CGW Ref: 240316-MEMO-003-A
Date: 5 February 2025

Orchard Road Holdings Limited C/- Paterson Pitts Group
Wanaka
Attention: Brady Kingan

240316 – Koreke Rise Stormwater – Infiltration Testing Results Summary

1. Introduction

CGW Consulting Engineers has been engaged to design stormwater soakage and detention within the new development at Koreke Rise, Lake Hawea.

CGW has previously carried out soakage testing in the soakage basin, and on proposed lots at the south of the site that could not be serviced by the stormwater network. The results of the previous soakage testing can be found in memorandum 240316-MEMO-C-002-A. During construction, CGW was requested to carry out additional soakage testing on several lots to the east of the site, where the whole of the site was unable to be serviced by a stormwater lateral. This memorandum summarises these soakage results collated from recent additional on-site testing on the eastern side of the site.

This is to satisfy the requirements of resource consent RM220897 and the methodology previously agreed with QLDC as outlined in 240316-MEMO-C-001-A.

2. On-Site Soakage Testing

2.1.1 Testing Methodology

On-site testing was undertaken on the 30th of January as per the methodology outlined in the previous memo 240316-MEMO-C-001-A. There was a variation in the methodology as follows:

- A concrete ring was not used as confinement for the soakage testing. Instead, test pits were excavated to a uniform shape and the basal area was measured and used in the soakage calculations.
- Pre-soaking of the individual Lot test pits used 1500L of water.

2.1.2 Soakage Results

The soakage tests were carried out as per the below approximate plan:

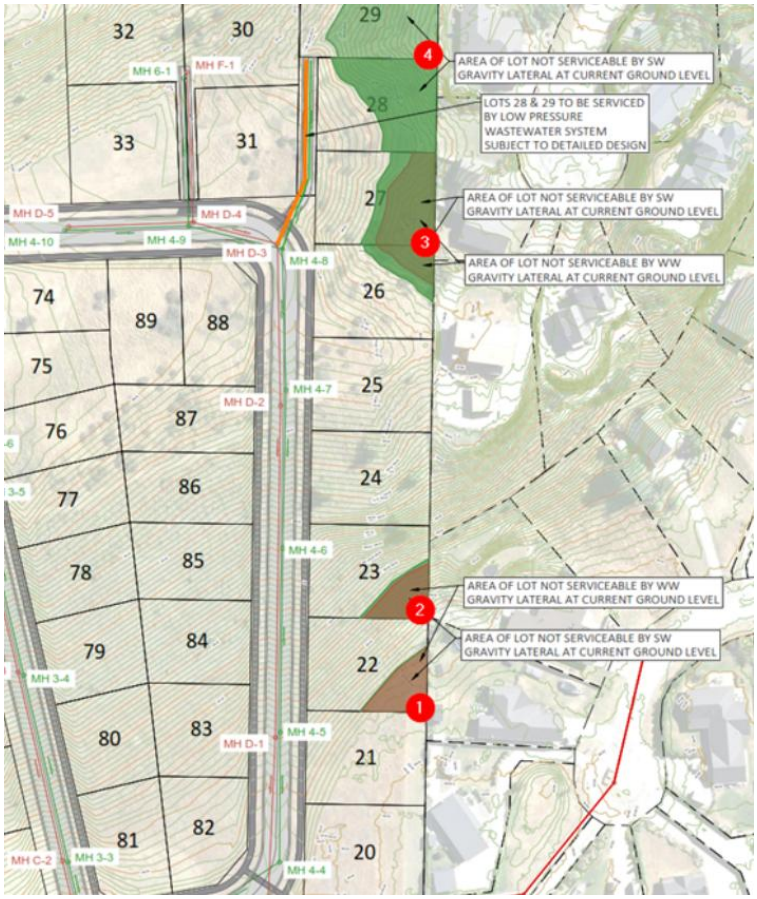

Figure 1: Approximate infiltration testing locations throughout Koreke Rise

Test pits 2, 3 and 4 appeared to be located on the glacial terminal moraine, whereas test pit 1 appears to be close to the intersection between the toe of the glacial moraine and outwash deposits to the south of the site.

The results of the testing are summarised in Table 1 below.

Table 1 - Soakage Results

Soakage Test ID	Depth of Test Pit (m)	Basal Material	Infiltration Rate (mm/hr)	Recommended Design Infiltration Rate (factored by 0.5) (mm/hr)
TP1	1.0	NATURAL	255	**128**
TP2	1.0	NATURAL	105	**53**
TP3	1.0	NATURAL	110	**55**
TP4	1.0	NATURAL	103	**52**

The soakage rates for three of the test pits (TP2-4) were extremely similar and varied by only 3mm/hr. TP1 was an outlier with a soakage rate of 128mm/hr which was over double of the others. We assume that the increase in the test pit 1 soakage rate it due to its proximity to the outwash gravels present at the south of the site.

Stormwater discharge to ground via soakage is suitable for lots 22-23 & 26-29. However, due to TP2-TP4 being just above 50mm/hr, we recommend that soakage testing is carried out on the individual lots at the time of construction, in the location of the proposed soakpit to verify a design soakage rate.

3. Conclusion

The results of the soakage testing indicate that there is variability in the soakage rates across the site, and although soakage rates are low, the existing soils are conducive to the discharge of stormwater to ground for the residential lots 22,23 & 26-29.

Yours faithfully,

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