

## Memo

Date	12 December 2019
To	Commissioners Rob Van Voorthuysen, Sharon McGarry and Paul Thomas
CC	Hannah Goslin, Alison Cooper
From	Lisa Scott

### **Response to questions arising from matters raised during a hearing for resource consent applications CRC192408 – 14 by Fulton Hogan to establish a quarry operation**

I have been asked to answer some questions that arose from matters raised by submitters during the hearing. The questions from the panel of hearing commissioners have been relayed to me by Ms Hannah Goslin, Consent Planner for the Canterbury Regional Council (CRC). I gave a verbal response to all these questions at the hearing on 11 December 2019. This memo provides a written record of the answers.

#### **Availability of well data on Environment Canterbury's website**

Ms. Davina Penny, a submitter, made comment that some of the information regarding the bore logs for wells at the site was not available on the Environment Canterbury website during the submission period and that information regarding the water levels for well M36/0257 that was available in 2018, was later removed from the ECan website and is still unavailable. I was asked to respond on why the data were not available.

To answer this question, I have discussed the issue with Mr. Shaun Thomsen, Science Field Team Leader: Groundwater Science at CRC, who is custodian of groundwater data.

Environment Canterbury's approach to groundwater data collected by CRC is that all information including well details, bore logs and groundwater level information in CRC's databases is published. This is achieved by real-time access to CRC's data via the public-facing website. This access can be occasionally interrupted for a short period of time. However, the problem is usually resolved by refreshing the browser or accessing the webpage a few hours later. In addition, contact details are provided on the web-site page when this occurs so that anyone having trouble accessing this information can alert the CRC about the issue and request the information needed. CRC is not aware of any permanent issue that would have caused well and bore log data to not be available during this period or currently.

Regarding the water level data for M36/0257, there is a simple explanation why there is currently no water level data displayed in the upper graph on the water level webpage. The webpage is configured so that the upper graph for each well contains only water level data for the most recent 12 months from the date the webpage is accessed. It is intended to show the current state of water levels at a particular site. If groundwater levels were not

measured during this time period, no data is shown. The full record of water level data is included in the lower graph and is accessible via the data download option.

M36/0257 is not currently used for water level monitoring, but two water levels were recorded in 2017 for a piezometric survey. When accessed in 2018 the 2017 data would have been displayed on the upper graph, but not in 2019 more than 12 months after measurement.

### **Why was the on-site well M36/0257 not used to establish a maximum quarry depth even though water level records were available?**

Ms Penny pointed out that there is a water level record for the well M36/0257 on the applicant's property, but it was not used to assess the highest recorded level at the site.

An on-site well is generally more reliable to establish the highest water level at a site than extrapolation from wells further away. However, there are several reasons why I consider this well is not appropriate for this purpose:

- A long-term data record is needed to establish the highest water level, but this well has not been monitored regularly since 1989. Critically, the well does not have records for the spring of 1992 when other nearby wells with continuous records have their highest readings.
- The well records indicate that the depth and well screen position are uncertain, but the well is recorded as being 63.4 m deep in the Linwood gravels (Aquifer 2). Readings from deeper wells may not always give a reliable estimate for the shallow groundwater table because there may be vertical gradients in the groundwater that cause the water level to be shallower or deeper.
- The well has no accurately surveyed measuring point. The database records a measuring point elevation that is estimated off a topographic map (46.5 RL m RL) with an accuracy of +/- 2.5 m. This reference level is not consistent with the elevation I estimated off a GIS layer of the Canterbury 8 m digital elevation model (44.69 m RL). Without an accurate reference level for the measurement point, it is difficult to compare the well records to those from other nearby levels with any certainty.
- The well is used for irrigation and may be subject to pumping effects.

Neither myself or the applicant's consultant, Mr van Nieuwkerk, considered the water level records from well M36/0257 suitable to assess the highest water level at the site. We chose instead to rely on continuous records from long term monitoring wells around the site.

### **Effects on existing domestic wells and treatment or provision of alternate supplies by quarries**

During submitter testimony it was mentioned that some residents downgradient of Fulton Hogan's Pound Road Quarry Site have experienced adverse effects on their well to the extent that Fulton Hogan are having to provide them with a new water supply/treatment. I was asked if I was aware of any effects on domestic bores downgradient of Fulton Hogan's

Pound Road site or any other site where a quarry operator has provided alternate water supplies for neighbouring domestic well owners.

I have conducted a search of our compliance records for all active discharge consents relating to the Fulton Hogan Pound Road site and have not found any mention of such activity.

I am not aware of any supply becoming contaminated to the point where the water was unsafe to drink. I also do not know of any quarry operator who has acted to remedy a contaminated supply or provide an alternative.

Although many residents have expressed concerns to me about potential groundwater contamination, I am only aware of verified aesthetic water quality issues relating to water hardness reported by one resident near the Miners Road quarries, as reported in the CRC's technical investigation from 2015/16 (CRC technical report R19/05). If there have been any agreements made between quarry operators and residents to remedy of such issues, I have not been party to the discussions.

**Attachments:** None

**File reference:** CRC192408