7 July 2022

Upper Hutt City Council

District Policy Team

Email: askus@uhcc.govt.nz

Tēnā koe,

TOKA TŪ AKE EQC SUBMISSION ON UPPER HUTT CITY COUNCIL PROPOSED INTENSIFICATION PLANNING INSTRUMENT (IPI)

Thank you for the opportunity to submit on the Upper Hutt City Council draft Intensification Planning Instrument (IPI). EQC generally supports the intent of the IPI, because we understand the need to develop medium and high density housing, in urban areas and comply with the NPS-UD. However, in order to increase the resilience and sustainability of intensified developments and mitigate the effect of natural hazards on life and property in Upper Hutt, EQC recommends changes to three areas of the draft IPI. The St Patrick's Estate High Density Residential Zone overlaps with the 11 in 100-year Flood Hazard Zone for the Hutt River. It is recommended that flood risk in this area is reviewed, to ensure that development is not occurring in high-hazard areas. Our submission outlines the potential issues, relevant provisions, and proposed changes for the following zones:

- North bank of Hutt River General Residential Zone overlaps with the 11 in 100 year Flood Hazard Zone for the Hutt River. It is recommended that flood risk in this area is reviewed to ensure that development is not occurring in high-hazard areas.
- Trentham Special Activity Zone contains an area at risk of liquefaction in an earthquake. It is recommended that UHCC review liquefaction risk in this area, and include rules and guidelines for building in liquefaction prone areas in the District Plan.

Toka Tū Ake EQC cares about natural hazard risk reduction

Toka Tū Ake EQC has significant expertise in natural hazard risk reduction given its role as a Crown entity:

- investing in natural hazard and risk research to help communities reduce their risks;
- providing residential property insurance against the impact of natural hazard events; and
- incentivising and/or implementing methods of reducing or preventing natural hazard damage.

EQC has a crucial role not only after a natural hazard event, but also in reducing risk from, and building resilience to natural hazards in Aotearoa New Zealand.

EQC recommends making three changes to the IPI to support natural hazard risk reduction

Upper Hutt is at risk from multiple natural hazards, notably, the risk of flooding from Te Awa Kairangi/Hutt River, and rupture of the Wellington Fault, which runs along the northwest edge of the Hutt Valley.

Flooding is the most common hazard faced in New Zealand. Floods can cause injury to people and property, and experience of repeated flooding damage can have a severe detrimental effect on mental wellbeing and quality of life. The UHCC's draft IPI proposes two areas of development within the 1 in 100 year flood hazard extent for Te Awa Kairangi /Hutt River, which need clarification and review. It also contains some inconsistencies with the District Plan regarding flood mitigation rules and guidelines, which are outlined in the discussion section of this submission.

Rupture of the Wellinton fault could cause serious cascading[1] hazards in the Upper Hutt region, from shaking damage, ground rupture, slope collapse/landslides and potential liquefaction. Intensification and development proposed by the UHCC's draft IPI effectively avoids or mitigates risk of damage from shaking, ground rupture and slope instability, but rules and guidance regarding liquifaction risk need clarification and review.

Our submission is summarised in the table below:

Change	Draft IPI Issue	Recommended Change	Comments
1.	The planned **High Density Residential Zone** on the currently undeveloped *St Patrick's Estate Precinct* is almost entirely contained within the **1 in 100 year flooding hazard zone** for the Hutt River, as presented in the UHCC's natural hazard risk maps in the District planning maps.	Identify "*high hazard*" and "*low hazard*" areas in the Flood Hazard Extent of the Hutt River, to avoid contravening District Plan ***NH-P3*** - *Avoid development within high hazard areas of identified Flood Hazard Extents and Erosion Hazard Areas*. If the planned St Patrick's Estate High Density Residential Zone is in an area identified as high risk, and flooding is expected to result in channel flow[2] and erosion through this area, then subdivision and development should be avoided.	EQC recommends that a hazard extent map layer is added to the IPI planning maps. Maps and further recommendations for mitigation of flood risk, in this **High Density Residential Zone,** can be found in the discussion section of this submission.
2.	The planned **General Residential Zone** northwest of and across the Hutt River from Emerald Hill, is partially contained within the **1 in 100 year flooding hazard zone** for the Hutt River, as presented in the UHCC's natural hazard risk maps.	As above, and: Extend the restricted discretionary activity rule to cover all proposed development areas, within the Hutt River Flood Hazard Extent. Specify what buildings and structures within these Flood Hazard Extents, must incorporate to minimise this risk, or how the UHCC plans to lower flooding risk.	As above, and: Maps and further recommendations for mitigation of flood risk in this **General Residential Zone,** can be found in the discussion section of this submission.
3.	A **Special Activity Zone** is planned for the *Trentham* area, which is at risk of **liquefaction** in an earthquake event. Risk of liquefaction in Upper Hutt in the event of an earthquake, is not specified or provided for in the Draft IPI.	It is recommended the council review the MBIE liquefaction guidance[3], particularly section 6.5, for options on how liquefaction can be incorporated into the IPI. EQC also supports the recommendation in the Coffey (2020) report, that further geotechnical investigation is carried	We recommend that UHCC familiarise themselves with *Dellow et al.*'s 2014 report from GNS Science, *Liquefaction hazard in the Wellington Region*, and review their hazard map to account for up-to-date data.

[1] Cascading hazards occur when a single hazardous event triggers one or more other hazards, resulting in greater destructive potential than one hazard event alone.

[2] Channel flow is where water is actively flowing through the specified zone. This is a greater hazard than ponding as the flow of water can result in erosion and damage to property, and people may be swept away.

[3] https://www.building.govt.nz/building-code-compliance/b-stability/b1-structure/planning-engineering-liquefaction-land/

		out in this area, to accurately assess liquefaction risk.	Maps and further recommendations for mitigation of liquefaction risk in this **Special Use Zone** can be found in the discussion section of this submission.

Discussion

Development in the 1 in 100-year Hutt River Flood Hazard Extent

Two areas of intensification development outlined in the UHCC's draft IPI, overlap with the 1 in 100-year Flood Hazard Extent, as shown in the UHCC's District Planning map and separate Natural Hazards map. These overlapping areas are the St Patrick's Estate Precinct High Density Residential Zone (Figure 1), and a section of land northeast and across the river from Emerald Hill, which is planned as a General residential Zone (Figure 2).

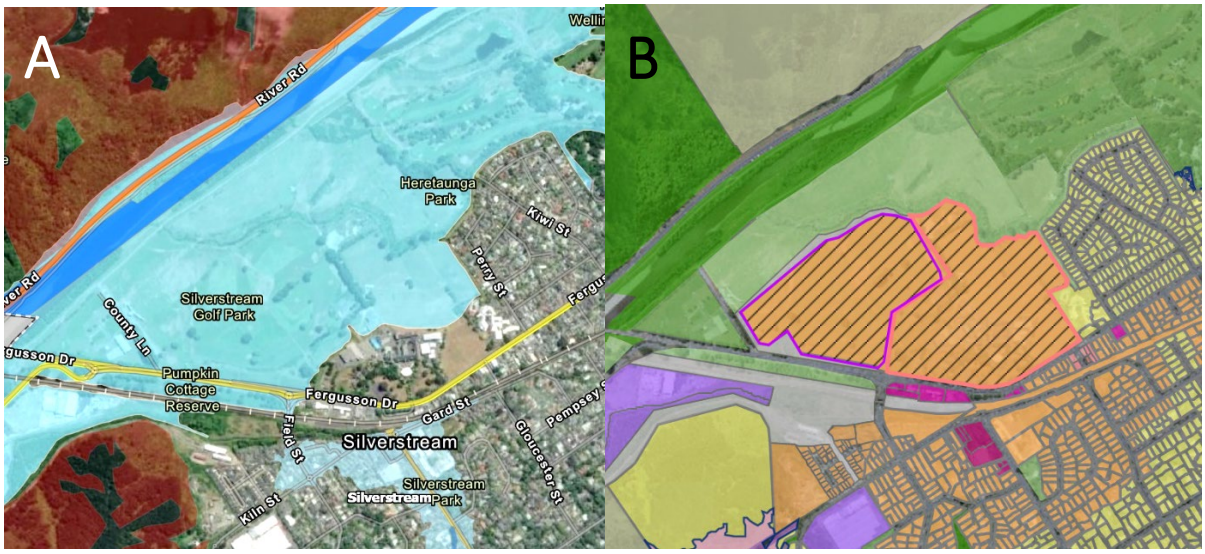

Figure 1: A) UHCC natural hazard map, showing the Wellington Fault (dark blue line), and the 1 in 100-year flood hazard extent for the Hutt River (light blue overlay) at the St Patricks Estate Precinct location. B) UHCC IPI planning map showing the St Patricks Estate Precinct proposed High Density Residential Zone (orange overlay with diagonal hatching). Note the position of the Hutt River and the overlap between the planned residential zone in Figure 1B, and the flood hazard extent in Figure 1A.

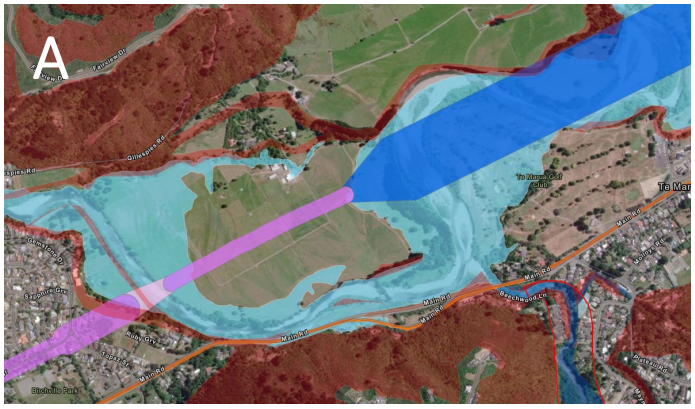

Figure 2: A) UHCC natural hazard map, showing the Wellington Fault (pink line and dark blue overlay), and the 1 in 100 year flood hazard extent for the Hutt River (light blue overlay). B) UHCC IPI planning map showing the proposed General Residential Zone (yellow overlay), in a bend of the Hutt River. Note the position of the Hutt River and the overlap between the planned residential zone in Figure 2B, and the flood hazard zone in Figure 2A.

"*High hazard*" and "*lower hazard*" areas of Flood Hazard Extents have different guidelines for development under the UHCC's District Plan. *High Hazard* areas are defined in the District Plan as comprising *"the Stream and River Corridor, Overflow Paths and the Erosion Hazard Area - These are characterised by areas of moving flood water which may also be deep or fast and includes areas most at risk to erosion during a flood event*". These areas are identified on the District Planning maps for the Pinehaven and Mangaroa Streams but not for the Hutt River.

If the flooding extent in these areas is expected to be lower risk, i.e., ponding, adopt similar rules for minimum finished floor height to *NH-S5 (Policy NH-P4) for the Pinehaven Ponding Area* – *"(1) The Finished Floor Level must be above the 1 in 100-year event level for residential activities, or; (2) The Finished Floor Level must be above the 1 in 25-year event level if for commercial activities within the Business Commercial Zone Commercial and Mixed Use Zones.*

If the planned Residential Zones are in an area identified as high hazard, and flooding is expected to result in channel flow through this area, then subdivision and development should be avoided.

Page **171** of the draft IPI - ***HRZ-PREC2-R4*** – states that *"Buildings and structures within 200m of the southern bank of the Hutt River and to the north of the Mawaihakona Stream"* are ruled as *"Restricted discretionary. Matters of discretion are restricted to (…) whether flooding effects have been adequately addressed…"*

The meaning of "*adequately addressed*" is not defined regarding flood hazard mitigation and is open to interpretation. **EQC recommends the UHCC defines what "*adequately addressed*" means regarding flood hazard risks.** No provisions are given in the draft IPI, as to how development in this area will need to be different from other High Density Residential areas to mitigate risk from flooding, except the setback of buildings 20 m from the banks of the Hutt River and 5-12 m from Mawaihakona Stream (page **67** of the draft IPI). This setback does not remove structures from the Hutt River Flood Hazard Extent. **Specify what buildings and structures within these Flood Hazard Extents must incorporate to minimise this risk, or how UHCC plans to reduce flooding risk.**

EQC supports the use of natural hazard related qualifying matters in intensification planning, as it is important that development does not come at the expense of natural hazard risk reduction.

It is recommended that the UHCC review the Ministry for the Environment (MfE) document, '*Preparing for future flooding*'[4], and New Zealand Planning Standard *NZS 9401:2008* for guidance on how to incorporate flood risk into planning and building design.

Further, the specified restricted discretionary activity zone extending 200 m from the south bank of the Hutt River, does not encompass the whole overlap of the proposed development and the mapped Flood Hazard Extent, which extends as far as 700 m from the south bank to Fergusson Road. It also does not take into account other proposed General Residential Zones within the 1 in 100-year flood risk for the Hutt River.

[4] https://environment.govt.nz/assets/Publications/Files/preparing-for-future-flooding.pdf

It is recommended that all proposed development areas within the Hutt River Flood Hazard Extent, are given restricted discretionary activity status, to allow the UHCC more control over flood risk mitigation in these developments.

Development in liquefaction risk areas

The areas at risk of liquefaction in UHCC's natural hazard map, as shown in the District Planning maps, do not correspond with those identified in *Dellow et al.'s* 2014 report from GNS Science, *Liquefaction hazard in the Wellington Region.* It also does not correspond with the 2020 report by Coffey Geotechnical for the UHCC, which investigated nine undeveloped areas of rural Upper Hutt, and based their estimation of liquefaction risk in Trentham on a report by *Kingsbury et al.,* (1993) for Wellington City Council. The data supporting this 1993 report is not accessible. According to *Dellow et al.* (2014) and *Kingsbury et al*., (1993), an area at high risk of liquefaction extends from Trentham Racecourse southwest to Rimutaka Prison. UHCC's map categorises the area as moderate risk and restricts it to a zone roughly half the size proposed by *Dellow et al.* (2014) and *Kingsbury et al*., (1993) (see Figure 3).

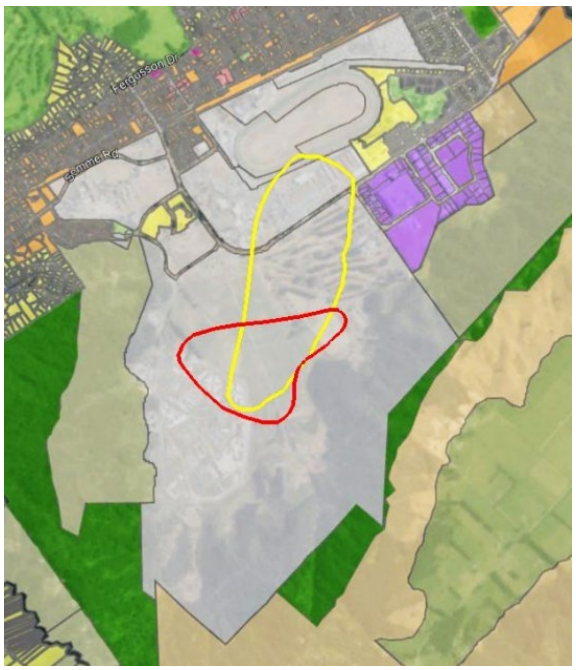

Figure 3: UHCC IPI planning map showing the Trentham Special Use Zone (grey overlay), the extent of liquefaction risk in the UHCC's Natural Hazard map (red outline), the extent of liquefaction risk outlined in *Dellow et al.,* (2014) and the 2020 Coffey Geotechnical Report (yellow outline).

We recommend that UHCC familiarise themselves with *Dellow et al.*'s 2014 report for GNS Science, *Liquefaction hazard in the Wellington Region*, and review their hazard map to account for up-to-date data.

EQC supports the recommendation in the Coffey (2020) report that further geotechnical investigation is carried out in this area to accurately assess liquefaction risk.

Risk of liquefaction in Upper Hutt in the event of an earthquake is not specified or provided for in the Draft IPI or in the District Plan.

It is recommended the council review the MBIE liquefaction guidance[5], particularly section 6.5 for options on how liquefaction can be incorporated into the IPI.

In addition, UHCC's Natural Hazard Map contains an area east of the Mangaroa stream which is mapped as "High Peat Risk". Peat is associated with several natural hazards and hazards to buildings, including fire, subsidence, and land instability. Neither the UHCC District Plan nor the separate Hazard Map explain the hazards that peat can pose to building or provide guidance of how this is to be mitigated. This area is not planned for development under the draft IPI, however **EQC recommends that the hazards associated with this peat are clearly explained in the District Plan**.

[5] https://www.building.govt.nz/building-code-compliance/b-stability/b1-structure/planning-engineering-liquefaction-land/

A summery of our recommended changes can be found in the Appendix.

If you have any questions regarding this submission, please do not hesitate to contact me.

Regards,

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Appendix

Summary of changes requested

Draft IPI area to be changed	Change Requested
St Patrick's Estate Precinct High Density Residential Zone within the 1 in 100 Year Hutt River Flooding Extent	Identify "*high hazard*" and "*low hazard*" areas in the Flood Hazard Extent of the Hutt River.
	Avoid development in *"high hazard"* areas of the Flood Hazard Extent.
	Add hazard extent map layer to the IPI planning maps.
General Residential Zone within the 1 in 100 Year Hutt River Flooding Extent	Extend the restricted discretionary activity rule to cover all proposed development areas within the Hutt River Flood Hazard Extent.
	Specify what buildings and structures within Flood Hazard Extents, must incorporate to minimise flooding risk, or how the UHCC plans to lower flooding risk.
Trentham Special Use Zone within liquefaction zone	Review the MBIE liquefaction guidance for options on how liquefaction can be incorporated into the IPI.
	Review liquefaction risk in UHCC's hazard map to account for up-to-date data.
	Carry out further geotechnical investigation in the Trentham area to accurately assess liquefaction risk.

References

Coffey Geotechnical (2020). Upper Hutt City Council Residential and Rural Chapter Review. 773-WLGGEE225406AB.

Dellow, G. D., Perrin, N. D., & Ries, W. (2014). *Liquefaction hazard in the Wellington Region*, GNS Science Report 2014/16. *https://shop.gns.cri.nz/sr_2014-016-pdf/*