

Our Ref: ID2861 Your Ref: REZ/0001/2223, PP-2023-414

5 February 2025

Dialina Day Goulburn Mulwaree Council 184 Bourke Street Goulburn NSW 2580 Via Planning Portal

email: dialina.day@goulburn.nsw.gov.au CC: amanda.pollock@ses.nsw.gov.au

Dear Dialina,

Planning Proposal for 407 & 457 Crookwell Road, Kingsdale

Thank you for the opportunity to provide comment on the Planning Proposal for 407 and 457 Crookwell Road, Kingsdale, which proposes a 278-lot subdivision of the site. It is understood that the planning proposal seeks to amend the Goulburn Mulwaree Local Environmental Plan 2009 to:

- rezone rural land RU6 Transition to R2 Low Density Residential, R5 Large Lot Residential, and part RE1 Public Recreation and C2 Environmental Conservation
- amend the minimum lot size from 10 hectares to 4,000m² and 2 hectares (for the R5 Large Lot Residential portion) and 700m² (for the R2 Low Density Residential portion),
- include the Site together with the land at 515 Crookwell Road (which is north of the site and subject to a separate Planning Proposal PP-2022-1940 to rezone the land for residential development) as an Urban Release Area (URA).¹

The NSW State Emergency Service (NSW SES) is the agency responsible for dealing with floods, storms and tsunami in NSW. This role includes planning for, responding to and coordinating the initial recovery from floods. As such, the NSW SES has an interest in the public safety aspects of the development of flood prone land, particularly the potential for changes to land use to either exacerbate existing flood risk or create new flood risk for communities in NSW.

The consent authority will need to ensure that the planning proposal is considered against the relevant Section 9.1 Ministerial Directions, including 4.1 – Flooding and is consistent with the NSW Flood Prone Land Policy as set out in the <u>Flood Risk Management Manual</u> 2023 (the Manual) and supporting guidelines, including the <u>Support for Emergency Management Planning</u>. Key considerations relating to emergency management are outlined in Attachment A.

It is understood that a gateway determination was issued on 25 July 2024 for this proposal.

 $^{^1}$ Goulburn Mulwaree Council. 2024 Planning Proposal – Gateway Version, page 11



STATE HEADQUARTERS

93 - 99 Burelli Street, Wollongong 2500 PO Box 6126, Wollongong NSW 2500 P (02) 4251 6111 F (02) 4251 6190 www.ses.nsw.gov.au ABN: 88 712 649 015



We refer to our previous response dated 11 June 2024, with NSW SES reference ID2482. In summary, we:

- **Support** the strategy to manage flood risk by rezoning flood-prone land (constrained by overland flooding and natural watercourses) as C2 Environmental Conservation and RE1 Public Recreation and ensuring that all high hazard areas are excluded from developable land and **recommend** reviewing the subdivision plan based on post-development conditions to ensure that the full extent of the flood risk is being considered. We further **recommend** ensuring that all users of the public recreation areas are made aware of the flood risk in the area, for example by having clear signage.
- **Recommend** considering road resilience to flooding and internal roads design to allow rising road access for the entire development, where possible and it does not generate offsite impacts, to prevent isolation and associated secondary risks.
- **Recommend** that any proposed refuge location is above the height of the PMF, and aligns with the NSW Government's <u>Shelter in Place Guideline</u>² and the Red Cross Preferred Sheltering Practices for Emergency Sheltering in Australia³, including water supply, waste management, sanitation, food, and shelter and space management.
- Note that the proposed development can result in 0.5 0.7 metres flood level increases onsite and offsite and recommend seeking advice from the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) regarding onsite and offsite impacts of the proposed development on flood behaviour, considering the proposed cumulative development in the area.

You may also find the following Guidelines available on the NSW SES website useful:

- <u>Reducing Vulnerability of Buildings to Flood Damage</u>
- Designing Safer Subdivisions
- Managing Flood Risk Through Planning Opportunities

Please feel free to contact Ana Chitu via email at rra@ses.nsw.gov.au should you wish to discuss any of the matters raised in this correspondence. The NSW SES would also be interested in receiving future correspondence regarding the outcome of this referral via this email address.

Yours sincerely,

Elspeth O'Shannessy Manager Emergency Risk Assessment NSW State Emergency Service

³ Smith, C., and Parsons, C. 2015. Preferred Sheltering Practices for Emergency Sheltering in Australia. Retrieved from <u>https://www.redcross.org.au/globalassets/cms-assets/documents/emergency-services/2015-preferrred-sheltering-practices-for-emergency-sheltering-in-australia.pdf</u>

² NSW Government. 2024. Shelter-in-place guideline for flash flooding.



ATTACHMENT A: Principles Outlined in the Support for Emergency Management Planning Guideline⁴

Principle 1 Any proposed Emergency Management strategy should be compatible with any existing community Emergency Management strategy.

Any proposed Emergency Management strategy for an area should be compatible with the evacuation strategies identified in the NSW State Flood Plan⁵ and the Goulburn Mulwaree Flood Emergency Sub Plan⁶, where evacuation is the preferred emergency management strategy for people impacted by flooding.

Principle 2 Decisions should be informed by understanding the full range of risks to the community.

Decisions relating to future development should be risk-based and ensure Emergency Management risks to the community of the full range of floods are effectively understood and managed. Further, risk assessment should consider the full range of flooding, including events up to the Probable Maximum Flood (PMF). Climate change considerations should also be included, in line with NSW Government Guidelines.

Continuing research by the Bureau of Meteorology and the CSIRO⁷ are predicting more intense, short duration heavy rainfall events which cause flash flooding. The projected increase in heavy rainfall and coastal low weather systems over the NSW coast will increase flood risk in many NSW catchments.

The site is traversed by a number of natural drainage lines and partially impacted by overland flooding. The proposed residential lots appear to be above the 1% AEP flood level,⁸ with isolated areas of H1 flood hazard level mainly on the proposed internal roads⁹. In a PMF event, multiple proposed lots become impacted by flooding - mainly up to 0.2 metres, with isolated areas of 0.6 metres flood depth for several lots¹⁰ (in the northern and southern parts of the site, adjacent to the watercourses).

It is understood that "imposition of a RE1 Public Recreation and C2 Environmental Conservation zone, over the extent of overland flood prone land up to and including the Probable Maximum Flood (PMF)"¹¹ is being proposed to reduce risk to life and property from this development. RE1 zoning is proposed for flood-affected land in the centre and south of the site, while C2 zoning is proposed for two smaller sections in the northern part of the site.¹² The extent of this proposed zoning is based on a pre-development scenario,¹³ however, it appears that in the post-development scenario PMF there are still a number of flood-affected

⁴ NSW Government. 2023. Principles Outlined in the Support for Emergency Management Planning Guideline

 $^{^{\}rm 5}$ NSW Government. 2024. NSW State Flood Plan. Section 5.1.7, page 34

⁶ NSW SES. 2021. Goulburn Mulwaree Flood Emergency Sub Plan. Section 1.6.2, page 6

⁷ Commonwealth of Australia. 2024. Bureau of Meteorology and CSIRO - State of the Climate report 2024

⁸ SOWDES. 2024. Local Flood & Overland Flow Study, Figure 13

⁹ SOWDES. 2024. Local Flood & Overland Flow Study, Figure 20

 $^{^{10}}$ SOWDES. 2024. Local Flood & Overland Flow Study, Figure 17

 $^{^{11}}$ Goulburn Mulwaree Council. 2024. Planning Proposal – Gateway Version, page 18

¹² Goulburn Mulwaree Council. 2024. Planning Proposal – Gateway Version. Figure 5, page 18

¹³ Goulburn Mulwaree Council. 2025. Flood Impact and Risk Assessment, page 17



lots that are not covered under the C2 or RE1 proposed rezoning areas¹⁴, but proposed for residential subdivision,¹⁵ particularly in the southern part of the site, adjacent to Chinamans Lane.

We are in **support** of the strategy to manage flood risk by rezoning flood-prone land (constrained by overland flooding and natural watercourses) up to the PMF as C2 Environmental Conservation and RE1 Public Recreation and ensuring that all high hazard areas are excluded from developable land and **recommend** that the full extent of the flood risk is being considered. We further **recommend** ensuring that all users of the public recreation areas are made aware of the flood risk in the area, for example by having clear signage.

"The conceptual subdivision of the land does not propose to alter the existing flow paths or dams, the only impact of the proposed subdivision development on existing overland flows will be associated with the installation of box culverts within the drainage corridors to facilitate the construction of the proposed internal road network."¹⁶

It appears that the proposed development at this site would result in increased flood levels (increases could be in excess of 0.5 metres) in the northern part of the subject site – mainly contained within the proposed RE1 zoning but also impacting the immediately adjacent residential lots, as well as causing offsite impacts, with flood levels increases at the southern part of the 515 Crookwell Road site (here, increases could be in excess of 0.7 metres)¹⁷.

We **recommend** seeking advice from the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) regarding onsite and offsite impacts of the proposed development on flood behaviour, considering the proposed cumulative development in the area, with a smaller 24-lot proposed residential subdivision located immediately north of the subject site.

Principle 3 Development of the floodplain does not impact on the ability of the existing community to safely and effectively respond to a flood.

The ability of the existing community to effectively respond (including self-evacuating) within the available timeframe on available infrastructure is to be maintained. It is not to be impacted on by the cumulative impact of new development. Risk assessment should have regard to flood warning and evacuation demand on existing and future access/egress routes. Consideration should also be given to the impacts of localised flooding on evacuation routes.

The proposal includes a new intersection with Crookwell Road, at the northeastern corner of the site that will provide reciprocal benefit the other Planning Proposal site to the north (515 Crookwell Road) and a new intersection at Chinaman's Lane to provide a southern connection from the subdivision to the Goulburn Urban area.¹⁸ Future internal roads are proposed to be designed to provide flood resilience for the 1% AEP flood event.¹⁹ "*Residents would be able to*

¹⁴ Goulburn Mulwaree Council. 2025. Flood Impact and Risk Assessment. Figure 14, page 17

¹⁵ SOWDES. 2024. Local Flood & Overland Flow Study, Figure 17

¹⁶ SOWDES. 2024. Local Flood & Overland Flow Study, page 17

¹⁷ SOWDES. 2024. Local Flood & Overland Flow Study, Figure 17

¹⁸ Goulburn Mulwaree Council. 2024. Planning Proposal – Gateway Version, page 6

¹⁹ Goulburn Mulwaree Council. 2024. Planning Proposal – Gateway Version, page 23



self-evacuate and travel within the precinct subject to some crossing of roads at low hazard categories (H1-H2) in a 1% AEP."²⁰

We would like to emphasise that people should not be encouraged to drive or walk through floodwaters, as it is unlikely for them to correctly ascertain the depth and velocity of floodwater while making their way through it, particularly in likely ongoing poor weather conditions.

"Hazardous flooding of roads occurs when there is enough flow to knock over pedestrians or transport cars off the road due to buoyancy and frictional instability. In Australia, vehicles attempting to cross flooded roads is the largest causes of injury and fatality during a flood. The ability of flow to move or completely float a car is often underestimated, with as little as 0.3 m (30 cm) depth enough to move a small car, even at low flow speeds (this corresponds to H2 hazard)."²¹ Evacuation must not require people to drive or walk through flood water.

Flooding impacts to internal roads appear to be H1-H2 flood hazard level up to and including the 0.2% AEP event,²² however, in a PMF event sections of Road 07 (in the north of the site) and Road 01 (south of the site), including at the site's exit points onto Crookwell Road and Chinamans Lane can reach up to H5 flood hazard level.²³ Crookwell Road gets impacted by flash flooding (mainly shallow depth) as frequently as 5% AEP events at multiple locations adjacent to the site as well as north and south of the proposed site, ²⁴ but can see flood velocities up to 2m/s in a PMF event²⁵ and H5 hazard level²⁶ (just north of its the intersection with Chinamans Lane gets closed due to flash flooding, just east of the proposed Road 01 - southern site entry (before the intersection with Crookwell Street). Isolation of the site due to flash flooding is expected to last for relatively short periods of time.²⁷

We **recommend** considering road resilience to flooding and internal roads design to allow rising road access in all flood events up to and including the PMF for the entire development, where possible and it does not generate offsite impacts, to prevent isolation and associated secondary risks.

It should also be noted that the entirety of Goulburn (north of the Wollondilly River) is cut off from the central portion of Goulburn by mainstream flooding of the Wollondilly River.²⁸ Crookwell Road gets cut at Marsden Bridge in 0.2% AEP riverine flooding events,²⁹ with Fitzroy Street (south of Marsden Bridge) being a known flooding hotspot with high hazard flows and

²⁰ Goulburn Mulwaree Council. 2025. Flood Impact and Risk Assessment, page 28

²¹ GRC Hydro. 2022. Goulburn Floodplain Risk Management Study and Plan, page 38 - 39

²² SOWDES. 2024. Local Flood & Overland Flow Study, Figure 22

²³ SOWDES. 2024. Local Flood & Overland Flow Study, Figure 23

 $^{^{24}}$ Appendix 13a- Flood data- velocity and depth for 5% AEP (Crookwell Road) _PP-2023-414

²⁵ Appendix 13c- Flood data- velocity and depth for PMF (Crookwell Road) _PP-2023-414

²⁶ SOWDES. 2024. Local Flood & Overland Flow Study, Figure 23

 $^{^{\}rm 27}$ Goulburn Mulwaree Council. 2025. Flood Impact and Risk Assessment, page 12

²⁸ Goulburn Mulwaree Council. 2025. Flood Impact and Risk Assessment, page 12

²⁹ GRC Hydro. 2022. Goulburn Floodplain Risk Management Study and Plan, page 39



isolation duration up to one day,³⁰ which would isolate this area from essential services (such as hospitals) in central Goulburn.

Understanding the evacuation location for the site is proposed at the Mistful Park commercial area on Box Avenue³¹ (which the site would get isolated from in a PMF event), we **recommend** that any proposed refuge location is above the height of the PMF, and aligns with the NSW Government's Shelter-in-place Guideline³² and Red Cross Preferred Sheltering Practices for Emergency Sheltering in Australia³³, including water supply, waste management, sanitation, food, and shelter and space management.

Development strategies relying on an assumption that mass rescue may be possible where evacuation either fails or is not implemented are not acceptable to the NSW SES.

Principle 4 Decisions on development within the floodplain does not increase risk to life from flooding.

Managing flood risks associated with flooding requires careful consideration of development type, likely users, and their ability respond to minimise their risks. This includes consideration of:

- Isolation There is no known safe period of isolation in a flood, the longer the period of isolation the greater the risk to occupants who are isolated.
- Secondary risks This includes fire and medical emergencies that can impact on the safety of people isolated by floodwater. The potential risk to occupants needs to be considered and managed in decision-making.
- Consideration of human behaviour The behaviour of individuals such as choosing not to remain isolated from their family or social network in a building on a floor above the PMF for an extended flood duration or attempting to return to a building during a flood, needs to be considered.

Principle 5 Risks faced by the itinerant population need to be managed.

Any Emergency Management strategy needs to consider people visiting the area or using a development.

Principle 6 Recognise the need for effective flood warning and associated limitations.

An effective flood warning strategy with clear and concise messaging understood by the community is key to providing the community an opportunity to respond to a flood threat in an appropriate and timely manner. As the area is prone to flash flooding³⁴, there will be little to no warning time for the community to respond in a flood event.

Principle 7 Ongoing community awareness of flooding is critical to assist effective emergency response.

³⁰ GRC Hydro. 2022. Goulburn Floodplain Risk Management Study and Plan, page 34 - 35

³¹ Goulburn Mulwaree Council. 2025. Flood Impact and Risk Assessment, page 13

³² NSW Government. 2024. Shelter-in-place guideline for flash flooding.

³³ Smith, C., and Parsons, C. 2015. Preferred Sheltering Practices for Emergency Sheltering in Australia. Retrieved from <u>https://www.redcross.org.au/globalassets/cms-assets/documents/emergency-services/2015-preferrred-sheltering-practices-for-emergency-sheltering-in-australia.pdf</u>

³⁴ Goulburn Mulwaree Council. 2025. Flood Impact and Risk Assessment, page 12



The flood risk at the site and actions taken to reduce risk to life should be communicated to all site users (includes increasing risk awareness, community connections, preparedness actions, appropriate signage and emergency drills) for the life-span of the development.

However, it is important to note that the NSW SES is opposed to the imposition of development consent conditions requiring private flood evacuation plans rather than the application of sound land use planning and flood risk management.