

# Builder

## Chelsea Barracks

Was Prince Charles within his rights to speak up?



Issue 155 includes:

- Agenda — the latest construction news
- Technology — mapping competition heats up
- Feature — health and safety
- Construction Scotland — the latest in Scottish construction

# Reducing the cost of soil contamination testing

National  
Laboratory  
Service

'The National Laboratory Service (a business unit of the Environment Agency) have formed a collaboration with Crown Bio as they see the significant potential rise in on-site testing/ screening'



Crown Bio Technology's (CBT) Safe Soil Tester™ device facilitates rapid and cost-effective onsite soil toxicity screening and mapping so that contaminated areas can be easily identified and treated.

There are immediate applications for use on Brownfield sites in the UK as well as abroad. "We are addressing a potentially huge market for housing surveys on brownfield sites," says Edward Bell, managing director of Crown Bio Technology. The EU has 3.5m potentially contaminated sites, and member states are required to identify them and develop a national remediation strategy: Environmental legislation requires former industrial sites to be inspected for toxic chemicals before they are redeveloped for housing.

"It is the right of citizens to know what is in their

soil and how much it will cost to clean up, which is what is proposed in the new Draft EU Directive," says Bell.

In the past, the problem of contaminated sites has been addressed by stripping away the topsoil from the entire site at prohibitive cost – up to £500,000 to clear 10cm of soil off a 10ha site. But often contamination is limited to just a small portion of the site, perhaps at the spot where an incinerator or plant was sited. "We can quickly identify contamination and direct remedial action to those areas, which can save a lot of expense" Bell explains.

Designed to detect carcinogenic hydrocarbons, the company's prototype Safe Soil Tester exposes a luminescing marine bacteria (*Vibrio Fischeri*) to soil samples. Contaminated soil has an instant

effect on the bacteria, reducing its light output – which can be measured to give an on-the spot indication of any toxicity. The integrated GPS receiver used in conjunction with GIS software allows the data to be used to produce site-maps and provides an audit trail.

An ex-RE from the MoD, Mark McGrevey, currently a Consultant with CSG Wasteman, has been using the SST™ for a few years now. He described his experience with usage of the SST™ as follows:

'Prior to joining CSG, my site sampling regime when dealing with suspected contaminated land consisted of using Petroflag, SoilScan, Ecoprobe PID and Photovac Portable Gas Chromatographs.

Although these equipments were suitable for the task, they in themselves present further problems, i.e. gas bottles for calibration and charging of cells, weather reliability for results, cumbersome extra boxes of test tubes and solvents, etc.

The PID and GC allowed for gas sampling, but could not give results based on contamination within the soil matrix and was dependant on temperature. The Petroflag although suitable could give varied results dependant on who tested the soil, i.e. over or under vigorous shaking of samples in preparation. Samples tested were always then sent for analytical testing which resulted in more cost and extra time being spent awaiting results.

In comparison to other methods available I think that the Safe Soil Tester™ is the most simplistic equipment available for use in the market and with the near instantaneous results available gives:

- Reduced cost and waiting time compared with laboratory analysis.
- Real-time outputs for cost-effective decision-making.
- Single-use-only components reduce the likelihood of errors.
- Ability to test different media — soil, sediment, made ground.
- Auditable trail: unique sample I.D. and geo-referencing.
- Remote communication and GIS interface.

With costs to landfill ever increasing the Safe Soil Tester™ has shown that as a on-site screening tool, the savings to both the Environment and the Client will be enormous'.