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Our Ref: **BNC0091/02:IG**
Your Ref: **94 Bergin Rd FIA**

18 July 2025

Abel Family Trust
104 / 2A Wilbar Ave
CRONULLA NSW 2230

Attention: Clayton Abel
Email: clay.abel@outlook.com

Dear Clayton,

RE: MULTIPLE DWELING DEVELOPMENT AT 94 BERGIN ROAD, CRANBROOK – MINOR 2D FLOOD IMPACT ASSESSMENT (FIA) – FLOOD HAZARD AND TRAFFICABILITY UPDATE

In accordance with our engagement please find herein the 2D flood impact assessment (FIA) for the above-mentioned development. This report is amended to include responses to Advice Notice in association with MCU25/0011 dated 14th May 2025. The purpose of this FIA is to demonstrate that the proposed development, inclusive of a proposed 5-bed detached dwelling and carpark (in lieu of the previously proposed 6-bed dwelling), achieves a non-worsening outcome.

NCE have developed a new site-specific 1D/2D TUFLOW model within the existing Ross Creek flood model catchment for the assessment of proposed residential development at 94 Bergin Road, Cranbrook. A review of the Ross Creek and Ross River flood studies indicates that during the 1% AEP event, flood waters do not break the northern bank of the Ross River, subsequently, flooding at the site during the 1% AEP event is associated with the local catchment only. The local catchment is generally bounded by the Ross River high bank to the east and south, Ross River Road to the west and Irving Street to the north, resulting in an area of ~105 ha which forms the model extent. The model has adopted a staged-discharge (rating curve) boundary at suitable locations downstream of the site (over 500m) to ensure there is no influence on flooding characteristics at the site.

The model has been developed using the readily available TCC 2016 LiDAR. The 2016 LiDAR has been adopted in-lieu of the 2019 LiDAR as we understand Councils new model (Ross River 2021) has been developed using 2016 LiDAR. The 2016 LiDAR has a 1m grid resolution which was transposed onto a 5m grid and supplemented by TUFLOW's sub-grid sampling (SGS) feature. The existing buildings located on Lara Street and Isabella Court have been stamped into the baseline model due to being on the critical flow path for the development. Underground drainage infrastructure has been included as a 1D network (data sourced from TCC's open data portal) and as the 1D network extends beyond the model extents, a 1D boundary has been included so that flows in the drainage networks are simulated and transferred outside the 2D domain. The 1D boundaries have been model as HT (water level versus time) with a constant water level equal to the pipe obvert.

Intensity-Frequency-Duration (IFD) data, in accordance with Australian Rainfall and Runoff 2019 (ARR2019), were used for the full suite of design events (50%, 20%, 10%, 5%, 2%, and 1% AEP). The critical storm durations and associated temporal patterns, as defined in the Ross River Flood Study for the development site, are presented in **Table 1**. These parameters were used to generate the total rainfall time series for the rain-on-grid (ROG) hydrologic modelling.

Table 1: Design Events, Critical Duration and Temporal Patterns

Design Event (%AEP)	Critical Duration (min)	Temporal Pattern
50	30	8675
20	90	8750
10	60	8716
5	45	8685
2	90	8731
1	90	8731

Rainfall losses are applied via infiltration which is dependent on the land use / impervious percentage areas as the model adjusts losses in line with the specified fraction impervious to determine the rainfall run-off excess at each time step. The initial and continuing losses adopted in the model for the pervious and impervious areas are in accordance with the Ross River flood study. The land uses adopted for the baseline and development scenarios are shown in **Map A02**, which correlate with those of Council's model.

NCE have carried out an overarching verification by assessing the baseline model against the new Ross River 2021 model and found that the flood depths and height within the model extents are generally in agreement with the TCC's depths. Also, the flood extents show good correlation between the baseline model and TCC's flood mapping for 1% AEP storm event, refer **Figure 1**. Subsequently, the site-specific model is deemed fit for purpose, i.e. assessing potential impact associated with the development.

NCE TUFLOW Mini Model 1% AEP 1.5hr Flood Depth Extent

TCC's Ross River 2021 Model 1% AEP 1.5hr Flood Depth Extent

Figure 1 - 1% AEP Flood Depth Extent Comparison

Following verification, the baseline model was modified to simulate the developed case which included the following:

- The 5-bed detached dwelling is modelled a minimum 300mm above the 1% AEP flood levels. Footprint of the building pad is 2.6m offset from southeast (rear) boundary, 2.0m offset from the existing building and modelled as slab on ground.

- The proposed carpark is filled 250mm above the natural ground. Note that after several iterations of filling the carpark extent, the best achievable outcome that does not create afflux is found to be 250mm.
- Imperviousness of the proposed carpark increased to 100% to represent paved pavement.
- The remaining footprint was maintained at 65% impervious as the proposal does not exceed the allowable fraction impervious/site coverage for residential zones.

The results from each developed scenario were adopted in the flood impact assessment, which is best analysed by assessing the afflux. Afflux is defined as the relative change in a flooding characteristic, namely water surface level (WSL) or velocity, between the baseline and developed scenario. This is determined by subtracting the baseline peak results from the developed peak results, where a positive value represents an increase in the flood characteristic and a negative value is a decrease.

The WSL afflux has been assessed for the major 1% AEP and minor 50% AEP flood events. TCC parameters for acceptable development is +/- 10 mm change in WSL (shown as white in the result mapping). Depending on the circumstances, we are of the opinion that up to +20mm (aqua) is also acceptable in some environments where the impacted areas are not sensitive, and the increase is immaterial. With this in mind, the following commentary is provided.

The inclusion of the building pad and carparks within the developed model for 1% AEP storm does not result in actionable impacts to the adjacent properties or Council's infrastructure, which is illustrated in **Map B01**. The isolated increase between the neighbouring lots is considered nonactionable due to the model resolution and grid positioning. The impacts observed within the development are a direct result of the existing flow path (**Figure 2**) through the site being impeded by the development extent.

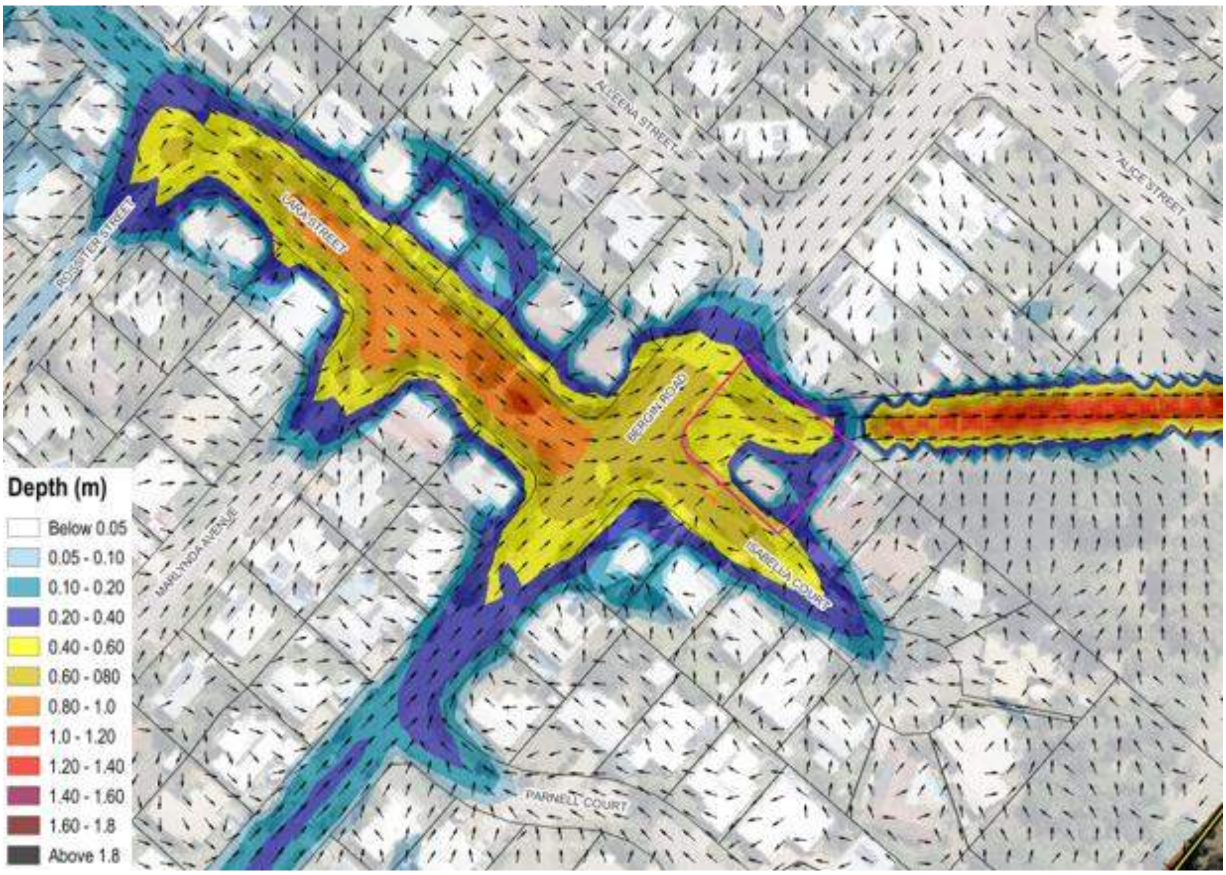


Figure 2 - Baseline flow paths

As shown in **Map B02**, inclusion of the building pads and carpark within the developed model for 50% AEP frequent storm event does not result in any impacts to the adjacent properties or Council's infrastructure.

In the assessments, there are cells that are shown to be wet now when previously dry. This is due to the filtering applied such that the baseline results were removed when filtered but remained in the developed results. This was confirmed by undertaking an assessment on the unfiltered results where it was observed that changes at these cells were 5 mm or less. Furthermore, the assessment has ensured any increase in run-off due to the change in impervious area is accounted for in the assessment. Subsequently, as there is no impacts downstream of the development, and on-site storage is not required.

Finished floor levels (FFL) of the habitable floors are required to be 300mm above the 1% AEP flood level. Therefore, it is recommended that as a minimum the FFL is above the highest 1% AEP flood level, namely 12.00m AHD (300mm above 11.70m AHD) for the 5-bed detached, refer Table 1.

Table 1 – Recommended Finished Floor Levels

Proposal	Recommended Floor Levels (m AHD)
5-bed detached dwelling	12.00

HAZARD AND RISK ANALYSIS

The proposed development is dwelling development within Rooming Accommodation land use in Council's Planning Scheme. In the 1% AEP flood event, the baseline flood hazard classification for the site H1 and H2 in the locations that the dwelling and car park are proposed, respectively, refer **Map D01**. At the intersection Isabella/Lara/Bergin, the flood hazard classification is H3. Based on Australian Rainfall and Run-off (ARR) Book 1, Chapter 5 (Flood Risk):

- H1 (Very Low Hazard):
    - Generally safe for vehicles, people, and buildings.
    - Minor inconvenience with shallow depths and low velocities.
- H2 (Low Hazard):
    - Generally safe for vehicles, people, and buildings.
    - Evacuation is possible for able-bodied persons, though caution is required due to increased depths or velocities.
- H3 (Medium Hazard):
    - Unsafe for small vehicles.
    - Evacuation becomes difficult.
    - Potential structural damage to buildings not designed for flood impacts.
    - Represents a significant hazard to vulnerable persons.

Flood Risk to Development

1. Dwelling and Car Park Area (H1/H2):
    - The dwelling is subject to H1-H2 hazards, indicating:

- Low direct risk to life safety for occupants during design flood if flood.
- Manageable structural risk if the building is designed in accordance with flood-resilient construction standards, including minimum habitable floor levels.
- Car park is subject to shallow flooding, which may:
    - Affect parked vehicles.
    - Create slip/trip hazards but is generally not life-threatening in H1/H2 zones.

2. Access Road (H3):
    - Presents a medium hazard classification with significant implications:
        - Evacuation routes may become unsafe for small vehicles and vulnerable occupants during flood events.
        - Residents may be isolated during flood events, increasing reliance on emergency services.

Overall Flood Risk Assessment

- The dwelling and car park are located in areas where the risk is generally tolerable if the habitable floor levels are designed and constructed at 300mm above the flood level.
- Access inundation (H3) increases flood risk to generally intolerable for evacuation of vulnerable persons; unsafe for small vehicles, subsequently risk mitigation is required.

Risk Mitigation Recommendations

1. Habitable floor level of dwelling to be constructed 300mm above the flood level as detailed in **Table 1**.
2. Assess duration and depth of inundation over the access road and car park to determine realistic evacuation timelines. This has been undertaken and discussed in the following sections, which has led to the development of emergency evacuation requirements, considering the potential for isolation, particularly for vulnerable occupants.
3. There is no alternative access route; however, emergency vehicles are not considered to be a small vehicle and have the potential to navigate the H3 classification.

Implementation of the above mitigations reduces the risk to acceptable/tolerable for the development.

TIME OF ISOLATION UNDER FLOODWATERS

The proposed driveway access and carparks are not trafficable in the major (1% AEP) event if the surface levels left at the natural ground due to flood depth up to 600mm, refer **Map C01**. Therefore, the carparks surface levels have been raised to increase the duration of accessibility and trafficability within the development. The maximum fill that does not cause afflux is determined as 250mm. Subsequently, the maximum flooding depth at the carpark is ~250mm that improves the flood/risk profile lowering from H2 (unsafe for small vehicles) to H1 (generally safe for people, vehicles and buildings). However, for the period that flood depth is above 200mm, it is suggested that flood depth warning signs are installed at the carpark

and an emergency plan is in place for the proposed development. The time of isolation is discussed as follows:

Primary access to the development is expected to occur via Ross River Road – Alice Street – Bergin Road. The trafficability and site access assessment has been based on the critical access route along Bergin Road, with particular focus on the intersection at Isabella Court. The flood hazard maps (**D01** to **D06**) depicts the primary access road to development site. The period of development inaccessibility has been determined by assessing when flood depths at the Bergin Road–Isabella Court intersection exceed 200 mm and flood hazard classifications exceed H1. Subsequently, the roads trafficability during 1% AEP, 2% AEP, 5% AEP, 10% AEP, 10% AEP and 50% AEP storm has been analysed via depth and flood hazard hydrographs derived from TUFLOW for **Location 1** (proposed carpark) and **Location 2** (road intersection) which are also marked on maps **B01** and **B02**.

ROADS TRAFFICABILITY FOR VARIOUS AEP EVENTS

Figure 3 and **Figure 4** depicts the depth hydrograph and the hazard classification during various AEP events, specifically on **Location 2** shown in **B01** - the road intersection. As seen, during a 1% AEP and 2% AEP event, the road intersection is inundated to a depth exceeding 200 mm for approximately 1.5 hours. In the case of 5 % AEP to 20% AEP storm event, inundation above 200 mm lasts for approximately 0.5 hours, with the carpark continuing to provide safe access for pedestrians and small cars. For the 50% AEP storm event, no inundation occurs at the road intersection or within the proposed carparks, ensuring uninterrupted trafficability for all users.

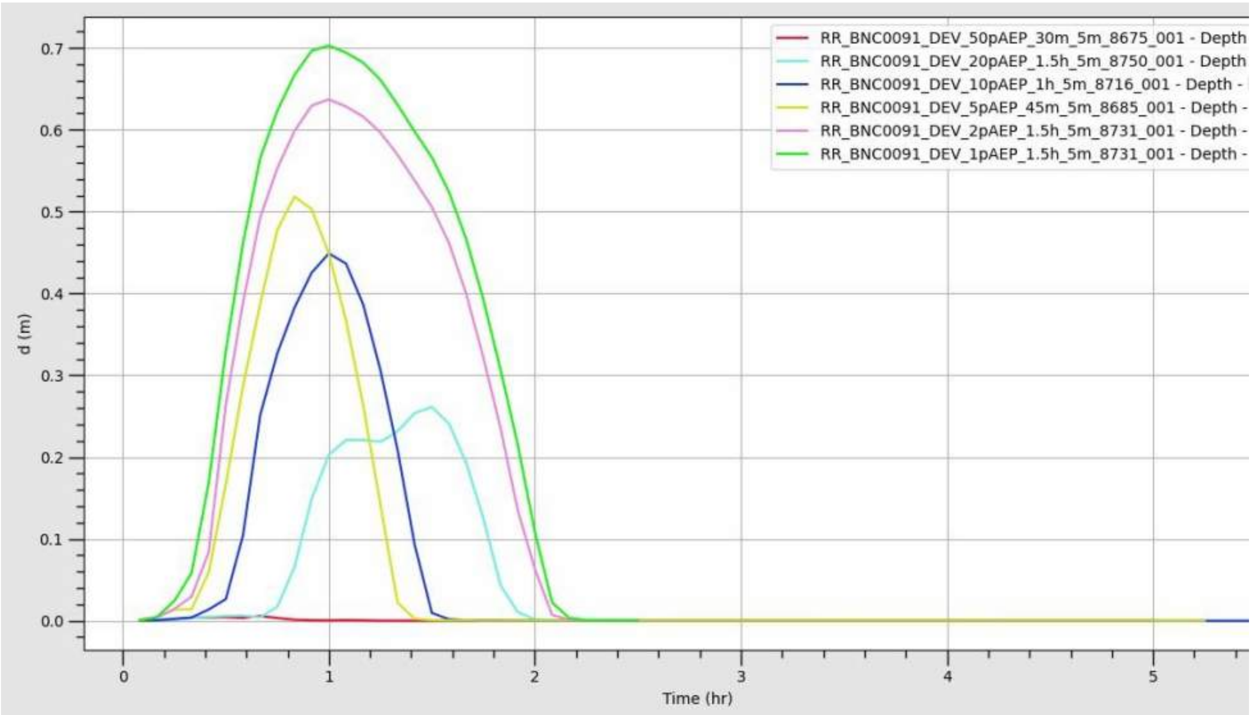


Figure 3 – Various AEP Events Flood Depth Hydrograph (Location 2 – road)

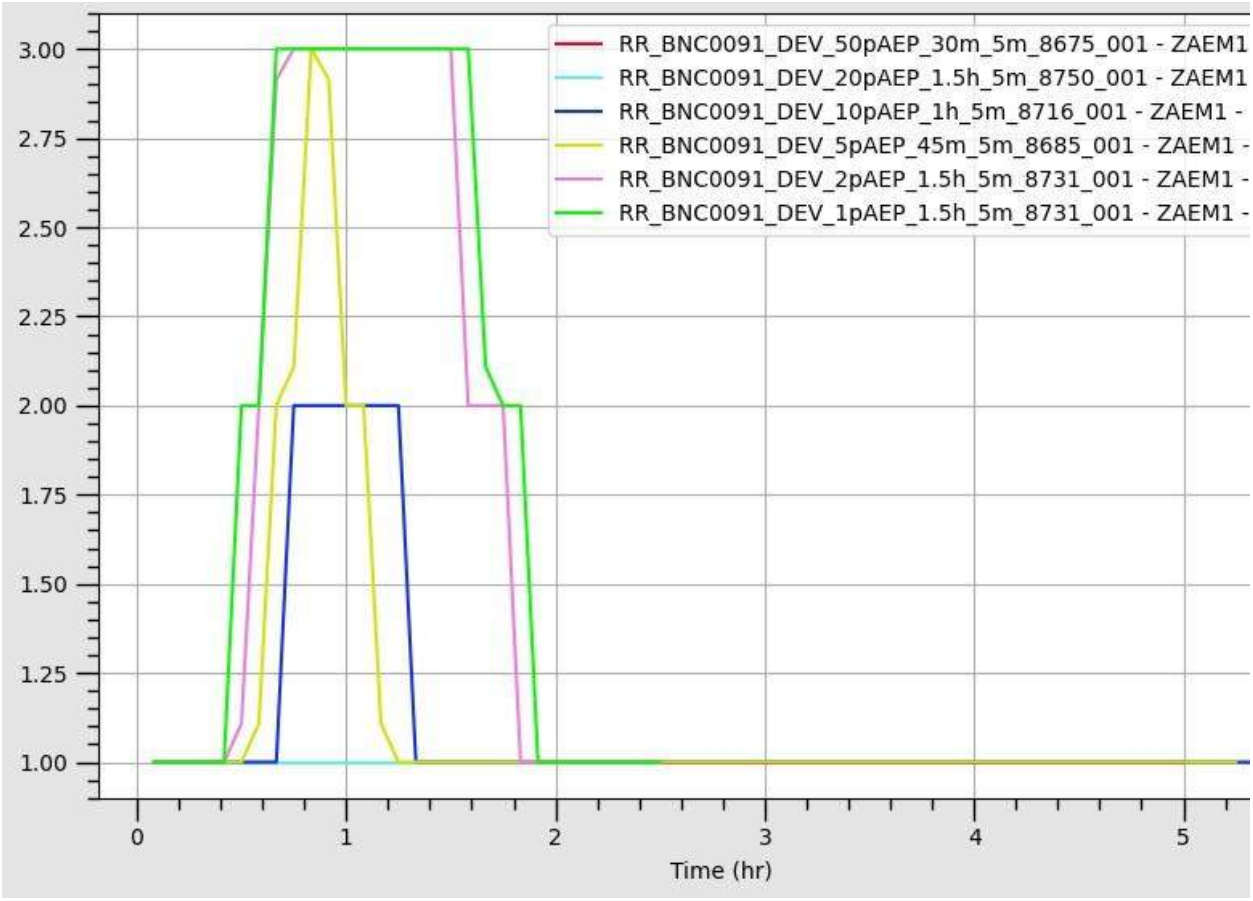


Figure 4 - 1% AEP Flood Hazard Classification (Location 2 – road)

In addition, the velocity hydrograph for the road intersection is shown on **Figure 5**. As expected, the peak velocities generally increase with decreasing AEP, indicating higher storm severity. The 1% AEP event (orange line) records the highest peak velocity of approximately 0.35 m/s, followed closely by the 2% and 5% AEP events, which also exhibit elevated velocities above 0.3 m/s. In contrast, the 50% AEP event (pink line) maintains significantly lower velocities, remaining below 0.15 m/s for the entire duration, reflecting its relatively minor hydraulic impact. All events demonstrate a similar trend of rapid rise to peak velocity within the first hour, followed by a steady decline toward negligible levels by approximately 3 hours.

Overall, there is only a 1.5 hour period in which emergency access; however, occupants can remain safe in the dwelling during this period.

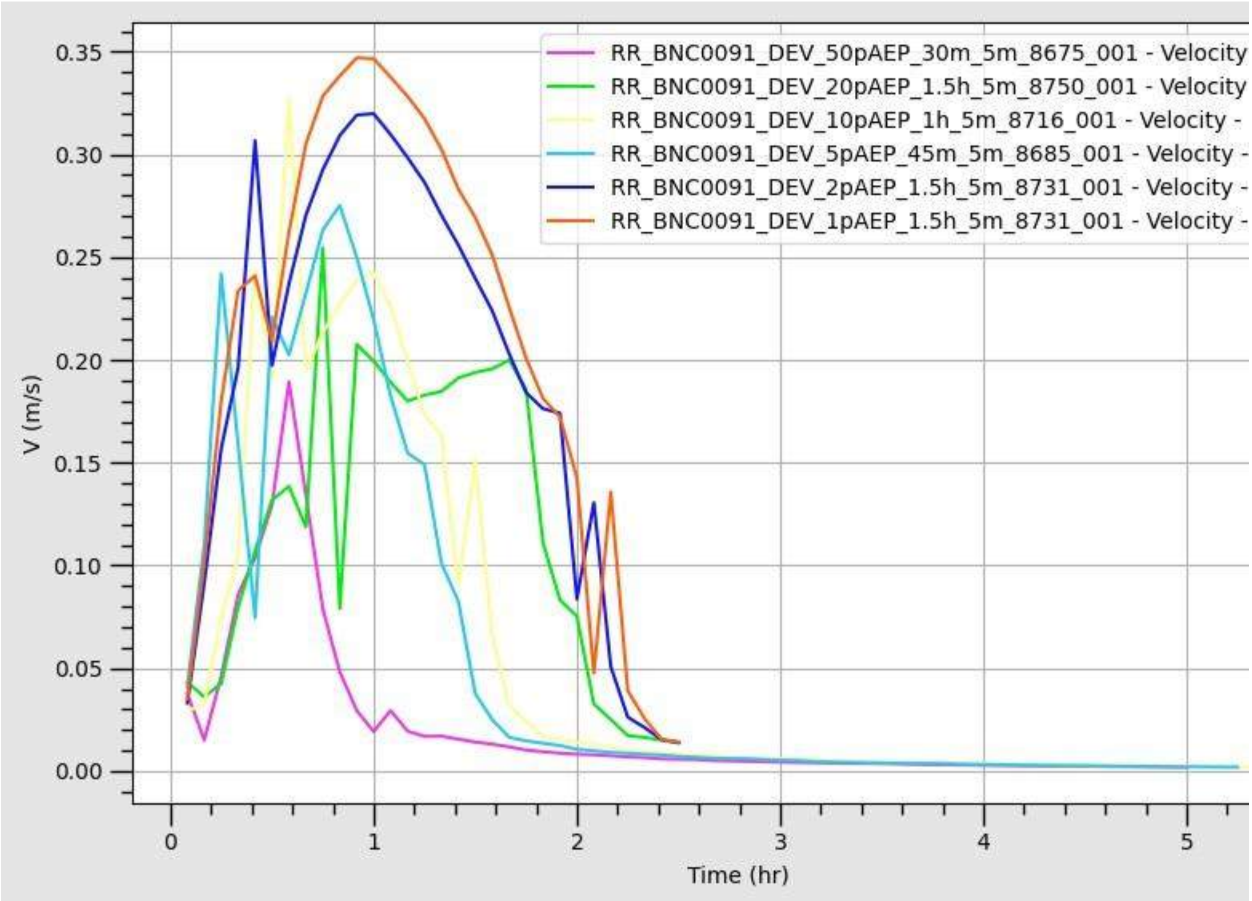


Figure 5 - 1% AEP Flood Velocity Hydrograph (Location 2 – road)

CARPARK VULNERABILITY

Figure 6 shows the flooding depth at the carpark after being filled 250mm, specifically on **Location 1** on map **B01,** for all events; 50% AEP, 20% AEP, 10% AEP, 5% AEP, 2% AEP and 1% AEP. As seen, the carpark is trafficable up to 1% AEP event where the flooding depth reaches above 200mm. As a result, the carpark is trafficable and safe for travel during the majority of storm events, with conditions remaining suitable up to the 2% AEP event. Exceedances are limited to the more extreme 1% AEP event, which is a relatively rare occurrence. Therefore, the carpark can be considered safe for travel under typical weather conditions.

Although the carpark is generally safe, it is recommended that signage be installed advising that the car park is subject to flooding, up to 250mm in significant rainfall events and vehicles should be relocated to high ground near the intersection of Bergin/Alleena.

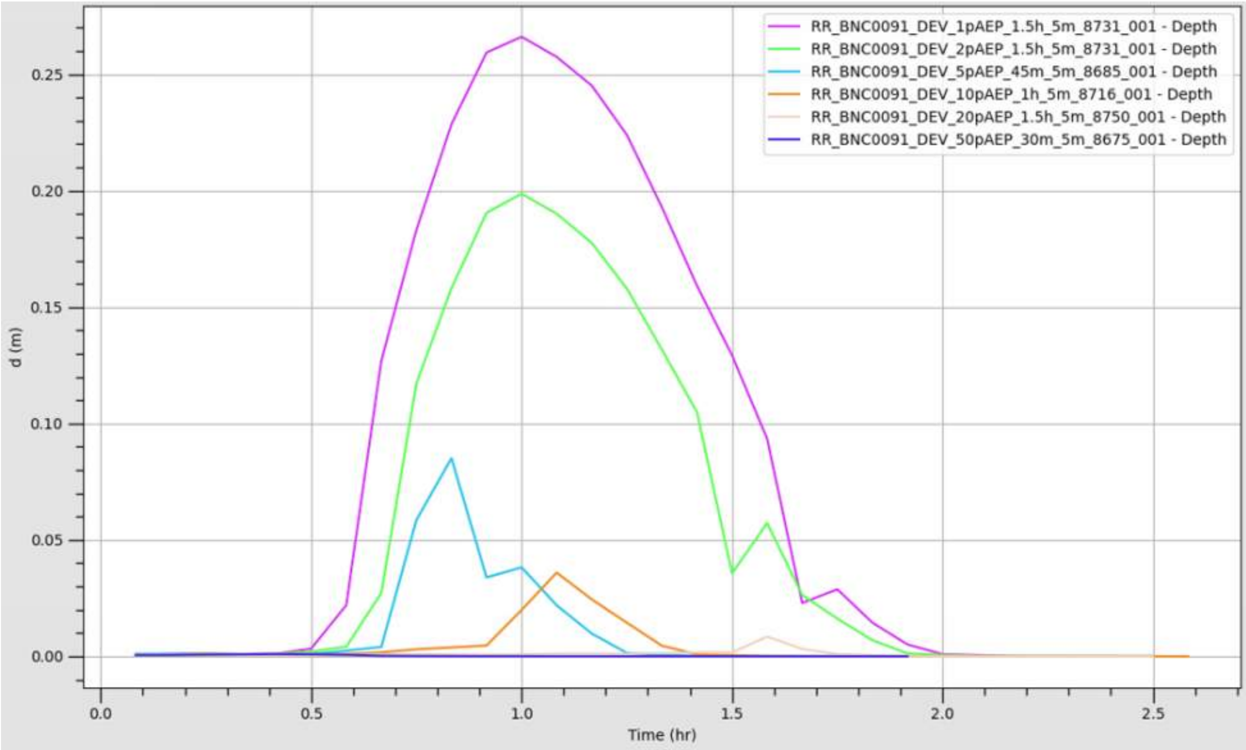


Figure 6 – All Events Flood Depth Hydrograph

Figure 7 illustrates the hazard classification over time and **Figure 8** shows the velocity hydrograph for the carpark. The location only transitions into a potentially hazardous condition for people or vehicles during the most extreme event (1% AEP) however it is still trafficable with flood depth under 200 mm and velocity is under 0.6 m/s. For all other storm events, the hazard level remains at or near the baseline value of 1.0, indicating minimal flood-related safety concerns under those conditions.

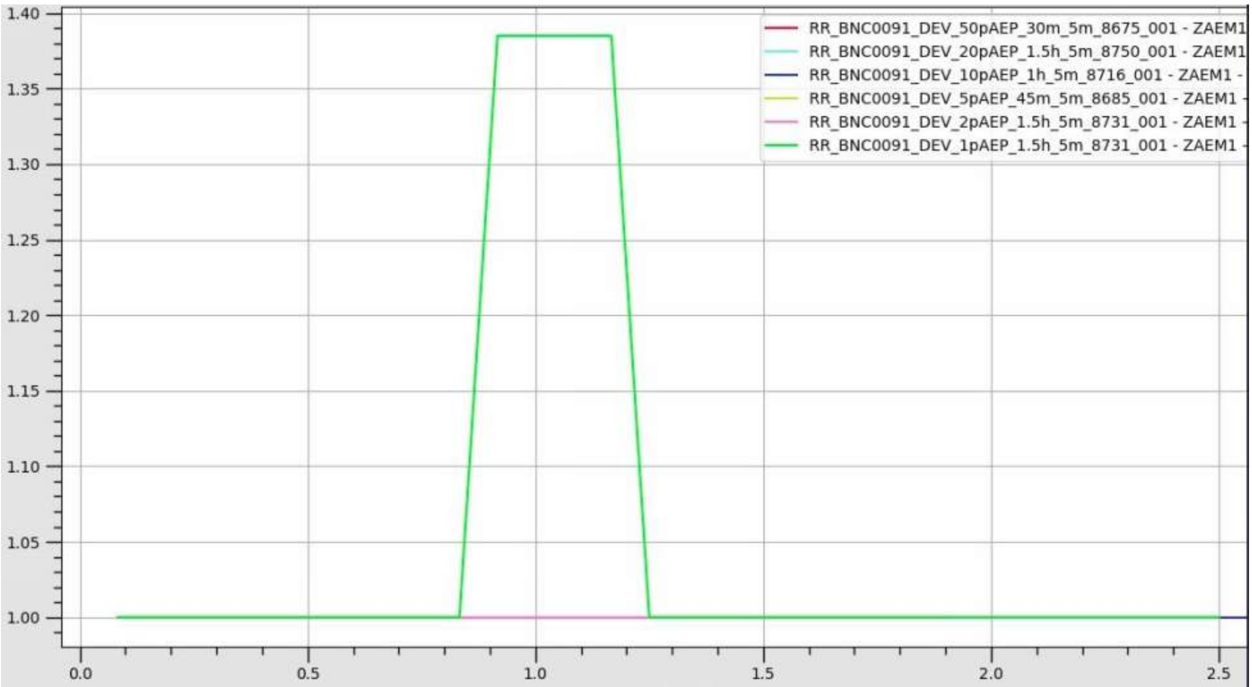


Figure 7 – All Events Flood Hazard Classification

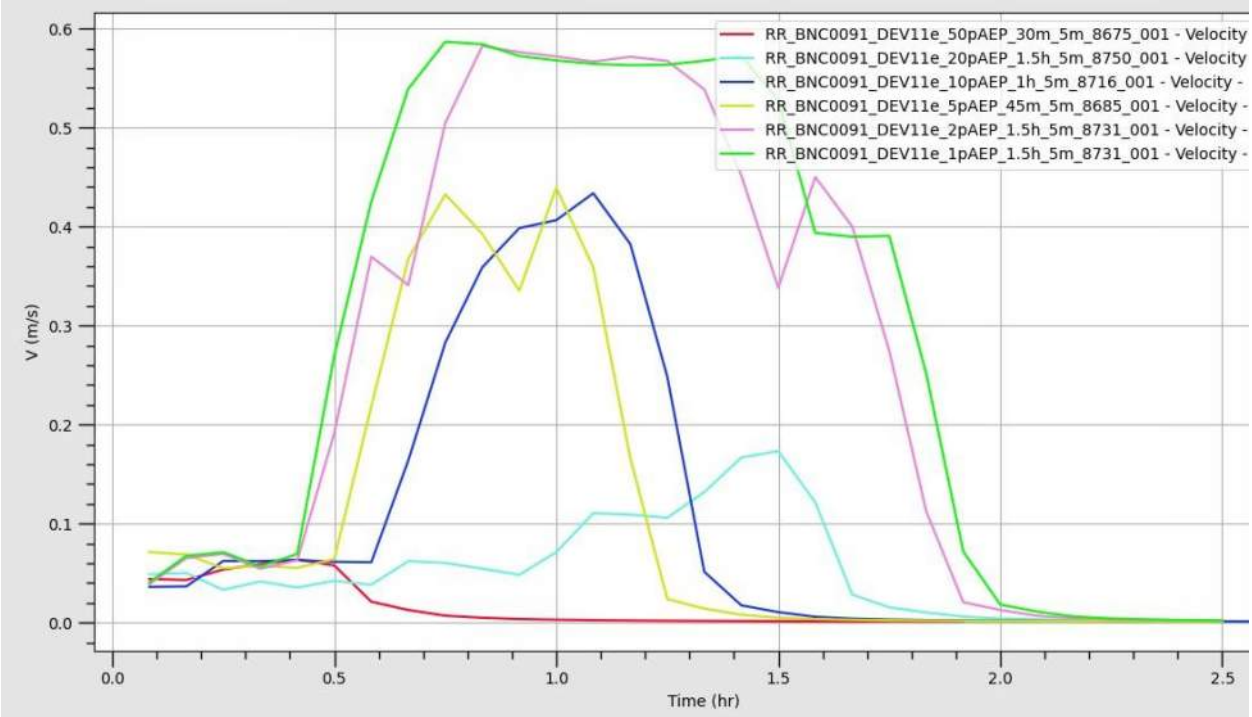


Figure 8 – All Events Flood Velocity Hydrograph

EMERGENCY EVACUATION REQUIREMENTS

In the context of practical flood emergency measures to reduce any damage and ensure public safety suggested measures prior to flood events are provided in **Appendix F**. As detailed on the redline markup installing flood warning signs and a communication protocol (e.g., SMS or app-based alerts) should be established to inform users of the potential flood risks including time of inundation and isolation period.

Based on the flood modelling results, the proposed carparks remain accessible and free from hazardous conditions during all assessed storm events, including up to the 1% AEP event. Velocity and depth conditions within the carpark area remain below critical thresholds for pedestrian and vehicle safety, and hazard classifications stay at or near the baseline level, except for brief periods during the most extreme event. As such, the carparks can be considered suitable for safe vehicle storage and pedestrian movement.

Given the above, the flood modelling demonstrates the proposed development can achieve an acceptable outcome that is aligned with the intent of the flood hazard overlay code.

Please do not hesitate to contact the undersigned on 07 4725 5550 if you have any questions regarding this response.

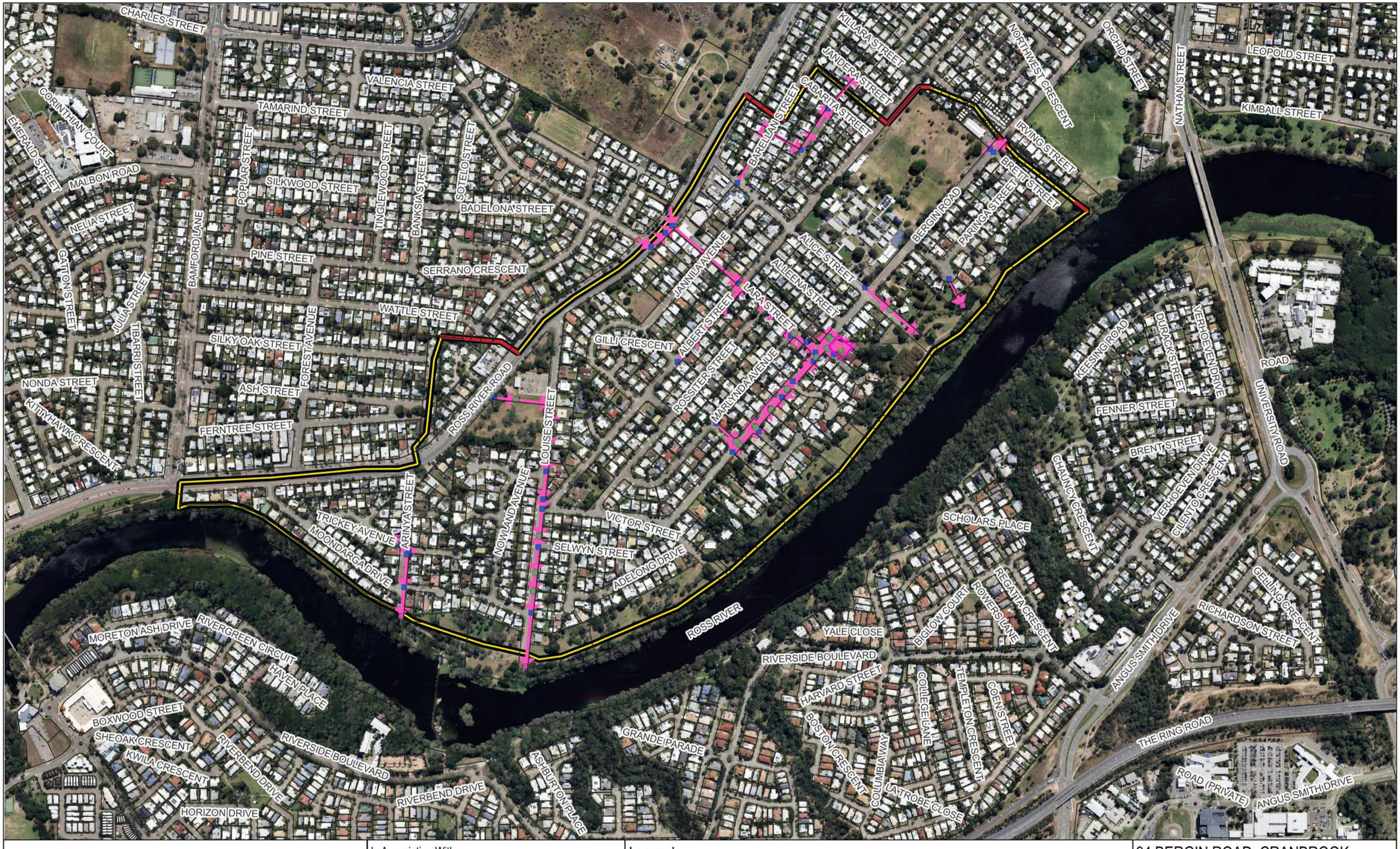
Yours sincerely,

IREM GUNEY
Civil Engineer

Approved,

JOHN SINGLE
Senior Civil Engineer (RPEQ 24378)

Encl. Appendix A: TUFLOW Model Setup – Model Materials, Appendix B: Afflux Mapping, Appendix C: Flood Depth Mapping, Appendix D: Flood Hazard Mapping, Appendix E: Velocity-Depth Product, Appendix F: Flood Warning Mark Up by NCE



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0 50 100 150 200 250 m

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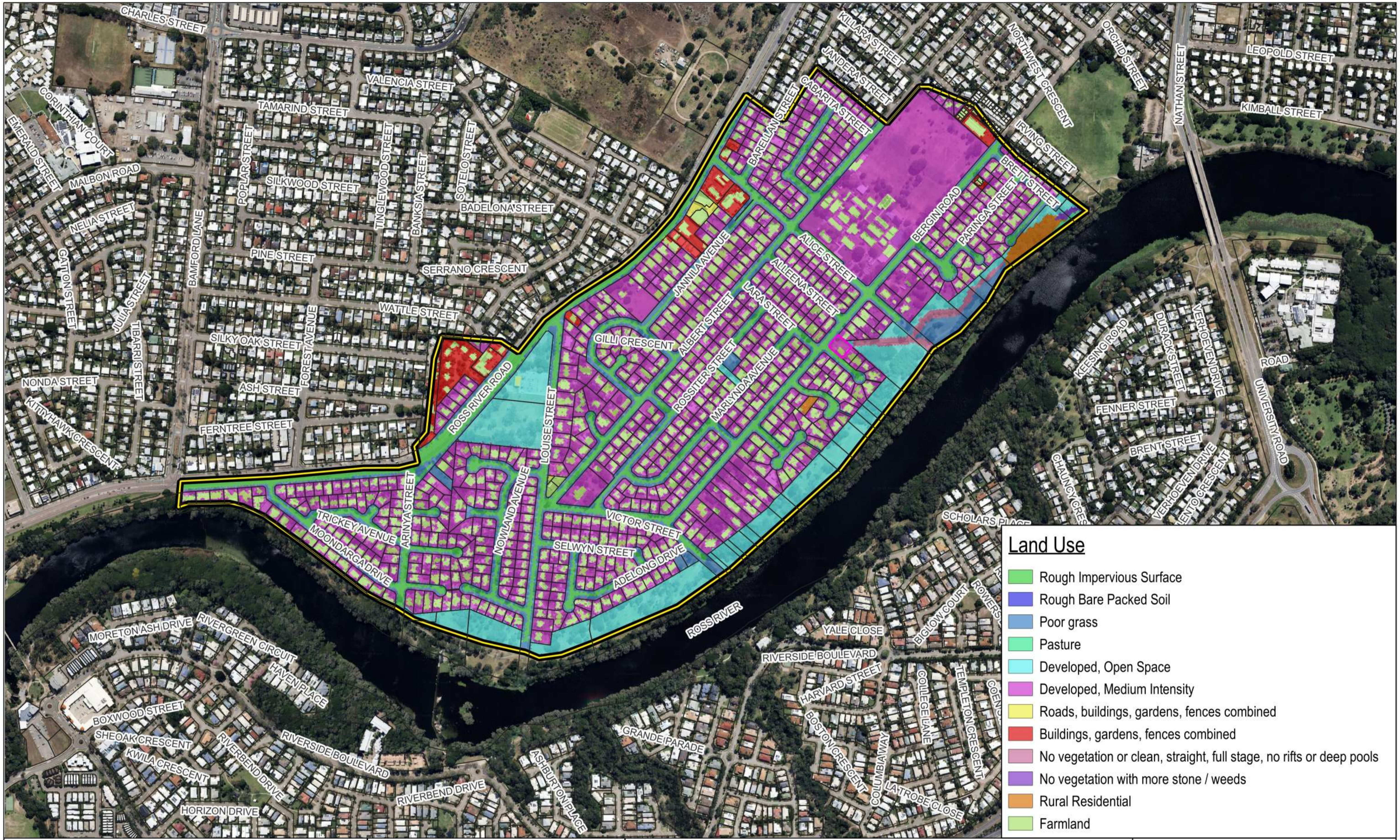
Legend

- Hydraulic Model Extent
- Development Site
- TCC Land Parcels
- External Inflows
- Staged Discharge Boundary
- Flow vs Time Pipe Inflows
- Constant Height Pipe Outflows
- TCC's Stormwater Pipes
- TCC's Stormwater Outlets
- TCC's Stormwater Inlets

94 BERGIN ROAD, CRANBROOK MULTIPLE DWELLING DEVELOPMENT

TUFLOW MODEL SETUP

Prepared By: IG Reviewed by: JS	Date: **13/12/2024** Revision: **A** NCE Ref: **BNC0091**	Size **A3**	Map **A01**



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Legend

Hydraulic Model Extent | Development Site | TCC Land Parcels

94 BERGIN ROAD, CRANBROOK
MULTIPLE DWELLING DEVELOPMENT

MODEL MATERIALS

Prepared By: IG Reviewed by: JS	Date: 13/12/2024 Revision: A NCE Ref: BNC0091	Size A3	Map A02

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Legend

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

94 BERGIN ROAD, CRANBROOK
MULTIPLE DWELLING DEVELOPMENT

1% AEP WSL AFFLUX

Prepared By: IG Reviewed by: JS	Date: **26/06/2025** Revision: **B** NCE Ref: **BNC0091**	Size **A3**	Map **B01**

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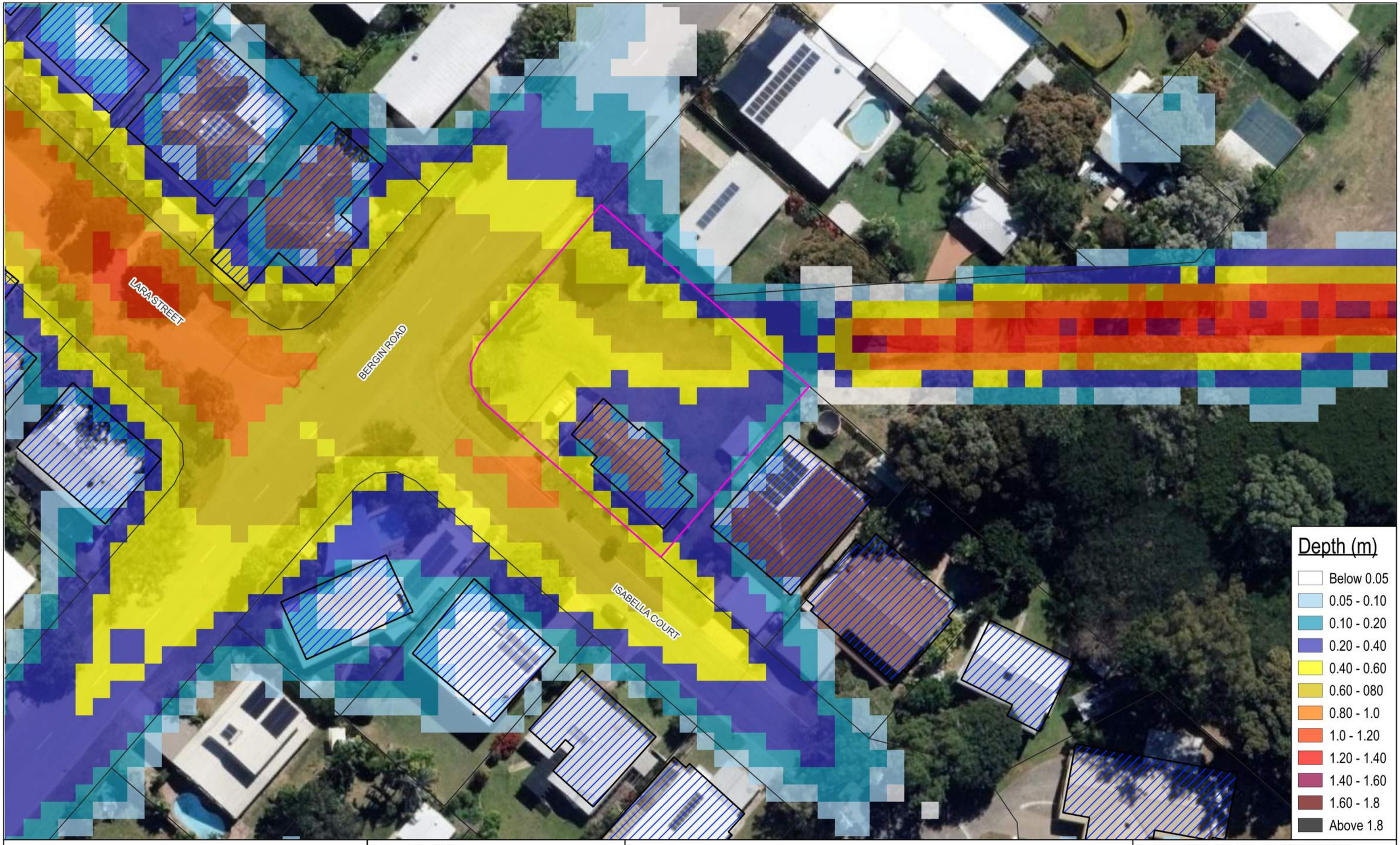
- Proposed Carpark
- Hydrograph Locations

94 BERGIN ROAD, CRANBROOK
MULTIPLE DWELLING DEVELOPMENT

50% AEP WSL AFFLUX

Prepared By: IG Reviewed by: JS	Date: **26/06/2025** Revision: **B** NCE Ref: **BNC0091**	Size **A3**	Map **B02**



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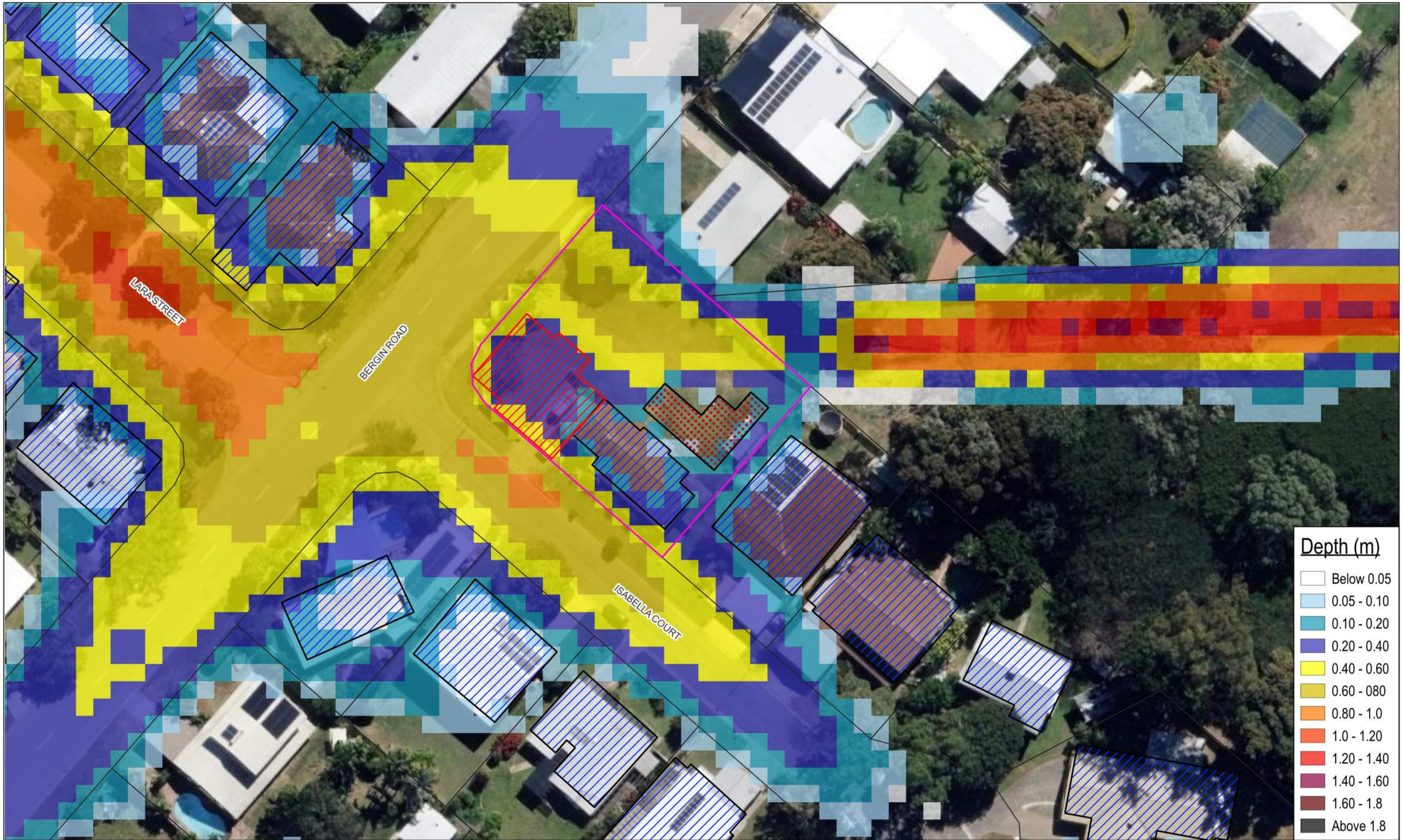
- Development Site
- TCC Land Parcels
- Existing Buildings

94 BERGIN ROAD, CRANBROOK
MULTIPLE DWELLING DEVELOPMENT

1% AEP BASELINE FLOOD DEPTH

Prepared By: IG Reviewed by: JS	Date: **09/06/2025** Revision: **B** NCE Ref: **BNC0091**	Size **A3**	Map **C01**



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- Proposed 5 Bed Detached Dwelling on Slab
- Proposed Carpark

94 BERGIN ROAD, CRANBROOK
MULTIPLE DWELLING DEVELOPMENT

1% AEP DEVELOPED FLOOD DEPTH

Prepared By: IG Reviewed by: JS	Date: 05/06/2025 Revision: B NCE Ref: BNC0091	Size A3	Map C02

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- TCC Land Parcels
- Existing Buildings

94 BERGIN ROAD, CRANBROOK
MULTIPLE DWELLING DEVELOPMENT

50% AEP BASELINE FLOOD DEPTH

Prepared By: IG Reviewed by: JS	Date: **09/06/2025** Revision: **A** NCE Ref: **BNC0091**	Size **A3**	Map **C03**

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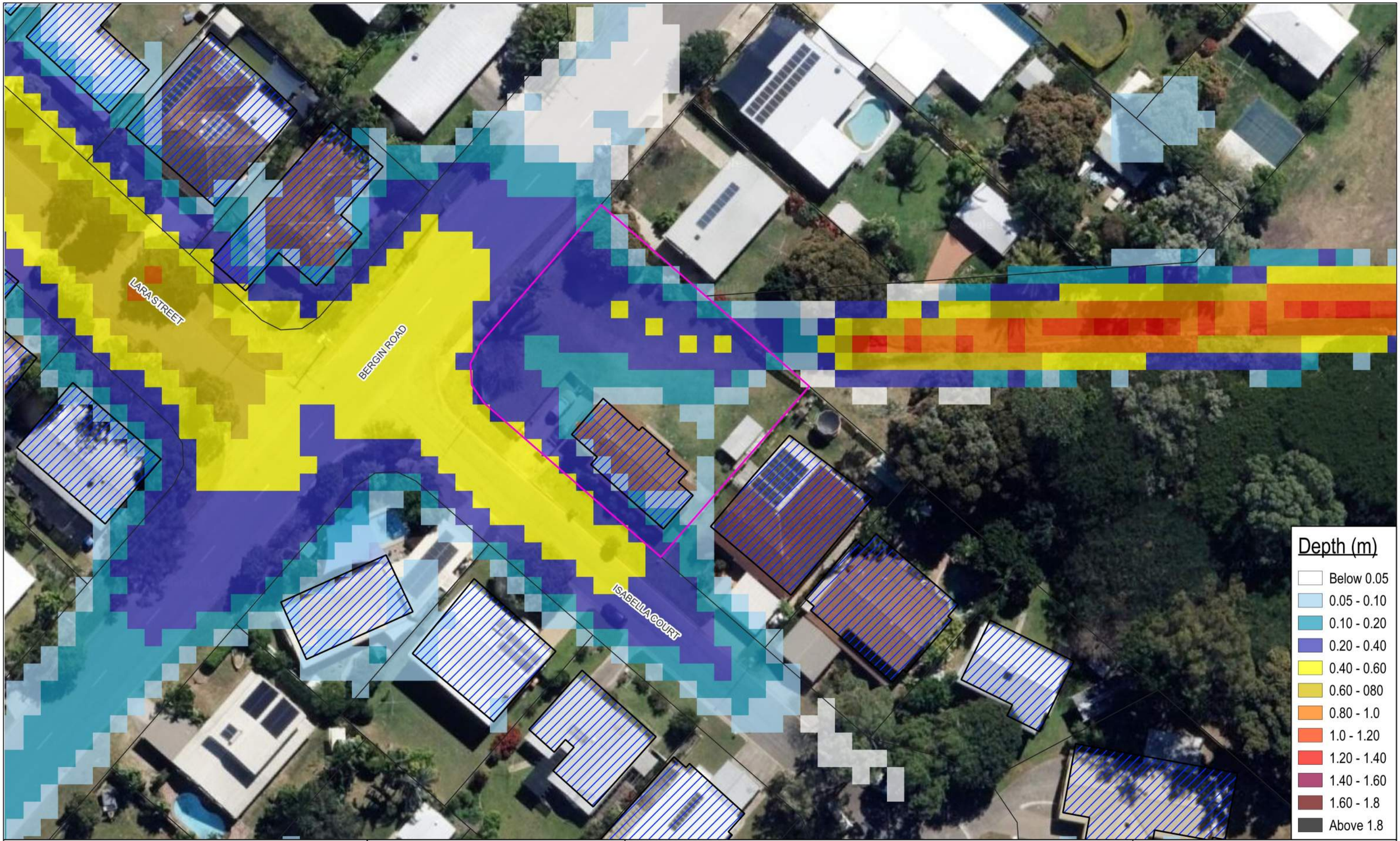
- Proposed Carpark

94 BERGIN ROAD, CRANBROOK
MULTIPLE DWELLING DEVELOPMENT

50% AEP DEVELOPED FLOOD DEPTH

Prepared By: IG Reviewed by: JS	Date: **05/06/2025** Revision: **B** NCE Ref: **BNC0091**	Size **A3**	Map **C04**



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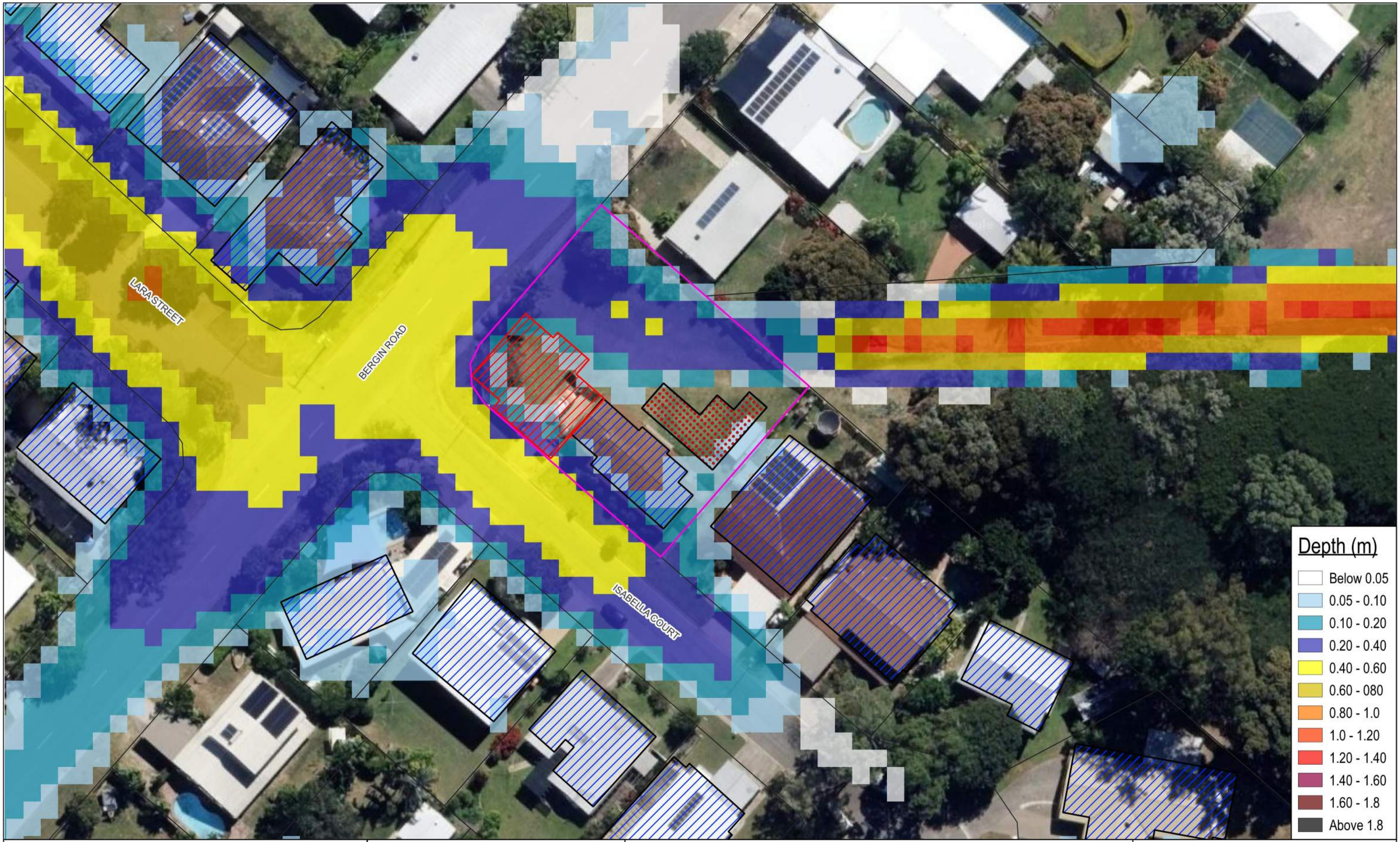
- Development Site
- TCC Land Parcels
- Existing Buildings

94 BERGIN ROAD, CRANBROOK
MULTIPLE DWELLING DEVELOPMENT

10% AEP BASELINE FLOOD DEPTH

Prepared By: IG Reviewed by: JS	Date: **06/06/2025** Revision: **A** NCE Ref: **BNC0091**	Size **A3**	Map **C05**



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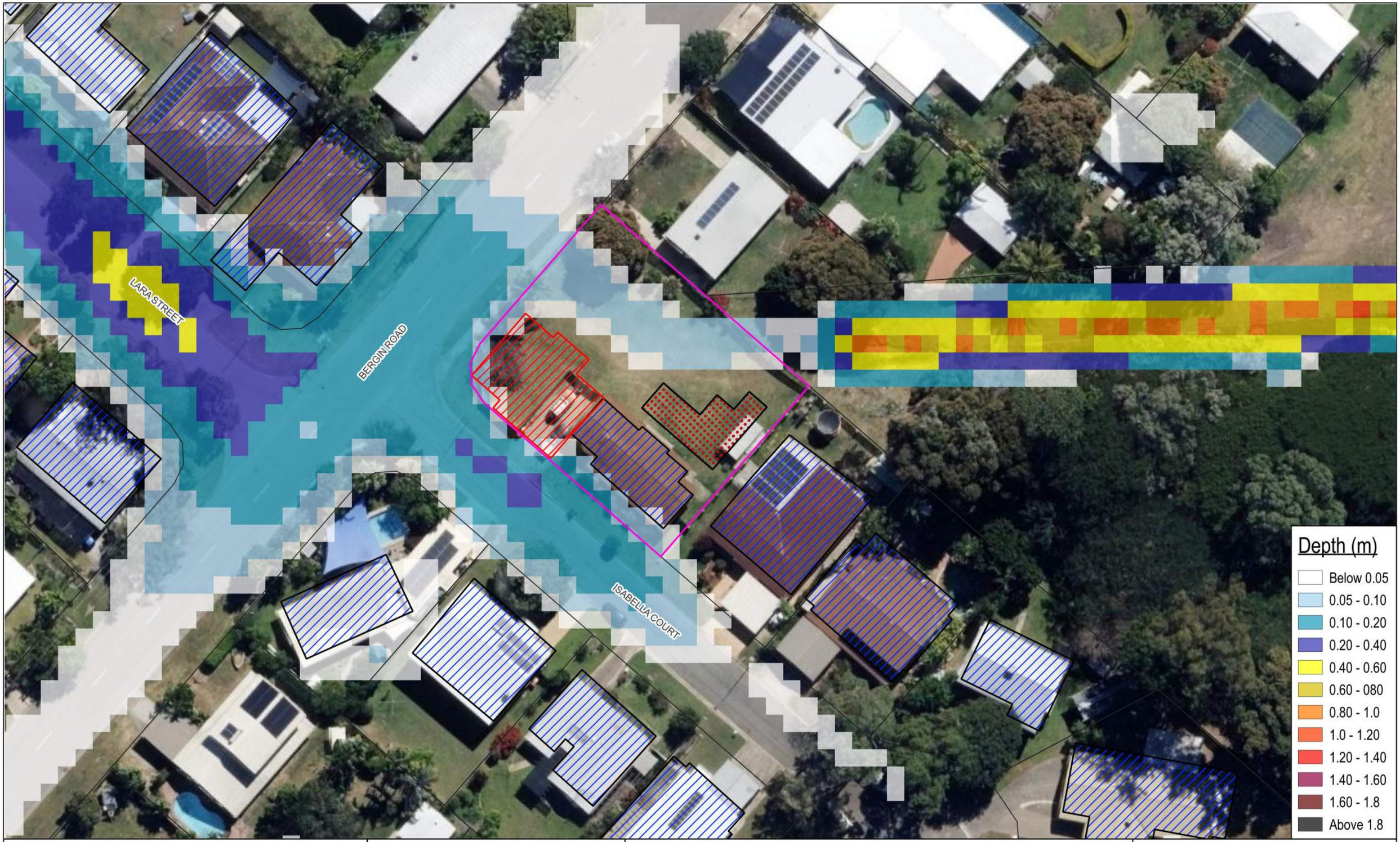
- Proposed Carparks

94 BERGIN ROAD, CRANBROOK
MULTIPLE DWELLING DEVELOPMENT

10% AEP DEVELOPED FLOOD DEPTH

Prepared By: IG Reviewed by: JS	Date: **09/06/2025** Revision: **A** NCE Ref: **BNC0091**	Size **A3**	Map **C06**



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0 5 10 15 20 25 m

1:500

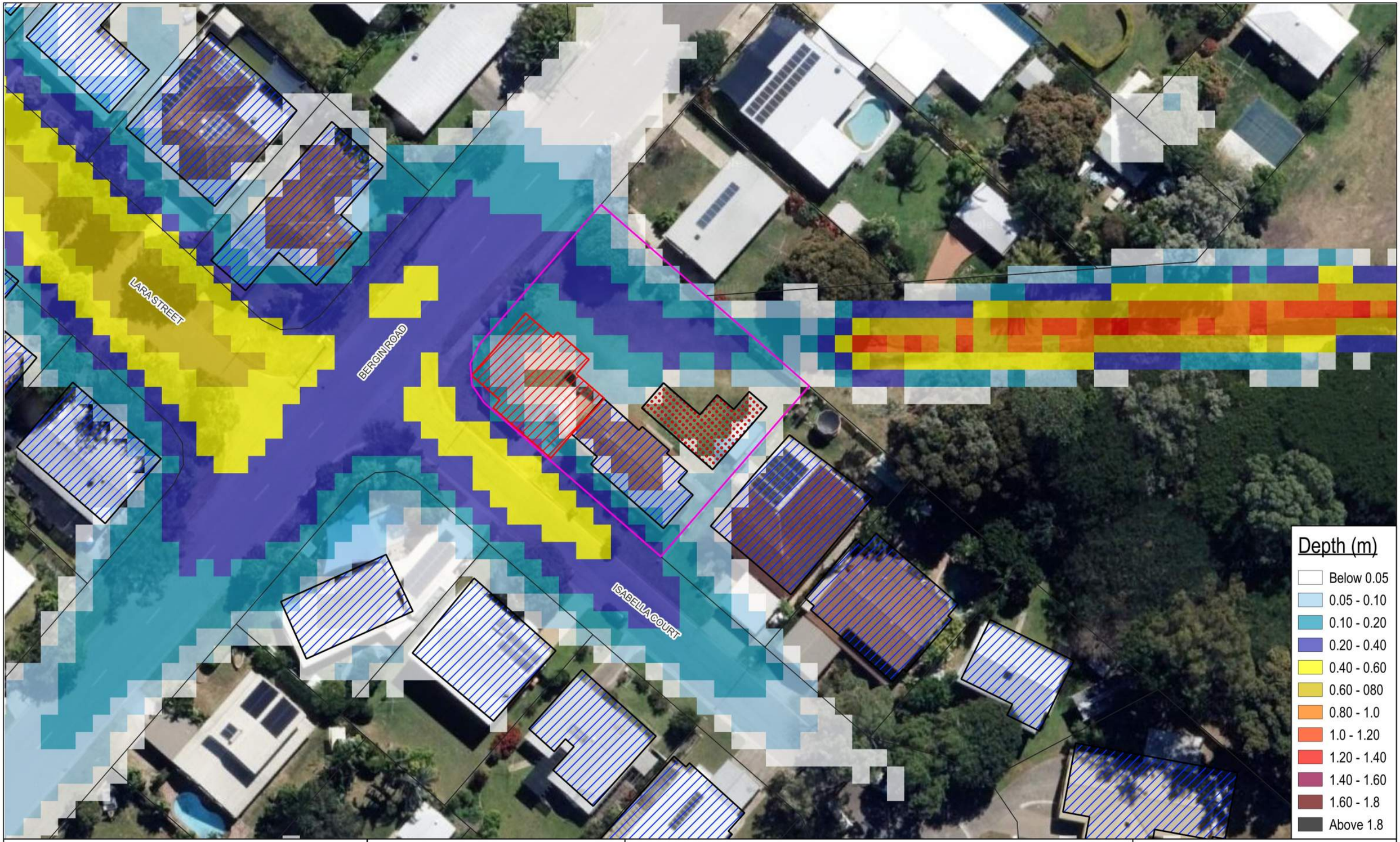
Legend

- Development Site
- TCC Land Parcels
- Existing Buildings
- Proposed 5 Bed Detached Dwelling on Slab
- Proposed Carparks

94 BERGIN ROAD, CRANBROOK
MULTIPLE DWELLING DEVELOPMENT

20% AEP DEVELOPED FLOOD DEPTH

Prepared By: IG Reviewed by: JS	Date: **24/06/2025** Revision: **A** NCE Ref: **BNC0091**	Size **A3**	Map **C08**



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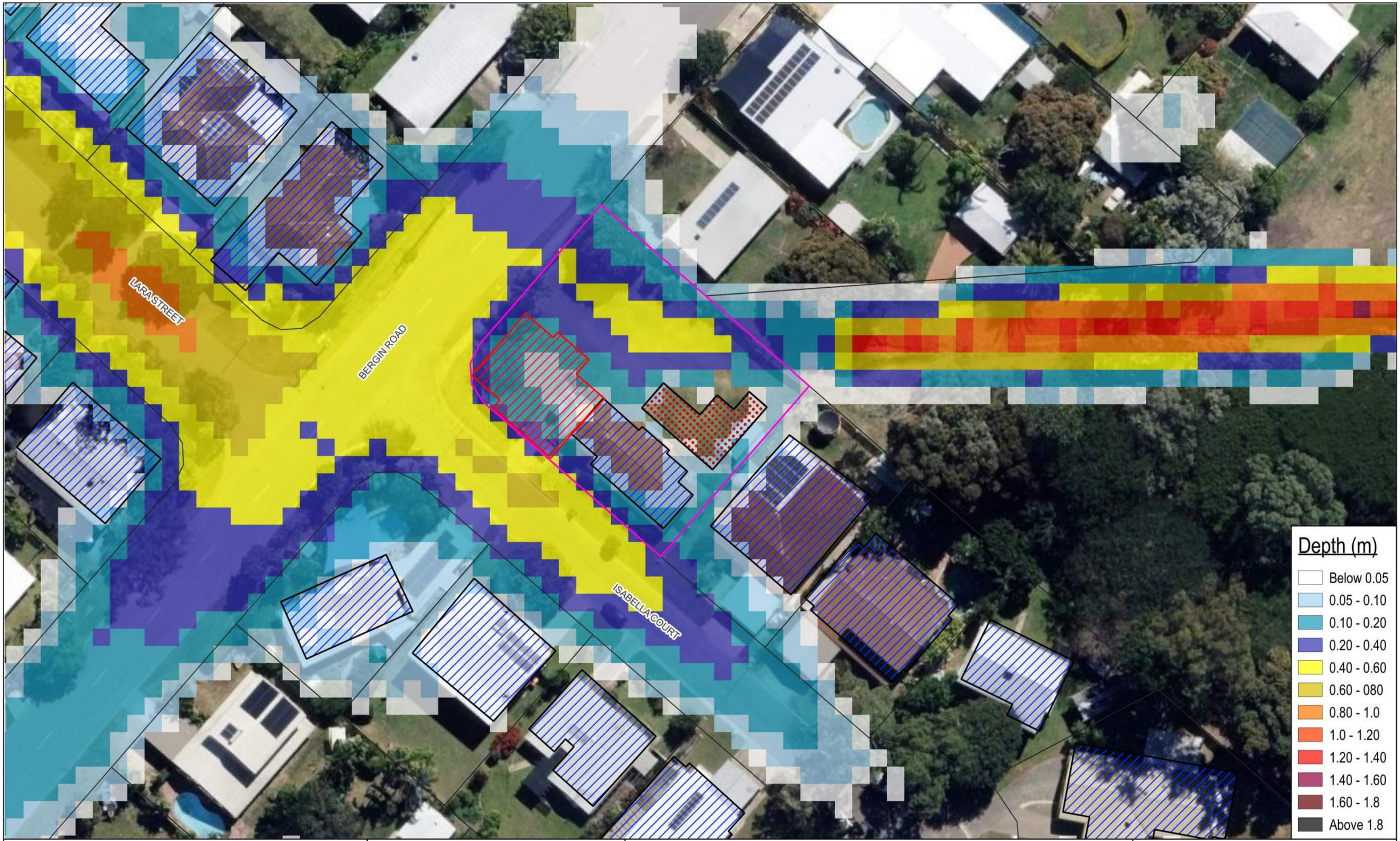
- Proposed Carparks

94 BERGIN ROAD, CRANBROOK
MULTIPLE DWELLING DEVELOPMENT

5% AEP DEVELOPED FLOOD DEPTH

Prepared By: IG Reviewed by: JS	Date: **24/06/2025** Revision: **A** NCE Ref: **BNC0091**	Size **A3**	Map **C10**



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Legend

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- Proposed Carparks

94 BERGIN ROAD, CRANBROOK
MULTIPLE DWELLING DEVELOPMENT

2% AEP DEVELOPED FLOOD DEPTH

Prepared By: IG Reviewed by: JS	Date: **24/06/2025** Revision: **A** NCE Ref: **BNC0091**	Size **A3**	Map **C12**

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1:2,500

Legend

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

94 BERGIN ROAD, CRANBROOK
MULTIPLE DWELLING DEVELOPMENT

1% AEP BASELINE FLOOD HAZARD

Prepared By: IG Reviewed by: JS	Date: **05/06/2025** Revision: **A** NCE Ref: **BNC0091**	Size **A3**	Map **D01**

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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

1% AEP DEVELOPED FLOOD HAZARD

Prepared By: IG Reviewed by: JS	Date: **05/06/2025** Revision: **A** NCE Ref: **BNC0091**	Size **A3**	Map **D02**

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Legend

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

94 BERGIN ROAD, CRANBROOK
MULTIPLE DWELLING DEVELOPMENT

50% AEP BASELINE FLOOD HAZARD

Prepared By: IG Reviewed by: JS	Date: 05/06/2025 Revision: A NCE Ref: BNC0091	Size A3	Map D03

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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

Prepared By: IG Reviewed by: JS	Date: **05/06/2025** Revision: **A** NCE Ref: **BNC0091**	Size **A3**	Map **D04**

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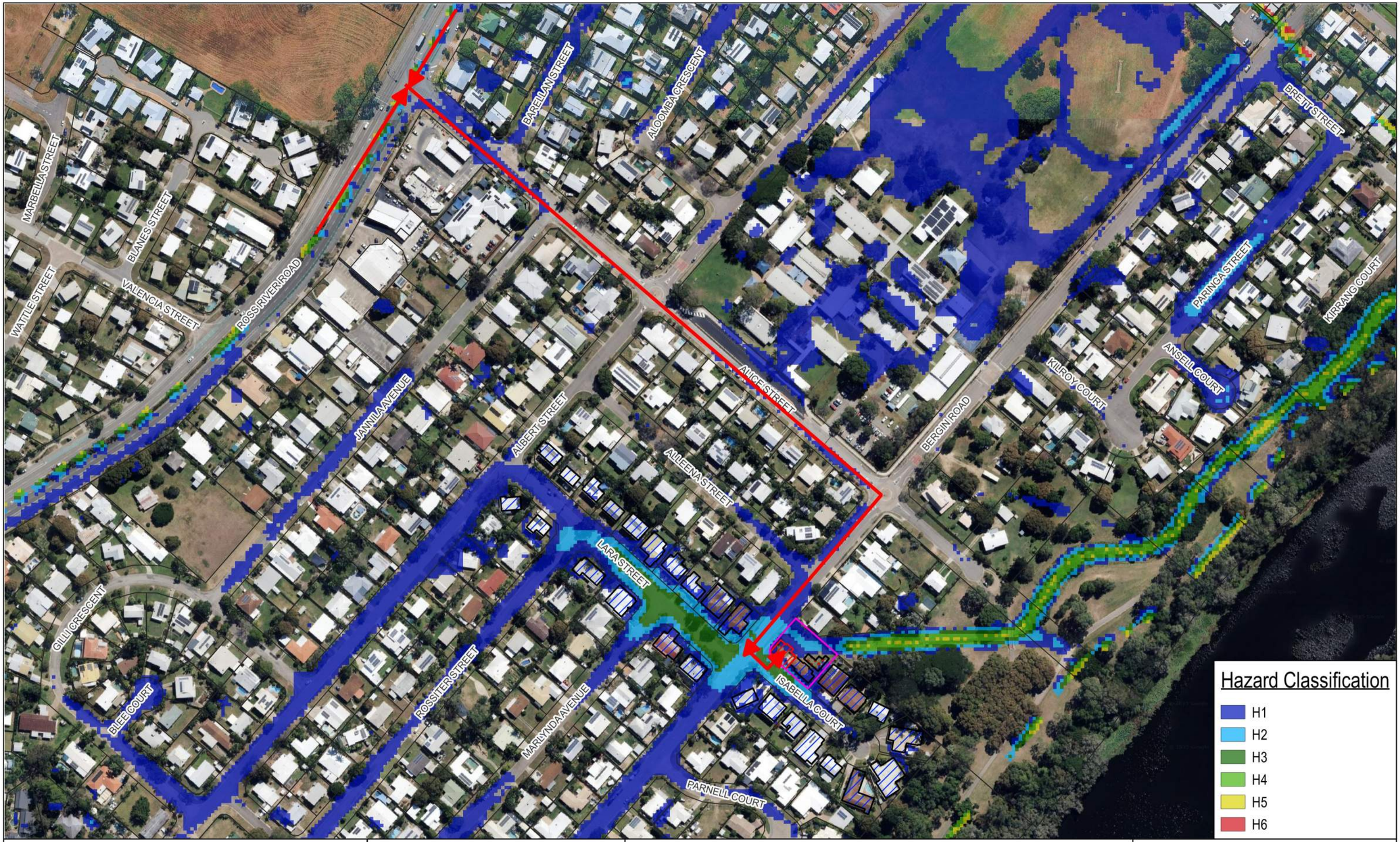
Legend

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

94 BERGIN ROAD, CRANBROOK
MULTIPLE DWELLING DEVELOPMENT

10% AEP BASELINE FLOOD HAZARD

Prepared By: IG Reviewed by: JS	Date: **05/06/2025** Revision: **A** NCE Ref: **BNC0091**	Size **A3**	Map **D05**



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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

10% AEP DEVELOPED FLOOD HAZARD

Prepared By: IG Reviewed by: JS	Date: **05/06/2025** Revision: **A** NCE Ref: **BNC0091**	Size **A3**	Map **D06**

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Legend

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

94 BERGIN ROAD, CRANBROOK
MULTIPLE DWELLING DEVELOPMENT

1% AEP BASELINE FLOOD HAZARD (VELOCITY DEPTH - Vd - PRODUCT)

Prepared By: IG Reviewed by: JS	Date: **05/06/2025** Revision: **A** NCE Ref: **BNC0091**	Size **A3**	Map **E01**

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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
1% 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 **E02**

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Legend

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

94 BERGIN ROAD, CRANBROOK
MULTIPLE DWELLING DEVELOPMENT

50% AEP BASELINE FLOOD HAZARD (VELOCITY DEPTH - Vd - PRODUCT)

Prepared By: IG Reviewed by: JS	Date: **05/06/2025** Revision: **A** NCE Ref: **BNC0091**	Size **A3**	Map **E03**

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Legend

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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**

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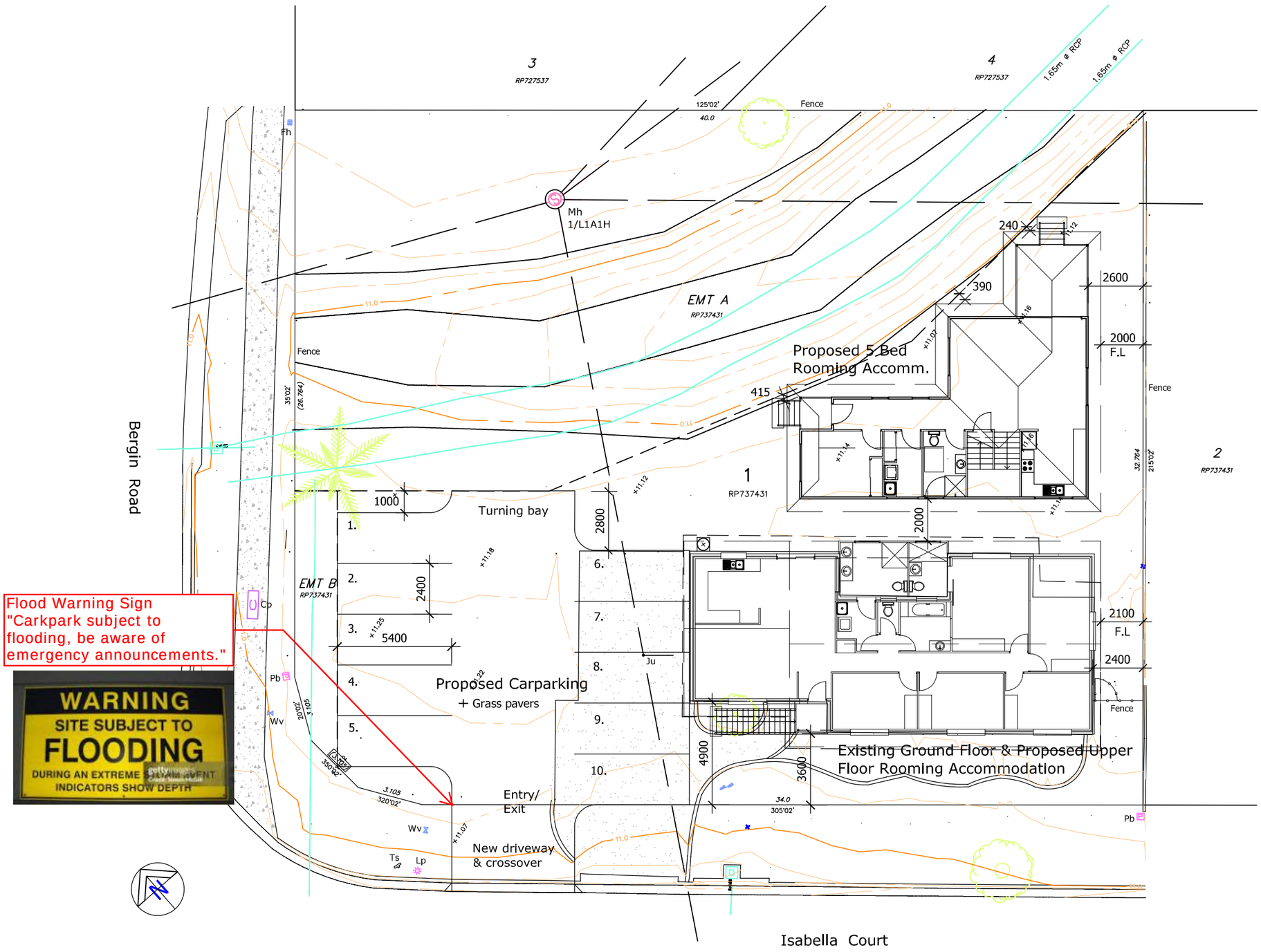
- Existing Buildings
- Proposed 5 Bed Detached Dwelling on Slab
- Proposed Carpark
- Development Access Route

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 A3	Map 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

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.

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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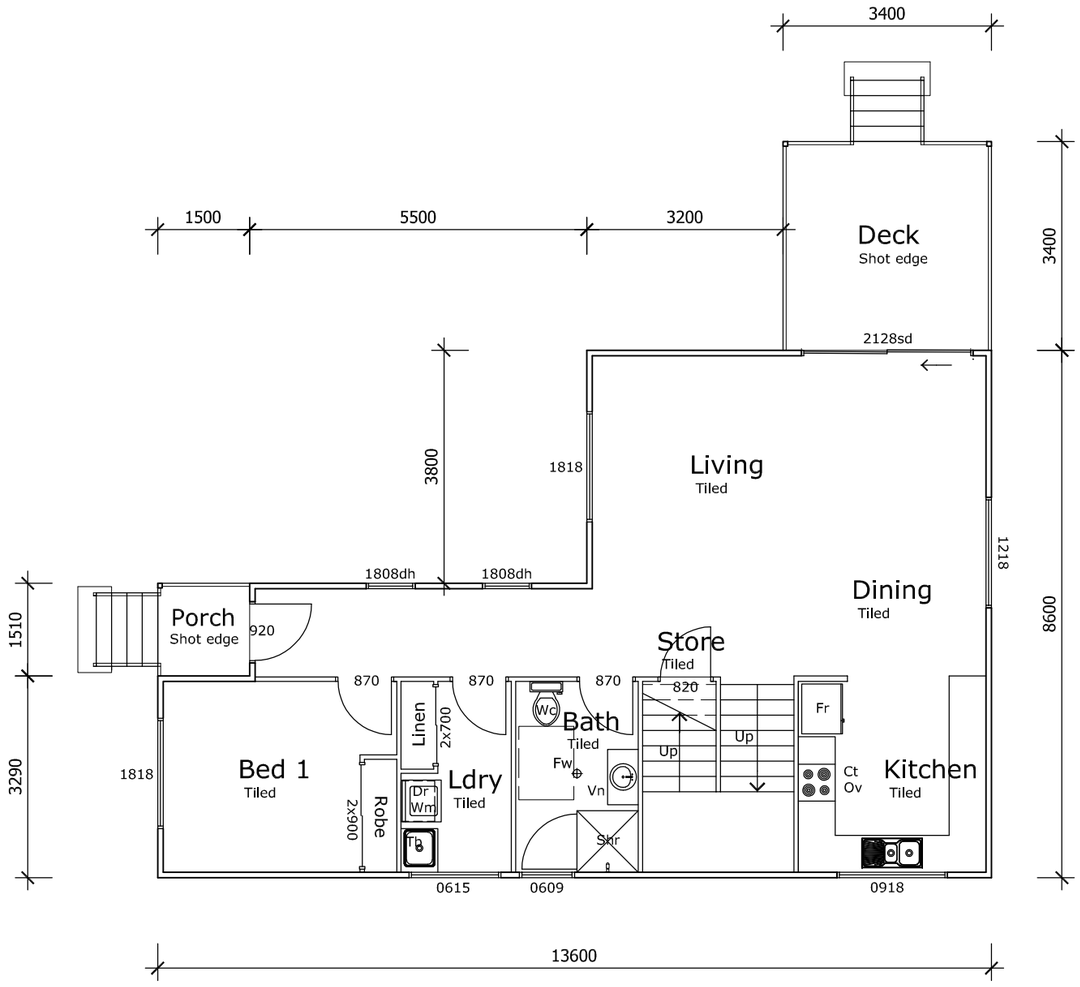
QBCC Lic. No. 1256424 ABN 68 537 687 613
Email : plans@bensonbuildingdesigns.com.au
www.bensonbuildingdesigns.com.au

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

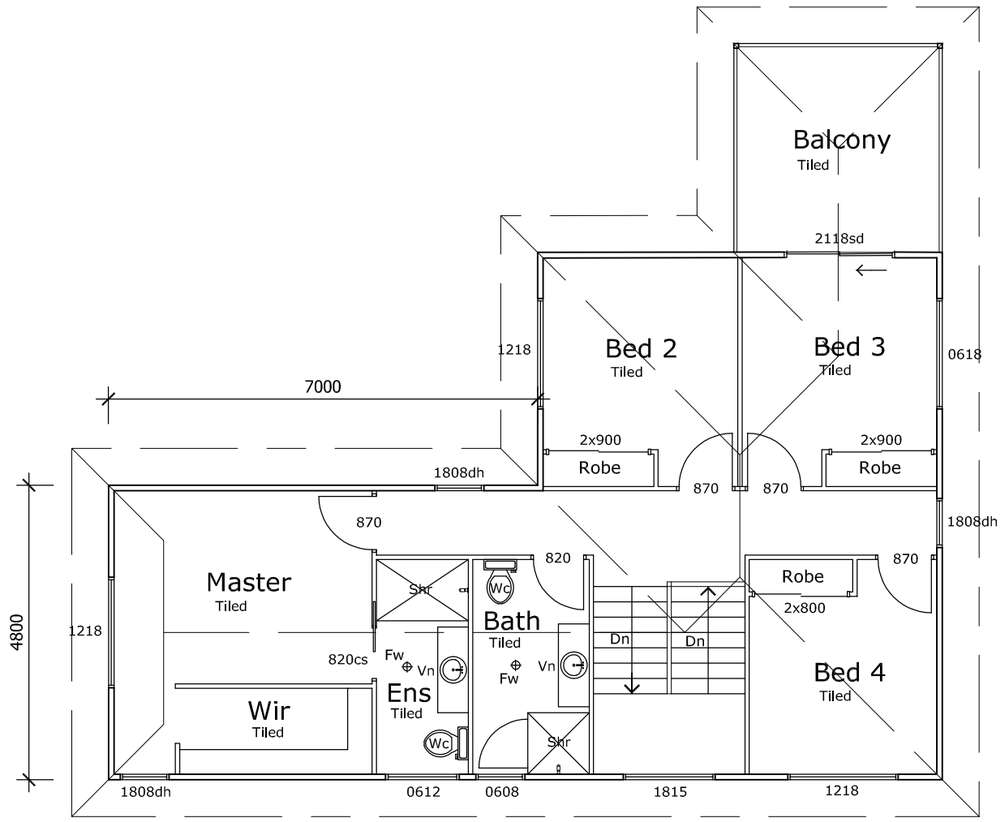
Project No.	Dwg No.	Issue
2024-12	DD01	C
Date: March, 2024	Designed: G.B	
Scale: 1:200 @ A3	Drawn: G.B	



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

General Notes

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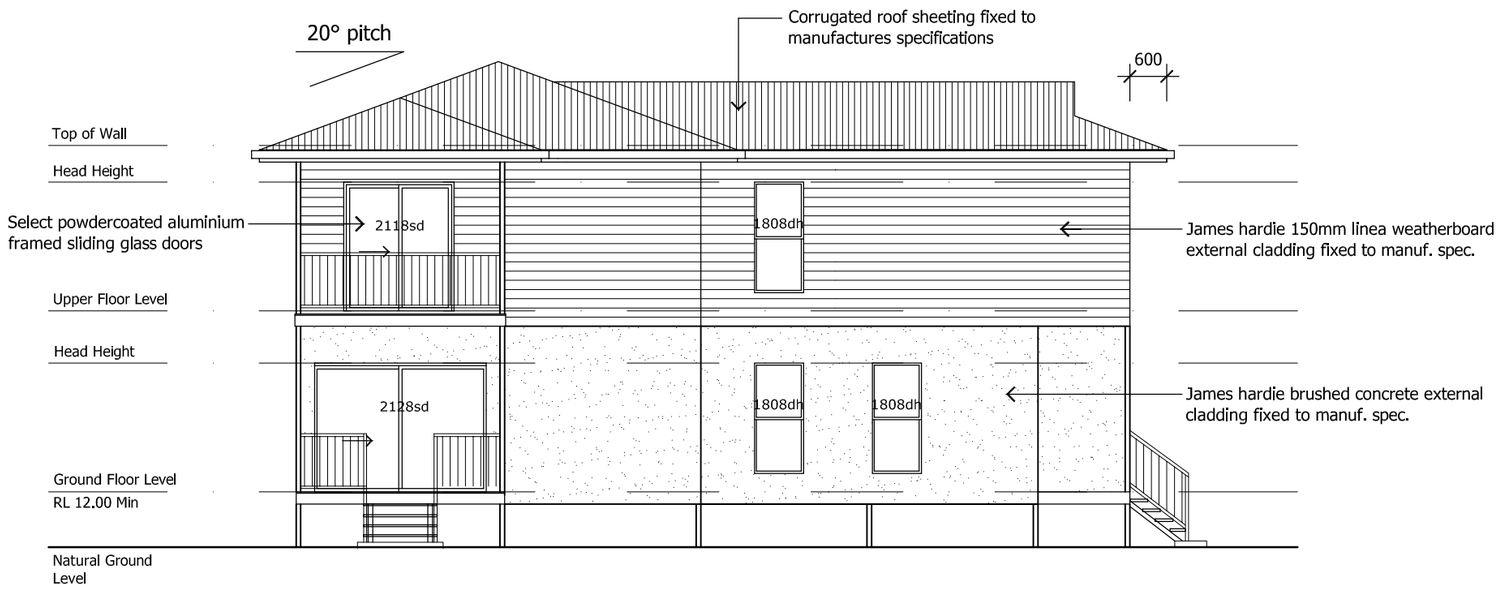
Project No.	Dwg No.	Issue
2024-12	DD02	C
Date: March, 2024	Designed: G.B	
Scale: 1:100 @ A3	Drawn: G.B	

North West Elevation

Scale 1:100



North East Elevation

Scale 1:100

General Notes

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Date: March, 2024	Designed: G.B	
Scale: 1:100 @ A3	Drawn: G.B	