

RE: DVA Greenslopes - Installation of Groundwater Monitoring Well - Wed 17/11

Louise Cartwright <lcartwright@epicenvironmental.com.au>

Mon 15/11/2021 11:45 PM

To: Wicks, Jeremy <Jeremy.Wicks@coffey.com>

Cc: Binny, Dave <Dave.Binny@dva.gov.au>; Page, Michael <Michael.Page@coffey.com>

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Hi Jeremy,

Thank you for the information. I am on the Gold Coast early tomorrow morning but may drop by on my way back to Brisbane, depending on time.

A couple comments on below:

- As per comments from Dave – please comply with all site requirements
- It is noted works will be undertaken in accordance with Coffey SOPs – these have not been reviewed
- Groundwater – ionic balance would be useful
- QA/QC – please adopt for soil and groundwater sampling
- Consider thickness of the bentonite plug

Many thanks,
Louise

Louise Cartwright

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From: Wicks, Jeremy <Jeremy.Wicks@coffey.com>

Sent: Monday, 15 November 2021 4:59 PM

To: Louise Cartwright <lcartwright@epicenvironmental.com.au>

Cc: Binny, Dave <Dave.Binny@dva.gov.au>; Page, Michael <Michael.Page@coffey.com>

Subject: DVA Greenslopes - Installation of Groundwater Monitoring Well - Wed 17/11

Hi Louise

As discussed we have been given the approval to install the groundwater monitoring well on the site. Fortunately we have found a driller who has capacity to complete the well on Wed 17/11. After this (and the other drillers we spoke too) are booked out to the end of the year. We will be on-site from 7:30 am.

Access permitting the groundwater monitoring well will be installed in the north western corner of the site near BH19 (see attached plan). However if this is not possible we will install the monitoring well on the driveway between the two buildings (probably near BH14 in the attached plan).

The monitoring well will be drilled to a maximum depth of 6 m. If not groundwater is intersected at this depth a dry well will be installed. Further information on the installation and sampling of the monitoring well is provided below.

Please let me know if you have any questions.

Best regards

Jeremy

Soil boring and Installation of Groundwater Monitoring Well

The soil bore will be advanced using a Geoprobe environmental drilling rig (or similar) equipped with push tube sampling equipment. Solid stem augering methods will also be used to advance the soil bore to target depth in the event push tube refusal is encountered and/or to construct groundwater the monitoring well.

The groundwater well will be installed in accordance with the Minimum Construction Requirements for Water Bores in Australia, Edition 3. For installation of the groundwater monitoring well, Coffey will undertake the following scope of work:

- The groundwater monitoring well will be installed by Queensland licensed drillers and will be constructed of 50mm Class 18 PVC with a machine slotted screen.
- The well will be screened across the depth at which groundwater is intersected to capture any light non-aqueous phase liquids.
- The well annulus will be backfilled with clean sand to approx. 0.5 m above the height of the well screen followed by a bentonite plug.
- Drilling will be undertaken to two metres below observed groundwater intersection during drilling to allow the well screen interval (proposed 3m) to have two metres of groundwater below and one metre above the intersected groundwater to allow for some groundwater height fluctuation. If groundwater is not intersected a 3 m screen will be installed.
- At the surface, the well string will be sealed with a gripper and protected with a flush mounted trafficable gatic cover. After the installation of the groundwater well, the well will be developed using a bailer.
- The classification and logging of soil will be undertaken in accordance with Australian Standard AS 1726-2017. Descriptions and changes in lithology, and the presence of potential contaminated zones will be noted and recorded on the field borehole log.
- As the site is scheduled to be demolished, NDD wastes and soil cuttings from the bore will be retained on site in a way that leaves the site tidy and does not present a risk of contamination of offsite areas.
- If groundwater is encountered the monitoring well will be developed through the removal of three well volumes.

Soil Sampling

Soil samples will be collected at the following depth intervals 0-0.1 m, 0.25 m, 0.5m, 0.75m, 1m, and then 0.5 m intervals to he base of the borehole.

Laboratory analysis will be undertaken for OCPs in up to 4 samples.

Groundwater Sampling

A groundwater monitoring event (GME) will be undertaken no sooner than 7-days after the installation of the monitoring well (date to be confirmed). The GME will be undertaken in accordance with the following guidelines and procedures:

- Monitoring and Sampling Manual, Environmental Protection (Water) Policy 2009 (DES, 2018)
- ASC NEPM
- Coffey's standard operating procedures (SOPs):
 - Groundwater monitoring well gauging;
 - Groundwater sampling; and
 - Field equipment calibration.

Sampling of all newly installed well will be undertaken using the following methods:

- Gauging of the depth to water using an Interface Probe (IP).
- Groundwater will be collected using the low flow peristaltic purge methodology:
 - Groundwater physicochemical properties will be measured using an appropriately calibrated water quality meter. Groundwater pH, temperature, electrical conductivity, redox potential and dissolved oxygen concentrations will be measured within a flow through cell.
 - Samples will be collected once physicochemical parameters have stabilized.
 - Samples will be placed within laboratory prepared sample containers suitable for the required analyses.
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- Collected samples will be placed in eskies with ice for temporary storage and transport to the nominated NATA accredited laboratory.
- Storage of purged water in plastic containers on-site.

- Groundwater samples will be analysed for metals (standard 8) and OCPs.

QA/QC

QA/QC field samples collected will include:

Sample Type	Comments
Intra-laboratory duplicates	<p>Intra-laboratory field duplicates will be collected at a minimum frequency of one sample per twenty samples collected (5%). The analytical results of the duplicate samples will be compared to assess the precision of the sampling protocol and to provide an indication of variation in the sample source.</p> <p>Repeatability will be assessed by calculating the relative percentage difference (RPD) between the primary and duplicate results. Where the RPD is greater than 30%, the potential causes of variability will be reviewed.</p>
Inter-laboratory duplicates	<p>Inter-laboratory field duplicates will be collected at a frequency of one sample per twenty samples collected (5%). The analytical results of the duplicate samples will be compared to assess the precision of the sampling protocol, provide an indication of variation in the sample source and to assess the accuracy of analysis.</p> <p>Reproducibility will be assessed by calculating the relative percentage difference (RPD) between the primary and duplicate sample results. Where the RPD is greater than 30%, the potential causes of variability will be reviewed.</p>
Rinsate blanks	<p>Rinsate samples will be prepared in the field using empty bottles and the laboratory provided rinsate water. These samples will be a check of field decontamination procedures. A rinsate sample will be collected and analysed for each day of field work carried out, where non-disposable sampling equipment has been used.</p>
Trip blank	<p>Trip blanks will be prepared by the laboratory and are a check on sample contamination originating from sample transport, shipping and site conditions. The blank will remain with the sample containers during sampling and during the return trip to the laboratory. At no time during these procedures will the blanks be opened. Upon return to the laboratory the blank sample will be analysed as any other field sample. A trip blank will be used and analysed for a batch of samples released to the laboratory.</p>

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