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Your Ref: SSD-64916225

26 September 2024

Ingrid Zhu
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Locked Bag 5022
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Via Major Portal

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CC: shelly.stingmore@one.ses.nsw.gov.au

Dear Ingrid,

State Significant Development Application for WSU Indigenous Centre of Excellence

Thank you for the opportunity to provide comment on the State Significant Development Application for WSU Indigenous Centre of Excellence at Western Sydney University, 171 Victoria Road, Parramatta. It is understood that the proposed development seeks approval for:

- Site preparation including demolition of the existing car park, tree removal and installation of utility infrastructure.
- Construction of a four-storey Indigenous Centre of Excellence comprising:
    - Ground floor facilities including outdoor amphitheatre, cinema and lecture theatre, performance space, artist studios, exhibition space, meeting areas and other amenities.
    - First floor facilities including educational facilities, library facilities, learning areas and teaching spaces.
    - Second floor facilities including staff/student foyer, offices, meeting rooms and collaboration spaces.
    - Third level facilities including sports court, ancillary amenities and astronomy garden.
    - Roof level plant and services.
- Landscaping works.

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

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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 NSW SES recommends that consideration of flooding issues is undertaken in accordance with the requirements of NSW Government's Flood Prone Land Policy as set out in the Flood Risk Management Manual 2023 (the Manual) and supporting guidelines, including the Support for Emergency Management Planning and relevant planning directions under the *Environmental Planning and Assessment Act, 1979*. Some of the key considerations relating to emergency management are further detailed in Appendix A.

In summary, we:

- **Note** the study referred to throughout the Flood Risk Assessment as "Draft Parramatta River Flood Study" was adopted by Parramatta Council in June 2024 should be viewed as the most up to date flood information for the site.
- **Note** the site is significantly flood affected becoming inundated as frequently as a 20% Annual Exceedance Probability (AEP) event[1] and reaches depths in excess of 3 metres during a Probable Maximum Flood (PMF) event[2].
- **Recommend** seeking further information incorporating from the adopted Parramatta River Flood Study as well as time to overtopping of both the site and adjacent roads.
- **Emphasise** that NSW SES does not support shelter in place as a strategy for new development or the imposition of development consent conditions requiring private flood evacuation plans rather than the application of sound land use planning and flood risk management.
- **Recommend** closing the facility or sections that are at known risk of flooding or isolation prior to the onset of flooding and when there is an indication that flooding is likely.
- **Request** that the emergency procedures contained in the Flood Emergency Response Plan are rewritten to reflect current NSW SES terminology and procedures. Please see **Attachment A** for further specific details. However, we reinforce that a FERP is not a failsafe way of managing an underlying flood risk.
- **Recommend** pursuing, if relevant, site design and stormwater management that reduces the impact of flooding and minimises any risk to the community. Any improvements that can be made to reduce flood risk will benefit the community.
- **Recommend** consideration of safety features for proposed lifts, to ensure that floodwater does not enter the lift, and ensure people do not exit into flooded areas.

You may also find the following Guidelines, originally developed for the Hawkesbury Nepean Valley and available on the NSW SES website useful:

- Reducing Vulnerability of Buildings to Flood Damage
- Designing Safer Subdivisions

[1] Stantec, 2024, Parramatta River Flood Study, Appendix F Part 1, Figure F2.25 Flood Depth (20% AEP), Page 28
[2] GRC Hydro, 2024, Flood Impact Assessment, Version B, Existing Condition, Page 21

- Managing Flood Risk Through Planning Opportunities

Please feel free to contact Kate Dawes 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,

Peter Cinque
Manager Emergency Risk Assessment
NSW State Emergency Service

ATTACHMENT A: Principles Outlined in the Support for Emergency Management Planning Guideline[3]

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 relevant local or state flood plan or by the NSW SES. As per the NSW State Flood Plan[4] and the Parramatta LGA Flood Emergency Sub Plan, evacuation is the primary emergency management strategy for people impacted by flooding[5].

We request that the emergency procedures contained in the Flood Emergency Response Plan are rewritten to reflect current NSW SES terminology and procedures, and provide the following additional recommendations:

- **Recommend** reducing the reliance on flood wardens and human behaviour to initiate emergency procedures. The FERP currently states "*Flood wardens will observe the on-site flood markers at very regular intervals[6]*" and that emergency procedures will commence when markers reach 7.8 mAHD, however as the PMF rate of rise shows flooding reaches flood level in a matter of minutes[7] this is not a reliable trigger.
- **Recommend** references to "*the 1% AEP design flood event[8]*" and other modelled storm events are removed from the emergency management plan and replaced with clear and actionable triggers which align with warnings issued by the Bureau of Meteorology and NSW SES, rather than AEP events. Warnings will not list the expected AEP extent as this is not known until after the peak of the flood event. Further, as the site is affected by flash flooding it is not subject to flood warnings. As such, Severe Weather Warnings and Thunderstorm Warnings will be the most likely form of advice about the potential for flood producing storms and rainfall.
- **Recommend** implementing early triggers in the Flood Emergency Response Plan (FERP), such as monitoring severe Weather Warnings and consider closing the site down ahead of the start of the university day, particularly considering the flash flooding risk in the area. This is particularly challenging and likely to result in many "false alarms" as there are no formal warning systems for flooding at the site. However, the strategy of isolation or sheltering in buildings surrounded by flood water are not equivalent, in risk management terms, to evacuation.
- **Recommend** careful consideration to the use of lifts in any vertical evacuation strategy. While the FERP states "*Whilst stairways are the encouraged vertical*

[3] NSW Government. 2023. Principles Outlined in the Support for Emergency Management Planning Guideline
[4] NSW Government. 2021. NSW State Flood Plan. Section 1.6 – Key Principles. 1.6.2, page 5.
[5] NSW SES, Parramatta LGA Flood Emergency Sub Plan, Endorsed November 2021, Section 5.8
[6] GRC Hydro, 2024, Flood Impact Assessment, Version B, Emergency Procedure, Page 47
[7] GRC Hydro, 2024, Flood Impact Assessment, Version B, Chart 1 PMF Rates of Rise and Duration of Inundation, Page 42
[8] GRC Hydro, 2024, Flood Impact Assessment, Version B, Flood Emergency Context, Page 42

evacuation route, elevators can continue to be used to vertically evacuate persons requiring assistance to the first level[9]", during a PMF event flood water is modelled to reach 1.4 metres above floor level[10].

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.

The Parramatta River Flood Study adopted by Parramatta Council in June 2024 shows the site, in its current condition, as significantly more flood affected than stated in the Flood Impact Assessment. The Parramatta River Flood Study shows the site is entirely inundated as frequently as a 20% AEP event[11] reaching hazard level 4 (H4)[12]. During a PMF event flooding exceeds 1.5 metres[13] depth across the entire site and is mapped as H5 across the site[14]. This level of hazard is unsafe for all people and vehicles with buildings requiring special engineering design and construction.

The Flood Impact Assessment, however, states that during a 20% AEP event "*Flood Depths: predominantly less than 0.1 m deep with a small portion up to 0.3 m. Flood Hazard: Max of H1 (low hazard)[15]".* Further, figures 12 to 23[16] show significantly less flooding across the site than the adopted flood study showing the site as only partially inundated during a 20% AEP event and reaching only H3 under existing conditions.

Further information should be sought, particularly with reference to the adopted 2024 Parramatta River Flood Study to accurately determine the flood risk on the site.

NSW SES has previously responded to flooding incidents in the area of the university campus including road inundation. As the site and Victoria Road access are inundated during the 20%

[9] GRC Hydro, 2024, Flood Impact Assessment, Emergency Procedure, Page 47
[10] GRC Hydro, 2024, Flood Impact Assessment, Version B, Chart 1 PMF Rates of Rise and Duration of Inundation, Page 42
[11] Stantec, 2024, Parramatta River Flood Study, Appendix F Part 1, Figure F2.25 Flood Depth (20% AEP), Page 28
[12] Stantec, 2024, Parramatta River Flood Study, Appendix H Part 1, Figure H2.25 Hazard Vulnerability Classification (20% AEP), Page 28
[13] Stantec, 2024, Parramatta River Flood Study, Appendix F Part 5, Figure F6.25 Flood Depth (PMF), Page 25
[14] Stantec, 2024, Parramatta River Flood Study, Appendix H Part 3, Figure H6.25 Hazard Vulnerability Classification (PMF), Page 25
[15] GRC Hydro, 2024, Flood Impact Assessment, Existing Condition, Page 23
[16] GRC Hydro, 2024, Flood Impact Assessment, Figures 12-23 Peak Flood Levels and Depths, Pages 22-36

AEP flood, isolating the site, further modelling should be undertaken to demonstrate the time to overtopping of roads and the site itself.

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. Evacuation must not require people to drive or walk through flood water.

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 Low Flood Islands 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 rate of rise of flood waters is relatively quick (only*

~35 minutes for waters to rise above the finished floor level[17]" during the PMF event, little to no warning time is likely to be available following the commencement of rainfall that would provide the community an opportunity to respond.

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

Development in a floodplain will increase the need for NSW SES to undertake continuous community awareness, preparedness, and response operations.

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) during and after the construction phase. 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.

[17] GRC Hydro, 2024, Flood Impact Assessment, Version B, Chart 1 PMF Rates of Rise and Duration of Inundation, Page 42