



Bellevue site – Groundwater monitoring

Groundwater monitoring

Extensive groundwater monitoring has been carried out at the former waste control site in Bellevue to:

- ◆ assess the extent and movement of two groundwater plumes
- ◆ assess the performance of the first stage remediation works
- ◆ assess the potential for human health and environmental risks.

Since the 2001 fire, more than 100 wells have been installed in the area. These are located on the site and across neighbouring properties as shown on Image 1 on page 2.

The wells are installed at various depths to allow monitoring of groundwater at different levels and across different aquifers as shown on Figure 1 on page 3.

Monitoring is also occurring at the Helena River, both in the river itself and the floodplain or 'damplands.' In brief, the monitoring has identified two contaminant plumes:

1. Mixed hydrocarbons and halogenated solvents originating from beneath the site of the fire. Groundwater concentrations are now generally below acceptable levels but they have exceeded these levels in the past (source and plume shown in purple on Image 1 on page 2).
2. Trichloroethene (TCE) originating from the east end of Stanley Street and extending about 80 metres south-southeast before being intercepted by the permeable reactive barriers (PRBs) installed in 2010 at the base of the escarpment in the damplands (shown in yellow on Image 1 on page 2).

Refer to Fact Sheet 17 for more information about the clean-up strategy and Fact Sheet 16 for understanding potential risks to human health and the environment.

When is monitoring carried out?

Annual monitoring of on-site and off-site wells is conducted in May/June each year when groundwater levels are about at their lowest. The most recent round of monitoring was in June 2013.

More frequent monitoring is undertaken to assess the performance of the PRBs.

What is being monitored?

General water quality parameters (pH and dissolved oxygen levels) are tested along with a wide range of chemicals that are based on historical operations and monitoring of the site. The full list of contaminants can be found in the annual monitoring reports, published by the Department of Environment Regulation (DER) following review by the independent contaminated sites auditor.

The annual monitoring reports can be viewed on the department's website at <http://www.der.wa.gov.au/bellevue>

What does the monitoring show?

The 2012 annual monitoring results indicate that the levels of contaminants were lower or comparable with previous results. Concentrations of contaminants in both plumes are showing a general trend of either stabilising or decreasing over time, particularly since 2009. Trace levels of contaminants were detected in the Helena River in 2009, but no further evidence of contamination has been found

Where to now?

LandCorp, as project manager of the Bellevue site, has called for expressions of interest (EOI) asking environmental remediation contractors to put forward their plans and predicted costs for cleaning up the contamination sources. In the meantime, the PRBs are expected to continue their work preventing groundwater contamination from reaching the Helena River.

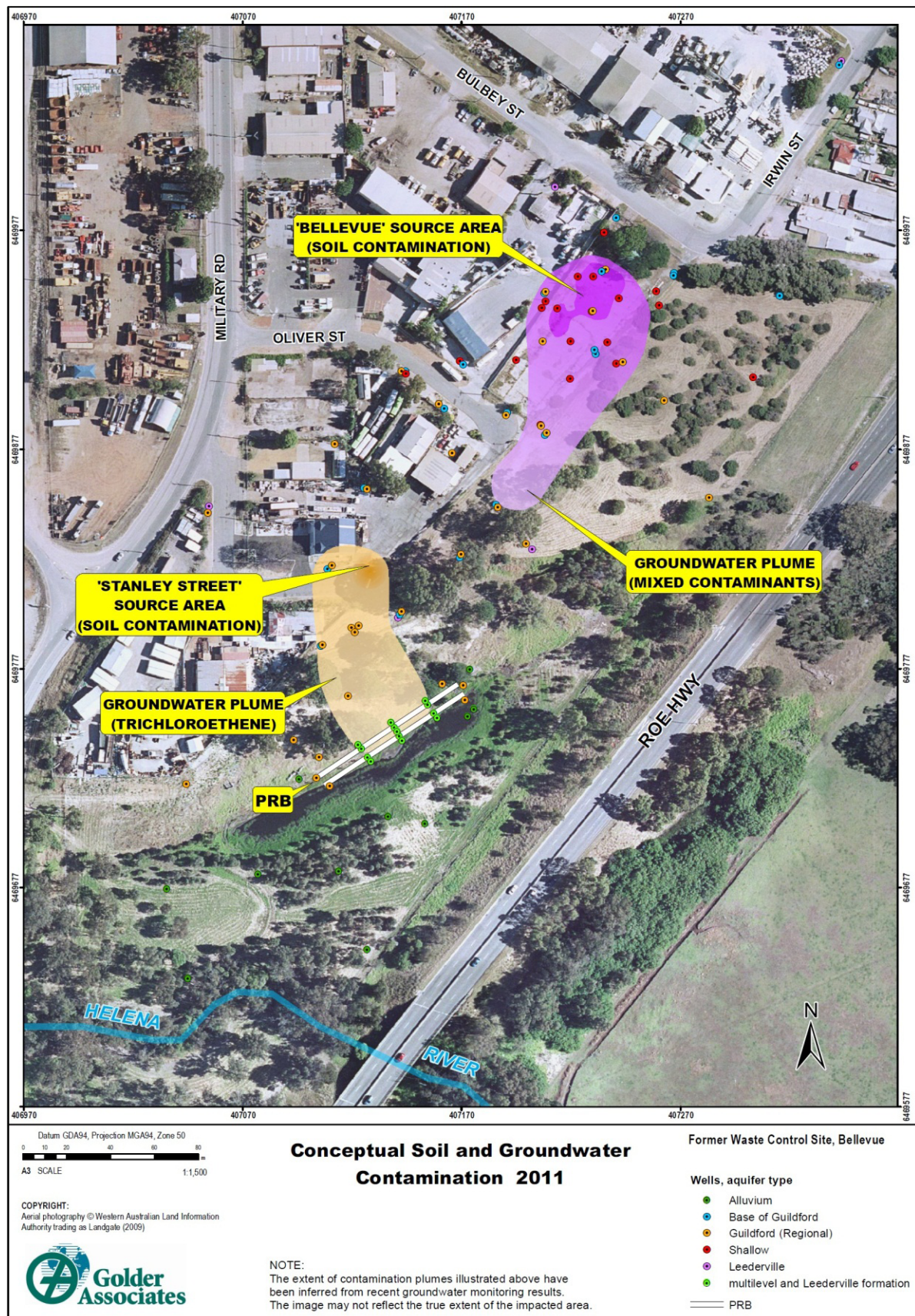


Image 1: Monitoring network and location of groundwater contamination plumes

Disclaimer: The extent of contamination plumes illustrated above has been inferred from historical groundwater monitoring results. The image may not reflect the current extent of the impacted area.

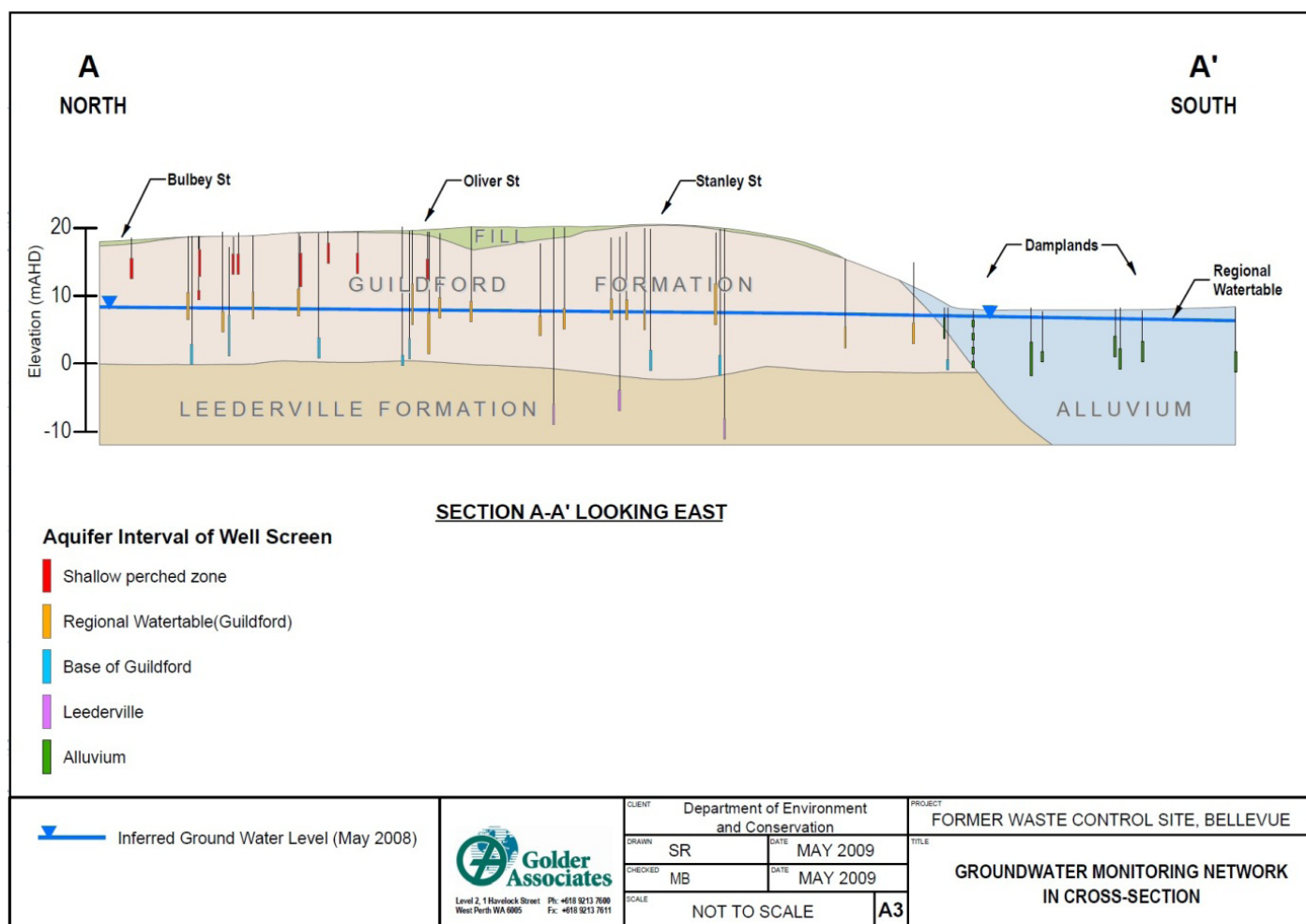


Figure 1: Aquifer cross-section showing aquifer interval being monitored

Monitoring rounds will continue as planned.

Monitoring reports, remediation strategies and site management plans are all subject to review by the independent Contaminated Sites Auditor for the site, as required by the *Contaminated Sites Act 2003*.

For more information on the Bellevue site

Visit DER's webpage at www.der.wa.gov.au/bellevue for more information and updates on the former Waste Control Site at Bellevue.

More information is also available from other fact sheets published as part of this series:

- ◆ Fact Sheet 16 – Background and risk
- ◆ Fact Sheet 17 – Clean-up strategy

For more information on contaminated sites in WA

DER has published a series of fact sheets and administrative and technical guidelines to assist with the assessment, management and remediation of contaminated sites. These publications along with more information on contaminated sites are available at www.der.wa.gov.au/contaminatedsites.

or by writing to:

Contaminated Sites
Department of Environment Regulation
Locked Bag 33
CLOISTERS SQUARE WA 6850

or by telephoning the Contaminated Sites Hotline on 1300 762 982.

Disclaimer

The information contained in this fact sheet is provided by DER in good faith as a public service. However, DER does not guarantee the accuracy of the information contained in this fact sheet and it is the responsibility of recipients to make their own enquiries as to its accuracy, currency and relevance. The State of Western Australia, DER and their servants and agents expressly disclaim liability, in negligence or otherwise, for any act or omission occurring in reliance on the information contained in this fact sheet or for any consequence of such act or omission.

Legislation

Free electronic copies of the *Contaminated Sites Act 2003*; the Contaminated Sites Regulations 2006; and the are available from the State Law Publisher (www.slp.wa.gov.au).

Contact details

For information on compliance with the *Contaminated Sites Act 2003* and Contaminated Sites Regulations 2006, or any other related matter, please contact the Contaminated Sites Information Line on 1300 762 982.