

# **RESOURCE CONSENT APPLICATION**

**APPLICANT:** QUATTRO PROPERTY HOLDINGS LIMITED

**CONSENT AUTHORITY:** Waikato District Council

---

**STATEMENT OF EVIDENCE OF HAYDEN VINK (WAINUI ENVIRONMENTAL LTD)**

Dated: 6<sup>th</sup> November 2020

---

## **Introduction**

1. My full name is Hayden John Vink
2. I am a Civil and Environment Engineer employed by Wainui Environmental Ltd

## **Qualifications and Experience**

3. I have the qualifications and experience described in the following paragraphs.
4. I have a Bachelor of Engineering (Civil) from Auckland University
5. I am a registered member of Engineering New Zealand (MEngNZ).

## **Code of Conduct**

6. I have read the Environment Court's Code of Conduct for Expert Witnesses in the Environment Court of New Zealand and I agree to comply with it. My qualifications and experience as an expert are set out above. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.
7. The evidence that I give in these proceedings is within my area of expertise, except when I rely on the evidence of another witness or other evidence, in which case I have explained that reliance.

## **Scope of evidence**

8. In my evidence I address the following issues:
  - a. Summary of site context
  - b. Stormwater Management
  - c. Wastewater Management
  - d. Water Supply System
9. The purpose of my evidence statement is to summarise my assessment of 3 waters engineering requirements for the planned site/development activities.

## **Summary of evidence**

### **Site Context**

9. The site is currently grassed and predominantly flat with a slight grade toward the east. There is an existing WRC managed stormwater drain that borders the north and north eastern boundaries of the site. The WRC drain was redirected as part of the recent subdivision works. The site has no other outstanding topographical features. The site is generally elevated at RL26.2m adjacent to Horotiu Road (SH39), falling to RL25.6m adjacent to the drain extending along the eastern boundary.

### **Stormwater Management**

10. Soakage testing has been undertaken on the site. Soakage rates were recorded above the minimum soakage threshold of 150mm/hr as specified in the Waikato RITS. Accordingly, soakage is considered a viable method of site stormwater disposal for the site.
11. The stormwater management methodology for the development has been developed in accordance with the Stormwater Management Plan prepared by Wainui Environmental for the original 30 lot subdivision undertaken by Te Kowhai Estate Ltd. In accordance with the SWMP, individual lots shall provide onsite stormwater management measures to achieve the following objectives:
  - Rainwater tanks and associated reuse;
  - Ground soakage to be utilised to discharge the 10 year ARI event to ground where conditions permit;
  - Hydraulic Neutrality for all events up to the 10 year ARI event;
  - Water Quality Treatment of all runoff from hardstand areas shall be achieved prior to discharge to the road network.
12. The following Stormwater Management has been recommended for the proposed commercial development;
  - All roof water and runoff from the proposed building roof, carpark area and other hardstand areas shall be conveyed to an underground soakage system. The soakage system will be designed to soak the runoff for events up to and including the 10-year ARI event, including climate change. The soakage system shall be located above the winter ground water table.
  - In the event the capacity of the soakage system is exceeded, secondary overland flow shall be conveyed to either Horotiu Road and/or the existing WRC drain located along the northern and north-eastern boundaries of the subject site.

13. In response to Section 8.6 of the S42A report:
  1. The soakage system has been designed for the proposed building roof area, via the rainwater tanks. Design of the soakage system assumes the tanks are full at the start of the design storm event, with all runoff discharged to the soakage system.
  2. We support the recommendation that pre-treatment is provided upstream of the soakage system to protect the system from silt ingress. Details of the pre-treatment system will be provided as part of detailed engineering design. It is also recommended that an Operation and Maintenance Manual is prepared to support the long term operation of the stormwater system.
14. The proposed stormwater management system will be maintained in private ownership for long term operation and maintenance.
15. By adopting the proposed stormwater management system outlined above, it is expected that the proposed development will result in no adverse effects on drainage conditions either upstream or downstream of the site.

### **Wastewater Management**

16. Waikato Regional Plan Rule 3.5.7.6: Discharge of Sewerage from Improved On-Site Domestic Sewage Treatment and Disposal Systems is a permitted activity providing the volume of effluent does not exceed 3m<sup>3</sup> per day (estimated daily wastewater flow of 2,000L/day). Preliminary design of the onsite wastewater treatment system and disposal field has been undertaken in accordance with NZS1547:2012
17. Due to the soil types found on the site and the flat contour of the land, disposal of secondary treated effluent to ground via a pumped dosed conventional bed was recommended for the site.
18. The EDA (Effluent Disposal Area) shall be setback a minimum 1.5 metres from the site boundaries, 10 metres from any drain/watercourse and 30 metres from any Natural State or Fisheries Class water course, or potable water source.
19. It is acknowledged that the site has limited area available for an EDA, however based on the proposed tenancies and anticipated wastewater loads, we believe there is sufficient space available on site for a complying EDA.
20. Ultimately, detailed design of the treatment system and EDA will govern the allowable wastewater loads from the subject development. Options to minimise the required EDA's will be further investigated at detailed engineering design phase and include:

1. Investigation of actual water use and wastewater flows for each activity
  2. Options for greywater treatment and reuse
  3. Temporary storage and off peak disposal to buffer periods of high flows
  4. Effluent disposal systems and mechanisms.
  5. Interactions with landscaping and onsite activities (i.e. outdoor seating areas)
21. Detailed engineering design will also need to consider location for the 50% reserve area. This will inform final site landscaping and areas of hardstand.

### **Water Supply**

22. There is currently no reticulated water supply on Horotiu Road, adjacent to the proposed commercial site. Accordingly, it is proposed to collect and store rainwater to supply the proposed commercial development.
23. Two 25kL above ground water tanks are proposed, located at the western end of the proposed building. The tanks provide approximately 25 days' supply to the commercial development. Regarding the WDC Engineering Standards B4.1 d) it is expected that 25 days' supply is sufficient to provide for the expected demands, considering that a) it is considered unlikely the development will operate at peak capacity for 20 days in a row and, b) It is generally expected there will be a rainfall event within the 25 days, extending the expected duration of supply.
24. The tanks could be located underground (i.e. under the car park) to mitigate visual effects and maximise space available for the EDA and other services.
25. Fire Supply - The proposed development will need to be assessed by a Fire Engineer and subsequent Fire Hazard Classification determined. There is opportunity to share the fire supply installed on the adjacent café site. Unimpeded access to the fire supply water tanks would need to be provided and legal mechanisms in place to ensure right of access.

### **Conclusion**

26. The proposed commercial development site/activities has been assessed to determine the ability provide appropriate 3 waters servicing in accordance with relevant WDC/NZ engineering standards and specifications. This assessment has determined that the proposed development is able to be accommodated within the site in accordance with the relevant standards and without contributing to adverse environmental effects.

Dated: 6/11/2020



.....

Hayden Vink