines for Landslide Risk Management 2007" published by the Australian Geomechanics Society.*

(description from Column 1 of Schedule 1 of the Director's Determination - Certificates by Qualified Persons for Assessable Items n)

This certificate is in relation to the above assessable items, at any stage, as part of – *(tick one)*

- (•) building work, plumbing work or plumbing installation or demolition work

OR

- ( ) a building, temporary structure or plumbing installation

In issuing this certificate the following matters are relevant –

Documents:	Enviro-Tech Consultants Pty. Ltd. 2024. Geotechnical Site Investigation for Foundations and Wastewater for a Proposed New Subdivision, 70 Grant Street - Falmouth. Unpublished report for Shane and Fiona Voorham by Enviro-Tech Consultants Pty. Ltd., 07/05/2024
Relevant calculations:	
References:	- AS1726-2017 Geotechnical Site Investigations

Substance of Certificate: *(what it is that is being certified)*

- An assessment of:
- Foundations for proposed building structures.*

Scope and/or Limitations

The Geotechnical Site Investigation applies to the Site and Project Area as inspected and does not account for future alteration to foundation conditions as a result of earth works, drainage condition changes or variations in site maintenance which are not included within the provided plans.

***This report contains soil classification information prepared in accordance with AS2870 as well as AS2870 extracts which may be used as general guidance for plumbing design. The hydraulic designer is to use their own judgment in the application of this information and this report must be read in in conjunction with hydraulic plans for the proposed development.**

I certify the matters described in this certificate.

	Signed:	*Certificate No:*	*Date:*
Qualified person:			7/05/2024

PDA
SURVEYORS, ENGINEERS & PLANNERS

Grant Street, Falmouth Tasmania

Flood Study Report – Revision 5

54262MW | April 2026

Table of Contents

Table of Tables

Table of Figures

PDA Contributors

Author	Murray Nagle	2026/04/24
Review	Rod Parsons	2026/04/29
Review & Approval	Mark Westerberg	2026/04/29

Revision History

Revision	Description	Date
0	Issue to Client for comment	2025/09/02
1	Issue to Council for approval	2025/09/02
2	Addition of outfall pipe, revision as per meeting with Council on 2025.11.27.	2026/03/13
3	Format amendments as per Client input.	2026/03/17
4	Revision in response to Council RFI dated 2026.03.27	2026/04/15
5	**Revision in response to Council feedback – infill of onsite pond for post-developed scenario**	**2026/04/29**

Abbreviations

AEP	Annual Exceedance Probability
ARR	Australian Rainfall and Runoff
BOM	Bureau of Meteorology
DEM	Digital Elevation Model
HAT	Highest Astronomical Tide
IFD	Intensity – Frequency – Duration
IL-CL	Initial Loss – Continuing Loss
NRE	Department of Natural Resources and Environment Tasmania
noCC	Non-Climate Change (current climate) scenario
TSFM	Tasmanian Strategic Flood Map
WSL	Water Surface Level

1. Introduction

This report presents a flood study conducted by PDA Surveyors, Engineers & Planners on behalf of *Chris Triebe and Associates Town Planning Services* for a proposed 6 lot residential subdivision, located at 70 Grant Street, Falmouth, Tasmania. The intent of this report is to assess the flood impacts and feasibility of the proposed subdivision and has been carried out using an uncalibrated 1D/2D TUFLOW hydraulic model.

The current revision (Rev 5) of the report responds to Council's RFI dated 27 March 2026. Section 1.3 offers brief responses to the items in the RFI and then the items are addressed in the body of the report.

1.1 Site Overview

The development site is located at 70 Grant Street, at the corner of Franks Street & Grant Street, Falmouth and measures approximately 1.03 Ha. The site is currently grassed, low-lying land with a single dwelling and several outbuildings, devoid of heavy vegetation with a stand of trees extending along the southern boundary at Franks Street. The site is gently sloping to the southwest and northwest, featuring a pond in the northwest corner and several shallow drainage swales with evidence of site filling activity in the vicinity of the pond.

The low-lying site is prone to ponding of rainfall runoff due to the minimal natural slope with the majority of runoff directed to the table drain aligned with Franks Street to the south. Stormwater collected by the Franks Street table drain is conveyed via culvert to the adjacent property, which is in turn collected by a transverse culvert under Falmouth Road to then discharge into Devils Creek.

The remaining runoff flows towards the pond positioned in the Northwest of the site to then exit via a transverse culvert under Grant Street at the corner of New Street. The culvert at this location exhibits shallow coverage by the road surface and discharges into a vacant residential lot to eventually discharge into Devils Creek. Figure 1 below presents the site location and existing drainage infrastructure.

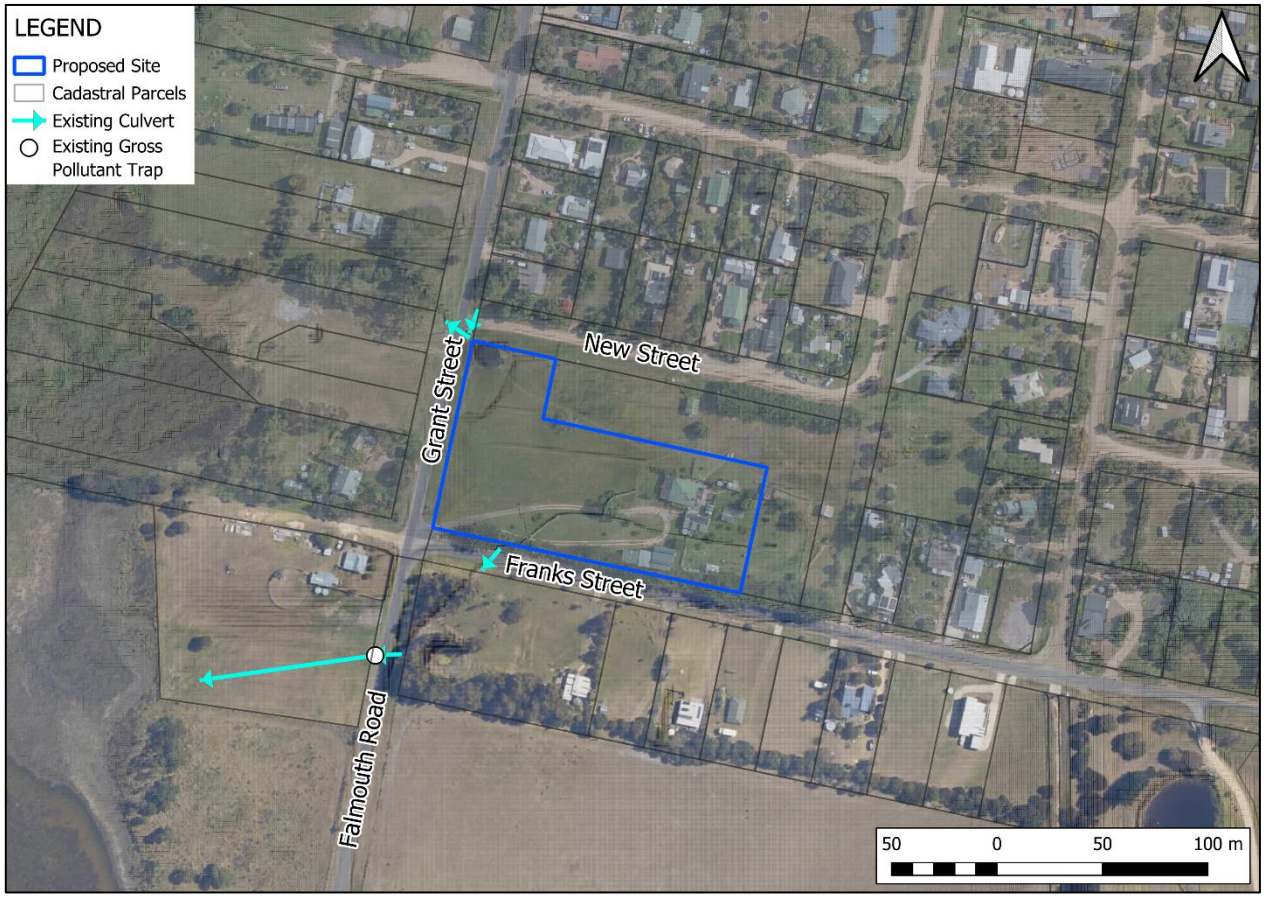


Figure 1 – Site Location.

1.2 Purpose of Report

This conceptual report supports the accompanying development application to demonstrate that the development can satisfy Council's stormwater requirements. This report aims to do the following:

- Assess the current flood behaviour of the site at 70 Grant Street Falmouth for the 1% AEP event with consideration to the Long-term SSP3-7.0 2090 climate scenario based on the latest advice from ARR.
- Assess the post-development implications of the SSP3-7.0 2090 climate change scenario.
- Assess performance of proposed stormwater management for the site and flood impacts of the proposed development.
- Provide recommendations to improve performance of the proposed subdivision design.
- Assess the proposed development against C12.7.1 of the Planning Scheme.

1.3 Responses to RFI Items

1.3.1 RFI Item 2

*Please provide an Amended Flood Study Report which includes a revised response to both clauses C12.6.1 Buildings and works within a flood-prone hazard area **(P1.1 and P1.2)** and C12.7.1 Subdivision within a flood-prone hazard area **(P1)** which ensures that the existing buildings on the subject site are considered within the assessment. Alternatively, consideration can be given to*

demolishing the outbuilding structures, but this must be clearly shown on the subdivision proposal plan and an amended planning scheme response which reflects this.

In Section 6 the existing buildings are addressed in terms of Clauses C12.6.1 and C12.7.1. Note that the existing outbuildings are located in an H1 flood hazard area for both pre- and post-development scenarios. Most of the outbuildings are to be demolished. See marked buildings in image below.

1.3.2 RFI Item 3

It can be seen from flood mapping provided in the report that the additional outlet provided (to Devil's Creek) is inlet-controlled by virtue of additional flood water present on the lots compared to the existing case. While bulk fill for building pads and driveways is discussed as necessary for the flood management solution, select areas of proposed lots outside of these fill areas are therefore required as part of flood management solution – being indirectly used as detention. Advice or acknowledgement for using the lots in this manner must be provided.

The intention is not to use the site for detention storage, but rather to remove the water from the site as efficiently as possible. A DN600 pipe is proposed instead of the DN450 as per the previous report.

1.3.3 RFI Item 4

Access and egress to each site (driveways) is contingent on Council maintaining the capacity of the proposed system. Occupants of the site during a flood event may otherwise be subject to specific evacuation routes. This should be considered or stated within the response to criterion (b) of performance criteria **P1** of clause *C12.7.1 Subdivision within a flood-prone hazard area* so

Council has the opportunity to acknowledge and agree to the risk – or otherwise impose a requirement for a flood evacuation plan.

The flood hazard report has been updated accordingly.

1.3.4 RFI Item 5

The response to criterion (b) of performance criteria **P1** of clause *C12.7.1 Subdivision within a flood-prone hazard area* does not discuss or show if the building pads, embankments or access roads require any form of protection against flood water. For example, if the proposal minimises the need for future remediation works after a flood event by stating that batters subject to flood forces will be designed by a suitably qualified engineer.

It is requested that further clarification/consideration is provided on this matter.

The report has been amended to note that all batters subject to flood forces will be designed by a suitably qualified engineer.

1.3.5 RFI Item 6

Treatment of the existing farm dam to the north-west of the site within the flood management solution was presented in Item 1 of the RFI submitted via email on the 5th of November 2025.

Usage or implications of the existing dam within the report are not present. It can be seen from the hazard flood mapping provided within the report that it is subject to a class H3 hazard being considered generally unsafe for young people and the elderly. As the subdivision is contained, and proposed to remain as, 'low density residential' it would be reasonable to assume both young people and elderly may be present during flood events and therefore be a subject of the 'Use' case.

Treatment of this dam and hazard needs to be defined and addressed by the report. The report then needs to effectively address clauses *C12.6.1 Buildings and works within a flood-prone hazard area* **(P1.1 and P1.2)** and or *C12.7.1 Subdivision within a flood-prone hazard area* **(P1)** depending on, for example, the dam's necessity within flood management to further address Buildings and Works, or, for example, the redundancy of the dam and therefore its hazards/risk within the intended Use of the lot.

The Client has advised that the dam will be filled in. The modelling has been revised accordingly.

2. Study Area

2.1 Extent of Study Area

The extent of the TUFLOW hydraulic model is shown in Figure 2 below. The modelled catchment is 18.93 Ha and encompasses semi-rural areas of Falmouth and a large greenfield area to the South of the township, ultimately discharging into Devils Creek, West of Falmouth.

Falmouth Road and Franks Street are major hydraulic control mechanisms within the catchment that have intersected the broad shallow natural overland path, retaining rainfall runoff that is conveyed by transverse culverts at both locations. The retention of flow that otherwise would have been allowed to freely drain prior to the construction of the roads, results in the propagation of increased upstream WSLs.

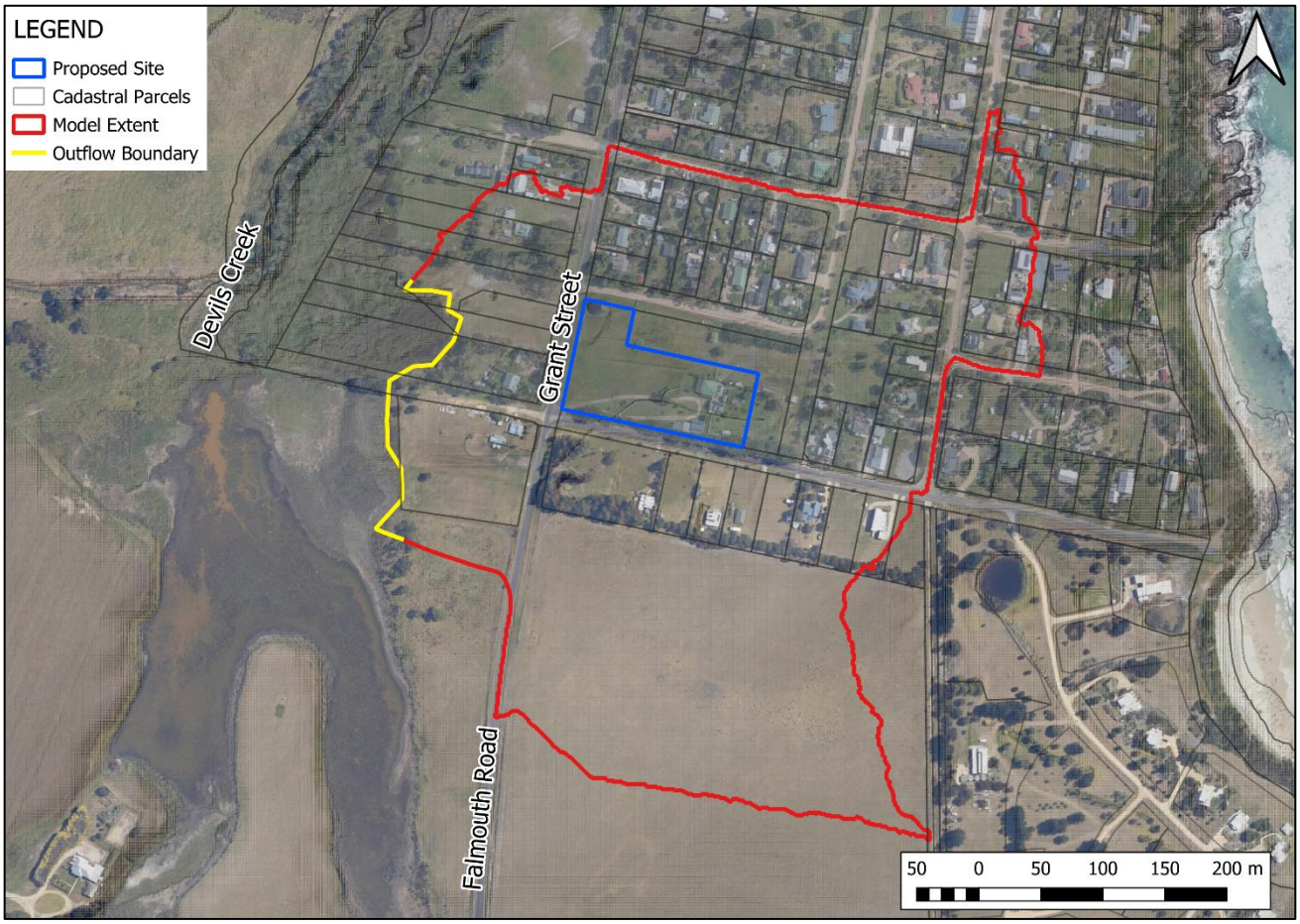


Figure 2 – Model Extent.

3. Hydrology

Design hydrology for the catchment was generated with the TUFLOW 'Extract ARR2019 to TUFLOW' utility tool within QGIS geospatial information system. The utility tool extracts Australian Rainfall and Runoff (ARR) input parameters and the Australian Bureau of Meteorology (BOM) rainfall data to generate catchment specific rainfall inflows for the study area.

Rainfall losses due to infiltration were applied based on the IL-CL method. Pre-burst rainfall was accounted for by subtracting the ARR-recommended pre-burst rainfall depths from the initial loss applied to the rainfall.

Rainfall data for an ensemble of ten (x10) temporal patterns and multiple event durations was generated for the Long-term SSP3-7.0 2090 climate to be applied with a rain on grid approach and used to determine the critical storm durations and median temporal patterns of the design event.

3.1 Design Event AEPs

The 1% AEP Long-term SSP3-7.0 2090 climate design event has been modelled to conduct this assessment to evaluate the flood behaviour, flood impact and drainage infrastructure with regard to the pre-developed and proposed post-developed design case. The Long-term SSP3-7.0 2090 climate change scenario was considered and flood mapping produced for this scenario to demonstrate the effect of climate change.

3.2 Critical Durations

Pre and post-developed condition model simulations were run for the 1% AEP Long-term SSP3-7.0 2090 climate utilising a ten (x10) temporal pattern ensemble for storm durations ranging from 10-minute to 720-minute (12hrs).

Peak water surface level (WSL) results grids were then enveloped based on the maximum WSL for each cell and visually inspected to identify event durations critical to the development site.

The 1% AEP Long-term SSP3-7.0 2090 climate critical duration assessment presented below in Figure 3 shows in the pre-development case that the 25-minute event in the upstream area of the site and the 360-minute (6 hr) duration event in the downstream area of the site to be dominant within the main flow path, while the 10-min duration is prominent in areas subjected to sheet flow.

Post-development critical duration analysis presented in Figure 4 shows the 25-min, 120-min (2 hr) and 360-minute (6 hr) duration events to be dominant throughout the main flow path within the site, similarly the 10-min duration is prominent in areas subjected to sheet flow.

Figure 3 – Critical Duration, Pre-development 1% AEP Long-term SSP3-7.0.

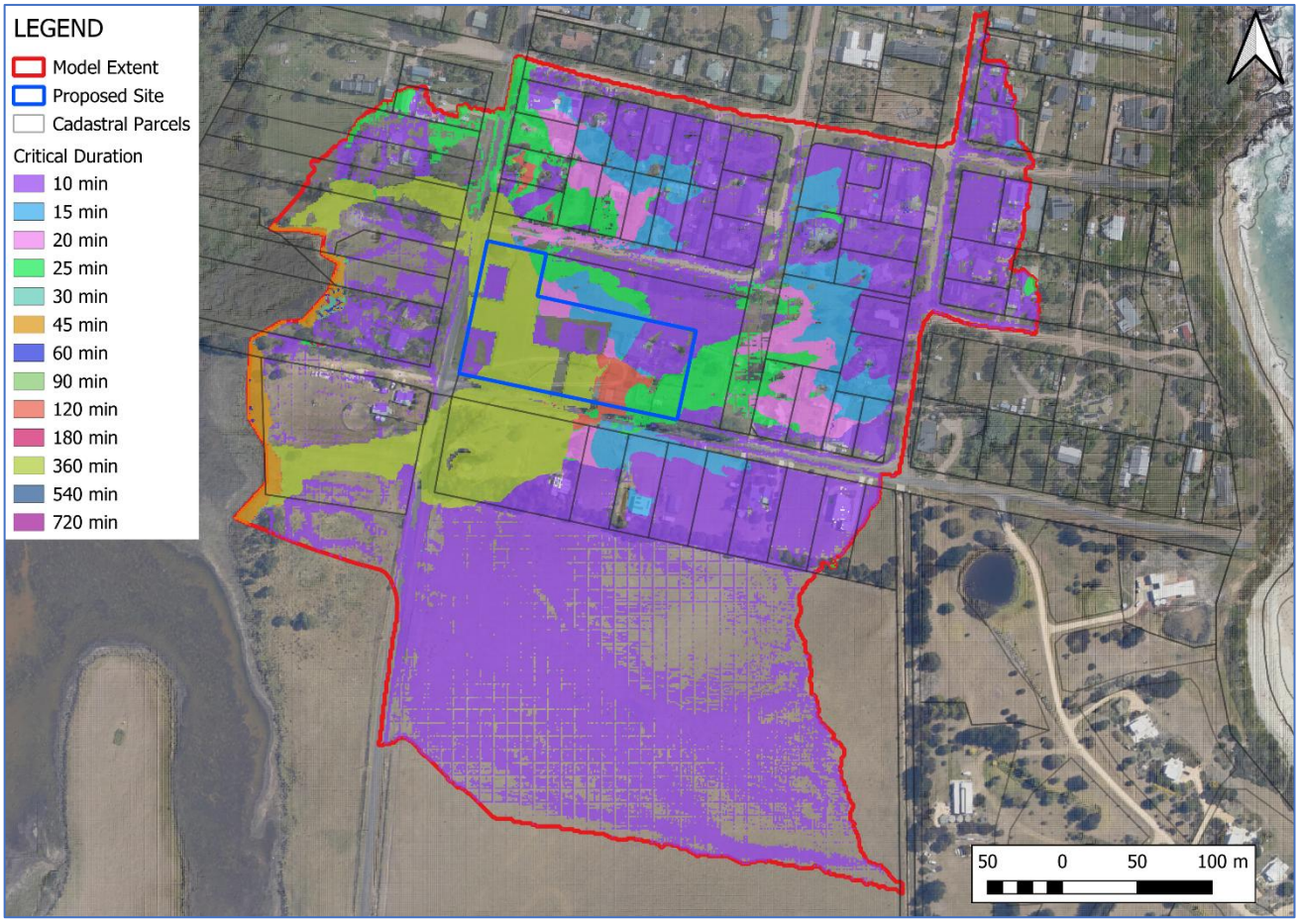


Figure 4 - Critical Duration, Post-development 1% AEP Long-term SSP3-7.0.

3.2 Median Temporal Pattern Analysis

Based on the determined critical durations for the design AEP events, a median temporal pattern analysis was undertaken utilising the TUFLOW asc_to_asc routine and the modelled results of the ensemble of ten (x10) temporal patterns for the selected critical durations.

The resultant peak water surface levels (WSL) of the ten temporal pattern results grids for the critical durations were then enveloped based on the median WSL for each cell and visually inspected to identify those relevant to the development site during the 1% AEP Long-term SSP3-7.0 event.

Figure 5 and Figure 6 below respectively show the median temporal pattern spatial distribution for the pre- and post-development 1% AEP Long-term SSP3-7.0 360-minute events, identified in the critical duration analysis.

Pre-development, temporal pattern 8 (TP08) has been identified for the 360-minute duration in the downstream area of the site. Post-development temporal pattern 5 (TP05) and 8 (TP08) have been identified for the downstream area of the site.

All pre and post development median temporal pattern analysis figures for selected critical duration events are presented in Annexure A.

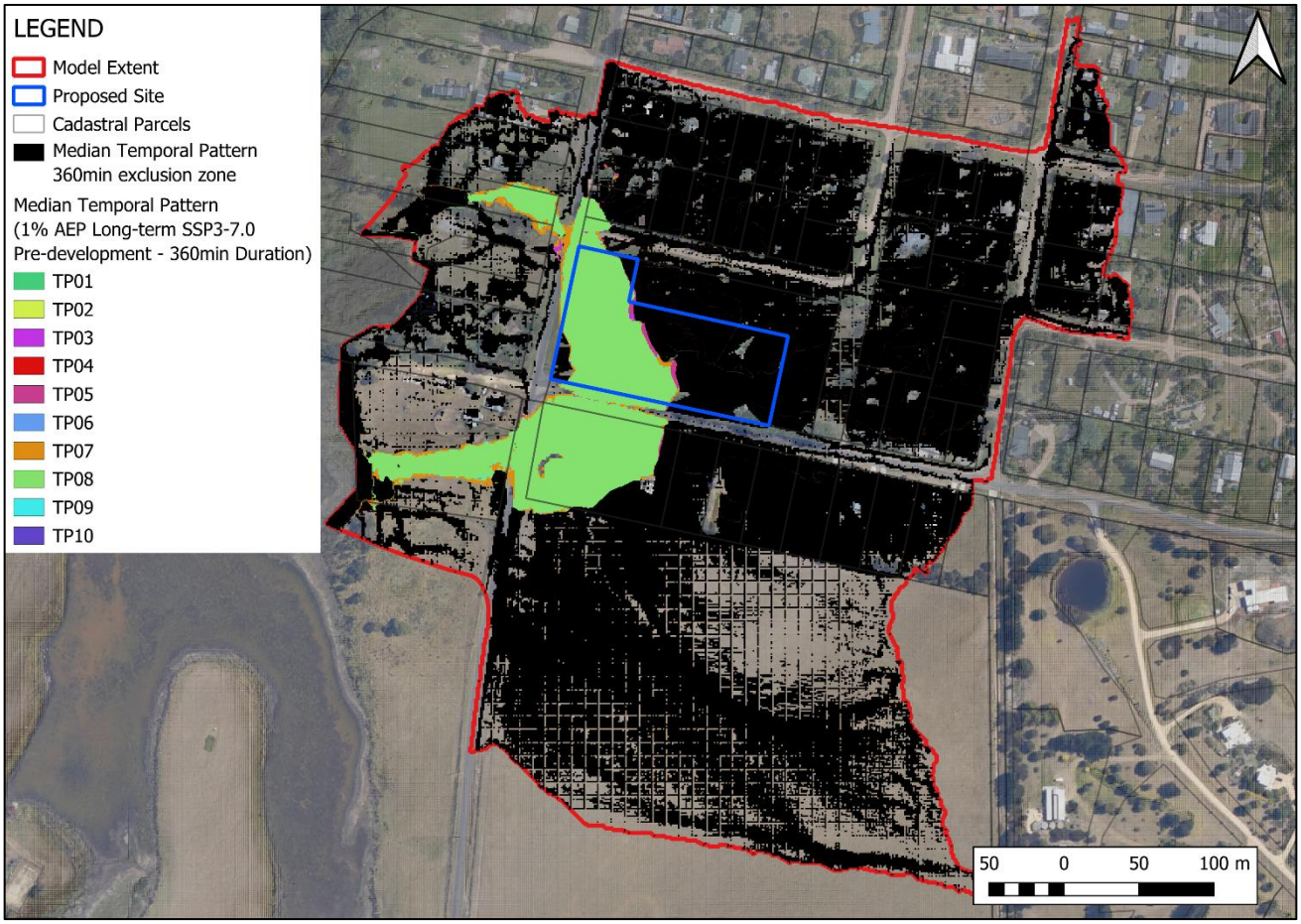


Figure 5 – Median Temporal Pattern, Pre-development 1% AEP Long-term SSP3-7.0, 360-minute event.

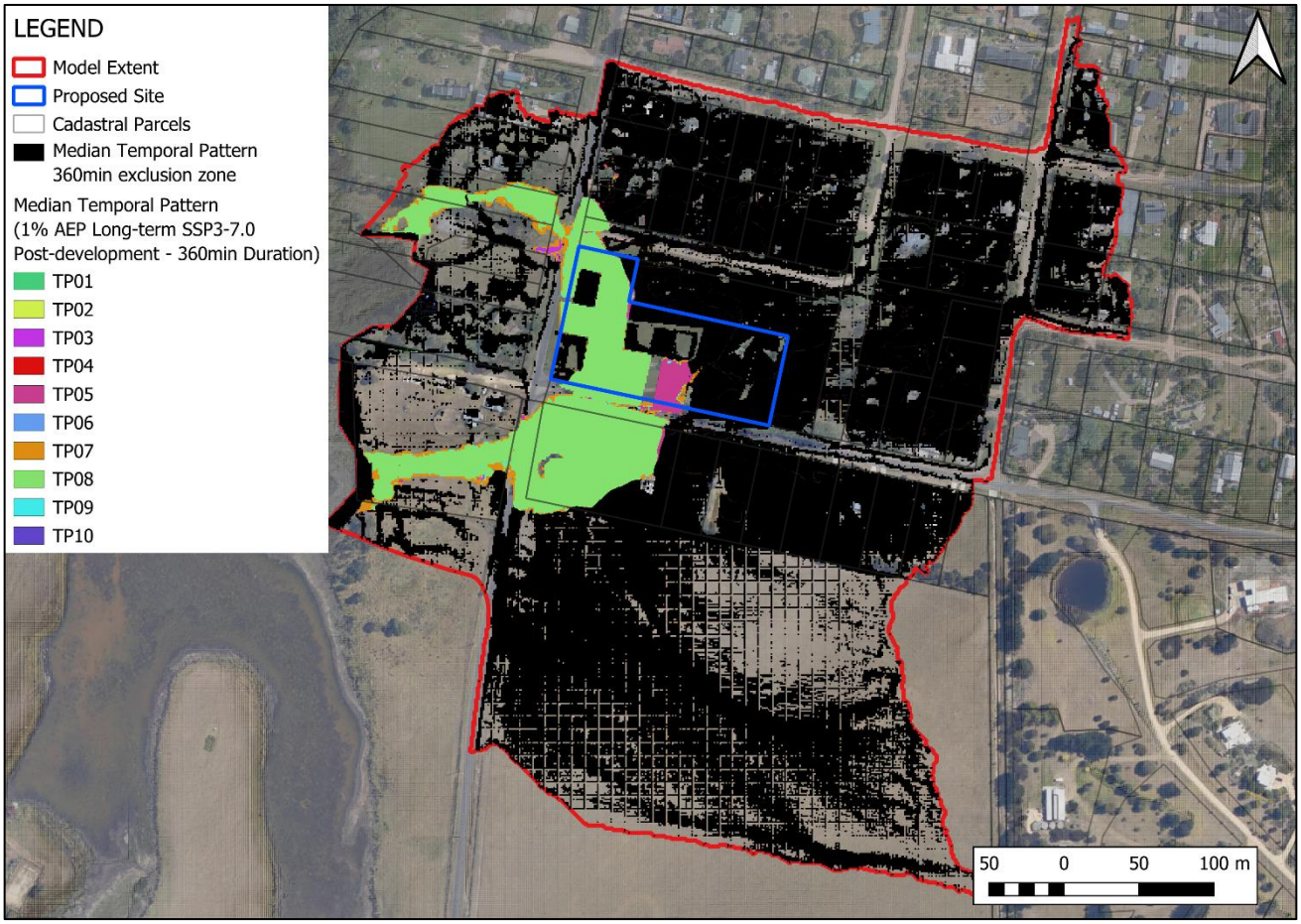


Figure 6– Median Temporal Pattern, Post-development 1% AEP Long-term SSP3-7.0, 360-minute event.

3.3 Design Rainfall Events

Design rainfall events selected for this flood study and applied to both pre-developed and design scenarios are presented in Table 1, below.

Table 1 – Design Rainfall.

Scenario	AEP	Climate Horizon	Duration (min)	Median Temporal Pattern
Existing/Pre-developed	1%	Long-term SSP3-7.0	10	TP01
			25	TP09
			360 (6 hr)	TP08
Post-developed	1%	Long-term SSP3-7.0	10	TP01
			25	TP02
			120 (2 hr)	TP05
			360 (6 hr)	TP05 & TP08

4. Hydraulic Model Schematisation

Hydraulic modelling of the catchment was undertaken utilising TUFLOW Heavily Parallelised Compute (HPC) single precision (iSP) solver, version 2025.0.1 build. The Grant Street hydraulic model incorporates 1D network elements (stormwater pit, pipe and manholes) and a 2D topographical grid with a 1m grid cell resolution.

4.1 Modelled Scenarios

Modelled scenarios reported include:

- Pre-development
  - Existing case modelled to establish current flood behaviour and provide a basis to assess the impacts of the proposed development.
- Post-development
  - Proposed design including stormwater mitigation measures, proposed earthworks/topography changes. Used to assess changes to flood impacts of the proposed development at location of interest and within the broader catchment.

4.2 Topography

The hydraulic model was comprised of the following topographical data in GEOTIFF format.

- Pre-developed (existing) condition
  - LiDAR data was obtained from Elvis – Elevation and Depth – Foundation Spatial Data at a 1m grid cell resolution and used as the base topography for the existing pre-developed condition throughout the catchment.
  - DEM generated from survey data of the site including drainage swales, overlaying LiDAR.
- Post-developed condition
  - Design surface modifications within the site area overlaying LiDAR and Survey data, generated within the hydraulic model using 2d z-shapes.

4.2.1 Pre development topography

Figure 7 below shows the existing pre-developed catchment topography and site location, whilst Figure 8 shows the existing site topography. The prominent hydraulic control mechanism within the catchment is Falmouth Road and Franks Street and associated transverse culverts.

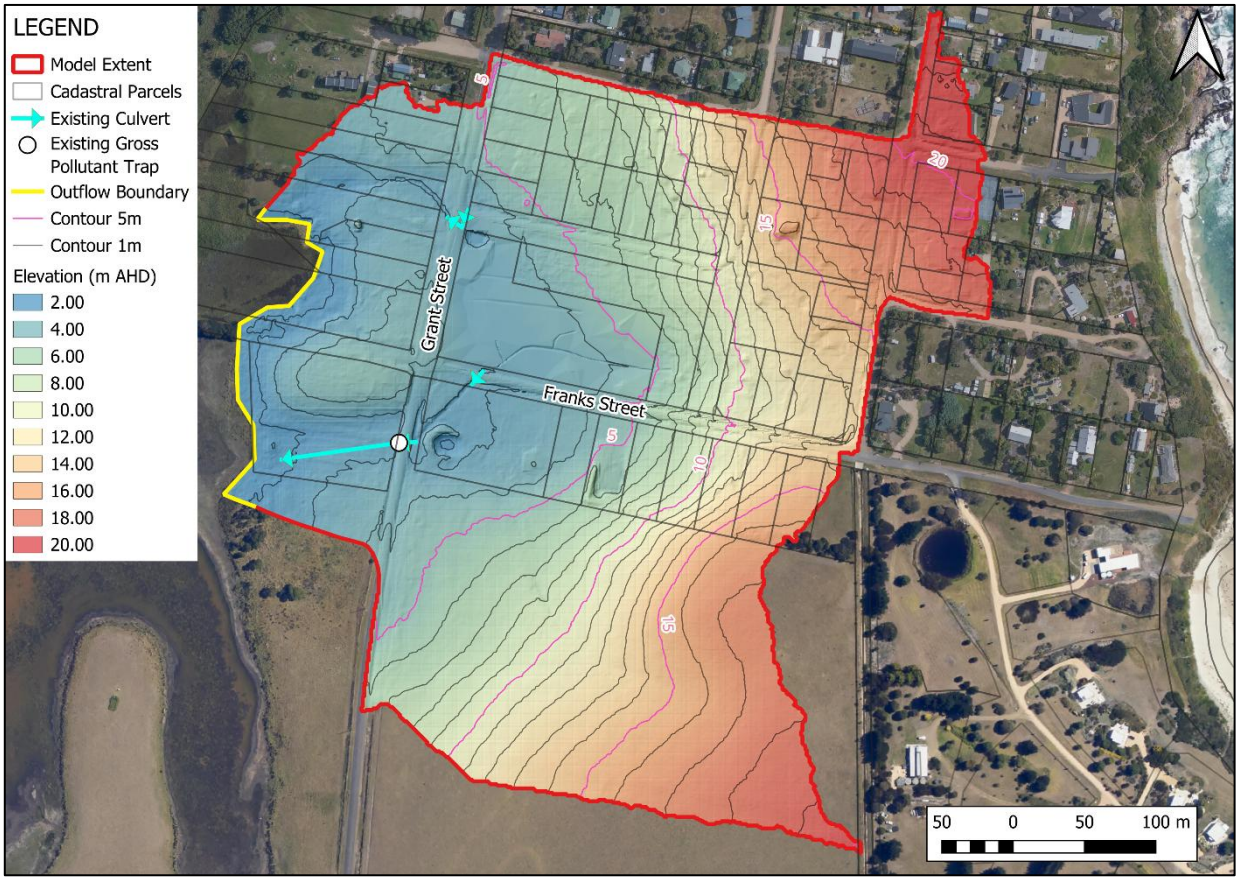


Figure 7 – Catchment topography.

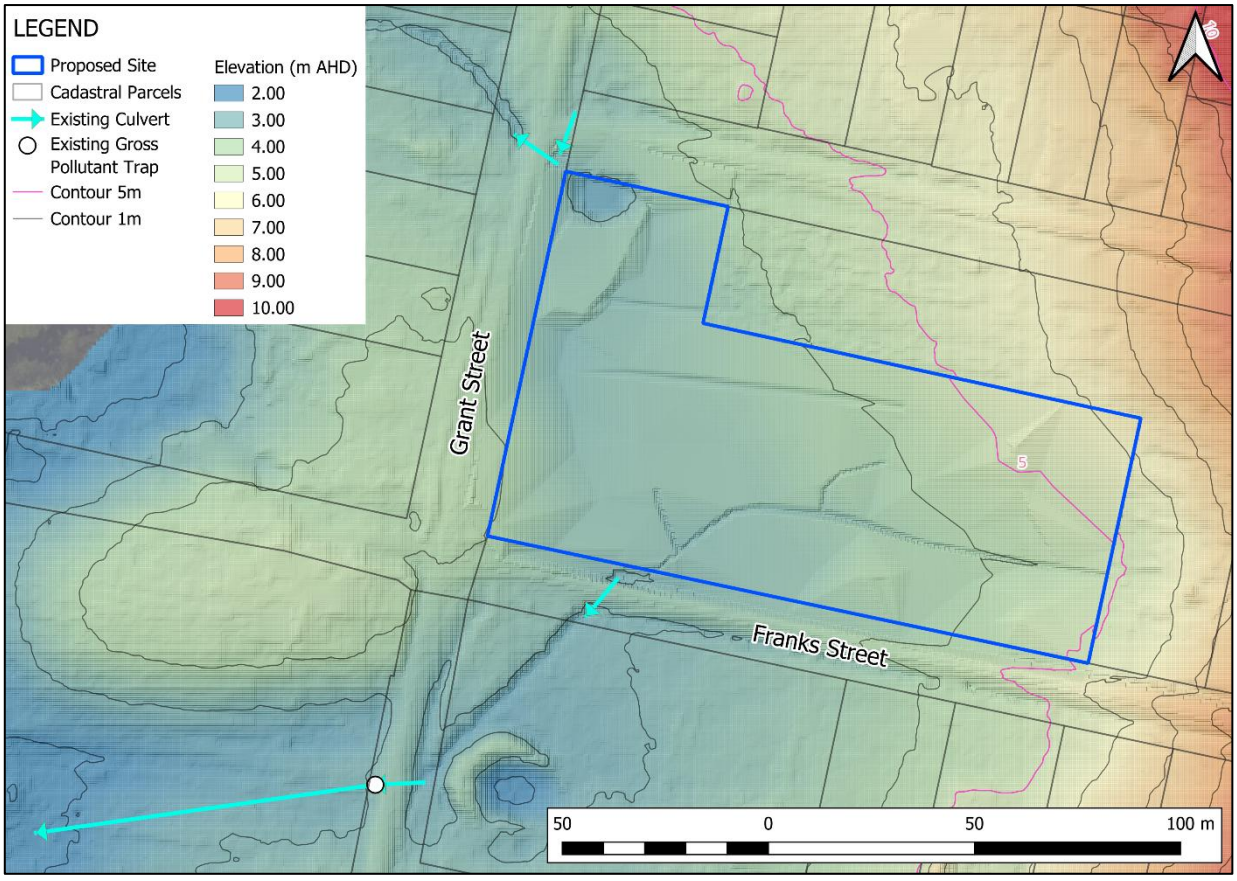


Figure 8 – Site pre-development topography.

4.2.2 Post-development topography

The post-developed topography is intended to provide adequate building parcels including areas for the management of wastewater and overland flows in a controlled manner within the site. The proposed design includes new infrastructure to convey flows from the site and includes the following features:

- Raised site, provision of fill for Lots 1, 2, 3, 4 and 6.
- Raised driveway access for all lots with pipe culverts at the road threshold - from Franks Street for Lots 3, 4, 5 and 6, and from Grant Street for Lots 1 & 2.
- Provision of a catch drainage swale along the Eastern boundary of Lot 6.
- Grading of lower portion of the lots 1, 2, 5 and 6 to improve flow conveyance.
- Pond infilled and area graded to 3.40 m AHD, removing residual sections of pond embankment within site boundaries.
- Addition of new pipe culvert in Franks Street to convey water to an open drain and then into Devils Creek.

Figure 9 below shows the proposed site topography modifications for management of stormwater.

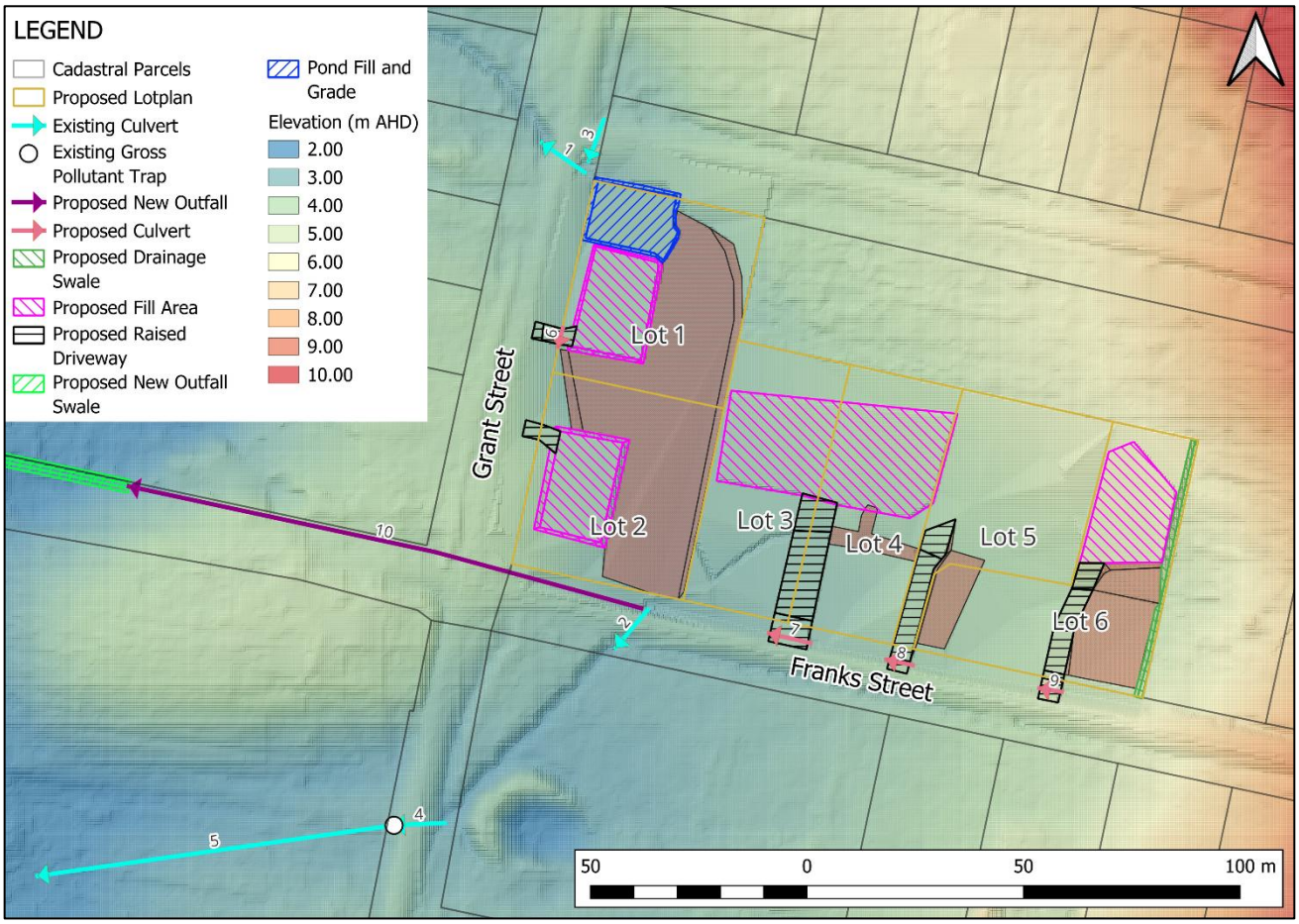


Figure 9 – Proposed site topography modifications.

Figure 10 below presents the post-development site with enforced topographical drainage features applied to the post-development site.

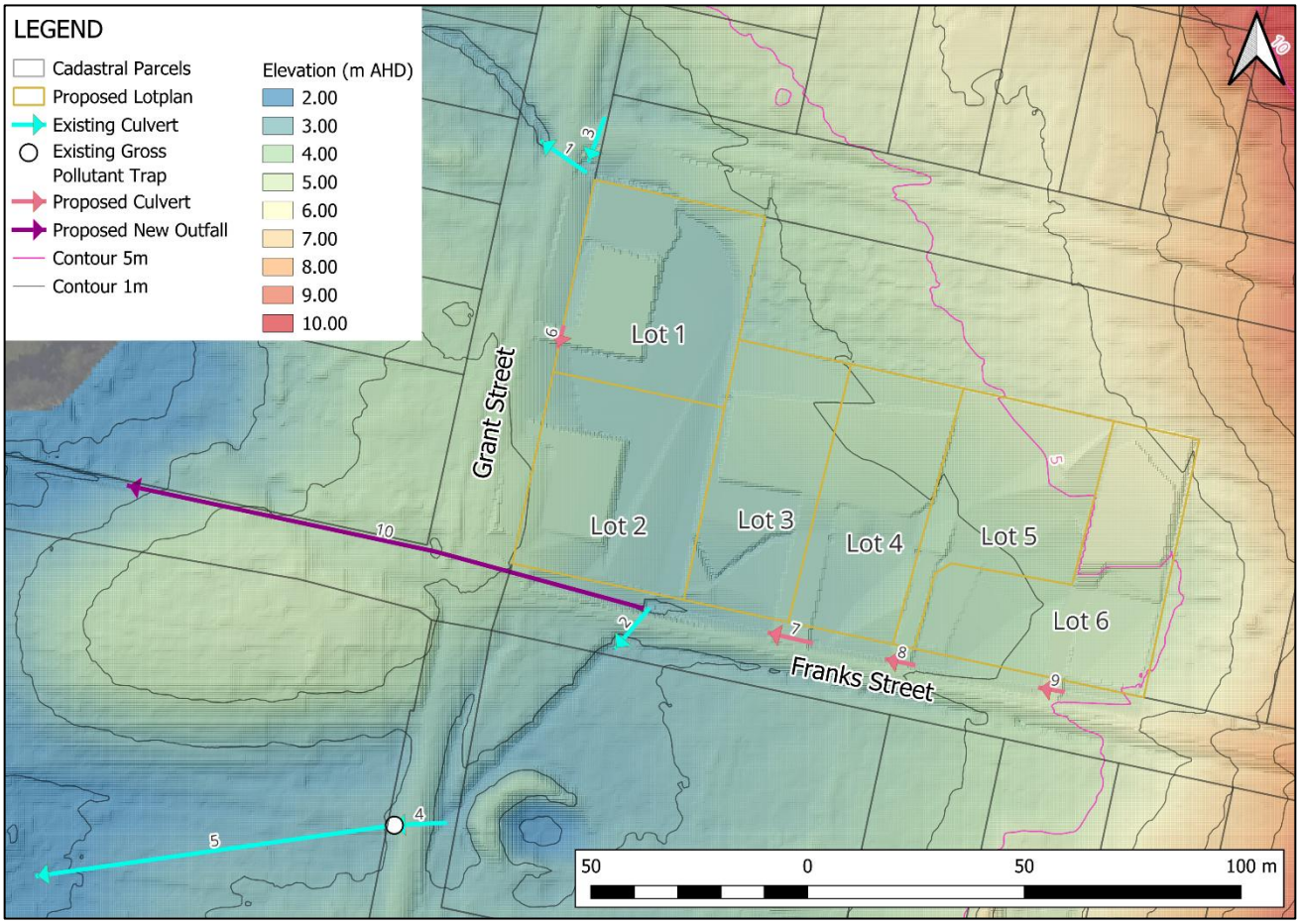


Figure 10 – Site post-development topography.

Figure 11 below shows the proposed site lot plan and indicative 10m x 15m building parcels. Indicative areas designated for wastewater management have also been shown based on information presented in Geo-Environmental Solutions (GES) On-Site Wastewater Assessment report.

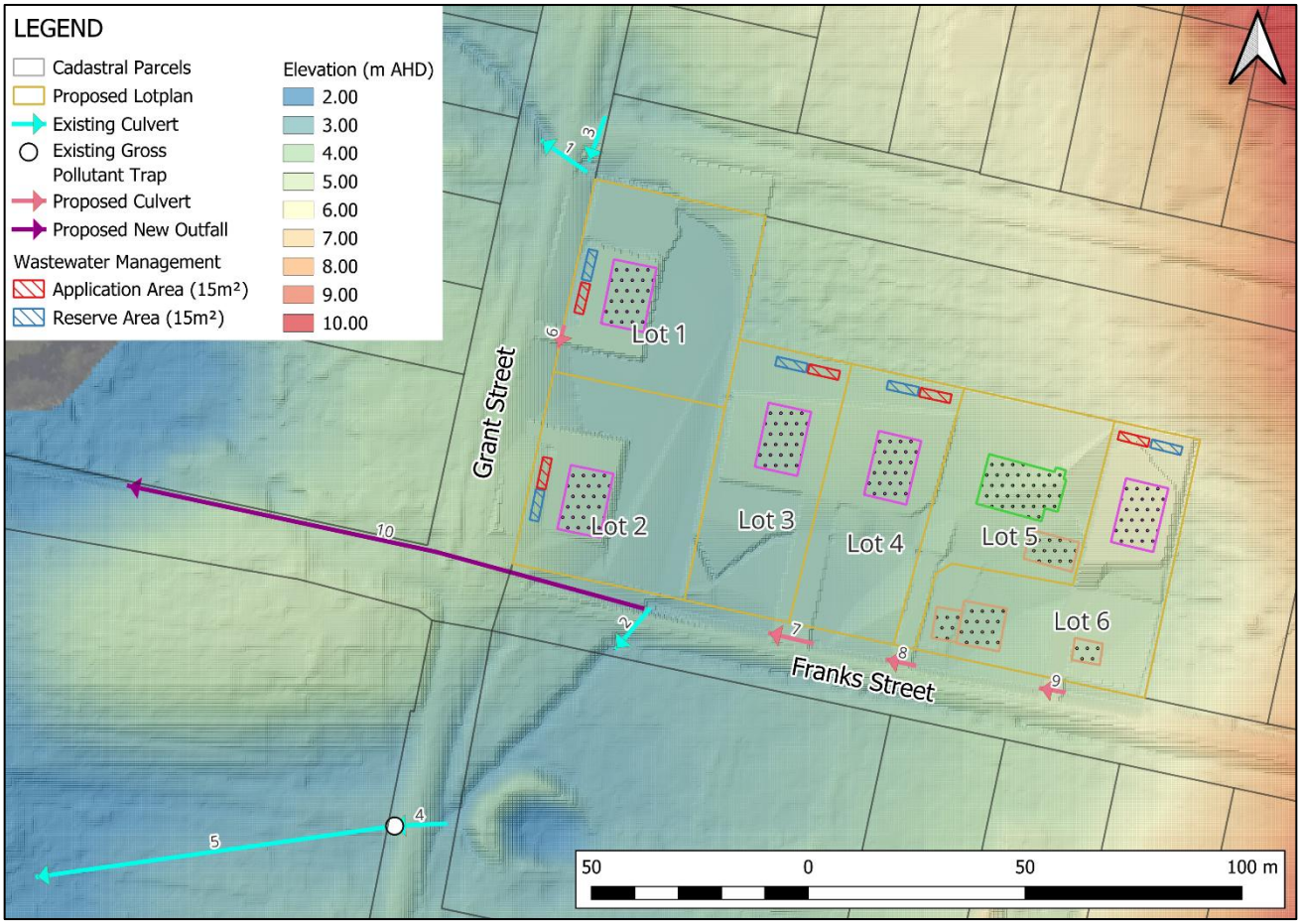


Figure 11 – Site post-development topography and proposed lotplan with indicative building parcels and wastewater management.

4.3 Land-use definition

The catchment was delineated into different land use areas based on satellite imagery, cadastral data (sourced from the LIST), and preliminary development design. A default value representing open greenspace was applied to the entire model with a spatial delineation for the roads and residential areas overlayed. Land-use areas were assigned Manning's roughness and fraction impervious values outlined in Table 2 below.

Table 2 – Land-use, Mannings roughness and fraction impervious values.

Id	Land-use	Manning's roughness	Fraction Impervious (%)
1	Grass/greenspace	0.03	0
2	Residential – low density	0.2	35
3	Road reserves, including, road, walkway, grassed verges	0.02	80
4	Building footprint	0.3	100
5	Building parcels & driveways	0.02	90

Figure 12 shows the spatial delineation and material land-use values applied to the pre-developed case. Figure 13 presents the post-developed case spatial.

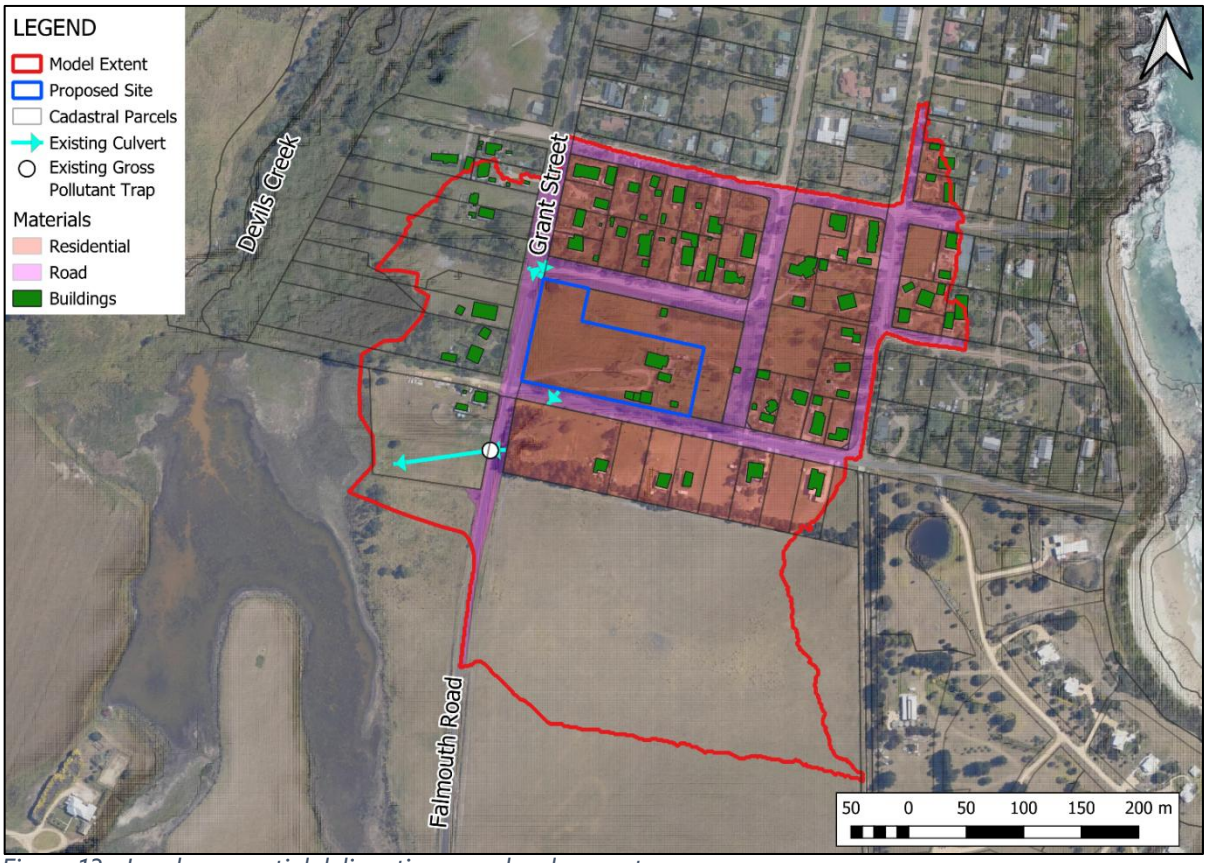


Figure 12 – Land-use spatial delineation, pre-development.

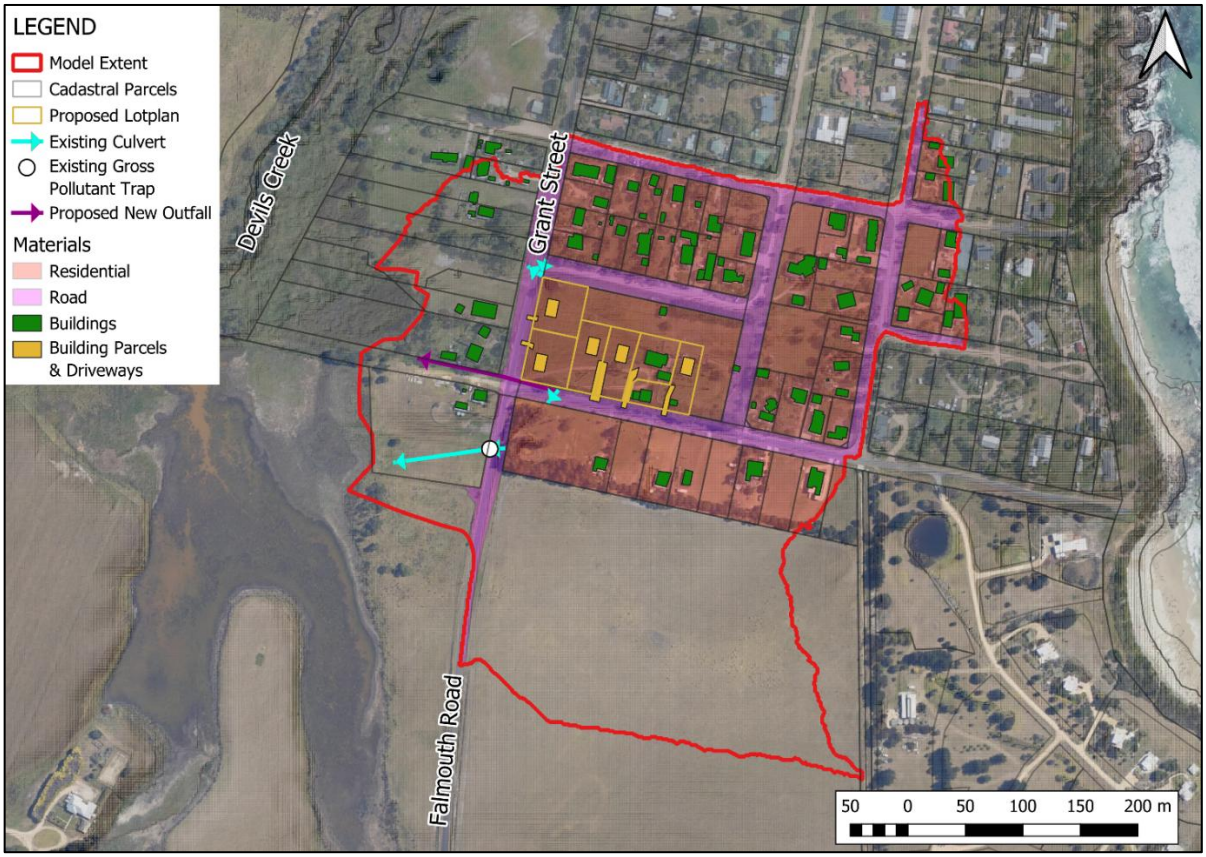


Figure 13 – Land-use spatial delineation, post-development.

4.4 Soil Infiltration

Rainfall infiltration rates extracted from the design hydrology were applied to the hydraulic model using the same spatial delineation utilised for land-use. Initial loss (IL) and continuing Losses (CL) values are event specific and applied with consideration to fraction impervious values assigned within the land-use definition model layers.

4.5 Boundary Conditions

There is a single 2D model boundary condition located at the catchment outlet along the western boundary that discharges into Devils Creek. The boundary condition is applied as a height versus time with a uniform Highest Astronomical Tide (HAT) level of 1.8m AHD. The catchment outflow boundary is shown in Figure 7.

For the pre-development case an initial WSL of 3.00 m AHD is applied to the onsite pond, matching the nearby upstream transverse Grant St culvert intake area.

4.6 Stormwater Network

The stormwater network within the site catchment predominantly consists of roadside table drains with property access facilitated by driveway culverts. Existing transverse culverts are present at New St, Grant Street, Franks Street and Falmouth Road and presented in Figure 14 below.

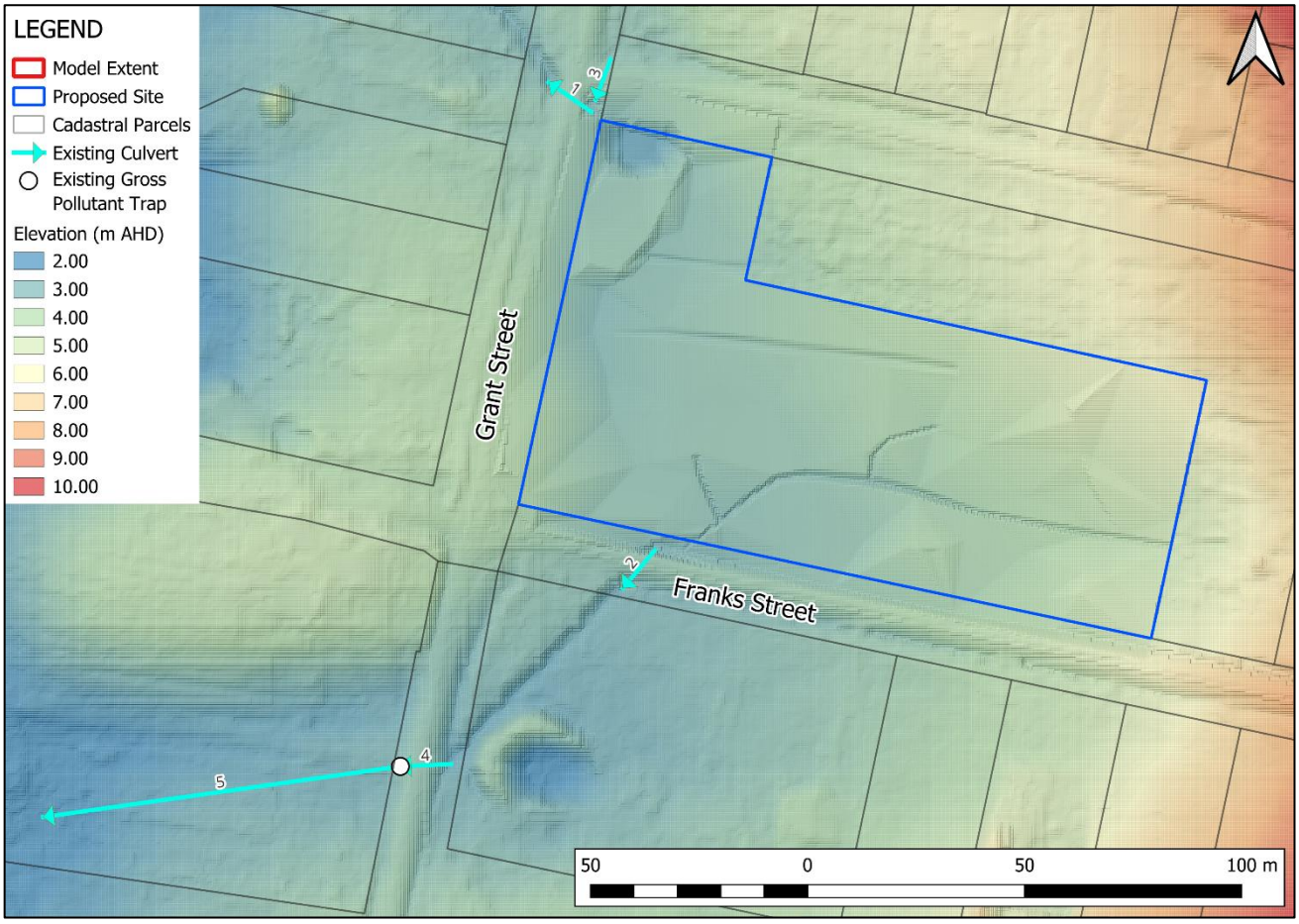


Figure 14 – Existing Pre-developed site and stormwater network.

The proposed case utilises both new and existing stormwater infrastructure, onsite drainage swales in conjunction with culverts under driveway access points along Franks Street. The raised driveway accesses are intended to cause minimal obstruction to the overland flow of water and are not anticipated to be flood immune, but depths and velocities will be small.

The proposed drainage network is presented in Figure 15 below and modelled culvert parameters for both the pre-developed and proposed post-developed condition are tabulated in Table 3.

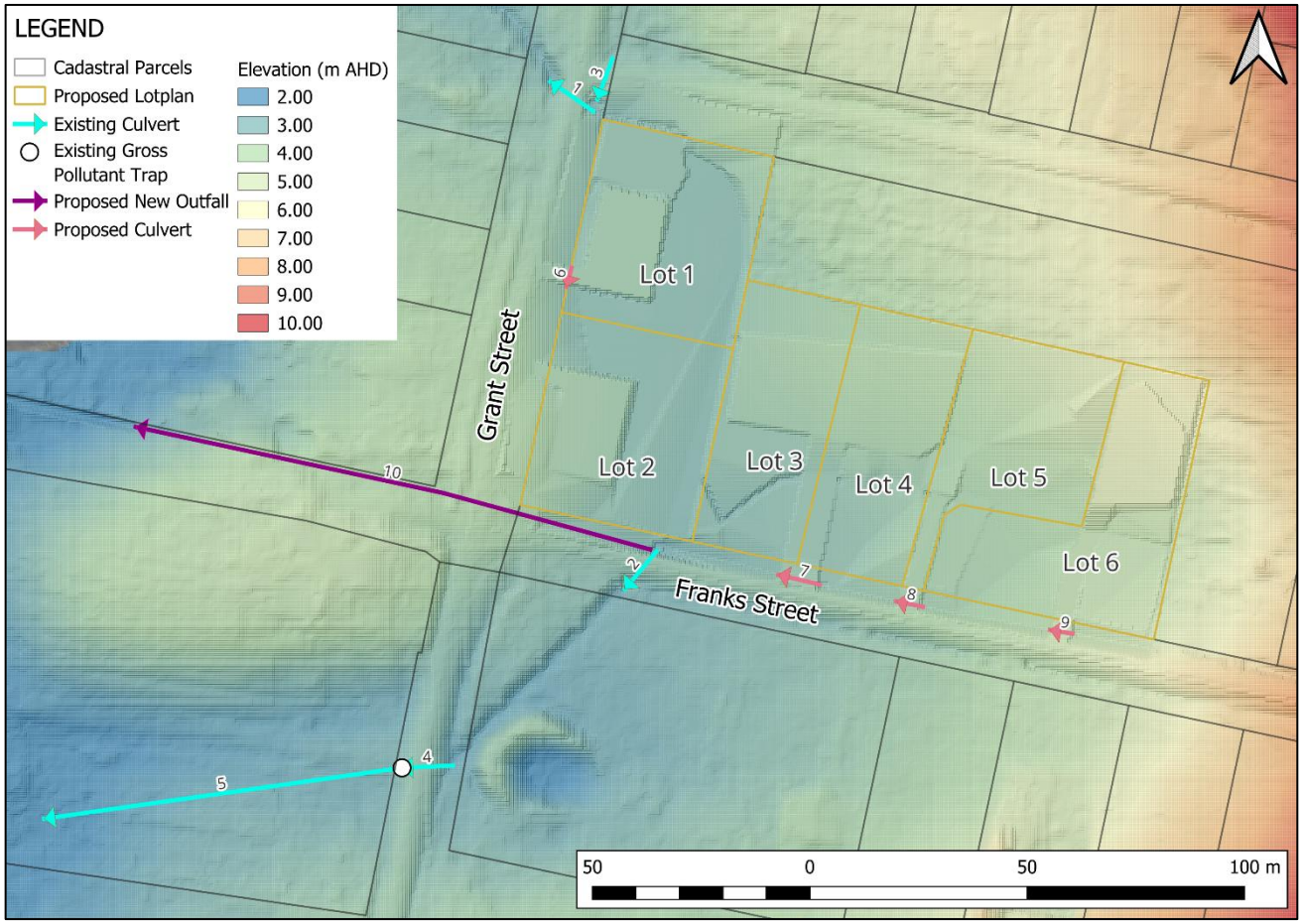


Figure 15 – Proposed Lotplan and stormwater network.

Table 3 – Existing and proposed stormwater infrastructure.

ID	Location	Scenario	Dia (m)	Length (m)	US IL (m AHD)	DS IL (m AHD)	Number of
1	Cnr Grant & New St	Existing and proposed	0.375	11.93	3.06	2.86	1
2	Franks St	Existing and proposed	0.375	11.45	2.77	2.74	1
3	New St	Existing and proposed	0.225	9.97	3.25	3.1	1
4	Falmouth Rd	Existing and proposed	0.375	11.72	2.55	2.48	1
5	Falmouth Rd to Devils Ck	Existing and proposed	0.375	84.62	2.43	1.75	1
6*	Lot 1 - road threshold	Proposed only	0.225	4.45	3.35	3.35	1
7	Lot 4 - road threshold	Proposed only	0.375	9.78	3.30	3.25	1
8	Lot 5 - road threshold	Proposed only	0.3	6.26	3.67	3.60	1
9	Lot 6 - road threshold	Proposed only	0.375	5.25	4.40	4.20	1
10	New outfall	Proposed only	0.6	122.00	2.80	2.60	1

4.7 Grid Cell Resolution

A 1m grid cell resolution was adopted based on the available LiDAR with the small catchment size not adversely impacting model run times.

4.8 Calibration/Validation

The 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 visual comparison of PDA produced 1% AEP noCC flood extents for the current climate against the Tasmanian Strategic Flood Map (TSFM) Design Flood Event output was conducted. The 10m grid cell resolution utilised by TSFM likely resulted in poor representation of hydraulic features and ultimately the flood extent in comparison to the flood extent presented here in this report produced with a 1m grid cell resolution.

However, flood extents and flow paths show a degree of alignment between the studies. Figure 16 below presents a visual comparison of the TSFM 1% AEP flood extent against the PDA modelled output.

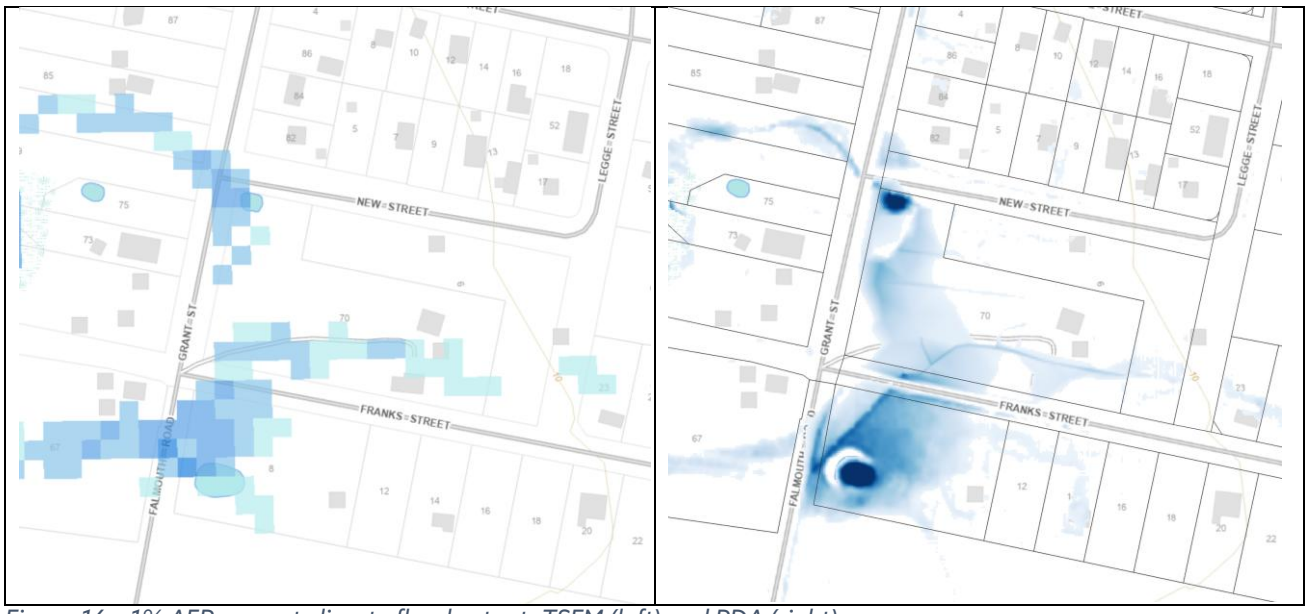


Figure 16 – 1% AEP current climate flood extent, TSFM (left) and PDA (right).

5. Results

Flood maps provided as part of this study to demonstrate the feasibility of the proposed subdivision include:

- Pre and Post flood depth produced with a 0.01m cut-off depth.
- Flood afflux, change in maximum water depth between pre- and post-development scenarios, produced with a 0.00m cut-off depth.
- Pre and Post flood hazard (ZAEM1) categorisation.
- Flood maps have been produced for the Long-term SSP3-7.0 2090 climate change scenario.

Flood maps are presented in Annexure B.

5.1 Pre-development

The site receives overland flow from the southeast and northwest boundaries with the majority of flow directed to the table drain aligned with Franks Street to the south. The transverse culvert at Franks Street conveys the flow into the adjacent property, 8 Franks Street. This culvert forms a hydraulic control mechanism restricting flow and detaining water on the site.

The site discharges via the Franks Street culvert into the adjacent property, which is in turn collected by a transverse culvert under Falmouth Road to then discharge into Devils Creek. A portion of the flow exits the site via the culvert at the corner of Grant and New Street.

The pre-developed case 1% AEP Long-term-SSP3-7.0 flood extent is broad and prominent on the western half of the site with an approximate median flood depth across the entire site (excluding the pond) of 120mm, with a maximum depth of approximately 540mm in an isolated area.

Falmouth Road which provides the primary and only access to Falmouth is overtopped. Franks Street and the intersection of Grant and New Street are impacted by flood water breaching the road shoulder and likely to experience some form of minor overtopping but remain trafficable. The existing dwelling is flood immune in the 1% AEP Long-term-SSP3-7.0 event; however, two existing shed outbuildings are impacted by pre-development flood waters.

Figure 17 shows the 1% AEP Long-term-SSP3-7.0 pre-development flood depth.

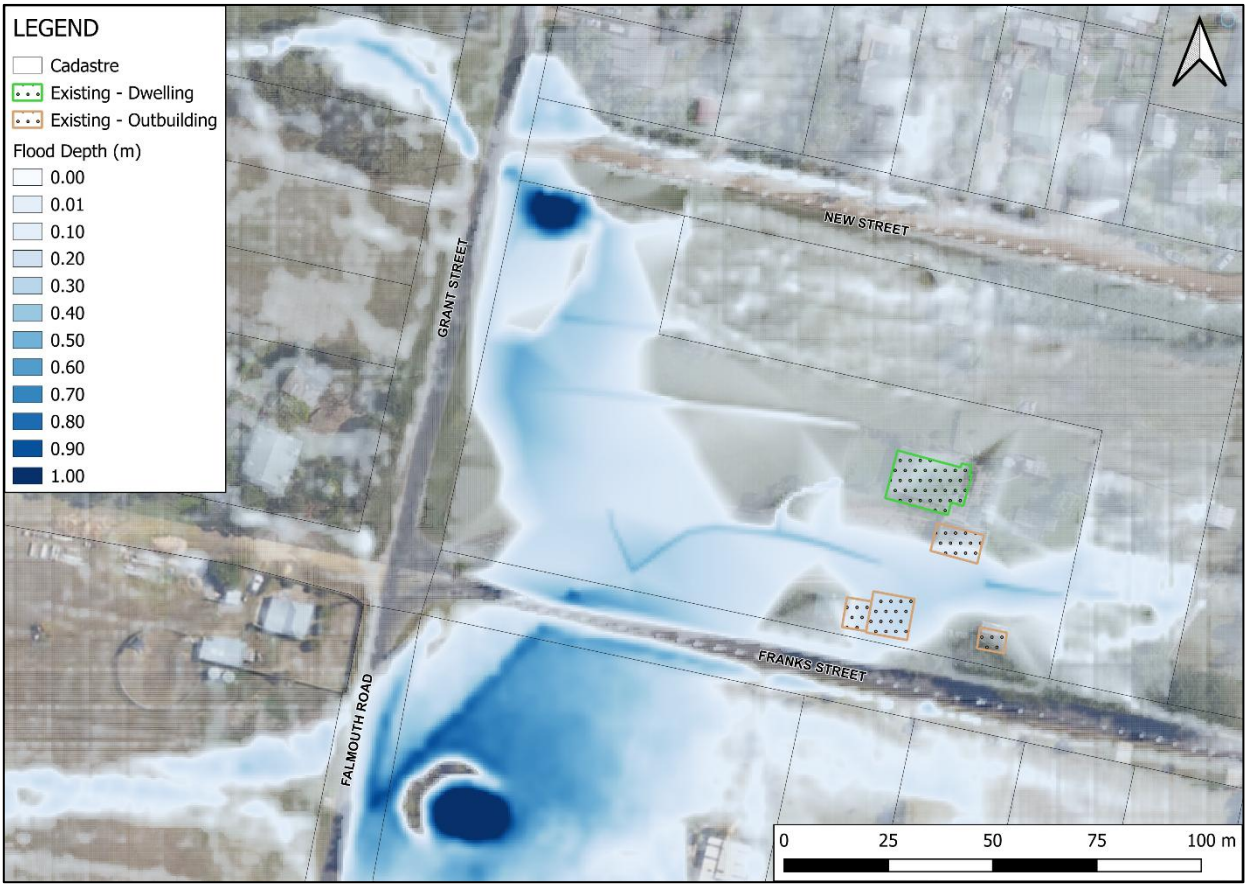


Figure 17 – 1% AEP Long-term-SSP3-7.0 pre-development flood depth, 0.01m cut-off depth.

5.2 Post-development

Flood-free (depth <10 mm) building platforms have been created. There is some overflow over the driveways, but this is tolerable (H1).

Flood conditions in the surrounding roads are non-worsening.

The existing dwelling remains flood immune in the 1% AEP Long-term-SSP3-7.0 event. The existing hothouse structure is affected by an H1 (tolerable) hazard. The remaining outbuildings are to be demolished. Figure 18 shows the 1% AEP Long-term-SSP3-7.0 post-development case flood depth.

Note that a 10 mm cutoff depth has been used.

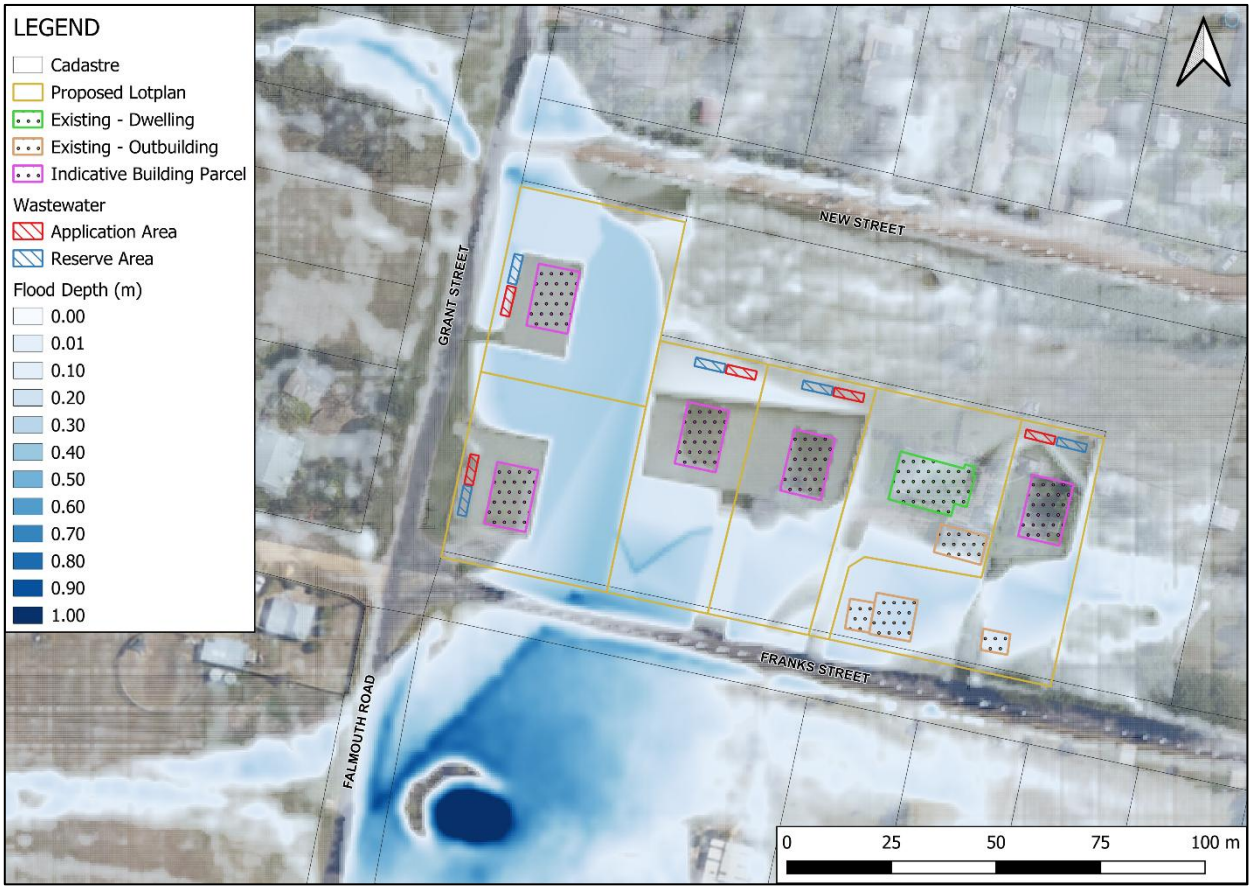


Figure 18 - 1% AEP Long-term-SSP3-7.0 post-development flood depth, 0.01m cut-off depth.

5.2.1 Flood Afflux

Two flood afflux maps were produced, based on the pre and post - developed hydrology. These included the following:

- Post-developed minus pre-developed with pre-development hydrology applied to both scenarios, and
- Post-developed minus pre-developed with post-development hydrology applied to both scenarios.

The afflux maps show changes in flood depth between the pre- and post-development scenarios, both iterations of the flood depth afflux maps show the only changes to flood depth present outside the site are within the new outfall drainage swale conveying discharge to Devils Creek and the table drain along Franks Street.
Afflux maps show consistency between flood behaviour with consideration to the applied hydrology.

Within the site, areas upstream of the raised driveways show an increased depth, this is prominent upstream of the proposed Lot 4, Lot 5 and Lot 6 driveways and ranges between 100mm to 200mm where overland flow is impeded by the proposed driveways and where lot grading to direct flow to culverts has been implemented.

There are notable changes to flood depth in Lots 1 and 2, which exceeds 200mm in places. This is attributed to the displacement of flood water by the implemented site fill, which provides adequate elevation for the indicated building parcels and lot grading, however there is no significant change to the peak WSL experienced.

Falmouth Road is overtopped in both the pre and post-development scenario (but not worsened), impacting the only access and exit route to the Falmouth locale. Flood afflux is presented in Figure 19 and Figure 20 below.

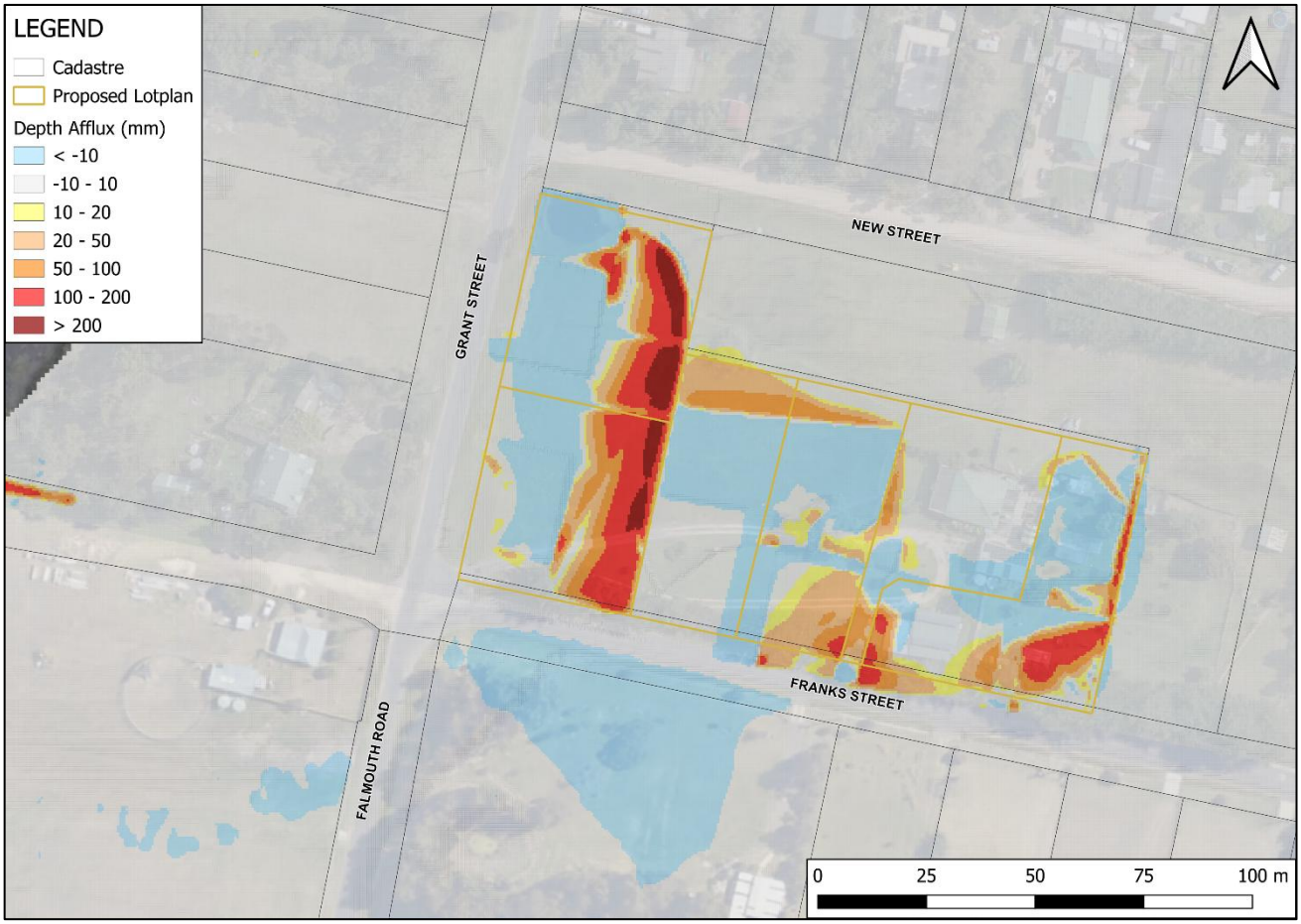


Figure 19 - 1% AEP Long-term-SSP3-7.0 pre-development hydrology flood depth afflux, 0.00m cut-off depth.

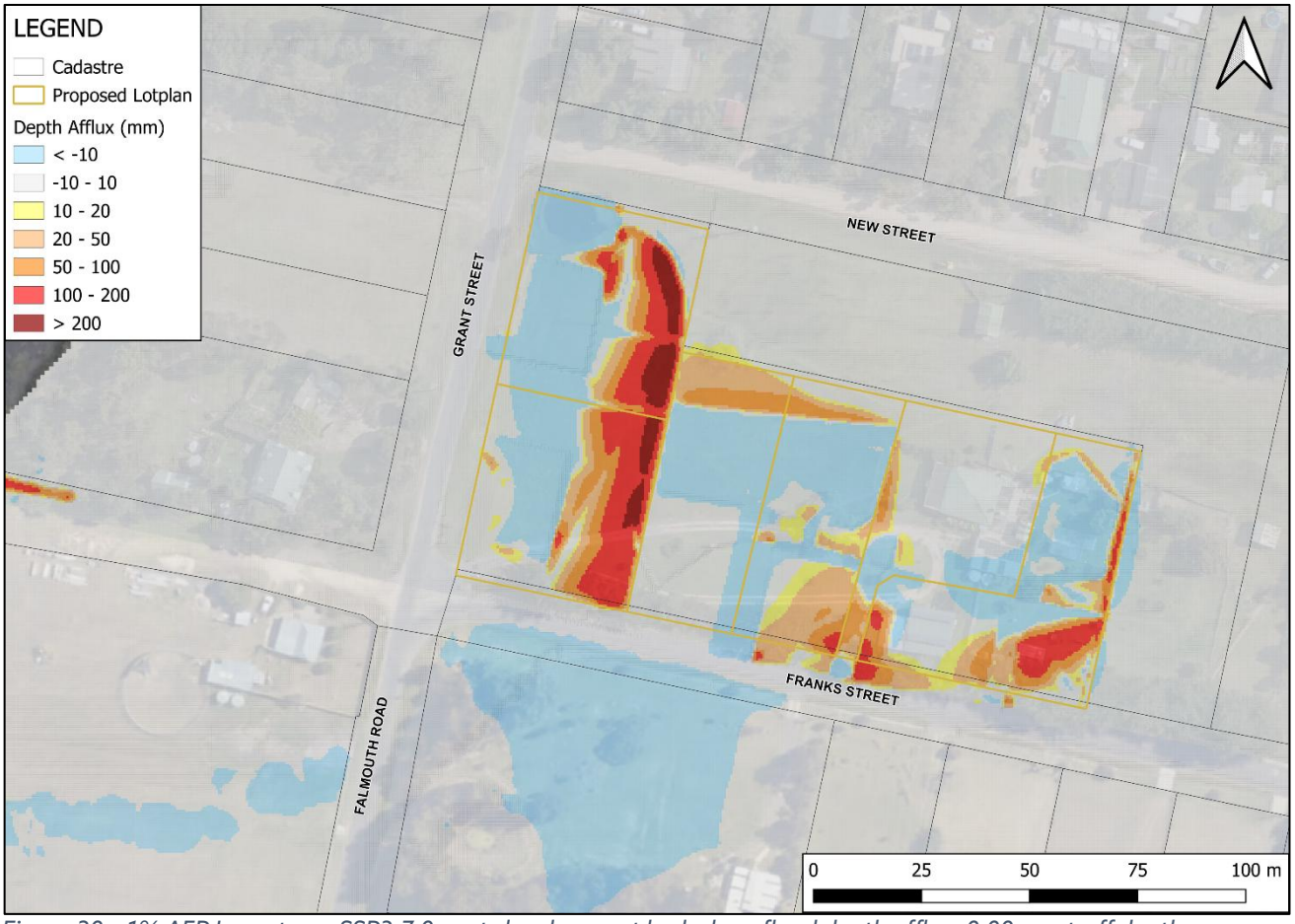


Figure 20 – 1% AEP Long-term-SSP3-7.0 post-development hydrology flood depth afflux, 0.00m cut-off depth.

6. Flood Hazard Report

6.1 Discussion

Flood hazard is defined as the potential loss of life, injury and economic loss caused by future flood events. Flood hazard has been considered based on the ZAEM1 Flood Hazard curves that utilise six (x6) classifications to characterise the degree of hazard with regard to the severity of flooding, resultant of the flood depth (m) x velocity (m/s) product.

ZAEM1 hazard classifications determined by Flood Hazard Guideline 7-3 from the Australian Institute for Disaster Resilience are presented in Figure 21, below. Pre and Post-developed Flood Hazard is presented in maps 5 and 6 in Annexure B.

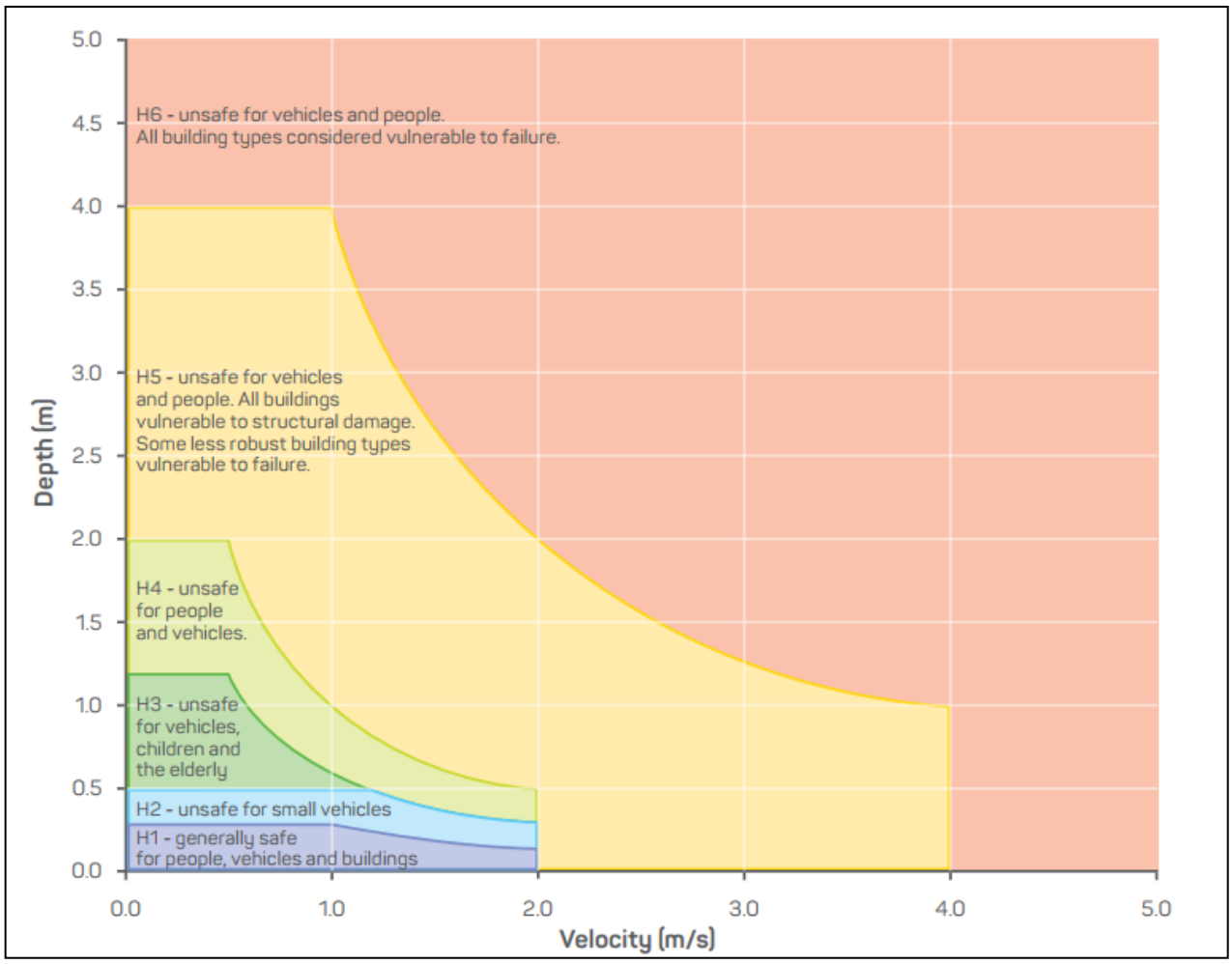


Figure 21 – Flood Hazard (ZAEM1) categories from the Australian Institute for Disaster Resilience.

Pre-development flood hazard within the site predominantly presents as a H1 classification, generally safe for people, vehicles and buildings. Areas of H2 classification where conditions are unsafe for small vehicles are present, occurring where there is an increased flood depth or velocity in existing swales or the table drain aligned with Franks Street. The existing pond in the northwestern corner is classified as a H3 zone, which is attributed to the depth of the pond.

Post development the site predominantly retains a H1 classification including the infilled pond with H3 classification remaining table drain along Franks Street, however there is an increase in areas classified as H2, confined to Lots 1 and 2. This increased H2 classification area indicating it is unsafe for small vehicles is due to the increased flood depths associated with the proposed lot grading, however it is assumed that these areas will not be subject to regular vehicle activity.

Changes to the hazard classification does not impact the proposed indicative building parcels which are assigned H1. The H3 classification of the existing pond is decreased to H1 by the proposed pond removal.

Flood hazard external to the site remains unchanged between the pre and post development scenarios. Pre- and post-development flood hazard are presented below in Figure 22 and Figure 23.

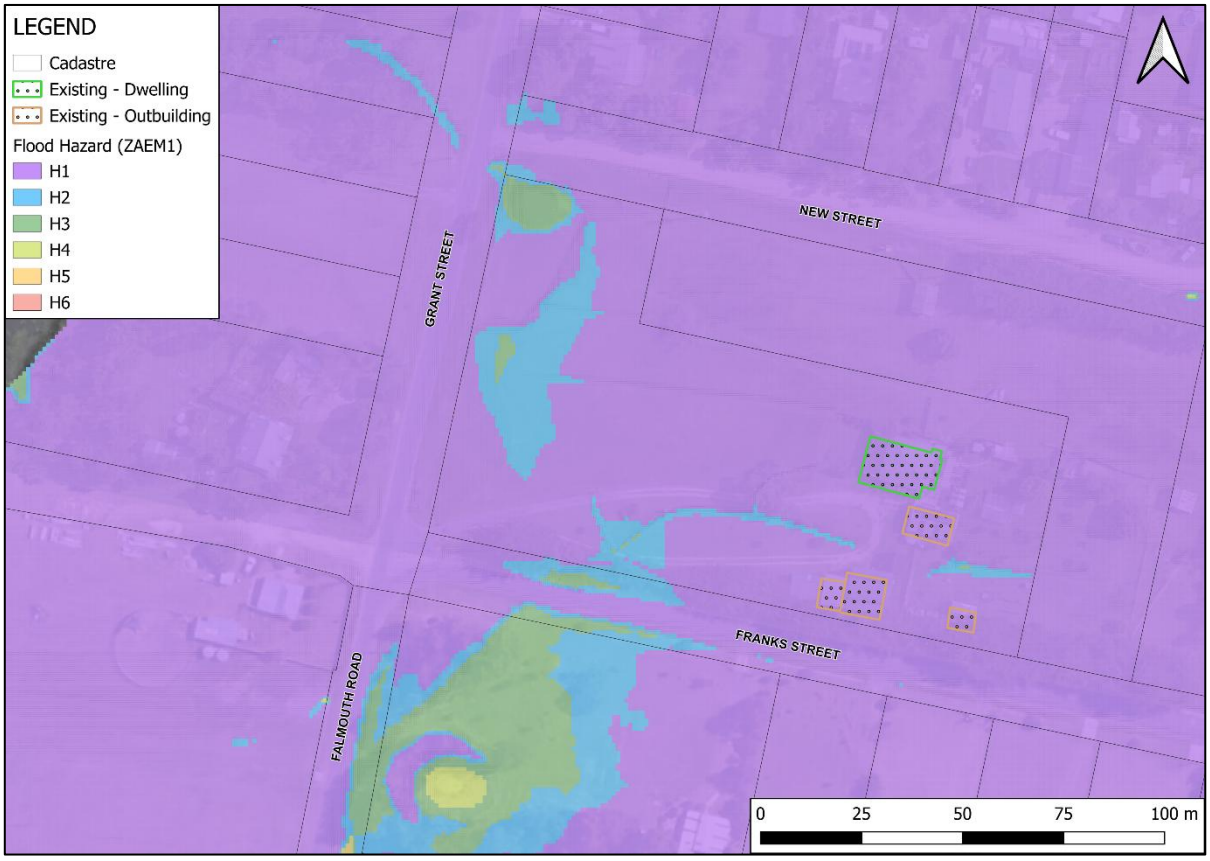


Figure 22 - 1% AEP Long-term-SSP3-7.0 pre-development flood hazard (ZAEM1), 0.00m cut-off depth.

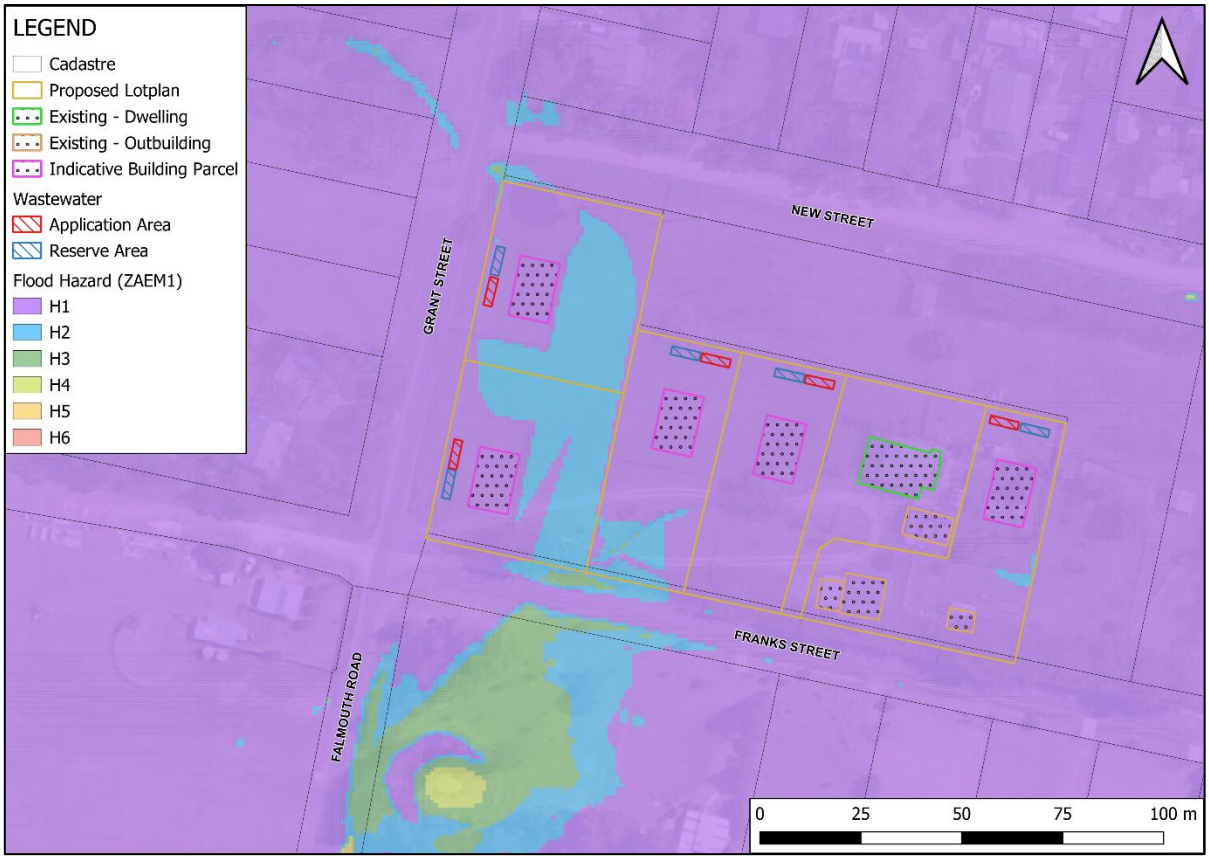


Figure 23 - 1% AEP Long-term-SSP3-7.0 post-development flood hazard (ZAEM1), 0.00m cut-off depth.

6.2 Planning Scheme Requirements as per Flood Prone Areas Hazard Code

6.2.1 C12.5 Use Standards

C12.5 is not applicable to the application.

6.2.2 C12.6 Development Standards for Buildings and Works

Table 4 – Response to C12.6.1 Buildings and works within a flood-prone hazard area

Objective	That: (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.

Acceptable Solution	Performance Criteria
A1 No Acceptable Solution.	P1.1 *Buildings and works within a flood-prone hazard area must achieve and maintain a tolerable risk from a flood, having regard to:* *(a) the type, form, scale and intended duration of the development;* *(b) whether any increase in the level of risk from flood requires any specific hazard reduction or protection measures;* *(c) any advice from a state authority, regulated entity or a council; and* *(d) the advice contained in a flood hazard report.* P1.2 *A flood hazard report also demonstrates that the building and works:* *(a) do not cause or contribute to flood on the site, on adjacent land or public infrastructure; and* *(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.*

Response
The key test is whether the future lots can *achieve and maintain a tolerable risk from flood.*

Reference is made to the flood mapping in Annexure B, especially the hazard mapping and afflux mapping. Raised building platforms and access driveways are proposed, along with site grading and an additional DN600 pipe to convey water away from the site.

P1.1(a): Type, form, scale and intended duration of the development:

The development is a residential subdivision with a likely life span of 50 years. All lots will be able to have adequate developable areas outside of a hazard zone greater than H1.

P1.1(b): Whether any increase in level of risk from flood requires specific hazard reduction or protection measures

Fill embankments will be designed by a suitably qualified engineer if they are exposed to significant erosive forces.

P1.1(c): Any advice from State authority, regulated entity or council

The outcome of the meeting held between PDA and Council on 27 November 2025 was that Council would consider a solution which provides for an additional outfall pipe towards Devils Creek, as part of the development.

P1.1(d): Advice contained in a flood hazard report

The stormwater design is in accordance with the advice in this flood hazard report.

P1.2(a):

The afflux mapping shows that water is displaced from the building platforms, so that there is negative afflux over the platform area, but areas of positive afflux elsewhere. We note that on Lots 1 & 2 there remains an area with an H2 hazard, resulting from this. H2 presents a hazard to vehicles. This area is however outside of the building platform and driveways. We believe this risk is tolerable. The existing outbuildings will remain within an H1 flood hazard.

The afflux mapping shows neutral effects on the surrounding areas. There is however a minor increase in levels in the Franks Street table drain and of course in the new outfall open drain downstream of the proposed DN600 outfall pipe.

P1.2(b):

The flood mapping shows that the development can achieve and maintain a tolerable risk from a 1% annual exceedance probability flood event until 2090.

It is therefore considered that Performance Criteria P1.1 and P1.2 of Clause C12.6.1 are satisfied.

6.2.3 C12.7 Development Standards for Subdivision

Table 5 – Response to C12.7.1 Subdivision within a flood-prone hazard area

Objective	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.
Acceptable Solution	**Performance Criteria**
A1 Each lot, or a lot proposed in a plan of subdivision, within a flood-prone hazard area, must: (a) be able to contain a building area, vehicle access, and services, that are wholly located outside a flood-prone hazard area; (b) be for the creation of separate lots for existing building; (c) be required for public use by the Crown, a Council or a State authority; or (d) be required for the provision of Utilities.	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:* *(a) any increase in risk from flood for adjacent land;* *(b) the level of risk to use or development arising from an increased reliance on public infrastructure;* *(c) the need to minimise future remediation works;* *(d) any loss or substantial compromise by flood of access to the lot, on or off site;* *(e) the need to locate building areas outside the flood-prone hazard area;* *(f) any advice from a State authority, regulated entity or Council; and* *(g) the advice contained in a flood hazard report.*
Response The key test is whether the subdivision does not create an opportunity for use or development that cannot achieve a tolerable risk from flood. *P1(a)* Flood risk to adjacent land is not increased, with the exception of increased flow depths in the Franks Street table drain and in the new open drain downstream of the new DN450 outfall pipe. We regard this as tolerable. *P1(b)* Additional infrastructure is proposed in the form of a new DN600 outfall pipe. At detail design, the inlet and levels of the pipe can be designed so that flow from the development site as well as from the existing roadway and table drain are a net benefit to the Council infrastructure. It is noted however, that reliance will be on Council to maintain the new stormwater assets.	

P1(c)

The provision of the new outfall pipe will minimise the need for any future remediation works. In addition, all batters subject to flood forces will be designed by a suitably qualified engineer.

P1(d)

The provision of the raised driveways will facilitate access to the new lots so that flood risk to access will be tolerable, with H1 hazard to all driveways.

P1(e)

Building areas have been shown on the raised building platforms. The flood hazard on the platforms is low, with depths in the order of 0 – 20 mm. We note that we have used a 10 mm cutoff depth in the model. These shallow depths predicted by the model do not take into account the effect of roof drainage and drainage around the houses. It is difficult to model such drainage in TUFLOW. Roof drainage can be better modelled in Drains at detailed design. Roof drainage would improve the flood mapping if it were easier to model it in TUFLOW.

P1(f)

At a meeting with Council, it was clarified by Council that the solution of an additional outfall pipe would be considered by Council.

P1(g)

This flood hazard report advises that a tolerable risk can be achieved to use and development can be achieved. Note that the existing outbuildings will remain within an H1 hazard area.

It is therefore considered that Performance Criteria P1 (a)-(g) of Clause C12.7.1 are satisfied.

6.3 Statement

This Flood Hazard Report has been prepared by Roderick Parsons. I am a suitably qualified person with a degree in civil engineering (hons) and a graduate certificate in catchment hydrology. I have two years' overseas experience modelling river flow and some 4 years' Australian experience in stormwater modelling and design, including both 1D & 2D flood modelling.

I have considered whether the subdivision and the works associated with it are likely to cause or contribute to the occurrence of flood on the site, on adjacent land and on public infrastructure.
I have considered whether the subdivision can achieve and maintain a tolerable risk for the intended life of future use (until 2090) and development (50 years) and in doing this I have had regard to:

(a) The nature, intensity and duration of use: The site falls within a low-density residential zone. An imperviousness factor of 0.35 has been applied on the development site as a whole and on top of that has been placed building platforms and driveways with an imperviousness factor of 0.9, so that the effective proportion of impervious area on the site is higher than 35%. The duration of the use has been taken to be up to 2090.

(b) The type, form and duration of the development: The life of the proposed development is considered to be 50 years, which falls within the adopted climate horizon.

(c) The likely change in the level of risk across the intended life of the use or development: The change in level of risk has been accounted for by allowing for climate change according to a scenario SSP3-7.0_2090.

(d) The ability to adapt to a change in the level of risk: Change in level of risk has already been taken into account by considering the SSP3-7.0_2090 CC scenario.
(e) The ability to maintain access to utilities and services: Access to utilities and services will be maintained.
(f) The need for flood reduction or protection measures beyond the boundary of the site: Erosion protection measures should be considered downstream of the DN600 pipe outlet. Fill embankments will be designed by a suitably qualified engineer.
(g) Any flood management plan in place for the site or adjacent land: There is no flood management plan in place for this site.
(h) Any advice relating to the ongoing management of the use or development: Regular maintenance of the Franks Street table drain, driveway culverts and DN450 inlet and outlet will be needed.

7. Minor Stormwater System

It is likely that stormwater from roofs and hardstand areas will be discharged to the roadside table drains through headwalls. The detailed design of this system falls outside the scope of this report. It will be more meaningful to estimate the flows for the minor storm event (20% AEP) by means of software such as Drains at detailed design stage. This design should include the levels and dimensions of crossovers, driveways, driveway culverts and details of the new outfall pipe and downstream open drain.

8. Summary

- It is possible to satisfy the Flood Prone Areas Hazard Code by providing raised building platforms, raised driveways, grading of future lots and especially a new DN600 outfall pipe to Devils Creek.
- Flood effects on surrounding roads and properties are non-worsening.
- The 1% AEP storm event with SSP3-7.0 climate change scenario with a horizon year of 2090 has been modelled.
- Management of wastewater should be considerate to the recommendations outlined in the On-Site Wastewater Assessment produced by Geo – Environmental Solutions.

10. Qualifications

This document is intended solely for the purpose of documenting the calculations followed for the design of the stormwater drainage system and should not be used for any other purpose without proper consultation. It should be used by qualified professionals in conjunction with their professional judgement.

The calculations presented in this document are based on the data available at the time of the writing. The design calculations were performed in accordance with the relevant design standards and guidelines applicable at the time of the writing. Future updates to these standards may require revisions to the design.

This document includes, but is not limited to, several assumptions regarding the site's condition, hydrological parameters, and, where applicable, projections for future climate scenarios. These assumptions are detailed within the report and any deviation from these assumptions may affect the outcome of the design. The design is based on site-specific conditions understood from available information. This includes information and data provided by third parties. While this information is believed to be accurate, no warrant is given as to its completeness and or reliability.

While every effort has been made to ensure the accuracy of the calculations and design, PDA and the authors assume no liability for any direct, indirect, or consequential damages resulting from the use of this document. The performance of the stormwater drainage system is subject to external factors such as extreme weather events, future land-use changes, and maintenance practices. These factors can significantly impact the effectiveness of the system.

Yours faithfully,

PDA Surveyors, Engineers & Planners

Per:

Roderick Parsons CPEng 3131233

CIVIL ENGINEER

References

Ball J, Babister M, Nathan R, Weeks W, Weinmann E, Retallick M, Testoni I, (Editors) Australian Rainfall and Runoff: A Guide to Flood Estimation, © Commonwealth of Australia (Geoscience Australia), Version 4.2, 2019

Cumming, D. J. (2025). *ON-SITE WASTEWATER ASSESSMENT 70 Grant Street, Falmouth* . Battery Point: GEO-ENVIRONMENTAL SOLUTIONS.

Annexure A – Median Temporal Pattern Analysis.

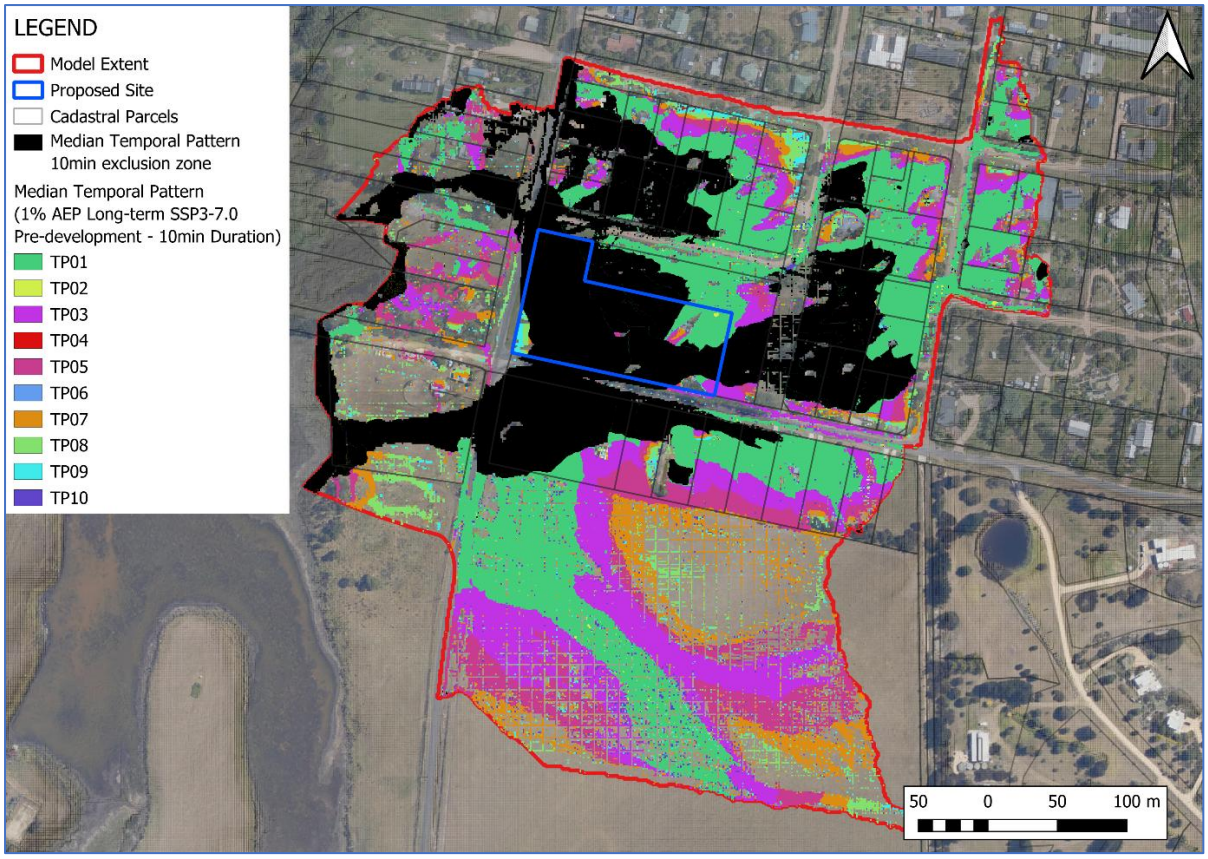


Figure 24 - Median Temporal Pattern, 1% AEP Long-term SSP3-7.0, pre-development – 10min duration.

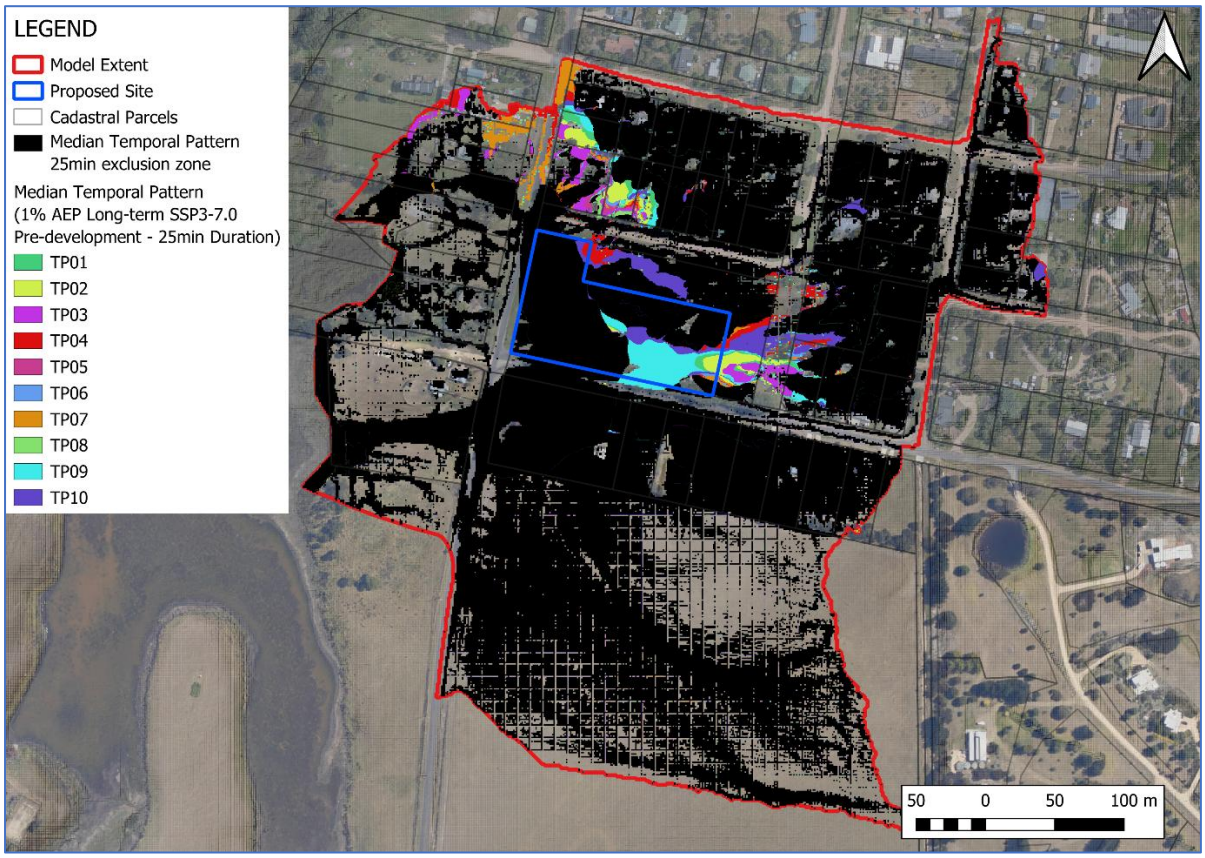


Figure 25 - Median Temporal Pattern, 1% AEP Long-term SSP3-7.0, pre-development – 25min duration.

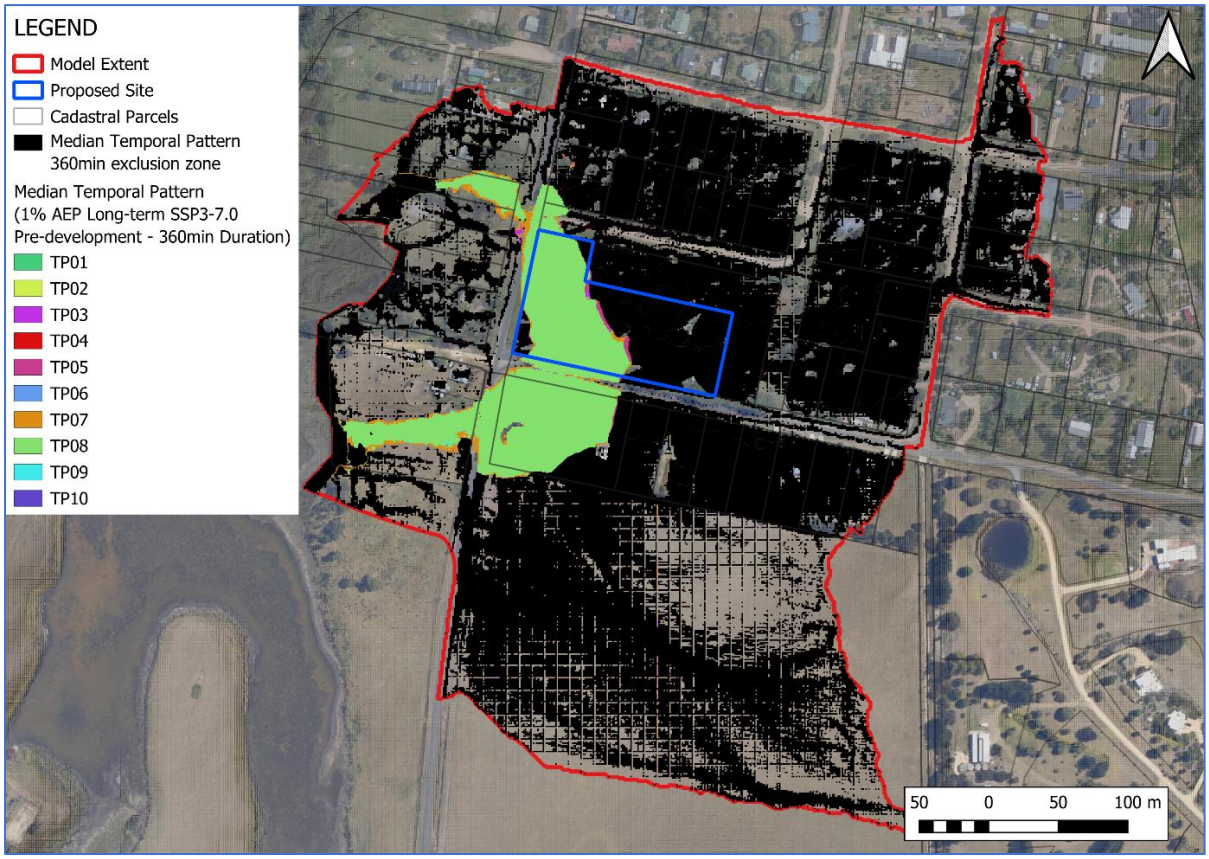


Figure 26 - Median Temporal Pattern, 1% AEP Long-term SSP3-7.0, pre-development – 360min duration.

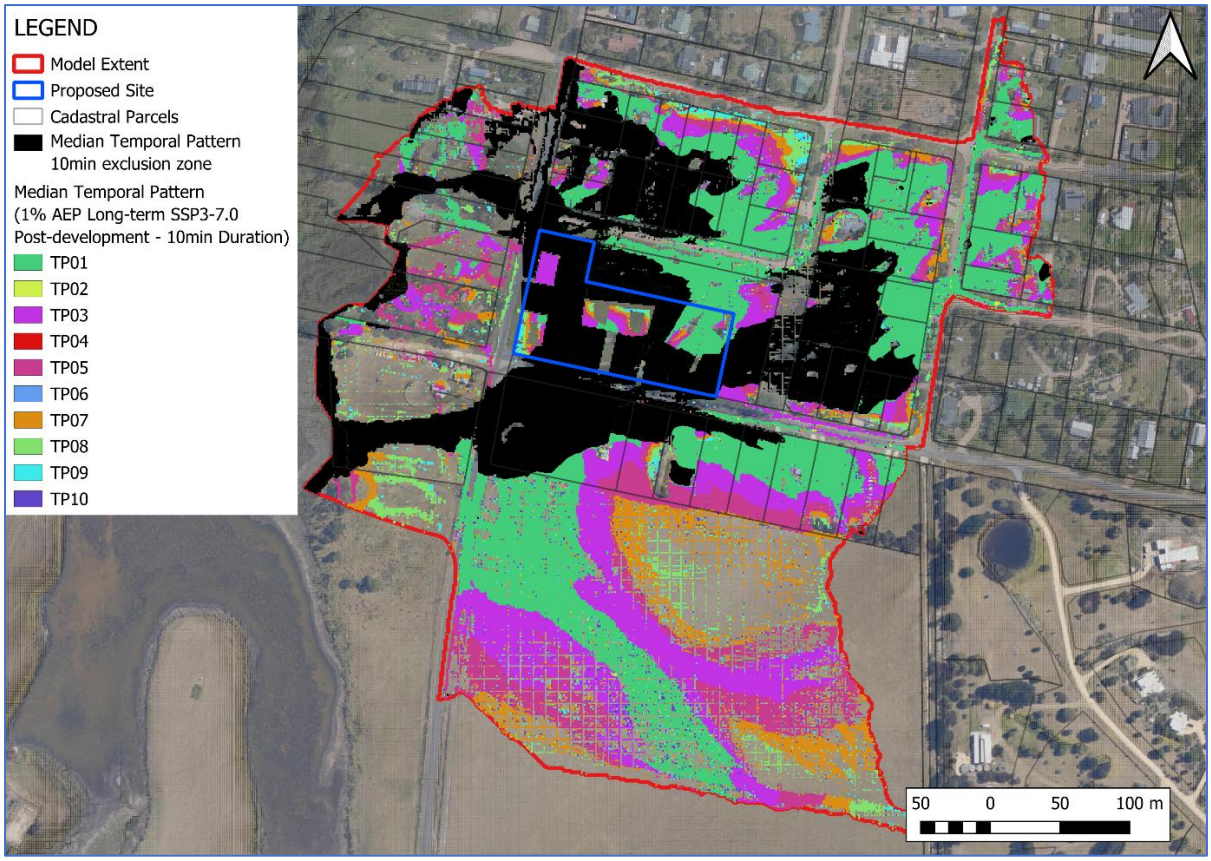


Figure 27 – Median Temporal Pattern, 1% AEP Long-term SSP3-7.0, post-development – 10min duration.

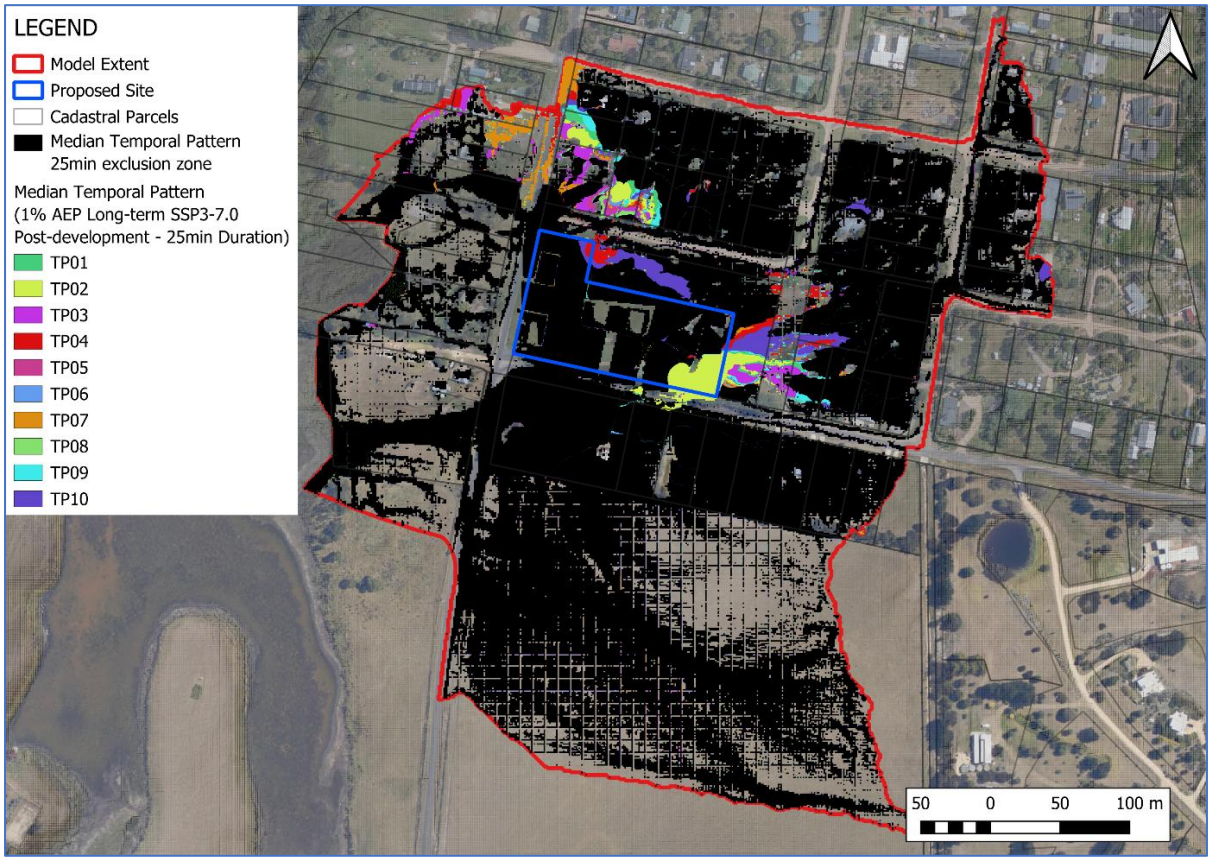


Figure 28 - Median Temporal Pattern, 1% AEP Long-term SSP3-7.0, post-development – 25min duration.

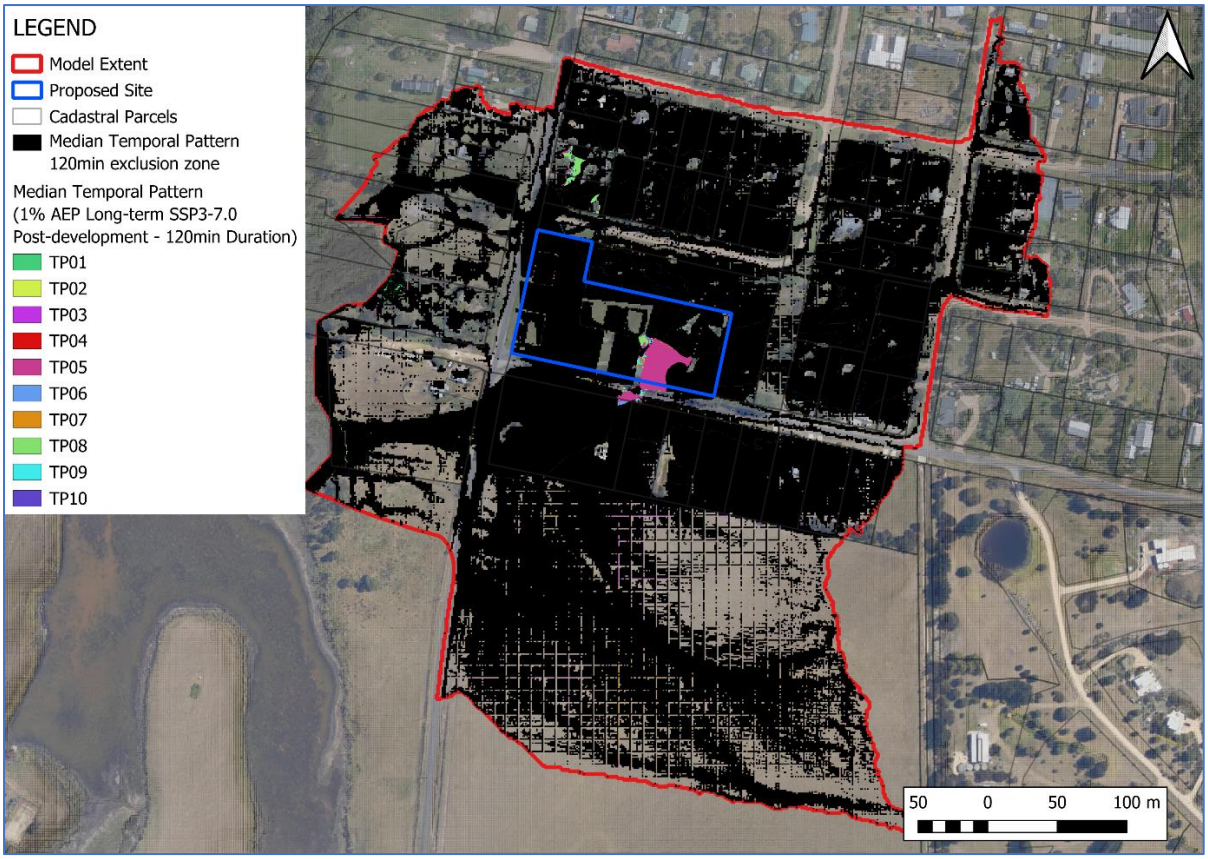


Figure 29 - Median Temporal Pattern, 1% AEP Long-term SSP3-7.0, post-development – 120min duration.

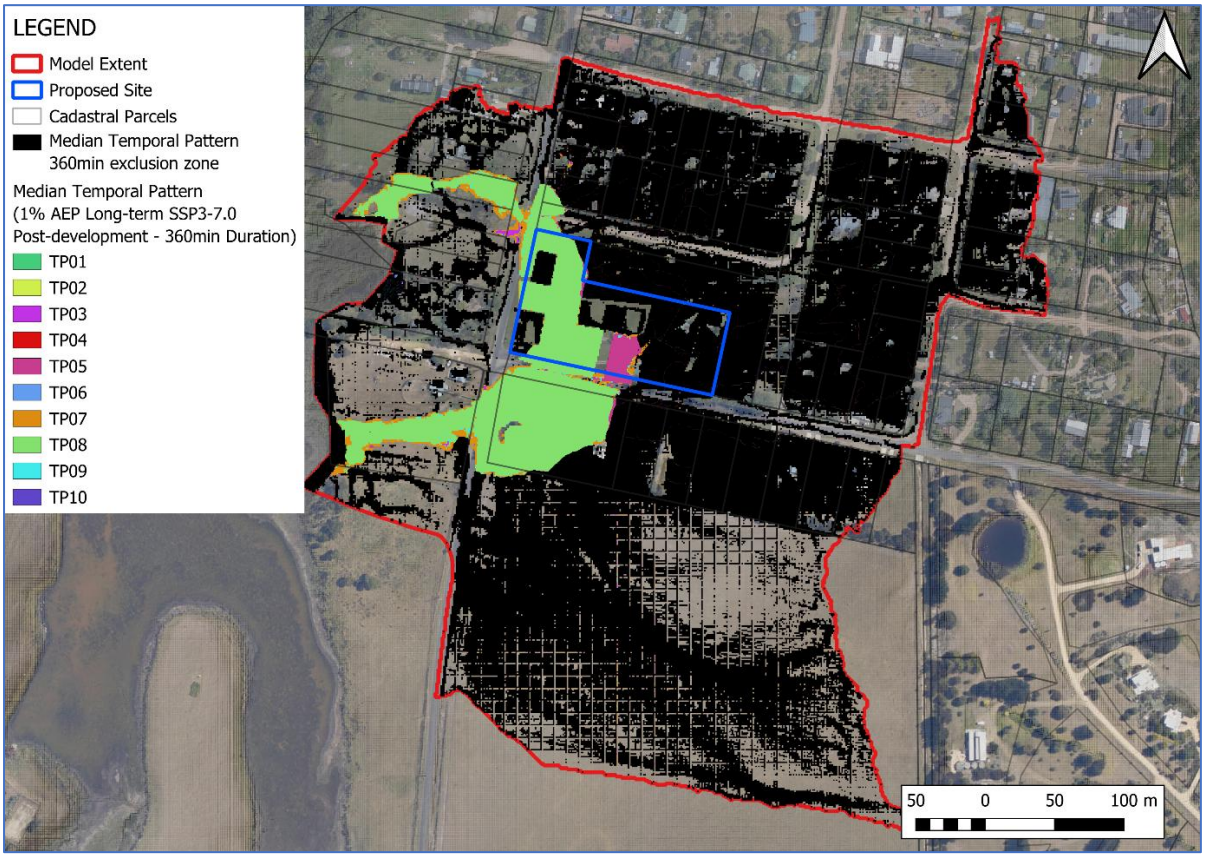
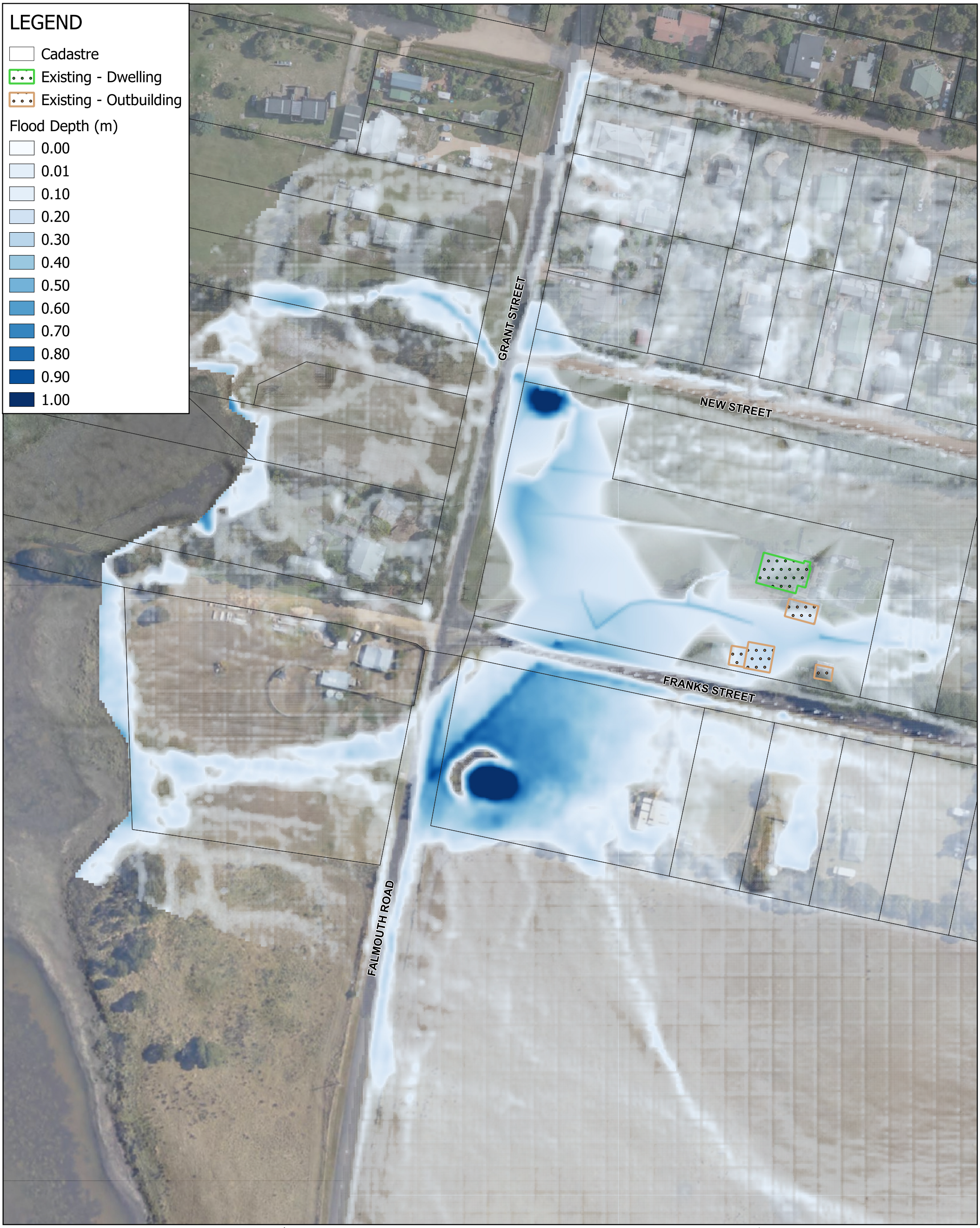


Figure 30 - Median Temporal Pattern, 1% AEP Long-term SSP3-7.0, post-development – 360min duration.

Annexure B – Flood Mapping



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FLOOD DEPTH - PRE-DEVELOPED CASE - 1% AEP - LONG TERM SSP3-7.0

70 GRANT STREET, FALMOUTH

127 Bathurst Street
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N

0 25 50 75 100 m

JOB REF:	54262MW	**DATA SOURCES:**	The LIST Orthophoto, Cadastre Parcel
MAP NO:	001		
CRS:	GDA 2020/MGA zone 55	**AUTHOR:**	MURRAY NAGLE
REVISION:	004	**CHECKED:**	ROD PARSONS
PAPER:	A3	**DATE:**	27/04/26

CLIENT: CHRIS TRIEBE

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LEGEND

- Cadastre
- Proposed Lotplan
- Existing - Dwelling
- Existing - Outbuilding
- Indicative Building Parcel

Wastewater

- Application Area
- Reserve Area

Flood Depth (m)

- 0.00
- 0.01
- 0.10
- 0.20
- 0.30
- 0.40
- 0.50
- 0.60
- 0.70
- 0.80
- 0.90
- 1.00

GRANT STREET

NEW STREET

FRANKS STREET

FALMOUTH ROAD

File Path:S:\54262MW - Chris Triebe - 70 Grant St, Falmouth\4-ENG\2-Hydrology\TUFLOW\Mapping\Flood_Mapping-Grant_Street_Falmouth.qgz

FLOOD DEPTH - POST-DEVELOPED CASE - 1% AEP - LONG TERM SSP3-7.0

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JOB REF:	54262MW	**DATA SOURCES:**	The LIST Orthophoto, Cadastre Parcel
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REVISION:	004	**CHECKED:**	ROD PARSONS
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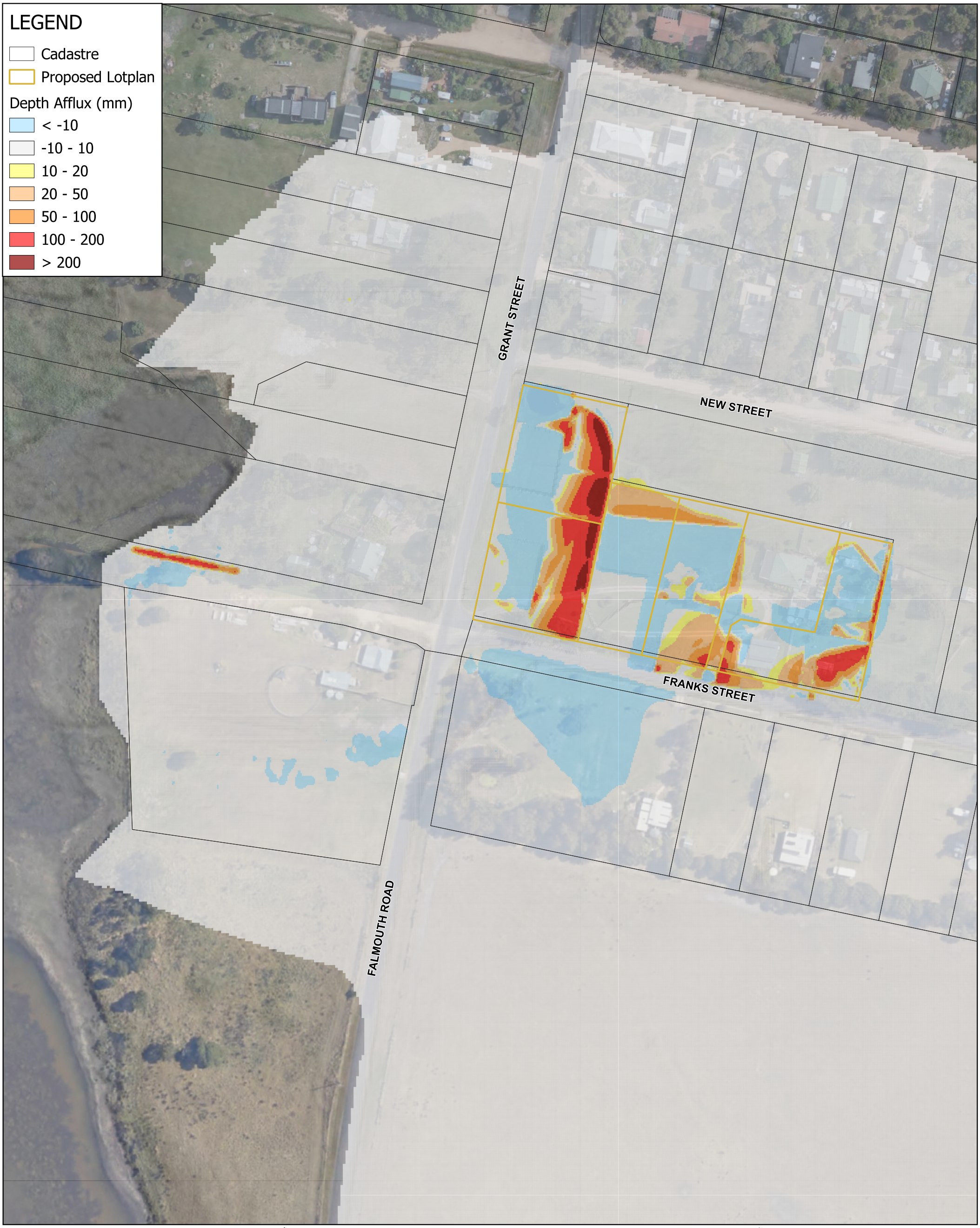

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AFFLUX - POST-DEVELOPED MINUS PRE-DEVELOPED CASE - PRE-DEVELOPMENT HYDROLOGY - 1% AEP - LONG TERM SSP3-7.0

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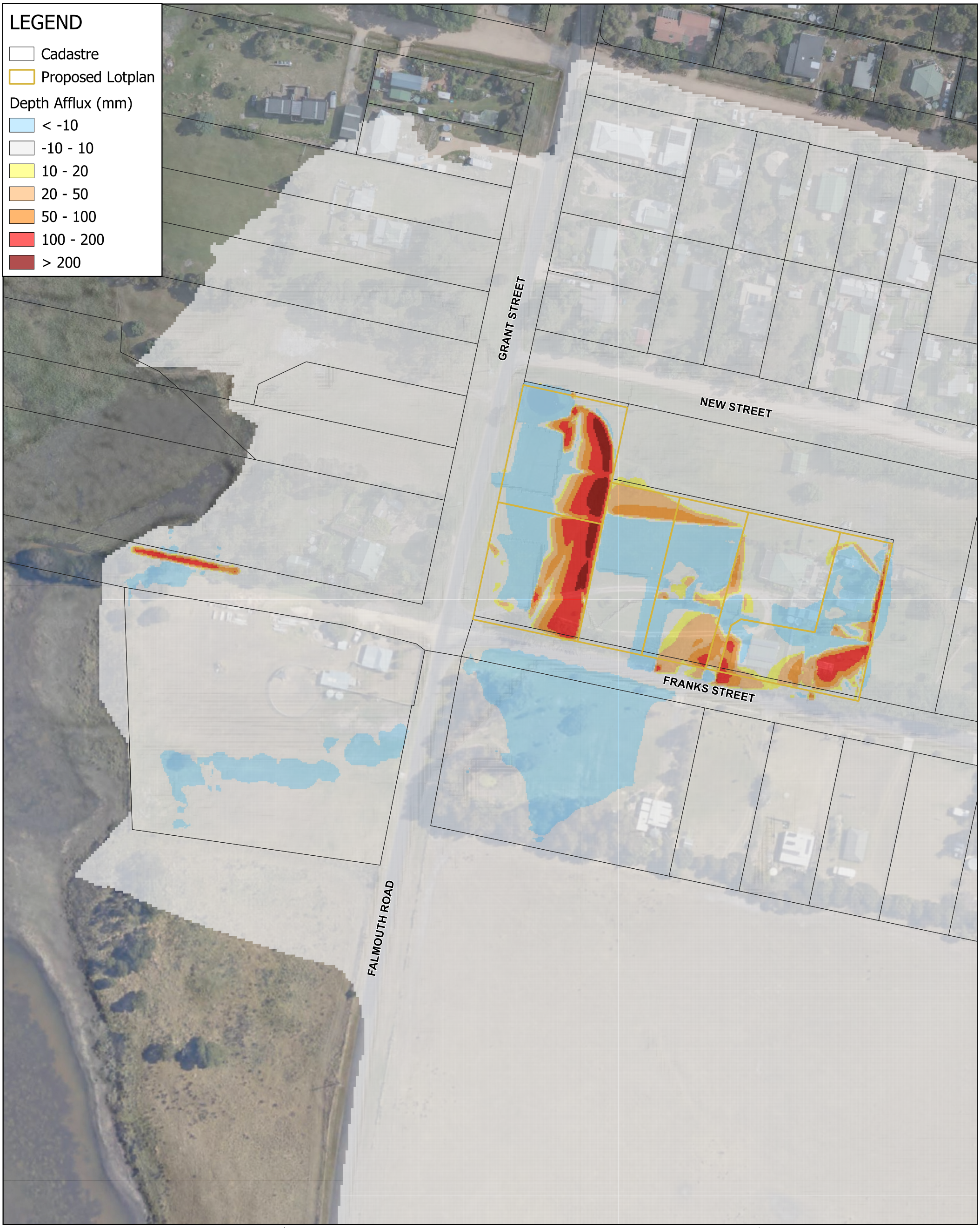

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AFFLUX - POST-DEVELOPED MINUS PRE-DEVELOPED CASE - POST-DEVELOPMENT HYDROLOGY - 1% AEP - LONG TERM SSP3-7.0

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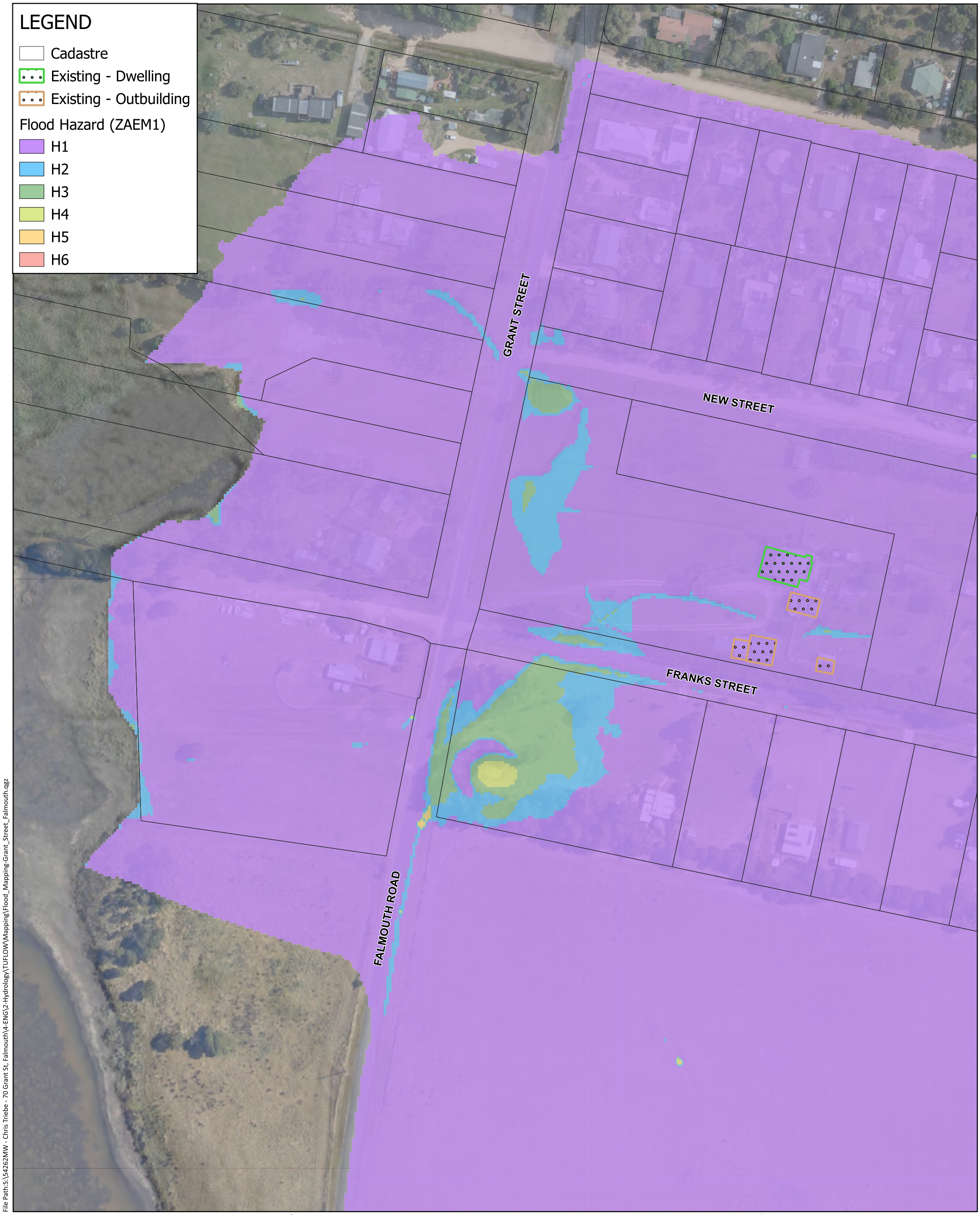

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HAZARD - PRE-DEVELOPED CASE - 1% AEP - LONG TERM SSP3-7.0

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JOB REF:	54262MW	**DATA SOURCES:**	The LIST Orthophoto, Cadastre Parcel
MAP NO:	005		
CRS:	GDA 2020/MGA zone 55	**AUTHOR:**	MURRAY NAGLE
REVISION:	004	**CHECKED:**	ROD PARSONS
PAPER:	A3	**DATE:**	27/04/26

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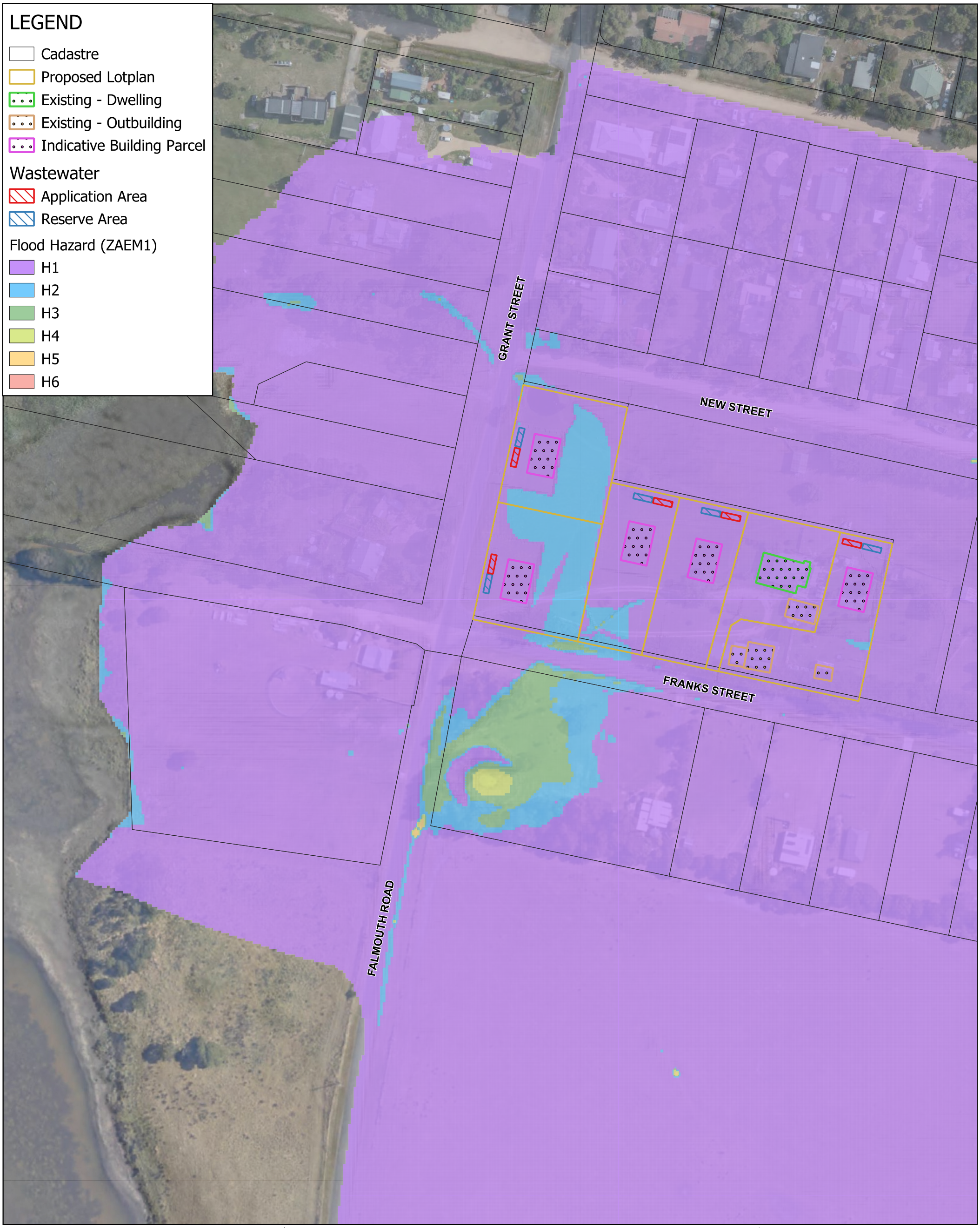

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HAZARD - POST-DEVELOPED CASE - 1% AEP - LONG TERM SSP3-7.0

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JOB REF:	54262MW	**DATA SOURCES:**	The LIST Orthophoto, Cadastre Parcel
MAP NO:	006		
CRS:	GDA 2020/MGA zone 55	**AUTHOR:**	MURRAY NAGLE
REVISION:	004	**CHECKED:**	ROD PARSONS
PAPER:	A3	**DATE:**	27/04/26

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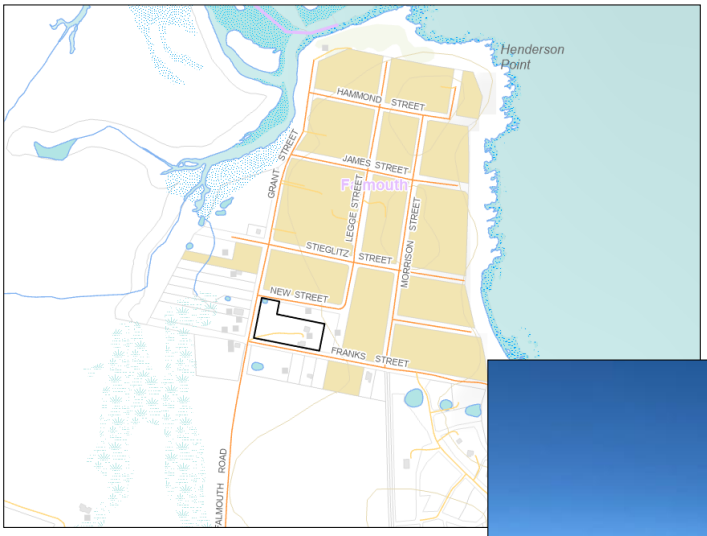
Annexure C – Geo-Environmental Solutions, On-Site Wastewater Assessment.

GEO-ENVIRONMENTAL SOLUTIONS

ON-SITE WASTEWATER ASSESSMENT

70 Grant Street, Falmouth



July 2025

Geo-Environmental Solutions P/L 29 Kirksway Place, Battery Point.

T | 6223 1839 E | office@geosolutions.net.au

Contents

1. Introduction

The proposed subdivision site is located at 70 Grant Street in the locality of Falmouth, Tasmania. The total current land area of the existing title (CT: 164048/100) is approximately 1.03ha, of which it is proposed to create six (6) residential lots including the balance lot, which contains an existing dwelling. The proposed new lots will have areas ranging from 1,570m^2 to 1,970m^2, while the balance lot will have an area of approximately 1,530m^2 (see Figure 2 – development plans). The site is not serviced with mains sewer; therefore, onsite wastewater disposal is required (see Figure 1 for study area).

The land area in question is near level to gently sloping with an average slope of 3% to the Southwest.

It is the scope of this report to consider the capability of said land to support sustainable residential use including on site wastewater disposal without sustaining environmental harm.

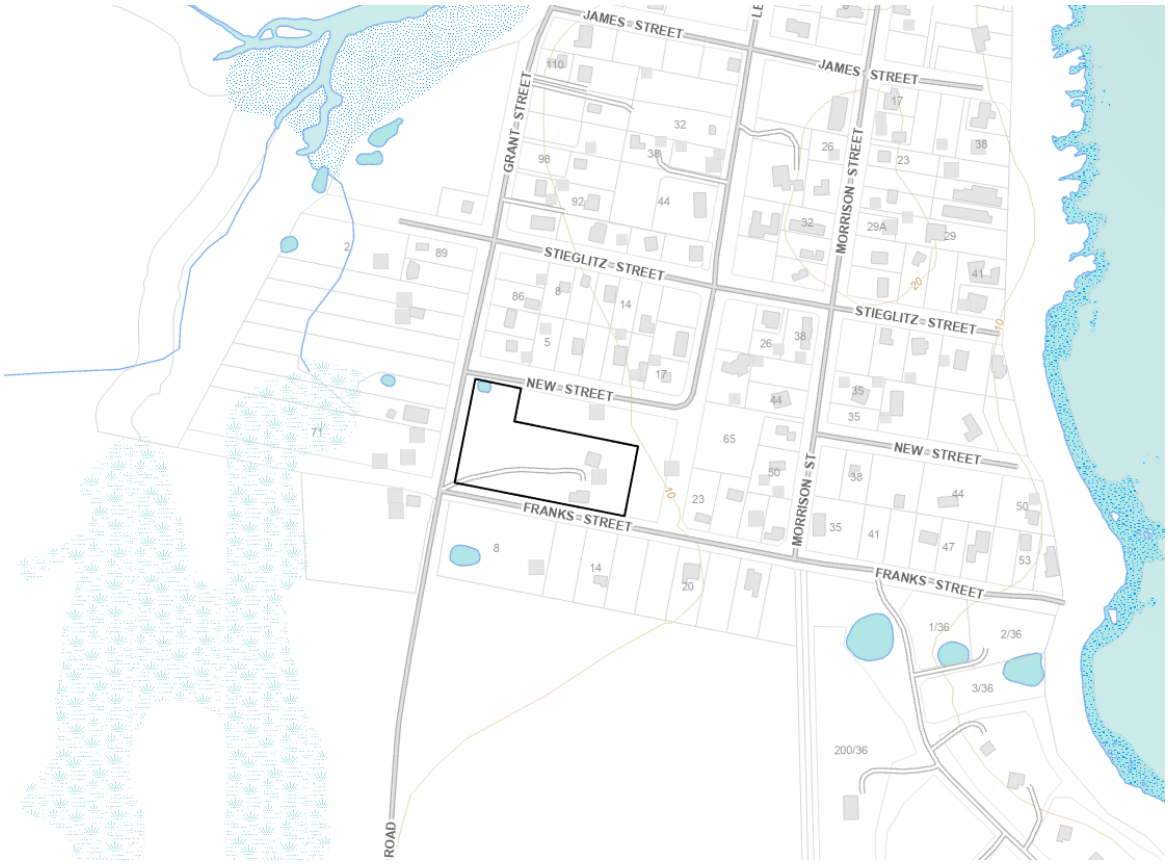


Figure 1 – Whole Site Location (subdivision site outlined black)

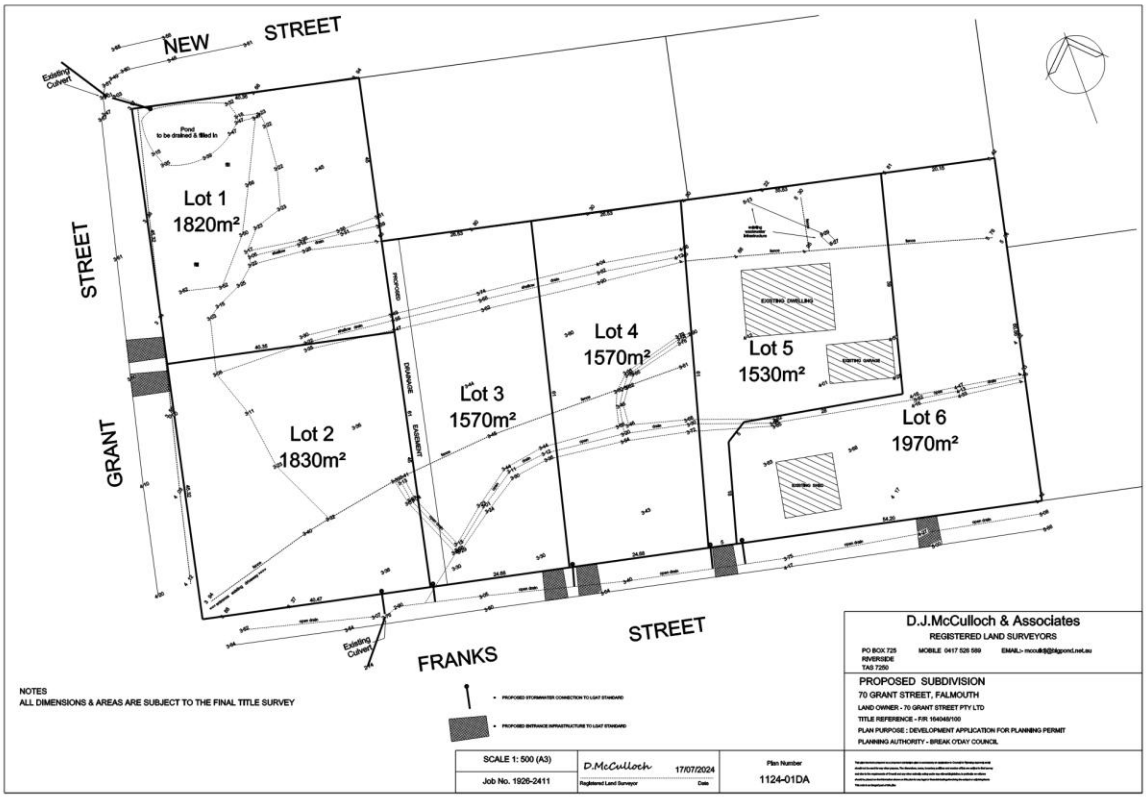


Figure 2 – Subdivision Proposal

2. Planning Context

The land area proposed for subdivision falls within the Low Density Residential Zone as defined by the Tasmanian Planning Scheme (see Figure 3). Therefore, the subdivision must comply with the requirements for this zoning as set out in Section 10.0 of the Tasmanian Planning Scheme – State Planning Provisions. Section 10.6.1 Lot Design stipulates a minimum lot size of 1500m^2 (Acceptable Solutions). It is prudent to assess the proposal under the Acceptable Solutions to ensure that each lot can demonstrate capability of accommodating an on-site wastewater treatment system adequate for the future use and development of the land. As there is no assessment instrument within the Scheme, this is best demonstrated by examination against the Guidelines for on-site wastewater within the Building Act framework. Provided that the requirements are met regarding the provision of infrastructure, and the land is suitable for residential construction/on-site wastewater management, the application to develop the land should proceed.

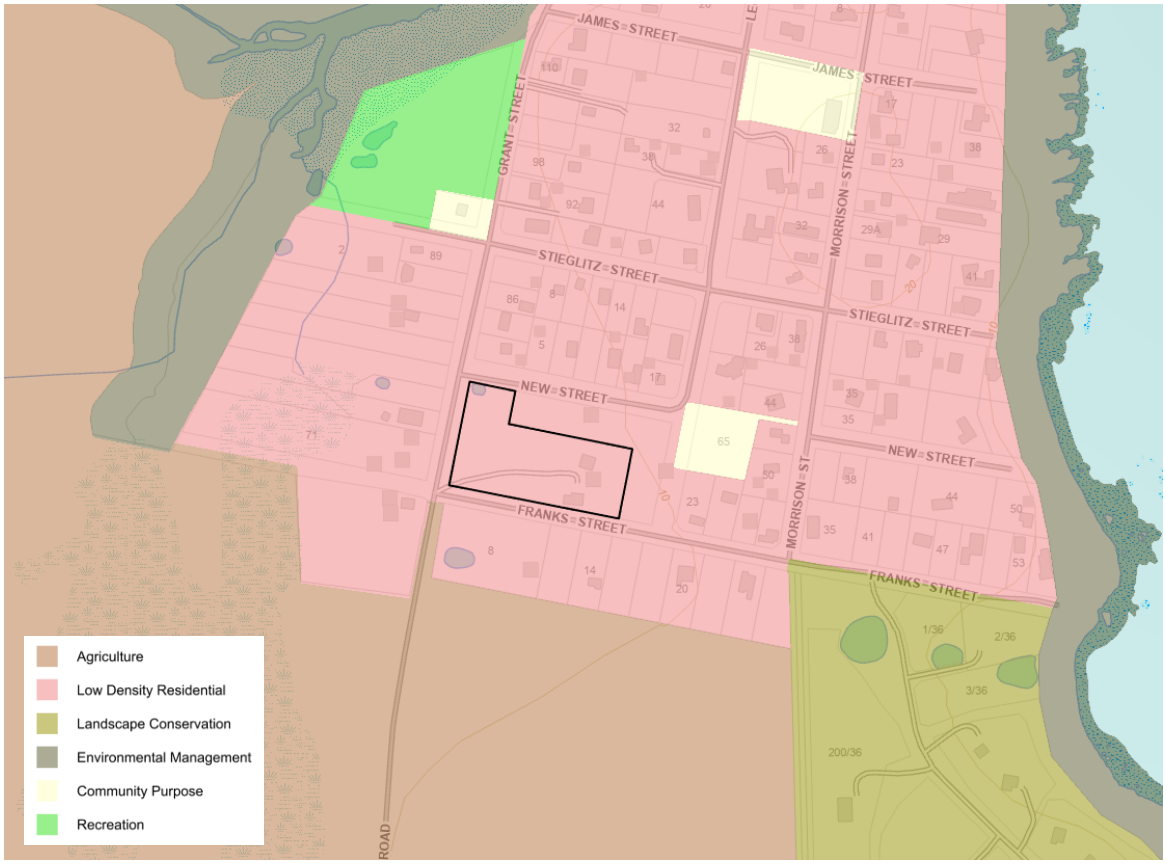


Figure 3 – Planning Zones – Tasmanian Planning Scheme (subdivision site outlined black)

3. Site Information

Site information pertaining to the capability of the land to sustain residential development without causing environmental harm was collected from desktop and field survey. Field survey was undertaken utilising a 70mm hand auger, with a total of seven (7) soil samples taken across the site and assessed according to AS1547-2012 for suitability for on-site wastewater management.

3.1 Drainage and Flooding

Proposed Lot 1 contains a small dam which is proposed to be retained. Fill material was observed through the area adjacent to the dam at a depth of 200-300mm. Use of additional fill is proposed as part of flood mitigation measures being developed by PDA (see Figure 4). Groundwater was encountered in Lots 1 and 2 at a depth of 1.20m, indicating seasonal subsurface drainage may be an issue. Drainage and flood risk are considered as part of this report in terms of their relation to the sustainable disposal of wastewater on site. While the majority of the proposed lots appear to have more than sufficient area available for disposal of wastewater, proposed Lots 1 and 2 will have variable amounts of fill to take into consideration at the time of site-specific wastewater design. This is not considered to be a limiting factor for the suitability of the site to support onsite wastewater disposal at the subdivision stage.

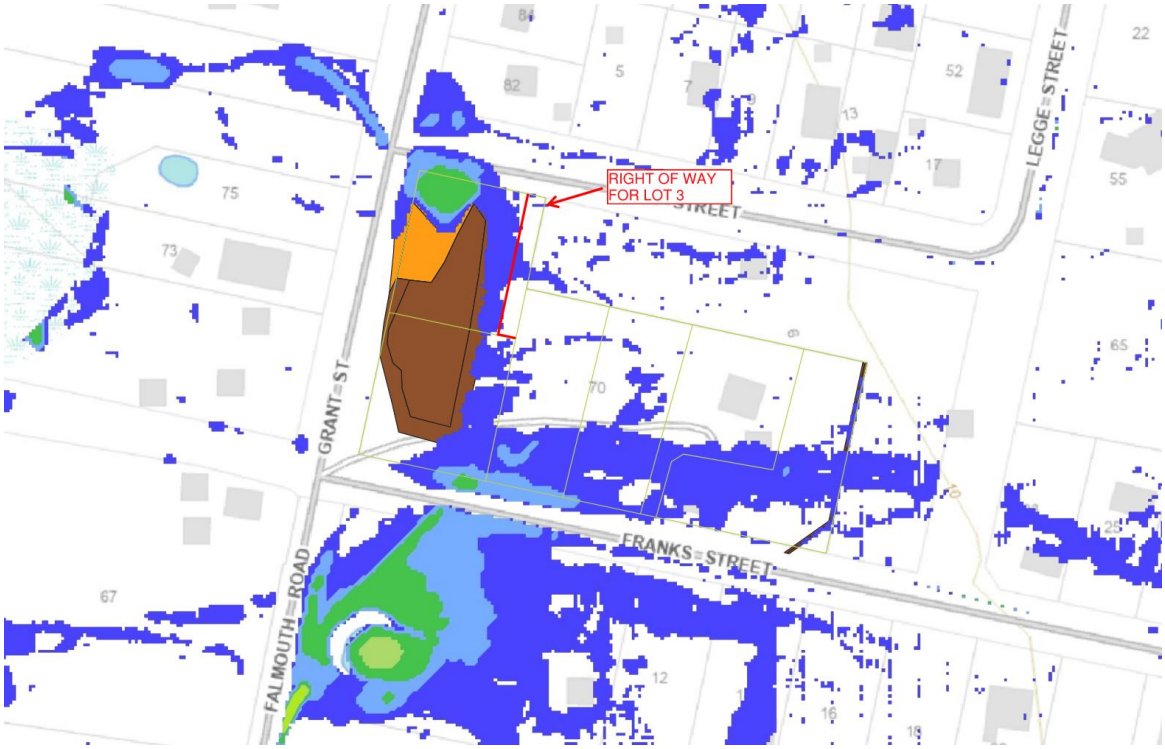


Figure 4 – Flood Mapping (provided: PDA 2025)

Orange – existing fill, variable depth averaging at 300mm
Brown – proposed fill, variable depth averaging at 250mm
Navy – inundation <300mm
Blue – inundation 300 - 500mm
Green – inundation 500 - 1200mm

3.2 Geology

The study area falls within the Mineral Resources Tasmania 1:25 000 Sheet which indicates the area is formed by a cover sequence of Quaternary aged sediments over a Devonian granite basement. Geological mapping is shown in Figure 5. Site inspection confirmed coastal sediments are the predominant parent material on site to suggest derivation from the Quaternary sediment deposits that comprise the area west/northwest of the site, with all proposed lots showing a close correlation with these deposits. This suggests that the mapped geological unit boundaries are variable in this area.

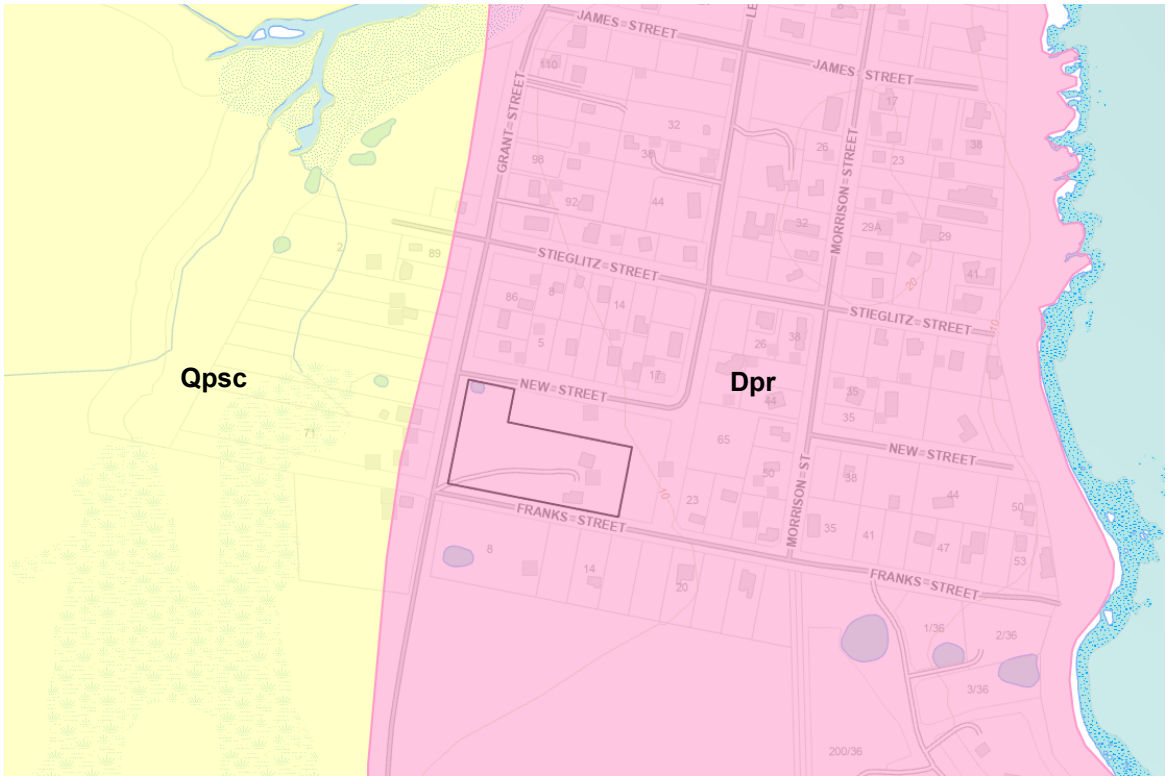


Figure 5 – MRT 1:25 000 Geological Units (subdivision site outlined black)

Qpsc – Undifferentiated Quaternary sediments
Dpr – Devonian granitoids and related rocks

3.3 Soil Distribution

An area of imperfectly drained texture-contrast soils was identified on proposed lot 1 (TH1) which are consistent with those forming from the granite unit characteristic of this area. The anticipated subsoil permeability under saturated conditions from this sample is expected to be in the order of 0.12 – 0.50m/day in the area proposed as lot 1. Soils of this type are generally reactive (AS2870-2011 **Class M to H-1**).

The remaining test holes examined were identified as moderately deep predominantly sandy soils to depths of generally over 1.50m potentially overlying a clay subsoil, with some variation in soil depth and horizon development expected across the site. Soil permeability is expected to be >3m/day. These soils typically show little to no ground surface movement with moisture variations (AS2870-2011 **Class A to S**).

Soils may also be prone to surface erosion when denuded of cover, and or subject to abnormal drainage conditions. Soils with high dispersion potential, poor bearing capacity, abnormal moisture conditions or those that are otherwise impacted by factors creating problematic foundation conditions would be assessed as **Class P** according to AS2870-2011.

4. Site Suitability for Onsite Wastewater Disposal

The soils across the subdivision site were compared and classified according to AS/NZS1547-2012 (on-site wastewater management). Test hole bore logs for each profile is presented in Appendix 2 whilst site and soil factors pertinent to wastewater disposal under AS1547-2012 are presented in Table 1 overleaf.

The existing dwelling on the balance lot (proposed lot 5) is serviced by a primary treatment system that is located within the proposed boundaries and appears to be functioning well with no signs of failure. As such, the balance lot is not included within this assessment given that it is effectively serviced by the existing system and the system is not expected to be impacted by the proposed subdivision.

Ground conditions on site make the proposed lots unlikely to be suitable for the use of primary treatment systems for wastewater. Therefore, the wastewater requirements of the proposed lots have been modelled based on the use of a secondary treatment system such as an Aerated Wastewater Treatment System (AWTS) with treated effluent disposed via absorption or subsurface irrigation where space permits.

The soils found within proposed lot 1 are variable with different soil types identified across the site. Further investigation would be required at the building development stage to confirm soil conditions on site. Given that the proposed lots are likely to be limited to an AWTS with inground absorption or subsurface irrigation, the soil category will primarily influence the type and size of the land application area. The primary soil type found within areas suitable for wastewater disposal are classified according to AS1547-2012 as **Category 2 (Sandy LOAM)** due to the deep sands which extend to a depth of at least 1.5m across most of the site, which have higher hydraulic conductivity and therefore higher LTAR's.

Modelling utilising a typical three-bedroom house on tank water with standard plumbing fixtures indicates that an application area of up to 30m^2 should be set aside for wastewater disposal on each lot (see Trench summary reports). For lots with sufficient area to accommodate disposal via subsurface irrigation, an area of 240m^2 would be required. Based upon allowances for adequate downslope boundary setbacks and sufficient construction, access, and recreational space, then I recommend that a minimum area available for wastewater disposal of flow from any future dwelling to be 300m^2 would be adequate for subdivision design. These areas are based on a Design Loading Rate (DLR) of 40L/m^2/day or a Design Irrigation Rate (DIR) of 5mm/day.

The total disposal areas outlined above include a 100% reserve area, whereby half of each total area is installed and half is reserve (e.g., 15m^2 installed and 15m^2 reserve for an absorption bed). On each lot, the suitability of the wastewater systems outlined above will depend on the relative position of the dwelling, driveway, and other infrastructure to an area viable for wastewater disposal.

Groundwater was encountered during investigations at depths (approx. 1.20m) that would allow standard in-ground disposal of secondary treated wastewater with a minimum of 0.60m vertical separation between the absorption bed and groundwater. However, wastewater application areas on lots 1 and 2 may need to be raised due to height variations of the seasonal water table, and groundwater should be carefully considered as part of the final design of any wastewater system on these lots. The use of fill on these lots should also be considered.

4.1 Nutrient balance and sustainable wastewater application

The soils across the site are predominantly coastal sediment deposits with a low cation exchange complex. These soils have no clay fraction in the upper to mid profile and are therefore not at risk of soil dispersion. The soils examined are fine grained sands that are expected to have low nutrient adsorption capacity. Therefore, the soils have a poor ability to retain applied nutrients in wastewater and the risk of nutrient attenuation associated with wastewater application is generally high, however this is reduced through secondary treatment. Planting of deep-rooted appropriate species is recommended to aid nutrient uptake.

It is recommended that detailed soil classification is undertaken in proposed construction and wastewater disposal areas on each lot to ensure the estimated soil behaviour and effluent disposal standards are met.

4.2 Hydrological balance and wastewater disposal

Modelling of wastewater application on each lot was undertaken utilising the Trench program, long term weather average for Falmouth, and estimated flows from an average three-bedroom home on a tank water supply. This yielded a minimum application area of approximately 120m^2 for a secondary treatment system, which is further amended to 240m^2 to fulfil the requirements for a 100% reserve area. Based upon the modelling undertaken in Trench, the required areas are more than adequate to sustain long term wastewater application on each lot. It should however be noted that the modelling is based upon the installation of packaged treatment systems (e.g., AWTS) with irrigation for a single dwelling on each lot. Recommendations can be made about the suitability and design requirements of the system and the final decision of wastewater system approval rests with the permit authority at the time of site-specific design to ensure the most compatible environmental and economic outcomes.

Table 1.0 Summary of Site Factors Affecting Onsite Wastewater Disposal

Lot number	*Soil Depth (m)*	*Slope Type, Magnitude and Aspect (%)*	*Soil Classification according to AS1547-2012*	*Potential Dispersion Risk*	*Sensitive Environmental Receptors*	*Suitability for AWTS/septic*
Lot 1	1.50+	Simple 4% NE	Category 2 – Sandy LOAM	Low	Dam 30.00m Groundwater 1.20m	AWTS with suitable setbacks
Lot 2	1.50+	Simple 5% NE	Category 2 – Sandy LOAM	Low	Groundwater 1.20m	AWTS with suitable setbacks
Lot 3	1.50+	Simple 4% NE	Category 2 – Sandy LOAM	Low	None identified	AWTS with suitable setbacks
Lot 4	1.50+	Simple 3% NE	Category 2 – Sandy LOAM	Low	None identified	AWTS with suitable setbacks
Lot 5	1.50+	Simple 3% NE	Category 2 – Sandy LOAM	Low	None identified	Existing system (balance lot)
Lot 6	1.50+	Simple 4% NE	Category 2 – Sandy LOAM	Low	None identified	AWTS with suitable setbacks

4.3 Setbacks distances to boundaries and sensitive features

The proposed lots have gentle slopes and the average slope of approximately 3% or 2° has been utilised to represent the indicative required setbacks. The minimum acceptable boundary setbacks modelled according to the Acceptable Solutions stipulated in Building Act 2016 guidelines for on-site wastewater management are:

Table 2.0 – Building Act 2016 setbacks

Upslope or level boundary	1.5m
Downslope boundary	3.5m
Upslope or level building	3m
Downslope building	2.5m
Downslope surface water	19m
Groundwater	0.6m
Limiting layer	0.5m

Note: See Appendix 4 for assessment against the Building Act.

A subdivision proposal with lots of a minimum area of approximately 1500m^2 should allow for significant space on each lot for wastewater disposal with adequate setbacks in regards boundaries and sensitive features. Therefore, it is concluded that current subdivision plan results in lots compliant with the onsite wastewater guidelines and the Tasmanian Planning Scheme.

Site specific setbacks applied to each lot will require fine tuning at the special plumbing permit stage as access, parking, and building footprints are finalised in conjunction with wastewater disposal areas. Modelling at this planning stage does however suggest that sufficient room would be available on each lot to accommodate the required setbacks.

The subdivision area has multiple surface depression features which may act as ephemeral drainage lines, which disperse out in a range of directions. Flood risk modelling has been completed by PDA of which an excerpt can be seen in Figure 4. A small dam is established on proposed Lot 1. It is recommended that the application of treated wastewater is, where practical, restricted to areas of higher ground with lower risk of inundation. Application of the recommendations made in this report will reduce the risk associated with the onsite disposal of wastewater to an acceptably low level.

5. Conclusions

In conclusion, I feel that the land area examined is capable of supporting onsite disposal of wastewater associated with residential development provided that the identified landscape constraints are addressed with appropriate site-specific management strategies.

- The land surveyed is suitable for on site wastewater disposal utilising a secondary treatment system. Application area design will vary for each site depending upon the soil characteristics, final lot layout and construction type.
- Based upon the modelling undertaken a minimum lot size of 1500m^2 would be adequate to accommodate residential development and onsite wastewater disposal.
- Appropriate setbacks from wastewater application areas must be assessed in the site-specific building and wastewater design phase.
- The variation in soil type and ground conditions on each proposed lot must be considered in system design.
- All earthworks on site must comply with AS3798-2007 and consideration should be given to drainage and sediment control on site during and after construction.
- The final approval for construction and wastewater disposal rests with the permit authority at the building approvals stage, and the recommendations in this report should not be viewed as blanket approval for any scale or type of residential development on each lot. Sites must be revisited for individual onsite wastewater assessments.
- The scale and type of residential development on each lot should therefore be appropriate to the environmental constraints of each Lot – therefore I recommend that geotechnical information be provided to prospective purchasers to allow informed decisions.

It is my professional opinion that the land surveyed is suitable to support residential development and on-site wastewater without sustaining environmental harm.

Dr John Paul Cumming B.Agr.Sc (hons) PhD CPSS GAICD
Environmental and Engineering Soil Scientist

Appendix 1 – Trench Summary Reports

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	Shane & Fiona Voorham	Assess. Date	19-Jun-25
		Ref. No.	
Assessed site(s)	70 Grant Street, Falmouth - Proposed Subdivision	Site(s) inspected	19-May-25
Local authority	Break O'Day	Assessed by	JP 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

Wastewater volume (L/day) used for this assessment = 600 (using the 'No. of bedrooms in a dwelling' method)
Septic tank wastewater volume (L/day) = 200
Sullage volume (L/day) = 400
Total nitrogen (kg/year) generated by wastewater = 1.8
Total phosphorus (kg/year) generated by wastewater = 1.5

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)	71	75	74	55	47	65	56	79	52	69	93	55
Adopted rainfall (R, mm)	71	75	74	55	47	65	56	79	52	69	93	55
Retained rain (Rr, mm)	64	68	67	50	42	58	50	71	47	62	84	49
Max. daily temp. (deg. C)												
Evapotrans (ET, mm)	130	110	91	63	42	29	32	42	63	84	105	126
Evapotr. less rain (mm)	**66**	**42**	**24**	**13**	**0**	**-29**	**-18**	**-29**	**16**	**22**	**21**	**77**

Annual evapotranspiration less retained rain (mm) = 206

Soil characterisitics

Texture = Sandy LOAM Category = 2 Thick. (m) = 1
Adopted permeability (m/day) = 3 Adopted LTAR (L/sq m/day) = 40 Min depth (m) to water = 1.2

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:	None
The preferred type of above-ground secondary treatment:	Trickle irrigation
Site modifications or specific designs:	Not needed

Suggested dimensions for on-site secondary treatment system

Total length (m) =	2
Width (m) =	7
Depth (m) =	0.6
Total disposal area (sq m) required =	30
comprising a Primary Area (sq m) of:	15
and a Secondary (backup) Area (sq m) of:	15

Sufficient area is available on site

Comments
Modelling the lots using a typical three-bedroom dwelling producing 600L/day and a DLR of 40L/m^2/day for secondary treated effluent, an absorption area of 15m^2 would be required for each lot.

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	Shane & Fiona Voorham	Assess. Date	19-Jun-25
		Ref. No.	
Assessed site(s)	70 Grant Street, Falmouth - Proposed Subdivision	Site(s) inspected	19-May-25
Local authority	Break O'Day	Assessed by	JP 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	1,500	V. high	Low		
	Density of disposal systems	/sq km	20	Mod.	Moderate		
	Slope angle	degrees	2	High	Very low		
	Slope form	Straight simple		High	Low		
	Surface drainage	Mod. good		High	Low		
	Flood potential	Site floods 1 in 75-100 yrs		High	Low		
	Heavy rain events	Infrequent		High	Moderate		
	Aspect (Southern hemi.)	Faces SE or SW		V. high	High	Low	Other factors lessen impact
	Frequency of strong winds	Common		High	Low		
	Wastewater volume	L/day	600	High	Moderate		
	SAR of septic tank effluent		1.7	High	Low		
	SAR of sullage		2.6	High	Moderate		
	Soil thickness	m	1.0	V. high	Low		
	Depth to bedrock	m	3.0	V. high	Very 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	3	Mod.	Very high	Moderate	Other factors lessen impact
	Long Term Accept. Rate	L/day/sq m	40	High	Very high	Moderate	Other factors lessen impact

Comments

The lots have good capacity to accept onsite disposal of secondary treated effluent.

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	Shane & Fiona Voorham	Assess. Date	19-Jun-25
		Ref. No.	
Assessed site(s)	70 Grant Street, Falmouth - Proposed Subdivision	Site(s) inspected	19-May-25
Local authority	Break O'Day	Assessed by	JP 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		Remarks
					Trench	Amended	
AA	Cation exchange capacity	mmol/100g	0.3	High	Very high		
A	Phos. adsorp. capacity	kg/cub m	0.3	High	High		
	Annual rainfall excess	mm	-206	High	Very low		
	Min. depth to water table	m	1.2	High	Moderate		
	Annual nutrient load	kg	3.3	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	Indust non-sensit		V. high	Very low		
	Dist. to nearest surface water	m	50	V. high	Very high	Moderate	Other factors lessen impact
	Dist. to nearest other feature	m	10	V. high	Very high	Moderate	Other factors lessen impact
	Risk of slope instability	Very low		V. high	Very low		
	Distance to landslip	m	1000	V. high	Very low		

Comments

Secondary treatment of effluent is required and the planting out of any onsite disposal areas with suitable species is recommended to ait nutrient uptake.

Appendix 2 – Bore Logs

TH 1 Depth (m)	Horizon	Description
0.00 – 0.15	A1	Dark Grey **SAND (SW)**: slightly moist loose consistency, visible boundary to
0.15 – 0.80	B21	Yellow Brown **CLAY (CH)**: medium to high plasticity, slightly moist stiff consistency, gradual boundary to
0.80 – 1.00	B22	Yellow Brown and Grey **Sandy CLAY (CI)**: medium plasticity, slightly moist very firm consistency, gradual boundary to
1.00 – 1.50+	BC	Grey and Yellow Brown **Clayey SAND (SC)**: moist medium dense consistency, water table at approx. 1.20m, lower boundary undefined.

TH 1A Depth (m)	Horizon	Description
0.00 – 0.20	A1	Dark Grey **SAND (SW)**: slightly moist loose consistency, gradual boundary to
0.20 – 0.60	A2	Light Grey **SAND (SW)**: slightly moist medium dense consistency, gradual boundary to
0.60 – 1.50+	A3	Light Brown **SAND (SW)**: moist medium dense consistency, water table at approx. 1.20m, lower boundary undefined.

TH 2 Depth (m)	Horizon	Description
0.00 – 0.20	A1	Dark Grey **SAND (SW)**: slightly moist loose consistency, gradual boundary to
0.20 – 0.60	A2	Light Grey **SAND (SW)**: slightly moist medium dense consistency, gradual boundary to
0.60 – 1.50+	A3	Light Brown **SAND (SW)**: moist medium dense consistency, water table at approx. 1.20m, lower boundary undefined.

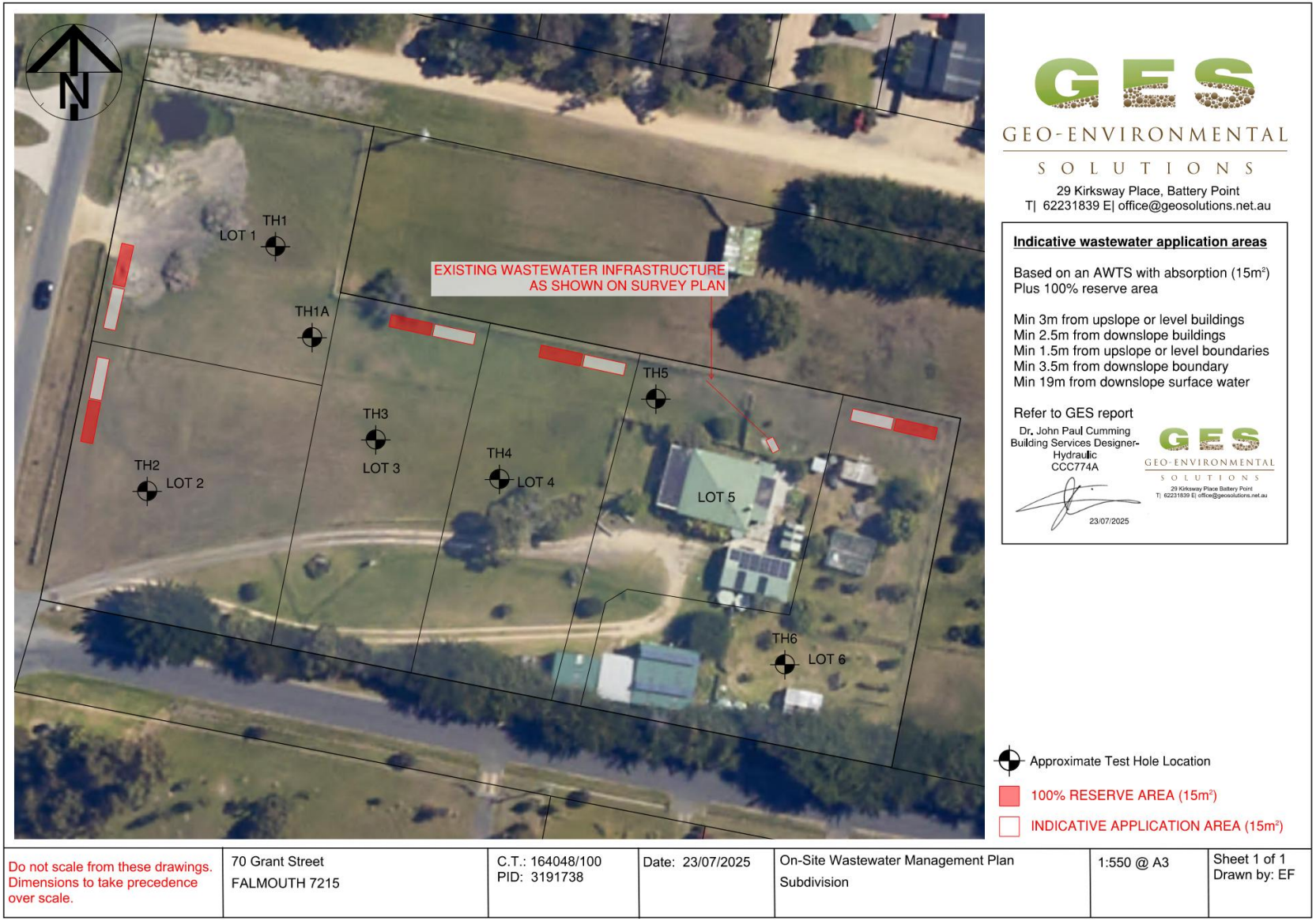
TH 3 Depth (m)	Horizon	Description
0.00 – 0.20	A1	Dark Grey **SAND (SW)**: slightly moist loose consistency, gradual boundary to
0.20 – 0.60	A2	Light Grey **SAND (SW)**: slightly moist medium dense consistency, visible boundary to
0.60 – 0.80	PAN	Grey **SAND (SW)**: slightly moist dense consistency, with rounded quartz gravels, Visible boundary to
0.80 – 1.50+	A3	Light Brown **SAND (SW)**: moist medium dense consistency, lower boundary undefined.

TH 4 Depth (m)	Horizon	Description
0.00 – 0.20	A1	Dark Grey **SAND (SW)**: slightly moist loose consistency, gradual boundary to
0.20 – 0.60	A2	Light Grey **SAND (SW)**: slightly moist medium dense consistency, visible boundary to
0.60 – 0.80	PAN	Grey **SAND (SW)**: slightly moist dense consistency, with rounded quartz gravels, Visible boundary to
0.80 – 1.50+	A3	Light Brown **SAND (SW)**: moist medium dense consistency, lower boundary undefined.

TH 5 Depth (m)	Horizon	Description
0.00 – 0.20	A1	Dark Grey **SAND (SW)**: slightly moist loose consistency, gradual boundary to
0.20 – 0.60	A2	Light Grey **SAND (SW)**: slightly moist medium dense consistency, gradual boundary to
0.60 – 1.50+	A3	Light Brown **SAND (SW)**: moist medium dense consistency, lower boundary undefined.

TH 6 Depth (m)	Horizon	Description
0.00 – 0.20	A1	Dark Grey **SAND (SW)**: slightly moist loose consistency, gradual boundary to
0.20 – 0.60	A2	Light Grey **SAND (SW)**: slightly moist medium dense consistency, gradual boundary to
0.60 – 1.50+	A3	Light Brown **SAND (SW)**: moist medium dense consistency, lower boundary undefined.

Appendix 3 – Site Plan



Appendix 4 – Building Act 2016 Guidelines

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	Consistent with A1 (b) (i) Land application area will be located with a minimum separation distance of 3m from an upslope or level building. Consistent with A1 (b) (iii) Land application area will be located with a minimum separation distance of 2.5m of downslope building.
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.	Consistent with A2 (b) Land application area located with a minimum separation of 19m 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.	Consistent 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. Consistent with A3 (b) (iii) Land application area will be located with a minimum separation distance of 3.5m 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	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	0.6m separation is required to be consistent 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.	0.5m separation is required to be consistent 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	Consistent

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MIDSON
traffic
pty ltd

70 Grant Street Pty Ltd

70 Grant Street, Falmouth
Traffic Impact Assessment

October 2024

CELEBRATING 15 YEARS
2008 - 2023

Contents

Figure Index

1. Introduction

1.1 Background

Midson Traffic were engaged by 70 Grant Street Pty Ltd to prepare a traffic impact assessment for a proposed 6-lot residential subdivision at 70 Grant Street, Falmouth.

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 – Break O'Day, 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:

- 28 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); Chartered Professional Engineer (CPEng); Engineering Executive (EngExec); National Engineers Register (NER)

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 is located at 70 Grant Street, Falmouth. The site currently has a residential dwelling and a number of associated sheds on the site.

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

Figure 1 Subject Site & Surrounding Road Network

Image Source: LIST Map, DPIPWE

1.6 Reference Resources

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

- Tasmanian Planning Scheme – Break O'Day, 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
- Roads and Maritime Services NSW, *Guide to Traffic Generating Developments*, 2002 (RMS Guide)
- Roads and Maritime Services NSW, *Updated Traffic Surveys,* 2013 (Updated RMS Guide)
- Australian Standards, AS2890.1, *Off-Street Parking*, 2004 (AS2890.1)

2. Existing Conditions

2.1 Transport Network

For the purposes of this report, the transport network consists of Tasman Highway, Falmouth Road, Franks Street and Grant Street.

The Tasman Highway near Falmouth is a State owned 'Category 4' road under the Department of State Growth's Road Hierarchy. Category 4 Roads provide safe passenger vehicle and tourist movement within the regions of Tasmania. Tasman Highway has a posted speed limit of 100-km/h and carries approximately 690 vehicles per day near Falmouth[1].

Falmouth Road provides access to the Falmouth township via a T-junction with Tasman Highway. It is approximately 700 metres in length and has a width between approximately 7.0 meters at its southern end to 5 metres towards its northern end. Falmouth Road has a posted speed limit of 60-km/h.

Grant Street forms a continuation of the Falmouth Road corridor at its northern end. It is approximately 660 metres long with a sealed pavement width of approximately 4.5 metres. Based on the land use connecting to Grant Street, it carries a traffic volume of approximately 300 vehicles per day near the subject site.

Franks Street is approximately 550 metres in length and terminates at a cul-de-sac at its eastern end. It has a sealed pavement width of approximately 6 metres near the subject site. Franks Street carries a traffic volume of approximately 200 vehicles per day near its junction with Grant Street.

A 40-km/h area speed limit is applicable to Grant Street and Franks Street.

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.

Crash data was obtained from the Department of State Growth for a 5+ year period between 1st January 2019 and 30th August 2024 for the full length of Grant Street and Franks Street. No crashes were reported during this time.

[1] Source: Department of State Growth Traffic Data, 2023

3. Proposed Development

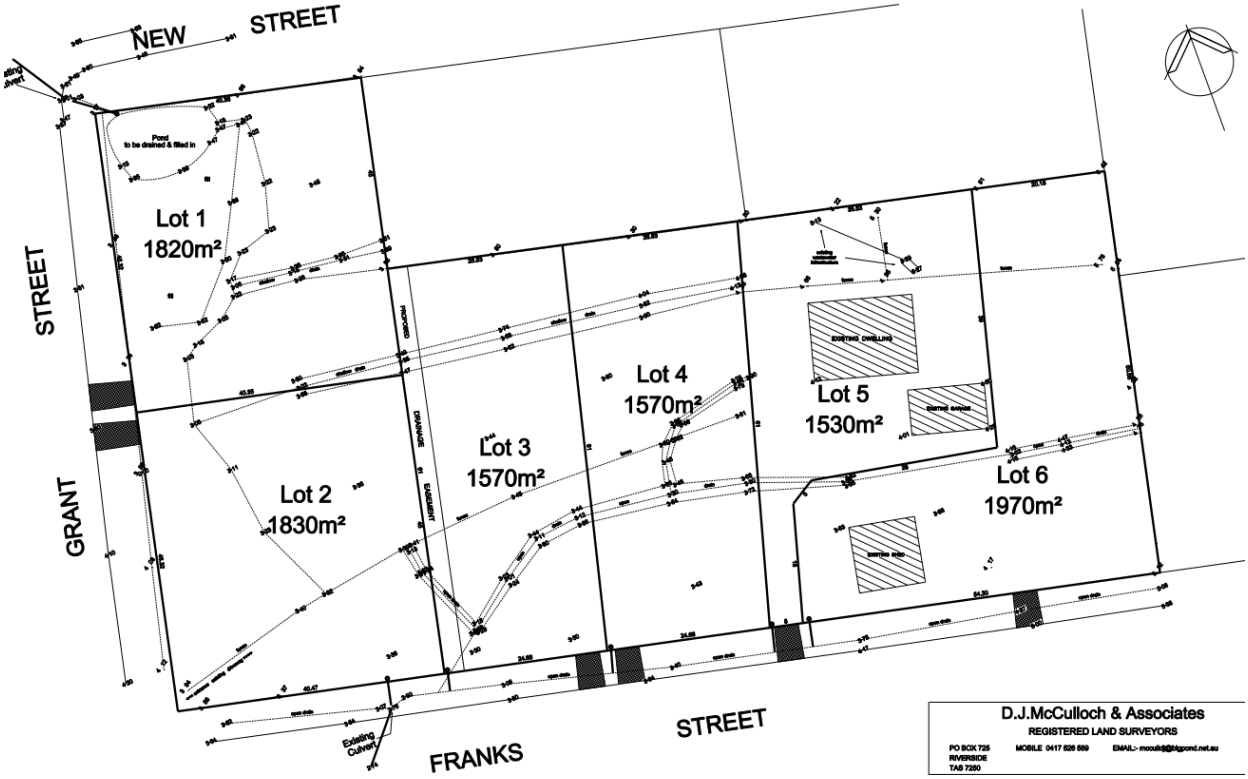
3.1 Development Proposal

The proposed development is a 6-lot residential subdivision. Access to each lot will be via driveway accesses fronting onto both Grant Street and Franks Street.

The lot sizes of the subdivision vary between 1,570m^2 and 1,970m^2.

The proposed subdivision layout is shown in Figure 2.

Figure 2 Proposed Subdivision Layout Plan



4. Traffic Impacts

4.1 Trip Generation

Traffic generation rates have been sourced from the RMS Guide and the Updated RMS Guide. In a regional area, domestic dwellings typically generate:

- 7.4 trips per day
- 0.78 trips per hour during peak periods

This equates to a traffic generation of 44 vehicles per day, with a peak of 5 vehicles per hour. Traffic generation will occur when all lots are developed with occupied residential dwellings.

4.2 Trip Assignment

Traffic generation will occur at the individual driveway accesses associated with the subdivision. The split of traffic on the two frontage roads will be:

- Franks Street 30 vehicles per day with a peak of 3 vehicles per hour
- Grant Street 14 vehicles per day with a peak of 2 vehicles per hour

4.3 Access Impacts

No road junctions are proposed for the subdivision. The subdivision will provide 6 driveway accesses that will service each lot individually. Four driveways are located on the Franks Street frontage and two are located on the Grant Street frontage. All driveways are located more than 40 metres from the Franks Street/ Grant Street junction, thus reducing any potential conflicts between property access and the existing junction operation.

The Acceptable Solution A1.2 of Clause C3.5.1 of the Planning Scheme states "*For a road, excluding a category 1 road or a limited access road, written consent for a new junction, vehicle crossing, or level crossing to serve the use and development has been issued by the road authority*".

In this case a total of 6 new driveway accesses are proposed. No written permission has been provided by Council as road authority and therefore the Acceptable Solution A1.2 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 with respect to the proposed subdivision:

a. Increase in traffic. The increase in traffic will be a total of 44 vehicles per day, with a peak of 5 vehicles per hour. The traffic generation will be spread evenly across 6 driveway accesses. The traffic generation at each driveway access will be 7-8 vehicles per day, which will be equal in magnitude to the traffic generation at nearby residential dwelling's driveways.

b. Nature of traffic generation. The traffic generation will be residential in nature, which is consistent and compatible with the traffic that will be utilising the surrounding network.

c. Nature of road. Franks Street and Grant Street are both residential access roads that carry low traffic volumes. The access requirements associated with the proposed subdivision are compatible with the nature of both roads.

d. Speed limit and traffic flow. An area speed limit of 40-km/h is applicable to both Franks Street and Grant Street. Both roads carry relatively low traffic volumes in the order of 200 to 300 vehicles per day.

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

f. Need for use. The driveways are required to provide access to the parking associated with the proposed residential lots.

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

h. Road authority advice. Council (as road authority) require a TIA to be prepared for the proposed subdivision.

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

4.4 Sight Distance

No internal roads or new road junctions are proposed. Sight distance at the 6 driveway accesses were assessed at both road frontages.

Australian Standards, AS2890.1, provide the sight distance requirements for residential and domestic driveways. Sight distance requirements are lower for driveways compared to road junctions. The minimum sight distance required for a domestic property fronting onto a 40-km/h road is 30 metres.

The road alignment of both Franks Street and Grant Street is straight. All 6 driveways have available sight distance that exceeds 80 metres in both directions, thus complying with AS2890.1 requirements.

Ongoing vegetation management will be required if the existing trees are maintained along the Franks Street frontage to ensure that appropriate sight distance is provided.

4.5 Pedestrian Impacts

The proposed development is likely to attract a relatively small amount of pedestrian movements in the surrounding network. It is noted that there are few pedestrian generating land uses in the nearby surrounding network (noting nearby foreshore recreation areas will generate some pedestrian activity).

The 40-km/h area speed zone is conducive to provide a safe operating environment for pedestrians. The existing road verges are considered appropriate and safe for the low pedestrian/ low traffic volumes on the network.

4.6 Road Safety Impacts

There are no significant detrimental road safety impacts foreseen for the proposed subdivision. This is based on the following:

- The surrounding road network is capable of absorbing the relatively insignificant amount of traffic generated by the proposed development (peak of 5 vehicles per hour, spread over two road frontages).
- The formation lots within the subdivision is consistent with surrounding land development patterns with compatible driveway spacing compared to the surrounding area.
- The existing road safety performance of the road network does not indicate that there are any current road safety deficiencies that might be exacerbated by the proposed development. Specifically noting that there have been no reported crashes in the surrounding road network in the past five years.
- Adequate sight distance is available at all driveway accesses on both Franks Street and Grant Street in relation to the prevailing vehicle speeds.
- The proposed development is an extension of an existing residential land use patterns in the area, and as such movements into and out of the subject site as well as pedestrians will not be seen as an uncommon event by other motorists.

5. Conclusions

This traffic impact assessment (TIA) investigated the traffic and parking impacts of a proposed 6-lot residential subdivision at 70 Grant Street, Falmouth.

The key findings of the TIA are summarised as follows:

- The proposed development consists of a 6-lot residential subdivision. Each lot will have a single driveway access to the frontage road, with 4 driveways accessing Franks Street and 2 driveways accessing Grant Street.
- The traffic generation of the development is likely to be 44 vehicles per day with a peak generation of 5 vehicles per hour. The traffic generation of the subdivision will be spread across 6 individual driveways. The traffic generation at the accesses satisfies the requirements of Performance Criteria P1 of Clause C3.5.1 of the Planning Scheme.
- The driveway accesses are appropriately located and will provide an acceptable level of safety and efficiency. Ongoing vegetation management will be required if the existing trees are maintained along the Franks Street frontage to ensure that appropriate sight distance is provided.

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
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