

## **APPENDIX 20**

**PCC 10 May 2017 response to Infrastructure NSW  
correspondence 5 Dec 2016**

# RESPONSES TO OUSTANDING MATTERS IN THE INFRASTRUCTURE NSW LETTER DATED 5 DECEMBER 2016

Prepared 10 May 2017 by Penrith City Council

## 1.1 Flood Modelling

Matter Raised	Response
<p><b>1.1.1 Does not show in the supporting hydrological modelling any overtopping of the southeast bank of the Nepean River in a 1 in 100 chance per year regional flood event. This contrasts to the flood study by Lyall and Associates in Appendix J, Nepean River Green Bridge Project Review of Environmental Factors (<a href="http://www.rms.nsw.gov.au/projects/sydney-west/nepean-river-bridge/projectdocuments.html">www.rms.nsw.gov.au/projects/sydney-west/nepean-river-bridge/projectdocuments.html</a>) which modelled significant overtopping of the southeast bank near Memorial Avenue in a 1 in 100 chance per year regional flood event. This inconsistency in flood models in the same area needs to be examined, as there may be a higher hydraulic hazard in this area than presented in the J. Wyndham Prince report.</b></p>	<p><u>Response by applicant – generally accepted by Penrith City Council:</u></p> <p>J. Wyndham Prince have confirmed that there is no inconsistency between models, and believe that Infrastructure NSW (INSW) may have misinterpreted the Lyall and Associates report as no overtopping of the river bank occurs within the area to which the J. Wyndham Prince Flood Impact Assessment applies.</p> <p>J. Wyndham Prince have provided further advice to support this position, stating:</p> <p><i>“Suggested inconsistency Nepean River Green Bridge Project (Lyall and Associates 2016) for the 1% Annual Exceedance Probability (AEP) extents and The Panthers Precinct Master Plan – Flood Assessment Report (JWP Sep 2016) are in our view is incorrect. The JWP assessment adopted boundary conditions from the adopted Nepean River flood assessment completed Worley Parsons (refer section 8.3.3 of our 2016 report), and map with the JWP assessment are similar to the extent from Lyall and Associates (compare Plat 1 and Plate 2 below). Figures 8-1 and 8-2 of our JWP 2016 report shows the TUFLOW model boundary location just upstream of memorial Avenue/Old ferry Road (compare Lyall &amp; Associates 100 year map on Plat 1 with J. Wyndham Prince flood model extents on Plate 3).</i></p> <p><i>Therefore the Panthers Precinct Master Plan – Flood Assessment Report (JWP Sep 2016) considers the overtopping of the Nepean River that occurs at Memorial Avenue within the regional tailwater boundary condition used in this assessment and thus cater for this breakout.”</i></p>
<p><b>1.1.2 Did not assess the flood risk from the full range of flood events, for both Nepean River and Peach Tree Creek flooding, up to the probable maximum flood event (PMF) as required under the NSW Floodplain Development Manual.</b></p>	<p><u>Response by applicant – generally accepted by Penrith City Council:</u></p> <p>J. Wyndham Prince have advised that modelling the impact of the PMF across the site will have no tangible benefit to the assessment of flood impact within the site. We understand Council supports this position.</p> <p>J. Wyndham Prince have provided further advice to support this position, stating:</p> <p><i>“A further issue was raised in the INSW letter in regards to the range of flood events assessed. Consultation with Penrith City Council was undertaken during the development phase of the assessment to determine the events to be assessed. Four (4) flood events were agreed upon completed as part of the assessment which are consistent with the controls set out in DCP 2014 (pg. E13-74).</i></p> <p><i>While we agree that the PMF assessment may be necessary, we believe that the regional flood assessment undertaken by Worley Parsons (2008) is suitable to inform PMF flood levels and hazard assessment for this LEP amendment. Given the significant magnitude of a PMF event and that flood depths across the site in this event are in the order of 5m-6m, any minor re-distribution that may occur with the inclusion of the ESQ1818 development are unlikely to have any significant impact on PMF flood levels in the locality.”</i></p>

## 1.2 Flood Evacuation

Matter Raised	Response
<p><b>1.2.1</b> <i>Did not consider the potential impact on the residents evacuating from the proposed development on residents evacuating from surrounding areas and other areas of the Hawkesbury Nepean Valley that would occur during flood emergency events. There must be no deterioration in evacuation performance in terms of added isolated vehicles and duration of evacuation.</i></p>	<p><u>Response by Penrith City Council:</u></p> <p>Representatives from Penrith City Council, Infrastructure NSW, SES and the Department of Planning and Environment met on 16 February 2017 to discuss the outstanding matters raised in the Infrastructure NSW 5 Dec 2016 correspondence. iNSW indicated that there are complex regional flood modelling, evacuation/sequencing and infrastructure assessments being undertaken which will not be finalised for some time. As an interim approach to consider the Panthers ESQ1818 proposal, iNSW agreed to focus on the Panthers sub-sector of the regional model to model the internal road network and determine internal constraints. iNSW subsequently provided hydrograph information to the applicant to employ in the preparation of a flood evacuation assessment.</p> <p>The applicant's flood engineer, J. Wyndham Prince, has prepared a flood evacuation assessment dated 21 April 2017 that has incorporated the flood hydrograph information circulated by iNSW. This assessment was forwarded to iNSW by Penrith City Council on 26 April 2017 for consideration and review. Council is currently awaiting iNSW's response in respect to the estimated timeframe around the completion of the iNSW review and endorsement of the assessment.</p>
<p><b>1.2.2</b> <i>Does not identify the critical timeline(s) for evacuating the proposed development, as part of the SES subsector, during flood events.</i></p> <ul style="list-style-type: none"> <li>▪ <i>Timing is critical given that self-evacuation by private vehicle is the proposed flood evacuation method and that floodwaters could rise faster than the assumed 0.5 metres per hour.</i></li> <li>▪ <i>Combinations of regional and local flood events, including events larger than 1 in 100 chance per year and of different durations, should be assessed in combination with the potential flood evacuation traffic generated as per the Hawkesbury-Nepean Flood Emergency Sub-Plan (<a href="http://www.emergency.nsw.gov.au/publicatjions/plans/sub-plans/hawkesburynepean-flood.html">www.emergency.nsw.gov.au/publicatjions/plans/sub-plans/hawkesburynepean-flood.html</a>) to identify the critical evacuation timeline for the proposed development.</i></li> </ul>	
<p><b>1.2.3</b> <i>Did not demonstrate an understanding of the approved flood emergency management arrangements in NSW or the Hawkesbury Nepean Valley.</i></p> <ul style="list-style-type: none"> <li>▪ <i>In particular Appendix F - Flood Evacuation Strategy of the report does not recognise the existing Hawkesbury Nepean Flood Emergency Sub-Plan.</i></li> <li>▪ <i>Directing evacuating vehicles contrary to established flood evacuation routes and into areas of higher flood risk as well as directing evacuees to a location not recognised as a potential flood evacuation centre raises the flood risk.</i></li> <li>▪ <i>Incorrectly claims that the NSW Police are responsible for flood emergency management.</i></li> <li>▪ <i>There is also no evidence to support the claimed "seven hours as determined by [unidentified] local authorities" for flood emergency evacuation.</i></li> </ul>	

### 1.3 Development Controls

Matter Raised	Response
<p><b>1.3.1</b> <i>Identifies that private vehicles at the site are proposed to be garaged in an underground car park that has only 0.3 metres of freeboard above 1 in 100 chance per year flood.</i></p> <ul style="list-style-type: none"> <li><i>Underground or basement car parks (Le. below ground level) or covered bunded car park facilities are subject to inundation as flood waters rise. It should be recognised that such design measures to prevent early entry of water can cause problems with rapid flooding of the car park if waters continue to rise above the level of the ramp, which acts then like a breeched levee. This can be very dangerous for anyone trapped in the car park and clearly marked, separate pedestrian exits are essential. Where it is possible to do so, it is preferable to have the crest level of all accesses to the basement at or above the PMF.</i></li> </ul>	<p><u>Response by applicant - generally accepted by Penrith City Council:</u></p> <p>The request to have the crest level of all accesses to the basement 'at or above PMF' is not feasible as this would require all basement entries to be above Level 1. Given the proposal has five (5) separate basements and therefore basement entries, providing ramped access up to Level 1, some 3m above existing natural ground level, is unfeasible.</p> <p>Notwithstanding this, we can confirm that all ramp crest levels can be increased to at least 26.6m AHD, as suggested by J. Wyndham Prince, which represents the Regional 1% AEP +0.5m freeboard, consistent with Council's requirements.</p>
<ul style="list-style-type: none"> <li><i>Multi-storey buildings can provide occupants with high-level refuges during short duration floods. In flash floods, this may be preferable to evacuation if vehicles are parked in underground car parks. In such circumstances, an accessible refuge not only needs to be provided but clear signage to the refuge needs to be posted within the public areas of the building including the car park.</i></li> </ul>	<p><u>Response by applicant – NOT accepted by Penrith City Council:</u></p> <p>We can confirm that roof top areas will be provided as accessible refuge areas. These spaces will have a pergola-like canopy for shelter and will be located above PMF 31.5m-32.0m AHD.</p> <p><u>Response by Penrith City Council:</u></p> <p>The applicant's commentary discussing "shelter in place" is not accepted by Penrith City Council. Council refers to the iNSW letter dated 5 December 2016 which states that "The NSW State Emergency Service has advised that shelter in place is not an acceptable flood risk mitigation strategy...".</p>
<ul style="list-style-type: none"> <li><i>The hazardous nature of underground car parks emphasises the need for full public awareness to ensure prompt and early evacuation to ensure that the cars could be removed from the car park before the evacuation routes become impassable and before the car park becomes flooded. Any cars remaining under water in a car park could be assumed to be written off. Consideration should also be given to the initial slow flooding of the underground carpark to help act as a warning mechanism to those in the carpark area.</i></li> </ul>	<p><u>Response by applicant - generally accepted by Penrith City Council:</u></p> <p>There is concern that the intent of this point seems to conflict with Point 1. As a warning mechanism to the carpark, lowering of the crest level rather than raising it (as per point 1) would allow for slow flooding of the underground car park in order to alert people that water is coming in before it reaches certain level.</p> <p>Notwithstanding this, as some carparks are 500-800mm above ground floor, it may be possible to naturally vent the carpark along the perimeter so during a flood event, water goes in through those vents to create the suggested warning mechanism. This design change can be investigated as part of the detailed design phase and submitted as part of a DA for the proposed development.</p>

<ul style="list-style-type: none"> <li>▪ <b><i>Underground car parks for commercial buildings such as shopping centres often house plant and equipment e.g. air conditioning units. Locating these higher within the building would reduce the chances of damage to this equipment.</i></b></li> </ul>	<p><u>Response by applicant - generally accepted by Penrith City Council:</u></p> <p>We can advise that all ground plant room levels will be above regional 0.5% AEP i.e. 27.25m AHD. It is advised by J. Wyndham Prince and Turner Architects that locating plants above PMF is not practical as such rooms would be required to be higher than the common podium.</p>
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## **2.0 Whether the planning proposal would need to be amended at the conclusion of the work required to address the above matters.**

### Response by applicant

The intent of the Planning Proposal is to seek a redistribution of permissible GFA across the site by amending the building heights in certain locations. In some instances, the height will increase, while in others the height will decrease.

The intent and request of the planning proposal (i.e. amendment to the permissible building heights) will not change as a result of the above-mentioned matters and delivery of information to support the Gateway Determination and Infrastructure NSW Correspondence dated 5 December 2016.

### Response by Penrith City Council

Penrith City Council acknowledges the applicant's response above but is not in a position to provide comment on whether the planning proposal will change until the outstanding elements have been resolved, the planning proposal has been exhibited and any matters raised through the consultation process have been resolved.