

**BEFORE THE INDEPENDENT HEARING PANEL ON PROPOSED PRIVATE PLAN
CHANGE 13 TO THE OPERATIVE HAMILTON CITY DISTRICT PLAN**

IN THE MATTER of the Resource management Act 1991 (the Act)

AND

IN THE MATTER of proposed Private Plan Change 13 to the Hamilton City
District Plan

Summary of evidence of Hayden Vink on behalf of the Waikato Racing Club
Incorporated

Dated: 22 August 2023

MAY IT PLEASE THE INDEPENDENT HEARING PANEL

INTRODUCTION

1. My name is Hayden Vink . I have previously given a statement of evidence in chief and a statement of rebuttal evidence in relation to the above matter, dated 26 July and 16 August 2023 respectively.

CODE OF CONDUCT

2. I re-confirm that I will abide by the code of conduct for expert witnesses, as set out in the Environment Court's Practice Note 2023.

SUMMARY OF EVIDENCE

3. As directed by the Hearing Panel, the following statement provides a summary of my evidence on behalf of the Waikato Racing Club Incorporated ("WRCI") in support of proposed Plan Change 13 to the Hamilton District Plan ("PPC13").

PURPOSE AND SCOPE OF EVIDENCE

4. The purpose of my evidence statement is to support my assessment of 3 waters (Stormwater/Wastewater/Water supply) engineering requirements for the proposed Plan Change 13 (PC13) site/development activities, and to respond to submissions and the section 42A report, as necessary. These requirements and suggested 3 waters management options are outlined in further detail within the Wainui Environmental Ltd Sub-Catchment Integrated Catchment Management Plan (ICMP) report.

STORMWATER MANAGEMENT

5. The sites topography can be characterised as a shallow low lying basin, with ground levels generally falling toward a low point extending through the centre of the site.

6. The site is located near the top of the existing HCC reticulated stormwater catchment servicing the site and surrounding area. An existing 1050mm stormwater main enters the site at the northern boundary conveying stormwater from a localised upstream catchment area which includes runoff from various industrial/commercial properties. The 1050mm main exits the site on the southern boundary and the HCC piped reticulation network then extends northeast through the residential suburb of Beerescourt discharging to the Waikato River approximately 1.5km downstream.
7. The HCC Rapid Flood Hazard Modelling Assessment (RFHM) has been used to identify any greater than network capacity flood hazard and overland flow paths within/surrounding the site. The model shows that flooding is present within the redevelopment area during the 100-year ARI event, occurring within the central corridor and with flood flows occurring in a south to north direction, being the opposite direction to the primary stormwater reticulation flows. Flooding can be generally characterised as shallow surface ponding with low flow velocities and flood depths ranging from 0.1 -1.2m.
8. Beyond the site the RFHM shows that floodwaters pond in a large low-lying area through the area bordered by Te Rapa Road and Mainstreet Place. This flooded area continues to the north and is understood to comprise the relict Te Rapa Channel, a paleo river channel once forming part of the Waikato River, but which has been significantly modified by urban development.
9. Due to the flat topography and numerous restrictions within the relict channel environment, surface ponding after extreme rainfall events is likely to be extensive, with discharge controlled by the flows within the reticulated drainage network.

10. The ICMP outlines the following stormwater management design objectives for the proposed development:
 - Provision of a primary reticulation network in accordance with a RITS level of service (10-year ARI without surcharge);
 - Water Quality Treatment of all development stormwater runoff prior to discharge to the downstream network and eventual Waikato River receiving environment;
 - Attenuation of post development stormwater flows to predevelopment levels to avoid any adverse effects upon the downstream HCC stormwater network capacity, including attenuation of all events up to the 100 year ARI event;
 - Containment/conveyance of greater than design/overland flood flows to manage the broader catchment flood flows through the site without contributing to any increase in upstream/downstream flood hazards.
11. The ICMP outlines a recommended stormwater management approach for the development to achieve these objectives through implementation of a piped reticulation network to deliver site runoff to constructed stormwater wetland located within a central reserve area. In addition, the approach includes provision of a flood corridor through the centre of the site to ensure that the identified existing flood flows and ponding areas can continue to occur unimpeded through and within the site.
12. A preliminary capacity assessment has been undertaken on the existing HCC 1050mm SW line which currently conveys up catchment stormwater flows through the site to confirm whether this pipe has sufficient capacity to meet the current RITS level of service (10-year ARI without surcharge). Accordingly, the ICMP recommends that the proposed development activities include upsizing and redirection within the site to meet current RITS standards (i.e., 10-year ARI pipe capacity with pipe alignments following public road corridors).

13. In addition, following discussions with HCC, the ICMP has also considered the potential for the existing upstream network flows from the industrial/commercial catchment above the site to be diverted into the proposed wetland for treatment and attenuation in combination with the development site runoff. This assessment has confirmed that there is sufficient space available within the site to allow for the upgrade/enlargement of the proposed wetland to accommodate these up-catchment flows, providing catchment wide enhancement to stormwater discharges.
14. The use of constructed wetland type systems for management of urban stormwater runoff discharges to aquatic receiving environments is widely accepted as the best practice management option for land development activities in the Waikato including numerous development sites and high-volume roading catchments where development discharges occur to high value receiving environments (e.g., the Waikato River). Wetland also offer reduced maintenance requirements in comparison to other at-source treatment options such as raingardens and proprietary filters.

FLOODING AND SECONDARY OVERLAND FLOWS

15. The ICMP design response to this identified flood corridor comprises development of a preliminary development layout plan which maintains a clear flood corridor through the central part of the site. This area will be maintained as open/undeveloped space containing the Ken Browne Drive extension road carriageway, a reserve network of green open space, the stormwater management wetland drainage reserve area and the Racing Club central arena, together with the horse float parking area.
16. The design provides for a green/open space buffer extending along the southern boundary of the site which will be contoured to capture and convey any flood flows entering the site into the defined flood corridor for conveyance northward as currently occurs. Upstream and downstream ground levels at the entry and exit to the flood corridor must

be maintained as part of the site development works to ensure that no impediment to these extreme flood flows occurs. Further, to ensure no adverse flooding effects are caused by the development, it will be important that existing pre-development flood storage volumes are maintained within the site as part of any development works such as recontouring (i.e., no loss of floodplain storage).

17. Overland flow paths will be established across the PC13 area, directing all primary and secondary overland flows into the proposed constructed stormwater wetland.
18. Detailed flood modelling will be required as part of future resource consent applications and detailed engineering design for any development or earthworks proposed within the designated flood hazard areas. The detailed modelling will ultimately inform the final width and levels of the flood corridor, ensuring no adverse effects to adjacent properties.
19. The ICMP identifies minimum freeboard requirements for any future buildings in accordance with the current HCCDP requirements. It is recommended that site/catchment specific detailed flood modelling is undertaken at subdivision consent stage to establish more accurate flood levels and the appropriate minimum freeboard requirements for all future buildings.
20. I am aware that HCC is currently undertaking detailed flood modelling of the wider catchment as part of their ongoing city-wide flood modelling programme. This model will be an invaluable tool to facilitate development on the site and ensure no adverse effects on adjacent property. Furthermore, the model will consider effects of climate change and allow for maximum probable development across the wider catchment.

21. Overall, the ICMP confirms that viable options are available for stormwater management at the site to enable the planned rezoning without presenting a risk of adverse environmental, network or flooding effects both within and beyond the site boundaries.

WATER SUPPLY

22. The site is well serviced by existing HCC water and wastewater infrastructure. There are existing HCC water mains which extend to the site at both the northern (Sir Tristram Avenue) and southern (Ken Browne Drive) boundaries.
23. Verification modelling has been completed to assess whether sufficient capacity is available within the existing water supply network at the site to service the proposed development. Results from the model show that there is sufficient capacity within the existing network to provide sufficient level of service to the proposed development, including residential firefighting supply.
24. I consider the modelling work completed in 2017 is still fit for purpose when compared to HCC Future Water Demand assumptions.

WASTEWATER

25. An existing HCC 600mm/675mm wastewater interceptor runs through the centre of the site, draining southeast to northwest and draining both up-catchment and existing site wastewater flows northward to the Pukete treatment plant.
26. Verification modelling has been completed to assess whether sufficient capacity is available within the existing network at the site to service the proposed development. The outcomes of the modelling show the additional demand on the wastewater network from the proposed residential development is not predicted to have adverse effects on the HCC wastewater network.

27. Within the site, the existing HCC 675mm interceptor line is at a sufficient depth to enable a gravity network throughout the proposed Racecourse development. The current development layout shows building areas which are located over the existing wastewater reticulation within the site. Consideration should be given to either diverting the wastewater pipes or reconfiguring the development layout to avoid building over these lines. I consider it appropriate that this item be addressed at subdivision consent and detailed engineering design stage.

CONCLUSION

28. Based on the outcomes of the technical assessments of 3-waters servicing for the PC13 site area and the anticipated effects of the proposed level of development, there are no reasons to reject the proposed plan change on the basis of 3-waters engineering matters. These assessments provide sufficient evidence that the site is suitable for development, subject to detailed design at the resource consent stage, and adherence to the proposed recommendations of the ICMP.



Hayden Vink 22 August 2023