

## Memorandum

To	<b>Ben MacGibbon - Lincoln Land Limited</b>	From	<b>Regan Smith</b>
Copy		Reference	<b>523406</b>
Date	<b>2023-03-20</b>	Pages (including this page)	<b>2</b>
Subject	<b>Groundwater Information – Proposed Retirement Village Development – 1506 Springs Road, Lincoln</b>		

This memo has been prepared to address the question from Environment Canterbury with regard to the potential for stormwater infrastructure to intercept and “take” groundwater.

### Review of Available Geotechnical Information

Previous geotechnical investigations have been undertaken for the Site by Davis Ogilvie. The findings of the investigations are summarised in two reports:

- Geotechnical Report for Subdivision Verdecos Park, Springs Road, Lincoln – August 2018 – Prepared for Garrison Developments Limited
- Geotechnical Desk Study – 1506 Springs Road, Verdecos Park Lincoln – December 2020 – Prepared for Next Level Developments Ltd

The first report was prepared for the wider Verdecos Park subdivision. The second report was prepared to specifically cover the Fast-track Site and provided to Selwyn District Council as part of a submission seeking to rezone the site through the District Plan Review process.

The following figure has been sourced from the 2018 Davis Ogilvie report and illustrates the estimated groundwater depth derived from various geotechnical investigations. The approximate outline of Site has been sketched in “red” onto the figure for context. This indicates that the groundwater is expected to be greater than 4m depth at the west and south of the Site.

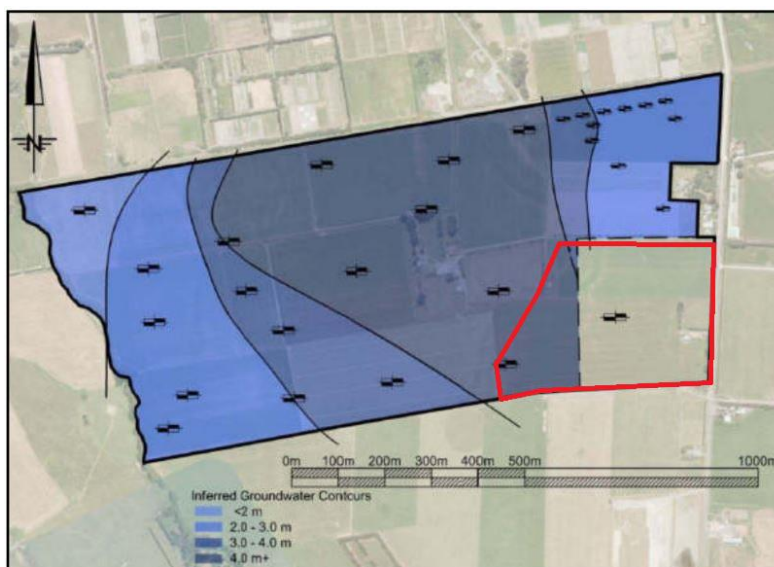


Figure 17: piezometric surface derived from Davis Ogilvie and Aurecon Test Pits, image from Canterburymaps.govt.nz. CL area in SE corner is not included due to limited testing.

The 2020 reports prepared for the site states: “groundwater could vary from around 2.0 m in the north to greater than 5.0 m below ground level in the south”.

A further two test pits, one in the southwest corner and one in the southeast corner of the site, were excavated to a depth of approximated 2.2m by Aurecon in June 2021. Groundwater was not encountered in either test pit.

## **Proposed Stormwater Infrastructure**

Although no further detailed geotechnical investigation or design of the stormwater system has been undertaken, the proposed stormwater philosophy is for a soakage-based system with overflow to surface water (via the constructed swale along the west of the site). This is consistent with the approach successfully deployed in the associated Verdeco Park subdivision.

The current proposal is to extend the existing Verdeco Park stormwater facility at the north of the site and construct a new stormwater facility in the southwest corner of the site.

## **Potential to “Take” Groundwater**

The stormwater basins and associated outlets would need to intercept groundwater for there to be at risk of “taking” groundwater. The basins will be in the order of 1.5-2.0 m below existing ground level which is above the expected groundwater level.

This is further validated by the fact that the existing soakage-based stormwater facility functions as expected and there is no evidence that it, or swale along the western side of the Site, intercept groundwater.



**Regan Smith**

Principal, Land Infrastructure, Aurecon