From: "Paul Viero"
Sent: Tue, 17 Jun 2025 08:14:11 +1000
To: "Kate Wilkes" <Kate.Wilkes@townsville.qld.gov.au>
Cc: "Cassie James" <Cassie.James@townsville.qld.gov.au>; "Shelly Sharma" <shelly.sharma@townsville.qld.gov.au>
Subject: FW: BNC0091 (MCU25/0011) Flood Impact Assessment - 94 Bergin Road, Cranbrook

FYI

From: John Single <john.single@nceng.com.au>
Sent: Monday, 16 June 2025 3:32 PM
To: Paul Viero <Paul.Viero@townsville.qld.gov.au>
Cc: Benjamin Collings <bnc@bncplanning.com.au>; Clayton Abel <clay.abel@outlook.com>
Subject: RE: BNC0091 (MCU25/0011) Flood Impact Assessment - 94 Bergin Road, Cranbrook

Hi Paul,

As discussed; to aid Council in a decision, we'll run the following assessment with car park and send them through ASAP:

1. Car park filled as high as possible without causing impacts and report on the maximum, minimum and average depth over the car park.
2. Car park filled to have a maximum depth of 100mm and report on the maximum, minimum and average impact within the adjoining properties and road corridor.

It's also noted that the building in the east is now proposed on stilts; we did demonstrate non-worsening in the original report should this be slab-on-ground; however, can report on both scenarios in an amended report.

Kind regards,

JOHN SINGLE | Senior Civil Engineer | M: 0415 044 527 **| E:** john.single@nceng.com.au
NORTHERN CONSULTING ENGINEERS
TOWNSVILLE OFFICE
50 Punari Street, Currajong
TOWNSVILLE QLD 4812
Ph: 07 4725 5550
W: www.nceng.com.au
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Unit 1, 60 Hoopers Road,
KUNDA PARK QLD 4556
northernconsulting

From: Paul Viero <Paul.Viero@townsville.qld.gov.au>
Sent: Thursday, 12 June 2025 4:36 PM
To: John Single <john.single@nceng.com.au>
Cc: Benjamin Collings <bnc@bncplanning.com.au>; Clayton Abel <clay.abel@outlook.com>
Subject: RE: BNC0091 (MCU25/0011) Flood Impact Assessment - 94 Bergin Road, Cranbrook

Hi John,

Sorry I haven't got back to you earlier.

I will review and give you a call on Monday.

Regards,

Paul Viero
Coordinator Engineering Assessment – Development Assessment
Planning and Development

M 0467340273 **E** paul.viero@townsville.qld.gov.au

Level 1, 143 Walker Street, Townsville QLD 4810 | PO Box 1268, Townsville QLD 4810

From: John Single <john.single@nceng.com.au>
Sent: Tuesday, 10 June 2025 4:40 AM
To: Paul Viero <Paul.Viero@townsville.qld.gov.au>
Cc: Development Assessment <developmentassessment@townsville.qld.gov.au>; Benjamin Collings <bnc@bncplanning.com.au>; Clayton Abel <clay.abel@outlook.com>
Subject: FW: BNC0091 (MCU25/0011) Flood Impact Assessment - 94 Bergin Road, Cranbrook

Hi Paul,

We've received the attached Further Advice (FA) notice in relation to the above-mentioned development and upon review of Item 1, confirm Council's position and extent of works they require in order to support the development. Based on the FA, the below scope has been derived; which is quite intensive; however, we'd appreciate your feedback if some of the works isn't required. Once you've had a chance to digest the below, can you please give me a call to discuss further.

Scope:

Hazard and Risk Analysis

- Undertake detailed flood hazard classification in accordance with the Townsville Flood Hazard Overlay Code, via an interrogation of TUFLOW model results for the 1% AEP flood event.
- Map and classify flood hazard using standard categories (H1–H6) per ARR 2019 and Townsville-specific guidance.
- Conduct a flood risk assessment considering:
    1. Site use vulnerability (e.g. residential density, aged care, etc.)
    2. Population at risk (day/night occupancies)
    3. Property and infrastructure exposure
    4. Duration, depth, and velocity of inundation

Time of Isolation by Floodwaters

- Determine the duration of isolation for the site for the 50%, 10% and 1% AEP events.
- Use flood hydrograph data to identify onset of flooding and time for which critical access routes are submerged.
- Assess safe evacuation windows.

Emergency Evacuation Requirements

- Provide an evacuation plan that includes:
    - Identification of safe external evacuation destinations.
    - Access to evacuation infrastructure (e.g. designated shelters, public roads)
    - Compatibility with Council's disaster response capabilities.

- Recommend measures to support evacuation including signage, early warning systems, or integration with Council alert systems.

Roads Trafficability for Various AEP Events

- Evaluate the flood trafficability of roads providing ingress/egress using the following thresholds:
    - Critical roads to remain passable during the 1% AEP
    - Compliance with emergency trafficability limits (e.g., depth < 300 mm, Vxd < 0.4 m^2/s)
- Map transport corridors with flood depths and velocities, from Ross River Road to the site, during the 50%, 10% and 1% AEP events.

Car Parking Level Design

- Assess car park levels relative to 1% AEP event to demonstrate:
    - Maximum filling that does not have an impact to water surface levels – it is anticipated that compliance with the FA requesting a maximum flood depth of 100mm will not be achievable without causing impacts to the surrounding properties and infrastructure. Subsequently it is proposed that we achieve the maximum fill level that doesn't cause impacts.
    - Identify the maximum parking depth once filling works is carried out.
    - Vehicle safety risks are minimized.

Deliverables

- Amended Flood Impact Assessment Report incorporating all above components
- Revised flood maps (hazard, depth, velocity, risk, isolation timing)
- Evacuation route mapping

Kind regards,

JOHN SINGLE | Senior Civil Engineer | M: 0415 044 527 **| E:** john.single@nceng.com.au

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