

SUBMISSION SUMMARY

To:	Council Report	From:	Team Leader Floodplain Management
CC:	File	Date:	14/02/2023
SUBJECT:	Proposed Nepean River including Narellan Creek Floodplain Risk Management Study and Plan <i>Total Submissions: 12. Total Topics: 37.</i>		

Submission Topics Summary by Category		
# Raised	Submission Topics Categorised	Percentage
10	Concessional Development/ Heritage Conservation Area	27%
5	Climate Change	14%
5	Community Consultation	14%
3	Flood Policy Update with up-to-date information	8%
4	Open space and river channel protection, flood mitigation measures	11%
5	NSW State Declaration, Development Manual and NSW Independent Flood Inquiry	14%
5	Miscellaneous*	14%
37	Total	100%
* List of Miscellaneous Topics		
VHR Scheme - Voluntary House Raising		
Model reference to ARR 2019		
Congestion and Blockage of Evacuation route		
Assessment of the safety impacts		
Need of Evacuation centre in Camden Township		

SUBMISSION RESPONSES SUMMARY

Submission Ref.	Submission Topic	Response
1	1. Dredging of River Channel The customer is suggesting that the risk of flooding at the Nepean River is far greater due to flood behaviour and climate change impacts. According to customer - dredging of the Nepean River would substantially reduce the flood risk to property damage within the Camden area.	<p>Dredging river channels does not prevent flooding during extreme river flows. It does however impact the river negatively through channel bed modification, habitat degradation, remobilization of contaminants, and increased suspended sediment concentrations.</p> <p>Dredging can disturb the natural balance of rivers which can lead to increased erosion, changes in the river geomorphology, destroying natural habitat, and impacts on flora and fauna.</p>
	2. VHR Scheme - Voluntary House Raising In addition, the customer is suggesting establishing a Voluntary House Raising Scheme as part of the Floodplain Risk Management Plan that would allow residents to reduce the risk of damage to their property and possessions	<p>Voluntary House raising has been investigated as part of this study and properties that are impacted in the 5% AEP event have been identified as suitable for further investigation for the VHR.</p> <p>This option is in the FRMP and Council is currently investigating the opportunity to establish a VHR scheme.</p> <p>The development of a VHR requires the plan to be adopted by Council.</p>
2	1. The customer attached notes from the NSW Flood Inquiry Report re the Lismore Floods.	<p>The 2022 NSW Independent Flood Inquiry is a comprehensive document that details investigations that were commissioned by the NSW Government into the 2022 flood events, with a particular focus on the hardest hit regions of the Northern Rivers. The recommendations that have come out of this report are primarily for:</p> <p>a) The NSW Government/Bureau of Meteorology/SES to begin changing the way that floods are predicted, monitored, and communicated [pre-flood].</p> <p>b) The NSW Government/SES to begin changing the way that floods are responded to [during flood].</p> <p>c) The NSW Government to begin changing the way that flood recovery takes place. This includes the establishment of the NSW Reconstruction Authority</p>

		<p>(NSWRA), similar to the successful Queensland Reconstruction Authority (QRA) [post-flood].</p> <p>The recommendations from this report are strategic in nature and will take time to manifest in policies and directions from the NSW State Government that Council will be directed to consider or adopt. The current flood studies, floodplain risk management studies and plans and the flood policy have been developed in accordance with the current NSW Flood Prone Land Policy.</p> <p>The Nepean River Floodplain Risk Management Study and Plan was prepared prior to the release of the 2022 NSW Independent Flood Inquiry report. As mentioned in Section 16, the Floodplain Risk Management Study and Plan <i>“should be regarded as a dynamic plan requiring review and modification over time. The catalysts for change include new floods and enhanced collection of flood data, legislative change, alterations in the availability of funding and reviews of Council planning policies. Notwithstanding these catalysts for review, a review every five years or so is warranted to ensure the ongoing relevance of the Plan”</i>. Council is not required to update the Flood Policy based on an independent inquiry report. Updates to Council’s Flood Risk Management Study and Plan would be expected following any State Policy updates based on recommendations from the 2022 Report as required.</p>
	<p>2. Heritage Conservation Area/Concessional Development</p> <p>The below areas were found confusing and inconclusive.</p> <p>Concessional development in the case of commercial and residential (low, medium, or high density) development,</p> <p>Concessional development in the case of other development and</p> <p>Concessional development in the case of development within the Camden Heritage Conservation Precinct:</p>	<p>The Camden Town Centre Urban Design Framework was adopted by Council in 2018. This document included a recommendation for Council to review its Flood development controls in the Camden Heritage Conservation Precinct (HCP).</p> <p>Following the review an additional draft concessional development clause for the Camden HCP was proposed to be included in the Flood Policy.</p> <p>As a result of community consultation, the draft clause has been removed. Development within this precinct will be considered undercurrent Development Control Plan requirements.</p>

	<p>a) All Commercial and Industrial, Low, Medium, and High-Density Residential developments (as categorised in this policy) located only within the Camden Heritage Conservation Precinct shown in Figure 3 of the Appendix 1.</p>	
	<p>3. Preservation of Trees and Riverbank</p> <p>The customer would like to know whether Council intend to clear up and fix the large-scale destruction of the riverbank and the loss of big healthy trees which were holding the riverbank. Along with preservation of any trees and riverbank that are in danger of further collapse (see above photos). Many facilities well used by the public are still closed in Camden i.e.: The Llewellyn Davis Walkway and the Equestrian Centre to name a few. 'No more building on Flood Plains'.</p> <p>There are 3 attachments with this Submission</p>	<p>Damage to the riverbanks is part of a natural process that occurs to rivers and creeks in flood, and it is generally not feasible to interfere with natural river movements.</p> <p>Funding for rehabilitation may be available in some instances and Council does get involved to repair damage located near public infrastructure assets under Council's Control.</p>
3	<p>1. Heritage Conservation Area/Concessional Development</p>	As per 2.2.
4	<p>1. Climate Change Policy, 10% adjustment justification, Life of the policy</p> <p>> Justification for using a 10% rainfall increase in the climate change modelling</p> <p>> The projected increase of the 1% AEP will exceed the current FPL within the Policy's life. Yet there is no</p>	<p>Climate change concerns have been considered in the Nepean River Floodplain Risk Management Study and Plan (FRMSP). The approach used was based on current best practice and additional details can be found in Appendix K of the document. Climate change flood mapping can also be found in Appendix B.</p> <p>Detailed analysis was undertaken to derive the 10% increase in climate change. This is provided in the attached climate change discussion paper. This approach is based on current best practice and will be</p>

	<p>policy for managing or communicating the problem.</p> <p>> Both Nepean River Catchment matrices do not require consideration of cumulative development in all instances</p>	<p>further investigated by Council when latest data and information is available.</p> <p>Submission related to Floodplain Risk Management Policy to be addressed in the other Policy Responses.</p>
	<p>2. Impact of the 2022 NSW Independent Flood inquiry</p>	<p>As per 2.1.</p>
	<p>3. Flood Policy Format Differs from other Council's-</p> <p>>Rather than relying on existing planning instruments, the Policy introduces specific controls and unique definitions</p>	<p>The policy has been documented based on the outcomes of the Floodplain Risk Management Study and Plans as required by the Floodplain Development Manual.</p> <p>Current best practice approach has been adopted to developing this policy. The policy is documented to best suit Camden Council's requirements.</p> <p>Definitions have been introduced based on the policy requirements. Future reviews of the Policy will be conducted at least every five (5) years with expert input and community consultation.</p>
	<p>4. Definition of the terms in the Flood risk Management Policy</p> <p>>The use of unique land use descriptions is inconsistent with the definitions in the Camden Local Environment Plan</p>	<p>This is addressed as concessional development in the Heritage Concessional Precinct is withdrawn. The reference is not clear for any other inconsistency.</p> <p>To Council's knowledge, the land use descriptions in the FRMSP are not inconsistent with the definitions in the Camden Local Environment Plan.</p>
	<p>5. Model reference to ARR 2019</p>	<p>The Nepean River flood modelling was undertaken prior to the release of the new ARR 2016/2019 guidelines.</p> <p>An ARR 2016 assessment was undertaken, and the results are documented in Appendix C of the Nepean River FRMSP report.</p> <p>Council has updated the Upper South Creek Flood Study to the new ARR2019 guidelines and intends to undertake an ARR2019 assessment for the Nepean River Floodplain Risk Management Study and Plan as well based on State government funding availability.</p>

		Reviews indicate the updates in ARR 2019 will not make any significant changes to the results.
	6. Congestion and Blockage of Evacuation routes	Congestion and blockage of evacuation routes - The Nepean River Floodplain Risk Management Study and Plan has identified the current flood evacuation and emergency response. New developments will be required to provide an emergency response plan. This will assist SES and ensure they burden the current evacuation routes and SES resources.
	7. Heritage Conservation Area /Concessional Development	As per 2.2.
	9. Lack of discussion of special flood considerations in areas between the FPL and the PMF	<p>The study was undertaken in accordance with the 2007 Planning Circular and Guideline on Development Controls on Low Flood Risk Area, Ministerial Direction No. 4.3, which had restricted Councils in NSW from applying residential development controls on land between the 1% AEP flood extent and the PMF extent. The new 2021 flood prone land package reverses the effects of this, and Council is currently undertaking investigations on flood considerations for these areas and updating the LEP.</p> <p>Consideration of flood risk between the FPA and PMF is provided for in the flood policy through the development controls applicable for the low flood risk precinct areas.</p>
	10. Adoption of the Nepean River Floodplain Risk Management Study & Plan Including Narellan Creek recommendations	The Nepean River Floodplain Risk Management Study & Plan recommendations have been adopted including the 500mm freeboard requirements and emergency management plan.
5	1. Heritage Conservation Area /Concessional Development	As per 2.2.
6	<p>1. Flood development regulations/ Floodplain Development Manual and recent flood events</p> <p>The current flood regulations are the 2005 version. Council states it is updating flood development regulations, this</p>	<p>The Study commenced in 2016 and hence the various assessments were undertaken for the duration of the study until 2021. Since then, the 2021/2022 flood events have occurred.</p> <p>Council has undertaken an in-house comparison of the recent March 2022 floods. This is provided in Appendix K. Actual flood marks were compared with the Nepean River Floodplain Risk Management Study and Plan 5yr</p>

	<p>date is quoted 2018, this leaves out the recent three large floods, 2021 - 2020, and forgets historic information.</p> <p>Council should not be allowing greater density of buildings and more people living and working in Camden.</p>	<p>and 20yr flood extent when Cowpasture Bridge gauge was at 12.3m. This showed that the study flood extents mapped are consistent with the actual flood extent observed.</p>
7	<p>1. Heritage Conservation Area/Concessional Development</p>	<p>As per 2.2.</p>
	<p>2. Local community Engagement / Consultation</p>	<p>Council's Floodplain Risk Management Studies and Plans are developed in consultation with the Floodplain Risk Management Committee which has public representation.</p> <p>The documents were on public exhibition for the period from 21 July 2022 until 26 August 2022. The purpose of this was community engagement and consultation to gain feedback and community knowledge which has been incorporated into the final documents.</p> <p>The policy has incorporated the outcomes of the studies. Individually the documents provide a summary. It is noted that an overarching summary will be included in future public exhibitions.</p>
	<p>3. Climate Change and recent flood events</p>	<p>Council has undertaken an in-house comparison of the recent March 2022 floods. This is provided in Appendix K. Actual flood marks were compared with the Nepean River Floodplain Risk Management Study and Plan 5yr and 20yr flood extent when Cowpasture Bridge gauge was at 12.3m. This showed that the study flood extents mapped are consistent with the actual flood extent observed. The intention of the public exhibition was the gain community feedback and gather community knowledge. Various submissions have been received by Council and are now being investigated and addressed.</p> <p>The potential flood impact from climate change is explained in Table 9.6 of the report. Detailed analysis was undertaken to derive the 10% increase in climate change. This is provided in the attached climate change discussion paper. This approach is based on current</p>

		<p>best practice and will be further investigated by Council when latest data and information is available.</p> <p>Climate change flood mapping have been provided (Appendix B).</p>
	4. NSW Premier's declaration / Independent Flood Inquiry	As per 2.1.
8	1. NSW Premier's declaration / Independent Flood Inquiry	As per 2.1.
	2. Concessional Development/ Heritage Conservation Area	As per 2.2.
	3. Climate Change Policy, 10% adjustment justification	Climate change concerns have been considered in the Nepean River Floodplain Risk Management Study and Plan (FRMSP). Detailed analysis was undertaken to derive the 10% increase in climate change. The approach used was based on current best practice and additional details can be found in Appendix K of the document. Climate change flood mapping can also be found in Appendix B.
	4. Community Consultation	<p>Council's Floodplain Risk Management Studies and Plans are developed in consultation with the Floodplain Risk Management Committee which has public representation.</p> <p>The documents were on public exhibition for the period from 21 July 2022 until 26 August 2022. The purpose of this was community engagement and consultation to gain feedback and community knowledge which has been incorporated into the final documents.</p> <p>The policy has incorporated the outcomes of the studies with the documents individually providing a summary. It is noted that an overarching summary will be included for future public exhibitions.</p>
9	1. Concessional Development/ Heritage Conservation Area	(1) to (19) As per 2.2.
	2. Recent Floods and up to date information	(17) The concerns regarding the Nepean River FRMSP not being up to date is noted. The Study commenced in 2016 and hence the various assessments were undertaken for the duration of the study until 2021. Since then, the 2021/2022 flood events have occurred. Council has undertaken an in-house comparison of the

		<p>recent March 2022 floods. This is provided in Appendix K.</p> <p>Actual flood marks were compared with the Nepean River Floodplain Risk Management Study and Plan 5yr and 20yr flood extent when Cowpasture Bridge gauge was at 12.3m. This showed that the study flood extents mapped are consistent with the actual flood extent observed.</p>
	3. Community consultation and Interview for the experienced data	<p>>(1) & (28) - Refer to response to item (17). At the commencement of Nepean River Flood Study, a community consultation was undertaken, and this information was used to validate the Flood Study results and current Nepean River Floodplain Risk Management Study and Plan is based on Nepean River Flood Study.</p> <p>The Nepean River Floodplain Risk Management Study and Plan was validated for June 2016 flood event and current March 2022 flood event (inhouse).</p>
	4. Climate Change	<p>>(20) Detailed analysis was undertaken to derive the 10% increase in climate change. This is provided in the attached climate discussion paper. This approach is based on current best practice and will be further investigated by Council when latest data and information is available.</p> <p>>(21) - This has been captured for greenfield development in Zone B.</p> <p>>(22) - Climate change flood mapping has been provided (Appendix B).</p> <p>>(23) - Climate Change considerations are for new developments and transport in Zone B.</p>
	5. Explanation and Community Engagement	<p>The policy has incorporated the outcomes of the studies with the documents individually providing a summary. It is noted that an overarching summary will be included for future public exhibitions.</p>
10	1. Community Consultation /Community information sessions	<p>The Floodplain Risk Management Study and Plan was developed in consultation with the Floodplain Risk Management Committee (as required by the Floodplain Development Manual) which has public representation, council officers and technical staff. The intention of the public exhibition was to gain community feedback and</p>

		gather community knowledge. Various submissions have been received and considered.
	2. Need of Evacuation centre in Camden Township	<p>>Evacuation routes - The feedback has been noted. Evacuation Routes have been assessed and as mentioned in Section 10.3.1, many roads experience loss of access in the 20% AEP event. New developments will be required to provide an emergency response plan. This will assist SES and ensure they do not burden the current evacuation routes and SES resources.</p> <p>>Evacuation Centres - Camden township gets flooded and hence not suitable for evacuation. Evacuation centres have been identified on land that is flood free and accessible.</p>
	3. Flood mitigation measures/Flood warnings and emergency events/Loss of property	<p>While flood mitigation levees at several locations have been considered only two have been listed and prioritised as High in the Plan. Both these levees provide benefits for flood events up to 1% AEP events.</p> <p>Further investigations on the suitability of the levees are yet to be undertaken. The adoption of the FRMSP is critical for obtaining funding support.</p> <p>Voluntary purchase is being considered by Council but needs further investigation and State government funding.</p>
	4. Concessional Development/ Heritage Conservation Area	As per 2.2.
11	1. Recent floods consideration on flood Policy Draft	1) The Study commenced in 2016 and hence the various assessments were undertaken for the duration of the study until 2021. Since then, the 2021/2022 flood events have occurred. Council has undertaken an in-house comparison of the recent March 2022 floods. This is provided in Appendix K. Actual flood marks were compared with the Nepean River Floodplain Risk Management Study and Plan 5yr and 20yr flood extent when Cowpasture Bridge gauge was at 12.3m. This showed that the study flood extents mapped are consistent with the actual flood extent observed.
	2. Community Consultation	The Policy has been developed based on the outcomes of the Floodplain Risk Management Study and Plan. The Floodplain Risk Management Study and Plan was developed in consultation with the Floodplain Risk

		Management Committee (as required by the Floodplain Development Manual) which has public representation. The intention of the public exhibition was to gain community feedback and gather community knowledge. Various submissions have been received by Council and are now being investigated and addressed.
	3. NSW Independent Flood Inquiry	As per 2.1.
	4. Disaster Adaptation Plans /Climate change policy	As per point 2.1. The report's recommendations, including disaster adaptation plans will be strategic in nature and will take time to manifest in policies and directions from the NSW State Government that Council will be directed to consider or adopt.
	5. Concessional Development/ Heritage Conservation Area	As per 4.1.
12	Post flood Sewage discharge into Equestrian Park	The existing sewer system within the BEP includes a rising main to the Sydney Water sewer system as a standard gravity flow main is not feasible due to the topography of the site. This is an existing sewer system for BEP and not a new connection. Our draft Flood Risk management Policy requires that all electrical equipment be located above FPL to minimise the risk of electrical failure of such equipment. The Equestrian Park and some other public places were closed for safety and/or repairs and re-opened once they were suitable for public use.