NOTICE OF PROPOSED DEVELOPMENT

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

SITE:
10 MOOMERE STREET, CARLTON

PROPOSED DEVELOPMENT:
DWELLING

The relevant plans and documents can be inspected at the Council Offices at 47 Cole Street, Sorell during normal office hours, or the plans may be viewed on Council's website at www.sorell.tas.gov.au until **Monday 13th October 2025.**

Any person may make representation in relation to the proposal by letter or electronic mail (sorell.council@sorell.tas.gov.au) addressed to the General Manager. Representations must be received no later than **Monday 13th October 2025.**

APPLICATION NO: **5.2025-146.1**
DATE: **26/09/2025**

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

Full description of Proposal:	*Use:* A primary residential dwelling for 2 person occupancy. *Development:* The construction of a 2 bedroom, 2 bathroom residential dwel built according to council and building regulations in Sorell, T *Large or complex proposals should be described in a letter or planning report.*
Design and construction cost of proposal:	$ 220,000 approximately

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

Location of proposed works:	Street address: 10 Moomere Street (title 17) Suburb: Carlton Postcode: 7173 Certificate of Title(s) Volume: ..... Folio: 61808/17

Current Use of Site	Vacant land

Current Owner/s:	Name(s) Emily Smith (Armstrong)

Is the Property on the Tasmanian Heritage Register?	No: ☑ Yes: ☐	*If yes, please provide written advice from Heritage Tasmania*
Is the proposal to be carried out in more than one stage?	No: ☑ Yes: ☐	*If yes, please clearly describe in plans*
Have any potentially contaminating uses been undertaken on the site?	No: ☑ Yes: ☐	*If yes, please complete the Additional Information for Non-Residential Use*
Is any vegetation proposed to be removed?	No: ☑ Yes: ☐	*If yes, please ensure plans clearly show area to be impacted*
Does the proposal involve land administered or owned by either the Crown or Council?	No: ☑ Yes: ☐	*If yes, please complete the Council or Crown land section on page 3*

If a new or upgraded vehicular crossing is required from Council to the front boundary please complete the Vehicular Crossing (and Associated Works) application form
https://www.sorell.tas.gov.au/services/engineering/

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

Applicant Signature:	Signature: ..... Date: 09 / 05 / 2025

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

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

RESULT OF SEARCH

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

Tasmanian Government

SEARCH OF TORRENS TITLE

VOLUME	FOLIO
61808	17
EDITION	DATE OF ISSUE
3	17-May-2025

SEARCH DATE : 29-May-2025
SEARCH TIME : 01.26 PM

DESCRIPTION OF LAND

Parish of FORCETT, Land District of PEMBROKE
Lot 17 on Sealed Plan 61808 (formerly being SP794)
Derivation : Part of Lot 4206 Gtd. to T. Joseph
Prior CT 2199/99

SCHEDULE 1

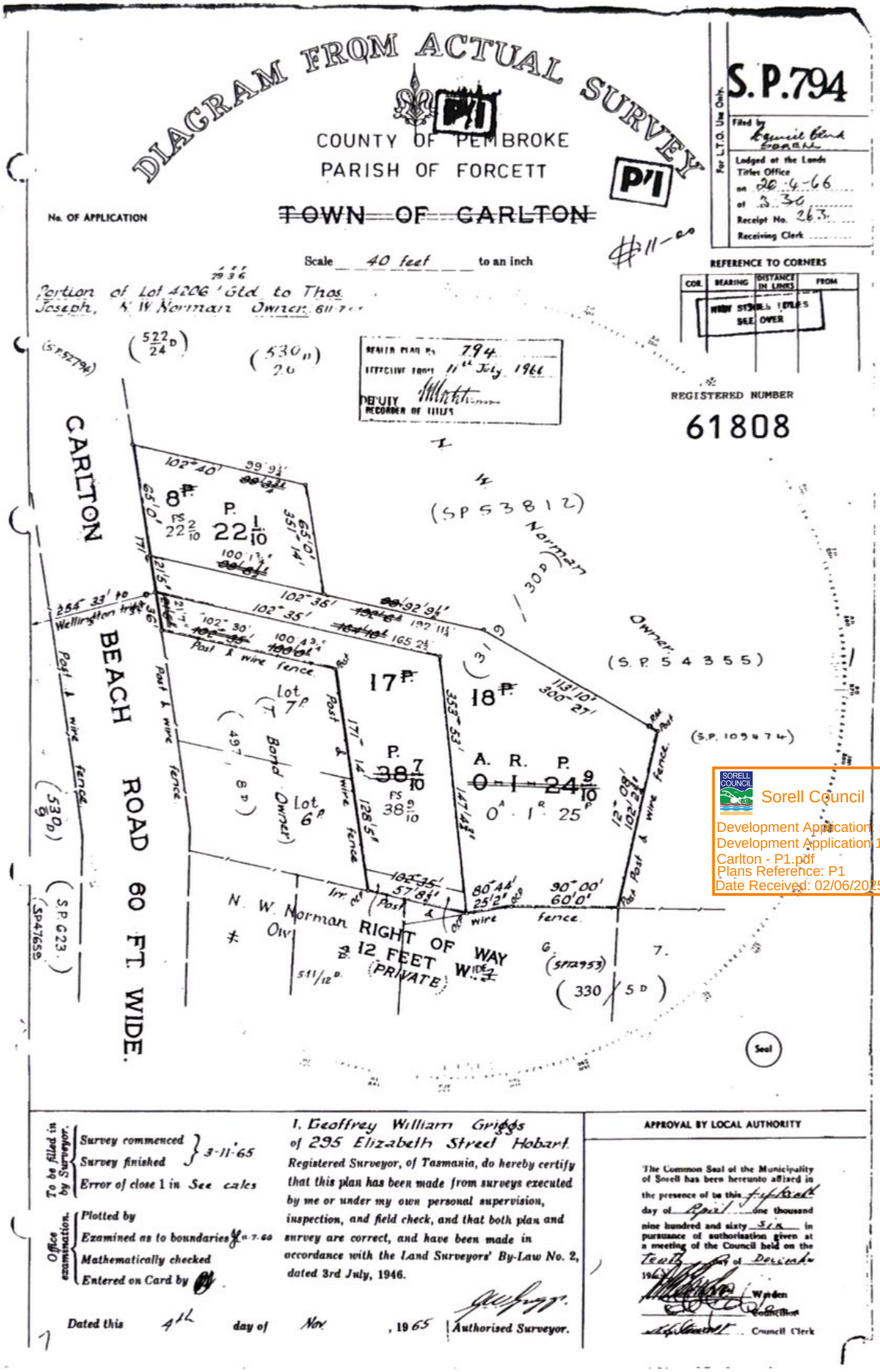
N250796 TRANSFER to EMILY KIRSTEN ARMSTRONG Registered 17-May-2025 at noon

SCHEDULE 2

Reservations and conditions in the Crown Grant if any
SP 61808 BENEFITING EASEMENT : Right of Carriageway in Schedule of Easement
E412552 MORTGAGE to Commonwealth Bank of Australia Registered 17-May-2025 at 12.01 PM

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations



Sorell Council Planning
Sorrell, Tasmania

Dear planning team at Sorell Council,

I am pleased to submit my planning application for 10 Moomere Street, Carlton (Title 17). I've been navigating this process alone as a single parent and I'm grateful for the conversations I've had along the way to better understand the process. (Thanks Vicki!)

I'm originally from Canada, having moved to Australia in 2017 for a partner. We're no longer together but have a beautiful 5-year-old son. After a tumultuous few years, it brings me joy to be planning a small dwelling the two of us will call home for the foreseeable future in the beautiful beachside community of Carlton. I am currently employed full time as the Digital Content Manager at Tourism Tasmania, and I find it a great privilege to market the state as well as live here.

I am submitting application under my maiden name Smith, with the acknowledgement that my title is still under my married name, Armstrong. I can provide identification documents including marriage & divorce papers if required. I have been approved for citizenship (exciting!) but had to revert to my maiden name to proceed, and this was all happening while I was purchasing the block at Moomere St. From here on out, I will be using my maiden name, Smith.

To the best of my understanding for what I need to proceed with the planning permit, I've attached the following, plus applicable forms from each professional service:

- DA drawings outlining the details of the dwelling (Lindardi Designs)
- Wastewater design plans (Rock Solid)
- Soil test (Rock Solid)
- Flood report (Envirotech)
- Land survey (Brooks, Lark & Carrick)
- Folio plan (The LIST)
- Certificate of Title (The LIST)

I have engaged Freestone Building Surveyors and Leigh Saltmarsh for Engineering for the BA approval process. I intent to ensure you (as council) have no flags with my initial project before submitting for the BA. I am also currently looking for the right builder for the project and have a few local leads.

The following submission is a plan to build a small, single-story dwelling, inclusive of 2 bedrooms, 2 bathrooms and an open plan living space on a flat block of land. I have designed this space to be simple, yet functional for the needs of myself and Huxley (my 5-year-old son). I am passionate about simple living, and love the idea of a low consumption, mostly off grid life, which is what Carlton provides. I'm keen to build as soon as I possibly can, with a willingness to ensure I have done everything to make my build an easy process for everyone involved (including council)

I appreciate what the council does for property planning, and I look forward to working with you.

All the best,
Emily Smith (Armstrong)
[redacted]

Brooks, Lark and Carrick SURVEYORS

UNIT 1, 2 KENNEDY DRIVE CAMBRIDGE
7170
PHONE: (03)6248 5898
EMAIL: admin@blcsurveyors.com.au
WEB: www.rbsurveyors.com

PHOTO 1

PHOTO 2

MOOMERE STREET

#12 Moomere St
1-storey W/B
RH 5.83
RH 5.53

#6 Moomere St
1-storey brick
RH 6.38
RH 6.39

O.Star @ RL 2.43

6.58
50.35
30.60
39.14
44.92
6.66
10.93

FFL = 2.85

Site Datum
TBM Spike
@ RL 2.85

RIGHT OF WAY (PRIVATE) 3.66 WIDE

O>SH in top fence rail
O.RS in conc @ RL 2.75

C.T.61808/17
983m²

Sorell Council
Development Application: 5.2025.146.1 - Development Application 10 Moomere Street, Carlton - P1.pdf
Plans Reference: P1
Date Received: 02/06/2025

0m 5.00m 10.0m 15.0m 20.0m 25.0m
1:250

NOTES:

This plan and associated digital model is prepared for Linardi Design from a combination of field survey and existing records for the purpose of designing new constructions on the land and should not be used for any other purpose.

The title boundaries as shown on this plan were not marked at the time of the survey and have been determined by plan dimensions only and not by field survey. No measurements or offsets are to be derived between the features on this plan and the boundary layer. The relationship between the features in this model and the boundary layers cannot be used for any set out purposes or to confirm the position of the title boundaries on site.

Services shown have been located where visible by field survey. Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

This note forms an integral part of the Plan/Data. Any reproduction of this plan/model without this note attached will render the information shown invalid.

LEGEND

- Grated Pit
- Electricity Conn.
- Power Pole
- Floor Level
- Site Datum
- Boundary Peg/Mark
- Property Boundary
- Fence
- The LIST Boundaries
- Electric Line Overhead
- Gravel
- House
- Shipping Container
- Bushes/trees
- Right of Way
- Photo Location

PHOTO 3

HORIZONTAL DATUM is GDA2020, Coordinates are Plane
Coordinate Origin: SPM10107 (in model)
E 552473.118 N 5253612.898 PER SURCOM

REV	AMENDMENTS	DRAWN	DATE	APPR.
E				
D				
C				
B				
A				

Contour & Detail Plan

FOR: LINARDI DESIGN

LOCATION: LOT 17 @ 10 MOOMERE STREET, CARLTON

Date: 28/04/2025	*Contour interval:* 0.200m	*Reference:* LINAM28 16035-01
Drawn: JR	*Scale:* 1:250 (A3)	*Bearing Datum: MGA2020 per* SIO185124/5
Approved: JR	*C.T. Reference:* 61808/17	*Vertical Datum:* AHD83 per SPM10107

enviro •tech
CONSULTANTS
Geotechnical & Environmental Services

FLOOD PRONE AREAS HAZARD ASSESSMENT

Proposed Dwelling 10 MOOMERE STREET - CARLTON

Client: Emily Smith

Certificate of Title: 61808/17

Investigation Date: Friday, 9 May 2025

Refer to this Report As

Enviro-Tech Consultants Pty. Ltd. 2025. Flood Prone Areas Assessment Report for a Proposed Dwelling, 10 Moomere Street - Carlton. Unpublished report for Emily Smith by Enviro-Tech Consultants Pty. Ltd., 09/05/2025.

Report Distribution:

This report has been prepared by Enviro-Tech Consultants Pty. Ltd. for the use by parties involved in the proposed residential development of the property named above. It is to be used only to assist in managing any existing or potential inundation hazards relating to the Site and its development.

Limitations of this report

The data displayed within this document has been prepared using open-source scientific documents and data. Envirotech have used this local and regional data to estimate present and future hazards at the Site. The data is by its nature approximate and may contain errors introduced by the data provider(s).

The inundation modelling conducted in this assessment assumes specific Site conditions detailed within this assessment report as per design plans. Modifications to the landscape, not indicated in this report, including construction of retaining walls, soil cut or fill, and water flow obstructions including but not limited to vegetation, fencing, and non-fixed items may result in varied inundation levels and varied water flow movement across the property which are not modelled in this assessment are outside of the scope of this investigation.

Executive Summary

Enviro-Tech Consultants Pty. Ltd. (Envirotech) were contracted by Emily Smith to prepare a flood prone areas hazard assessment for a proposed Dwelling located at 10 Moomere Street, Carlton. This report has been written to address planning scheme overlay codes in general accordance with the state-wide planning provisions for Sorell City Council.

The objective of the Site investigation is to:

- Use available geographic information system (GIS) data to make interpretations about present Site hydrology, and how the proposed development will be impacted by inundation and where relevant, assessing the development influence on floodwaters entering and existing the land.
- Conduct a risk assessment for the proposed development ensuring relevant performance criteria, building regulations and directors determination are addressed.
- Assess if the proposed development can achieve and maintain a tolerable risk for the intended life of the use or development without requiring any flood protection measures.
- Determine if the building and works will cause or contribute to flood or inundation on the Site, on adjacent land or public infrastructure
- Provide recommendations for managing inundation risk.

The proposed development comprises a single storey 2 bedrooms dwelling built on stilts and a driveway.

This assessment involves that part of the dwelling and driveway are projected to be impacted by floodwaters. The recommended dwelling FFL is determined based on catchment and Site hydrology modelling.

The following have been concluded from the assessment:

- Given the Sorell Council 1% AEP mapping scenario, floodwaters will reach 2.89 m AHD near the Site with water flow velocities at approximately 0.1 m/s near the proposed dwelling and driveway.
- Allowing for 0.3m freeboard, the development is to be constructed at 3.19m AHD or higher.
- The water flow velocities will not present a problem with localised erosion around the proposed structures
- The construction of the proposed dwelling will have negligible effect on the:
    - Inundation levels both on Site and off Site
    - Water flow velocities passing the Site
    - Water quality condition
- The proposed driveway resides in Flood Hazard Class 1 (Ball, et al., 2019), and therefore the proposed driveway is suitable for 2wd vehicles.

It has been established from the qualitative risk assessment that the level of risk from coastal and inland inundation is within the lowest bounds and the proposed development works at the Site are acceptable.

1 Introduction

1.1 *Background*

Enviro-Tech Consultants Pty. Ltd. (Envirotech) were contracted by Emily Smith to prepare a flood prone areas hazard assessment for a proposed Dwelling located at 10 Moomere Street, Carlton. This report has been written to address planning scheme overlay codes in general accordance with the state-wide planning provisions for Sorell City Council.

This inundation modelling report has been prepared by an environmental and engineering geologist with hydrogeology and hydrology training and experience. Areas of competence include catchment and streamflow models for assessing waterway erosion and inundation.

The proposed development has triggered the following overlay codes which are addressed within this report:

- C 12.0 Flood Prone Areas Code

1.2 *Objectives*

The objective of the Site investigation is to:

- Use available geographic information system (GIS) data to make interpretations about present Site hydrology, and how the proposed development will be impacted by inundation and where relevant, assessing the development influence on floodwaters entering and exiting the land.
- Conduct a risk assessment for the proposed development ensuring relevant performance criteria, building regulations and directors determination are addressed.
- Assess if the proposed development can achieve and maintain a tolerable risk for the intended life of the use or development without requiring any flood protection measures.
- Determine if the building and works will cause or contribute to flood or inundation on the Site, on adjacent land or public infrastructure
- Provide recommendations for managing inundation risk.

1.3 *Cadastral Title*

The land studied in this report is defined by the title 61808/17

1.4 *Site Setting*

The Site is set within the drainage flats inland of Carlton Beach (Map 1 and Map 2). Floodwater overlays is presented in Map 3. The Site location plans are presented in Map 6.

1.5 *Geomorphology & Hydrology*

The Site northern boundary is located about 30 m south to a drainage course easement which drains into a lagoon system to west and a lagoon/Carlton River to the east (Map 2). The proposed dwelling is located about 60 m south to the above-mentioned drainage easement. Open culvers permit stormwater drainage beneath Moomere Street to the west and Carlton Beach Road to the east. Drainage from the Site occurs in both a westward and eastward direction.

2 Assessment

2.1 *Proposed Development*

Table 1 summarises the provided design documents from which this assessment is based (Attachment 2). The proposed development comprises a single storey 2 bedrooms dwelling built on stilts and a driveway.

The proposed dwelling FFL are to be determined based on the findings of this assessment.

Table 1 Project Design Drawings

Drafted By	Project Number	Date Generated	Drawings
LINARDI DESIGN	2199	02/04/2025	B3

2.2 *Planning*

Planning code overlay mapping is presented in Attachment 1 and planning and building regulations are addressed in Attachment 3.

The Site is located within the Sorell Council mapped 1% Annual Exceedance Probability (AEP) inland flooding hazard area (Map 3). The mapping has triggered Flood Prone Areas Hazard Code, meaning that a more detailed investigation is required to further assess inundation risk associated with the proposed development. The defined floodwater level for the land is to be assessed based on proposed Site works.

2.3 *Building*

According to the Tasmanian Building Regulations 2016, the floor level of each habitable room[1] of the building, being erected, re-erected, or added as part of the work, is to be constructed at least 300 millimetres above the defined flood level for the land.

2.4 *Topography*

The Site ranges in elevation from approximately 2.5 m AHD through to 2.72 m AHD and is near level (Map 6).

2.5 *Pluvial Flooding Analysis*

Details of the pluvial flooding analysis assessment are presented in Attachment 4. The following are observed:

- Given the Sorell Council 1% AEP mapping scenario, floodwaters will reach 2.89 m AHD near the Site.
- 1 % AEP water flow velocities are estimated at approximately 0.1 m/s near the proposed dwelling and driveway.

[1] habitable room - means any room of a habitable building other than a room used, or intended to be used, for a bathroom, laundry, toilet, pantry, walk-in wardrobe, corridor, stair, hallway, lobby, clothes drying room, service or utility room, or other space of a specialised nature occupied neither frequently nor for extended periods.

3 Risk Assessment

Qualitative risk evaluation criteria have been created to determine fundamental risks that may occur due to development in areas that are vulnerable to inundation hazards.

This qualitative risk assessment technique is based on AS/NZS ISO 31000:2009 and relies on descriptive or comparative characterisation of consequence, likelihood, and the level of risk comparative (rather than using absolute numerical measures).

A risk consequence/likelihood matrix has been selected which is consistent with AS/NZS ISO 31000:2009 guidelines.

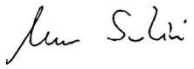
Consequence/likelihood criteria have assisted in determining if any risk management measures are required at the Site to mitigate any potential hazards. Adopted consequence/likelihood criteria are presented in Attachment 5. Performance criteria are presented in Attachment 6.

If habitable rooms are raised 300 mm above the defined flood level for the Site, risks associated with the proposed works are considered low.

4 Site Building and Works

The following are concluded:

- At present date, the Sorell Council 1% AEP mapping is considered suitable without further development of a hydrogeological model for the drainage basin.
- Given the Sorell Council 1% AEP mapping scenario, floodwaters will reach 2.89 m AHD near the Site with water flow velocities at approximately 0.1 m/s near the proposed dwelling and driveway. The water flow velocities will not present a problem with localised erosion around the proposed structures
- The construction of the proposed dwelling will have negligible effect on the:
    - Inundation levels both on Site and off Site
    - Water flow velocities passing the Site
    - Water quality condition
- The proposed driveway resides in Flood Hazard Class H1 (Ball, et al., 2019), and therefore the proposed driveway and site is suitable for 2wd vehicles (Map 4 & Figure 1).



Marco Scalisi BSc Msc | Environmental & Engineering Geologist

Project manager

Enviro-Tech Consultants Pty. Ltd.

5 References

Ball, J. et al., 2019. Australian Rainfall and Runoff (AR&R): A guide to Flood Estimation. [Online] Available at: http://book.arr.org.au.s3-webSite-ap-southeast-2.amazonaws.com/ [Accessed 12 07 2022].

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), 2019.

CBOS 2021a. Director's Determination - Riverine Inundation Hazard Areas. Director of Building Control Consumer, Building and Occupational Services, Department of Justice. 8 April 2021

Chow, VT (1959) Open channel hydraulics, McGraw-Hill, New York

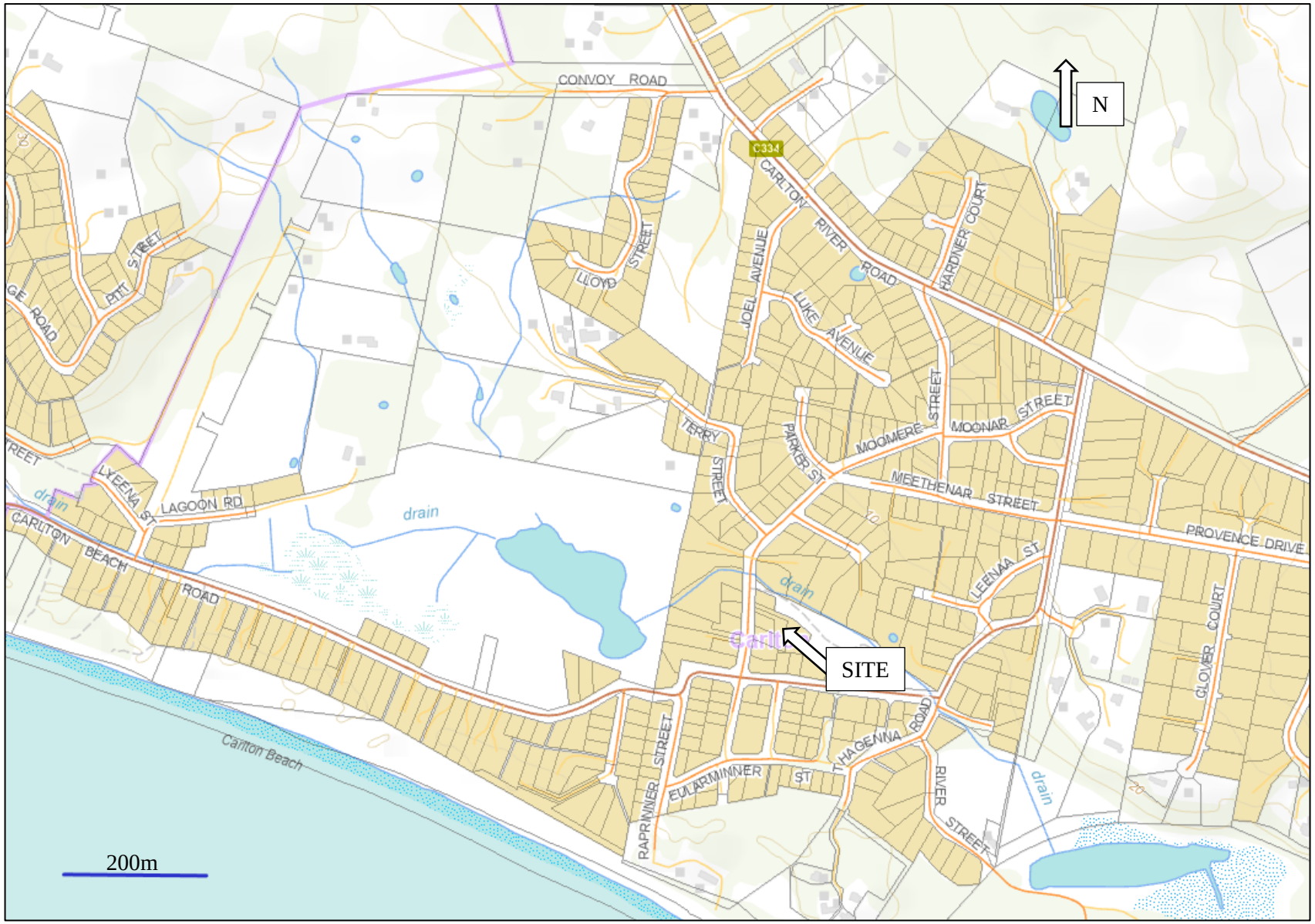
Coombes, P., and Roso, S. (Editors), 2019 Runoff in Urban Areas, Book 9 in Australian Rainfall and Runoff - A Guide to Flood Estimation, Commonwealth of Australia, © Commonwealth of Australia (Geoscience Australia), 2019.

N. Maidment, D.R. 1993. Handbook of hydrology. McGraw-Hill. New York, NY.

Water and Rivers Commission 2000, Stream Channel Analysis Water and Rivers Commission River Restoration Report No. RR 9.

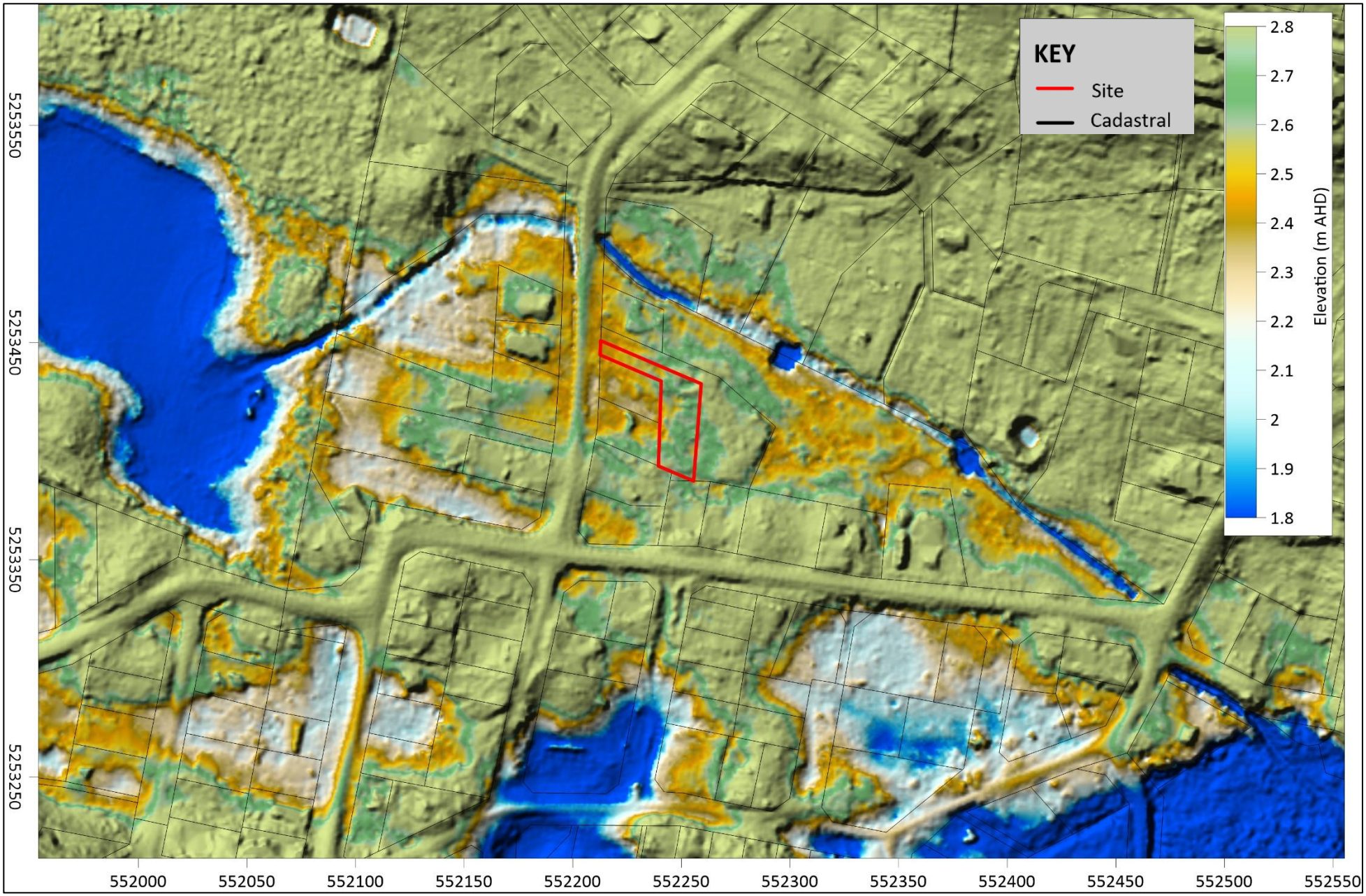
Attachment 1 Mapping

Map 1



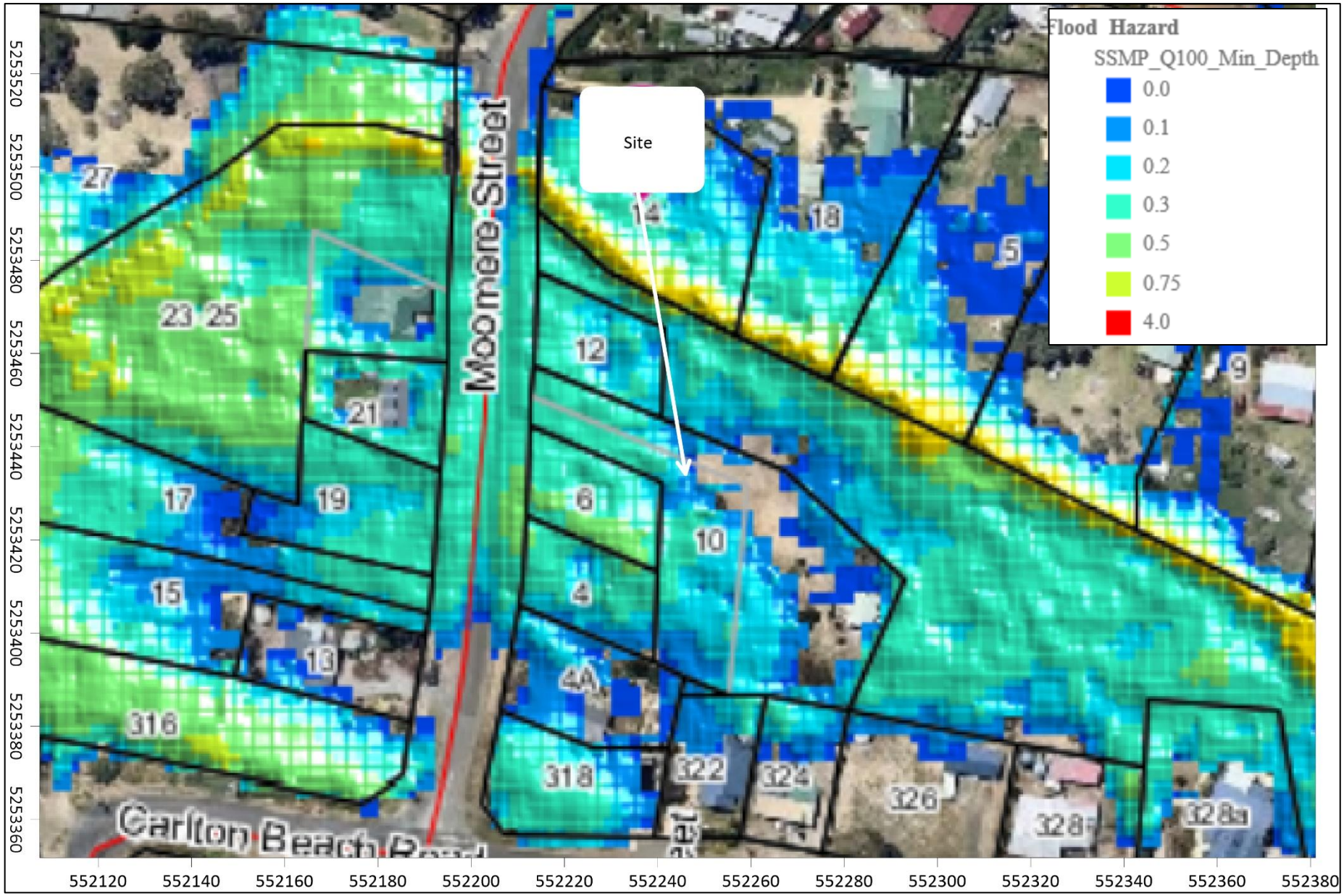
Map 1 Site Local Setting (The LIST)

Map 2



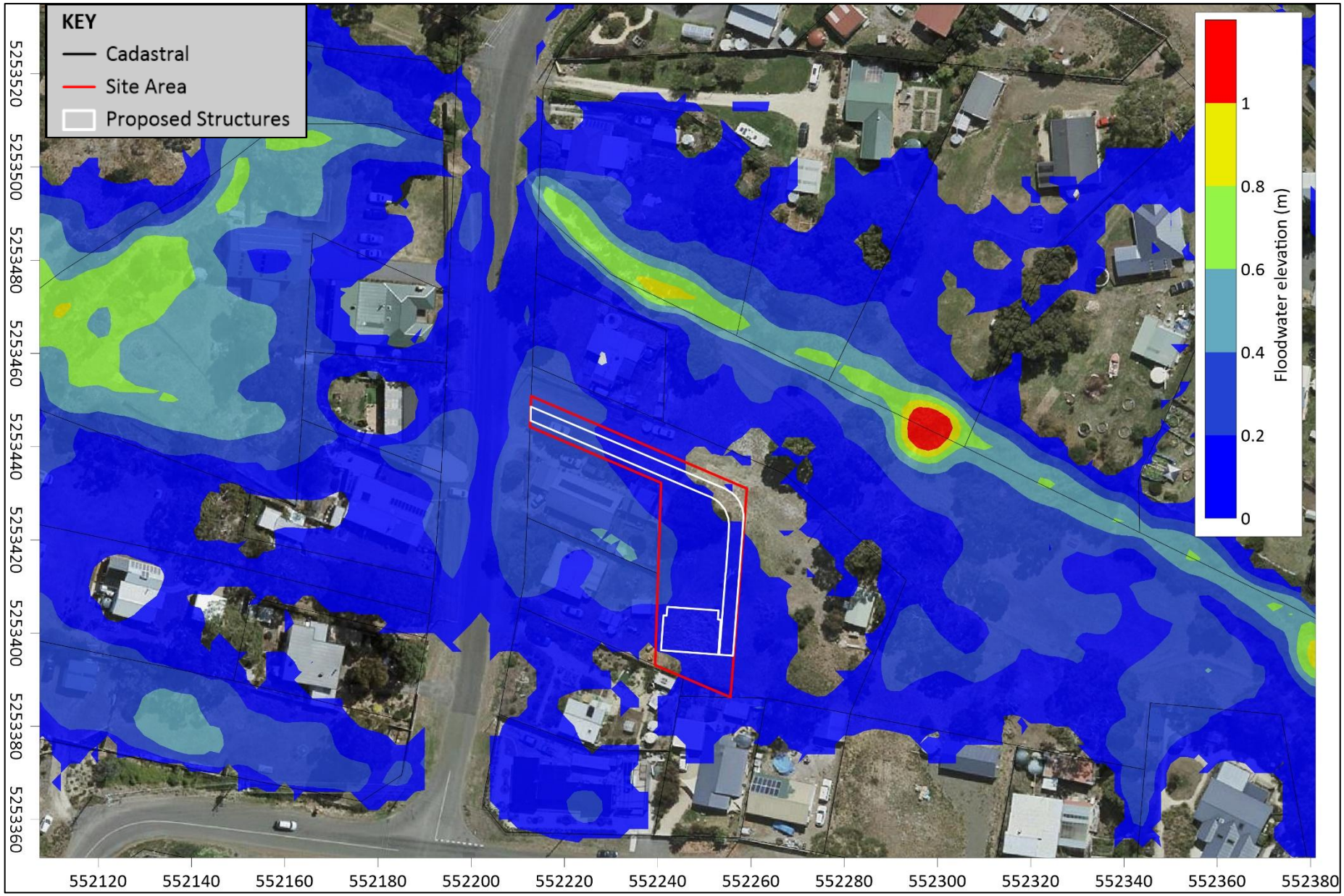
Map 2 Regional Location of Project Area (The LIST)

Map 3



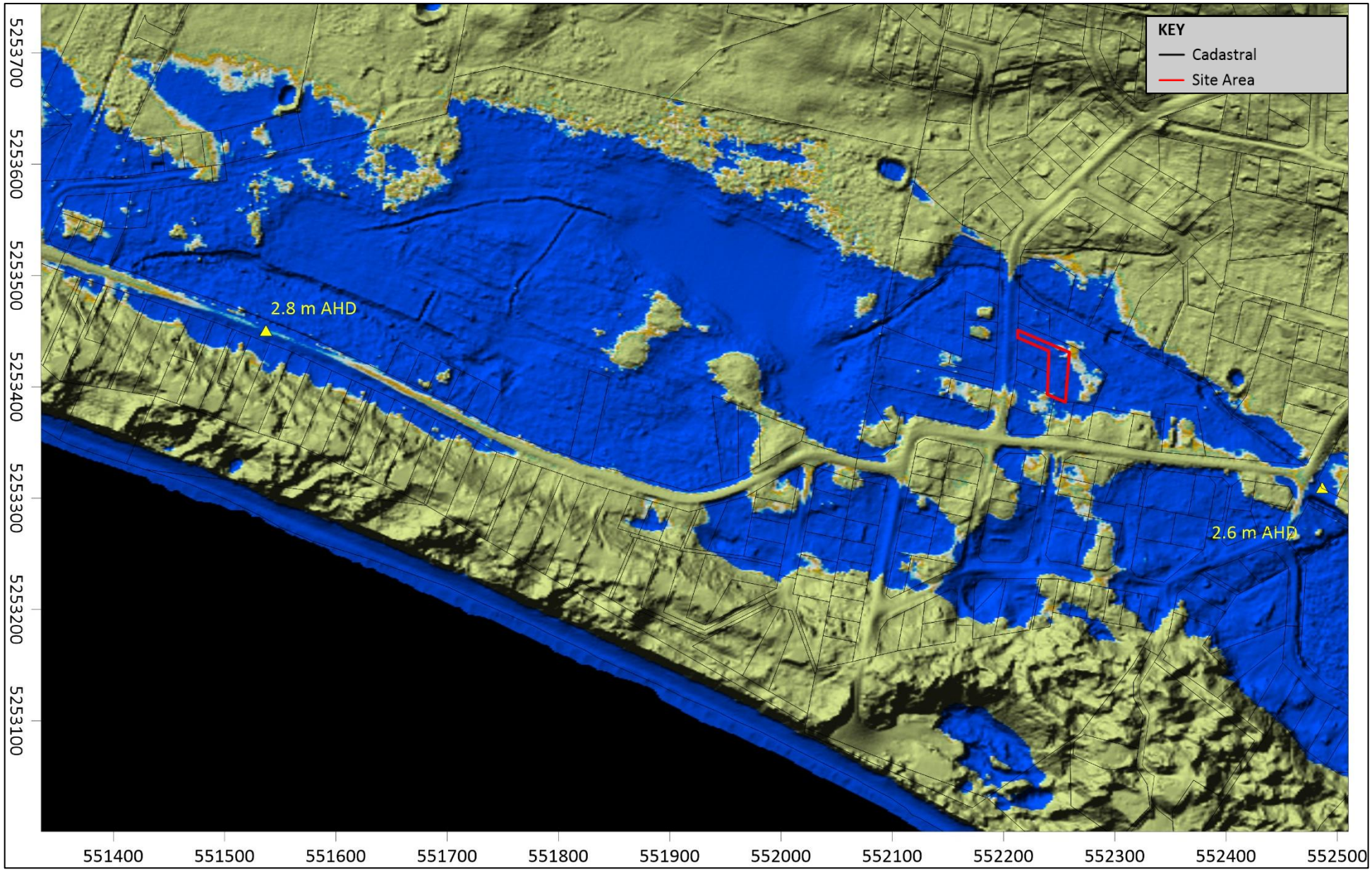
Map 3 1% AEP Floodwater modelling prepared by the local government authority

Map 4



Map 4 Local Modelled 1% AEP Floodwater depth

Map 5



Map 5 Example 2.8 m Inundation Within the Carlton/Park Drainage Flats

Map 6

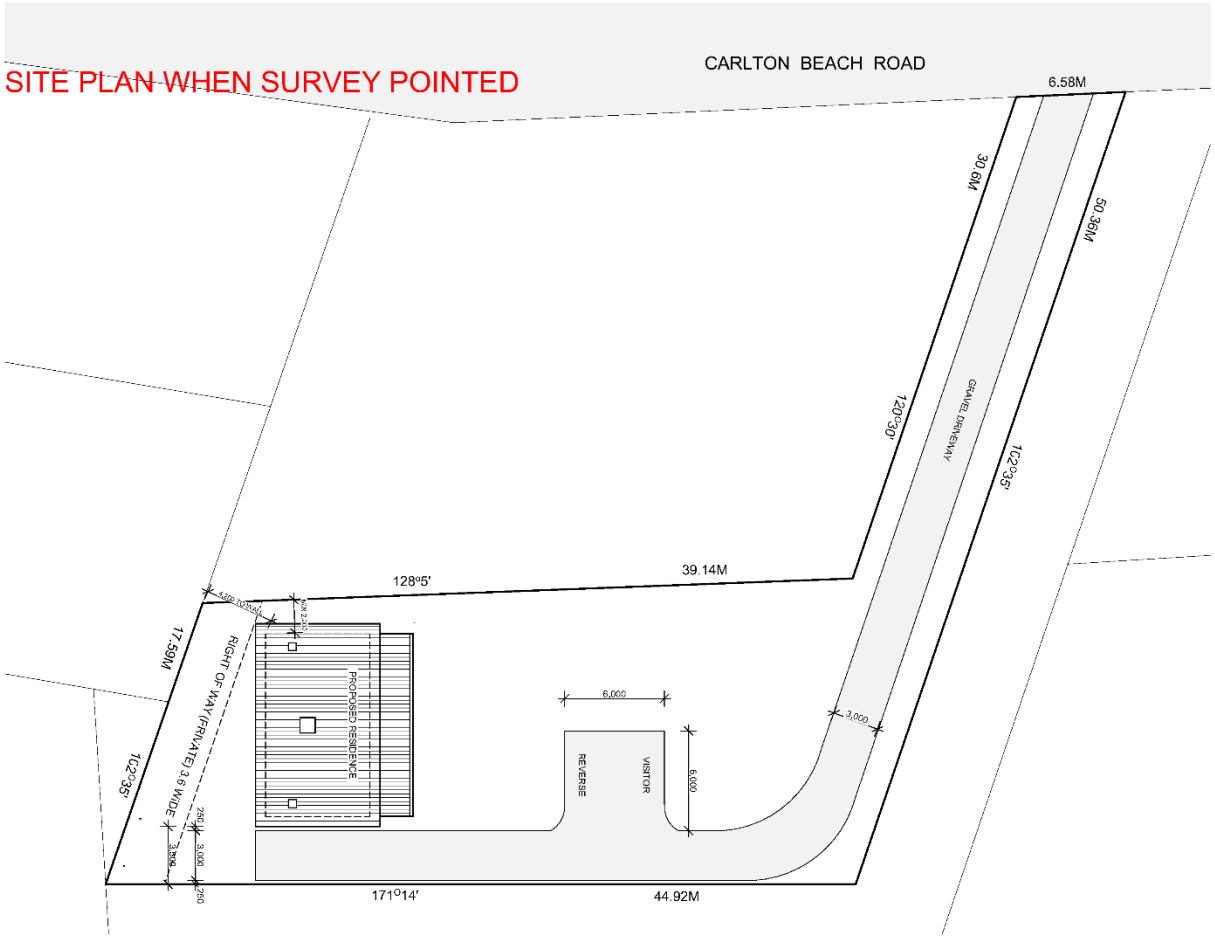
Map 6 Site plan with Site survey contours (Brooks, Lark and Carrick - 2025)

Attachment 2 Preliminary Design Concept Plans

10 MOOREMERE ST, CARLTON TAS, 7173
SITE INFORMATION

CERTIFICATE OF TITLE

AREAS:	M²
SITE	
SITE COVER	
SITE COVERAGE	
GROUND	
VERANDAH	27.5
FLOOR AREA	
LIVING ROOM & KITCHEN	31.0
BATHROOM 01	6.7
BATHROOM 02	6.7
BEDROOM 01	12.2
BEDROOM 02	12.2
TOTAL FLOOR AREA	**68.8**



SITE PLAN

Scale 1:250 @ A3

DRAFT

*NOTE
REFER TO SHEET BA 02 FOR BUILDING NOTES & NCC ADDENDUM
REFER TO SHEET BA 02 FOR CONSTRUCTION NOTES
FOR ENERGY EFFICIENCY REFER TO REPORT BY OTHERS
DIMENSIONS TO BE VERFIY ON SITE PRIOR TO COMMENCEMENT OF WORKS

2199

AMENDMENT	DATE	DETAILS
1	02/04/25	BA DRAWINGS DRAFT ISSUE

PROPOSED COTTAGE
FOR EMILY ARMSTRONG
10 MOOMERE ST CARLTON,
JOB NO. 2199

BA 03

LINARDI PTY. LTD ACN 082 237 530
119 Roaring Beach Road
South Arm Tasmania 7022
m. 0417 878 723
e. linardi@bigpond.com
w. linardidesign.com
TCC REG NO. CC392L

LINARDI DESIGN + ARCHITECTURAL SERVICE

Attachment 3 Planning and Building Regulations

C12.0 Flood-Prone Area Hazard Code

Code Overlay – The LIST Mapping

The Site is located within the Sorell Council mapped 1% Annual Exceedance Probability (AEP) inland flooding hazard area (Map 3). The mapping has triggered Flood Prone Areas Hazard Code, meaning that a more detailed investigation is required to further assess risk associated with the proposed development.

C12.6 Development Standards for Buildings and Works

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

C12.6.1 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.

C12.6.1 A1 Acceptable Solutions

As there are no acceptable solutions to C12.6.1 (A1), the proposed development is to be assessed against performance criteria.

C12.6.1 P1 Performance Criteria

The proposed development needs to be assessed against the following performance criteria:

- C12.6.1 P1.1 and
- C12.6.1 P1.2.

Attachment 4 Site Inundation Assessment

Coastal Inundation Assessment

It is estimated that the coastal inundation level for the Site (1% AEP storm tide) based on a building design life of 50 years is 1.86 m AHD. Based on a 2100 timeframe and a 1% AEP storm tide, the coastal inundation level is estimated at 2.46 m AHD. Water movement at the Site during such an inundation event would be minimal.

Riverine (Pluvial) Inundation Assessment

A 1% AEP floodwater level of 2.89 m AHD has been identified near the Site. Future floodwater levels are controlled by several cumulative factors including:

- Floodwater flows from the west via cumulative stormwater accumulation/retention within the historic lagoon (Carlton/Park drainage flats) to the west of the Site.
- Localised peak standing groundwater levels
- Flooding from the east from coincident storm surge and astronomical tide given sea levels within the building design life
- Floodwater discharge rates:
    - Via groundwater infiltration through Carlton Beach dune system (knowing lagoon sediments and Tertiary clays are likely to limit infiltration near the Site)
    - Via the stormwater discharge outlet beneath Carlton Beach Road

Floodwater Accumulation Within Carlton/Park Drainage Flats

Sorell Council have indicated 1% AEP floodwater levels at 2.89 m AHD near the Site which has the potential to occur if adverse conditions are met as indicated above. Under a restrictive drainage condition model and given present day topography, water will discharge via the stormwater outlet at beneath Carlton Beach Road (east) with discharge floodwaters at 2.6 m AHD and via Carlton Beach Road overflow at 2.8 m AHD into permeable dune sand deposits (Map 5). This appears to be the worst-case scenario model adopted in the Sorell Council 1% AEP floodwater mapping.

Localised Peak Standing Groundwater Levels

Given the low-lying topography and drainage conditions, as sea levels rise, the water table is also expected to rise at a similar rate. This will have an additive effect on water volumes within the lagoon system over time, meaning less volume is required to reach peak levels from coastal and fluvial inundation.

Coastal Inundation

Within the building design life, and even by 2100, given the present topography and drainage conditions, there is a low chance that sea water will infiltrate the Site.

Floodwater Discharge Via Surface Water Runoff

Floodwaters will flow east towards the culvert beneath Carlton Beach Road. Discharge rates beneath Carlton Beach Road culvert are estimated at approximately 5m3/s. Resulting average floodwater movement velocities eastward past the Site given 2.89 m AHD floodwaters are in the order of 0.1 m/s. Drainage culvert channel flow velocities through the easement are estimated at 1 m3/s.

Floodwater Discharge Via Groundwater

Floodwater infiltration into groundwater from the lagoon flats is controlled by:

- The underlying sediments in the drainage basin which typically comprise low permeability Tertiary clay sediments
- The movement of groundwater through fill material beneath Carlton Beach Road towards the coastal sand dunes. This is the most significant controlling factor in the projection of floodwater levels in the area. The composition of the fill is unknown and will require further investigation to determine the accuracy of Sorell Council 1% AEP floodwater mapping. Over time, organic matter and silt in lagoons can choke up natural groundwater movement, restricting groundwater flow and causing floodwaters to rise which may be the case in this scenario. These things can be managed through engineered soakage/aquifer recharge solutions.

Defined Inundation Levels

The following findings are from the 1% AEP stormwater flow modelling for the proposed development as specified in Map 6:

- The highest inundation levels within the proposed building envelope are calculate at 2.89 m AHD (Map 6)

Finished Floor Levels

In accordance the Tasmanian Building Regulations 2016, finished floor level of the proposed dwelling habitable rooms[2] must be constructed at or greater 3.19 m AHD to allow 0.3 m freeboard above the modelled 1% AEP inundation level of 2.89 m AHD (Table 3).

Table 2 Relative finished floor levels

Parameter	Level Relative to the Primary Slab Finished Floor Level (m AHD)
Dwelling	3.19
Channel Surface	2.89

Hazard Class

The proposed driveway resides in flood hazard Flood Hazard Class H1 (Ball, et al., 2019). This is based on highest 1% AEP floodwater depth at 0.27m in the driveway section near the entrance of the property and water flow velocities not projected to exceed 0.1 m/s. Therefore the proposed driveway is suitable for 2wd vehicles (Map 4 & Figure 1).

[2] habitable room - means any room of a habitable building other than a room used, or intended to be used, for a bathroom, laundry, toilet, pantry, walk-in wardrobe, corridor, stair, hallway, lobby, clothes drying room, service or utility room, or other space of a specialised nature occupied neither frequently nor for extended periods.

Attachment 5 Qualitative Terminology

almost certain	Is expected to occur in most circumstances; and/or there is a high level of recorded incidents; and/or strong anecdotal evidence; and/or a strong likelihood the event will recur; and/ or great opportunity, reason, or means to occur; may occur once every year or more
Likely	Will probably occur in most circumstances; and/or regular recorded incidents and strong anecdotal evidence; and/or considerable opportunity, reason or means to occur; may occur once every five years
Possible	May occur at some time; and/or few, infrequent or randomly recorded incidents or little anecdotal evidence; and/or very few incidents in associated or comparable organisations, facilities or communities; and/or some opportunity, reason or means to occur; may occur once every 20 years
Unlikely	Is not expected to occur; and/or no recorded incidents or anecdotal evidence; and/or no recent incidents in associated organisations, facilities or communities; and/or little opportunity, reason or means to occur; may occur once every 100 years
Rare	May occur only in exceptional circumstances; may occur once every 500 or more years

Source: Commonwealth of Australia, 2004: Emergency Management Australia – Emergency Risk Management Applications Guide Manual 5

Consequence Rating	***Public Safety***	***Local growth and economy***	***Community and Lifestyle***	***Environment & sustainability***	***Public administration***
Catastrophic	Large numbers of serious injuries or loss of lives	Local decline leading to business failure, loss of employment, local hardship	Local area seen as very unattractive, significant decline, and unable to support community	Major widespread loss of environmental amenity and progressive irrecoverable environmental damage	Public Administration would fail and cease to be effective
Major	Isolated instances of serious injuries or loss of lives	Local stagnation such that businesses unable to thrive and imbalance between employment and local population growth	Severe and widespread decline in services and quality of life within community	Severe loss of environmental amenity and a danger of continuing environmental damage	Public administration would struggle to remain effective and would be perceived as being in danger of failing completely
Moderate	Small number of injuries	Significant general reduction in economic performance relative to current forecasts	General appreciable decline in services	Isolated significant instances of environmental damage that might be reversed with intensive efforts	Public administration would be under significant pressure on numerous fronts
Minor	Serious near misses or minor injuries	Individually significant but isolated areas of reduction in economic performance relative to current forecasts	Isolated but noticeable examples of decline in services	Minor instances of environmental damage that could be reversed	Isolated instances of Public administration being under significant pressure
Insignificant	Appearance of threat by no actual harm	Minor shortfall relative to current forecasts	There would be minor areas in which the region was unable to maintain is current services	No environmental damage	There would be some minor instances of public administration being under more than usual stress but it could be managed

Likelihood (L)	**Consequences (C)**				
	Insignificant	**Minor**	**Moderate**	**Major**	**Catastrophic**
Almost certain	MEDIUM	medium	high	extreme	extreme
Likely	low	medium	high	high	extreme
Possible	low	medium	medium	high	high
Unlikely	low	low	medium	medium	medium
Rare	low	low	low	low	medium

Adapted from DCC 2006, 40.

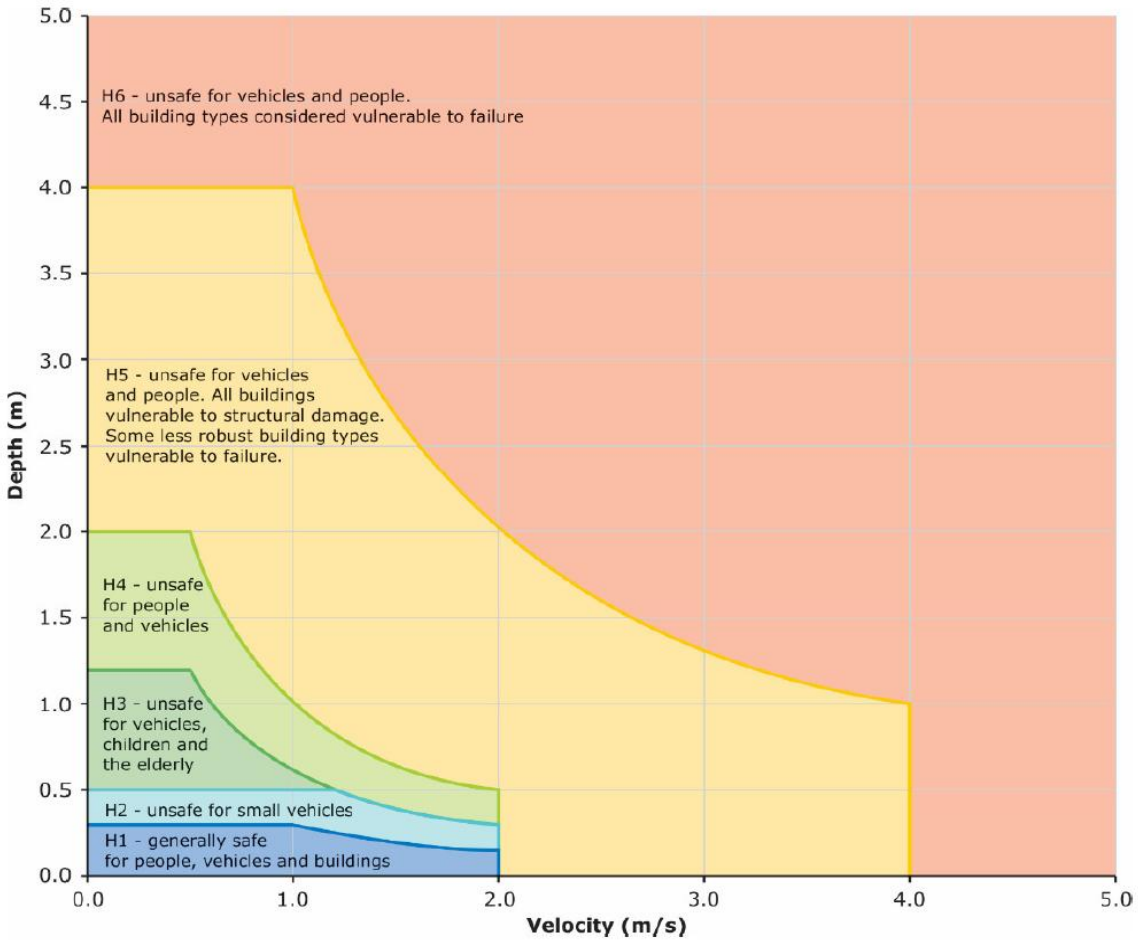


Figure 1 Flood Hazard Curve (Ball, et al., 2019)

Attachment 6 Tasmanian Planning Scheme – Flood Prone Hazard Areas

Building and Works

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.

C12.6.1 P1.1 Buildings and works within a flood-prone hazard area – risk assessment

Performance Criteria C12.6.1 P1.1 Buildings and works within a flood-prone hazard area must achieve and maintain a tolerable risk from a flood, having regard to:	Relevance	Management Options	Likelihood	Consequence	Risk	Further Assessment Required
(a) the type, form, scale and intended duration of the development;	The type, form and scale of the development suitable given the projected storm flow.		Unlikely	Minor	Low	No
(b) whether any increase in the level of risk from flood requires any specific hazard reduction or protection measures;	No hazard reduction measures are advised, with modelling based on adaption and not reduction.		Unlikely	Minor	Low	No
(c) any advice from a State authority, regulated entity or a council; and						
(d) the advice contained in a flood hazard report.						

C12.6.1 P1.2 Buildings and works within a flood-prone hazard area - flood hazard reporting

Performance Criteria C12.6.1 P1.2 A flood hazard report also demonstrates that the building and works:	Relevance	Management Options	Likelihood	Consequence	Risk	Further Assessment Required
(a) do not cause or contribute to flood on the Site, on adjacent land or public infrastructure; and	Given the modelling, the building and works will result in minor and not adverse modifications to storm flow.	Elevating structures above natural drainage course. Not restricting water movement.	Unlikely	Minor	Low	No
(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.	The proposed dwelling 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.	It is recommended that the ground floor habitable rooms finished floor levels are constructed at or greater 3.19 m AHD. Tolerable risks are managed through adaptions to 1% AEP storm flow.	Unlikely	Minor	Low	No

CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

Form **55**

To: Emily Smith *Owner /Agent*

10 Moomere St, Carlton TAS 7173 *Address*

CARLTON 7173 *Suburb/postcode*

Qualified person details:

Qualified person: Kris Taylor

Address: 445 Macquarie Street

Hobart 7004

Phone No: 0476 595 889

Fax No:

Licence No: NA

Email address: office@envirotechtas.com.au

Qualifications and Insurance details: Bachelor of Science with Honours in Geology with PI Insurance to $2,000,000 including hydrology and environmental coastal inundation hazard assessments

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

Speciality area of expertise: Engineering Geology

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

Details of work: Riverine Inundation Assessment

Address: 10 Moomere Street

Carlton 7173

Lot No: 17

Certificate of title No: 61808/17

The assessable item related to this certificate: Riverine (flood prone areas) inundation hazard assessment

(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: Geological

(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. 2025. Flood Prone Areas Assessment Report for a Proposed Dwelling, 10 Moomere Street - Carlton. Unpublished report for Emily Smith by Enviro-Tech Consultants Pty. Ltd., 09/05/2025.
Relevant calculations:	
References:	- Director's Determination - Riverine Inundation Hazard Areas - Tasmanian Planning Scheme – State Planning Provisions - Flood-Prone Areas Hazard Code - Part 5 (Work in Hazardous Areas) of the Building Regulations 2016; Division 2 – Riverine Inundation

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

- An assessment of:
 - Defined Site floodwater levels or designated floodwater levels
 - 1% AEP floodwater hazards based on building design or 2100 scenarios

Scope and/or Limitations

Impact from changes to Site levels, structures or water flow obstructions on the Site (beyond what is detailed within Site proposal documents) or on neighboring properties are outside of the scope of this assessment.

I certify the matters described in this certificate.

	Signed:	*Certificate No:*	*Date:*
Qualified person:			9/05/2025

GEOTECH 25-059

ROCK SOLID GEOTECHNICS PTY LTD
Peter Hofto
163 Orielton Road
Orielton
TAS 7172

0417 960 769
peter@rocksolidgeotechnics.com.au

7/5/2025

Geotechnical Assessment / Classification for Proposed Residential Development

10 Moomere Street, Carlton.

CLIENT: Emily Armstrong emilykirsten03@gmail.com

CONTENTS

SUMMARY

A residential development is proposed by Emily Armstrong at 10 Moomere Street, Carlton (Figure 1). The site is underlain by deep sand.

The site is classified as Class 'A' in accordance with AS2870.

Suitable site drainage should be installed prior to the commencement of construction.

The following Wind Load Classifications (AS4055-2012: Wind Loads for Housing) are appropriate.

• Terrain Category Classification	TC2.5	Terrain with a few obstructions
• Shielding Classification	PS	Partial Shielding
• Topographic Classification	T1	
• Wind Load Classification	N2	

INVESTIGATION

The Tasmanian Geological Survey 1:50000 Geological Atlas 'Sorell' indicates that the site is underlain by Quaternary aged sediments.

A site investigation was completed on Monday 28 April, 2025. This included the augering of four test holes to assess the site for foundation conditions and onsite wastewater disposal (4WD mounted SAMPLA25 mechanical auger with 100mm diameter solid flight augers). The locations of the holes are marked on Figure 1.

The internal block lies on the eastern side of Moomere Street (Plate 1). The site is covered in grass with a few small trees in the central northern portion of the site. The southern portion of the site is flat, with the northern portion of the property block sloping shallowly (2 degrees) to the south. Typical of the profiles encountered in the Test Holes was:

0.00 – 0.20m	SAND: fine grained, light grey, rootlets – TOPSOIL
0.20 – 2.10m	SAND: fine grained, grey / light brown, moist
2.10m+	Holes terminated at required depths - 2.10m

Groundwater WAS encountered in all the test holes. The Standing Water Levels (SWL) were measured at;

Test Hole #1	1.40m.
Test Hole #2	1.35m.
Test Hole #3	1.25m.
Test Hole #4	1.30m.

The Inundation Mapping must be considered when designing the residence's foundations, floor level, and onsite wastewater system. Specific engineer advice should be obtained to determine an appropriate minimum floor height, and any specific requirements to protect the residence from a 1 in 100-year flood event.

Plate 1 – Looking to the south (Test Hole #1).

CONDITIONS OF INVESTIGATION

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This report should not be used for submission for Building or Development Application until RSG has been paid in full for its production. RSG accepts no liability for the contents of this report until full payment has been received.

The results & interpretation of conditions presented in this report are current at the time of the investigation only. The investigation has been conducted in accordance with the specific client's requirements &/or with their servants or agent's instructions.

This report contains observations & interpretations based often on limited subsurface evaluation. Where interpretative information or evaluation has been reported, this information has been identified accordingly & is presented based on professional judgement. RSG does not accept responsibility for variations between interpreted conditions & those that may be subsequently revealed by whatever means.

Due to the possibility of variation in subsurface conditions & materials, the characteristics of materials can vary between sample & observation sites. RSG takes no responsibility for changed or unexpected variations in ground conditions that may affect any aspect of the project. The classifications in this report are based on samples taken from specific sites. The information is not transferable to different sites, no matter how close (ie. if the development site is moved from the original assessment site an additional assessment will be required). It is recommended to notify the author should it be revealed that the sub-surface conditions differ from those presented in this report, so additional assessment & advice may be provided.

Investigations are conducted to standards outlined in Australian Standards:

- AS1726-1993: Geotechnical Site Investigations
- AS2870-2011: Residential Slabs and Footings
- AS4055-2012: Wind Loads for Housing
- AS1547-2012: Onsite Domestic Wastewater Management

& as specified in 'Guidelines for Geotechnical Assessment of Subdivisions and Recommended Code of Practise for Site Classification to AS2870 in Tasmania' - Institute of Engineers, Tasmanian Division.

All new developments should subject to strict site maintenance. Attention is drawn to the enclosed information reproduced with the permission from Standards Australia:

- CSIRO Information Sheet No. BTF18 – 'Guide to home-owners on foundation maintenance & footing performance'.

Any assessment that has included an onsite wastewater system design will require a further site visit / inspection once the system has been installed. After the inspection to verify that the system has been installed as per RSG's design a statement will be provided. An additional fee applies for the site visit & issuing the certificate.

RSG is not responsible for the correct installation of wastewater systems. Any wastewater installation is the sole responsibility of the owner/agent and certified plumber. Any variation to the wastewater design must be approved by RSG, and an amended Special Plumbing Permit obtained from the relevant council. The registered plumber must obtain a copy and carefully follow the details in the council issued Special Plumbing Permit. A "Certificate of Completion" will be based on surface visual inspection only, to verify the location of the system. All underground plumbing works are the responsibility of the certified plumber.

PETER HOFTO
ROCK SOLID GEOTECHNICS PTY LTD

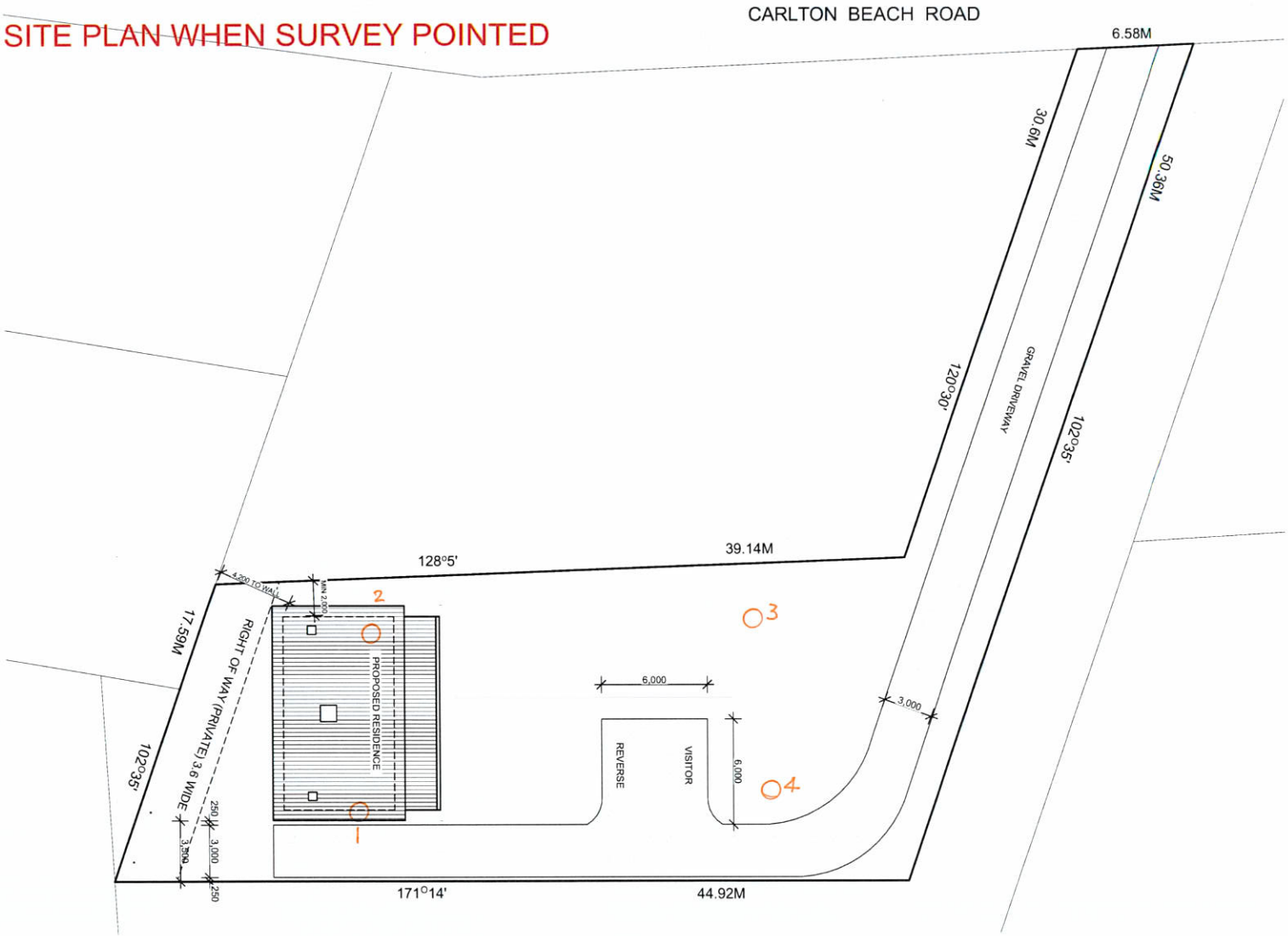
GDA94 MGA55 : 552228E, 5253437N 1:425 **Disclaimer and Copyright Notice**

SITE PLAN WHEN SURVEY POINTED

10 MOOREMERE ST, CARLTON TAS, 7173
SITE INFORMATION

CERTIFICATE OF TITLE

AREAS:	**M²**
SITE	
SITE COVER	
SITE COVERAGE	
GROUND	
VERANDAH	27.5
FLOOR AREA	
LIVING ROOM & KITCHEN	31.0
BATHROOM 01	6.7
BATHROOM 02	6.7
BEDROOM 01	12.2
BEDROOM 02	12.2
TOTAL FLOOR AREA	**68.8**



SITE PLAN

Scale 1:250 @ A3

DRAFT

*NOTE
REFER TO SHEET BA 02 FOR BUILDING NOTES & NCC ADDENDUM
REFER TO SHEET BA 02 FOR CONSTRUCTION NOTES
FOR ENERGY EFFICIENCY REFER TO REPORT BY OTHERS
DIMENSIONS TO BE VERFIY ON SITE PRIOR TO COMMENCEMENT OF WORKS

AMENDMENT	DATE	DETAILS
1	02/04/25	BA DRAWINGS DRAFT ISSUE

PROPOSED COTTAGE
FOR EMILY ARMSTRONG
10 MOOMERE ST CARLTON,
JOB NO. 2199

BA 03

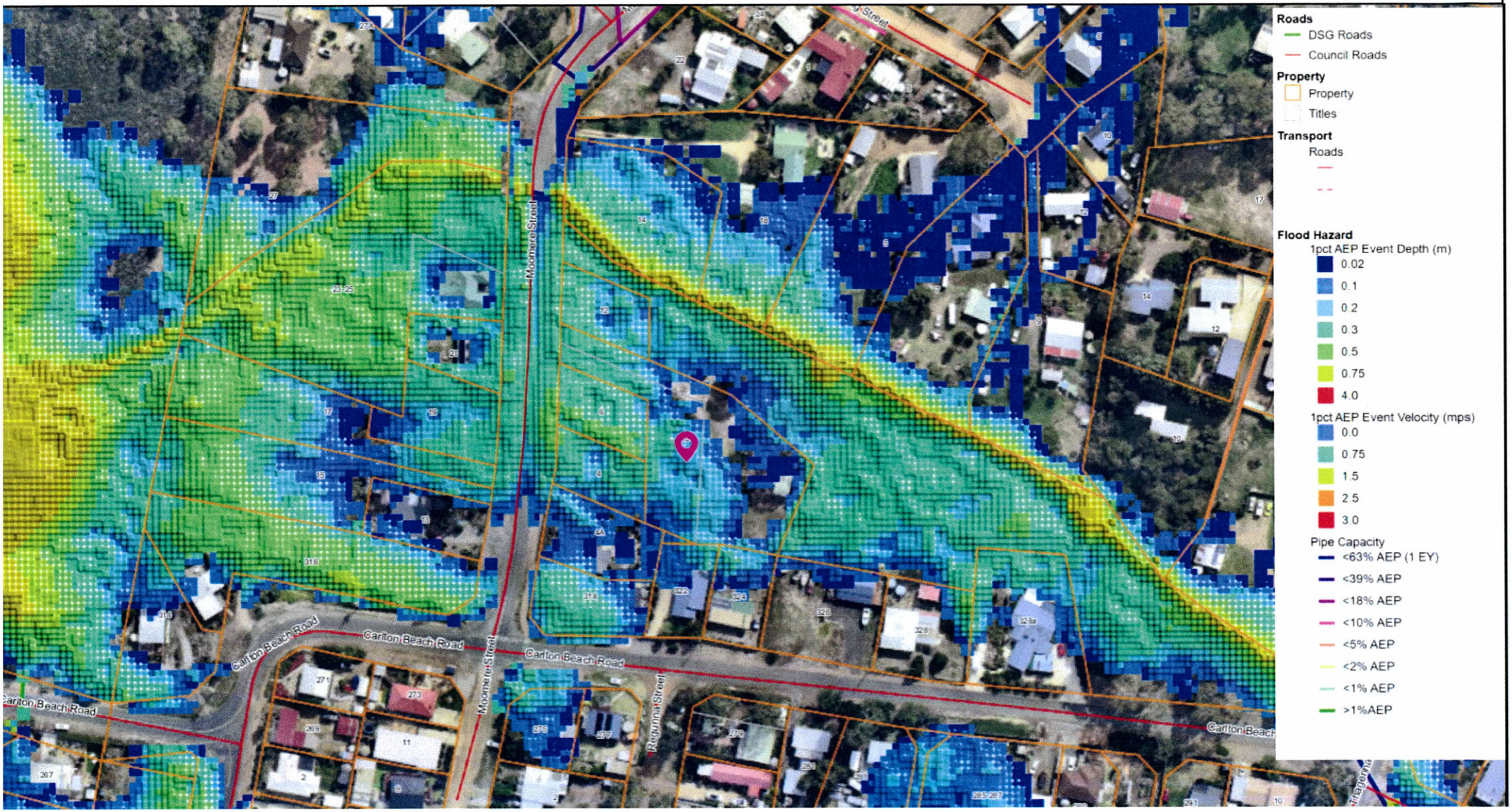
LINARDI PTY. LTD ACN 062 237 530
119 Roaring Beach Road
South Arm Tasmania 7022
m. 0417 878 723
e. linardi@bigpond.com
w. linardidesign.com
TCC REG NO. CC392L

LINARDI DESIGN + ARCHITECTURAL SERVICE

2199

10 Moomere St flood inundation

8-Apr-2025



CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

Form 55

To: Emily Armstrong *Owner /Agent*

emilykirsten03@gmail.com *Address*

Suburb/postcode

Qualified person details:

Qualified person: Peter Hofto - Rock Solid Geotechnics P/L

Address: 163 Orielton Road

Orielton 7172

Phone No: 0417960769

Fax No:

Licence No:

Email address: peter@rocksolidgeotechnics.com.au

Qualifications and Insurance details: BSc (Hons) – Geology / Geophysics
PI Insurance – Lloyds Underwriting
PL Insurance – CGU Insurance Lt

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

Speciality area of expertise: Geotechnical Assessments

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

Details of work:

Address: 10 Moomere Street, Carlton

Lot No:

Certificate of title No:

The assessable item related to this certificate: Geotechnical Assessment – Foundations

(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 Assessment

(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:	
Relevant calculations:	AS2870
References:	

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

Scope and/or Limitations

I certify the matters described in this certificate.

	Signed:	*Certificate No:*	*Date:*
Qualified person:		GEOTECH 25-059	7/5/2025

Foundation Maintenance and Footing Performance:
A Homeowner's Guide

CSIRO

BTF 18
replaces
Information
Sheet 10/91

Buildings can and often do move. This movement can be up, down, lateral or rotational. The fundamental cause of movement in buildings can usually be related to one or more problems in the foundation soil. It is important for the homeowner to identify the soil type in order to ascertain the measures that should be put in place in order to ensure that problems in the foundation soil can be prevented, thus protecting against building movement.

This Building Technology File is designed to identify causes of soil-related building movement, and to suggest methods of prevention of resultant cracking in buildings.

Soil Types

The types of soils usually present under the topsoil in land zoned for residential buildings can be split into two approximate groups – granular and clay. Quite often, foundation soil is a mixture of both types. The general problems associated with soils having granular content are usually caused by erosion. Clay soils are subject to saturation and swell/shrink problems.

Classifications for a given area can generally be obtained by application to the local authority, but these are sometimes unreliable and if there is doubt, a geotechnical report should be commissioned. As most buildings suffering movement problems are founded on clay soils, there is an emphasis on classification of soils according to the amount of swell and shrinkage they experience with variations of water content. The table below is Table 2.1 from AS 2870, the Residential Slab and Footing Code.

Causes of Movement

Settlement due to construction
There are two types of settlement that occur as a result of construction:

- Immediate settlement occurs when a building is first placed on its foundation soil, as a result of compaction of the soil under the weight of the structure. The cohesive quality of clay soil mitigates against this, but granular (particularly sandy) soil is susceptible.
- Consolidation settlement is a feature of clay soil and may take place because of the expulsion of moisture from the soil or because of the soil's lack of resistance to local compressive or shear stresses. This will usually take place during the first few months after construction, but has been known to take many years in exceptional cases.

These problems are the province of the builder and should be taken into consideration as part of the preparation of the site for construction. Building Technology File 19 (BTF 19) deals with these problems.

Erosion
All soils are prone to erosion, but sandy soil is particularly susceptible to being washed away. Even clay with a sand component of say 10% or more can suffer from erosion.

Saturation
This is particularly a problem in clay soils. Saturation creates a bog-like suspension of the soil that causes it to lose virtually all of its bearing capacity. To a lesser degree, sand is affected by saturation because saturated sand may undergo a reduction in volume – particularly imported sand fill for bedding and blinding layers. However, this usually occurs as immediate settlement and should normally be the province of the builder.

Seasonal swelling and shrinkage of soil
All clays react to the presence of water by slowly absorbing it, making the soil increase in volume (see table below). The degree of increase varies considerably between different clays, as does the degree of decrease during the subsequent drying out caused by fair weather periods. Because of the low absorption and expulsion rate, this phenomenon will not usually be noticeable unless there are prolonged rainy or dry periods, usually of weeks or months, depending on the land and soil characteristics.

The swelling of soil creates an upward force on the footings of the building, and shrinkage creates subsidence that takes away the support needed by the footing to retain equilibrium.

Shear failure
This phenomenon occurs when the foundation soil does not have sufficient strength to support the weight of the footing. There are two major post-construction causes:

- Significant load increase.
- Reduction of lateral support of the soil under the footing due to erosion or excavation.
- In clay soil, shear failure can be caused by saturation of the soil adjacent to or under the footing.

GENERAL DEFINITIONS OF SITE CLASSES

Class	Foundation
1	Most sand and rock sites with little or no ground movement from moisture changes
S	Slightly reactive clay sites with only slight ground movement from moisture changes
M	Moderately reactive clay or silt sites, which can experience moderate ground movement from moisture changes
H	Highly reactive clay sites, which can experience high ground movement from moisture changes
E	Extremely reactive sites, which can experience extreme ground movement from moisture changes
A to P	Filled sites
P	Sites which include soft soils, such as soft clay or silt or loose sands; landslip; mine subsidence; collapsing soils; soils subject to erosion; reactive sites subject to abnormal moisture conditions or sites which cannot be classified otherwise

Tree root growth

Trees and shrubs that are allowed to grow in the vicinity of footings can cause foundation soil movement in two ways:

- Roots that grow under footings may increase in cross-sectional size, exerting upward pressure on footings.
- Roots in the vicinity of footings will absorb much of the moisture in the foundation soil, causing shrinkage or subsidence.

Unevenness of Movement

The types of ground movement described above usually occur unevenly throughout the building's foundation soil. Settlement due to construction tends to be uneven because of:

- Differing compaction of foundation soil prior to construction.
- Differing moisture content of foundation soil prior to construction.

Movement due to non-construction causes is usually more uneven still. Erosion can undermine a footing that traverses the flow or can create the conditions for shear failure by eroding soil adjacent to a footing that runs in the same direction as the flow.

Saturation of clay foundation soil may occur where subfloor walls create a dam that makes water pond. It can also occur wherever there is a source of water near footings in clay soil. This leads to a severe reduction in the strength of the soil which may create local shear failure.

Seasonal swelling and shrinkage of clay soil affects the perimeter of the building first, then gradually spreads to the interior. The swelling process will usually begin at the uphill extreme of the building, or on the weather side where the land is flat. Swelling gradually reaches the interior soil as absorption continues. Shrinkage usually begins where the sun's heat is greatest.

Effects of Uneven Soil Movement on Structures

Erosion and saturation

Erosion removes the support from under footings, tending to create subsidence of the part of the structure under which it occurs. Brickwork walls will resist the stress created by this removal of support by bridging the gap or cantilevering until the bricks or the mortar bedding fail. Older masonry has little resistance. Evidence of failure varies according to circumstances and symptoms may include:

- Step cracking in the mortar beds in the body of the wall or above/below openings such as doors or windows.
- Vertical cracking in the bricks (usually but not necessarily in line with the vertical beds or perpends).

Isolated piers affected by erosion or saturation of foundations will eventually lose contact with the bearers they support and may tilt or fall over. The floors that have lost this support will become bouncy, sometimes rattling ornaments etc.

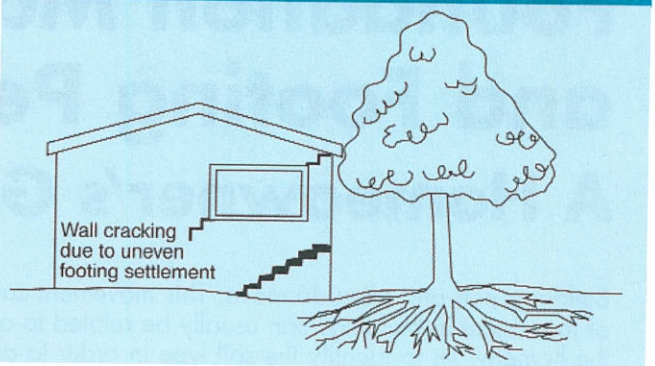
Seasonal swelling/shrinkage in clay

Swelling foundation soil due to rainy periods first lifts the most exposed extremities of the footing system, then the remainder of the perimeter footings while gradually permeating inside the building footprint to lift internal footings. This swelling first tends to create a dish effect, because the external footings are pushed higher than the internal ones.

The first noticeable symptom may be that the floor appears slightly dished. This is often accompanied by some doors binding on the floor or the door head, together with some cracking of cornice mitres. In buildings with timber flooring supported by bearers and joists, the floor can be bouncy. Externally there may be visible dishing of the hip or ridge lines.

As the moisture absorption process completes its journey to the innermost areas of the building, the internal footings will rise. If the spread of moisture is roughly even, it may be that the symptoms will temporarily disappear, but it is more likely that swelling will be uneven, creating a difference rather than a disappearance in symptoms. In buildings with timber flooring supported by bearers and joists, the isolated piers will rise more easily than the strip footings or piers under walls, creating noticeable doming of flooring.

Trees can cause shrinkage and damage



As the weather pattern changes and the soil begins to dry out, the external footings will be first affected, beginning with the locations where the sun's effect is strongest. This has the effect of lowering the external footings. The doming is accentuated and cracking reduces or disappears where it occurred because of dishing, but other cracks open up. The roof lines may become convex.

Doming and dishing are also affected by weather in other ways. In areas where warm, wet summers and cooler dry winters prevail, water migration tends to be toward the interior and doming will be accentuated, whereas where summers are dry and winters are cold and wet, migration tends to be toward the exterior and the underlying propensity is toward dishing.

Movement caused by tree roots

In general, growing roots will exert an upward pressure on footings, whereas soil subject to drying because of tree or shrub roots will tend to remove support from under footings by inducing shrinkage.

Complications caused by the structure itself

Most forces that the soil causes to be exerted on structures are vertical – i.e. either up or down. However, because these forces are seldom spread evenly around the footings, and because the building resists uneven movement because of its rigidity, forces are exerted from one part of the building to another. The net result of all these forces is usually rotational. This resultant force often complicates the diagnosis because the visible symptoms do not simply reflect the original cause. A common symptom is binding of doors on the vertical member of the frame.

Effects on full masonry structures

Brickwork will resist cracking where it can. It will attempt to span areas that lose support because of subsided foundations or raised points. It is therefore usual to see cracking at weak points, such as openings for windows or doors.

In the event of construction settlement, cracking will usually remain unchanged after the process of settlement has ceased.

With local shear or erosion, cracking will usually continue to develop until the original cause has been remedied, or until the subsidence has completely neutralised the affected portion of footing and the structure has stabilised on other footings that remain effective.

In the case of swell/shrink effects, the brickwork will in some cases return to its original position after completion of a cycle, however it is more likely that the rotational effect will not be exactly reversed, and it is also usual that brickwork will settle in its new position and will resist the forces trying to return it to its original position. This means that in a case where swelling takes place after construction and cracking occurs, the cracking is likely to at least partly remain after the shrink segment of the cycle is complete. Thus, each time the cycle is repeated, the likelihood is that the cracking will become wider until the sections of brickwork become virtually independent.

With repeated cycles, once the cracking is established, if there is no other complication, it is normal for the incidence of cracking to stabilise, as the building has the articulation it needs to cope with the problem. This is by no means always the case, however, and monitoring of cracks in walls and floors should always be treated seriously.

Upheaval caused by growth of tree roots under footings is not a simple vertical shear stress. There is a tendency for the root to also exert lateral forces that attempt to separate sections of brickwork after initial cracking has occurred.

The normal structural arrangement is that the inner leaf of brickwork in the external walls and at least some of the internal walls (depending on the roof type) comprise the load-bearing structure on which any upper floors, ceilings and the roof are supported. In these cases, it is internally visible cracking that should be the main focus of attention, however there are a few examples of dwellings whose external leaf of masonry plays some supporting role, so this should be checked if there is any doubt. In any case, externally visible cracking is important as a guide to stresses on the structure generally, and it should also be remembered that the external walls must be capable of supporting themselves.

Effects on framed structures
Timber or steel framed buildings are less likely to exhibit cracking due to swell/shrink than masonry buildings because of their flexibility. Also, the doming/dishing effects tend to be lower because of the lighter weight of walls. The main risks to framed buildings are encountered because of the isolated pier footings used under walls. Where erosion or saturation cause a footing to fall away, this can double the span which a wall must bridge. This additional stress can create cracking in wall linings, particularly where there is a weak point in the structure caused by a door or window opening. It is, however, unlikely that framed structures will be so stressed as to suffer serious damage without first exhibiting some or all of the above symptoms for a considerable period. The same warning period should apply in the case of upheaval. It should be noted, however, that where framed buildings are supported by strip footings there is only one leaf of brickwork and therefore the externally visible walls are the supporting structure for the building. In this case, the subfloor masonry walls can be expected to behave as full brickwork walls.

Effects on brick veneer structures
Because the load-bearing structure of a brick veneer building is the frame that makes up the interior leaf of the external walls plus perhaps the internal walls, depending on the type of roof, the building can be expected to behave as a framed structure, except that the external masonry will behave in a similar way to the external leaf of a full masonry structure.

Water Service and Drainage

Where a water service pipe, a sewer or stormwater drainage pipe is in the vicinity of a building, a water leak can cause erosion, swelling or saturation of susceptible soil. Even a minuscule leak can be enough to saturate a clay foundation. A leaking tap near a building can have the same effect. In addition, trenches containing pipes can become watercourses even though backfilled, particularly where broken rubble is used as fill. Water that runs along these trenches can be responsible for serious erosion, interstrata seepage into subfloor areas and saturation.

Pipe leakage and trench water flows also encourage tree and shrub roots to the source of water, complicating and exacerbating the problem.
Poor roof plumbing can result in large volumes of rainwater being concentrated in a small area of soil:

- Incorrect falls in roof guttering may result in overflows, as may gutters blocked with leaves etc.
- Corroded guttering or downpipes can spill water to ground.
- Downpipes not positively connected to a proper stormwater collection system will direct a concentration of water to soil that is directly adjacent to footings, sometimes causing large-scale problems such as erosion, saturation and migration of water under the building.

Seriousness of Cracking

In general, most cracking found in masonry walls is a cosmetic nuisance only and can be kept in repair or even ignored. The table below is a reproduction of Table C1 of AS 2870.

AS 2870 also publishes figures relating to cracking in concrete floors, however because wall cracking will usually reach the critical point significantly earlier than cracking in slabs, this table is not reproduced here.

Prevention/Cure

Plumbing
Where building movement is caused by water service, roof plumbing, sewer or stormwater failure, the remedy is to repair the problem. It is prudent, however, to consider also rerouting pipes away from the building where possible, and relocating taps to positions where any leakage will not direct water to the building vicinity. Even where gully traps are present, there is sometimes sufficient spill to create erosion or saturation, particularly in modern installations using smaller diameter PVC fixtures. Indeed, some gully traps are not situated directly under the taps that are installed to charge them, with the result that water from the tap may enter the backfilled trench that houses the sewer piping. If the trench has been poorly backfilled, the water will either pond or flow along the bottom of the trench. As these trenches usually run alongside the footings and can be at a similar depth, it is not hard to see how any water that is thus directed into a trench can easily affect the foundation's ability to support footings or even gain entry to the subfloor area.

Ground drainage
In all soils there is the capacity for water to travel on the surface and below it. Surface water flows can be established by inspection during and after heavy or prolonged rain. If necessary, a grated drain system connected to the stormwater collection system is usually an easy solution.

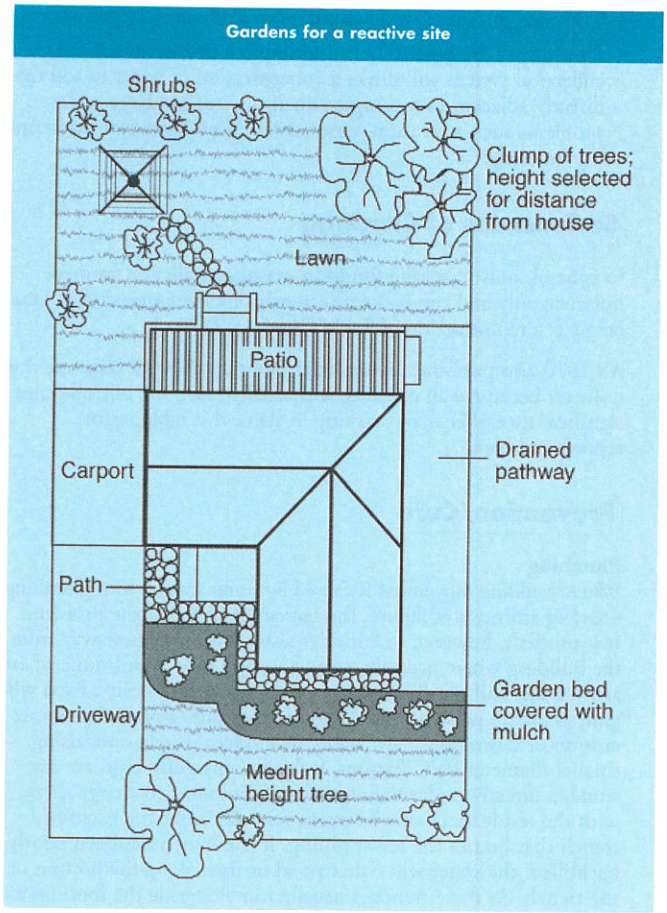
It is, however, sometimes necessary when attempting to prevent water migration that testing be carried out to establish watertable height and subsoil water flows. This subject is referred to in BTF 19 and may properly be regarded as an area for an expert consultant.

Protection of the building perimeter
It is essential to remember that the soil that affects footings extends well beyond the actual building line. Watering of garden plants, shrubs and trees causes some of the most serious water problems.

For this reason, particularly where problems exist or are likely to occur, it is recommended that an apron of paving be installed around as much of the building perimeter as necessary. This paving

CLASSIFICATION OF DAMAGE WITH REFERENCE TO WALLS

Description of typical damage and required repair	Approximate crack width limit (see Note 3)	Damage category
Hairline cracks	<0.1 mm	0
Fine cracks which do not need repair	<1 mm	1
Cracks noticeable but easily filled. Doors and windows stick slightly	<5 mm	2
Cracks can be repaired and possibly a small amount of wall will need to be replaced. Doors and windows stick. Service pipes can fracture. Weathertightness often impaired	5–15 mm (or a number of cracks 3 mm or more in one group)	3
Extensive repair work involving breaking-out and replacing sections of walls, especially over doors and windows. Window and door frames distort. Walls lean or bulge noticeably, some loss of bearing in beams. Service pipes disrupted	15–25 mm but also depend on number of cracks	4



should extend outwards a minimum of 900 mm (more in highly reactive soil) and should have a minimum fall away from the building of 1:60. The finished paving should be no less than 100 mm below brick vent bases.

It is prudent to relocate drainage pipes away from this paving, if possible, to avoid complications from future leakage. If this is not practical, earthenware pipes should be replaced by PVC and backfilling should be of the same soil type as the surrounding soil and compacted to the same density.

Except in areas where freezing of water is an issue, it is wise to remove taps in the building area and relocate them well away from the building – preferably not uphill from it (see BTF 19).

It may be desirable to install a grated drain at the outside edge of the paving on the uphill side of the building. If subsoil drainage is needed this can be installed under the surface drain.

Condensation

In buildings with a subfloor void such as where bearers and joists support flooring, insufficient ventilation creates ideal conditions for condensation, particularly where there is little clearance between the floor and the ground. Condensation adds to the moisture already present in the subfloor and significantly slows the process of drying out. Installation of an adequate subfloor ventilation system, either natural or mechanical, is desirable.

Warning: Although this Building Technology File deals with cracking in buildings, it should be said that subfloor moisture can result in the development of other problems, notably:

- Water that is transmitted into masonry, metal or timber building elements causes damage and/or decay to those elements.
- High subfloor humidity and moisture content create an ideal environment for various pests, including termites and spiders.
- Where high moisture levels are transmitted to the flooring and walls, an increase in the dust mite count can ensue within the living areas. Dust mites, as well as dampness in general, can be a health hazard to inhabitants, particularly those who are abnormally susceptible to respiratory ailments.

The garden

The ideal vegetation layout is to have lawn or plants that require only light watering immediately adjacent to the drainage or paving edge, then more demanding plants, shrubs and trees spread out in that order.

Overwatering due to misuse of automatic watering systems is a common cause of saturation and water migration under footings. If it is necessary to use these systems, it is important to remove garden beds to a completely safe distance from buildings.

Existing trees

Where a tree is causing a problem of soil drying or there is the existence or threat of upheaval of footings, if the offending roots are subsidiary and their removal will not significantly damage the tree, they should be severed and a concrete or metal barrier placed vertically in the soil to prevent future root growth in the direction of the building. If it is not possible to remove the relevant roots without damage to the tree, an application to remove the tree should be made to the local authority. A prudent plan is to transplant likely offenders before they become a problem.

Information on trees, plants and shrubs

State departments overseeing agriculture can give information regarding root patterns, volume of water needed and safe distance from buildings of most species. Botanic gardens are also sources of information. For information on plant roots and drains, see Building Technology File 17.

Excavation

Excavation around footings must be properly engineered. Soil supporting footings can only be safely excavated at an angle that allows the soil under the footing to remain stable. This angle is called the angle of repose (or friction) and varies significantly between soil types and conditions. Removal of soil within the angle of repose will cause subsidence.

Remediation

Where erosion has occurred that has washed away soil adjacent to footings, soil of the same classification should be introduced and compacted to the same density. Where footings have been undermined, augmentation or other specialist work may be required. Remediation of footings and foundations is generally the realm of a specialist consultant.

Where isolated footings rise and fall because of swell/shrink effect, the homeowner may be tempted to alleviate floor bounce by filling the gap that has appeared between the bearer and the pier with blocking. The danger here is that when the next swell segment of the cycle occurs, the extra blocking will push the floor up into an accentuated dome and may also cause local shear failure in the soil. If it is necessary to use blocking, it should be by a pair of fine wedges and monitoring should be carried out fortnightly.

This BTF was prepared by John Lewer FAIB, MIAMA, Partner, Construction Diagnosis.

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APPENDIX 3

ONSITE WASTEWATER ASSESSMENT / SYSTEM DESIGN – 10 Moomere Street, Carlton

Below find the assessment to determine of the type and size of wastewater treatment system, and the allocation of a Land Application Area (LAA) for a proposed 2-bedroom residence at 10 Moomere Street, Carlton. This assessment should be read in conjunction with Site & Soil Evaluation Report (GEOTECH 25-059) - enclosed.

The internal block lies on the eastern side of Moomere Street (Plate 1). The site is covered in grass with a few small trees in the central northern portion of the site. The southern portion of the site is flat, with the northern portion of the property block sloping shallowly (2 degrees) to the south.

The Sorell Council's Inundation Mapping (Figure 2) shows that all the property is subject to inundation in a 1 in 100-year flood event. Depths of predicted inundation vary from 0.02m to 0.5m.

Typical of the profiles encountered in the Test Holes was:

0.00 – 0.20m	SAND: fine grained, light grey, rootlets – TOPSOIL
0.20 – 2.10m	SAND: fine grained, grey / light brown, moist
2.10m+	Holes terminated at required depths - 2.10m

Groundwater WAS encountered in all the test holes. The Standing Water Levels (SWL) were measured at;

Test Hole #1	1.40m.
Test Hole #2	1.35m.
Test Hole #3	1.25m.
Test Hole #4	1.30m.

The site is classified as a Class 1 (SAND) site with an Indicative Permeability of >3m/day.

Plate 2 – Looking to the southwest (Test Hole #3).

COMPLIANCE WITH THE 2016 DIRECTOR'S GUIDELINES FOR ONSITE WASTEWATER

Compliance Table Directors Guidelines for OSWM		
Acceptable Solutions	Performance Criteria	Compliance achieved by
5.1 To ensure sufficient land is available for sustainable onsite wastewater management for buildings.		
A1 A new dwelling must be provided with a LAA that complies with Table 3.	P1 A new dwelling must be provided with a LAA that meets all of the following: a) The LAA is sized in accordance with the requirements of AS/NZS 1547; and b) A risk assessment in accordance with Appendix A of AS/NZS 1547 has been completed that demonstrates that the risk is acceptable.	Complies with A1 50m^2 of LAA required /bedroom, or 100m^2 for this development
7. Standards for Wastewater Land Application Areas		
A1 Horizontal separation distance from a building to a LAA must comply with one of the following: a) be no less than 6m; b) be no less than: (i) 3m from an upslope boundary or level building;	P1 The LAA is located so that the risk of wastewater reducing the bearing capacity of a building's foundations is acceptably low.	Complies with A1 LAA > 3m from level residence.

(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.		
A2 Horizontal separation distance from downslope surface water to a LAA 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 LAA must comply with all of the following: a) Setbacks must be consistent with AS/NZS 1547 Appendix R; b) A risk assessment in accordance with Appendix A of AS/NZS 1547 has been completed that demonstrates that the risk is acceptable.	Complies with A2 LAA >100m from downslope surface water.
A3 Horizontal separation distance from a property boundary to a LAA 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; & (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 LAA must comply with all of the following: (a) Setback must be consistent with AS/NZS 1547 Appendix R; and (b) A risk assessment in accordance with Appendix A of AS/NZS 1547 has been completed that demonstrates that the risk is acceptable.	Complies with A3 LAA > 1.5m from upslope and side-slope property boundaries.
A4 Horizontal separation distance from a downslope bore, well or similar water supply to a LAA 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 LAA must comply with all of the following: (a) Setback must be consistent with AS/NZS 1547 Appendix R; and (b) A risk assessment completed in accordance with Appendix A of AS/NZS 1547 demonstrates that the risk is acceptable.	Complies with A4 No known potable bores in the immediate vicinity.
A5 Vertical separation distance between groundwater & a LAA 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 LAA must comply with the following: (a) Setback must be consistent with AS/NZS 1547 Appendix R; and (b) A risk assessment completed in accordance with Appendix A of AS/NZS 1547 that demonstrates that the risk is acceptable.	Complies with A5 Groundwater encountered. Secondary treated effluent. Vertical separation distance > 0.60m.
A6 Vertical separation distance between a limiting layer & a LAA must be no less than: (a) 1.5m if primary treated effluent; or (b) 0.5m if secondary treated effluent.	P6 Vertical setback must be consistent with AS/NZS1547 Appendix R.	Complies with A6 Limiting layer not encountered.

WASTEWATER SYSTEM DESIGN:

The Inundation Mapping must be considered in the onsite wastewater design. The wastewater system will need to be installed so that it is suitably protected from the impacts of a 1 in 100-year flood event.

The system design must also consider the groundwater depth (both current depth and 'winter' depth).

Accordingly, I have discussed this property / project with the Senior Environmental Health Officer / Manager Health and Compliance at the Sorell Council (Mr Greg Robertson).

It is proposed to secondary treat all the wastewater effluent from the residence in an Aerated Wastewater Treatment System (AWTS). The secondary treatment of the wastewater effluent allows for reduced vertical separation distance of the effluent application area to the groundwater table.

The secondary treated effluent will be disposed of in a raised sand bed. The raised sand bed (600mm high) provides protection from a 1 in 100-year flood event.

The top of the AWTS tank will need to be located at a suitable height so that it is not impacted by a 1 in 100-year flood event. This means that the top of the tank will need to be a minimum of 500mm above the natural ground level. This may seem excessively high, but it is likely that the residence will need to be raised at least 600mm above natural ground level (to be determined by the designer in consultation with the structural engineer) so that the floor level is above a 1 in 100-year flood height.

A Design Loading Rate of 20mm/day is appropriate (secondary treated effluent).

The size of the LAA is conditional on the wastewater load and the permeability of the site:

2-bedroom residence	4-person occupancy
Tank water	120 litres / person / day
Wastewater load	480 litres / day 4 x 120 = 480
Design Loading Rate (DLR)	30mm/day (secondary treated effluent into sand bed)
Area of the LAA / raised sand bed	480/30 = 24m^2

The raised sand bed will be 12m long and 2m wide (see Figure 3). A cross-section of the LAA is presented as Figure 4.

The raised sand bed will be setback from the residence by a minimum of 10m, and from any property boundary by 1.5m.

A cutoff drain will not be required (flat site).

The Raised Sand Bed should be constructed as per the accompanying plan, cross-section and the following notes.

- The area designated for the Raised Sand Bed should be accurately marked out on the ground, the grass cover removed, and ground lightly ripped.

- Stake out the perimeter of the proposed timber retaining structures (12m x 2m internal measurements), making sure that the setback distances are complied with (minimum 1.5m from boundaries).

- Construct the timber retaining structure from 200mm x 75mm CCA treated pine sleepers, including the posts. Posts to be concreted into the ground to minimum depth of 500mm. The minimum height of the Raised Sand Bed retaining structure is to be 600mm above the natural ground level.

- Line the inside of the retaining structure with 2 layers of 'Fortecon' plastic (or similar). Glue the plastic to the walls (do not perforate the plastic by nailing, stapling, or tacking.

- Place the filter sand (450mm thickness) inside the retaining structure in 100mm increments, lightly compacting. Level the finished sand layer. The filter sand should meet or closely conform to the requirements of Clause N3.3.2 of AS/NZS 1547:2012 (ie. the sand must be of medium grain size in the range of 0.25-1.0mm, and be free of clay, limestone, and organic matter).

- Place 10-20mm diameter screened aggregate on the filter sand to a thickness of 50mm and level.

- Install Class 9, 40mm uPVC distribution pipework. Perforate as specified with 5mm holes on top only at 400mm centres, except the first and last drill hole in each lateral that should be drilled on the underside so that the system can drain between pump cycles.

- Add inspection risers and screw caps at far end of the grid.

- Connect to the AWTS.

- Test the distribution system under pressure, before covering each lateral with an inverted half pipe section of 100mm PVC. This will prevent blockages of the drill holes.

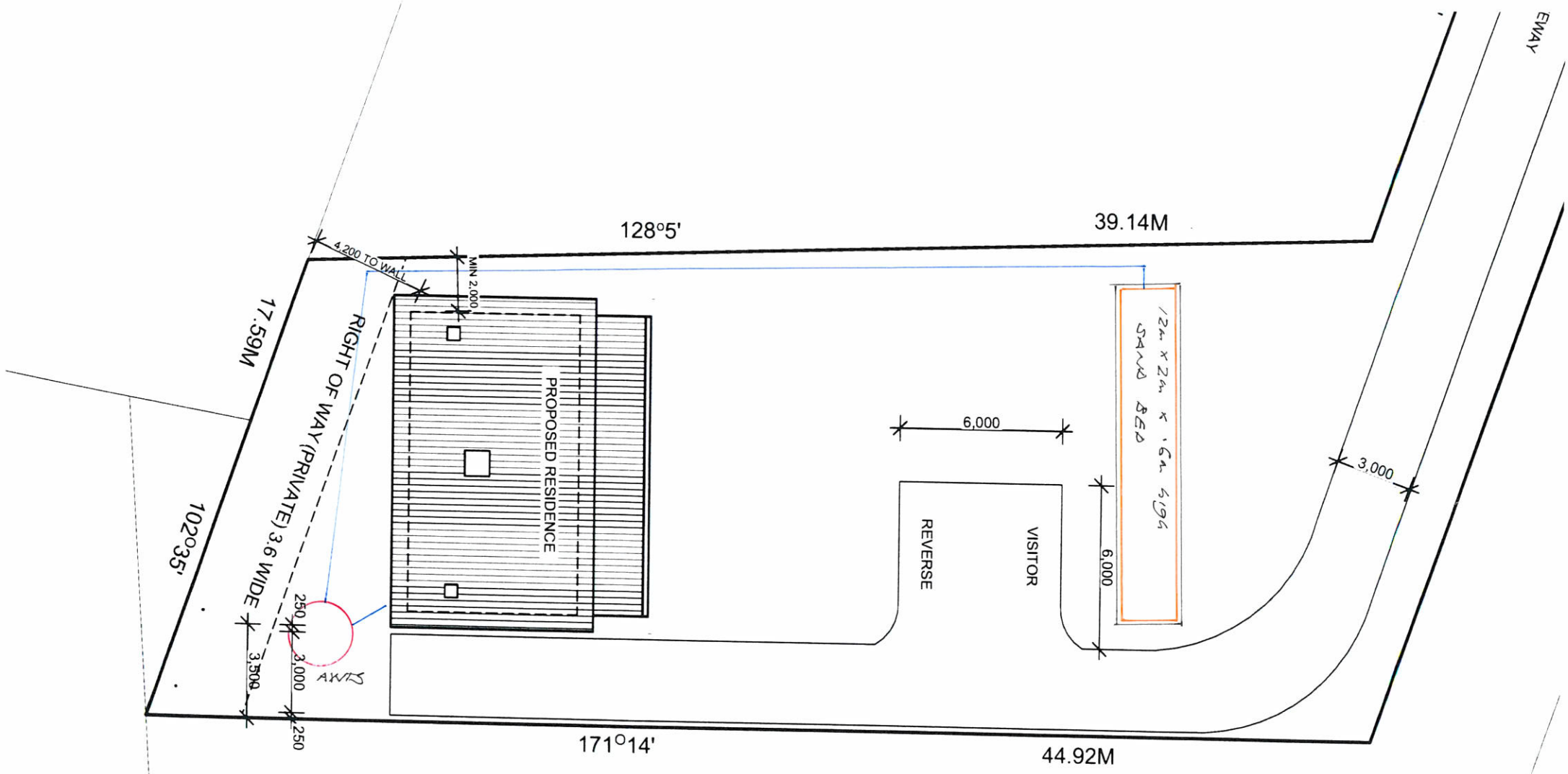
- Surround the 100mm uPVC with screened 10-20mm aggregate.

- Cover the aggregate / pipework with geofabric / filter cloth.

- Cover the geofabric with 100mm of sand / loam.

- Plant surface with grass.

- Add cross bracing (threaded rod) at 2m intervals to ensure that the Raised Sand Bed does not bow under the weight of the sand.



SITE PLAN

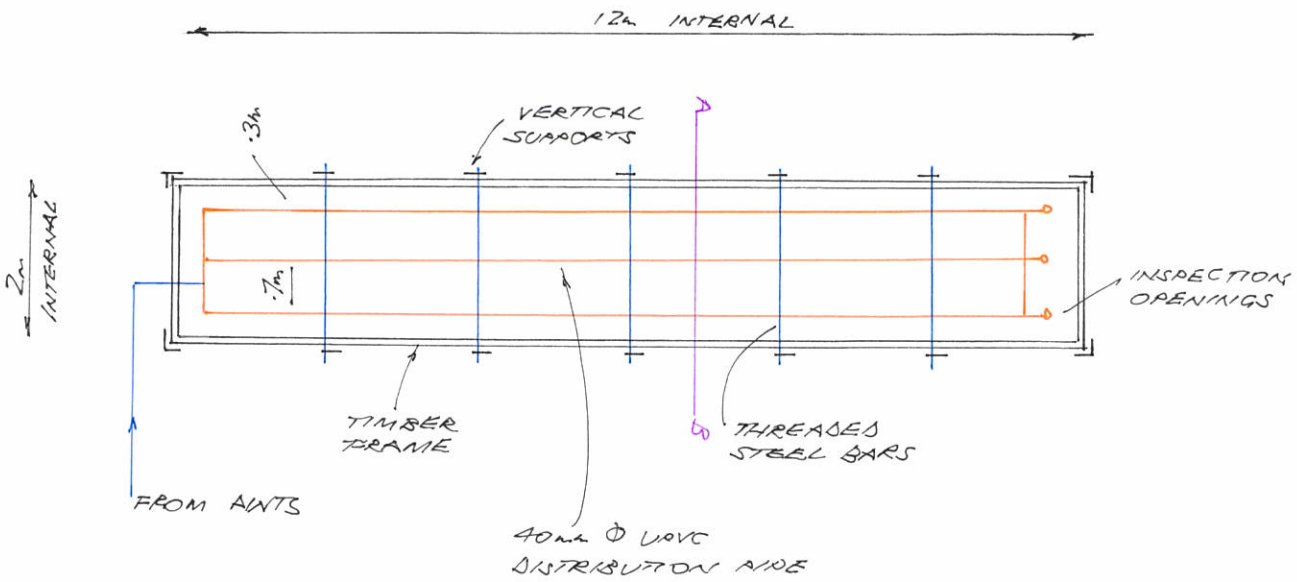
1:200

*NOTE
REFER TO SHEET BA 02 FOR BUILDIN
REFER TO SHEET BA 02 FOR CONSTF
FOR ENERGY EFFICIENCY REFER TO
DIMENSIONS TO BE VERFIY ON SITE

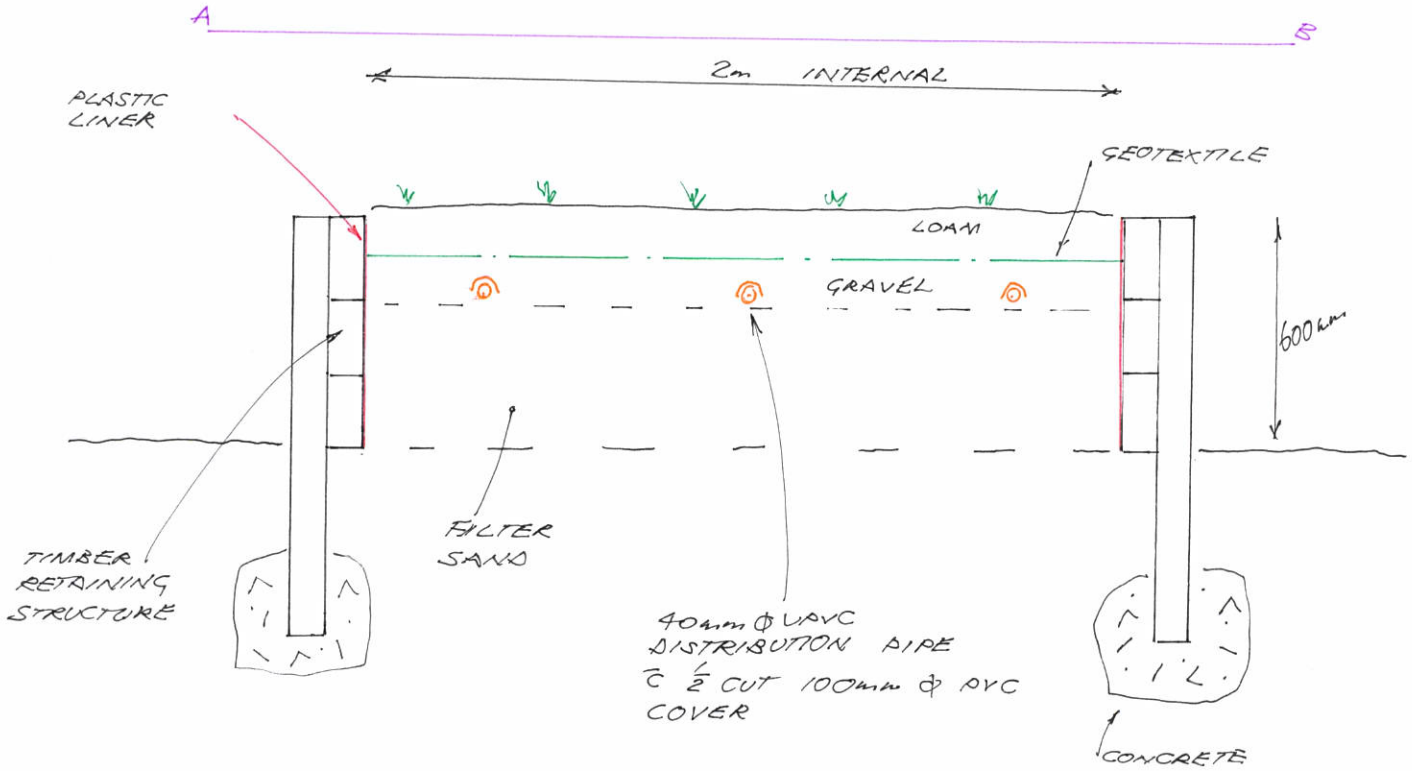
PROPOSED COTTAGE

PLAN 1:100

SAND BED



CROSS-SECTION 1:20



SITE AND SOIL EVALUATION REPORT

Soil Category:

	Modified Emerson Test Required	No
1,...2,...3,...4,...5,...6	If Yes, Emerson Class No.	
Measured or Estimated Soil Permeability (m/d):	3m/d	
Design Loading Rate (DLR)	20 mm/day	
Geology:	Quaternary sediments	

Slope:	Flat
Drainage lines / water courses:	Nil
Vegetation:	Grass
Site History: (land use)	Vacant block
Aspect:	Flat
Pre-dominant wind direction:	Northwest to southwest
Site Stability: Will on-site wastewater disposal affect site stability?	No
Is geological advice required?	No
Drainage/Groundwater:	Not Encountered
Depth to seasonal groundwater (m):	Not Encountered
Are surface or sub-surface drains required upslope of the land application area?	No
Date of Site Evaluation:	28/4/2025
Weather Conditions:	Fine

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Emily Armstrong
emilykirsten03@gmail.com

7/4/2025

Loading Certificate for Onsite Wastewater System - 10 Moomere Street, Carlton

1 System Capacity:

- (medium/long term) — 2-bedroom residence, 4 persons, 480 litres/day

2 Design Criteria Summary:

- Primary Treated Effluent — Aerated Wastewater Treatment System.
- Soil Category — Class 1 SAND
- Land Application System — 12 x 2m raised sand bed

3 Reserve Area:

- Reserve LAA available if required.

4 Variation from design flows etc:

- The system should successfully assimilate additional peak loadings which may result from occasional social gatherings provided that this does not exceed use by more than 8 persons in a 24-hour period or more than 1 temporary resident visitors (ie. up to 5 persons total) for a period not exceeding 4 days. Visitors should be advised of the requirement to minimise time spent in showers, not running taps whilst cleaning teeth, and other common sense water conservation measures.

5 Consequences of overloading the system:

- Long term use by more than 4 residents or equivalent may result in overloading of the system, surfacing of effluent, public and environmental health nuisances, pollution of surface water etc.

6 Consequences of under-loading the system:

7 The system will work effectively with as few as 1-person in the residence, however long periods of zero occupancy may result in poor functioning of the system when normal use recommences. If the building is left unoccupied for more than one month, it is advised to inform the maintenance contractor.

8 Consequences of lack of operation, maintenance and monitoring attention:

- The AWTS will be serviced by a registered contractor.

Peter Hofto
Rock Solid Geotechnics Pty Ltd

CERTIFICATE OF THE RESPONSIBLE DESIGNER

Section 94
Section 106
Section 129
Section 155

Form 35

To: Emily Armstrong *Owner name*

emilykirsten03@gmail.com *Address*

Suburb/postcode

Designer details:

Name: Peter Hofto

Category: Building Services Designer Hydraulic - Restricted

Business name: Rock Solid Geotechnics P/L

Phone No: 0417960769

Business address: 163 Orielton Road

Orielton 7172

Fax No:

Licence No: CC6159I

Email address: peter@rocksolidgeotechnics.com.au

Details of the proposed work:

Owner/Applicant Emily Armstrong

Designer's project reference No. GEOTECH 25-059

Address: 10 Moomere Street, Carlton

Lot No:

Type of work: Building work ☐ Plumbing work ☒ *(X all applicable)*

Description of work:

ONSITE WASTEWATER MANAGEMENT SYSTEM

(new building / alteration / addition / repair / removal / re-erection water / sewerage / stormwater / on-site wastewater management system / backflow prevention / other)

Description of the Design Work (Scope, limitations or exclusions): *(X all applicable certificates)*

Certificate Type:	Certificate	Responsible Practitioner
	☐ Building design	Architect or Building Designer
	☐ Structural design	Engineer or Civil Designer
	☐ Fire Safety design	Fire Engineer
	☐ Civil design	Civil Engineer or Civil Designer
	X Hydraulic design	Building Services Designer
	☐ Fire service design	Building Services Designer
	☐ Electrical design	Building Services Designer
	☐ Mechanical design	Building Service Designer
	Plumbing design	Plumber-Certifier; Architect, Building Designer or Engineer
	☐ Other (specify)	

Deemed-to-Satisfy: X | Performance Solution: *(X the appropriate box)*

Other details:

Design documents provided:

The following documents are provided with this Certificate –

Document description:

Drawing numbers:	Prepared by: ROCK SOLID GEOTECHNICS	Date: 7/5/2025
Schedules:	Prepared by:	Date:
Specifications:	Prepared by: ROCK SOLID GEOTECHNICS	Date: 7/5/2025
Computations:	Prepared by: ROCK SOLID GEOTECHNICS	Date: 7/5/2025
Performance solution proposals:	Prepared by:	Date:
Test reports:	Prepared by:	Date:

Standards, codes or guidelines relied on in design process:

AS 1547:2021 On-site domestic wastewater management

Director's Guidelines for Onsite Wastewater Management

Any other relevant documentation:

Attribution as designer:

I Peter Hofto – ROCK SOLID GEOTECHNICS P/L ..... am responsible for the design of that part of the work as described in this certificate;

The documentation relating to the design includes sufficient information for the assessment of the work in accordance with the *Building Act 2016* and sufficient detail for the builder or plumber to carry out the work in accordance with the documents and the Act;

This certificate confirms compliance and is evidence of suitability of this design with the requirements of the National Construction Code.

	Name: (print)	*Signed*	*Date*
Designer:	Peter Hofto		7/5/2025
Licence No:	CC6159I		

Assessment of Certifiable Works: (TasWater)

Note: single residential dwellings and outbuildings on a lot with an existing sewer connection are not considered to increase demand and are not certifiable.

If you cannot check ALL of these boxes, LEAVE THIS SECTION BLANK.

TasWater must then be contacted to determine if the proposed works are Certifiable Works.

I confirm that the proposed works are not Certifiable Works, in accordance with the Guidelines for TasWater CCW Assessments, by virtue that all of the following are satisfied:

- [x] The works will not increase the demand for water supplied by TasWater
- [x] The works will not increase or decrease the amount of sewage or toxins that is to be removed by, or discharged into, TasWater's sewerage infrastructure
- [x] The works will not require a new connection, or a modification to an existing connection, to be made to TasWater's infrastructure
- [x] The works will not damage or interfere with TasWater's works
- [x] The works will not adversely affect TasWater's operations
- [x] The works are not within 2m of TasWater's infrastructure and are outside any TasWater easement
- [x] I have checked the LISTMap to confirm the location of TasWater infrastructure
- [x] If the property is connected to TasWater's water system, a water meter is in place, or has been applied for to TasWater.

Certification:

I .....Peter Hofto – ROCK SOLID GEOTECHNICS P/L..... being responsible for the proposed work, am satisfied that the works described above are not Certifiable Works, as defined within the *Water and Sewerage Industry Act 2008,* that I have answered the above questions with all due diligence and have read and understood the Guidelines for TasWater CCW Assessments.

Note: The Guidelines for TasWater Certification of Certifiable Works Assessments are available at: www.taswater.com.au

	Name: (print)	*Signed*	*Date*
Designer:	Peter Hofto		7/5/2025

GEOTECH 24-087

1/7/2025

CLIENT:
Emily Armstrong
emilykirsten03@gmail.com

ROCK SOLID GEOTECHNICS PTY LTD
Peter Hofto
163 Orielton Road
Orielton
TAS 7172
Ph 0417 960 769
peter@rocksolidgeotechnics.com.au

STORMWATER TRENCH DESIGN - 10 Moomere Street, Carlton

Emily Armstrong has proposed the construction of a residence at 10 Moomere Street, Carlton (Figure 1). As part of the development a new stormwater (SW) trench will need to be designed and installed (the subject of this assessment) to dispose of seasonal overflow from the rainwater tank.

The internal block lies on the eastern side of Moomere Street (Plate 1). The site is covered in grass with a few small trees in the central northern portion of the site. The southern portion of the site (where the SW trench will be installed) is flat.

Typical of the profiles encountered in the Test Holes was:

0.00 – 0.20m	SAND: fine grained, light grey, rootlets – TOPSOIL
0.20 – 2.10m	SAND: fine grained, grey / light brown, moist
2.10m+	Holes terminated at required depths - 2.10m

Groundwater WAS encountered in all the test holes. The Standing Water Levels (SWL) were measured at;

Test Hole #1	1.40m.
Test Hole #2	1.35m.
Test Hole #3	1.25m.
Test Hole #4	1.30m.

It is proposed to install a single 10k or 15k litre rainwater tank to the immediate northeast of the residence. It is proposed to install a new SW trench to the immediate north of the rainwater water tank.

It is proposed to install a single trench for the discharge from the SW tank.

Clause S2.7.2 Southern Beaches Onsite Wastewater and Stormwater Special Area Plan (SAP).

Performance Criteria P1
Development must be capable of accommodating an on-site stormwater management system adequate for the development, having regard to:

a) Topography of the site; Flat site well suited to installation of a SW drain.
b) Size and shape of the site; Suitable areas available.
c) Soil conditions; Deep sand soils.
d) Any existing buildings and any constraints imposed by existing development of the site; Suitable areas available
e) Any areas of the site covered by impervious surfaces; Only area to be covered by a (semi) impervious surface is the proposed driveway. Water from this surface dill naturally drain into the surrounding sandy soils.
f) Any watercourses on the land; No water courses on the land.
g) Stormwater and quality management targets identified in the *State Stormwater Strategy 2010*; and SW discharge to the proposed trench will be rainwater from roof areas only.
h) Any advice from a suitable qualified person on the seasonal water table at the site, risks of inundation, land instability or coastal erosion. No issues with seasonal water table, land instability or coastal erosion. There is potential for inundation in a 1 in 100 year flood event, at which time all rainwater will cause overflows from tanks and SW trenches (so no increase in site risk).

RAINWATER TANK OVERFLOW TRENCH DESIGN

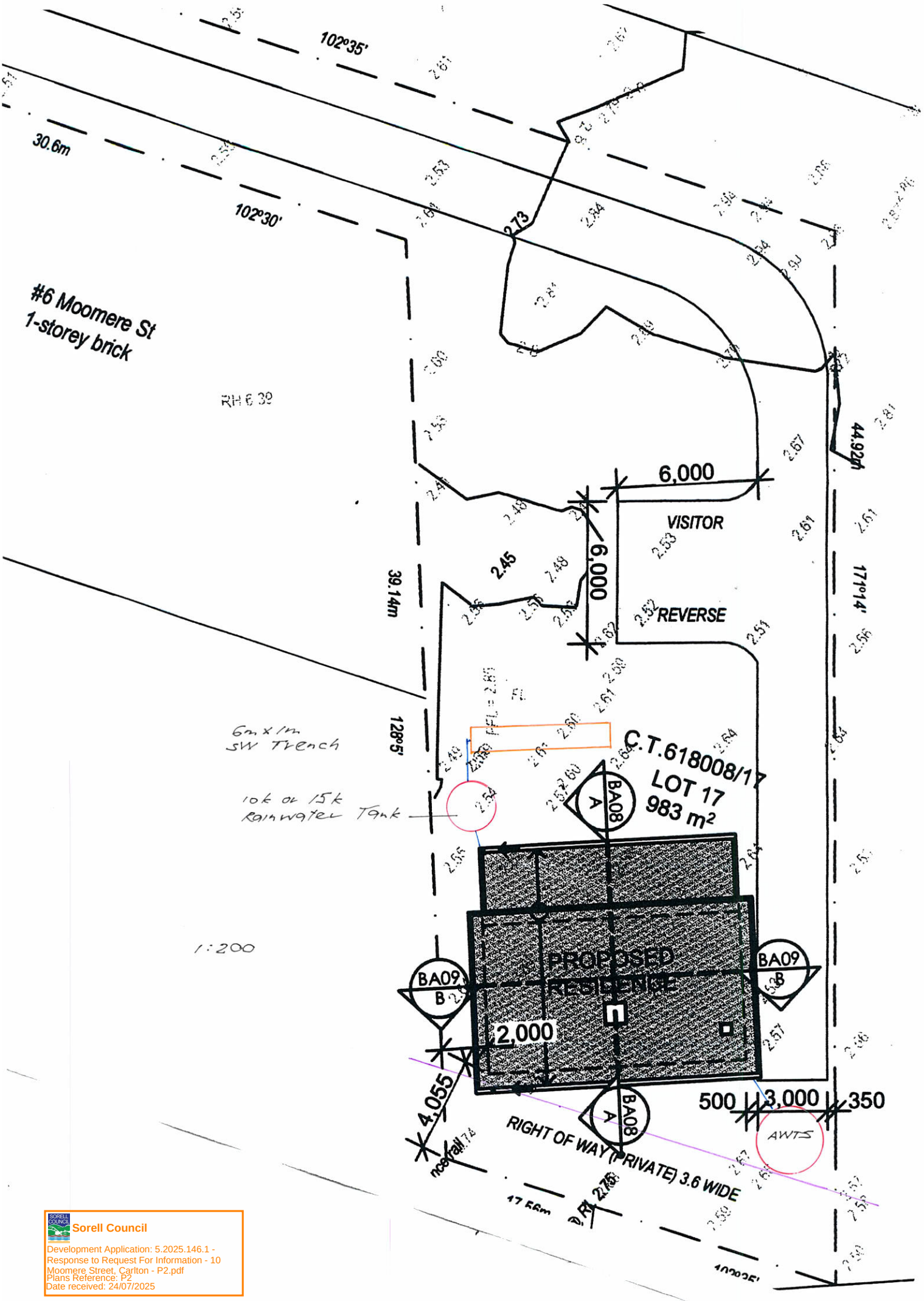
It is likely that the tank will only overflow during the wetter, winter months.

It is proposed to install a single 6m long and 1m wide trench to accept the overflow water from the rainwater tank.

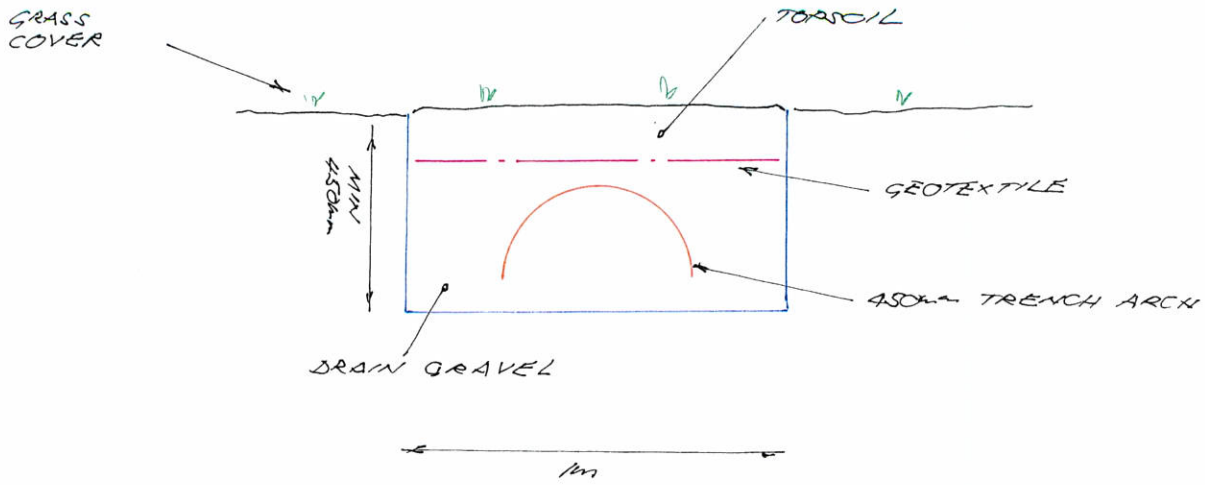
The trench will consist of 450mm trench arch in drain gravel (Figure 2).

Peter Hofto

ROCK SOLID GEOTECHNICS P/L



CROSS-SECTION TRENCH
1:20



APPENDIX 1

55 –

CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

Form **55**

To: Emily Armstrong *Owner /Agent*

emilykirsten03@gmail.com *Address*

Qualified person details:

Qualified person: Peter Hofto – Rock Solid Geotechnics Pty Ltd

Address: 163 Orielton Road Phone No: 0417960769

Orielton 7172 Fax No:

Licence No: Email address: peter@rocksolidgeotechnics.com.au

Qualifications and Insurance details:	BSc (Hons) – Geology / Geophysics PI Insurance – Lloyds Underwriting PL Insurance – CGU Insurance Ltd	*(description from Column 3 of the Director of Building Control's Determination)*
Speciality area of expertise:	Geotechnical Assessment	*(description from Column 4 of the Director of Building Control's Determination)*

Details of work:

Address: 10 Moomere Street, Carlton Lot No:

Certificate of title No:

The assessable item related to this certificate:	Stormwater Drain Design	*(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: *(description from Column 1 of Schedule 1 of the Director of Building Control's Determination)*

This certificate is in relation to the above assessable item, at any stage, as part of -

building work, plumbing work or plumbing installation or demolition work: X

In issuing this certificate the following matters are relevant –

Documents:

Relevant calculations:

References:

I certify the matters described in this certificate.

	Signed:	*Certificate No:*	*Date:*
Qualified person:		GEOTECH 24-087	1/7/2025

enviro •tech
CONSULTANTS
Geotechnical & Environmental Services

FLOOD PRONE AREAS HAZARD ASSESSMENT

Proposed Dwelling 10 MOOMERE STREET - CARLTON

Client: Emily Smith

Certificate of Title: 61808/17

Investigation Date: Friday, 9 May 2025

Refer to this Report As

Enviro-Tech Consultants Pty. Ltd. 2025. Flood Prone Areas Assessment Report for a Proposed Dwelling, 10 Moomere Street - Carlton. Unpublished report for Emily Smith by Enviro-Tech Consultants Pty. Ltd., 09/05/2025.

Report Distribution:

This report has been prepared by Enviro-Tech Consultants Pty. Ltd. for the use by parties involved in the proposed residential development of the property named above. It is to be used only to assist in managing any existing or potential inundation hazards relating to the Site and its development.

Limitations of this report

The data displayed within this document has been prepared using open-source scientific documents and data. Envirotech have used this local and regional data to estimate present and future hazards at the Site. The data is by its nature approximate and may contain errors introduced by the data provider(s).

The inundation modelling conducted in this assessment assumes specific Site conditions detailed within this assessment report as per design plans. Modifications to the landscape, not indicated in this report, including construction of retaining walls, soil cut or fill, and water flow obstructions including but not limited to vegetation, fencing, and non-fixed items may result in varied inundation levels and varied water flow movement across the property which are not modelled in this assessment are outside of the scope of this investigation.

Executive Summary

Enviro-Tech Consultants Pty. Ltd. (Envirotech) were contracted by Emily Smith to prepare a flood prone areas hazard assessment for a proposed Dwelling located at 10 Moomere Street, Carlton. This report has been written to address planning scheme overlay codes in general accordance with the state-wide planning provisions for Sorell City Council.

The objective of the Site investigation is to:

- Use available geographic information system (GIS) data to make interpretations about present Site hydrology, and how the proposed development will be impacted by inundation and where relevant, assessing the development influence on floodwaters entering and existing the land.
- Conduct a risk assessment for the proposed development ensuring relevant performance criteria, building regulations and directors determination are addressed.
- Assess if the proposed development can achieve and maintain a tolerable risk for the intended life of the use or development without requiring any flood protection measures.
- Determine if the building and works will cause or contribute to flood or inundation on the Site, on adjacent land or public infrastructure
- Provide recommendations for managing inundation risk.

The proposed development comprises a single storey 2 bedrooms dwelling built on masonry pier supports and a driveway.

This assessment involves that part of the dwelling and driveway are projected to be impacted by floodwaters. The recommended dwelling FFL is determined based on catchment and Site hydrology modelling.

The following have been concluded from the assessment:

- Given the Sorell Council 1% AEP mapping scenario, floodwaters will reach 2.89 m AHD near the Site with water flow velocities at approximately 0.1 m/s near the proposed dwelling and driveway.
- Allowing for 0.3m freeboard, the development is to be constructed at 3.19m AHD or higher.
- The water flow velocities will not present a problem with localised erosion around the proposed structures
- The construction of the proposed dwelling will have negligible effect on the:
    - Inundation levels both on Site and off Site
    - Water flow velocities passing the Site
    - Water quality condition
- The proposed driveway resides in Flood Hazard Class 1 (Ball, et al., 2019), and therefore the proposed driveway is suitable for 2wd vehicles.

It has been established from the qualitative risk assessment that the level of risk from coastal and inland inundation is within the lowest bounds and the proposed development works at the Site are acceptable.

1 Introduction

1.1 *Background*

Enviro-Tech Consultants Pty. Ltd. (Envirotech) were contracted by Emily Smith to prepare a flood prone areas hazard assessment for a proposed Dwelling located at 10 Moomere Street, Carlton. This report has been written to address planning scheme overlay codes in general accordance with the state-wide planning provisions for Sorell City Council.

This inundation modelling report has been prepared by an environmental and engineering geologist with hydrogeology and hydrology training and experience. Areas of competence include catchment and streamflow models for assessing waterway erosion and inundation.

The proposed development has triggered the following overlay codes which are addressed within this report:

- C 12.0 Flood Prone Areas Code

1.2 *Objectives*

The objective of the Site investigation is to:

- Use available geographic information system (GIS) data to make interpretations about present Site hydrology, and how the proposed development will be impacted by inundation and where relevant, assessing the development influence on floodwaters entering and exiting the land.
- Conduct a risk assessment for the proposed development ensuring relevant performance criteria, building regulations and directors determination are addressed.
- Assess if the proposed development can achieve and maintain a tolerable risk for the intended life of the use or development without requiring any flood protection measures.
- Determine if the building and works will cause or contribute to flood or inundation on the Site, on adjacent land or public infrastructure
- Provide recommendations for managing inundation risk.

1.3 *Cadastral Title*

The land studied in this report is defined by the title 61808/17

1.4 *Site Setting*

The Site is set within the drainage flats inland of Carlton Beach (Map 1 and Map 2). Floodwater overlays is presented in Map 3. The Site location plans are presented in Map 6.

1.5 *Geomorphology & Hydrology*

The Site northern boundary is located about 30 m south to a drainage course easement which drains into a lagoon system to west and a lagoon/Carlton River to the east (Map 2). The proposed dwelling is located about 60 m south to the above-mentioned drainage easement. Open culvers permit stormwater drainage beneath Moomere Street to the west and Carlton Beach Road to the east. Drainage from the Site occurs in both a westward and eastward direction.

2 Assessment

2.1 *Proposed Development*

Table 1 summarises the provided design documents from which this assessment is based (Attachment 2). The proposed development comprises a single storey 2 bedrooms dwelling built on masonry pier supports and a driveway.

The proposed dwelling FFL are to be determined based on the findings of this assessment.

Table 1 Project Design Drawings

Drafted By	Project Number	Date Generated	Drawings
LINARDI DESIGN	2199	02/04/2025	B3

2.2 *Planning*

Planning code overlay mapping is presented in Attachment 1 and planning and building regulations are addressed in Attachment 3.

The Site is located within the Sorell Council mapped 1% Annual Exceedance Probability (AEP) inland flooding hazard area (Map 3). The mapping has triggered Flood Prone Areas Hazard Code, meaning that a more detailed investigation is required to further assess inundation risk associated with the proposed development. The defined floodwater level for the land is to be assessed based on proposed Site works.

2.3 *Building*

According to the Tasmanian Building Regulations 2016, the floor level of each habitable room[1] of the building, being erected, re-erected, or added as part of the work, is to be constructed at least 300 millimetres above the defined flood level for the land.

2.4 *Topography*

The Site ranges in elevation from approximately 2.5 m AHD through to 2.72 m AHD and is near level (Map 6).

2.5 *Pluvial Flooding Analysis*

Details of the pluvial flooding analysis assessment are presented in Attachment 4. The following are observed:

- Given the Sorell Council 1% AEP mapping scenario, floodwaters will reach 2.89 m AHD near the Site.
- 1 % AEP water flow velocities are estimated at approximately 0.1 m/s near the proposed dwelling and driveway.

[1] habitable room - means any room of a habitable building other than a room used, or intended to be used, for a bathroom, laundry, toilet, pantry, walk-in wardrobe, corridor, stair, hallway, lobby, clothes drying room, service or utility room, or other space of a specialised nature occupied neither frequently nor for extended periods.

3 Risk Assessment

Qualitative risk evaluation criteria have been created to determine fundamental risks that may occur due to development in areas that are vulnerable to inundation hazards.

This qualitative risk assessment technique is based on AS/NZS ISO 31000:2009 and relies on descriptive or comparative characterisation of consequence, likelihood, and the level of risk comparative (rather than using absolute numerical measures).

A risk consequence/likelihood matrix has been selected which is consistent with AS/NZS ISO 31000:2009 guidelines.

Consequence/likelihood criteria have assisted in determining if any risk management measures are required at the Site to mitigate any potential hazards. Adopted consequence/likelihood criteria are presented in Attachment 5. Performance criteria are presented in Attachment 6.

If habitable rooms are raised 300 mm above the defined flood level for the Site, risks associated with the proposed works are considered low.

4 Site Building and Works

The following are concluded:

- At present date, the Sorell Council 1% AEP mapping is considered suitable without further development of a hydrogeological model for the drainage basin.
- Given the Sorell Council 1% AEP mapping scenario, floodwaters will reach 2.89 m AHD near the Site with water flow velocities at approximately 0.1 m/s near the proposed dwelling and driveway. The water flow velocities will not present a problem with localised erosion around the proposed structures
- The construction of the proposed dwelling will have negligible effect on the:
    - Inundation levels both on Site and off Site
    - Water flow velocities passing the Site
    - Water quality condition
- The proposed driveway resides in Flood Hazard Class H1 (Ball, et al., 2019), and therefore the proposed driveway and site is suitable for 2wd vehicles (Map 4 & Figure 1).

Marco Scalisi BSc Msc | Environmental & Engineering Geologist

Project manager

Enviro-Tech Consultants Pty. Ltd.

5 References

Ball, J. et al., 2019. Australian Rainfall and Runoff (AR&R): A guide to Flood Estimation. [Online] Available at: http://book.arr.org.au.s3-webSite-ap-southeast-2.amazonaws.com/ [Accessed 12 07 2022].

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), 2019.

CBOS 2021a. Director's Determination - Riverine Inundation Hazard Areas. Director of Building Control Consumer, Building and Occupational Services, Department of Justice. 8 April 2021

Chow, VT (1959) Open channel hydraulics, McGraw-Hill, New York

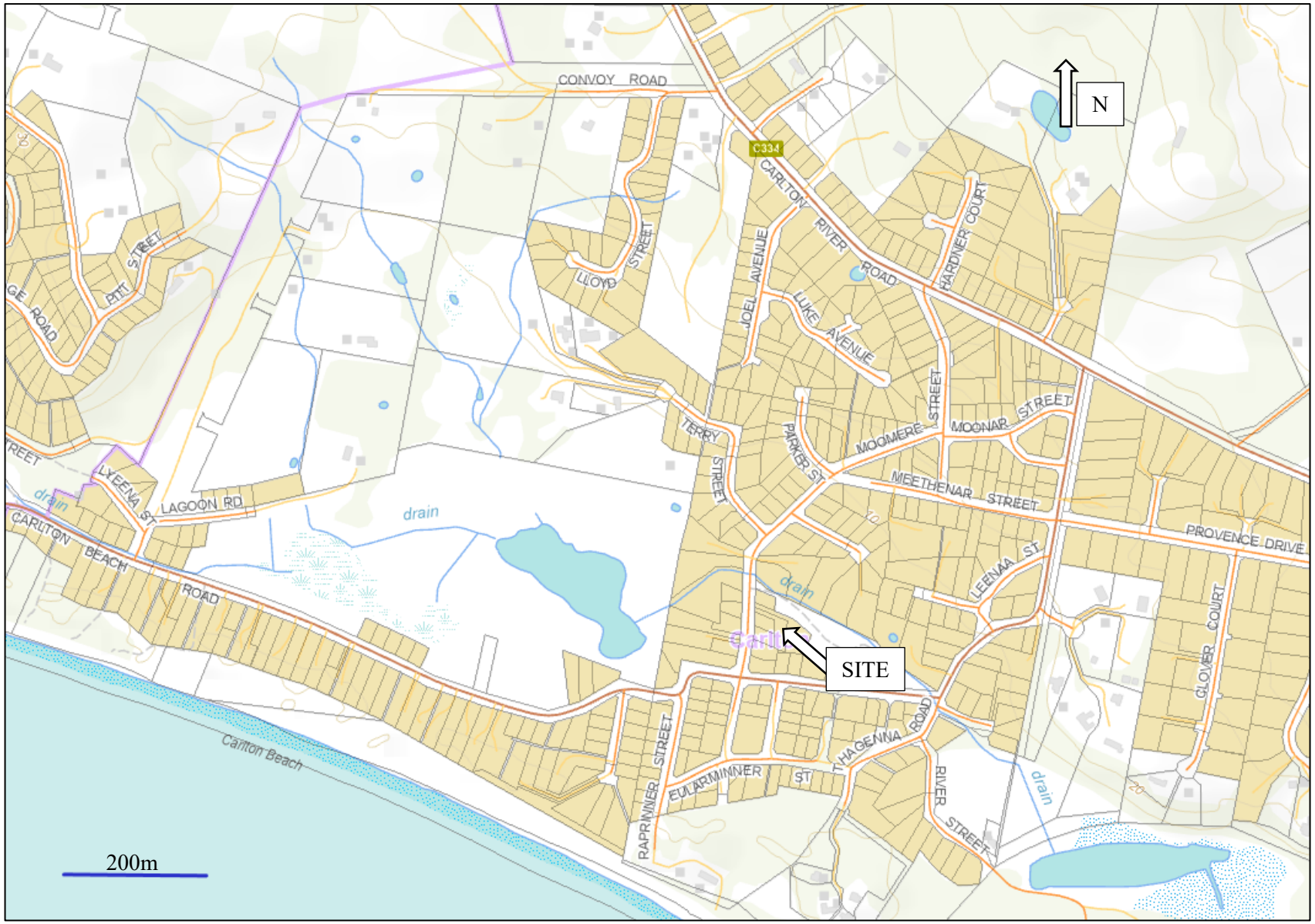
Coombes, P., and Roso, S. (Editors), 2019 Runoff in Urban Areas, Book 9 in Australian Rainfall and Runoff - A Guide to Flood Estimation, Commonwealth of Australia, © Commonwealth of Australia (Geoscience Australia), 2019.

N. Maidment, D.R. 1993. Handbook of hydrology. McGraw-Hill. New York, NY.

Water and Rivers Commission 2000, Stream Channel Analysis Water and Rivers Commission River Restoration Report No. RR 9.

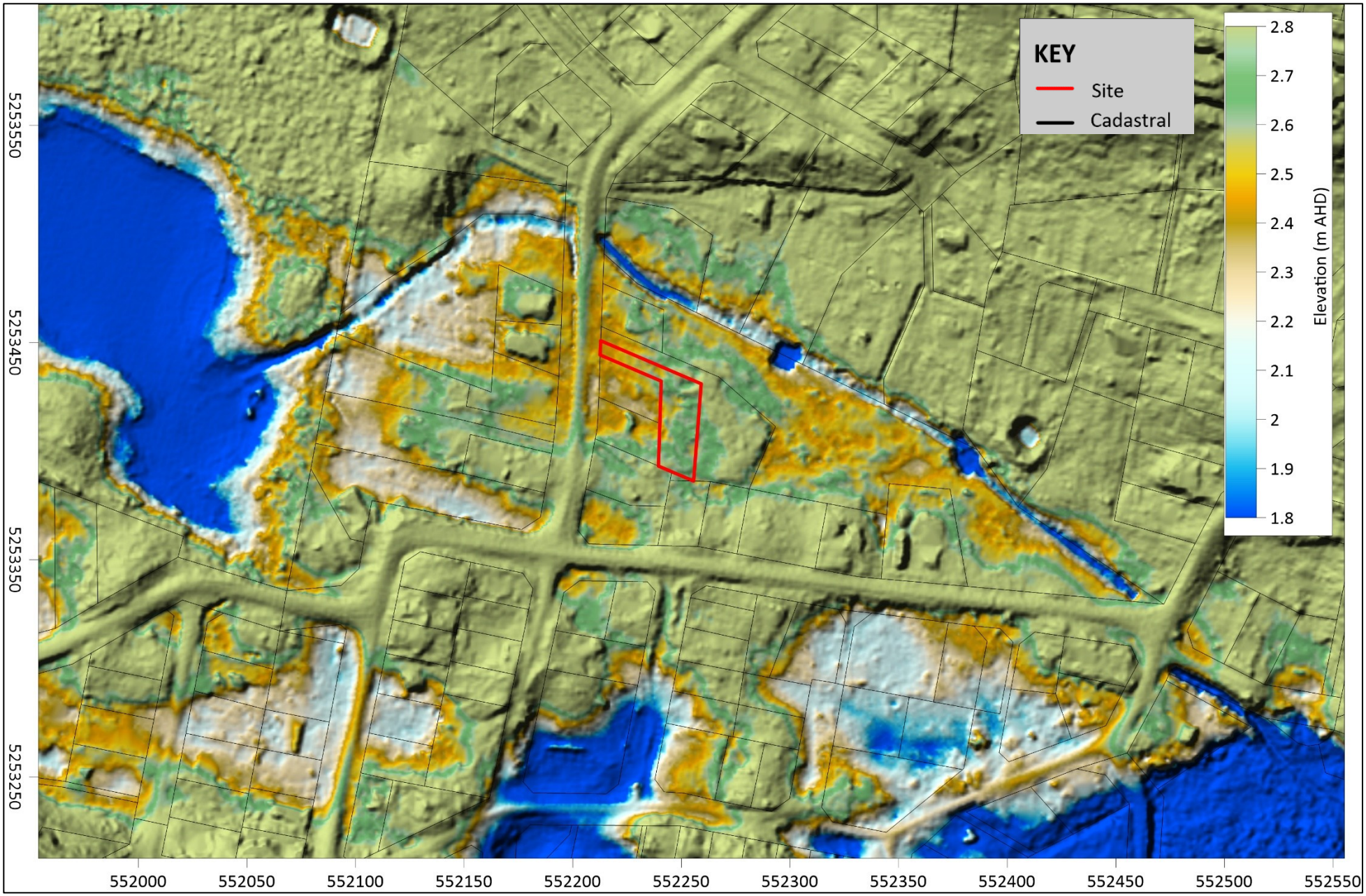
Attachment 1 Mapping

Map 1



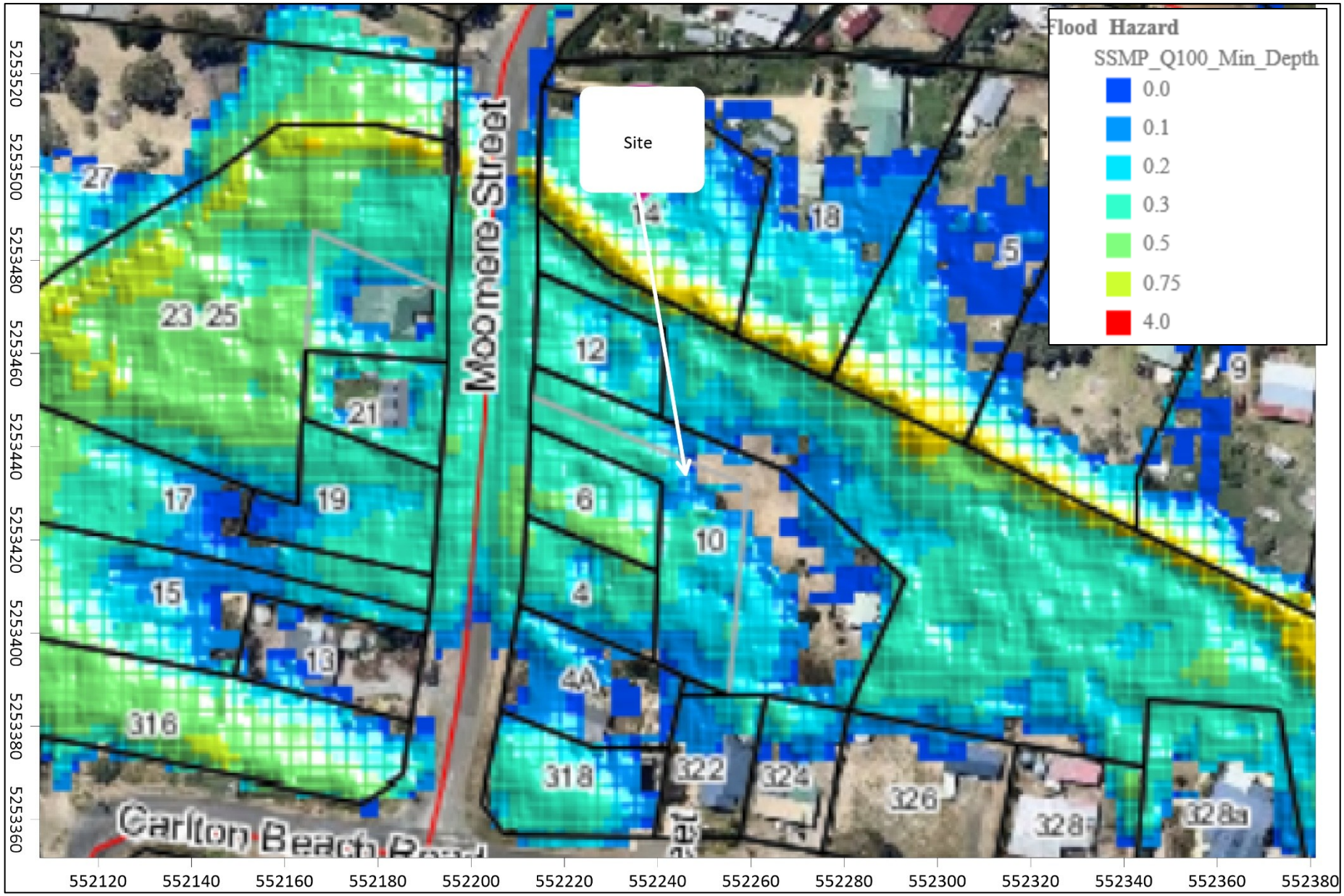
Map 1 Site Local Setting (The LIST)

Map 2



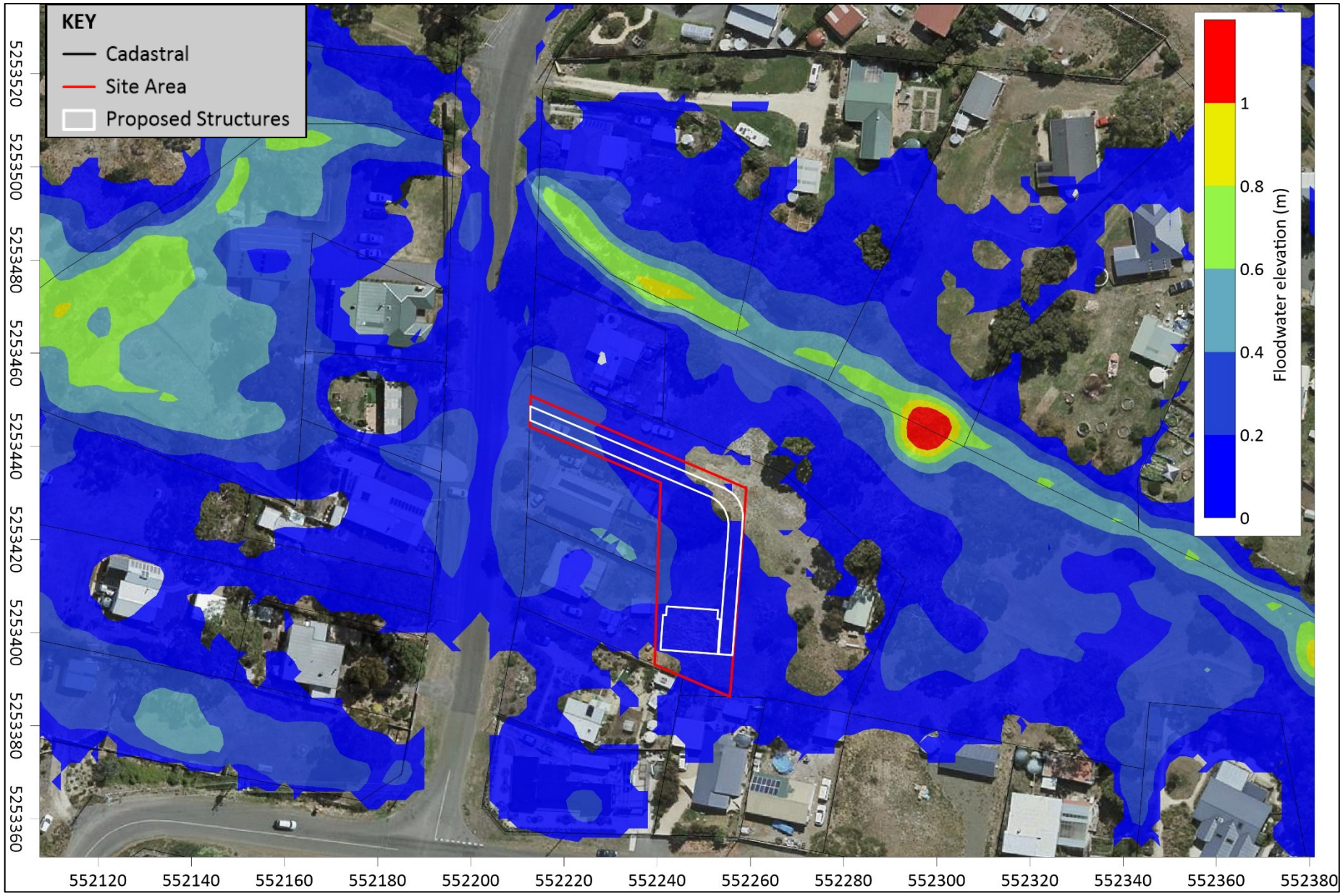
Map 2 Regional Location of Project Area (The LIST)

Map 3



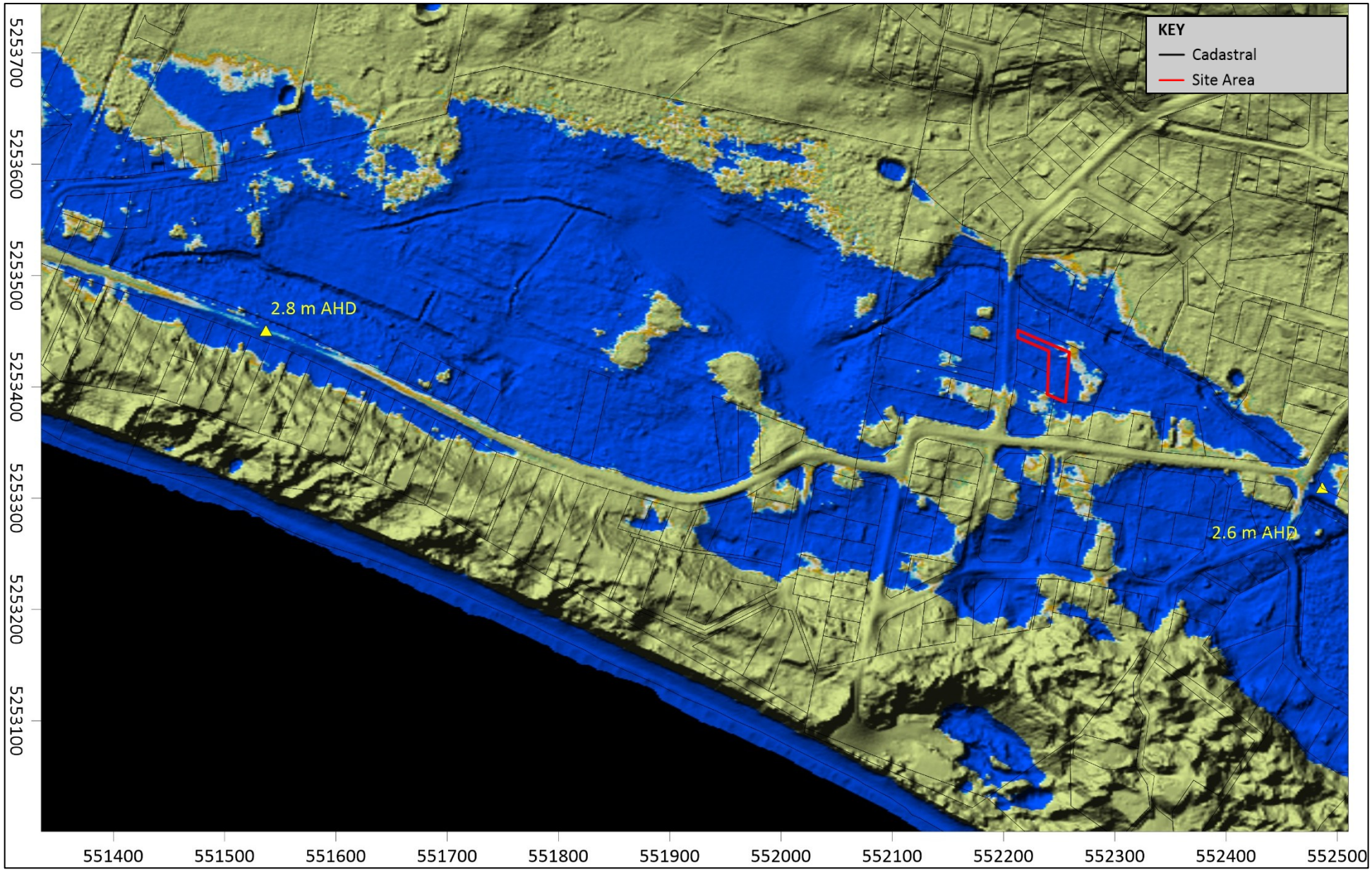
Map 3 1% AEP Floodwater modelling prepared by the local government authority

Map 4



Map 4 Local Modelled 1% AEP Floodwater depth

Map 5



Map 5 Example 2.8 m Inundation Within the Carlton/Park Drainage Flats

Map 6

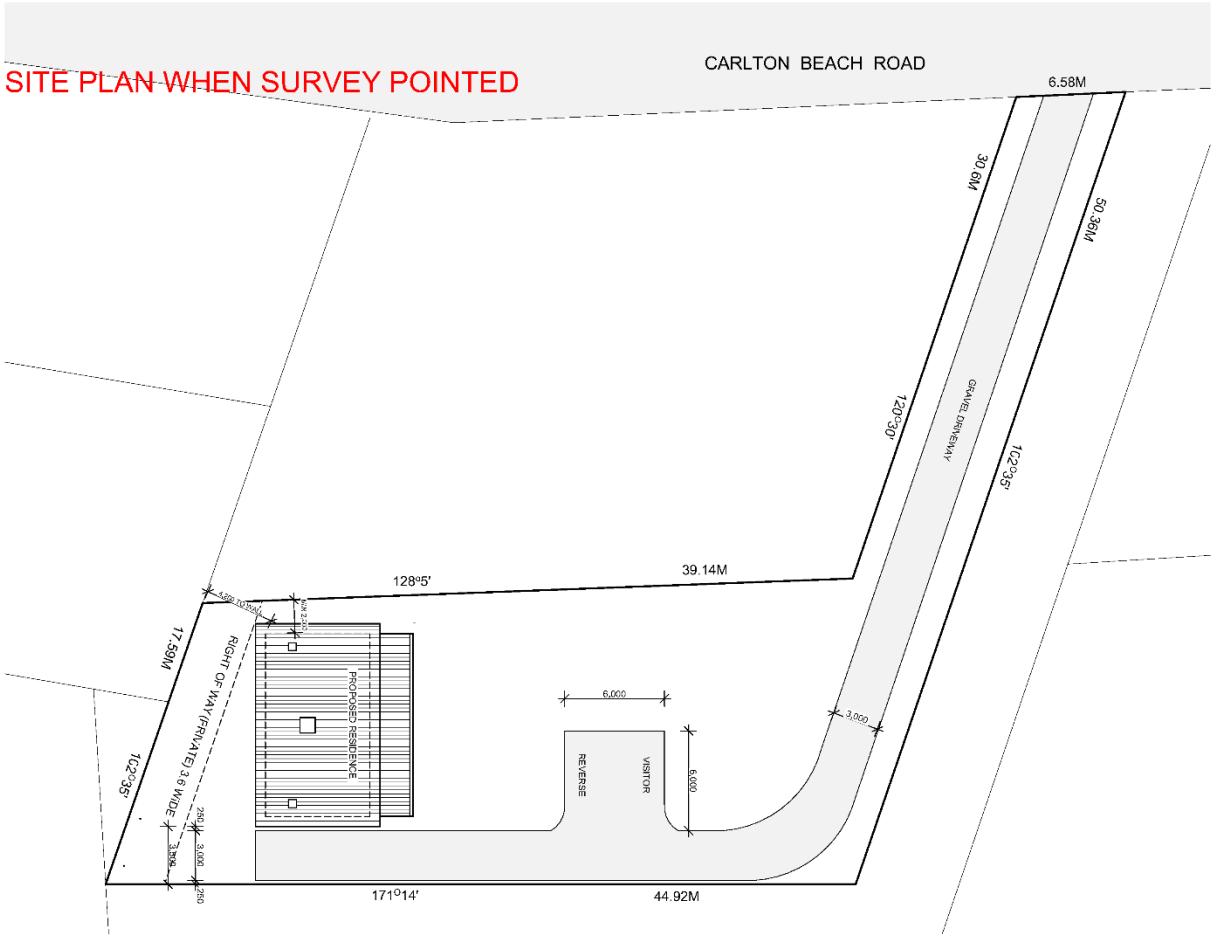
Map 6 Site plan with Site survey contours (Brooks, Lark and Carrick - 2025)

Attachment 2 Preliminary Design Concept Plans

10 MOOREMERE ST, CARLTON TAS, 7173
SITE INFORMATION

CERTIFICATE OF TITLE

AREAS:	M²
SITE	
SITE COVER	
SITE COVERAGE	
GROUND	
VERANDAH	27.5
FLOOR AREA	
LIVING ROOM & KITCHEN	31.0
BATHROOM 01	6.7
BATHROOM 02	6.7
BEDROOM 01	12.2
BEDROOM 02	12.2
TOTAL FLOOR AREA	**68.8**



SITE PLAN

Scale 1:250 @ A3

DRAFT

*NOTE
REFER TO SHEET BA 02 FOR BUILDING NOTES & NCC ADDENDUM
REFER TO SHEET BA 02 FOR CONSTRUCTION NOTES
FOR ENERGY EFFICIENCY REFER TO REPORT BY OTHERS
DIMENSIONS TO BE VERFIY ON SITE PRIOR TO COMMENCEMENT OF WORKS

2199

AMENDMENT	DATE	DETAILS
1	02/04/25	BA DRAWINGS DRAFT ISSUE

PROPOSED COTTAGE
FOR EMILY ARMSTRONG
10 MOOMERE ST CARLTON,
JOB NO. 2199

BA 03

LINARDI PTY. LTD ACN 082 237 530
119 Roaring Beach Road
South Arm Tasmania 7022
m. 0417 878 723
e. linardi@bigpond.com
w. linardidesign.com
TCC REG NO. CC392L © COPYRIGHT 2025

LINARDI DESIGN + ARCHITECTURAL SERVICE

Attachment 3 Planning and Building Regulations

C12.0 Flood-Prone Area Hazard Code

Code Overlay – The LIST Mapping

The Site is located within the Sorell Council mapped 1% Annual Exceedance Probability (AEP) inland flooding hazard area (Map 3). The mapping has triggered Flood Prone Areas Hazard Code, meaning that a more detailed investigation is required to further assess risk associated with the proposed development.

C12.6 Development Standards for Buildings and Works

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

C12.6.1 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.

C12.6.1 A1 Acceptable Solutions

As there are no acceptable solutions to C12.6.1 (A1), the proposed development is to be assessed against performance criteria.

C12.6.1 P1 Performance Criteria

The proposed development needs to be assessed against the following performance criteria:

- C12.6.1 P1.1 and
- C12.6.1 P1.2.

Attachment 4 Site Inundation Assessment

Coastal Inundation Assessment

It is estimated that the coastal inundation level for the Site (1% AEP storm tide) based on a building design life of 50 years is 1.86 m AHD. Based on a 2100 timeframe and a 1% AEP storm tide, the coastal inundation level is estimated at 2.46 m AHD. Water movement at the Site during such an inundation event would be minimal.

Riverine (Pluvial) Inundation Assessment

A 1% AEP floodwater level of 2.89 m AHD has been identified near the Site. Future floodwater levels are controlled by several cumulative factors including:

- Floodwater flows from the west via cumulative stormwater accumulation/retention within the historic lagoon (Carlton/Park drainage flats) to the west of the Site.
- Localised peak standing groundwater levels
- Flooding from the east from coincident storm surge and astronomical tide given sea levels within the building design life
- Floodwater discharge rates:
    - Via groundwater infiltration through Carlton Beach dune system (knowing lagoon sediments and Tertiary clays are likely to limit infiltration near the Site)
    - Via the stormwater discharge outlet beneath Carlton Beach Road

Floodwater Accumulation Within Carlton/Park Drainage Flats

Sorell Council have indicated 1% AEP floodwater levels at 2.89 m AHD near the Site which has the potential to occur if adverse conditions are met as indicated above. Under a restrictive drainage condition model and given present day topography, water will discharge via the stormwater outlet at beneath Carlton Beach Road (east) with discharge floodwaters at 2.6 m AHD and via Carlton Beach Road overflow at 2.8 m AHD into permeable dune sand deposits (Map 5). This appears to be the worst-case scenario model adopted in the Sorell Council 1% AEP floodwater mapping.

Localised Peak Standing Groundwater Levels

Given the low-lying topography and drainage conditions, as sea levels rise, the water table is also expected to rise at a similar rate. This will have an additive effect on water volumes within the lagoon system over time, meaning less volume is required to reach peak levels from coastal and fluvial inundation.

Coastal Inundation

Within the building design life, and even by 2100, given the present topography and drainage conditions, there is a low chance that sea water will infiltrate the Site.

Floodwater Discharge Via Surface Water Runoff

Floodwaters will flow east towards the culvert beneath Carlton Beach Road. Discharge rates beneath Carlton Beach Road culvert are estimated at approximately 5m3/s. Resulting average floodwater movement velocities eastward past the Site given 2.89 m AHD floodwaters are in the order of 0.1 m/s. Drainage culvert channel flow velocities through the easement are estimated at 1 m3/s.

Floodwater Discharge Via Groundwater

Floodwater infiltration into groundwater from the lagoon flats is controlled by:

- The underlying sediments in the drainage basin which typically comprise low permeability Tertiary clay sediments
- The movement of groundwater through fill material beneath Carlton Beach Road towards the coastal sand dunes. This is the most significant controlling factor in the projection of floodwater levels in the area. The composition of the fill is unknown and will require further investigation to determine the accuracy of Sorell Council 1% AEP floodwater mapping. Over time, organic matter and silt in lagoons can choke up natural groundwater movement, restricting groundwater flow and causing floodwaters to rise which may be the case in this scenario. These things can be managed through engineered soakage/aquifer recharge solutions.

Defined Inundation Levels

The following findings are from the 1% AEP stormwater flow modelling for the proposed development as specified in Map 6:

- The highest inundation levels within the proposed building envelope are calculate at 2.89 m AHD (Map 6)

Finished Floor Levels

In accordance the Tasmanian Building Regulations 2016, finished floor level of the proposed dwelling habitable rooms[2] must be constructed at or greater 3.19 m AHD to allow 0.3 m freeboard above the modelled 1% AEP inundation level of 2.89 m AHD (Table 3).

Table 2 Relative finished floor levels

Parameter	Level Relative to the Primary Slab Finished Floor Level (m AHD)
Dwelling	3.19
Channel Surface	2.89

Hazard Class

The proposed driveway resides in flood hazard Flood Hazard Class H1 (Ball, et al., 2019). This is based on highest 1% AEP floodwater depth at 0.27m in the driveway section near the entrance of the property and water flow velocities not projected to exceed 0.1 m/s. Therefore the proposed driveway is suitable for 2wd vehicles (Map 4 & Figure 1).

[2] habitable room - means any room of a habitable building other than a room used, or intended to be used, for a bathroom, laundry, toilet, pantry, walk-in wardrobe, corridor, stair, hallway, lobby, clothes drying room, service or utility room, or other space of a specialised nature occupied neither frequently nor for extended periods.

Attachment 5 Qualitative Terminology

almost certain	Is expected to occur in most circumstances; and/or there is a high level of recorded incidents; and/or strong anecdotal evidence; and/or a strong likelihood the event will recur; and/ or great opportunity, reason, or means to occur; may occur once every year or more
Likely	Will probably occur in most circumstances; and/or regular recorded incidents and strong anecdotal evidence; and/or considerable opportunity, reason or means to occur; may occur once every five years
Possible	May occur at some time; and/or few, infrequent or randomly recorded incidents or little anecdotal evidence; and/or very few incidents in associated or comparable organisations, facilities or communities; and/or some opportunity, reason or means to occur; may occur once every 20 years
Unlikely	Is not expected to occur; and/or no recorded incidents or anecdotal evidence; and/or no recent incidents in associated organisations, facilities or communities; and/or little opportunity, reason or means to occur; may occur once every 100 years
Rare	May occur only in exceptional circumstances; may occur once every 500 or more years

Source: Commonwealth of Australia, 2004: Emergency Management Australia – Emergency Risk Management Applications Guide Manual 5

Consequence Rating	***Public Safety***	***Local growth and economy***	***Community and Lifestyle***	***Environment & sustainability***	***Public administration***
Catastrophic	Large numbers of serious injuries or loss of lives	Local decline leading to business failure, loss of employment, local hardship	Local area seen as very unattractive, significant decline, and unable to support community	Major widespread loss of environmental amenity and progressive irrecoverable environmental damage	Public Administration would fail and cease to be effective
Major	Isolated instances of serious injuries or loss of lives	Local stagnation such that businesses unable to thrive and imbalance between employment and local population growth	Severe and widespread decline in services and quality of life within community	Severe loss of environmental amenity and a danger of continuing environmental damage	Public administration would struggle to remain effective and would be perceived as being in danger of failing completely
Moderate	Small number of injuries	Significant general reduction in economic performance relative to current forecasts	General appreciable decline in services	Isolated significant instances of environmental damage that might be reversed with intensive efforts	Public administration would be under significant pressure on numerous fronts
Minor	Serious near misses or minor injuries	Individually significant but isolated areas of reduction in economic performance relative to current forecasts	Isolated but noticeable examples of decline in services	Minor instances of environmental damage that could be reversed	Isolated instances of Public administration being under significant pressure
Insignificant	Appearance of threat by no actual harm	Minor shortfall relative to current forecasts	There would be minor areas in which the region was unable to maintain is current services	No environmental damage	There would be some minor instances of public administration being under more than usual stress but it could be managed

Likelihood (L)	**Consequences (C)**				
	Insignificant	**Minor**	**Moderate**	**Major**	**Catastrophic**
Almost certain	MEDIUM	medium	high	extreme	extreme
Likely	low	medium	high	high	extreme
Possible	low	medium	medium	high	high
Unlikely	low	low	medium	medium	medium
Rare	low	low	low	low	medium

Adapted from DCC 2006, 40.

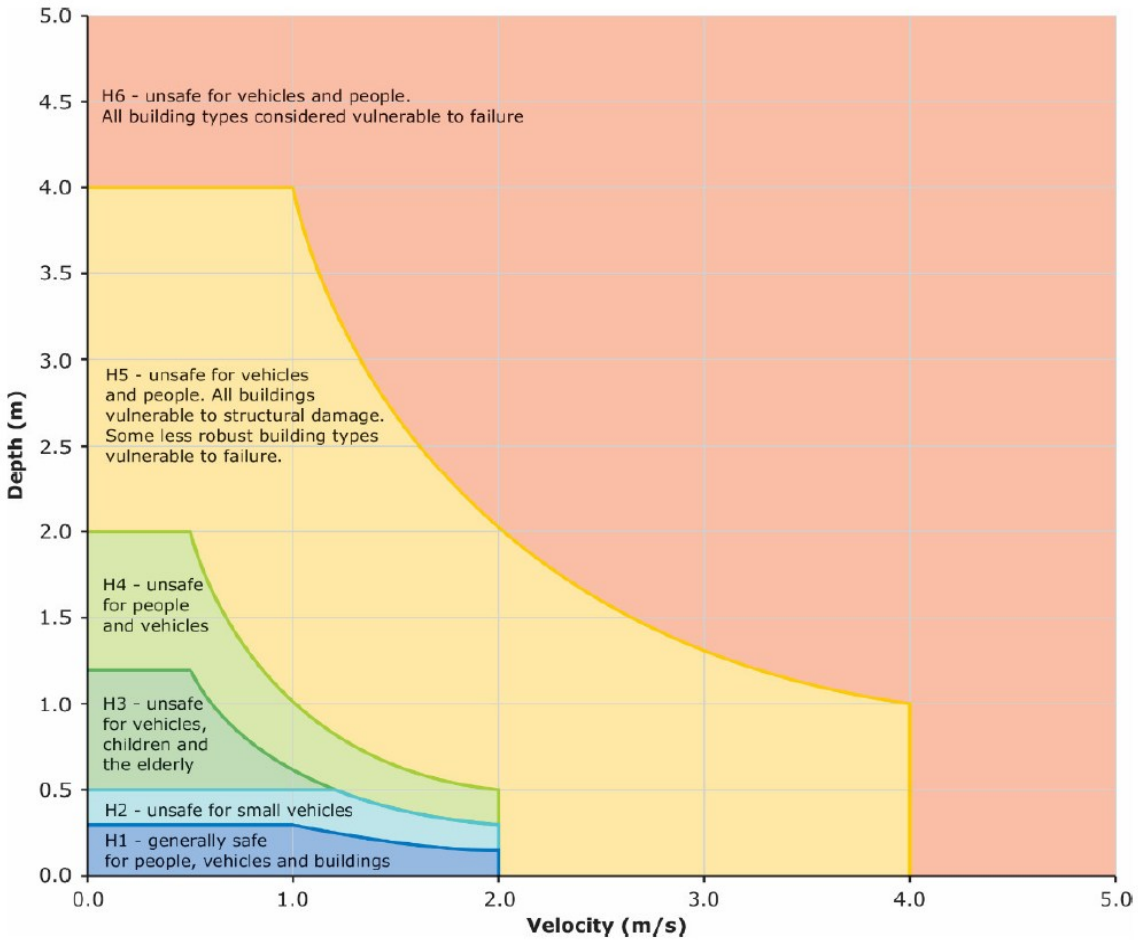


Figure 1 Flood Hazard Curve (Ball, et al., 2019)

Attachment 6 Tasmanian Planning Scheme – Flood Prone Hazard Areas

Building and Works

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.

C12.6.1 P1.1 Buildings and works within a flood-prone hazard area – risk assessment

Performance Criteria C12.6.1 P1.1 Buildings and works within a flood-prone hazard area must achieve and maintain a tolerable risk from a flood, having regard to:	Relevance	Management Options	Likelihood	Consequence	Risk	Further Assessment Required
(a) the type, form, scale and intended duration of the development;	The type, form and scale of the development suitable given the projected storm flow.		Unlikely	Minor	Low	No
(b) whether any increase in the level of risk from flood requires any specific hazard reduction or protection measures;	No hazard reduction measures are advised, with modelling based on adaption and not reduction.		Unlikely	Minor	Low	No
(c) any advice from a State authority, regulated entity or a council; and						
(d) the advice contained in a flood hazard report.						

C12.6.1 P1.2 Buildings and works within a flood-prone hazard area - flood hazard reporting

Performance Criteria C12.6.1 P1.2 A flood hazard report also demonstrates that the building and works:	Relevance	Management Options	Likelihood	Consequence	Risk	Further Assessment Required
(a) do not cause or contribute to flood on the Site, on adjacent land or public infrastructure; and	Given the modelling, the building and works will result in minor and not adverse modifications to storm flow.	Elevating structures above natural drainage course. Not restricting water movement.	Unlikely	Minor	Low	No
(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.	The proposed dwelling 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.	It is recommended that the ground floor habitable rooms finished floor levels are constructed at or greater 3.19 m AHD. Tolerable risks are managed through adaptions to 1% AEP storm flow.	Unlikely	Minor	Low	No

CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

Form **55**

To: Emily Smith *Owner /Agent*

10 Moomere St, Carlton TAS 7173 *Address*

CARLTON 7173 *Suburb/postcode*

Qualified person details:

Qualified person: Kris Taylor

Address: 445 Macquarie Street

Hobart 7004

Phone No: 0476 595 889

Fax No:

Licence No: NA

Email address: office@envirotechtas.com.au

Qualifications and Insurance details: Bachelor of Science with Honours in Geology with PI Insurance to $2,000,000 including hydrology and environmental coastal inundation hazard assessments

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

Speciality area of expertise: Engineering Geology

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

Details of work: Riverine Inundation Assessment

Address: 10 Moomere Street

Carlton 7173

Lot No: 17

Certificate of title No: 61808/17

The assessable item related to this certificate: Riverine (flood prone areas) inundation hazard assessment

(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: Geological

(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. 2025. Flood Prone Areas Assessment Report for a Proposed Dwelling, 10 Moomere Street - Carlton. Unpublished report for Emily Smith by Enviro-Tech Consultants Pty. Ltd., 09/05/2025.
Relevant calculations:	
References:	- Director's Determination - Riverine Inundation Hazard Areas - Tasmanian Planning Scheme – State Planning Provisions - Flood-Prone Areas Hazard Code - Part 5 (Work in Hazardous Areas) of the Building Regulations 2016; Division 2 – Riverine Inundation

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

- An assessment of:
 - Defined Site floodwater levels or designated floodwater levels
 - 1% AEP floodwater hazards based on building design or 2100 scenarios

Scope and/or Limitations

Impact from changes to Site levels, structures or water flow obstructions on the Site (beyond what is detailed within Site proposal documents) or on neighboring properties are outside of the scope of this assessment.

I certify the matters described in this certificate.

	Signed:	*Certificate No:*	*Date:*
Qualified person:			9/05/2025

PROPOSED RESIDENCE
LOT 17, 10 MOOMERE ST CARLTON, TASMANIA

SHEET	DRAWING
BA 01	CONTENTS
BA 02	NOTES & STANDARDS
BA 03	SITE PLAN
BA 04	GROUND FLOOR PLAN
BA 05	REFLECTED CEILING PLAN
BA 06	ROOF PLAN
BA 07	ELEVATION
BA 08	SECTION AA
BA 09	SECTION BB
BA 10	DETAIL
BA 11	BATHROOM DETAIL
BA 12	WINDOW SCHEDULE
BA 13	WINDOW SCHEDULE
BA 14	DOOR SCHDULE
BA 15	LIGHTING CALCULATION

SITE INFORMATION	
CERTIFICATE OF TITLE	
PROPERTY ID	C.T.61808/17
SITE AREA	983 m^2
WIND CLASS	N3
SOIL CLASS	-
CLIMATE ZONE	7
BAL	N/A
ALPINE AREA	N/A
CORROSION ENVIRONMENT	
OTHER HAZARDS	N/A
FLOOR AREA:	68.8M^2

Accredited Building Designer	
Designer name	Marco Linardi
Accreditation number	No. CC392L

*NOTE
REFER TO SHEET BA 02 FOR BUILDING NOTES & NCC ADDENDUM
REFER TO SHEET BA 02 FOR CONSTRUCTION NOTES
FOR ENERGY EFFICIENCY REFER TO REPORT BY OTHERS
DIMENSIONS TO BE VERFIY ON SITE PRIOR TO COMMENCEMENT OF WORKS

AMENDMENT	DATE	DETAILS
1	02/06/25	DA DRAWINGS ISSUE

2215

PROPOSED COTTAGE
FOR EMILY ARMSTRONG
10 MOOMERE ST CARLTON,

BA 01

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119 Roaring Beach Road
South Arm Tasmania 7022
m. 0417 878 723
e. linardi@bigpond.com
w. linardidesign.com
TCC REG NO. CC392L

LINARDI DESIGN + ARCHITECTURAL SERVICE

Notes & Standards

1. Builder, Tradesmen, Sub-Contractors and Prefabricators to verify all drafting and dimensions on site prior to commencing any building works. Use written dimensions. Do not scale drawings.

2. Surveyor shall verify all dimensions, set outs, level (relative to AHD where possible) location of services, Easements, Title Covenants, Planning and Building permit requirements and any information relevant to the proposed building works.

3. Surveyor shall report all relevant variations and discrepancies to Designer / Drafters prior to commencing any building set outs. Give 24 hours minimum notice where amendments to design and drawings may be required.

4. Builder shall ensure that all building works are in compliance with Planning and Building permits. Materials and workmanship shall conform with the relevant S.A.A. codes, NCC 2022, (refer to the attached Addendum of likely compliance with NCC 2022), Local Council regulations and manufacturer's written instructions.

5. Engineer to provide all Structural, Civil, Hydraulic drawings, details and Certificates as required by Local Council and relevant authorities.

6. Architectural drawings and documents shall be read in conjunction with Engineer's, Surveyor's and Sub-contractors' drawings and details. Engineer's drawings shall over ride Architectural drawings. Refer to Engineer for associated queries or discrepancies.

7. Builder to report to Engineer and Designer / Drafters all relevant discrepancies, variations or changes before proceeding with any building works. Give 24 hours minimum notice where amendments to drawings are required.

8. All building works shall comply to the relevant Australian Standards. Refer to Standards Australia for specific requirements, the following are some of the commonly used standards of reference.

AS 1288 (2006) - Glass in buildings
AS 1428 (2009) - Design for access and mobility
AS 1554 (2011) - Structural steel welding
AS 1684 (2010) - Residential timber-framed construction
AS 2047 (1999) - Windows in buildings
AS 2588 (1998) - Gypsum plasterboard
AS 2870 (2011) - Residential slabs and footings
AS 2890 (2004) - Parking facilities
AS 3000 (2007) - Electrical installations
AS 3500 (2003) - Plumbing and drainage
AS 3623 (1993) - Domestic metal framing
AS 3740 (2010) - Waterproofing of domestic wet areas
AS 3786 (1993) - Smoke alarms
AS 4100 (1998) - Steel structures
AS 4773.2 (2010) - Masonry in small buildings
AS 4859.1 (2002) - Thermal insulation of buildings
AS 3959 (2009) - Construction of buildings in bushfire-prone areas

Addendum of likely compliance to NCC 2022

Site Preparation Part 3

Earthworks shall comply with the requirements of Table 3.2.1 and relevant clauses in 3.2.1.

Drainage shall comply with the requirements of clauses 3.3. For location of agricultural drains and other details refer to Architectural and Engineer's hydraulic drawings.

Footings and Slabs Part 4

Filling material and compaction shall comply with the requirements of clause 4.2.4

Provide vapour barriers such as continuous fortecon membrane to the underside of slabs in compliance with the requirements of clause 4.2.8

Refer to Engineer's details and drawings for Site Classification, Footing and Slab design in compliance with the requirements of clauses 4.2

Masonry Part 5

Refer to AS 4773.2 (2010) - Masonry in small buildings

Framing Part 6

Sub-floor ventilation shall comply with the requirements of clause 6.2.1. Provide a minimum clearance of 150mm above ground to the underside of all framing members.

All steel framing, fixings and bracing shall comply with AS1250, AS3623 or AS4100 and the requirements of NCC Part 6.3

All timber framing, fixings and bracing shall comply with AS1684
Manufactured sizes must not be undersized to those specified. For all timber sizes, stress grades, spacings and wall bracing refer to Engineer's details.

Pre-fabricated truss design shall be supplied by manufacturer prior to frame inspection.

Structural steel members shall comply with the requirements of clauses in Part 6.3.2
Refer to Engineer's details where provided.

Roof and Wall Cladding Part 7

Metal roof cladding shall comply with the requirements of clause 7.2
Corrosion protection and compatibility requirements of roofing to clause 7.2.2.
Span and fastenings shall comply with the requirements of clause 7.2.4 & 7.2.5

Roof and Wall Cladding Part 7 cont.

Roof tiling shall comply with the requirements of clause 7.3. Fixing details shall comply with the requirements of figure 7.3.2.

Gutters and downpipes shall comply with the requirements of clauses in Part 7.4.

Glazing Part 8

All glazing shall comply with the requirements of AS1288 and NCC clauses in Part 8

Human impact safety requirements shall comply with the requirements of NCC clauses 8.4.

All aluminium window framing shall comply with AS2047 parts 1 and 2.

Fire Safety Part 9

Where the external walls of Class 1 buildings do not satisfy the requirements of clause 9.2.1 they shall comply with the requirements of clause 9.2.3.

Class 10a buildings shall comply with the requirements of clause 9.2.4.

Roof lights shall comply with the requirements of clause 9.2.10.

Smoke alarms shall be provided and installed in accordance with AS3786 and NCC clauses in Part 9.5.

Health and Amenity Part 10

Showers, baths and wall fixtures to all wet areas shall comply with the requirements of clauses 10.1.2, 10.2.

In all wet areas provide selected ceramic tiles to concrete floors or over 15mm cement sheeting where timber framed floors are proposed. Provide waterproof plasterboard sheeting to all walls and ceilings. Provide ceramic tiles, lamipanel or other approved water-resistant lining to a minimum height of 1800mm to shower walls and to a height of 150mm behind baths, basins, sinks, troughs, washing machines and wall fixtures. For the required extent of areas to be protected refer to clause 10.2.2. to 10.2.6.

Lighting for habitable rooms shall comply with the requirements of clauses in Part 10.5 where required.

Ventilation shall comply with the requirements of clauses in NCC Part 10.6

Health and Amenity Part 10 cont.

Where mechanical ventilation is required (eg. for internal wc's or baths) the exhaust is to be directed to outside the building by way of 100mm dia. colorbond steel, PVC or other approved ducting material.

Class 1 buildings requiring separating walls shall provide sound insulation in compliance with the requirements of clauses in Part 10.7

Ventilation of roof spaces in climate zones 6,7,8 shall comply with 10.8.3. and table 10.8.3.

Safe Movement and Access Part 11

All Stair design & construction shall comply with the requirements of clauses in Part 11.2.

Handrails to stairs

Barriers, including windows in external walls where floor levels are greater than 1m above ground level, shall comply with the performance requirements H5P2 for balustrades (eg. restrict window aperture size to 125mm for awning sashes by shortening winder chain accordingly).

Balustrade construction shall comply with the requirements of clause 11.3.4. Minimum height of 1000mm. Maximum aperture or gaps of 125mm.

Safety features to bedroom windows where you can fall more than 2m from an operable window

Ancillary Provisions and Additional Construction Requirements Part 12

Swimming pools shall comply with the requirements of clauses in Part H7D2.

Construction in Bushfire Prone areas refer to clauses in Part H7d4

Fixing decks and balconies to external walls refer to clauses in Part 12.3.2.

All heating appliances, installation of fire places, flues and free standing appliances shall comply with the requirements of clauses in Part 12.4.2.

Chimney and flue heights shall comply with the dimensions indicated in Figure 12.4.3, where the top of chimneys and flues shall terminate not less than 300mm above any part of the building within a horizontal distance of 3.6m.

Energy Efficiency Requirements Part 13

Energy Efficiency shall comply with NCC 13
In Tasmania, Section 13 is replaced with NCC 2019 Part 3.12.

CONSTRUCTION NOTES GENERALLY:

WALLS:
20.01 BLOCK FOUNDATION.

WALLS EXTERNAL:
SHADOWCLAD WITH VAPOUR PERMEABLE MEMBRANE (VPM),BRADFORD ENVIROSEAL OR SIMILAR TO EXTERNAL FACE +10mm PLASTERBOARD LINING

INTERNAL:
10mm PLASTERBOARD LINING ON 90X35mm F5 STUDWORK @ 450 CTS, 1 ROW NOGGIN 90X45, F17 TOP & BOTTOM PLATES & FOR DOUBLE STUDS, LINTELS AND PLATES WHERE SHOWN., REFER TO ENGINEER'S DRAWINGS & DETAILS
WET AREAS
10mm WATER RESISTANT LININGS + SUBSTRATES TO WET AREAS IN ACCORDANCE WITH NCC 10.2.1 TO TREATED PINE STUDS AND PLATES.

ROOF:
REFER TO ROOF PLAN BA13

WINDOWS OR SIMILAR - PROPOSED EXTENSION:
SELECTED DOUBLE GLAZED ALUMINIUM WINDOW FRAMES. POWDER COATED FINISH.. FIT SUB SILL OR FIN OVER OUTER CLADDING. COLORBOND FLASHINGS.

GLAZING:
ALL GLAZING TO BE DOUBLED GLAZED. ALL GLAZING TO AS1288. GLAZIER IS TO CONFIRM COMPLIANCE WITH ALL RELEVANT STANDARDS AND CODES PRIOR TO FABRICATION & INSTALLATION

FLASHING:
COLORBOND FLASHINGS AS REQUIRED. DPC TO AS2904, POWDER COATED ALUMINIUM WINDOW SURROUND FLASHING TO SUIT

CEILINGS :
FLAT: 10mm PLASTERBOARD (WATER RESISTANT IN WET AREAS) ON FULLY SUPPORTED RONDO FURRING CHANNELS @ 450 CTS AND FIXED TO UNDERSIDE OF ROOF STRUCTURE/ FRAMING, REFER SECTION

FLOORING :
19MM YELLOW TONGUE TO JOISTS@450 ς:
TIMBER FLOOR: TIMBER STRUCTURE TO ENGINEERS DETAILS, WET AREAS SELECTED 10mm TILE ON 5mm GROUT & CEMENT SHEET & WATERPROOF MEMBRANE WHERE SHOWN, METAL DIVISION STRIPS. PROVIDE SETDOWN & GRADES TO WET AREAS, SUBSILLS AS REQUIRED

CORNICE & REVEALS:
SQUARE SET

ARCHITRAVE & SKIRTING:
SELECTED TIMBER ARCHITRAVES & SKIRTINGS

THRESHOLDS:
MIN 50mm STEP DOWN TO ALL THRESHOLDS,

INSULATION REQUIREMENTS:
REFER TO ENERGY REPORT BY OTHER
EXTERNAL WALLS - R2.5
CEILING - R4 (REDUCED TO R2.5 WHERE THE ROOF COMES IN AT LOW ANGLE OVER THE REA WALL TOP PLATE).
SUBFLOOR - R2 BATTS
INTERNAL WALLS AROUND UNCONDITIONED BATHROOMS - NIL TO START (ADDING R2 TO THE INTERNAL BATHROOM WALLS DOES INCREASE THE RATING FROM 6.4 STARS TO 6.8 STARS AND IS RECOMMENDED)
WINDOWS / GLAZING
SLIDING DOORS - U 4.8 / SHGC 0.59
FIXED - U 4.8 / SHGC 0.59
AWNING - U 4.8 / SHGC 0.51

INSTALLATION OF MATERIALS / PRODUCTS:
INSTALLATION IN STRICT ACCORDANCE WITH MANUFACTURER SPECIFICATIONS – STRICTLY NO PRODUCT SUBSTITUTION IS PERMITTED

*NOTE
REFER TO SHEET BA 02 FOR BUILDING NOTES & NCC ADDENDUM
REFER TO SHEET BA 02 FOR CONSTRUCTION NOTES
FOR ENERGY EFFICIENCY REFER TO REPORT BY OTHERS
DIMENSIONS TO BE VERFIY ON SITE PRIOR TO COMMENCEMENT OF WORKS

AMENDMENT	DATE	DETAILS
1	02/06/25	DA DRAWINGS ISSUE

2215

PROPOSED COTTAGE
FOR EMILY ARMSTRONG
10 MOOMERE ST CARLTON,

BA 02

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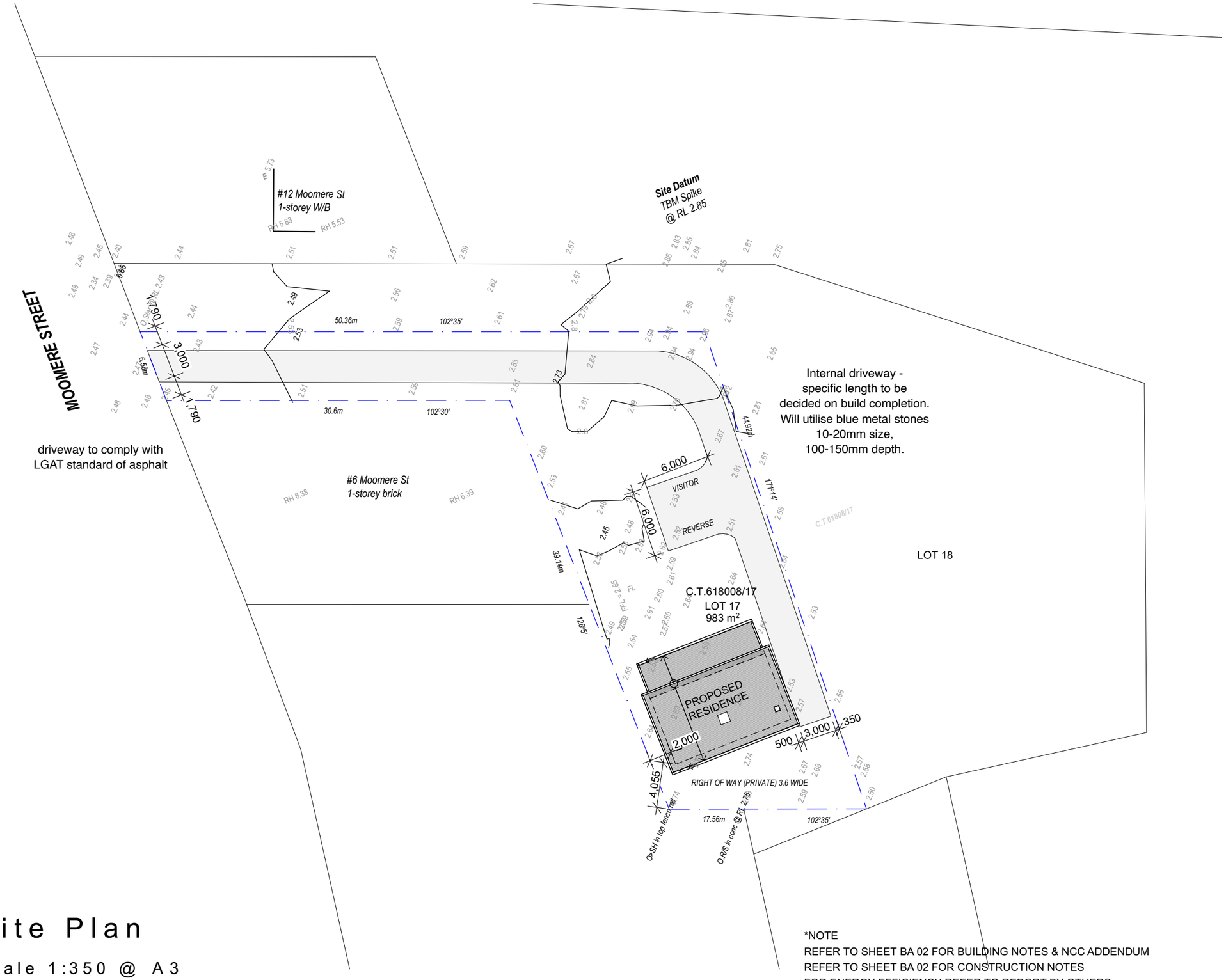
TCC REG NO. CC392L

LINARDI DESIGN + ARCHITECTURAL SERVICE

10 MOOREMERE ST, CARLTON TAS, 7173
SITE INFORMATION

CERTIFICATE OF TITLE

AREAS:	**M²**
SITE	983
SITE COVER	
SITE COVERAGE	
GROUND	
VERANDAH	27.5
FLOOR AREA	
LIVING ROOM & KITCHEN	31.0
BATHROOM 01	6.7
BATHROOM 02	6.7
BEDROOM 01	12.2
BEDROOM 02	12.2
TOTAL FLOOR AREA	**68.8**



Sorell Council

Development Application: 5.2025.146.1 - Response to Request For Information - 10 Moomere Street, Carlton - P2.pdf
Plans Reference: P2
Date received: 24/07/2025

Site Plan

Scale 1:350 @ A3

*NOTE
REFER TO SHEET BA 02 FOR BUILDING NOTES & NCC ADDENDUM
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AMENDMENT	DATE	DETAILS
1	02/06/25	DA DRAWINGS ISSUE

PROPOSED COTTAGE
FOR EMILY ARMSTRONG
10 MOOMERE ST CARLTON,

BA 03

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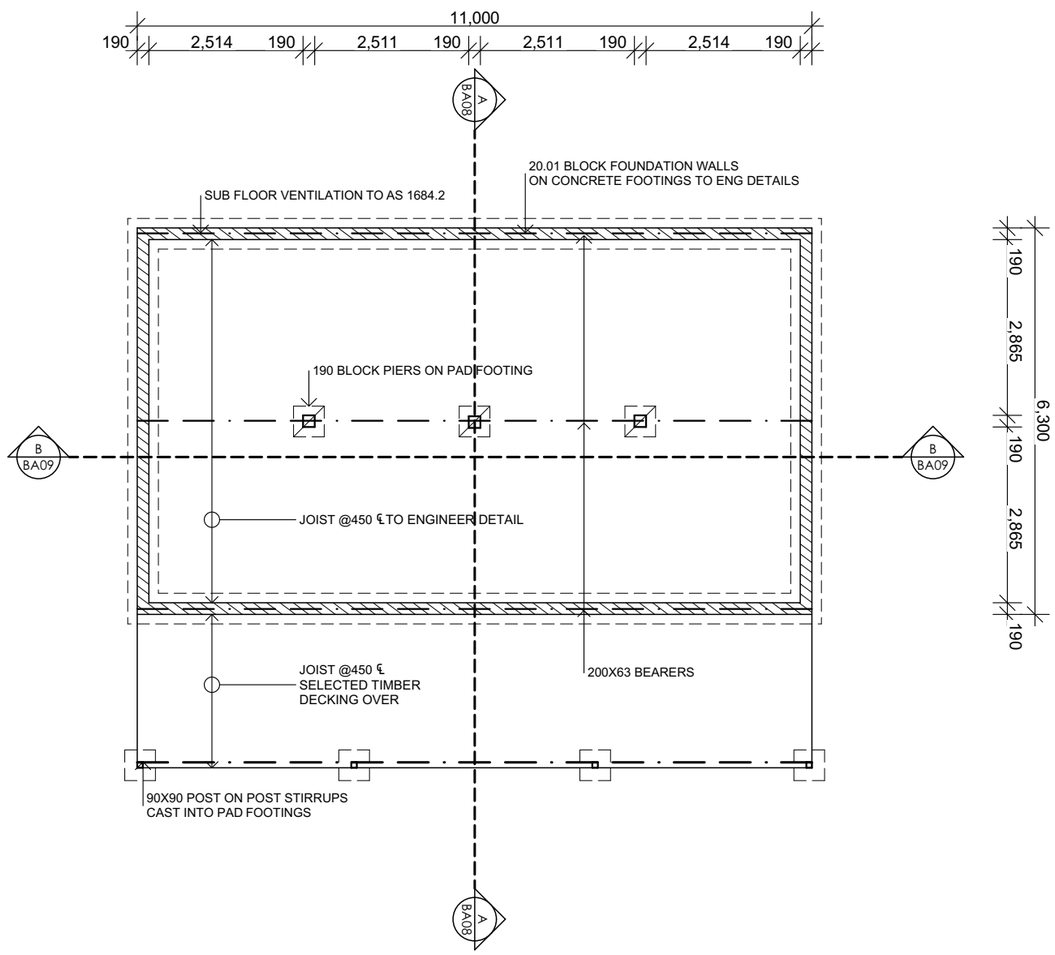
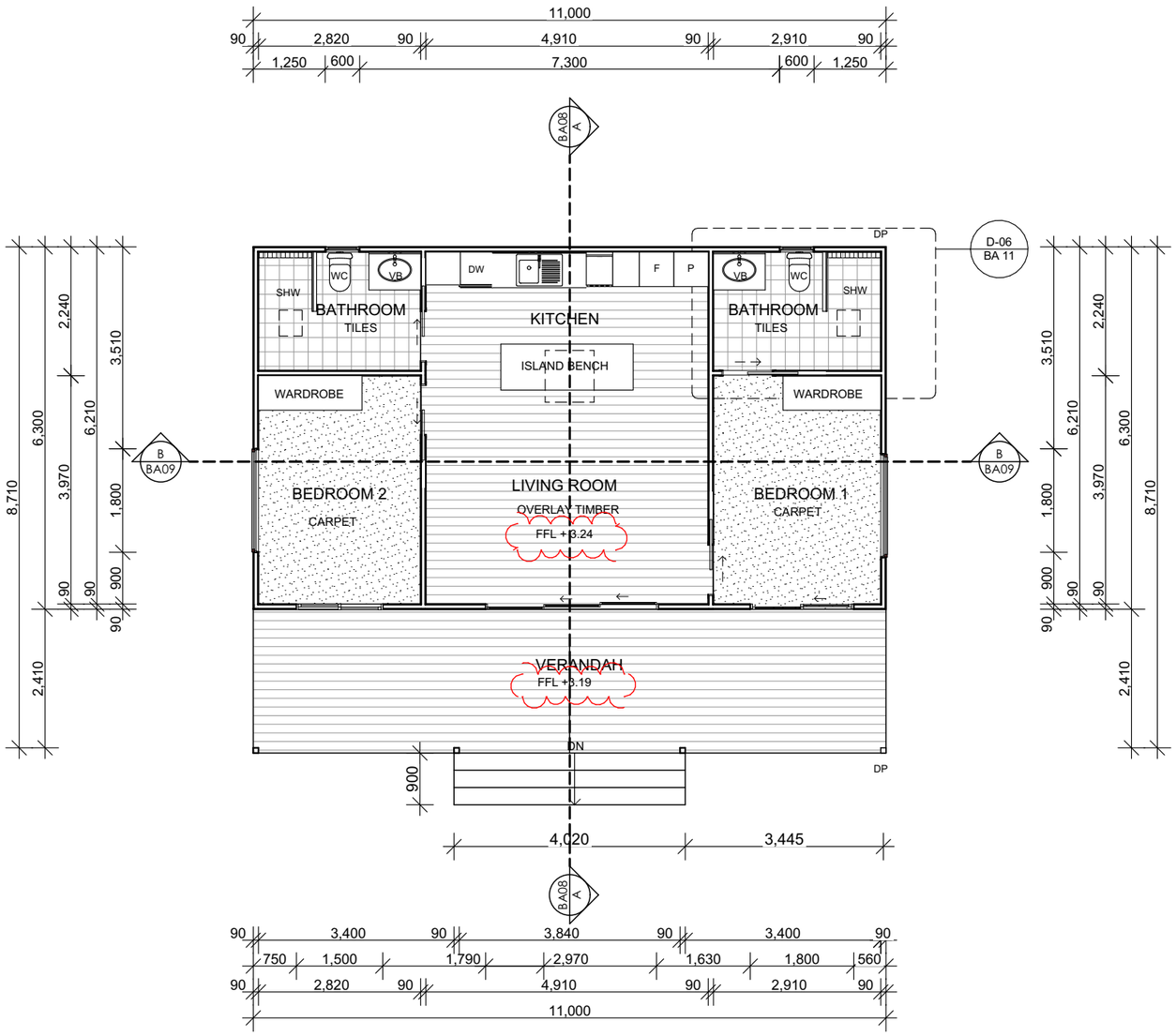
LINARDI DESIGN
+ ARCHITECTURAL SERVICE



Sub Level Plan

Scale 1:100 @ A3



Ground Floor Plan

Scale 1:100 @ A3

*NOTE
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REFER TO SHEET BA 02 FOR CONSTRUCTION NOTES
FOR ENERGY EFFICIENCY REFER TO REPORT BY OTHERS
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2215

AMENDMENT	DATE	DETAILS
2	17/06/25	AMENDMENT 2 - UPDATE FLOOR LEVEL
1	02/06/25	DA DRAWINGS ISSUE

PROPOSED COTTAGE
FOR EMILY ARMSTRONG
10 MOOMERE ST CARLTON,

BA 04

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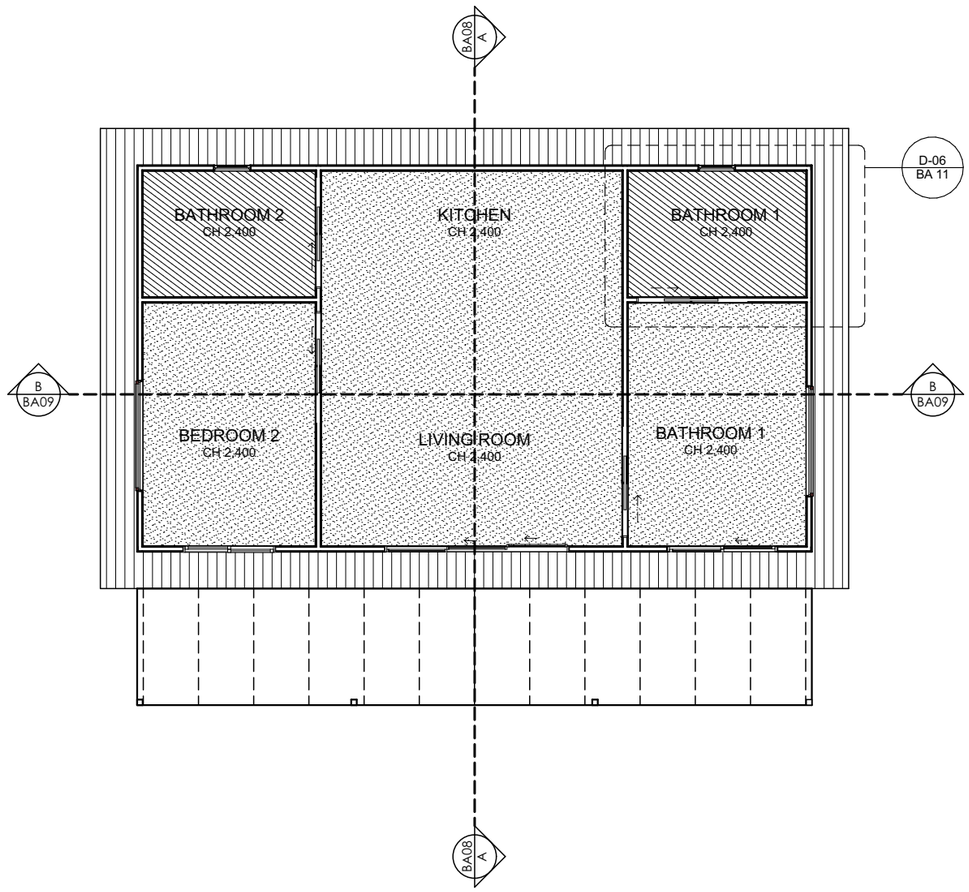
LINARDI DESIGN + ARCHITECTURAL SERVICE



Reflected Ceiling Plan

Scale 1:100 @ A3

LEGEND :

- 6MM VILLABOARD SOFFIT
- PLASTERBOARD 10MM FIX TO FURRING CHANNEL @450 ℄
- PLASTERBOARD WATER RESISTANT 10MM FIX TO FURRING CHANNEL @450 ℄

NOTE : REFER TO MANUFACTURER FOR SPECIFICATION AND INSTALLATION

*NOTE
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PROPOSED COTTAGE
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BA 05

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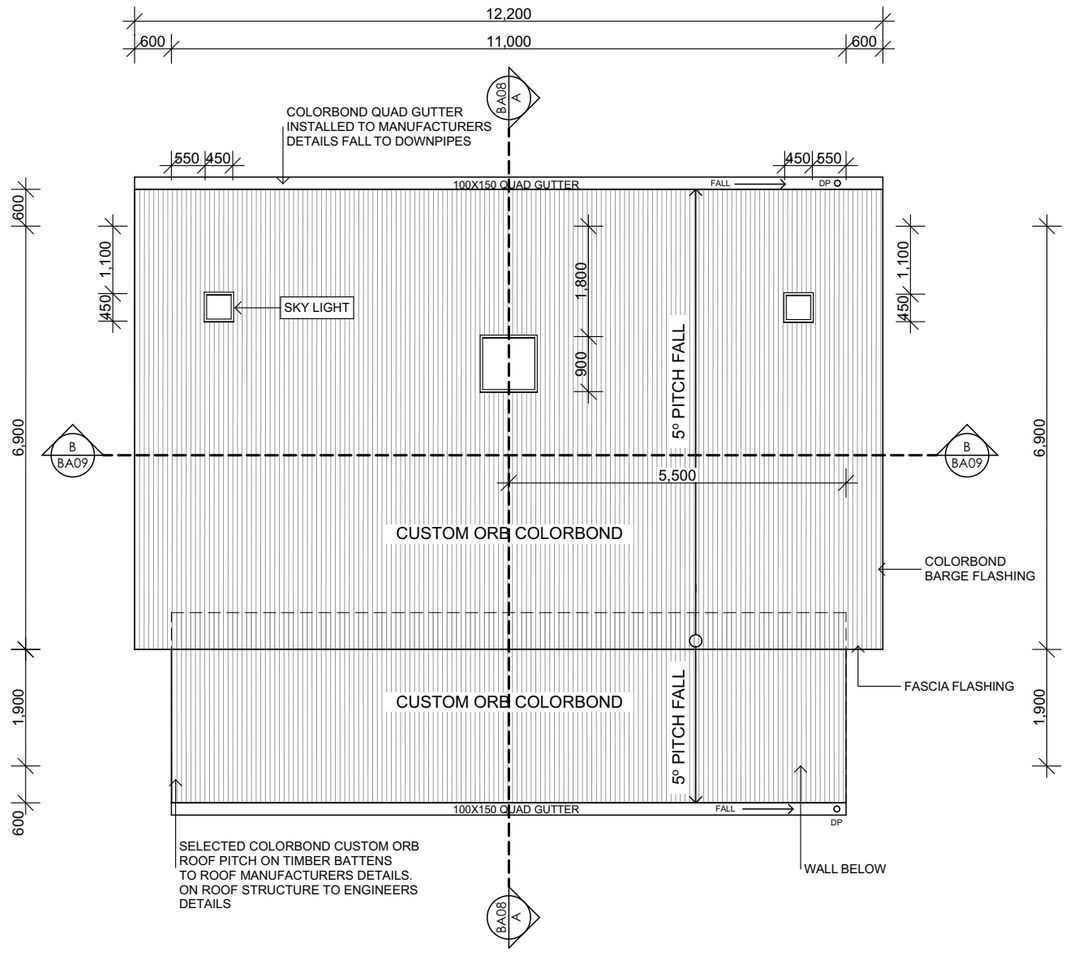

Roof Plan

Scale 1:100 @ A3

GENERAL ROOF NOTES:

PITCHED 5° ROOF:
SELECTED COLORBOND CUSTOM ORB ROOF, FALL AS MARKED. REFER TO MANUFACTURERS DETAILS OF MAXIMUM SPANS, PROVIDE CONTINUOUS SISALATION. VAPOUR PERMEABLE MEMBRANE (VPM), BRADFORD ENVIROSEAL OR SIMILIAR, REFLECTIVE SIDE FACIING DOWN TOWARDS AIR SPACE.

GUTTERS:
COLORBOND QUAD GUTTER ON METAL FASCIA INSTALLED TO MANUFACTURERS DETAILS. FALL TO DOWNPIPES.

FLASHINGS:
FOLDED COLORBOND FLASHINGS TO PROFILE, EASY CLAD OR EQUIV. CORNER SECTIONS, AS REQUIRED, DECKTITE FLASHING AT PENETRATIONS

SOFFITS:
6mm VILLABOARD SOFFIT FLUSH JOINTED SUPPORTED 450 CTS SQUARE SET, ON TIMBER BATTENS OR METAL FURRINGS @ 450 CTS IN ACCORDANCE WITH MANUFACTURES INSTRUCTIONS

NOTE:
REFER TO HYDRAULIC ENGINEER FOR DETAILS INSTALL ALL ROOFING TO AS 1562.1 AND AS3500.3 AND MANUFACTURER'S WRITTEN INSTRUCTIONS.

*NOTE
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REFER TO SHEET BA 02 FOR CONSTRUCTION NOTES
FOR ENERGY EFFICIENCY REFER TO REPORT BY OTHERS
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PROPOSED COTTAGE
FOR EMILY ARMSTRONG
10 MOOMERE ST CARLTON,

BA 06

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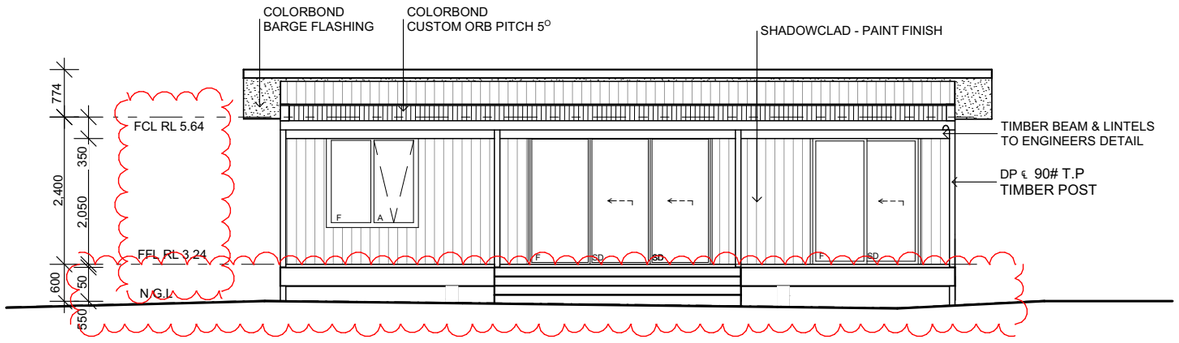
TCC REG NO. CC392L

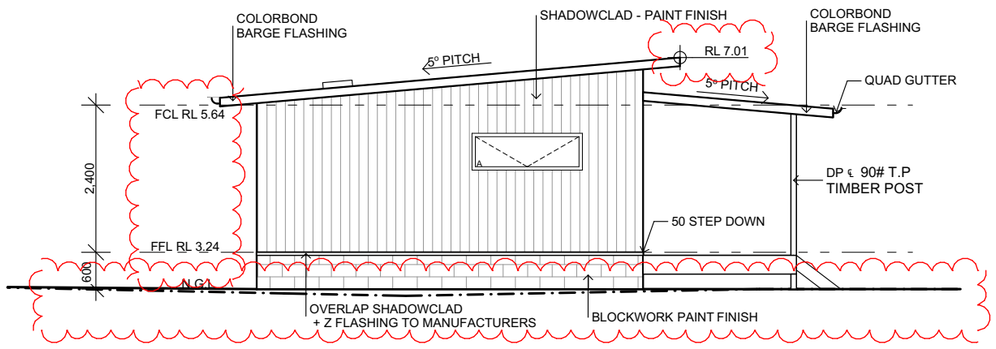
LINARDI DESIGN + ARCHITECTURAL SERVICE

2215



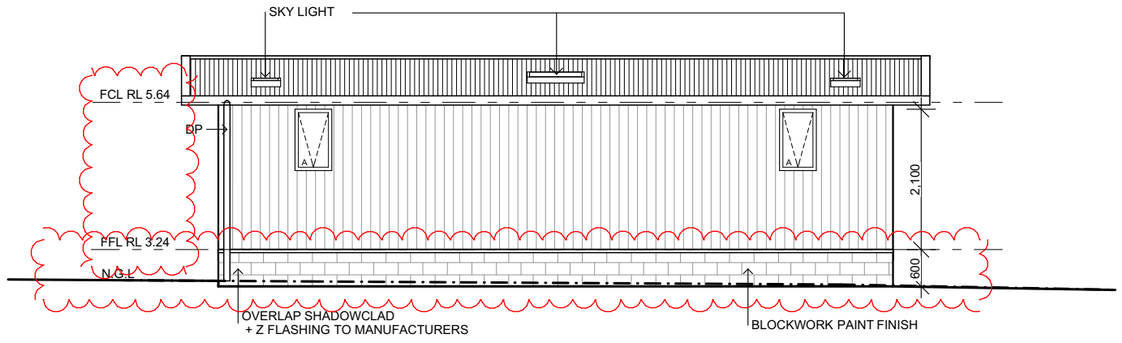
Front Elevation

Scale 1:100 @ A3



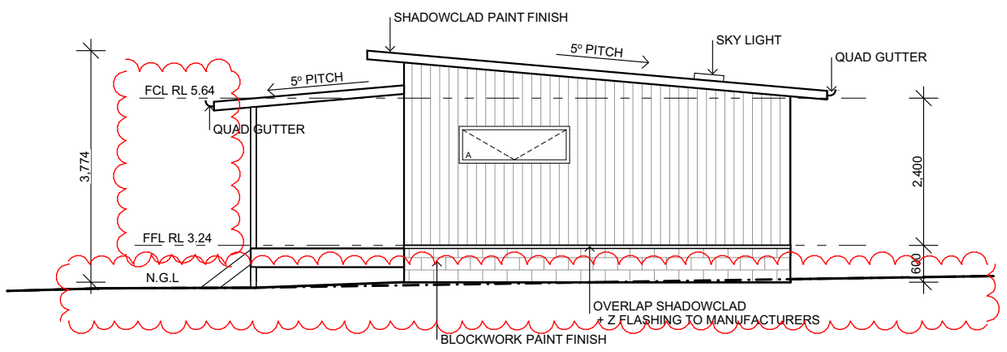
Left Elevation

Scale 1:100 @ A3



Rear Elevation

Scale 1:100 @ A3



Right Elevation

Scale 1:100 @ A3

*NOTE
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REFER TO SHEET BA 02 FOR CONSTRUCTION NOTES
FOR ENERGY EFFICIENCY REFER TO REPORT BY OTHERS
DIMENSIONS TO BE VERFIY ON SITE PRIOR TO COMMENCEMENT OF WORKS

AMENDMENT	DATE	DETAILS
2	17/06/25	AMENDMENT 2 - UPDATE FLOOR LEVEL
1	02/06/25	DA DRAWINGS ISSUE

2215

PROPOSED COTTAGE
FOR EMILY ARMSTRONG
10 MOOMERE ST CARLTON,

BA 07

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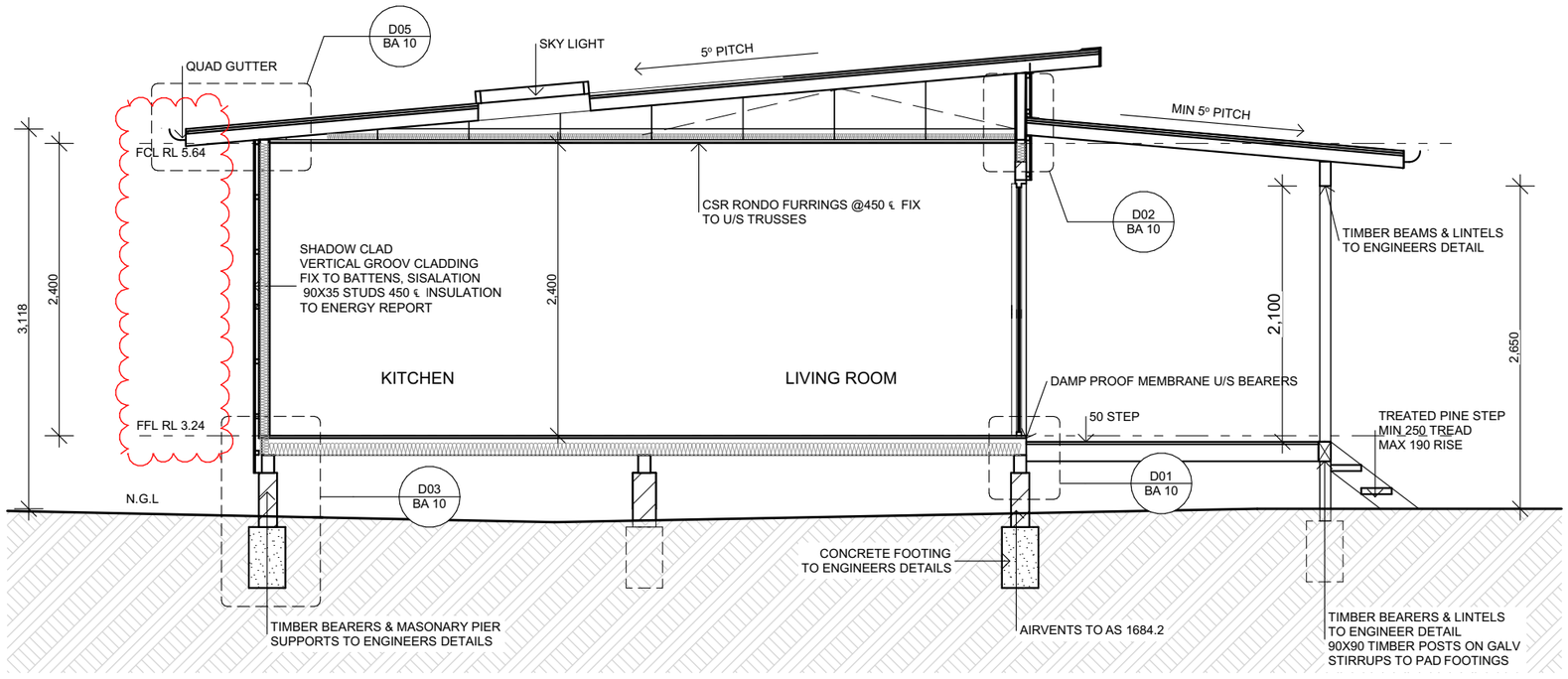
TCC REG NO. CC392L

LINARDI DESIGN
+ ARCHITECTURAL SERVICE



Section A-A

Scale 1:50 @ A3

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BA 08

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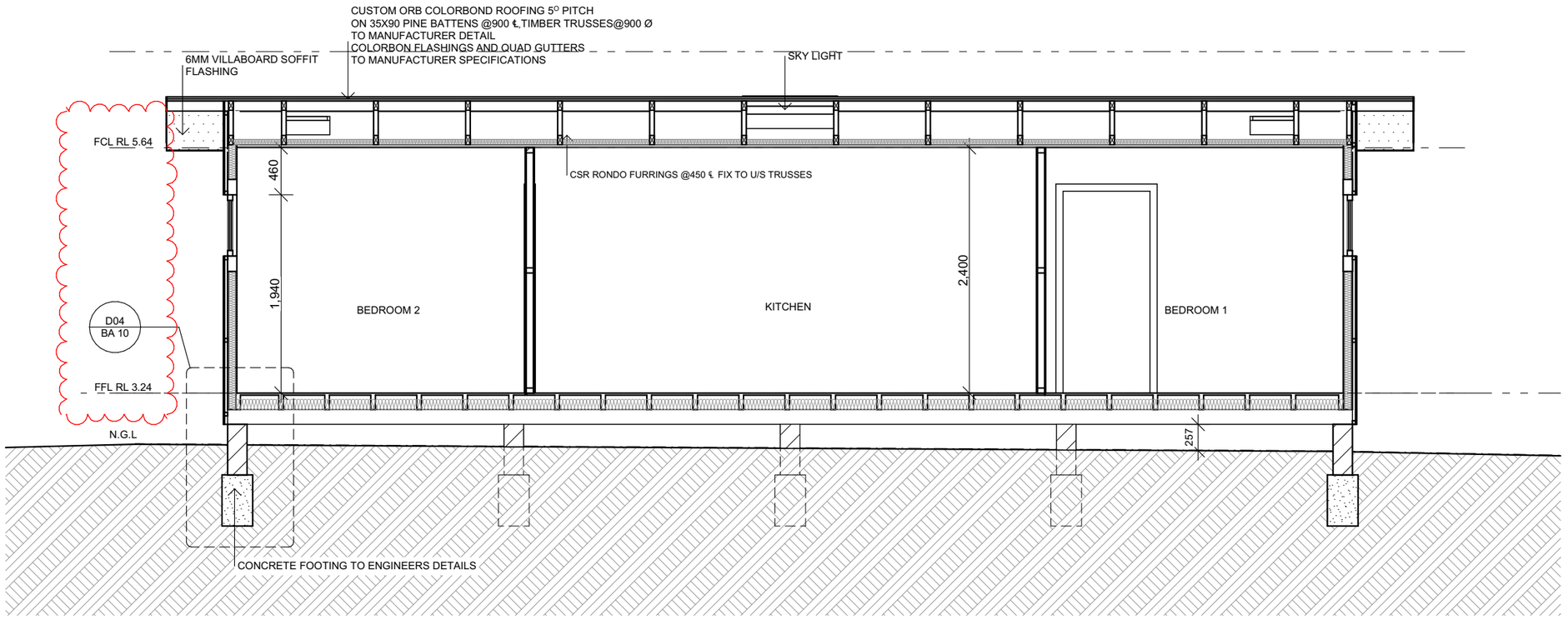

Section B-B

Scale 1:50 @ A3

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BA 09

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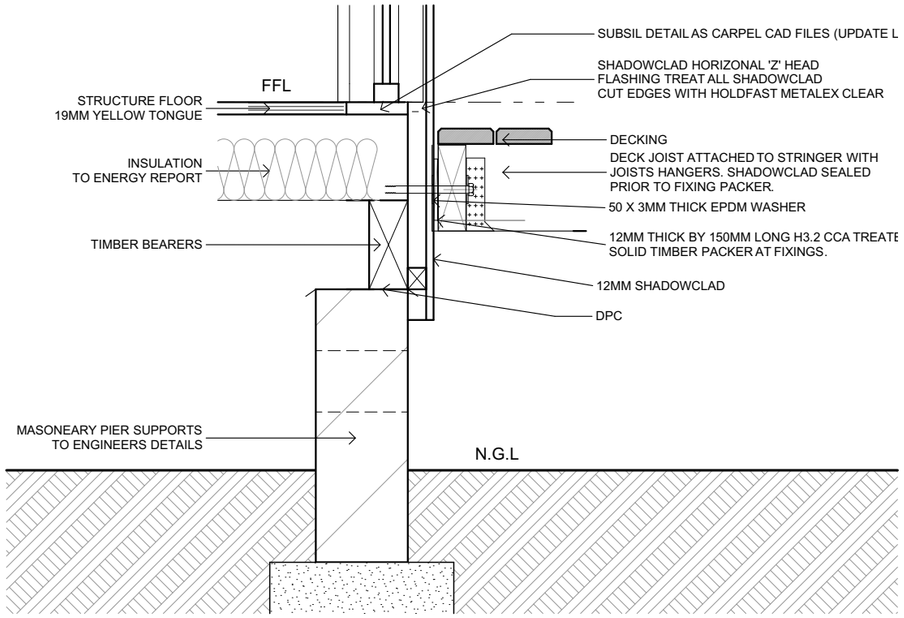
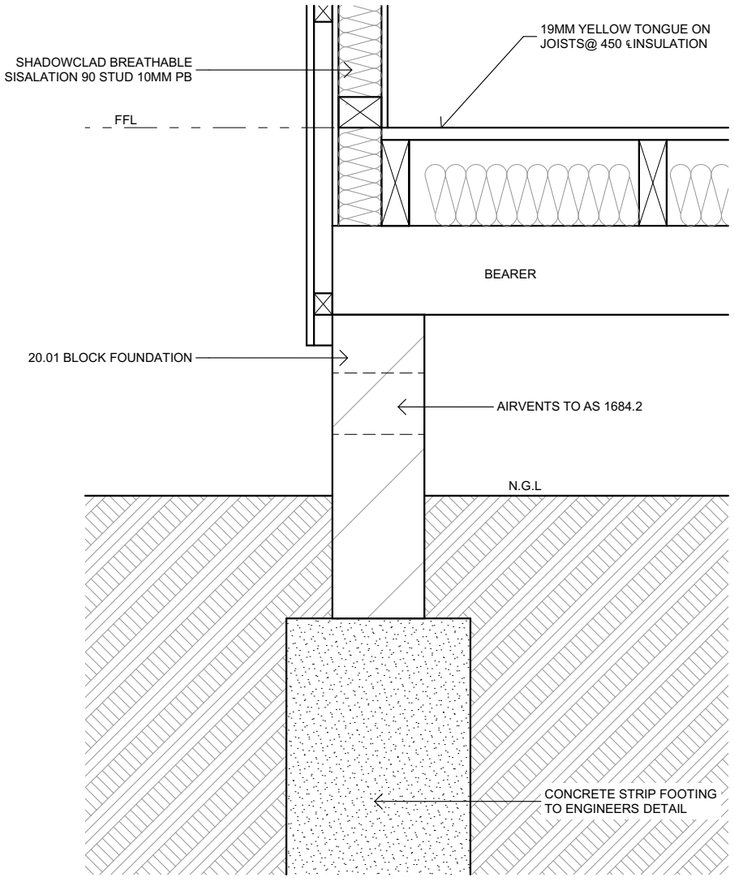


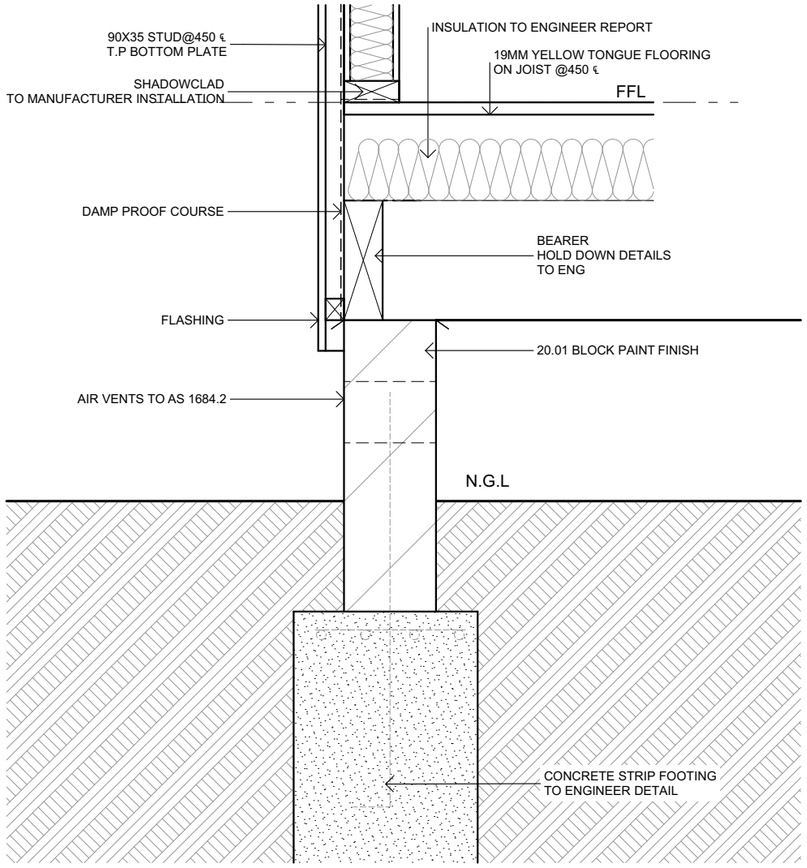
Detail 01

Scale 1:10 @ A3



Detail 03

Scale 1:10 @ A3



Detail 04

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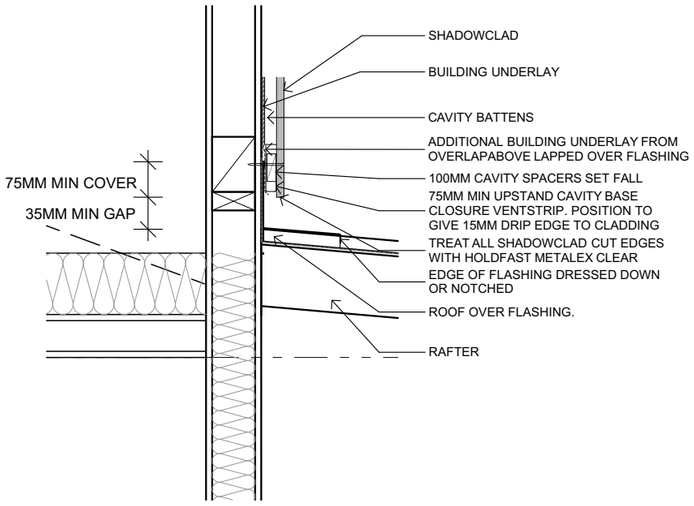
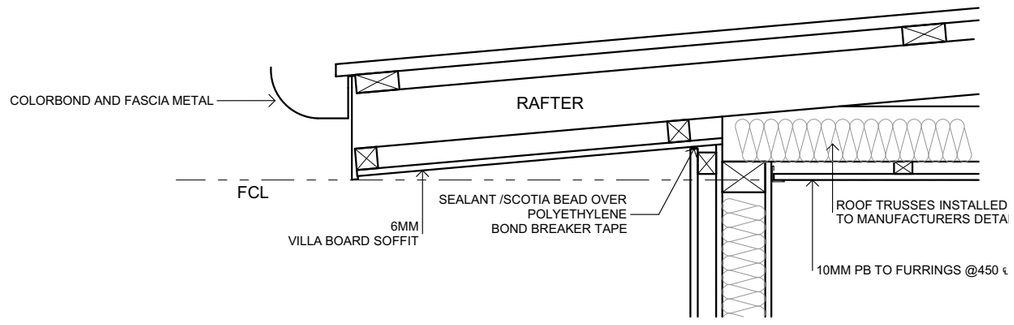


Detail 02

Scale 1:10 @ A3



Detail 05

Scale 1:10 @ A3

SORELL COUNCIL

Sorell Council

Development Application: 5.2025.146.1 - Response to Request For Information - 10 Moomere Street, Carlton - P2.pdf
Plans Reference: P2
Date received: 24/07/2025

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FOR EMILY ARMSTRONG
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BA 10

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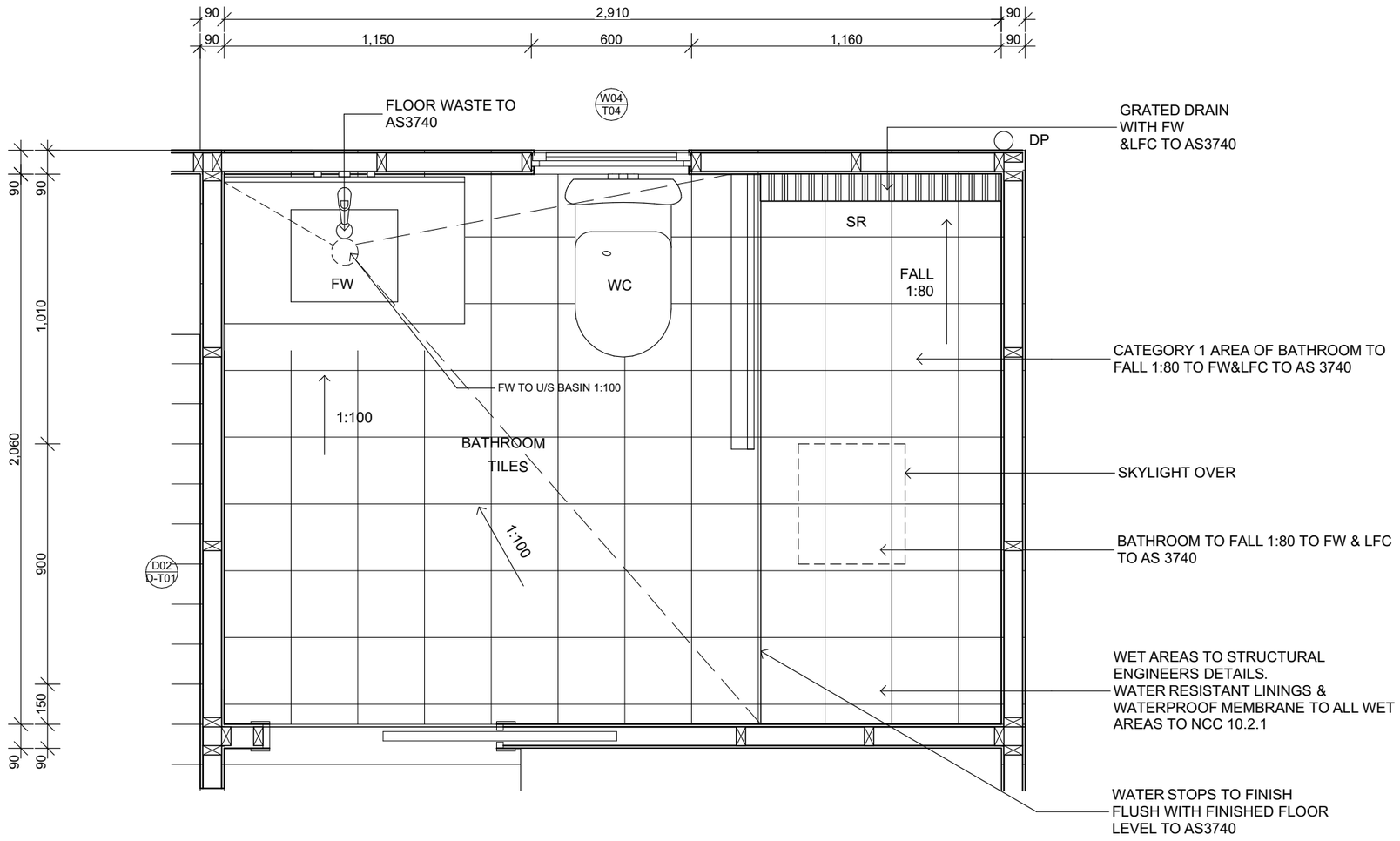

Bathroom Detail

Scale 1:20 @ A3

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PROPOSED COTTAGE
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BA 11

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WINDOW SCHEDULE

REF. NO.	LEVEL NO.	TYPE	LOCATION	NOMINAL SIZE (HxW)	SILL	WINDOW DETAILS						GLAZING						HARDWARE	TRIM	ORIENTATION	NOTES
						MANUFACT.	MATERIAL	FINISH	COLOUR	OPENING TYPE	INSTALL. METHOD	GLASS TYPE	GLASS THICK	GLASS COLOUR	INSTALL. METHOD	U-VALUE	SHGC				
W01	GL	T01	Living Room	2100 x 3000	0		Aluminium	PC		SL F	to AS 2047	Double Glazed	to AS 1288	Clear	to AS 1288			Manuf. Standard		Front	3 Panel Sliding Door
W02	GL	T02	Bedroom 1	2100 x 1800	0		Aluminium	PC		SL F	to AS 2047	Double Glazed	to AS 1288		to AS 1288			Manuf. Standard		Front	2 Panel Sliding Door
W03	GL	T03	Bedroom 1	600 x 1800	1500		Aluminium	PC		A	to AS 2047	Double Glazed	to AS 1288	Clear	to AS 1288			Manuf. Standard		Right	
W04	GL	T04	Bathroom 1	900 x 600	800		Aluminium	PC		A	to AS 2047	Double Glazed	to AS 1288		to AS 1288			Manuf. Standard		Rear	
W05	GL	T04	Bathroom 2	900 x 600	800		Aluminium	PC		A	to AS 2047	Double Glazed	to AS 1288		to AS 1288			Manuf. Standard		Rear	
W06	GL	T04	Bedroom 2	600 x 1800	1500		Aluminium	PC		A	to AS 2047	Double Glazed	to AS 1288		to AS 1288			Manuf. Standard		Left	
W07	GL	T05	Bedroom 2	1500 x 1500	600		Aluminium	PC		SL F	to AS 2047	Double Glazed	to AS 1288		to AS 1288			Manuf. Standard		Front	
SKY01	RL	T06	Bathroom 1	450 x 450	600		Aluminium	PC		F	to AS 2047	Double Glazed	to AS 1288		to AS 1288			Manuf. Standard			
SKY02	RL	T06	Bathroom 2	450 x 450	600		Aluminium	PC		F	to AS 2047	Double Glazed	to AS 1288		to AS 1288			Manuf. Standard			
SKY03	RL	T07	Kitchen	900 x 900	600		Aluminium	PC		F	to AS 2047	Double Glazed	to AS 1288		to AS 1288			Manuf. Standard			

KEY

A	Awning
B	Bi-Fold
BJ	Butt Joint
F	Fixed
PC	Powder Coating
S	Sliding
SW	Swing
R	Right
L	Left

NOTE:

1. All Doors, Windows, Frames, Hardware & associated Accessories are to be verified & measured on site before ordering, manufacture & installation.
   Builder to confirm frames applicability & suitability. Refer to Owner & Energy Report by Others to confirm WINDOW FRAMES and GLASS TYPE
2. Glass type, thickness, grade is to be specified by glazier & shall comply with minimum requirements in accordance with NCC & AS1288
3. Provide weather seals to all external windows
4. Provide flyscreens to all Openings

Window Schedule

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FOR EMILY ARMSTRONG
10 MOOMERE ST CARLTON,

BA 12

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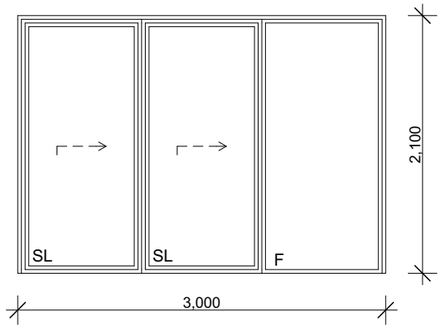
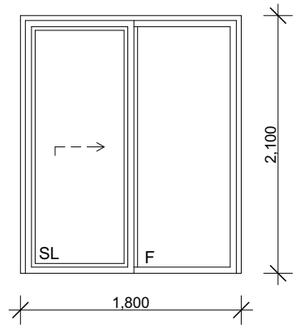
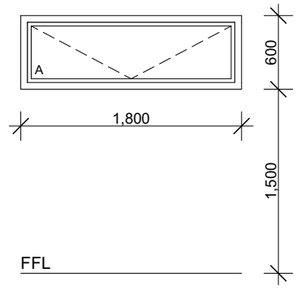
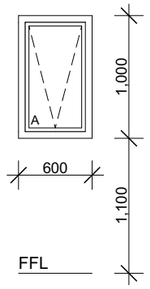
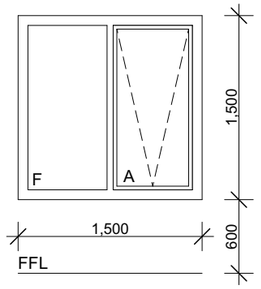
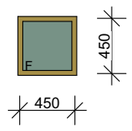
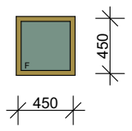
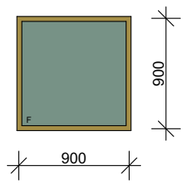
Elevation View					
Number	T01	T02	T03	T04	T05
Quantity	1	1	2	2	1

Elevation View			
Number	SKY 01	SKY 02	SKY 03
Quantity	1	1	1

Natural Light and Ventilation

NCC 2022 10.5 LIGHT
Minimum 10% of the floor area of a habitable room required (natural light).

NCC 2022 10.6 VENTILATION
Minimum 5% of the floor area of a habitable room required. (An exhaust fan may be used for a sanitary compartment, laundry or bathroom provided contaminated air discharges directly to the outside of the building by way of ducts).

Complies ✓

Natural Light and Ventilation

Room	Area	Window No.	Light required	Light achieved		Ventilation required	Ventilation achieved	
Livingroom, Kitchen	31 m2	W01	3.10 m2	31.99m2	✓	1.55 m2	16.64m2	✓
Bedroom 1	12.2 m2	W02	1.22 m2	2.78m2	✓	0.61 m2	0.76m2	✓
Bathroom 1	6.7 m2	W02 - W03	0.67 m2	9.97m2	✓	0.34 m2	5.19m2	✓
Bedroom 2	12.2 m2	W05 - W06	1.22 m2	2.78m2	✓	0.61 m2	2.97m2	✓
Bathroom 2	6.7 m2	W04	0.67 m2	2.02m2	✓	0.34 m2	2.61m2	✓
			0.00 m2	3.44m2	✓	0.00 m2	2.37m2	✓

Window Schedule

Sorell Council

Development Application: 5.2025.146.1 - Response to Request For Information - 10 Moomere Street, Carlton - P2.pdf
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PROPOSED COTTAGE
FOR EMILY ARMSTRONG
10 MOOMERE ST CARLTON,

BA 13

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DOOR SCHEDULE

REF. NO.	LEVEL	LOCATION	TYPE	NOMINAL SIZE (HxWxTH)	DOOR DETAILS MANUFACT.	DESCRIPTION		MATERIAL	FINISH	COLOUR	FRAME DETAILS /MATERIAL	FINISH	COLOUR	OPENING	INSTALL.	GLAZING GLASS	NOTES
D01	GL	Bedroom 1	D-T01	2045 x 990 x 25		Internal	Solid Flush Panel	Timber	PF			PF		S	to Manuf.		
D02	GL	Bathroom 1	D-T01	2045 x 990 x 25		Internal	Solid Flush Panel	Timber	PF			PF		S	to Manuf.		
D03	GL	Bedroom 2	D-T01	2045 x 990 x 25		Internal	Solid Flush Panel	Timber	PF			PF		S	to Manuf.		
D04	GL	Bathroom 2	D-T01	2045 x 990 x 25		Internal	Solid Flush Panel	Timber	PF			PF		S	to Manuf.		

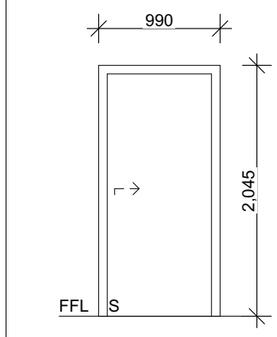
DOOR TYPE
D-T 01 - 990 Solid Core Door - Internal

Note: For Door Hardware details refer to schedule by others.

KEY

CB	Colorbond
CS	Cavity Slider
PC	Powder Coating
PF	Paint Finish - Ready Coat Doors + 2 coats of Dulux Wash & Wear Semi Gloss
PL	Panel Lift
S	Slide

NOTE: 1 All Doors, Windows, Frames, Hardware & associated Accessories are to be verified & measured on site before ordering, manufacture & installation. Builder to confirm frames applicability & suitability.
2. Alternative manufacturers products of equivalent quality may be used to the clients approval
3. For external glazed doors refer to Windows Schedule

Elevation View	
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Quantity	4

Door Schedule

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PROPOSED COTTAGE
FOR EMILY ARMSTRONG
10 MOOMERE ST CARLTON,

BA 14

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LINARDI DESIGN + ARCHITECTURAL SERVICE

Lighting

Class 1 & 10a buildings

Calculator

Building name/description	Classification
10 MOOMERE ST CARLTON	Class 1

Number of rows preferred in table below	2	*(as currently displayed)*

ID	Description	Type of space	Floor area of the space	Design lamp or illumination power load	Location	Adjustment factor	Adjustment factor: Dimming % area	Adjustment factor: Dimming % of full power	Adjustment factor: Design lumen depreciation factor	SATISFIES PART 13.7.6: Lamp or illumination power density: System allowance	SATISFIES PART 13.7.6: Lamp or illumination power density: System design	SATISFIES PART 13.7.6: System share of % of aggregate allowance used
1	GL Class 1 Building	Other	68.8 m²	344 W	Class 1 building					5.0 W/m²	5.0 W/m²	**56% of 94%**
2	Timber Deck	Other	27.5 m²	110 W	Class 1 building					5.0 W/m²	4.0 W/m²	**44% of 94%**
			96.3 m²	454 W								

Adjustment factors

	Allowance	*Design average*
Class 1 building	5.0 W/m²	4.7 W/m²

if inputs are valid ✓

IMPORTANT NOTICE AND DISCLAIMER IN RESPECT OF THIS LIGHTING CALCULATOR

By accessing or using this calculator, you agree to the following: While care has been taken in the preparation of this calculator, it may not be complete or up-to-date. You can ensure that you are using a complete and up-to-date version by checking the Australian Building Codes Board website (abcb.gov.au). The Australian Building Codes Board, the Commonwealth of Australia and States and Territories of Australia do not accept any liability, including liability for negligence, for any loss (howsoever caused), damage, injury, expense or cost incurred by any person as a result of accessing, using or relying upon this publication, to the maximum extent permitted by law. No representation or warranty is made or given as to the currency, accuracy, reliability, merchantability, fitness for any purpose or completeness of this publication or any information which may appear on any linked websites, or in other linked information sources, and all such representations and warranties are excluded to the extent permitted by law. This calculator is not legal or professional advice. Persons rely upon this calculator entirely at their own risk and must take responsibility for assessing the relevance and accuracy of the information in relation to their particular circumstances.

Lighting Calculation

Sorell Council

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