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T: +617 4725 5550 E: mail@nceng.com.au
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Document Set ID: 27483461
Version: 1, Version Date: 27/08/2025

In Association With:

ABEL FAMILY TRUST

0 25 50 75 100 125 m

1:2,500



Legend

- Development Site
- TCC Land Parcels
- Existing Buildings
- Proposed 5 Bed Detached Dwelling on Slab
- Proposed Carpark
- Development Access Route

94 BERGIN ROAD, CRANBROOK
MULTIPLE DWELLING DEVELOPMENT
50% AEP DEVELOPED FLOOD
HAZARD (VELOCITY DEPTH - Vd -
PRODUCT)

Prepared By: IG
Reviewed by: JS

Date: 05/06/2025
Revision: A
NCE Ref: BNC0091

Size
A3

Map
E04



Vd Product

- <= 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.4
- 0.4 - 0.6
- 0.6 - 0.8
- 0.8 - 1.0
- > 1.0



0°

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engineers

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Legend

- Development Site
- TCC Land Parcels
- Existing Buildings
- Development Access Route

94 BERGIN ROAD, CRANBROOK
MULTIPLE DWELLING DEVELOPMENT
**10% AEP BASELINE FLOOD HAZARD
(VELOCITY DEPTH - Vd - PRODUCT)**

Prepared By: IG
Reviewed by: JS

Date: 09/06/2025
Revision: A
NCE Ref: BNC0091

Size
A3

Map
E05

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0 25 50 75 100 125 m

1:2,500



Legend

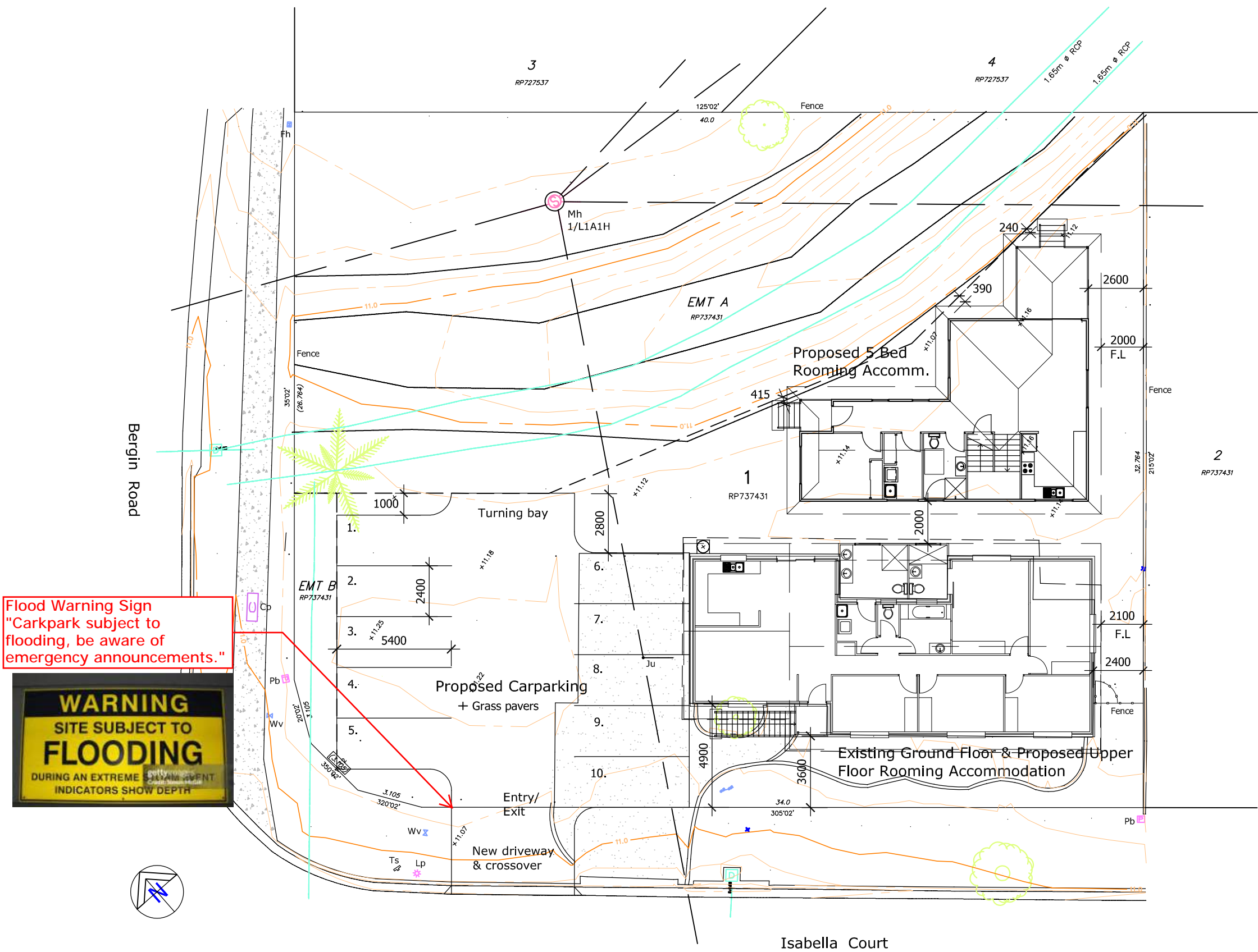
	Development Site		Proposed 5 Bed Detached Dwelling on Slab
	TCC Land Parcels		Proposed Carpark
	Existing Buildings		Development Access Route

94 BERGIN ROAD, CRANBROOK
MULTIPLE DWELLING DEVELOPMENT
10% AEP DEVELOPED FLOOD
HAZARD (VELOCITY DEPTH - Vd -
PRODUCT)

Prepared By: IG
Reviewed by: JS

Date: 09/06/2025
Revision: A
NCE Ref: BNC0091

Size	Map
A3	E06



Flood Warning Sign
"Carkpark subject to
flooding, be aware of
emergency announcements."



Real Property Description
Lot 1 on RP 737431
Site Area : 1302 m²
Wind Classification : C1

Site Plan
Scale 1:200

- General Notes
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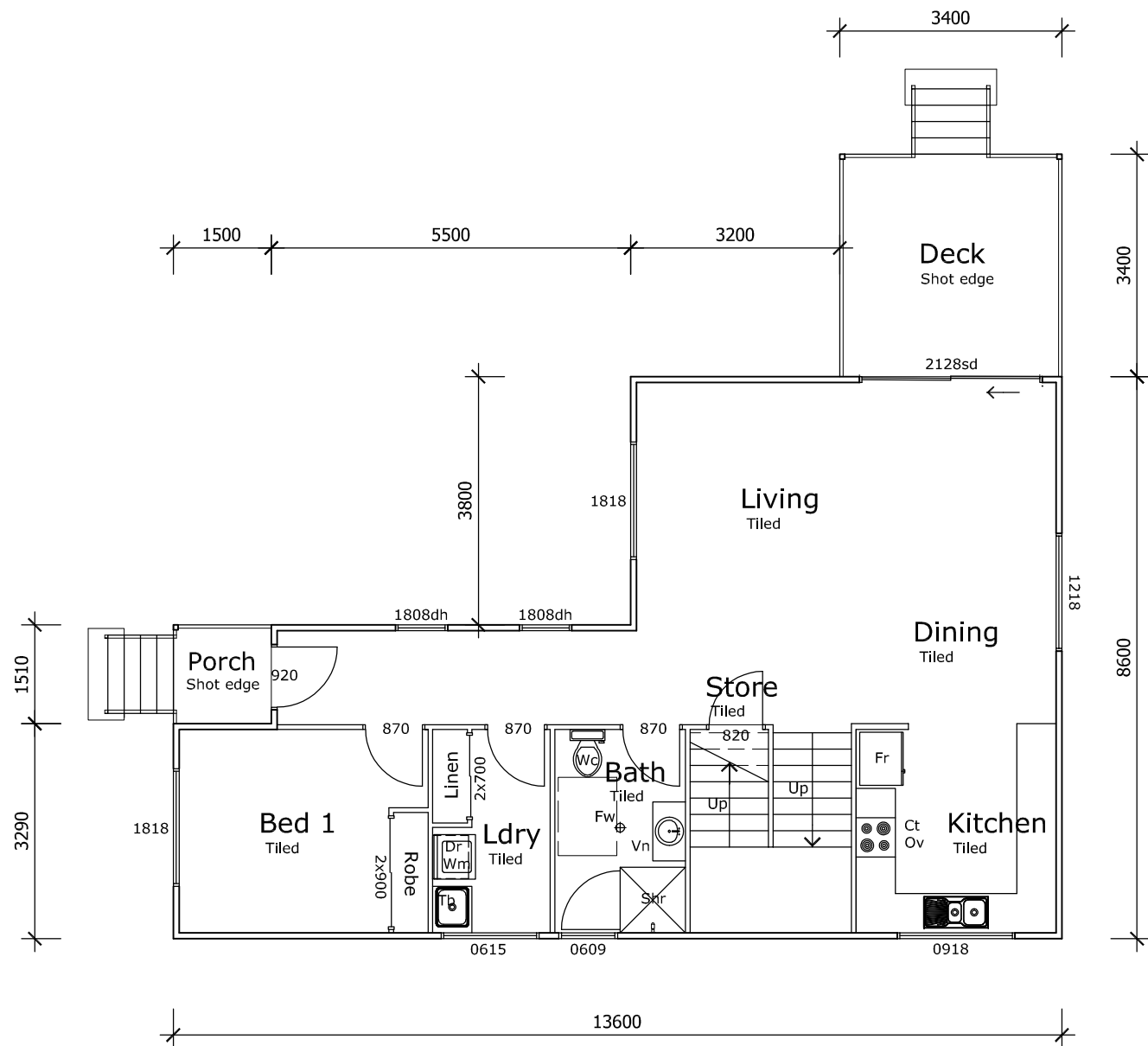
C	Request Items 1,2 & 4 TCC Planning	08/05/25
B	Floor Level Raised to 900mm	17/02/25
A	Preliminary Design	24/09/24
No.	Revision/Issue	Date



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renovations / decks / patios
Gery Benson
BSC Dip Arch Draft.
Call : 0416 936 452
QBCC Lic. No. 1256424 ABN 68 537 687 613
Email : plans@bensonbuildingdesigns.com.au
www.bensonbuildingdesigns.com.au

Project Name and Address
Proposed Rooming Accommodation Development
Abel Family Trust Pl
94 Bergin Road,
Cranbrook, Queensland

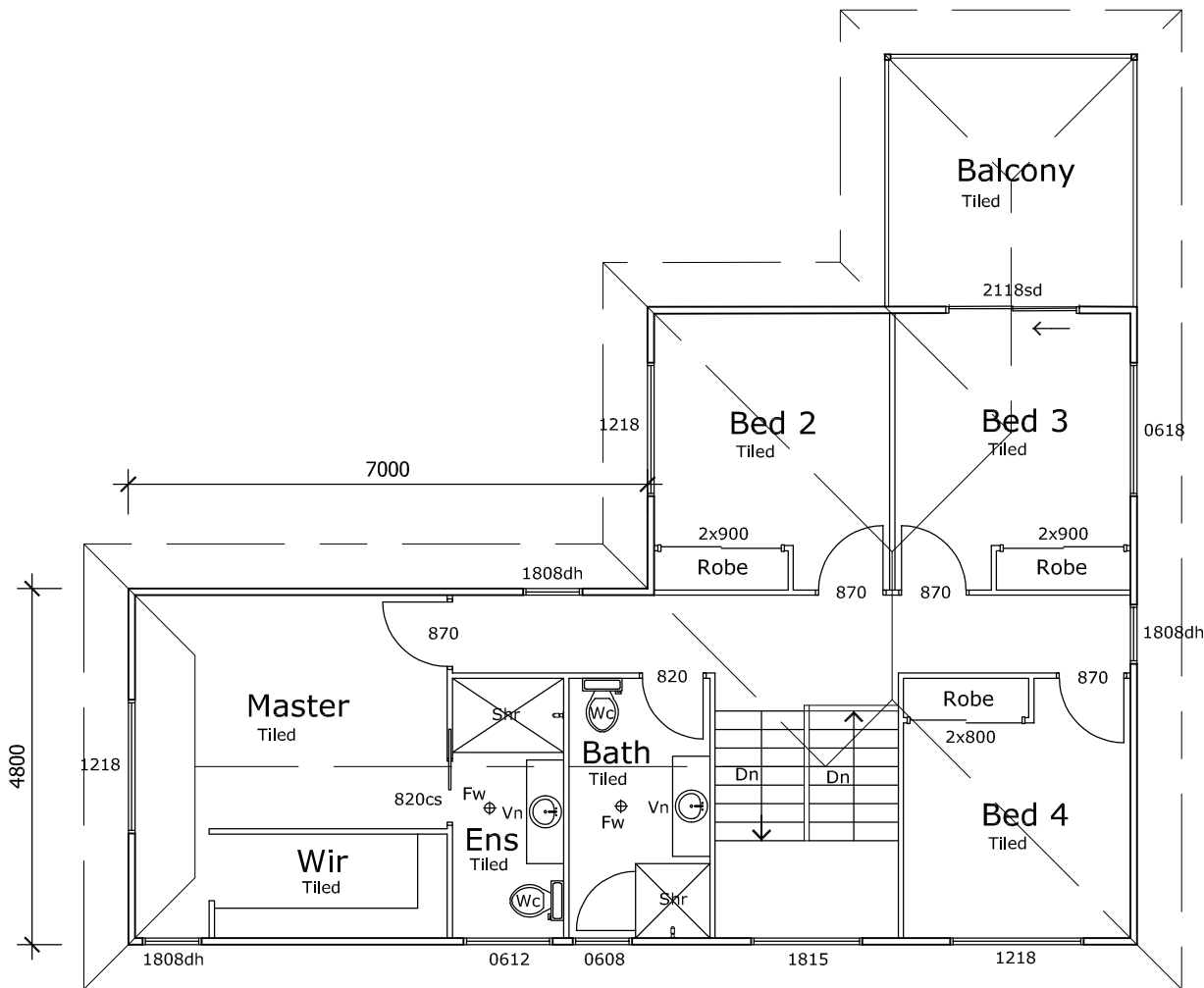
Project No. 2024-12	Dwg No. DD01	Issue C
Date March, 2024	Designed G.B	
Scale 1:200 @ A3	Drawn G.B	



Ground Floor Plan

Scale 1:100

Floor Areas
Living : 88.25 m²
Patio : 11.56 m²
Porch : 2.10m²
Overall : 101.92 m²



Upper Floor Plan

Scale 1:100

Floor Areas
Living : 90.36 m²
Balcony : 11.56m²
Overall : 101.92 m²

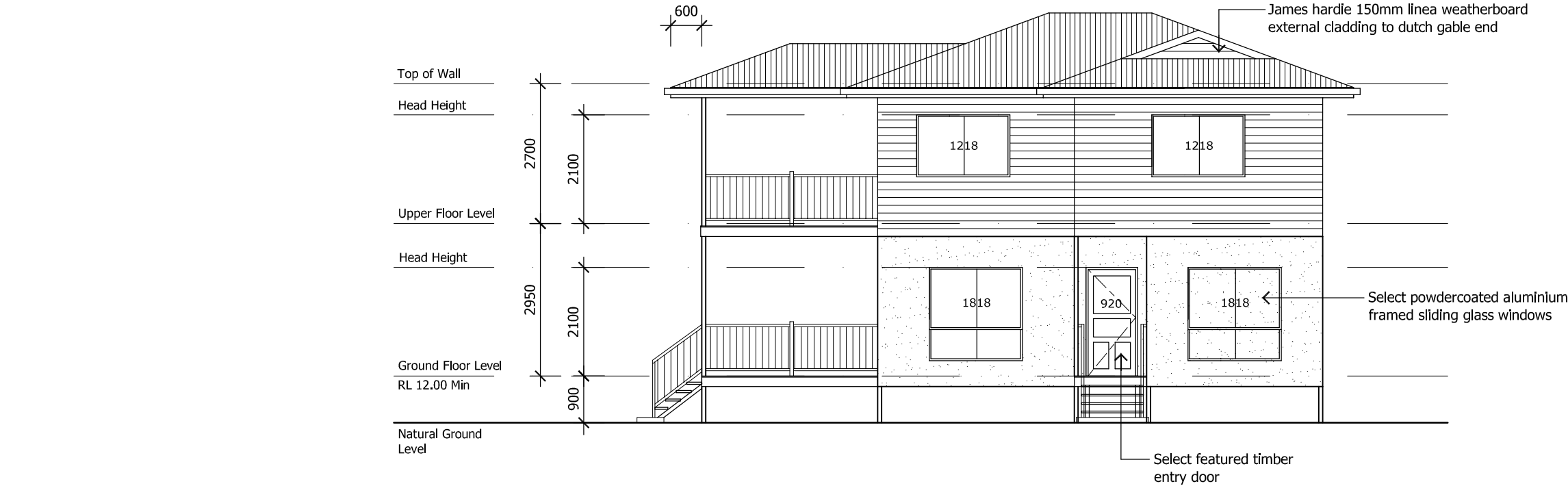
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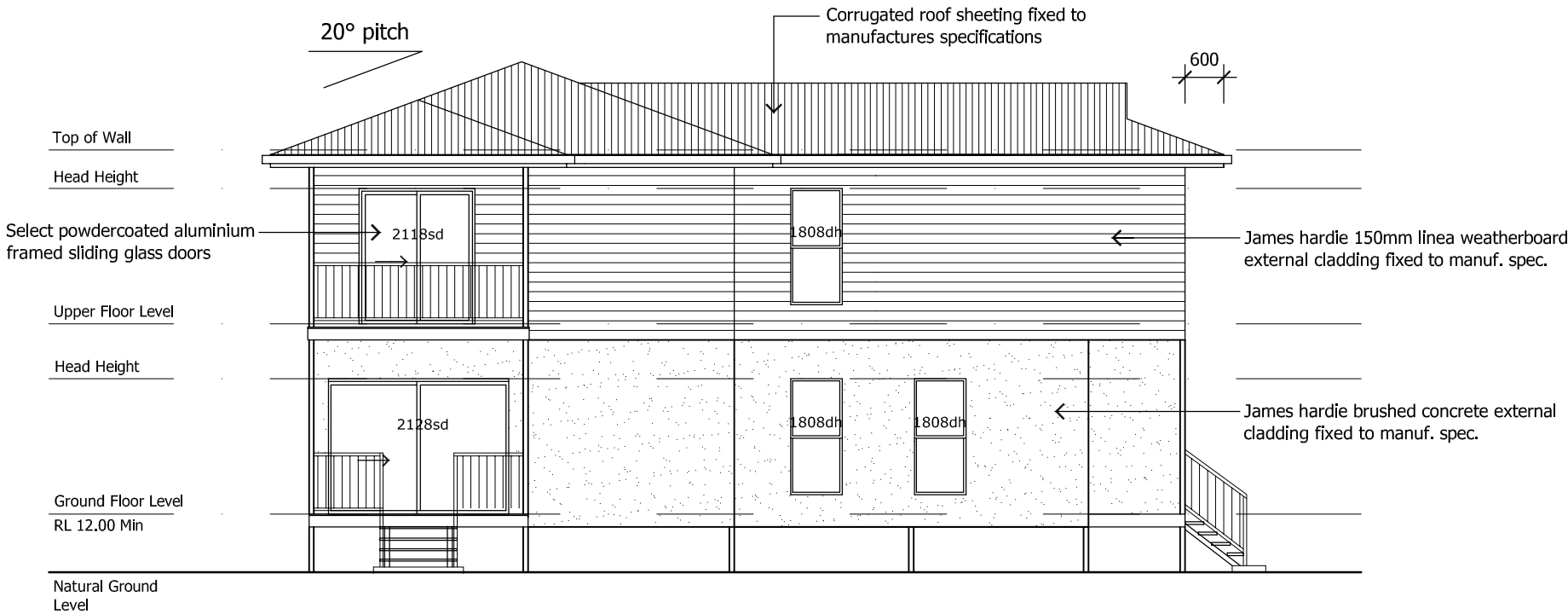
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Project Name and Address
Proposed Rooming Accommodation Development
Abel Family Trust Pl
94 Bergin Road,
Cranbrook, Queensland

Project No. 2024-12	Dwg No. DD02	Issue C
Date March, 2024	Designed G.B	
Scale 1:100 @ A3	Drawn G.B	



North West Elevation
Scale 1:100



North East Elevation
Scale 1:100

General Notes

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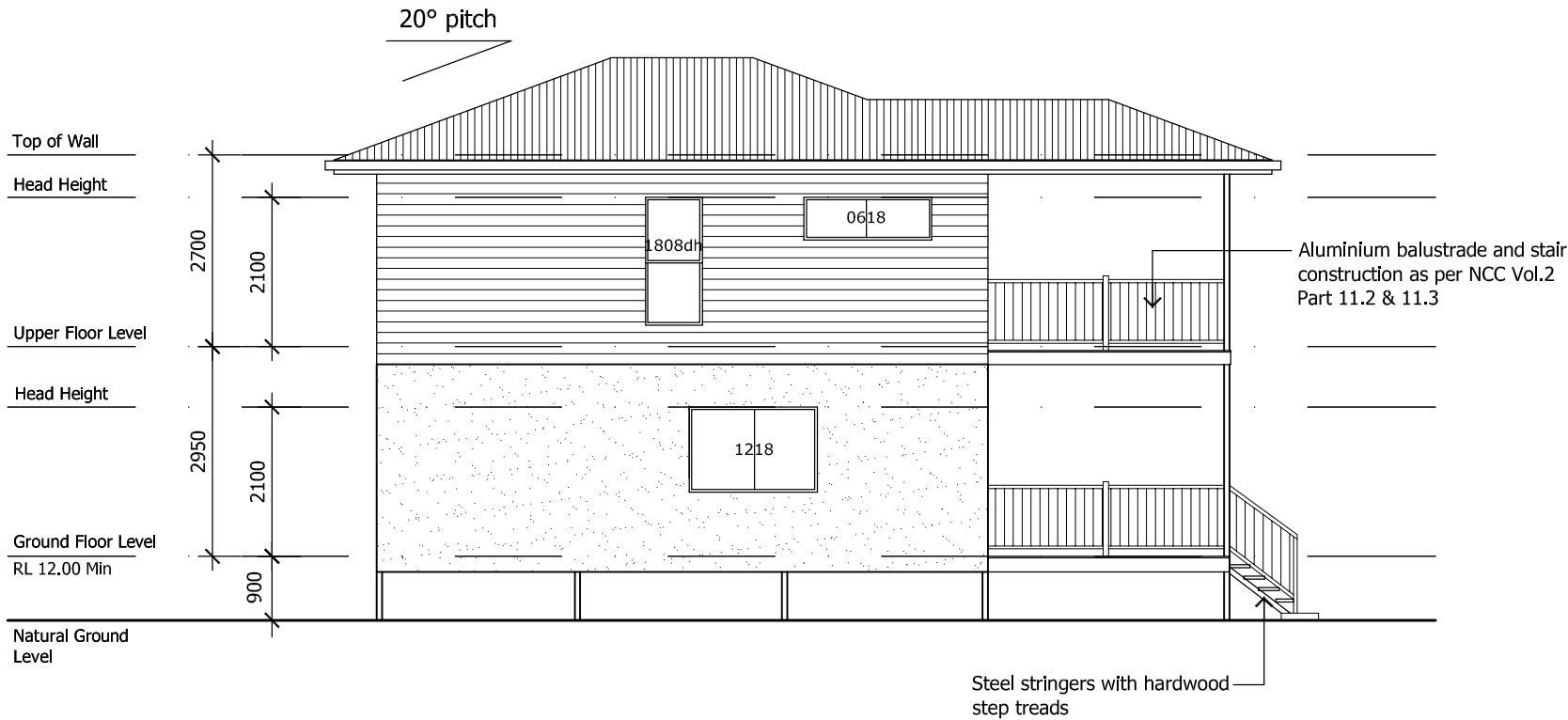
No.	Revision/Issue	Date
C	Request Items 1,2 & 4 TCC Planning	08/05/25
B	Floor Level Raised to 900mm	17/02/25
A	Preliminary Design	24/09/24



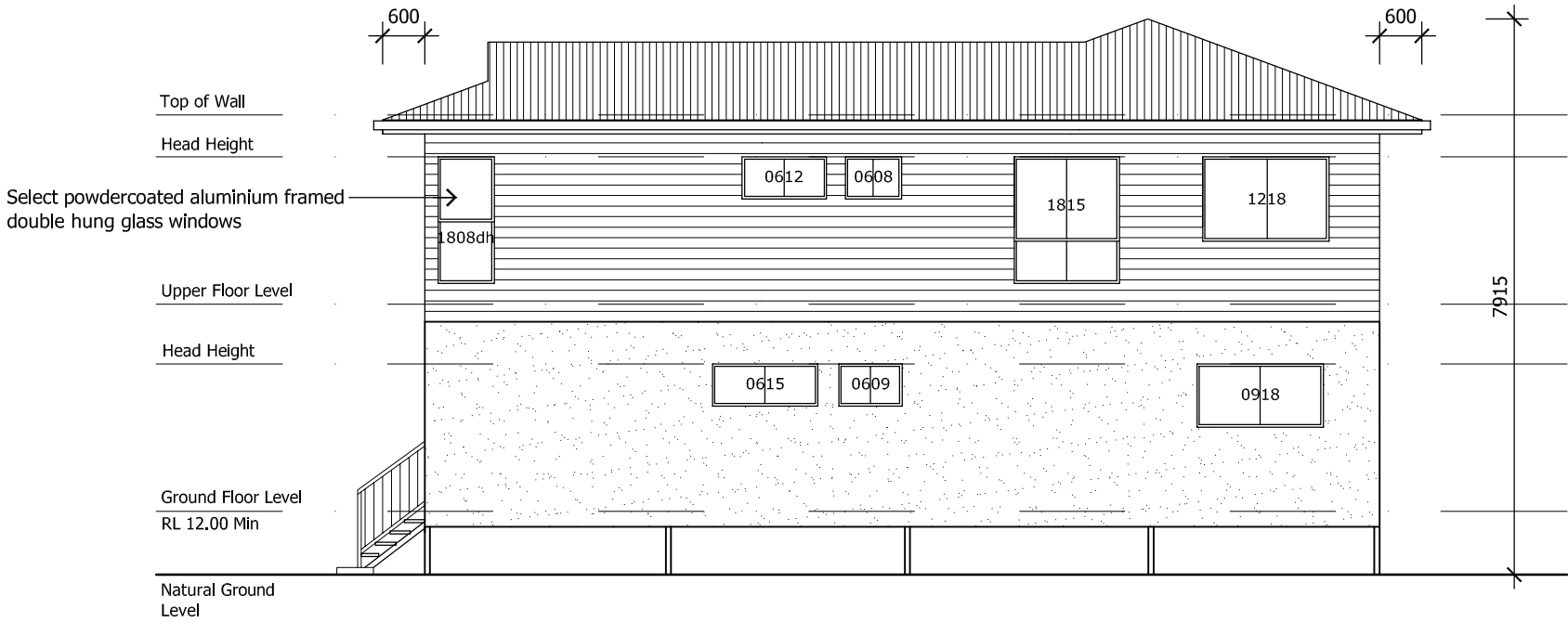
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Proposed Rooming Accommodation Development
Abel Family Trust Pt
94 Bergin Road,
Cranbrook, Queensland

Project No. 2024-12	Dwg No. DD03	Issue C
Date March, 2024	Designed G.B	
Scale 1:100 @ A3	Drawn G.B	



South East Elevation



South West Elevation

Scale 1:100

General Notes

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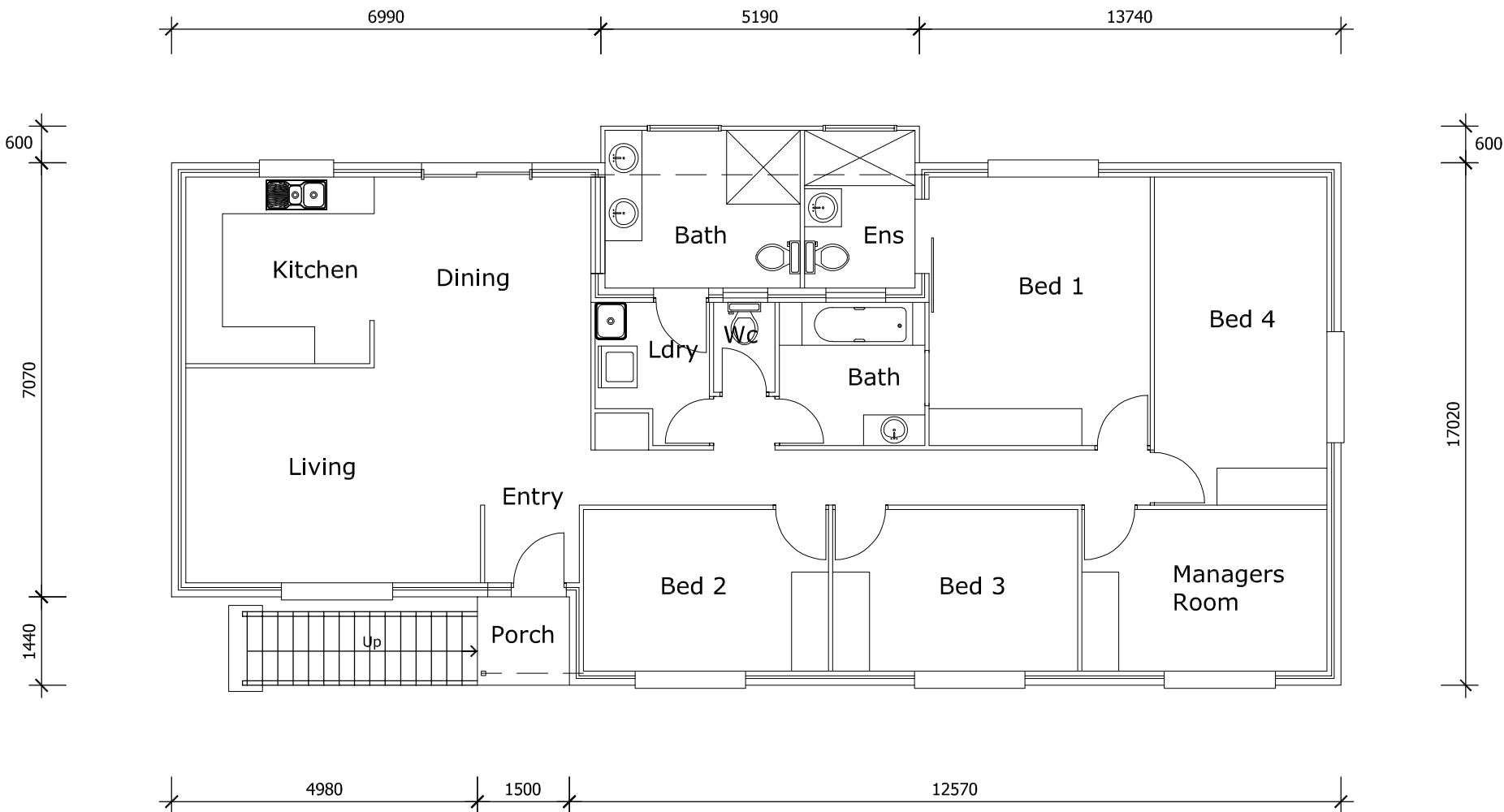
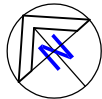
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C	Request Items 1,2 & 4 TCC Planning	08/05/25
B	Floor Level Raised to 900mm	17/02/25
A	Preliminary Design	24/09/24



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Project Name and Address
Proposed Rooming Accommodation Development
Abel Family Trust PT
94 Bergin Road,
Cranbrook, Queensland

Project No. 2024-12	Dwg No. DD04	Issue C
Date March, 2024	Designed G.B	
Scale 1:100 @ A3	Drawn G.B	



Floor Areas	
Living	: 155.90 m ²
Porch	: 2.16m ²
Overall	: 158.06 m ²

Existing Ground Floor Plan
Scale 1:100

General Notes

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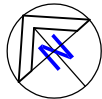
B	Request Items 1,2 & 4 TCC Planning	08/05/25
A	Preliminary Design	24/09/24
No.	Revision/Issue	Date



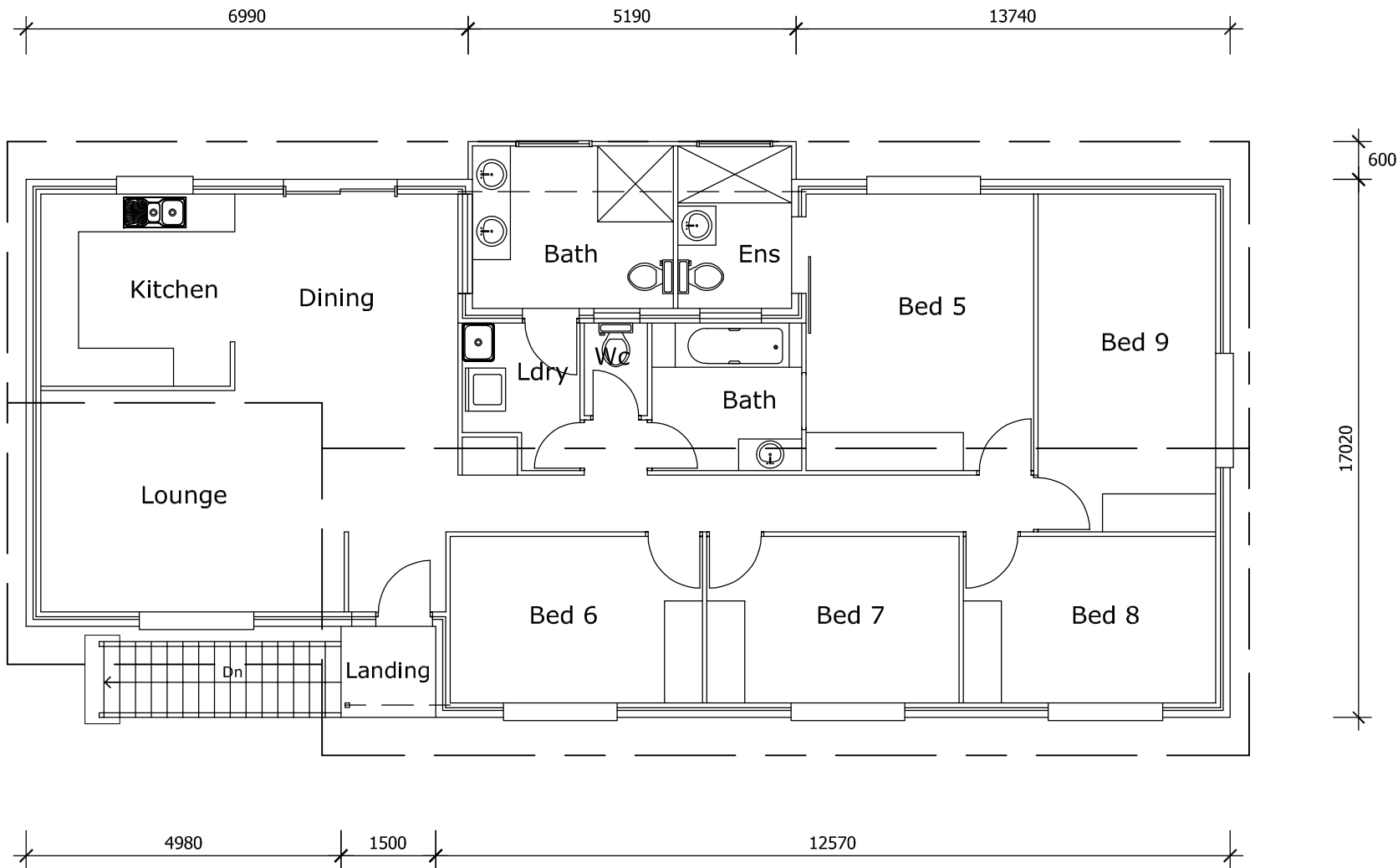
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Project Name and Address
Proposed Rooming Accommodation Development
Abel Family Trust PT
94 Bergin Road,
Cranbrook, Queensland

Project No. 2024-12	Dwg No. DD05	Issue B
Date March, 2024	Designed G.B	
Scale 1:100 @ A3	Drawn G.B	



Floor Areas
Living : 155.90 m²
Landing : 2.16m²
Overall : 158.06 m²



Proposed Upper Floor Plan
Scale 1:100

General Notes

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B	Request Items 1,2 & 4 TCC Planning	08/05/25
A	Preliminary Design	24/09/24
No.	Revision/Issue	Date



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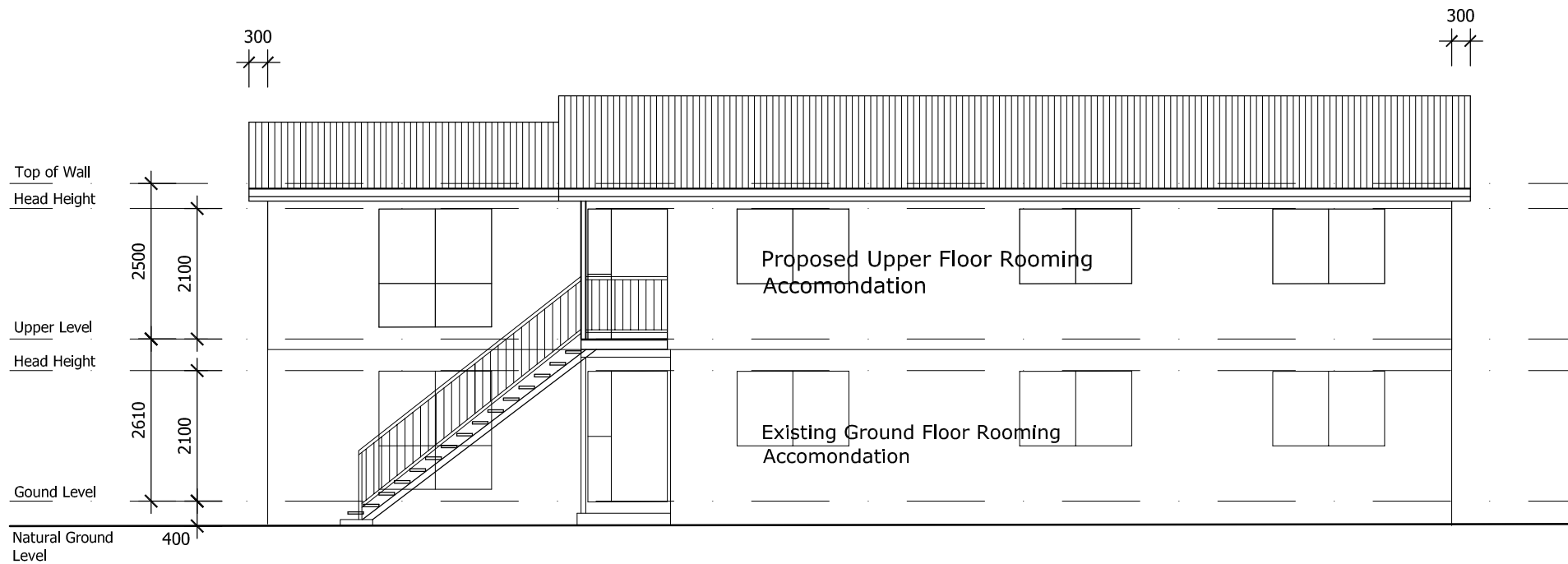
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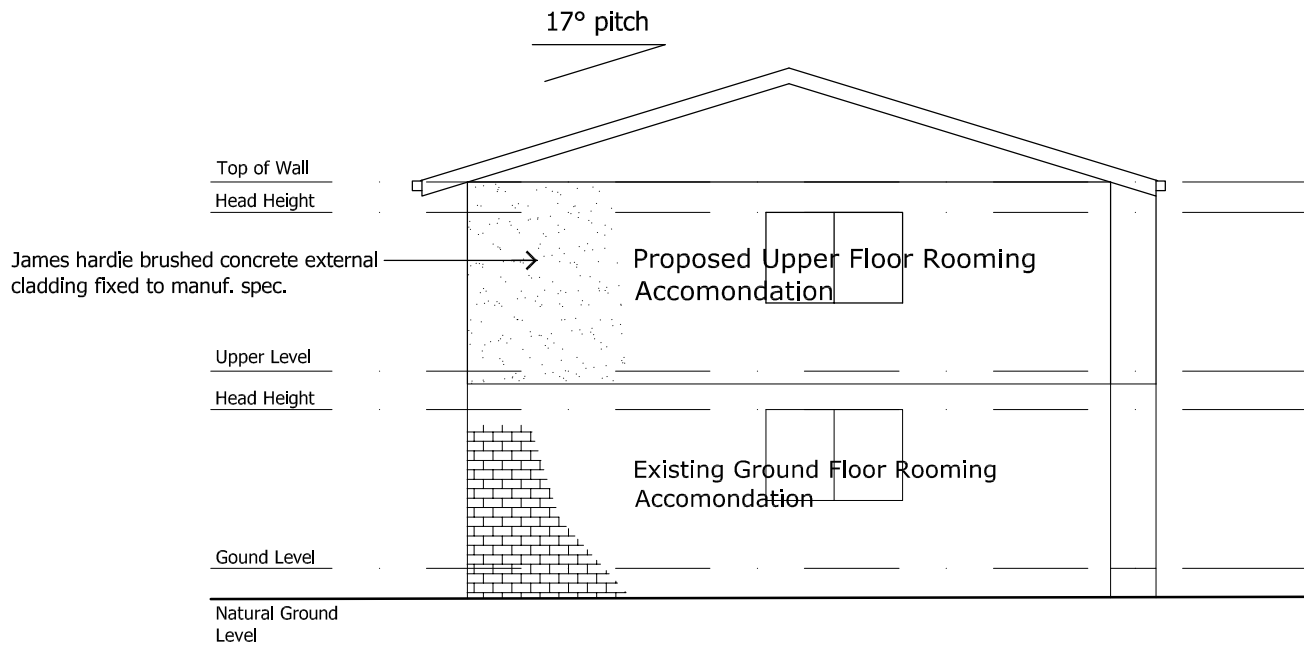
Proposed Rooming Accommodation Development

Abel Family Trust PT
94 Bergin Road,
Cranbrook, Queensland

Project No. 2024-12	Dwg No. DD06	Issue B
Date March, 2024	Designed G.B	
Scale 1:100 @ A3	Drawn G.B	



South West Elevation
Scale 1:100



South East Elevation
Scale 1:100

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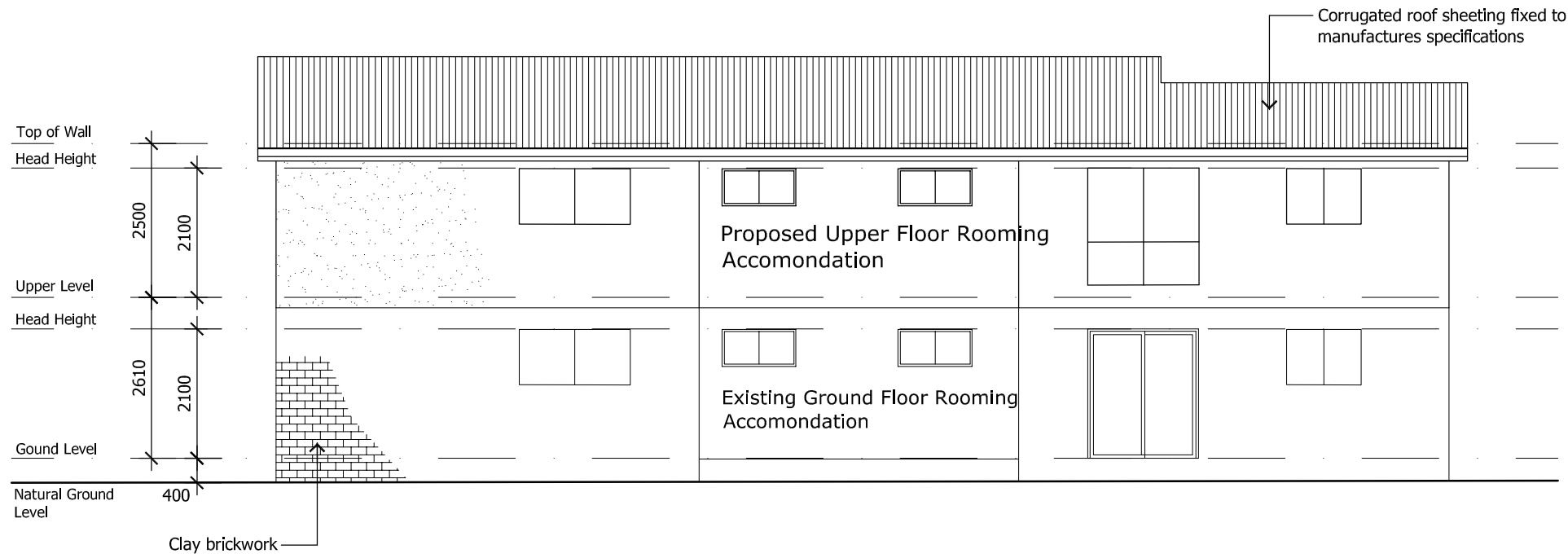
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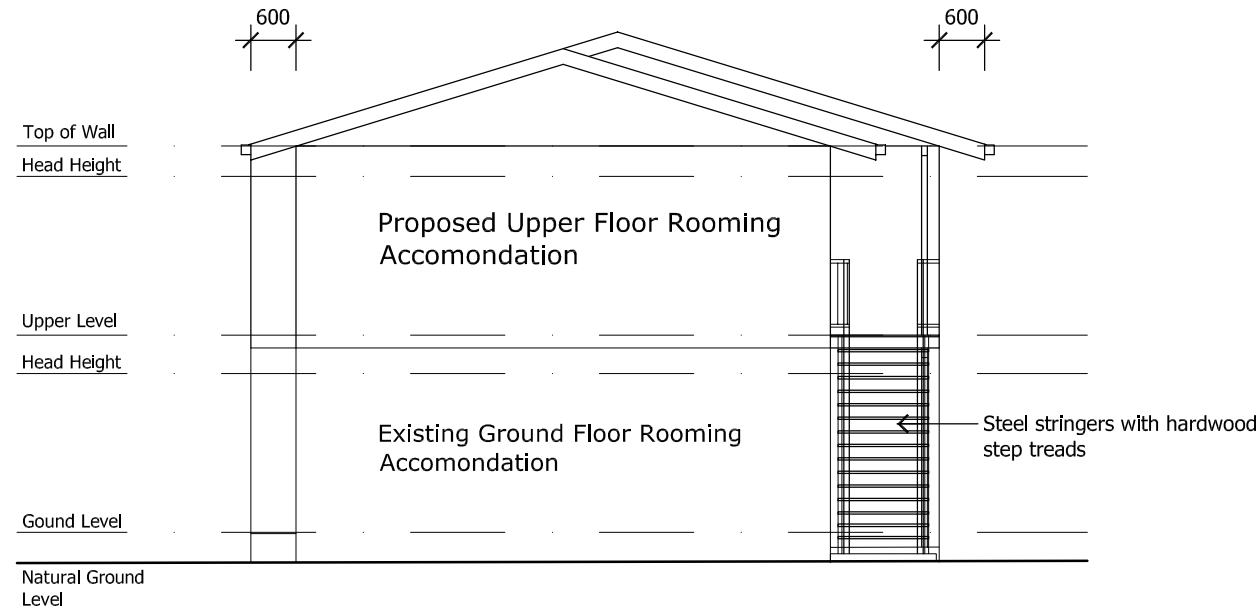
Proposed Rooming Accom.
Development

Abel Family Trust PI
94 Bergin Road,
Cranbrook, Queensland

Project No. 2024-12	Dwg No. DD07	Issue B
Date March, 2024	Designed G.B	
Scale 1:100 @ A3	Drawn G.B	



North East Elevation
Scale 1:100



North West Elevation
Scale 1:100

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Project Name and Address

Proposed Rooming Accommodation Development

Abel Family Trust PT
94 Bergin Road,
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Project No. 2024-12	Dwg No. DD08	Issue B
Date March, 2024	Designed G.B	
Scale 1:100 @ A3	Drawn G.B	

APPENDIX 3

EMERGENCY EVACUATION PLAN

Emergency Evacuation Plan

94 Bergin Street Cranbrook QLD 4814

**THIS SITE IS IDENTIFIED AS AT RISK OF INUNDATION IN THE TOWNSVILLE CITY COUNCIL
MODELLLED FLOOD STUDY AREAS**

**SIGNIFICANT INUNDATION IS PREDICTED TO OCCUR DURING A 1 IN 50 YEAR (2% AEP)
RAIN EVENT OR GREATER**

WHEN ADVISED TO EVACUATE - EVACUATE AND SHELTER IN A SAFER PLACE

Flood Hazard

This property (94 Bergin Road, CRANBROOK QLD 4814) is identified as **subject to flooding** during a 1% AEP Flood event (1 in 100-year event) (Figure 1). Water depth within the property may be up to 0.8m deep. Water depth across the Bergin Road/ Isabella Court intersection and property access may be 1.0m deep.

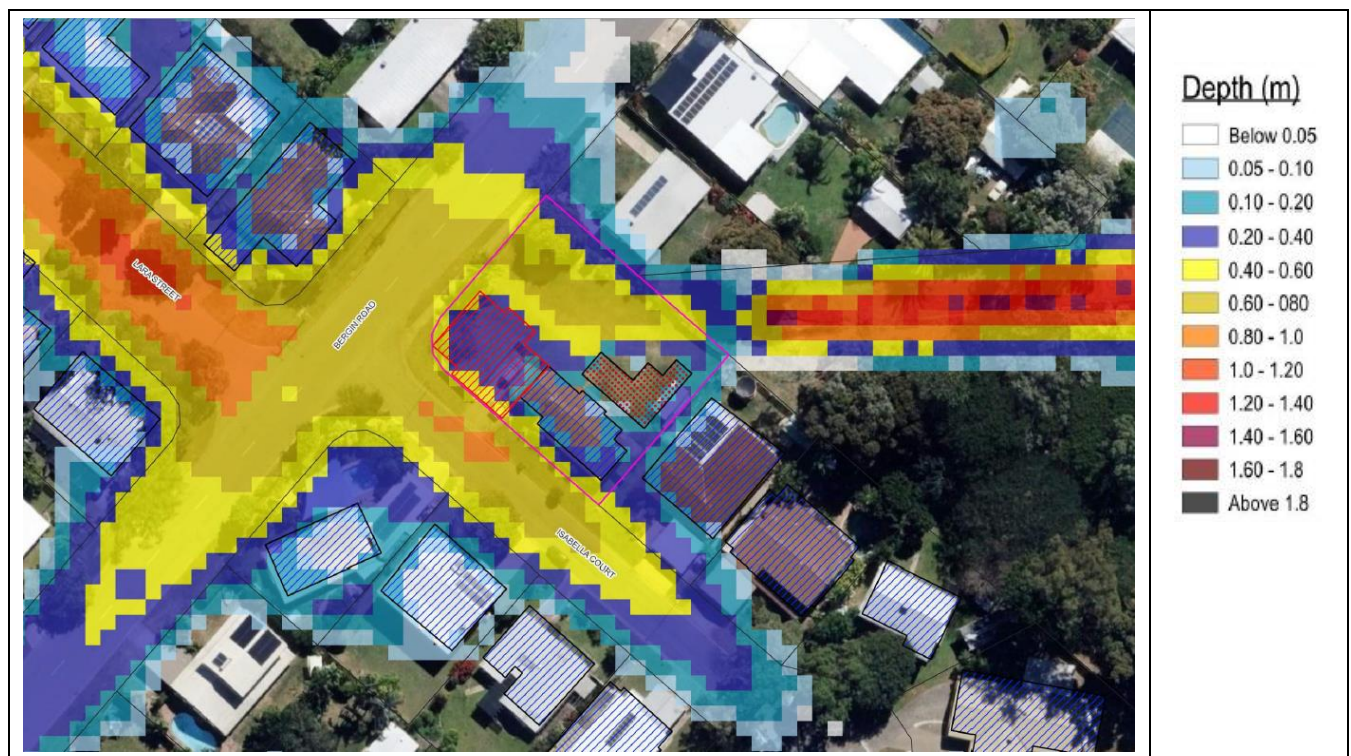


Figure 1 Site Specific Assessment Identifying 1% AEP Developed Flood Hazard – Northern Consulting Engineers, Report Ref BNC0091/02:IG, Map D02, 05/06/2025

This Emergency Evacuation Plan is intended to advise you of the risk associated with the land at
94 Bergin Road, Cranbrook Qld 4814

It is impossible to predict or pre-empt the range of situations that may present at a location over time. This document is designed to advise you of the relevant resources available to you and encourage you to work through the process of evaluating your risk and establishing your own evacuation plan suitable to your situation and circumstances.

VICTORIA (Bairnsdale)
PO Box 1288, Bairnsdale, 3875
03 5153 1744

ECOSYSTEMS MANAGEMENT (AUST) PTY LTD
ACN: 665 541 953

QUEENSLAND (Townsville)
PO Box 721, Deeragun, 4818
07 4454 1744

Technological Solutions for Sustainable Natural Resource Management

Preparation

You must be prepared for flooding to occur at this property, and for access to this property to be isolated in the event of storm tide flooding impacting the Townsville area. This includes preparing an Emergency Kit for sheltering in place and an Evacuation Kit.

Shelter in Place or Evacuate

You must decide the conditions under which you will shelter in place or choose to evacuate. You must identify the trigger point for this. There is no right or wrong answer to this, except that you must be capable of executing your plan without assistance from emergency services. You must consider evacuating before available access roads become inundated.

**If you are instructed to evacuate by the Disaster Management Group or Emergency Services
YOU MUST EVACUATE.**

If you are a vulnerable member of society (you have family member with special needs, are aged, immobile, or otherwise reliant on self-care intervention by a family member or service provider) you must consider evacuation your only option.

If you plan to shelter in place, you must be satisfied that you will be able to manage your safety and that of any dependants, for the duration of inundation or isolation at the property. This includes provision of food and water for at least one (1) week for all occupants sheltering in the premises, backup power generator (and sufficient fuel) to operate a refrigerator, and other essential items. Consider that electricity will be unavailable during and in the immediate days after the storm event for network maintenance and public safety reasons.

Do not shelter in place with the fall-back plan that you can be rescued by emergency services.

Sheltering in place is not a last resort – it must be planned and only considered if all persons staying at the property are able bodied and capable of undertaking the necessary actions required to maintain a level of safety at the property. If you cannot satisfy these requirements, you must consider evacuation as your only option.

Evacuation centres are provided with the minimum requirements to provide basic shelter during an evacuation event. They are not designed for long term or post event temporary accommodation. Preparation of a comprehensive evacuation plan and taking responsibility for your own safety will ease the burden on resources and allow dedication of resources to help those most in need.

Work through the tables below – identify options suitable to your situation.

Review:

Townsville Storm Tide Evacuation Guide. Accessible online:

https://www.townsville.qld.gov.au/_data/assets/pdf_file/0021/6735/TCC_Evacuation-Guide.pdf

Townsville Local Disaster Management Group. Townsville Emergency Action Guide. Accessible online:

https://www.townsville.qld.gov.au/_data/assets/pdf_file/0027/76572/TCC_Emergency-Action-Guide_110321.pdf

Evacuation Plan

Identify:		Notes / Details
Where will you evacuate to: How long will you need to stay? Do you need to bring additional bedding, clothing, food, other supplies or resources? Consider that general supply of goods and services can be interrupted by a significant flood event impacting the Townsville or north Queensland landscape.	Townsville Evacuation Centre (Heatley State School)	No pets accepted. Limited facilities for long term evacuation.
	Friends/relatives house in non- flood prone area:	Address Phone number
	Motel or caravan park accommodation in non-flood prone area Are they Pet friendly?	Address Phone number
	Other Location	Address Phone number
What will you do with Pets? Ensure you provide adequate food supply, carrier / leash etc. Registration details (tag /microchip) Take a current photo of your pets on your phone. Any medications your pet requires.	Boarding Kennels/ Cattery	Address Phone number
	Friends/ relatives house	Address Phone number
	Leave in a safe place on the property (above the level of flood water) Not advised in extreme weather conditions	Address Phone number
Additional Vehicles Your second car / caravan / trailer / lawn mower may need a temporary second home	Friend/ relative house	Address Phone number
	Commercial Storage facility	Address Phone number
	Suitable open space in non-flood prone area	Address Phone number
Communications You must tell someone of your situation and your plans. Is anyone staying to shelter in place – how many people and what resources do they have? Who is evacuating and where are they going? **If you are concerned about looting, do not make public posts on social media	Close relative (parent, sibling)	Name Address Phone number Email
	Friend / work colleague	Name Address Phone number Email
	Disaster Management Group / Emergency Services notification/registration for evacuees	Name Address Phone number Email

Evacuation Kit

Identify:		Notes / Details
Where are your important Documents/ valuables? Store in a zip lock bag or other water proof container Will you store some items in high cupboards above flood level or take them all with you? Add additional items as required. Take a copy of this plan with you	Passport	YES / NO
	Wallet/purse and its contents	YES / NO
	Medical prescriptions	YES / NO
	Birth / Death / Marriage / citizenship Certificates	YES / NO
	Photograph Albums	YES / NO
	Will / power of attorney documentation	YES / NO
	Pension / welfare cards/ other important documentation	YES / NO
	Insurance documents / vehicle registration documents	YES / NO
	Jewellery or other valuables (military medals etc)	YES / NO
	Cash / Car keys/fobs / house keys/ work keys etc	YES / NO
Medications / dietary requirements Evacuation centres are not equipped with medical equipment other than basic first aid. Special dietary requirements are not catered for – if you have specific allergies or intolerances, you should have some snack food as a minimum to last up to 2 days.	Prescription / pharmacy only medications	
	Dietary supplements / baby formula/ gluten/ allergen free food/snacks for up to 48 hours.	
	Medical equipment (CPAP machine / breast pump/bottles/ personal sanitary items/ basic toiletries) **Baby wipes / personal care wipes are recommended to include in evacuation kits in the absence of being able to shower or bath	
Clothing/ Linen	Change of clothing and underwear for minimum 3 days. Infants and small children may require more. Disposable nappies (even if you use cloth normally – there will not be adequate facilities to launder these items). Other linen – towels, baby essentials, pillows etc	
Communications and administration tools Most emergency management services and recovery support agencies and services are provided in an online environment. Take your mobile phone, laptop and chargers with you.	Mobile phones/tablets/ laptops/ chargers Portable battery banks can provide up to 2 or 3 full recharges for a mobile phone – consider putting one in your evacuation kit.	

Make a checklist that you can review every year before the storm season starts.

Make a date with your calendar to review your Evacuation Plan and your Evacuation Kit.

Make sure it has everything that is on the list.

Ask yourself if you still need that item or if there is something different you need this year!

Evacuation Route

Plan your evacuation route – any road that is trafficable and open to public traffic can form part of your evacuation route. The best route will be dictated by the location of your evacuation site. The attached map shows the most direct route to the Heatley Evacuation Centre (using arterial roads in the local road network). Evacuation routes indicated by Townsville City Council evacuation guides are shown in Yellow. These are major roads, with multiple lanes and most are not located in areas of deep inundation.

*Evacuation Routes are shown as a guide only – **do not** drive through flood water.*

If it is flooded - Forget it. Evacuate before the roads become flooded.

The Evacuation Plan Map attached identifies the most direct routes away from the property to the Heatley Evacuation Centre, the Townsville CBD and the Townsville Ring Road which provides highway access to the north and south of Townsville.

These roads are not guaranteed to be free from flooding – once a road is under water it is no longer a safe potential evacuation route – it is important to make the decision to evacuate before the roads become un-trafficable.

Consider heavy traffic impacting your ability to reach your destination. Make sure you allow enough time to arrive before the roads become un-trafficable.

Monitor Townsville Disaster Management Dashboard and the Department of Main Roads mobile app for road conditions and road closures.

Secure Your Property

Before you leave your property, ensure the following:

- Lock doors
- Turn off power, gas, and water
- Take your Evacuation and Emergency Kits

Further information (from Townsville Emergency Action Guide):

During emergencies, the Townsville LDMG is your official source of information.
Visit Council's website for digital copies of local emergency management plans, action guides, mapping and evacuation information:

disaster.townsville.qld.gov.au
townsville.qld.gov.au

'Follow' Townsville City Council's Townsville Disaster Information Facebook page for up to date information provided directly from the Townsville LDMG:

[Townsville Disaster Information](#)

Log on to the Bureau of Meteorology website for weather updates, warnings and information:

bom.gov.au

ABC TV and Radio are the official emergency news channels.

Watch and listen for emergency updates.

Tune your radio to your local radio station:

ABC North QLD	630 AM
Triple M	102.3FM
Hit FM	103.1FM
Power100	100.7FM
Star	106.3 FM
Triple T	103.9FM
4K1G	107.1FM
Live FM	99.9FM

Further information on preparing, emergency alerts and information can be accessed at:

disaster.qld.gov.au
qldalert.com

Context and Justification

Flood Impact Assessment

Northern Consulting Engineers (NCE) have prepared a flood impact assessment for this site, pertinent to the development application for rooming accommodation (reference: BNC0091/02:IG).

The flood model identifies that a storm tide event of 20% AEP or greater (20% to 1% AEP) will result in inundation of the Bergin Road / Isabella Court intersection, being primary access to the property, of 0.2 to 0.4m depth or greater. A 5% AEP storm tide event will result in minor inundation in the property's carpark (up to 0.2m) and increased flooding of the Bergin Road / Isabella Court intersection (0.6m). At this height, the intersection is not trafficable for small cars. The 1% AEP storm tide event results in more extensive flooding of the carpark and intersection, restricting access to and from the property for small vehicles, and limiting safe or practical access for larger vehicles. Water velocity at this depth exceeds 0.3m/second. The Bergin Road / Isabella Court intersection reaches Hazard Class 3 (unsafe for small vehicles and vulnerable occupants, likely to isolate residents) during a 1% AEP storm tide related flooding event.

Flood duration may be as short as a couple of hours, however with significant storm events (such as cyclones or tropical monsoon rainfall events), the duration of flooding and inundation may last for several days.

Appropriate building design, with floor levels at least 300mm above modelled flood levels, should ensure that the residences are safe to shelter in place with adequate planning. Vulnerable persons should consider that sheltering in place with limited access is not their safest option if they are likely to require additional support or medical attention.

Primary access is identified by NCE as along Alice Street to Ross River Road. This intersection is controlled by signals ensure safe egress during high traffic flows. Alice Street becomes inundated near the Ross River Road to a minor degree during a 1% AEP storm tide event. Evacuation must be completed prior to flood levels reaching peak levels. Lara Street should be avoided as an evacuation route – it becomes inundated along with the Bergin Road / Isabella Court intersection.

Emergency Management Planning

Emergency Management in Queensland is managed using the PPRR Framework (QFES,2017):

Prevention
Preparedness
Response
Recovery

In the context of flooding, little can be done in terms of Prevention, particularly in older areas that were developed before planning and development controls considered flood risk to any great extent. The hazard is identified; therefore, risk mitigation must be the next step.

This plan addresses the Preparedness component of flood risk at this location to the extent practical. It is incumbent on all persons to take a degree of responsibility for their own safety, thus working through the process of forward planning is a necessary step towards fulfilling that obligation.

The Response phase of an event impacting this location is to enact this plan, with the intention of avoiding the need for emergency services assistance either for evacuation or for resupply if sheltering in place.

Recovery comes after the emergency is over, and can be described simply as the process of returning to normal operations.

Development Assessment

The Development Application for **Development Permit – Material Change of Use (MCU25/0011) Lot Creation 1 into 2** was assessed and subject to a stop of the current assessment period as of 25 August 2022.

Application Details	
Application no:	MCU25/001
Assessment no:	3027001
Proposal:	Rooming Accommodation
Development Type:	Development Permit - Material Change of Use
Street address:	94 Bergin Road CRANBROOK QLD 4814
Real property descriptions:	Lot 1 RP 737431
Assessment benchmarks:	Planning Act 2016 Planning Regulation 2017 State Planning Policy North Queensland Regional Plan Townsville City Plan
Level of assessment	Assessable development - Impact assessment

Responsibility

This Development Assessment approves the use of the property for rooming accommodation. It is the responsibility of the operator of the rooming accommodation to ensure that every tenant/ resident is provided with a copy of this evacuation plan, and that every tenant/resident independently makes their own evacuation plan and prepares their own Emergency and Evacuation Kits, consistent with the advice issued by the Local Disaster Management Group and Townsville City Council. Notices regarding this requirement should be visible within the common areas of the rooming accommodation, consistent with requirements for notification of other essential safety measures.

Resources

QPS, 2024. *Interim Queensland Prevention, preparedness, Response and Recovery Disaster Management Guideline*.

Queensland Fire and Emergency Services, State of Queensland, 2017. URL:

https://www.townsville.qld.gov.au/_data/assets/pdf_file/0027/76572/TCC_Emergency-Action-Guide_110321.pdf

Townsville City Council. Townsville MAPS Flooding thematic map. Accessed on 2nd November 2022. Accessible online:

https://maps.townsville.qld.gov.au/Mapping/index.html?viewer=TownsvilleMAPS_Flooding.Mapping

Townsville Local Disaster Management Group. Townsville Emergency Action Guide. Accessible online:

https://www.townsville.qld.gov.au/_data/assets/pdf_file/0027/76572/TCC_Emergency-Action-Guide_110321.pdf

SUITABLY QUALIFIED PERSON

This document has been prepared by a Suitably Qualified Person according to the definitions in the EP Act 1994. I hold a Bachelor of Environmental Science (Management), Graduate Diploma in Bushfire Protection and have over 20 years' experience in environmental management and emergency management planning. All information presented in this report is believed to be true, correct and complete. The document addresses the requirements described by the regulatory authority, and all opinions expressed are honest and reasonable.



Marcia Griebenow BEnvSc GradDip (Bushfire Protection) MEIANZ



LIMITATION AND DISCLAIMER.

This report has been prepared by Ecosystems Management (Aust) Pty Ltd with all reasonable skill, care and diligence.

This document is for information only and is provided in good faith. Ecosystems Management (Aust) Pty Ltd is under no liability to any person in respect of any loss or damage (including consequential loss or damage) which may be suffered or incurred, or which may arise directly or indirectly, in respect of reliance by any person on the information contained in this document.

EVACUATION PLAN

94 BERGIN ROAD, CRANBROOK
(1RP737431)

Limitation & Disclaimer:
Data presented is for information only, and is not to be used for navigation.
No liability is accepted for use outside of the intended purpose.

Follow the advice of the Townsville Disaster Management Group or Emergency Services at all times.

Legend

- 219050
- Heatley Public Cyclone Shelter
321 Fulham Road, Heatley
- Major Roads / Highways
- Local Roads
- TCC Evacuation Routes

- Detail
- Direct Route to CBD
 - Direct Route to Heatley Public Cyclone Shelter (see page 26 to 34 of TCC Emergency Action Guide for evacuation routes)
 - Direct Route to Townsville Ring Road - Access to the North or South

Coordinate System: GDA 1994 MGA Zone 55

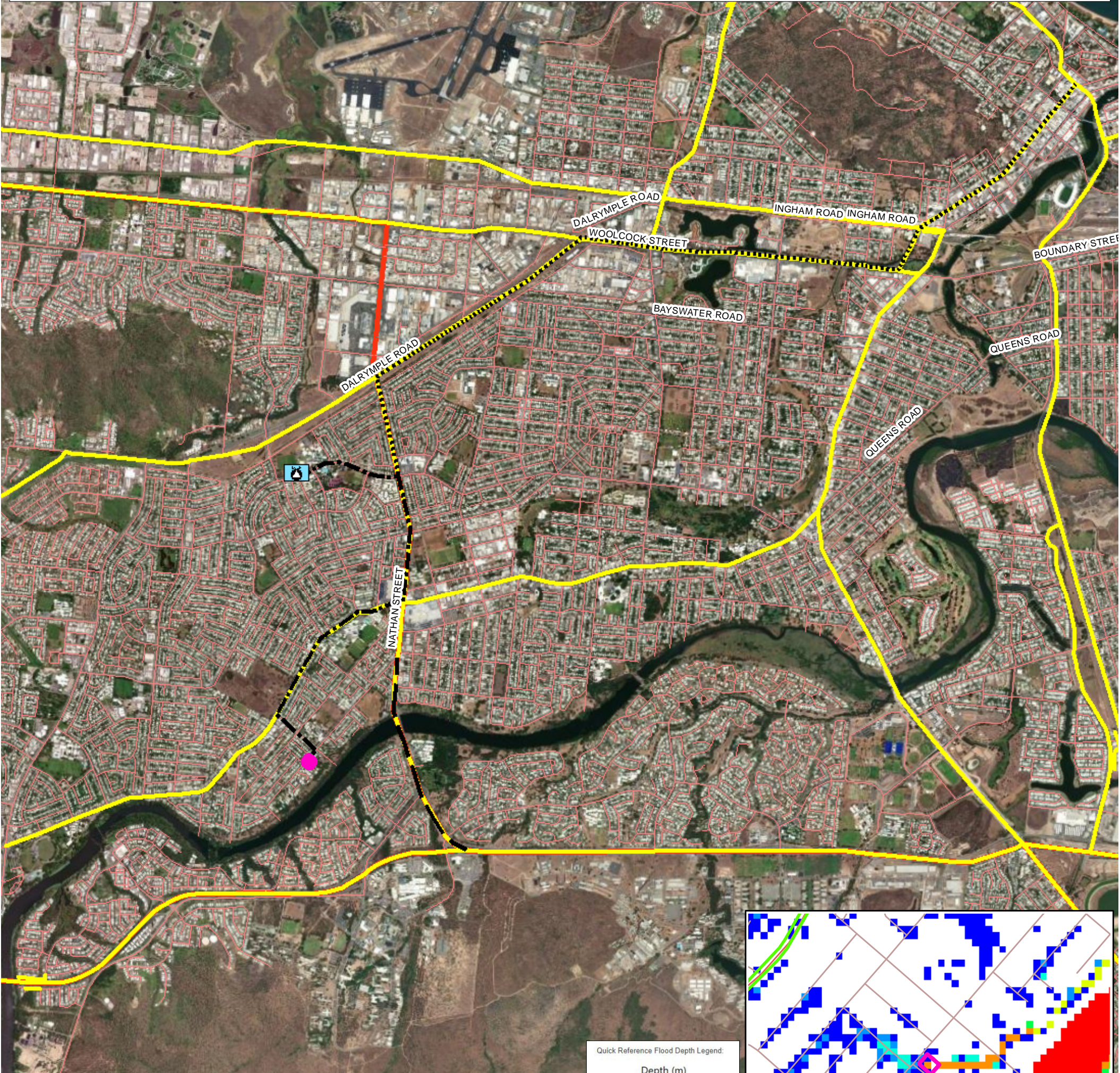
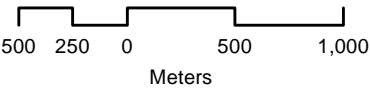
THIS SITE IS IDENTIFIED AS A ORANGE (VERY HIGH) RISK OF INDUNDATION IN A FLOOD OR STORM TIDE.
INUNDATION IS PREDICTED TO OCCUR AT 1.0m ABOVE HIGHEST ASTRONOMICAL TIDE (HAT).

WHEN ADVISED TO EVACUATE
EVACUATE AND SHELTER IN A SAFER PLACE

REFER TO THE TOWNSVILLE EMERGENCY ACTION GUIDE
Monitor the Disaster Management Dashboard for flood notifications
Follow the advice and checklists in the
TOWNSVILLE EMERGENCY ACTION GUIDE

Flood - Page 35 to page 37

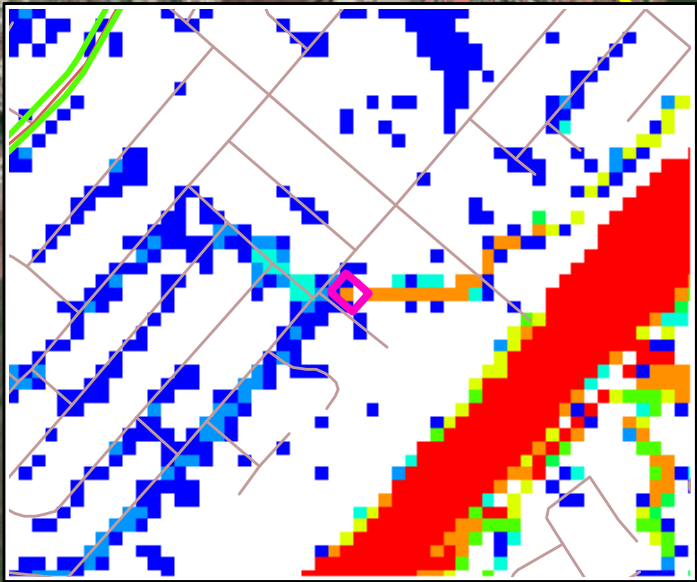
EVACUATE
When warnings reach your predetermined trigger OR
when advised by authorities
DO NOT DELAY



Notes:
Roads from TCC_Road_Centrelines.shp © Townsville City Council.
Property Boundaries from Townsville Properties©Townsville City Council.
Flood Study shows FloodRaster_100y_D©Townsville City Council.
Aerial Imagery © Queensland Government



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Version: 1.0 Date Edited: 12/08/2025 Edited by: MG



TOWNSVILLE STORM TIDE EVACUATION GUIDE

This guide is used to inform residents of predicted storm tide inundation associated with a tropical cyclone.

townsville.qld.gov.au



MESSAGE FROM THE MAYOR

North Queensland is one of the most cyclone-prone areas in Australia. Like many of our neighbouring coastal communities, natural disasters are a price Townsville residents pay for living in paradise.

Along the coast, storm tides can occur as a result of a cyclone. Cyclone threats in our region could result in an evacuation of particular areas in our city. We will only order an evacuation if a storm tide threatens to inundate developed areas.

This Storm Tide Evacuation Guide is to help you, as a resident, prepare for cyclone events that result in an evacuation. If you are not required to evacuate, your home is often the safest place for you. Before a cyclone event you will need to make sure that you are secure in your home. If you feel you are not secure in your home please make alternative arrangements with friends and family.

If you are told you have to evacuate, you should make your way to family or friends outside the threatened zone. Townsville's Local Disaster Management Group has shelters available for community members who have no other alternative. Remember that these shelters are intended for use by those identified as being in the storm tide area. Shelters unfortunately do not have the capacity to cater for people with special needs; and there are no support services such as bedding, food, drink or material aid.

I urge you to read the information provided in this booklet, view the detailed 'by suburb' maps on Council's website and understand the evacuation procedures. In the event of a cyclone or storm tide, take immediate action by following the checklists included in this booklet.

Regards,

Cr Jenny Hill

WHAT IS A STORM TIDE?

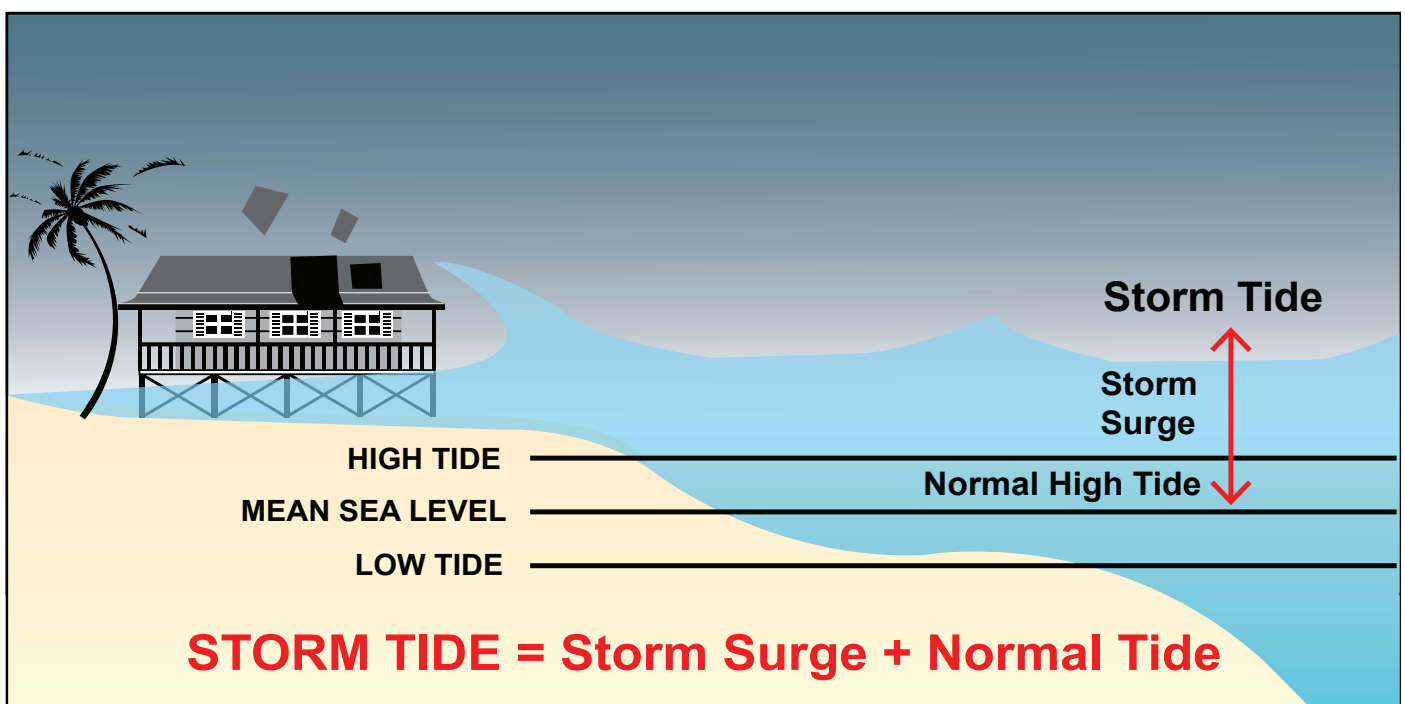
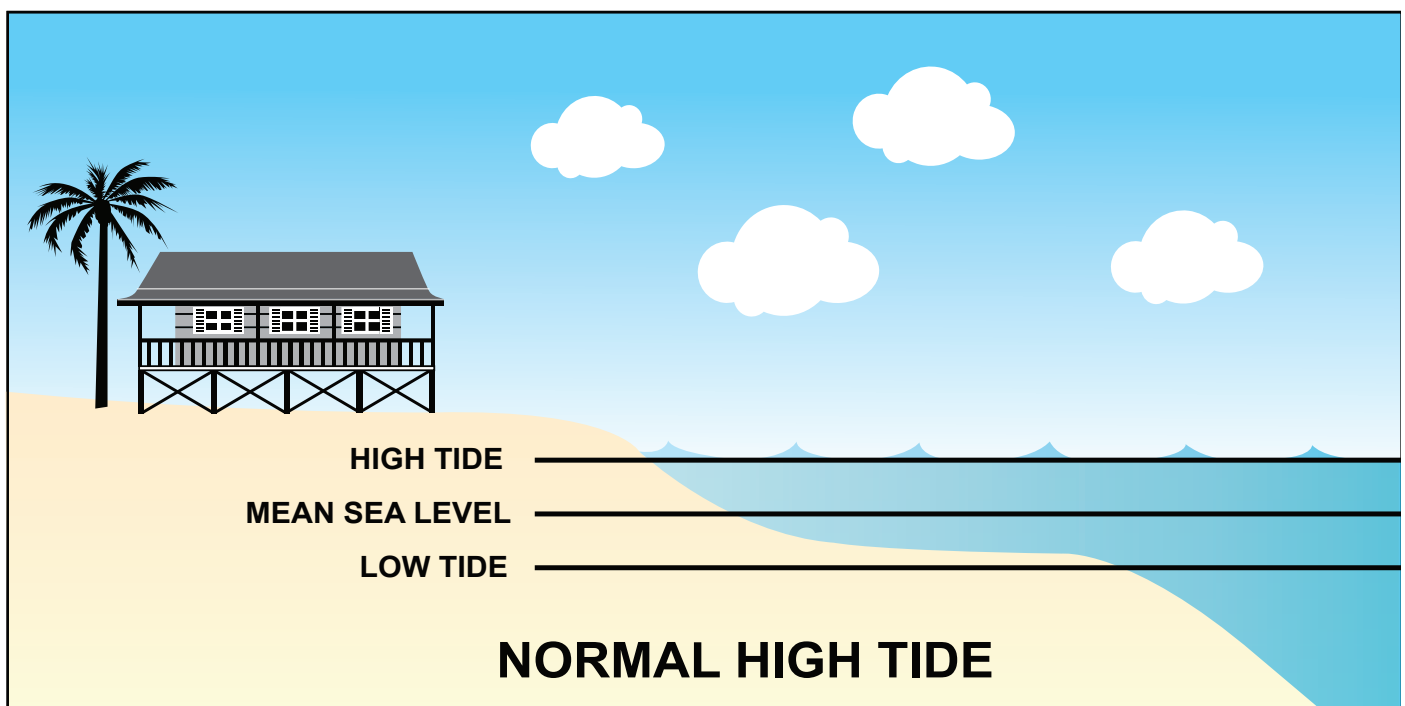
A storm tide is a rise above the tidal water level along a shore that is associated with a tropical cyclone. Storm tides will be accompanied by gale force winds, with successive waves of seawater rapidly moving across the foreshore.

When a cyclone forms over open waters the strong winds pushing the water, combined with the low atmospheric pressure in the eye of the cyclone cause the level of the sea to rise, which results in the formation of large waves.

If this happens away from land, the water can escape and move freely away from the building storm. As the cyclone moves towards land and the depth of the water becomes shallower, the ever-increasing wall of water does not have a chance to flow away. These waves may inundate land and cause destructive damage to anything in its path. Trees, building material and other debris may be carried along by the storm tide. Any evacuation must occur prior to the storm tide event.

Please note that inundation by storm tide is not comparable with riverine flooding.

A storm tide event should not be confused with a tsunami. A tsunami is a series of waves generated by a sudden upward movement of the ocean floor, normally due to earthquakes and is NOT related to a cyclonic event.



WHAT IS A CYCLONE?

A tropical cyclone is a violent collection of whirling winds and dense cloud mass. Winds spiral clockwise around a central eye of exceptionally low pressure. With winds reaching speeds in excess of 200km/h, cyclones can be extremely dangerous.

WHAT ARE CYCLONE CATEGORIES?

The severity of a tropical cyclone is measured by a category determined by the Bureau of Meteorology (BOM).

Cyclone categories range from 1 for weaker cyclones to 5 for the most severe cyclones. This helps the community assess the severity of the cyclone and take appropriate actions.

The category of a cyclone refers to the severity of winds in a maximum wind zone. You may not experience the effects of the maximum winds. Damage experienced may vary according to location factors.

N.B. The category of a cyclone does not refer to an associated storm tide. Warnings for a storm tide will be issued separately by the Bureau of Meteorology.

CATEGORY	CLASSIFICATION	STRONGEST GUST (KM/H)	TYPICAL EFFECTS
1	Tropical cyclone	90-125 km/h Gales	Minimal house damage. Damage to some crops, trees and caravans. Boats may drag moorings.
2	Tropical cyclone	125-164 km/h Destructive winds	Minor house damage. Significant damage to signs, trees and caravans. Heavy damage to some crops. Risk of power failure. Small boats may break moorings.
3	Severe tropical cyclone	165-224 km/h Very destructive winds	Some roof and structural damage. Some caravans destroyed. Power failure likely.
4	Severe tropical cyclone	225-279 km/h Very destructive winds	Significant roofing and structural damage. Many caravans destroyed and blown away. Dangerous airborne debris. Widespread power failures.
5	Severe tropical cyclone	More than 280 km/h Extremely destructive winds	Extremely dangerous with widespread destruction



CYCLONE WATCH

A cyclone watch is issued at six (6) hourly intervals if a cyclone or potential cyclone exists, and there is a likelihood gale force winds or stronger will affect coastal or island communities within the next 24 to 48 hours.

Cyclone Warning

A cyclone warning is issued at three (3) hourly intervals if gale force winds or stronger are expected to affect coastal or island communities within the next 24 hours. Warnings are updated **every hour** when a cyclone is close to landfall. The Standard Emergency Warning Signal (SEWS) may be used with some cyclone warnings.

Severe Weather Warning

A severe weather warning may be issued if the system is no longer a cyclone but communities are still being threatened by damaging winds, flooding rains or pounding seas.

HOW TO USE THIS GUIDE

This Storm Tide Evacuation Guide was developed to assist residents in determining if their properties are at risk of inundation from a storm tide.

As a local resident, Council recommends that you:

1. Review the evacuation maps in this guide and identify the location of your property. **Visit Council's website to view more detailed mapping, with evacuation zones depicted by street and suburb.**
2. Consider the tips contained in this guide for preparing a household emergency plan and emergency kit.
3. Familiarise yourself with the local emergency contact details and radio station information.

If your residence is located in a coloured evacuation zone, your property may be inundated in a storm tide event. The height of the predicted storm tide during the disaster event will determine which zones will be affected.

N.B. – If you are not located in a coloured evacuation zone, your suburb will not be shown on the detailed maps located on Council's website.

EVACUATION ZONES

EVACUATION ZONE	RISK OF INUNDATION	LEVEL OF INUNDATION	
		METRES ABOVE HAT	METRES ABOVE AHD
Red	Extreme	1.0m	Less than 3.0m
Orange	High	2.0m	3.0m – 4.0m
Yellow	Medium	2.0m – 4.0m	4.0m – 6.0m
Blue	Low	4.0m and above	6.0m – 8.0m

WHAT IS HAT?

HAT stands for Highest Astronomical Tide, which is comparable to a king tide. It is the highest level of water, which can be predicted to occur under any combination of astronomical conditions. BOM advice regarding storm tide will refer to a height (in metres) above HAT. Council will use this BOM information to advise which zones may be affected.

WHAT IS AHD?

AHD stands for Australian Height Datum, which is the altitude measurement for land-based mapping. In 1971, mean sea level was assigned the value of 0.000m elevation based on observations recorded by thirty tide gauges around the coast of Australia for the period 1966–1968. The resulting datum surface, with minor modifications in two (2) metropolitan areas, has been termed the Australian Height Datum (AHD) and was adopted by the National Mapping Council in 1971 as the datum to which all vertical control mapping is to be referred. Elevations quoted using this datum are normally followed with the acronym (AHD).

WHAT IF I AM IN AN EVACUATION ZONE?

1. Prepare a documented household emergency plan.

EMERGENCY PLAN ACTIVATION

- | | | |
|--|---|--|
| <input type="checkbox"/> Contact all householders | <input type="checkbox"/> Tune into warnings | <input type="checkbox"/> Check on neighbours |
| <input type="checkbox"/> Shelter in our strongest room | <input type="checkbox"/> Locate Emergency Kit | <input type="checkbox"/> Make final preparations |

EVACUATION DESTINATION

Place to meet:	Address:
Phone number:	Email address:

OUT OF TOWN EMERGENCY CONTACT

Name:	Address:
Phone number:	Email address:

MAIN SERVICE SUPPLIES LOCATION

SWITCH OFF

Electricity:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Gas:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Water:	<input type="checkbox"/> Yes	<input type="checkbox"/> No

VEHICLE REGISTRATION

OUR STRONGEST ROOM IS

PETS

Name:	Description:
Name:	Description:

EVACUATION CHECKLIST

Prior to evacuation:

- | | |
|---|--|
| <input type="checkbox"/> Ensure vehicle is full of fuel | <input type="checkbox"/> Know the preferred evacuation routes |
| <input type="checkbox"/> Ensure you have cash on hand | <input type="checkbox"/> Know the location of our evacuation place |

When evacuating:

- | | |
|---|---|
| <input type="checkbox"/> Pack Emergency Kit, and a copy of our Emergency Plan | <input type="checkbox"/> Turn off mains supply for power, gas and water |
| <input type="checkbox"/> Contact our out of town emergency contact | <input type="checkbox"/> Secure and lock our home and proceed to our predetermined evacuation destination |

If flooding or storm surge is imminent:

- | | |
|---------------------------------------|--|
| <input type="checkbox"/> Sandbag home | <input type="checkbox"/> Store electrical items off the ground |
|---------------------------------------|--|



2. Prepare an emergency kit.

Special Items

- ☐ Baby needs such as nappies and bottles
- ☐ Medication and scripts
- ☐ Contact lenses or prescription glasses
- ☐ Games, books and puzzles for entertainment
- ☐ Esky and ice
- ☐ Ensure you have enough cash on hand to last one week
- ☐ Fuel for car
- ☐ Pet food and supplies

In a waterproof wallet

- ☐ Will and insurance policies
- ☐ Passports and immunisation records
- ☐ Bank account and credit card numbers
- ☐ Inventory of household contents
- ☐ Important phone numbers
- ☐ Family records such as birth and marriage certificates
- ☐ USB with the above documents saved electronically

Use this checklist when packing and updating your emergency kit.

Water

- ☐ Water in plastic containers
- ☐ A three day supply; minimum 4L of water per person, per day

Food

- ☐ Minimum three day supply
- ☐ Ready to eat canned meats, fruit and vegetables
- ☐ Canned juices, milk and soups
- ☐ Staples such as sugar, pepper, salt and high energy foods such as peanut butter, honey, jams and muesli bars
- ☐ Vitamins
- ☐ Food for babies, children, elderly persons or any special dietary requirements
- ☐ Comfort foods such as biscuits, lollies, cereals, coffee and tea

Tools and supplies

- ☐ Cooking facilities such as gas BBQ/camping stove
- ☐ Plates, bowls, cups, utensils (paper or plastic plates don't require washing)
- ☐ Battery operated radio
- ☐ Battery operated torches
- ☐ Spare batteries
- ☐ Utility knife
- ☐ Toilet paper
- ☐ Soap/detergent
- ☐ Personal hygiene items
- ☐ Duct and masking tape
- ☐ Matches in waterproof container
- ☐ Disinfectant
- ☐ Mobile phone and charger
- ☐ Insect repellent and sunscreen

- ☐ Tools for temporary repairs
- ☐ Rope and chains for securing outdoor items
- ☐ Extension cords and power boards
- ☐ Plastic sheeting or tarps

First aid kit

- ☐ Replace any used contents

Clothing and bedding

- ☐ At least one complete change of clothing and footwear per person
- ☐ Long sleeve shirts and trousers
- ☐ Sturdy shoes
- ☐ Rain gear
- ☐ Blankets or sleeping bags
- ☐ Hats and work gloves
- ☐ Sunglasses

3. Consider your shelter and evacuation options (including major transportation routes).

Shelter and Evacuation Options

1. Seek shelter outside of Townsville.
2. Seek shelter with family and/or friends located outside the risk area.
3. Seek shelter at an accommodation facility (e.g. motel).
4. Seek shelter at an identified Public Cyclone Shelter or Place of Refuge.

If you are self-evacuating and will not be staying within an identified Shelter, please register your location via the "Register, Find, Reunite" system available on the Australian Red Cross website. (N.B. this will be activated at the time of the pending disaster).

4. Tune into warnings. Authorities will advise which zones need to evacuate.

Emergency Alert System

Townsville City Council utilises the Queensland Government's "Emergency Alert System". The "Emergency Alert System" is the national telephone based emergency warning system that sends voice messages to landlines (based on the location of the handset) and text messages to mobile phones (based on the location of the mobile phone).

N.B. Authorities will advise of evacuations by the coloured zones, NOT streets or suburbs.

TOWNSVILLE EMERGENCY CONTACTS

SERVICE	NUMBER
Emergency Calls	000
State Emergency Service (SES) <i>Tarping/branches down</i>	13 25 00
Queensland Police Service Policelink <i>(non life-threatening calls)</i>	000 13 14 44
Queensland Ambulance Service Queensland Ambulance Service <i>(non life-threatening calls)</i>	000 13 12 33
Queensland Fire and Emergency Services	000
Townsville City Council <i>Emergency after hours, flood information, dengue outbreaks, sun safety information</i>	13 48 10
Emergency Management and Disaster Dashboard	13 22 96
Ergon Energy <i>Loss of supply and emergencies</i>	13 16 70
Origin Energy <i>Natural and LPG Gas emergencies (leaks only)</i>	1800 808 526
North Regional Gas <i>LPG Gas emergencies</i>	4774 5111
Telstra	13 22 03
Optus	13 13 44
Townsville Hospital and Health Service	4433 1111
Department of Transport and Main Roads <i>Road closures</i>	13 19 40
Translating and Interpreting Service	13 14 50
Veterinary Emergency Centre and Hospital	4781 3600

TUNE INTO WARNINGS

Tune into your local radio station for the latest emergency information.

ABC North QLD	630AM
Triple M	102.3FM
Hit FM	103.1FM
Power100	100.7FM
Star	106.3FM
Triple T	103.9FM
4K1G	107.1FM
Live FM	99.9FM

WEBSITE

-  townsville.qld.gov.au
-  disaster.townsville.qld.gov.au
-  bom.gov.au

SOCIAL MEDIA

-  Townsville Disaster Information

APPENDIX 4

WATER & SEWER PLANNING REPORT



94 BERGIN ROAD, CRANBROOK ROOMING ACCOMMODATION DEVELOPMENT

WATER SUPPLY & SEWERAGE PLANNING REPORT


**Date: 22 April 2025
(Revision A)**

TABLE OF CONTENTS

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2	POPULATION ASSESSMENT	2
3	WATER SUPPLY PLANNING	2
3.1	Water Demand	2
3.2	Water Supply Assessment & Network Modelling	2
4	SEWAGE SYSTEM PLANNING	6
4.1	Sewage Infrastructure Capacity	7

APPENDICES

Appendix A	Development Plans
Appendix B	Water Network Modelling & Results
Appendix C	Sewer Network Modelling & Results

REPORT AUTHORISATION				
Revision	Revision Date	Details	Prepared by	Signature
A	22/04/2025	Original Report	Desmond Moseley (RPEQ 7565)	

2 POPULATION ASSESSMENT

The following section provides the equivalent population assessment for the proposed rooming accommodation development on 94 Bergin Rd. The equivalent population assessment has been developed based on the proposed use on the site, being rooming accommodation. The rooming accommodation will allow for one (1) person per room only. The following table provides the water and sewer equivalent population for the development.

Table 2.1 – Water & Sewer Equivalent Population Assessment

	Number	Rate	EP
Rooms	18	1.0	18 EP

The above equivalent population assessment has been used in the water supply and sewer system capacity assessment for the proposed development.

3 WATER SUPPLY PLANNING

3.1 Water Demand

Water demands have been calculated in accordance with Townsville City Council planning scheme and its latest amendments. The following table provides the “residential” water demand parameters for the Townsville Planning Scheme for each equivalent person (EP).

Table SC6.4.3.21.2 Water supply unit demand parameters

Parameter	Unit Demand	Peaking Factor
Average Day (AD)	600 L/day/EP	
Mean Day Max Month (MDMM)	900 L/day/EP	1.5 AD
Peak Day (PD)	1125 L/day/EP	1.25 MDMM
Peak Hour (PH)	0.0333 L/s/EP	2.56 PD

The peak hour residential water demands have been applied to the proposed rooming development, giving a peak water demand of $18 \text{ EP} \times 0.033 \text{ l/s/EP} = 0.594 \text{ l/s}$.

In addition to the above, as the development is residential, a 15 l/s fire flow is applicable in accordance with Council’s planning and design guidelines. This fire flow has been used to assess the theoretical performance of the water network.

3.2 Water Supply Assessment & Network Modelling

The existing site for the proposed rooming accommodation development is on the north-west corner on Isabella Crt and Bergin Rd in Cranbrook. The existing water infrastructure that services the site includes:

- A DN100 AC water main along the south-eastern side of Bergin Rd. This is along the frontage of the proposed development. There is also a DN63 PE water main along the Isabella Crt frontage of the development site.
- The existing DN100 AC water main extends to the intersection north east along Bergin Rd to the intersection with Alice St where it connects to an existing DN300 AC/DICL water main. The DN300 trunk water main runs along the full length of Bergin Rd.

- The DN300 AC/DICL water main connects to an existing DN600 AC trunk water main at the intersection of Bergin Rd and Nathan St.
- The DN600 AC trunk water main extends to the south along Nathan St (across Ross River as 4 x DN300 MSCL pipes attached to the Bridge) and then through to the intersection of Angus Smith Drv. The DN600 main connects to a DN825 MSCL main at Angus Smith Drv. The DN825 MSCL main is the trunk outlet main from the Douglas 1A/1B reservoir.

The following extract from the Council GIS illustrates the existing water infrastructure that services the development site in Cranbrook.



Figure 3.1 – Council GIS Plot

Theoretical water network modelling has been performed to assess the capacity of the existing reticulation network. The modelling was undertaken using the Council's WaterGEMS network model for both the peak hour demands and fire flows.

The theoretical WaterGEMS network modelling results with the inclusion of the water demands from the proposed development shows:

- The existing DN100 AC water main along Bergin Rd frontage is shown to be adequately sized to service the development with peak hour and fire flows.
- The peak hour pressures at 6:30 pm (ie the peak residential demand period) are reduced to 413 kPa at the development site. The water pressures in the adjacent residential area are reduced to around 400 kPa. This meets the minimum pressure requirement of 220 kPa.
- The headloss gradient along the existing DN100 AC water main along Bergin Rd is up to 0.010 m/m with the pipe velocities up to 0.68 m/s. The headloss gradient is above the recommended 0.005 m/m value however the pipe velocity is well within the

maximum recommended value of 2.5 m/s. As this is an existing water main, having a higher headloss gradient does not adversely impact on the water network performance and peak hour water pressures in this area. It is also noted that the headloss gradient on the existing DN100 AC water main was higher than the 0.005 m/m value prior to the additional demands from the rooming accommodation development.

- With the inclusion of the 15 l/s fire flow the water pressures are reduced to 337 kPa within the water main. This is the pressure at 6:30pm and is concurrent with the peak residential demand period and meets the minimum pressure requirement of 120 kPa.
- The fire flow velocity along the DN100 reticulation main on Bergin Rd is 1.52 m/s and meets the Council design standards of being less than 5.0 m/s.
- The WaterGEMS figure and results table are provided in Appendix B.

The above theoretical water network modelling shows that the proposed development is able to be serviced with a reticulated water supply that meets Council's standards with no upgrades required.

The following figure illustrates the peak hour demands and residual water pressure at the proposed rooming development site.

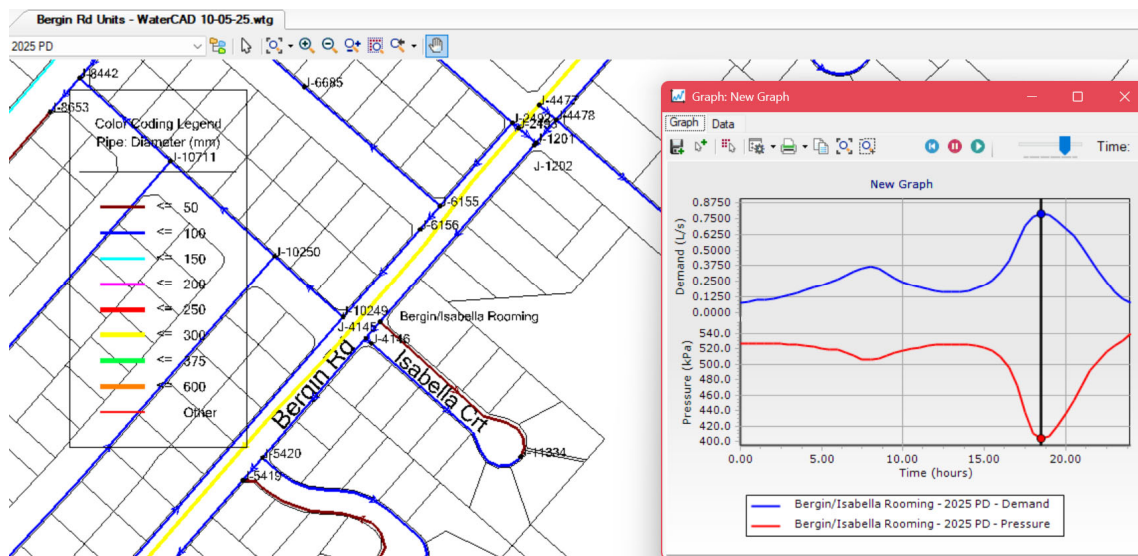


Figure 3.2 – Peak Hour Water Demand & Pressures

The following figure illustrates the water pressure at the development site with the inclusion of the 15 l/s fire flows.

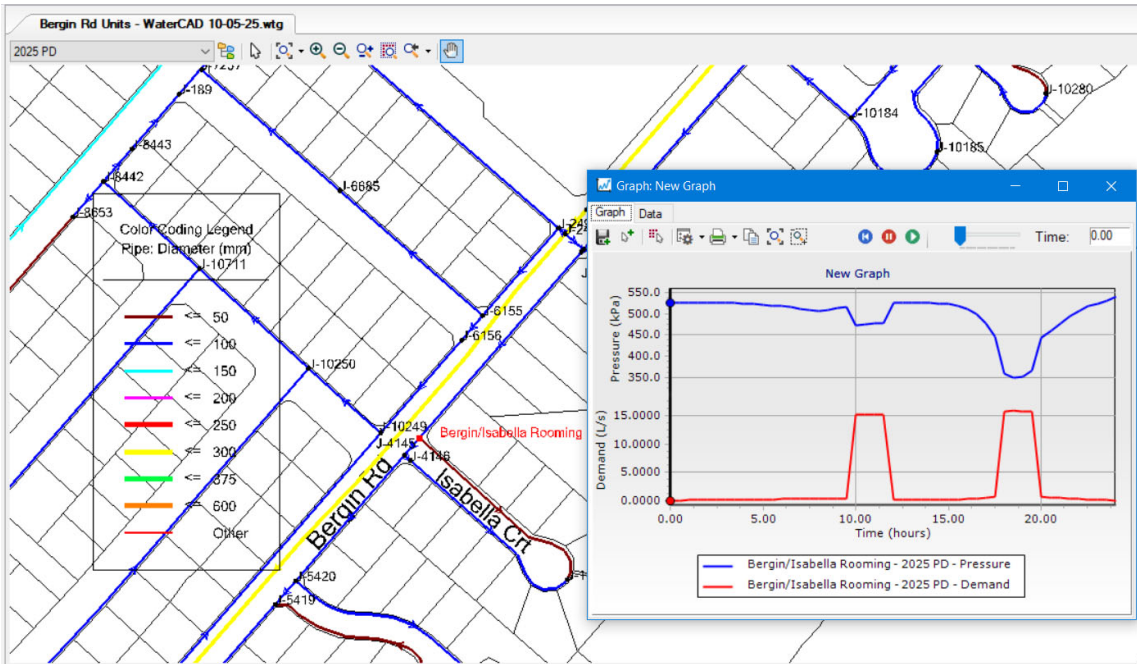


Figure 3.3 – 15 l/s Fire Flow Water Demand & Pressures

Additional hydrant testing could be undertaken if required on Bergin Rd to confirm the actual performance of the network, with this subject to the building code requirements for the site.

4 SEWAGE SYSTEM PLANNING

The existing site for the proposed rooming accommodation development is currently serviced with a reticulated gravity sewer system. The existing gravity sewer system consists of:

- A DN150 AC sewer is located along the north eastern boundary of the development site. Existing MH 1/L1A1H is located on the DN150 AC sewer and within the site. The DN150 sewer extends to the north west and under Bergin Rd to MH 10/L1A1.
- The sewer increases to a DN225 sewer at MH 10/L1A1 and extends to the north west through to MH 5/L1A1 that is located between Jannila Ave and Ross River Rd. The sewer increases in size to a DN300 AC pipe at MH 5/L1A1.
- The DN300 sewer extends to the north east (parallel to Ross River Rd) through to PS L1A (Barellan) that is located opposite the intersection of Jandera St and Barellan St. PS L1A pumps sewage to the east to discharge into a trunk sewer in the catchment of major PS L14A.

Figure 4.1 below is a plot from the Council GIS that illustrates the existing DN150, DN225 & Dn300 sewer system that services the development site. The capacity of the existing sewer system is provided in the following report sections.

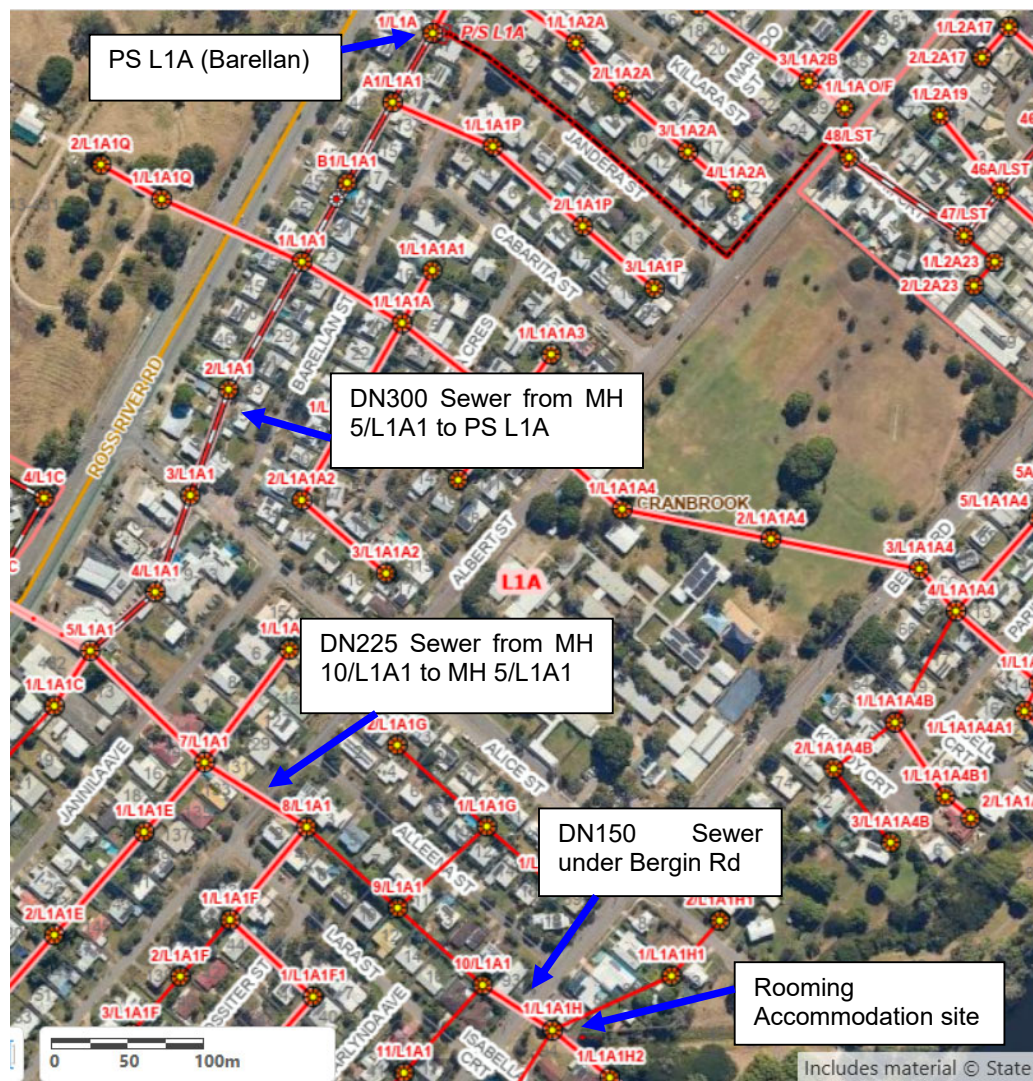


Figure 4.1 – GIS Plot of Existing Sewer System

4.1 Sewage Infrastructure Capacity

The capacity of the existing gravity sewer system to cater for the proposed rooming accommodation development was assessed using the SewerGEMS model developed for the Louisa suburbs of Townsville.

The SewerGEMS model includes the existing reticulation and trunk gravity sewer system from the development site through to existing PS L1A (Barellan St). The additional residential equivalent population has been added to MH 1/L1A1H which is located within the proposed development site.

The additional residential equivalent population loading on MH 1/L1A1H is illustrated in the extract from the SewerGEMS model on Figure 4.2 below.

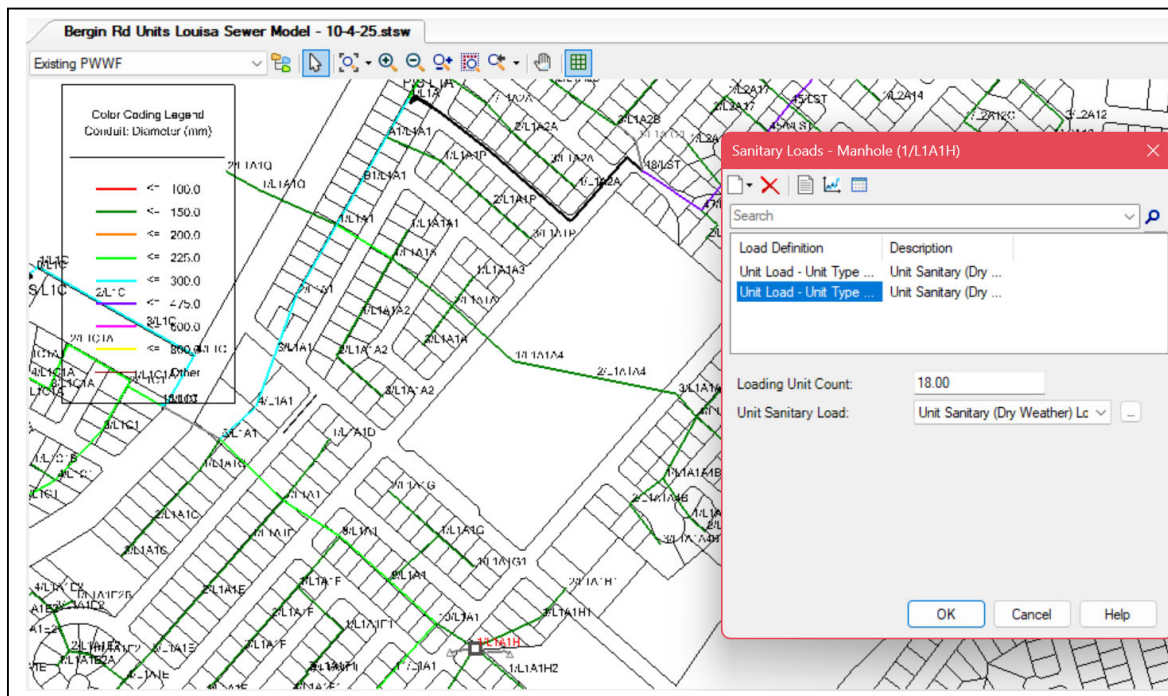


Figure 4.2 – Additional Residential Loading on MH 1/L1A1H

With the inclusion of the additional equivalent population loading on the existing gravity sewer system, the SewerGEMS model has illustrated:

- The existing DN150 sewer from MH 1/L1A1H2 to MH 10/L1A1 (being the reticulation gravity sewer that will service the development site) flows up to 26% full for the peak wet weather flows.
- The existing DN225 sewer from MH 10/L1A1 to MH 5/L1A1 (being the reticulation sewer that runs to the north-west to near Ross River Rd) flows up to 47% full for the peak wet weather flows.
- The final section is an existing DN300 trunk sewer that runs from from MH 5/L1A1 into PS L1A (being the trunk sewer that runs the north-east at the back of the lots between Ross River Rd and Barellan St) flows up to 45% full for the peak wet weather flows.
- All the existing sewers easily flow less than 75% full which is the maximum value allowable in the CTM code.

The following Figure 4.3 provides the flows and performance of the existing gravity sewer system with the inclusion of the additional loading from the proposed rooming accommodation development. A larger version of the modelling results is provided in Appendix C.

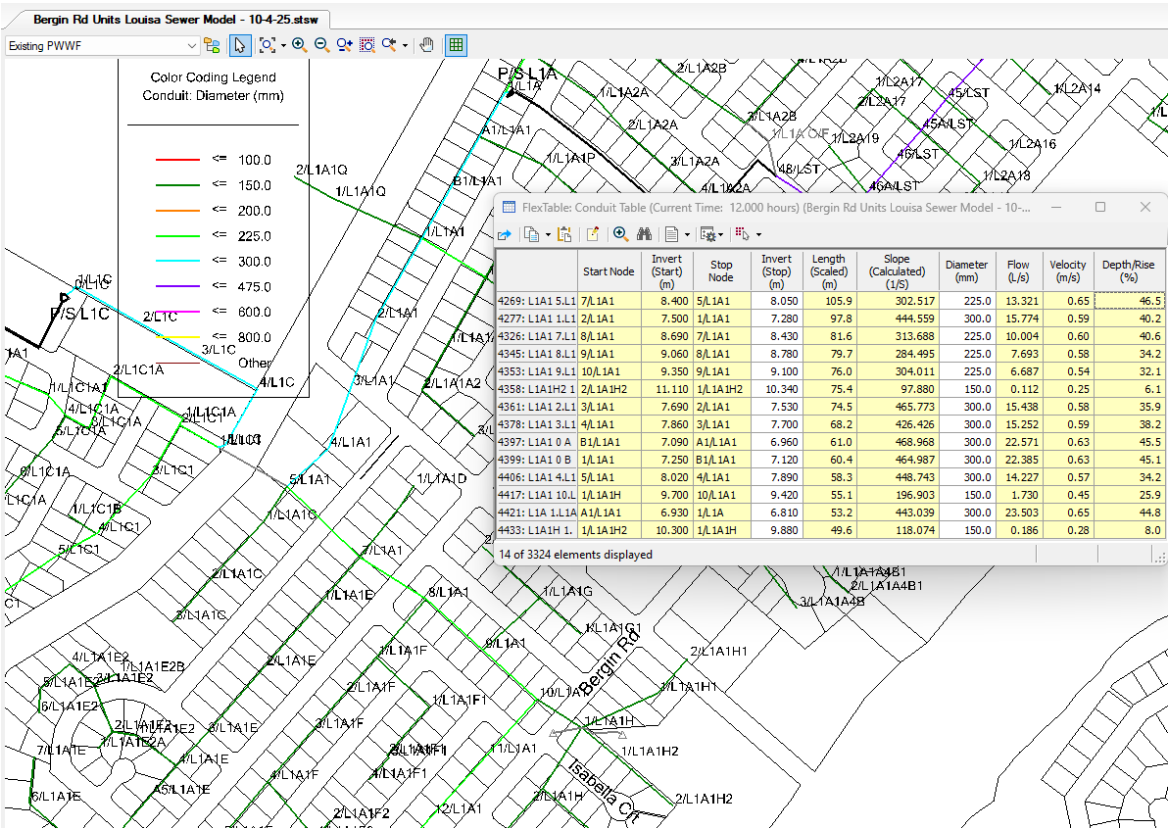
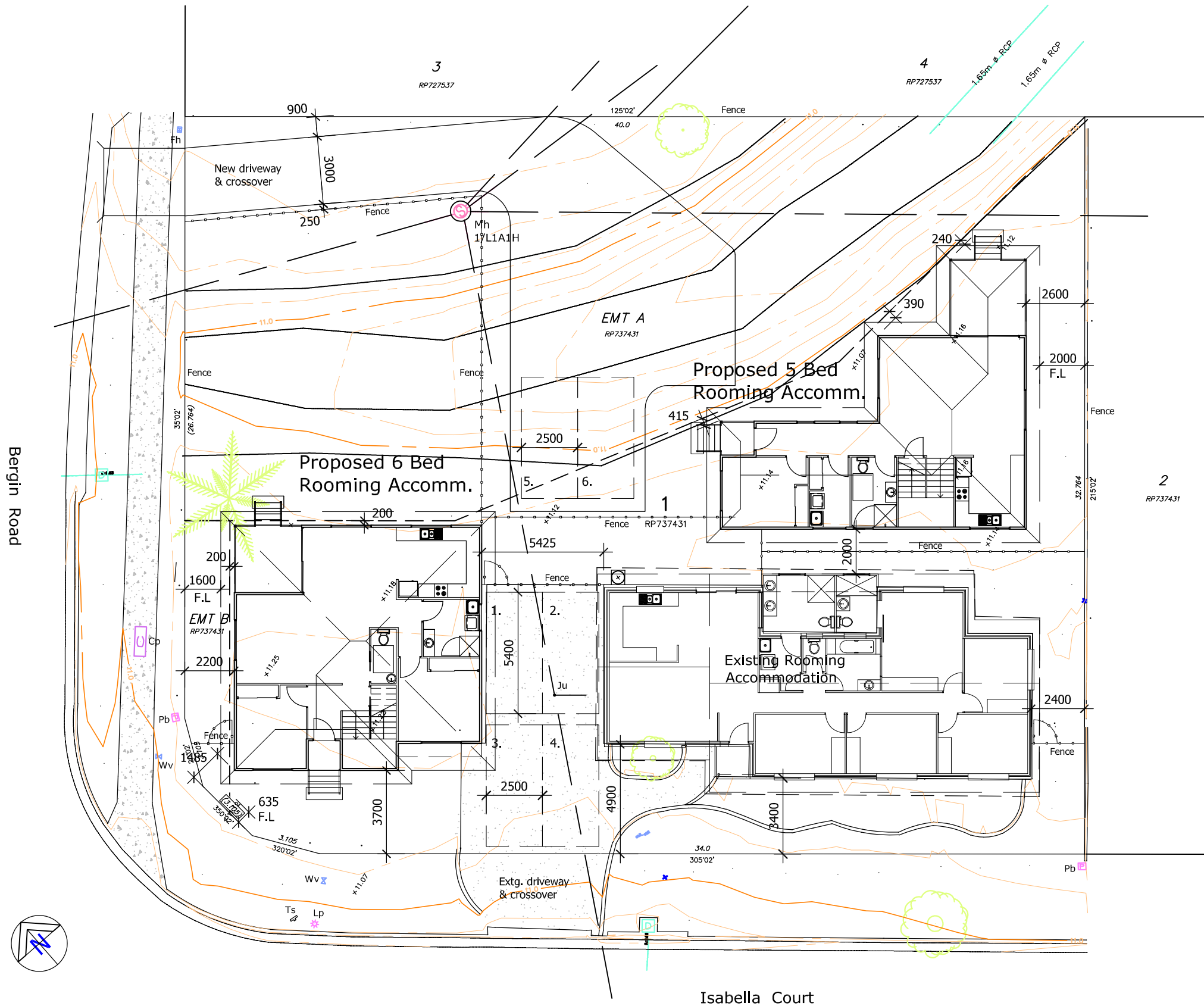


Figure 4.3 – SewerGEMS Modelling Results

The above assessment illustrates the existing gravity sewer system has sufficient capacity to cater for the proposed rooming development at 94 Bergin Rd, Cranbrook.

APPENDIX A RESIDENTIAL ROOMING DEVELOPMENT PLANS



Real Property Description
Lot 1 on RP 737431
Site Area : 1302 m²
Wind Classification : C1

Site Plan
Scale 1:200

- General Notes**
1. Do not scale off drawing check all dimensions & levels on site before commencing work, including location of all services.
 2. Comply with all Local Authority & Building Code of Australia 2022 regulations & all relevant Australian Standard Codes.
 3. Installation of all materials to comply with Manufacturer's Specifications.
 4. Notwithstanding Inspection by an Engineer or Building Certifier, it is the Builder's responsibility to ensure that all works are constructed in accordance with the Building Approval Drawings.
 5. Substitution of any structural member, & variation to any of the design, will void any responsibilities to Benson Building Designs for the performance of the building.
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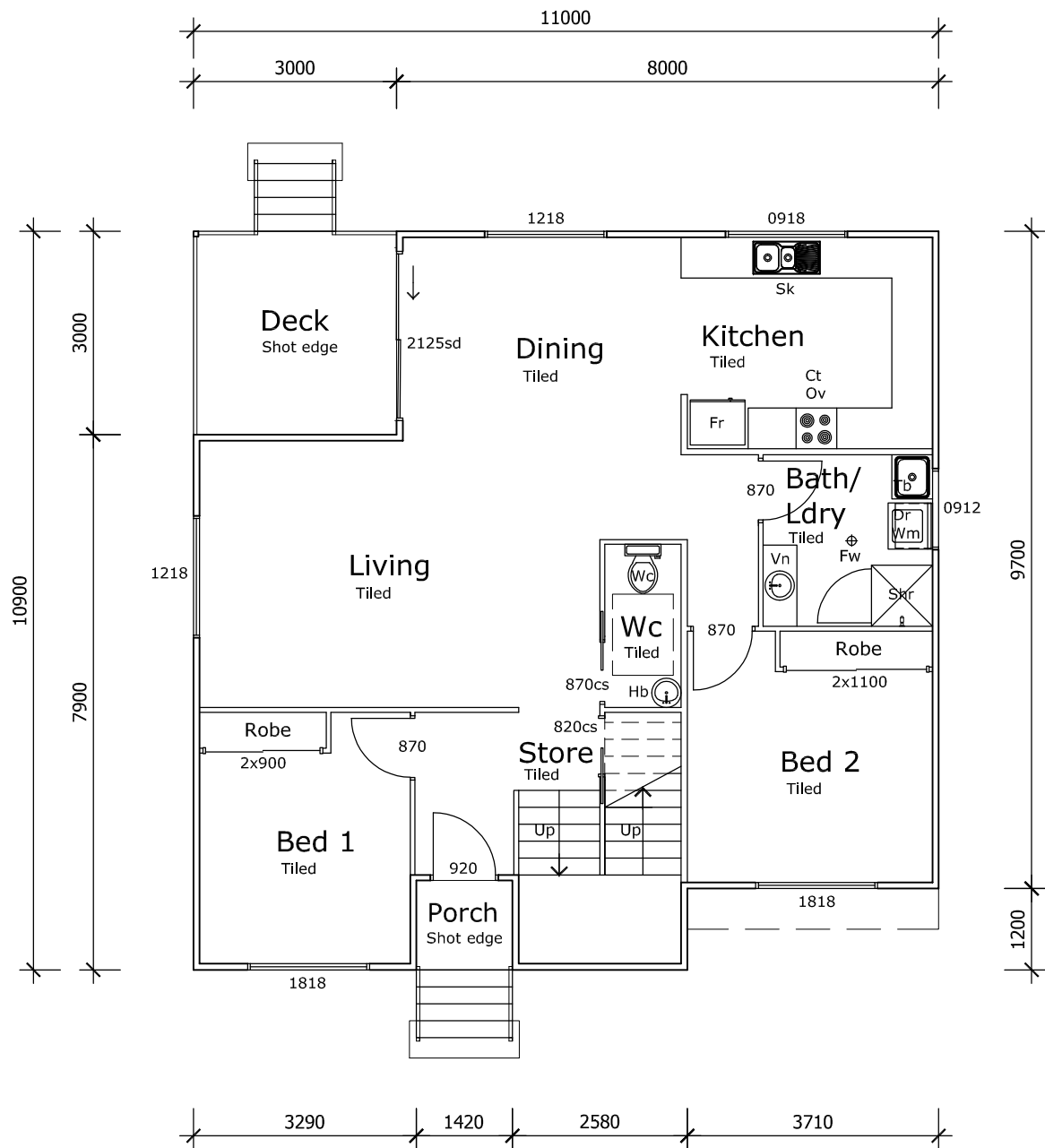
B	Floor Level Raised to 900mm	17/02/25
A	Preliminary Design	24/09/24
No.	Revision/Issue	Date



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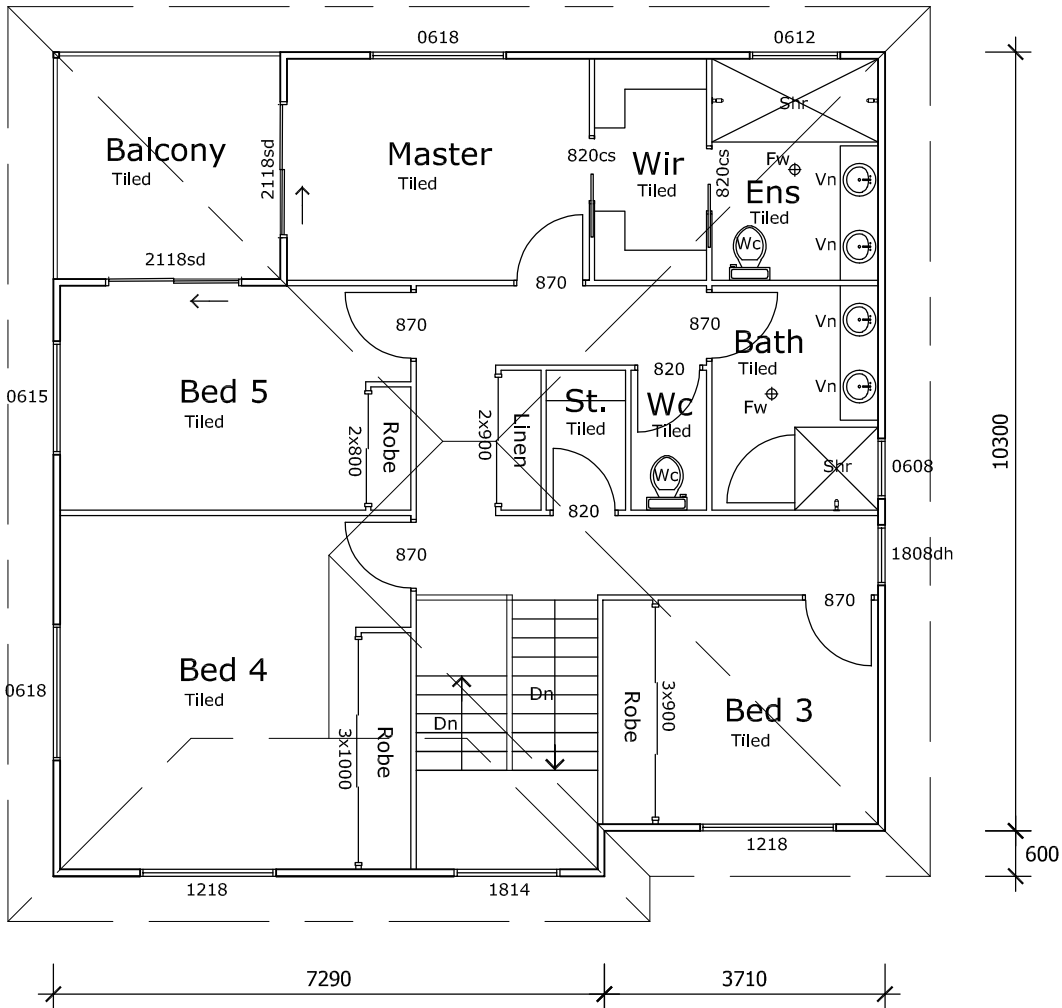
Project Name and Address
Proposed Rooming Accommodation Development
Abel Family Trust Pl
94 Bergin Road,
Cranbrook, Queensland

Project No. 2024-12	Dwg No. DD01	Issue B
Date March, 2024	Designed G.B	
Scale 1:200 @ A3	Drawn G.B	



Ground Floor Plan
Scale 1:100

Floor Areas
Living : 105.14 m ²
Deck : 9.00 m ²
Porch : 1.44m ²
Overall : 115.58 m ²



Upper Floor Plan
Scale 1:100

Floor Areas
Living : 108.74 m ²
Balcony : 9.00m ²
Overall : 117.74 m ²

- General Notes
1. Do not scale off drawing check all dimensions & levels on site before commencing work, including location of all services.
 2. Comply with all Local Authority & Building Code of Australia 2022 regulations & all relevant Australian Standard Codes.
 3. Installation of all materials to comply with Manufacturer's Specifications.
 4. Notwithstanding Inspection by an Engineer or Building Certifier, it is the Builder's responsibility to ensure that all works are constructed in accordance with the Building Approval Drawings.
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B	Floor Level Raised to 900mm	17/02/25
A	Preliminary Design	24/09/24
No.	Revision/Issue	Date



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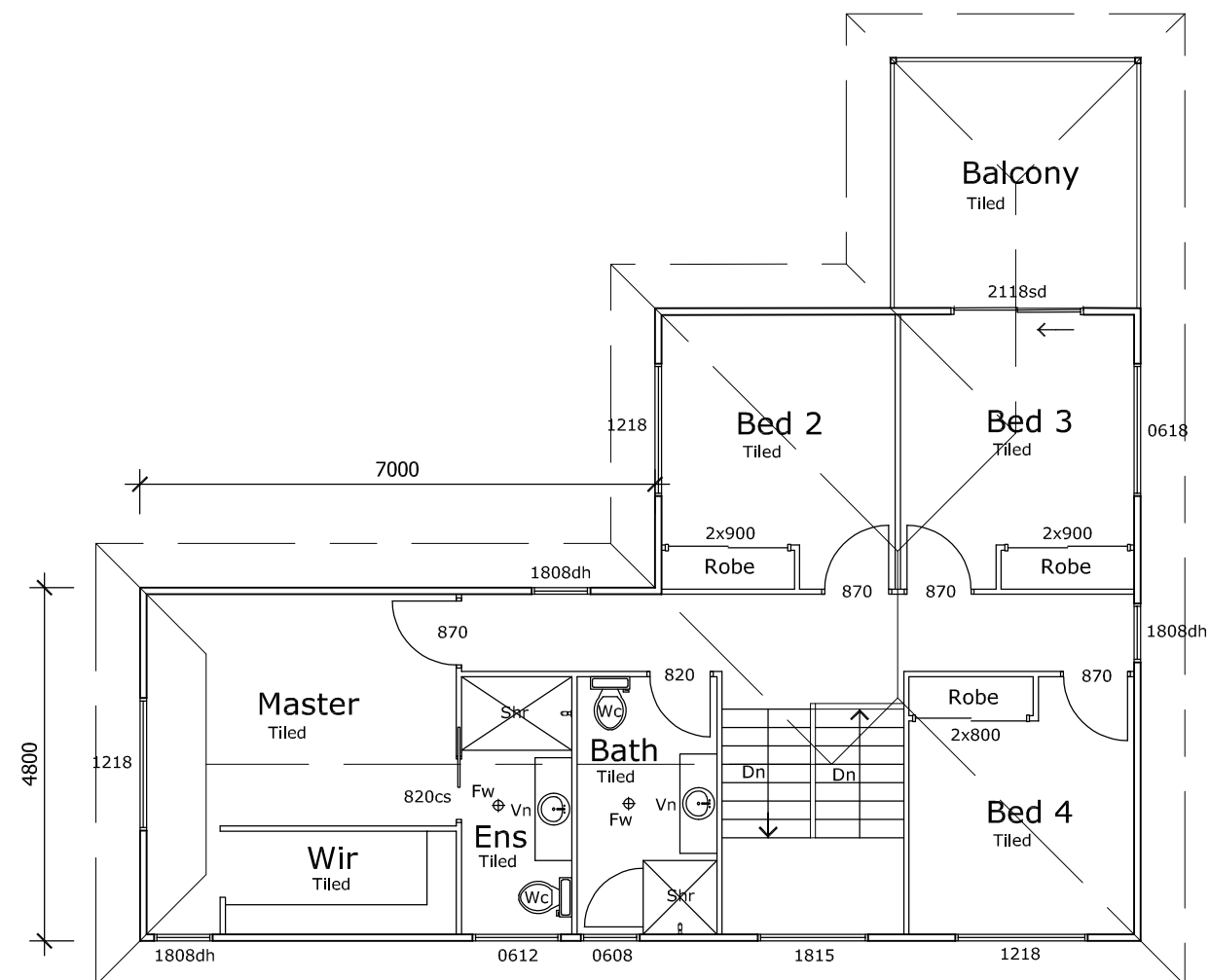
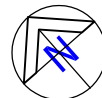
Project Name and Address
Proposed Rooming Accommodation Development
Abel Family Trust Pl
94 Bergin Road,
Cranbrook, Queensland

Project No. 2024-12	Dwg No. DD02	Issue B
Date March, 2024	Designed G.B	
Scale 1:100 @ A3	Drawn G.B	

Ground Floor Plan

Scale 1:100

Floor Areas
Living : 88.25 m²
Patio : 11.56 m²
Porch : 2.10m²
Overall : 101.92 m²



Upper Floor Plan

Scale 1:100

Floor Areas
Living : 90.36 m²
Balcony : 11.56m²
Overall : 101.92 m²

General Notes		
<p>1. Do not scale off drawing check all dimensions & levels on site before commencing work, including location of all services.</p> <p>2. Comply with all Local Authority & Building Code of Australia 2022 regulations & all relevant Australian Standard Codes.</p> <p>3. Installation of all materials to comply with Manufacturer's Specifications.</p> <p>4. Notwithstanding Inspection by an Engineer or Building Certifier, it is the Builder's responsibility to ensure that all works are constructed In accordance with the Building Approval Drawings.</p> <p>5. Substitution of any structural member, & variation to any of the design, will void any responsibilities to Benson Building Designs for the performance of the building.</p> <p>c All rights reserved. No part of this drawing may be reproduced or transmitted in any form by any means without the written permission of the copyright holder Benson Building Designs.</p>		
B	Floor Level Raised to 900mm	17/02/25
A	Preliminary Design	24/09/24
No.	Revision/Issue	Date



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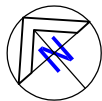
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Project Name and Address

Proposed Rooming Accommodations Development

Abel Family Trust Pl
94 Bergin Road,
Cranbrook, Queensland

Project No. 2024-12	Dwg No. DD05	Issue B
Date March, 2024	Designed G.B	
Scale 1:100 @ A3	Drawn G.B	



Existing Floor Plan



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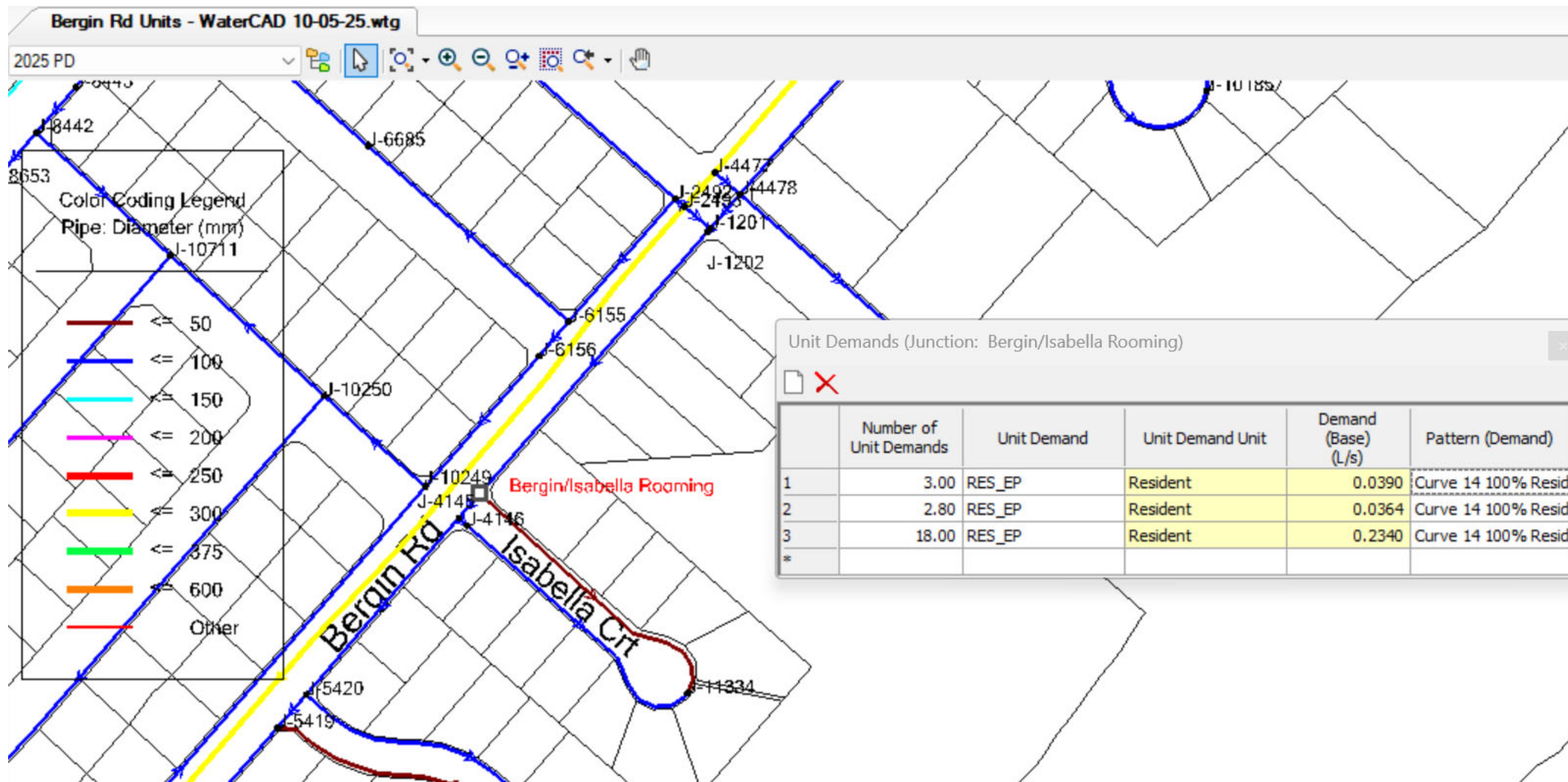
Proposed Rooming Accommodation Development

Abel Family Trust Pl
94 Bergin Road,
Cranbrook, Queensland

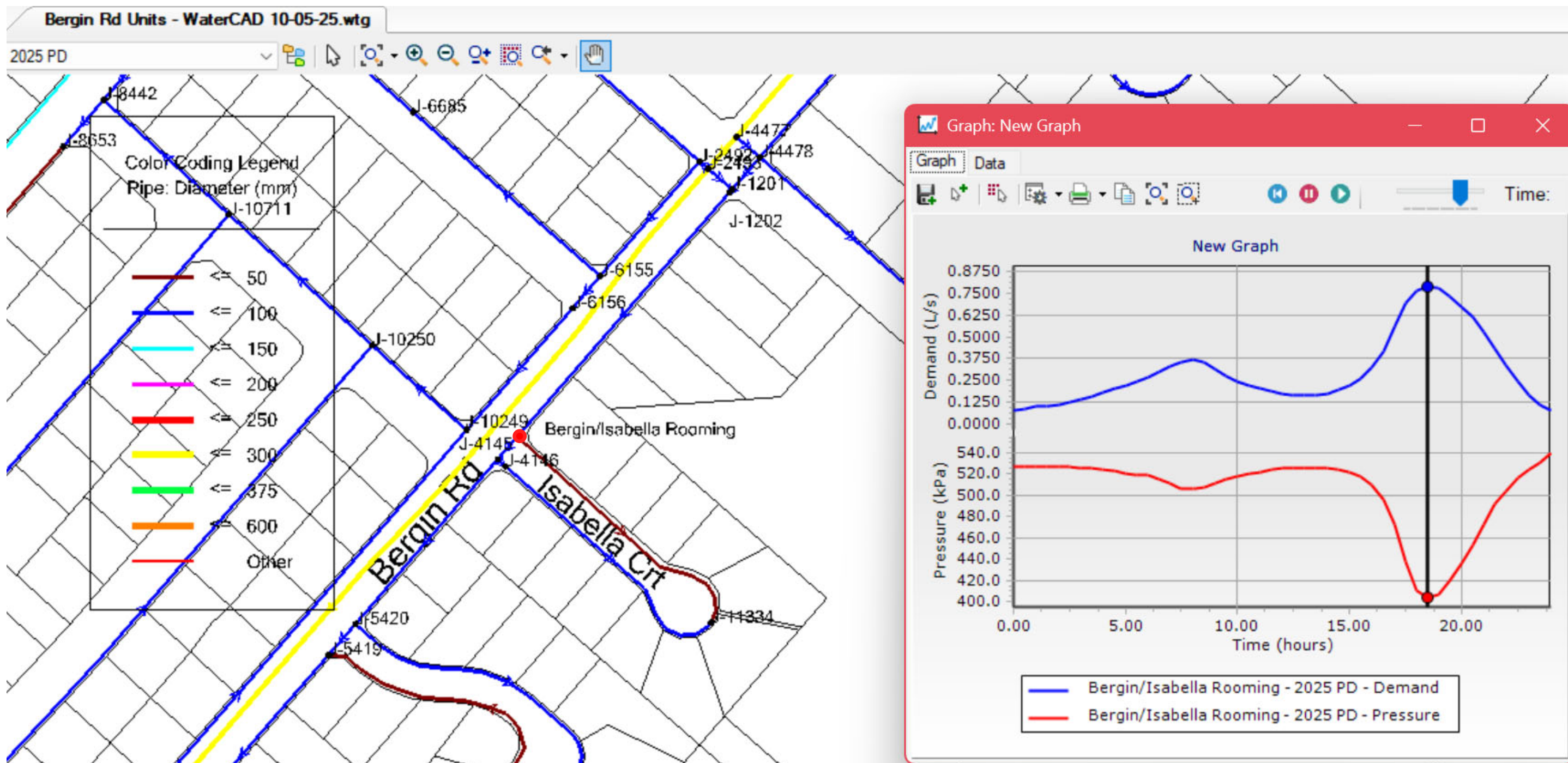
Project No. 2024-12	Dwg No. DD08	Issue A
Date March, 2024	Designed G.B	
Scale 1:100 @ A3	Drawn G.B	

APPENDIX B

WATERGEMS MODELLING RESULTS



WATERGEMS Model With 18 Rooms Development - Water Demand Added



Peak Hour Pressure at Unit Development Node