To the Planning Team, Palmerston North City Council

Name of submitter: Jo Horrocks

Organisation: Natural Hazards Commission Toka Tū Ake

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Date: 31/01/2025

Thank you for the opportunity to submit on Plan Change I: Increasing housing supply and choice

About the Natural Hazards Commission Toka Tū Ake (NHC)

The Natural Hazards Commission Toka Tū Ake (NHC) is a Crown Entity responsible for providing residential property owners insurance for the impacts of natural hazards (building and land damage from earthquakes, landslides, tsunami, volcanic and hydrothermal activity, and fire following these hazards, and land damage only from storm or flood and fire following these hazards).

Why NHC is providing this submission

The contingent liability associated with natural hazard risk in New Zealand is high. NHC carries much of this liability on behalf of the Crown, through its provision of 'first-loss' insurance coverage. NHC therefore has a strong interest in reducing risk from, and building resilience to, natural hazards in New Zealand. We do this by investing in and facilitating research and education about natural hazards, and using and translating this information and knowledge to ensure evidence-based, risk-informed policy and planning.

New Zealand's natural hazard risk profile is becoming more complex as the effects of climate change become apparent. Climate change can cause natural hazards to become more severe, happen more often, and affect more areas. Managing the impacts of climate change and natural hazard risk can, and should, be complementary – mitigating the impacts of one can improve outcomes for both.

Our focus is on ensuring long-term resilience by locating buildings and infrastructure in areas that will remain safe and sustainable for future generations. Developing in zones at high risk from natural hazards exposes future owners to complex and potentially hazardous situations, which could compromise the longevity and safety of these developments. We understand the policy dilemma when it comes to finding space for urban development despite New Zealand's high natural hazard risk. Our advice and recommendations are not intended to impede much-needed development, but rather to highlight the importance of careful and precautionary choices.

NHC supports clear planning frameworks that reduce natural hazard risks and allow for resilient and sustainable land use planning to manage existing and future risks. Frameworks that effectively manage these risks allow communities to become more educated and resilient towards natural hazards. This reduces impacts, damage, and disruption when natural hazards occur, and means lower costs for homeowners and communities, the local economy, local and central government, and beyond. In summary, good policy means foreseeable losses are avoided or managed, which protects property and the prosperity and wellbeing of people and communities.

Palmerston North could be impacted by a range of natural hazards including flooding, and liquefaction from earthquakes. Climate change will add to the complexities in natural hazard management by creating a warmer and drier climate on average but increasing the intensity of rainfall events. Increased rainfall intensity in a warmer and drier climate can increase flooding potential as often hard and dry soil has less absorption capacity and becomes more prone to flooding.

NHC encourages territorial authorities to use risk-based frameworks in district plans to reduce risk and increase resilience to natural hazards. Plan Change I: Increasing housing supply and density contains provisions that we support in this regard, and we have provided suggestions in other areas that could be improved.

We welcome the opportunity to discuss our submission with council officers and provide further assistance, if this would be helpful. Please feel free to contact us at any time.

Yours sincerely,

Jo Horrocks

Chief Resilience Officer

Form 5, Clause 6 of Schedule 1, Resource Management Act 1991

Natural Hazards Commission Toka Tū Ake Submission on Proposed Plan Change I: Increasing housing supply and density

To:	Palmerston North City Council
	Via Council submission email: submission@pncc.govt.nz
Submitter:	Natural Hazards Commission Toka Tū Ake (NHC)

1. This is a submission on the following:

The Proposed Plan Change I: Increasing housing supply and density notified on 20/11/2024.

2. NHC could not gain an advantage in trade competition through this submission.

3. NHC does not wish to be heard in support of this submission.

4. This document and the Appendices attached is the NHC submission. This submission relates to Plan Change I: Increasing housing supply and density in its entirety.

5. The submission from NHC is:

NHC supports with amendments Plan Change I: Increasing housing supply and density to the extent outlined in this submission.

a) **Medium Density Residential Zone** - NHC generally supports the objectives and rules in relation to managing natural hazards in the proposed Medium Density Residential Zone.
b) **Flood modelling and minimum floor levels** - NHC seeks that the minimum floor levels are determined using at least a 1% AEP flood scenario and that climate change modelling is altered to include the RCP8.5 scenario. These changes are more aligned to what is becoming standard across the country and constitute a precautionary approach to managing natural hazard risk.

Appendix 1 is a table containing submission points that address the above, and other matters of relevance.

6. NHC seeks the following decision from the local authority:

That the specific amendments, additions or retentions which are sought as specifically outlined in Appendix 1, are accepted and adopted into Plan Change I: Increasing housing supply and density, including such further, alternative, additional, or consequential relief as may be necessary to fully achieve the relief sought in this submission.

Date:	31/01/2025
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Appendix 1

Provision	Description	Support/ Oppose/ Amend	Reasoning	Requested Action
Section 32 Evaluation Report				
-	Plan Change I only includes reference to flood, despite the description of liquefaction hazard for Palmerston North included in the Section 32 Evaluation Report (Table 5, Table 7, Appendix B, and Appendix D).	Amend	The provisions within Plan Change I should also include rules for restricting development within liquefaction prone areas. Palmerston North is likely to experience liquefaction in the event of an earthquake. The current proposed Medium Density Residential Zone includes areas of 'low', 'moderate-high', and 'moderate-very high' liquefaction hazard (according to the Section 32 Evaluation Report and Map 22.6.2 in the current Operative District Plan). The Section 32 Evaluation report states that "the risks associated with liquefaction are managed through the building consent process, the use of Land Information Memoranda (LIMs) and section 106 of the RMA". We consider that it is also important to consider liquefaction during land use planning for medium and high-density residential development because liquefaction can cause extensive damage to properties during an earthquake. NHC analysis of insurance claims from the Canterbury Earthquake Sequence shows that liquefaction damage claims amounted to around 15% of all claims, but accounted for approximately 55% of the total losses. These losses show that properties suffered	That the following amendments are made: 1. A liquefaction hazard overlay (representing the 'moderate-very high' liquefaction zones from Map 22.6.2 in the Operative District Plan) is included in the planning maps for the proposed Medium Density Residential Zone. 2. Medium Density development and subdivision within the Liquefaction Hazard Overlay requires a geotechnical engineer to provide input into the design of buildings including a site-specific assessment of liquefaction issues, and an assessment of new or existing subsurface ground investigations.

			significant damage where liquefaction was present. This suggests that the biggest determinant of loss was therefore not so much how a structure was built, but where it was built. Rules for development within liquefaction prone areas should follow the MBIE/MfE Planning and Engineering Guidance for Potentially Liquefaction Prone Land[1]. Notably, areas assigned a high liquefaction classification should require a site-specific assessment of liquefaction issues. [1]MBIE & MfE (2017). Planning and engineering guidance for potentially liquefaction-prone land Resource Management Act and Building Act aspects.	
Proposed Section 10a – Medium Density Residential Zone				
MRZ-O2	Built *development* in the Medium Density Residential Zone positively contributes to achievement of a predominantly residential urban *environment* that: i. Is resilient to the *effects* of climate change and *natural hazards*;	Support	We support that residential urban environments should be resilient to the effects of climate change and natural hazards.	That the provision be retained.
MRZ-O4	Effects of flooding in the Medium Density Residential Zone Avoid residential intensification unless the on-site and off-site effects of flooding (including from stormwater) on people, property and the environment as a result of residential intensification are appropriately mitigated.	Support in part / Amend	We support avoiding residential intensification in areas that can be affected by flooding. It is important to clarify what level of mitigation is required for the council to deem the effects of flooding "appropriately mitigated". Providing a definition or explanation is necessary to avoid confusion	That the following amendments are made: 1. A definition or explanation for what the council deems as "appropriately mitigated" for flooding is included. 2. That "appropriately mitigated" is assessed using the following criteria:

			and ensure consistent application of rules and policies. A definition for what to consider in appropriate mitigation works could be adapted from Mackenzie District Council's *Plan Change 28 – Hazards and Risks, Historic Heritage and Notable Trees*: *a. The effectiveness of any proposed natural hazard mitigation works and the alternative design options considered, including low impact design.* *b. Any adverse effects on the environment of any proposed mitigation measures.* *c. The extent to which the mitigation works transfer, or create, unacceptable hazard risk to other people, property or infrastructure.* *d. The potential for the proposal to exacerbate natural hazard risk, including transferring risk to any other site.* *e. Whether or not the work would be carried out under the supervision of either a Chartered Professional Engineer with experience in geotechnical engineering or a Professional Engineering Geologist (IPENZ registered).*	a) *The effectiveness of any proposed natural hazard mitigation works and the alternative design options considered, including low impact design.* b) *Any adverse effects on the environment of any proposed mitigation measures.* c) *The extent to which the mitigation works transfer, or create, unacceptable hazard risk to other people, property or infrastructure.* d) *The potential for the proposal to exacerbate natural hazard risk, including transferring risk to any other site.* e) *Whether or not the work would be carried out under the supervision of either a Chartered Professional Engineer with experience in geotechnical engineering or a Professional Engineering Geologist (IPENZ registered).*
MRZ-P6	Adverse effects of flooding and stormwater On-site mitigation measures are incorporated into subdivision, use and development in the zone, including by requiring:	Support	We support the use of on-site mitigation measures for subdivision to manage flooding. Permeable surfaces, stormwater attenuation, minimum floor levels, and maintaining peak stormwater flows to pre-development levels are all effective techniques for managing flooding and can	That this provision be retained.

	1. Minimum permeable surface areas to assist with reducing the rate and volume of stormwater run-off and improve water and soil quality; 2. Stormwater attenuation; 3. Adoption of minimum floor levels; and 4. That off-site stormwater peak flows following intensification of a site are maintained at pre-development levels.		reduce the impacts to people and property during a flood event.	
MRZ-P7	Development in the stormwater overlay Avoid development in the Stormwater Overlay unless the Council is satisfied that a site-specific stormwater management plan prepared by a suitably qualified stormwater design consultant (preferably with experience in water sensitive design concepts and elements) identifies: 1. the location, scale and nature of the development proposed for the site; 2. the extent of flood and/or overland stormwater flow hazards; 3. the on-site and off-site effects of the proposed development on people, property and the environment; 4. recommended mitigation measures to remedy or mitigate the on- and off-site effects of the development; and 5. demonstrates that the on- and off-site adverse effects will be appropriately mitigated.	Support	We support avoiding development in the Stormwater Overlay and requiring a suitably qualified stormwater design consultant to prepare a site-specific management plan. The Stormwater Overlay represents an area that is more likely to experience flooding and has experienced previous flooding (as demonstrated by Figure 8 and Appendix A in the PC I: Stormwater Servicing Assessment). Avoiding development in this area will reduce the impacts to people and property in future flood events.	That this provision is retained.

MRZ-R7	Construction of up to three residential units and papakāinga (including relocatable and prefabricated residential units). 1. Activity status: **Permitted** Where: a. Compliance with the following standards is achieved: ix. MRZ-S9 – Permeable surfaces x. MRZ-S10 – *Stormwater* attenuation device xi. MRZ-S11 – Minimum floor levels 2. Activity status: **Restricted Discretionary** Where: a. There is a non-compliance with one or more of the standards of MRZ-R7- *Council's* discretion is restricted to: 1. The matter(s) of discretion for any infringed standard in MRZ-R7.1(a); 2. The extent and *effects* of non-compliance with any standard in MRZ-R7.1(b) which has not been met, including any relevant assessment criteria; and 3. The relevant matters in MRZ-P2, MRZ-P3, MRZ-P4, MRZ-P6 and MRZ-P12.	Support	We support the construction of up to three residential units and papakāinga being a permitted activity provided they are outside of the Stormwater Overlay and meet the requirements for managing flood hazard. We also support it being a restricted discretionary activity if compliance with standards MRZ-S1-S20 is not achieved. However, we have provided recommendations for amendments to MRZ-S11 as part of this submission. We support the inclusion of MRZ-P6 as a matter of discretion as on-site flood mitigation is an important aspect of managing flood risk and can reduce the impacts to people and property in flood events. Palmerston North has been affected by previous flood events, as evidenced by the previous flood complaint data provided in the Stormwater Service Assessment (Figure 8). Including provisions for flood management within the proposed MDRZ is important for ensuring the impacts to people and property are reduced in future flood events. Rainfall intensity for Palmerston North is expected to increase by 2090, leading to pressure on the stormwater system and increased risk of localised flooding (PC I: Climate Change Report). This makes it essential that effective flood management is required for permitted activities and as a matter of discretion if there is non-compliance with MRZ-R7-1.	That the provisions for both permitted and restricted discretionary activities be retained subject to amendments to MRZ-S11.

MRZ-R8	Construction of four or more residential units and papakāinga (including relocatable and prefabricated residential units) 1. Activity status: Restricted Discretionary Council's discretion is restricted to: 1. The relevant matters in MRZ-P2, MRZ-P3, MRZ-P4, MRZ-P6 and MRZ-P12.	Support	We agree that the construction of four or more residential units or papakāinga should be a restricted discretionary activity. We support the inclusion of MRZ-P6 as a matter of discretion as on-site flood mitigation is an important aspect of managing flood risk. Increasing residential density can increase natural hazard risk by increasing the level of exposure. Having the construction of four or more residential units as a restricted discretionary activity can act to prevent the increase of natural hazard risk. Effective on-site flood mitigation can also manage natural hazard risk by reducing the impacts to people and property in future flood events.	That this provision be retained.
MRZ-R9	Addition or alteration of buildings and structures 1. Activity status: **Permitted** Where: a. Compliance with the following standards is achieved: ix. MRZ-S9 – *Permeable surfaces* x. MRZ-S10 – *Stormwater* attenuation device xi. MRZ-S11 – Minimum floor levels 2. Activity status: **Restricted Discretionary** Where: a. There is a non-compliance with one or more of the standards in MRZ-R9.1. *Council's* discretion is restricted to:	Support	We support that the addition or alteration of buildings and structures within the MDRZ is a permitted activity, provided compliance with standards MRZ-S1 - MRZ-20 is achieved. However, we have provided recommendations for amendments to MRZ-S11 as part of this submission. We also support the inclusion of MRZ-P6 as a matter of discretion in instances when the compliance with standards MRZS1- MRZS20 is not achieved. We support the inclusion of the flood management standards in MRZ-S1 - MRZ-S20 and MRZ-P6 as Palmerston North has been affected by previous flood events, evidenced by the previous flood complaint data provided in the Stormwater Service	That the provisions for both permitted and restricted discretionary activities be retained subject to amendments to MRZ-S11.

	1. The matter(s) of discretion for any infringed standard in MRZ-R9.1(a); 2. The extent and *effects* of non-compliance with any standard in MRZ-R9.1(b) which has not been met, including the relevant assessment criteria; and 3. The relevant matters in MRZ-P3, MRZ-P4, MRZ-P6 and MRZ-P12.		Assessment (Figure 8). Including provisions for flood management within the proposed MDRZ is important for ensuring the impacts to people and property are reduced in future flood events. Rainfall intensity for Palmerston North is expected to increase by 2090 leading to pressure on the stormwater system and increased risk of localised flooding (PC I: Climate Change Report). This makes it essential that effective flood management is required for this to be a permitted activity and as a matter of discretion if there is non-compliance with MRZ-R9.1.	
MRZ-R10	Construction, alteration, or addition of buildings and structures within the stormwater overlay 1. Activity status: Restricted Discretionary Council's discretion is restricted to: 1. The extent to which any effects, both on-site and off-site, are avoided or mitigated; 2. Whether the proposed mitigation measures can be effectively implemented and maintained; 3. The extent to which on-site mitigation measures will support and align with any catchment or sub-catchment plan to implement the city-wide Stormwater Strategy; and 4. The relevant matters in MRZ-P6, MRZ-P7 and MRZ-P8.	Support	We support that the construction, alteration, or addition of buildings and structures within the Stormwater Overlay is restricted discretionary. The Stormwater Overlay represents areas within Palmerston North that have been previously flooded or are likely to flood in the future (as demonstrated by Figure 8 and Appendix A in the PC I: Stormwater Servicing Assessment). Restricted development within these areas will limit increases in natural hazard risk and ensure that the impacts to people and property are reduced in future flood events. We support that the council's discretion is restricted to on-site and off-site effects being mitigated, whether the proposed mitigation can be effectively implemented as well as the relevant matters in MRZ-P6, and MRZ -P7. Ensuring that the adverse effects from floods are appropriately mitigated (for example, see	That this provision be retained.

			recommendations for MRZ-O4 and SUB-MRZ-P3) is essential for reducing the impacts to people and property in future flood events.	
MRZ-R11	Construction, addition, and alteration of accessory buildings 1. Activity status: **Permitted** Where: a. Compliance with the following standards is achieved: iv. MRZ-S9 – *Permeable surfaces*; and v. MRZ-S10 – *Stormwater* attenuation device. 2. Activity status: **Restricted Discretionary** Where: a. There is a non-compliance with one or more of the standards in MRZ-R11.1. Council's discretion is restricted to: 1. The matter(s) of discretion for any infringed standard in MRZ-R11.1; and 2. The relevant matters in MRZ-P3, MRZ-P6 and MRZ-P12.	Support	We support that this is a permitted activity provided it achieves the relevant standards. We support the matters of discretion if the compliance with standards is not achieved. The addition or alteration of accessory buildings can increase natural hazard risk by increasing levels of exposure. However, this risk can be managed by adhering to the standards that relate to flood hazard mitigation, which can reduce risk and the impacts to people and property in future flood events.	That the provisions for both permitted and restricted discretionary activities be retained.
MRZ-R13	Construction of a new community house 1. Activity status: **Permitted** Where: a. Compliance with the following standards is achieved: ix. MRZ-S9 – *Permeable surfaces* x. MRZ-S10 – *Stormwater* attenuation device xi. MRZ-S11 – Minimum floor levels 2. Activity status: **Restricted Discretionary** Where:	Support	We support the construction of a new community house being a permitted activity provided it is outside of the Stormwater Overlay and meets the requirements for managing flood hazard. The Stormwater Overlay represents areas within Palmerston North that have flooded previously and are likely to flood again (as demonstrated by Figure 8 and Appendix A in the PC I: Stormwater Servicing Assessment). To reduce natural hazard risk and impacts to people and property, development should	That the provisions for both permitted and restricted discretionary activities be retained subject to amendments to MRZ-S11.

	a. There is a non-compliance with one or more of the standards in MRZ-R13-1. *Council's* discretion is restricted to: 1. The matter(s) of discretion for any infringed standard in MRZ-R13.1(a) 2. The extent and *effects* of non-compliance with any requirement in MRZ-R12.1(b)-(f) which has not been met, including any relevant assessment criteria for MRZ.R13.1(b)-(e); and 3. The relevant matters in MRZ-P3, MRZ-P4, MRZ-P5, MRZ-P6 and MRZ-P12.		only be a permitted activity when it is outside a known natural hazard area. We also support this activity being restricted discretionary if compliance with the standards MRZ-S1 – MRZ-S20 are not achieved. However, we have provided recommendations for amendments to MRZ-S11 as part of this submission. We support the inclusion of MRZ-P6 as a matter of discretion as on-site flood mitigation can reduce the impacts to people and property in future flood events.	
MRZ-S9	Permeable surfaces 1. Every site must contain a minimum 30% permeable surfaces, as a percentage of the net site area.	Support	We support the requirement of minimum permeable surfaces as part of flood management in the MDRZ. Permeable surfaces can result in less runoff and reduced stormwater during a flood event, which in turn can reduce the impacts to people and property.	That this provision be retained.
MRZ-S10	Stormwater attenuation device 1. Every site must include a stormwater attenuation device which is sized to contain a minimum 18 litres of water per $1m^2$ of new impervious area. 2. Each stormwater attenuation device must be maintained on an ongoing basis. 3. Any above-ground stormwater attenuation tank must be located in a side or rear yard.	Support	We support the requirement for all sites to have a stormwater attenuation device. We also support that it must be regularly maintained, and that its capacity is in relation to development of impermeable surfaces. Managing stormwater with an attenuation device can reduce the amount of stormwater entering the system, which can reduce the impacts to people and property during future flood events. Rainfall intensity for Palmerston North is expected to increase by 2090 leading to pressure on the stormwater system and increased risk of localised flooding (PC I: Climate Change Report). A	That this provision be retained.

			stormwater attenuation device that holds stormwater on-site, reducing pressure on the stormwater system, will be useful for managing future flood risk in Palmerston North and reducing the impacts to people and property.	
MRZ-S11	Minimum floor levels 1. The finished floor and *ground level* for all *buildings, accessory buildings* and *structures* must be at least at the required freeboard for the 2% AEP flood extent for the *site* (including an allowance for climate change). 2. *Access* to occupied *buildings* and *structures* must be above the 2% AEP flood extent. **Advice Note:** The required freeboard will be provided by Palmerston North City Council.	Support in part / Amend	We support requiring residential development to have minimum floor levels to ensure that it is resilient to the effects of flooding. We also support the inclusion of a climate change allowance in the flood modelling extent. We recommend that minimum floor levels are built to at least 1% AEP flood extent rather than a 2% AEP flood extent. 1% AEP represents a larger flood event and so developing to this level is taking a precautionary approach to development. Using at least 1% AEP is also becoming standard across the country with many other councils (such as Wellington City Council, Auckland Council, and Whangarei District Council) adopting minimum floor levels for a 1% AEP flood event. We also recommend the RCP8.5 climate change scenario rather than the RCP6.5 scenario that has been used to support Plan Change I (PC I: Stormwater Servicing Assessment). RCP8.5 represents the upper estimate of likely futures and provides for a precautionary approach to natural hazard risk management. The National Adaptation Plan[1] outlines that councils should use the RCP8.5 climate change scenarios for	That the following amendment is made: 1. The finished floor and *ground level* for all *buildings, accessory buildings* and *structures* must be at least at the required freeboard for the ~~2%~~ 1% AEP flood extent for the *site* (including an allowance for climate change). 2. *Access* to occupied *buildings* and *structures* must be above the ~~2%~~ 1% AEP flood extent. **Advice Note:** The required freeboard will be provided by Palmerston North City Council and will be based on a RCP8.5 climate change scenario.

			detailed hazard and risk assessments in coastal and non-coastal areas. [1]Ministry for the Environment. 2022. Aotearoa New Zealand's first national adaptation plan. Wellington. Ministry for the Environment.	
Proposed Section 7b – Subdivision in the Medium Density Residential Zone				
SUB-MRZ-O1	Subdivision in the Medium Density Residential Zone creates allotments and efficient patterns of land development that: 1. Enable medium density residential development which is compatible with the purpose and planned form for the zone; 2. Maintain the safe and efficient functioning of the transport network; 3. Are serviced by water, wastewater and stormwater infrastructure that has sufficient capacity to accommodate the proposed development; and 4. Avoid the subdivision of land where there is significant risk from natural hazards.	Amend	We support avoiding subdivision in areas where there is significant risk from natural hazards. However, it is important to clearly define what level of natural hazard risk is "significant" to avoid confusion and ensure consistent application of rules and policies. NHC has developed a Risk Tolerance Methodology[1] that is deigned to integrate a risk tolerance assessment into existing risk management approaches. This methodology could be used by the Council to develop a metric to determine "significant" risk. [1]NHC Toka Tū Ake Risk Tolerance Methodology.	That the following amendment be made: Include a definition and/or metric to determine what natural hazard risk is deemed "significant" by the council.
SUB-MRZ-P3	Subdivision of land affected by natural hazards Take a risk-based approach to the subdivision of land affected by natural hazards so that new or exacerbation of existing natural hazards is avoided and appropriate mitigation measures are in place prior to development.	Support in part / Amend	We support using a risk-based approach for subdividing land subject to natural hazard risk. Further direction on what "appropriate mitigation measures" are, would be useful to ensure that new or exacerbated impacts from natural hazards are avoided or reduced. Providing more direction is also necessary to avoid confusion and ensure consistent application of rules and policies.	That the following amendments are made: 1. Further direction is provided for what is meant by "appropriate mitigation measures". 2. That "appropriate mitigation measure" are assessed with the following criteria:

			An example of direction for mitigation measures can be found in *Plan Change 28 – Hazards and Risks, Historic Heritage and Notable Trees from Mackenzie District Council.* This provision outlines the following as being considered as part of natural hazard mitigation works: *a. The effectiveness of any proposed natural hazard mitigation works and the alternative design options considered, including low impact design.* *b. Any adverse effects on the environment of any proposed mitigation measures.* *c. The extent to which the mitigation works transfer, or create, unacceptable hazard risk to other people, property or infrastructure.* *d. The potential for the proposal to exacerbate natural hazard risk, including transferring risk to any other site.* *e. Whether or not the work would be carried out under the supervision of either a Chartered Professional Engineer with experience in geotechnical engineering or a Professional Engineering Geologist (IPENZ registered).*	*a) The effectiveness of any proposed natural hazard mitigation works and the alternative design options considered, including low impact design.* *b) Any adverse effects on the environment of any proposed mitigation measures.* *c) The extent to which the mitigation works transfer, or create, unacceptable hazard risk to other people, property or infrastructure.* *d) The potential for the proposal to exacerbate natural hazard risk, including transferring risk to any other site.* e) *Whether or not the work would be carried out under the supervision of either a Chartered Professional Engineer with experience in geotechnical engineering or a Professional Engineering Geologist (IPENZ registered).*
SUB-MRZ-P4	Subdivision in the Stormwater Overlay Avoid subdivision in the Stormwater Overlay unless the Council is satisfied that a site-specific stormwater management plan prepared by a suitably qualified stormwater design consultant (preferably	Support	We support avoiding development in the Stormwater Overlay to avoid the impacts of flooding on people and property, and we support requiring a suitably qualified stormwater design consultant to prepare a site-specific management plan.	We request that this provision is retained.

	with experience in water sensitive design concepts and elements) identifies: 1. the location, scale and nature of the development proposed for the site; 2. the extent of flood and/or overland stormwater flow hazards; 3. the on-site and off-site effects of the proposed subdivision on people, property and the environment;		The Stormwater Overlay represents areas within Palmerston North that have flooded previously and are likely to flood again (as demonstrated by Figure 8 and Appendix A in the PC I: Stormwater Servicing Assessment). To reduce natural hazard risk and impacts to people and property, subdivision in areas of known natural hazard risk should be avoided. However, a site-specific stormwater management plan, that details how subdivision could impact flood hazard, may also be appropriate for reducing impacts to people and property in future flood events.	
SUB-MRZ-R1	Subdivision in the Medium Density Residential Zone 1. Activity status: **Controlled** Where: a. Where the *site* is not located within the Stormwater Overlay; *Council's* control is restricted to: 1. The matter(s) of control for any infringed standard in SUB-MRZ-R1.1(b)-(e); 4. The *effect* of *earthworks* on on-*site* and off-*site* flooding and overland flow paths, hazard risk and erosion and sedimentation; and 5. Whether the *subdivision* design and layout meets the requirements of the *Council's* Engineering Standards for Land Development. 2. Activity status: **Restricted Discretionary** Where:	Support	We support subdivision being a controlled activity in the MDRZ, where the site is not located in the Stormwater Overlay, and it complies with standards MRZ-S1-MRZ-S20. However, we have made recommendations for MRZ-S11 within this submission. We support matters of control including the effect of earthworks on on-site and off-site flooding and overland flow paths, hazard risk and erosion and sedimentation. These matters of control can reduce the impacts to people and property in future flood events when they are applied with the intention of managing flood risk. We support that subdivision will be a restricted discretionary activity if it is located within the Stormwater Overlay. The Stormwater Overlay represents areas within Palmerston North that have flooded previously and are likely to flood again (as demonstrated by Figure 8 and Appendix A in	That the provisions for both permitted and restricted discretionary activities be retained subject to amendments to MRZ-S11.

	a. Compliance with SUB-MRZ-R1.1(a) is not achieved. *Council's* discretion is restricted to: 1. The *effect* of *earthworks* on on-*site* and off-*site* flooding and overland flow paths, hazard risk and erosion and sedimentation; 2. Setting of minimum floor levels; 3. Setting of maximum impervious surface area; 4. *Subdivision* design and layout and the size, shape and arrangement of proposed *allotments*; 5. The extent to which on-*site* mitigation measures will support and align with any catchment or sub-catchment plan to implement the city-wide Stormwater Strategy 6. Whether the *subdivision* design and layout meets the requirements of the *Council's* Engineering Standards for Land Development; and 7. The relevant matters in SUB-MRZ-P3 and SUB-MRZ-P4.		the PC I: Stormwater Servicing Assessment). To reduce natural hazard risk and impacts to people and property, subdivision should be a restricted discretionary activity. The matters of discretion for this activity that relate to flood hazard management are also able to contribute to reducing the impacts to people and property.	