

7 November 2016

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**Subject: Site Audit of Canberra Brickworks, ACT (LBJ 14/02)
Interim Audit Advice #7 From Review of Canberra Brickworks Site
Investigation, Canberra Brickworks, Yarralumla ACT, November 2016**

Dear Irena,

1.0 INTRODUCTION

Geosyntec Consultants Pty Ltd (Geosyntec) was engaged to provide Accredited Site Auditor (auditor) services in accordance with the Australian Capital Territory (ACT) Environment Protection (EP) Act 1997 in relation to the proposed redevelopment of the former Canberra Brickworks site, Yarralumla, ACT (the site). As part of the provision of these auditor services, the auditor was engaged to provide an independent review of the following reports:

- SMEC Holdings Limited (SMEC), 2016a. Canberra Brickworks: Detailed Environmental and Geotechnical Site Investigation, Canberra Brickwork Precinct, Yarralumla, ACT (Reference 3002523, Rev.2) dated 31 October 2016; and
- SMEC, 2016b. Canberra Brickworks: Groundwater Investigation – Addendum Report, Canberra Brickwork Precinct, Yarralumla, ACT (ref. 3002523 – Groundwater Addendum Report, Rev. 2), dated 3 November 2016.

The reports, which document different aspects of the same site investigation program, are collectively referred to herein as the “SI report”.

This letter has been provided as interim advice and, in keeping with guidelines endorsed under the EP Act 1997, you are advised that this letter does not constitute a Site Audit Report or Site Audit Statement and does not pre-empt the conclusion that may be made at the end of the audit process. This letter will be referred to by, and form an appendix to, the Site Audit Report. This interim advice is subject to the limitations as presented in Section 4.0.

2.0 SCOPE OF REVIEW

The auditor's review of the Report has included reference to the requirements/ provisions of the following policy and guidelines made or endorsed under the EP Act 1997:

- ACT Environment Protection Authority (EPA, 2009) Contaminated Sites, Environment Protection Policy (EPP);
- ACT EPA (2015) Contaminated Sites Information Sheet 4 – Requirements for the reuse and disposal of contaminated soil;
- ACT EPA (2014) Contaminated Sites Information Sheet 5 – requirements for the transport and disposal of asbestos contaminated wastes;
- ACT EPA (2014) Contaminated Sites Information Sheet 6 – Management of small scale, low risk soil asbestos contamination;
- NSW EPA (1995) Sampling Design Guidelines (the Sampling Guidelines);
- New South Wales (NSW) Department of Environment and Conservation (DEC) (April 2006) Guidelines for the NSW Site Auditor Scheme (2nd Edition) (the Auditor Guidelines);
- NSW Office of Environment and Heritage (OEHL, 2011) Guidelines for Consultants Reporting on Contaminated Sites (the Reporting Guidelines);
- Western Australia Department of Health (WA DoH, 2009) Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (the Asbestos Guidelines);
- Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand (ANZECC & ARMCANZ, 2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality; and
- National Environment Protection Council (NEPC, 1999) National Environment Protection (Assessment of Site Contamination) Measure (ASC NEPM, as amended May 2013).

3.0 COMMENTS ON THE SI REPORT

The auditor considers that the scope of the SI report addresses many of the requirements of a detailed site investigation specified in the NEPM, the Reporting Guidelines and the Auditor Guidelines.

The auditor has reviewed several iterations of the SI report, and has provided detailed comments as interim audit advice (No.5 and No.6), as well as email advice and discussion in meetings.

The key outcomes of the auditor's review of the SI report are summarised below. Minor spelling and grammatical errors, where encountered, have only been addressed if the potential uncertainty arising from the error was deemed to be noteworthy.

- 1) The investigation program, comprising intrusive and surface geophysical investigation techniques, generally identified an extensive fill layer across the operational portion of the former brickworks, the majority of the former quarry pit area, and to a limited extent in the land to the south. The fill thickness ranged from <1m to ~5m thick, and generally consisted of bricks with various inclusions of concrete, ash, reworked material and trace amounts of metal pipe. The geotechnical suitability of the fill material for construction purposes falls outside the scope of the site auditor scheme, and does not form part of the "site suitability" considerations of the site audit.
- 2) The analytical results of the various sampled environmental media (fill, soil, sediment, kiln dust, surface water, groundwater), did not identify widespread chemical or asbestos contamination issues at the site (note the exception in Comment 3 below). A number of discrete contamination issues were identified, including elevated metals concentrations in kiln dust (and shallow fill in limited locations), the presence of an underground storage tank (UST), and limited occurrences of asbestos (bonded fragments on ground surface, and asbestos fines detected in one soil sample).
- 3) The auditor notes that the "asbestos dump" area at the western margin of the site was intentionally excluded from this stage of investigation. This area is the subject of a separate body of investigation reports, management plans and a Section B Site Audit Statement for an interim "cap-and-contain" management strategy.
- 4) The results of the investigation indicated that, with the exception of the localised contamination issues identified, the chemical quality of large portions of the site is suitable for residential land use. It is important to note that this conclusion acknowledges several important limitations to the investigations completed to date:
 - a. Certain limitations applied to the design of the investigation program, including access limitations that prevented intrusive investigation beneath the footprints of most buildings and structures on the site, and heritage considerations that limited the type and density of investigation locations in

relatively large portions of the site. Accordingly, the characterisation of the contamination status in these areas is either preliminary or unaddressed, and will need to be considered in accordance with future development plans, if and when access becomes available.

- b. While a reasonable density of investigation locations were completed within the former operational area of the brickworks, the investigation density in other portions of the site was much lower (partially for the reasons discussed in bullet point “a” above, and partially because the land use history suggested a lower contamination potential). This is most relevant to the former quarry area where the thickest fill occurrence was identified using geophysical techniques, and where the potential to encounter artefacts of archaeological significance was considered to be high.

In conclusion, the results of investigation to date have only identified a small number of discrete contamination issues, and the widespread presence of fill material does not appear to be associated with widespread chemical or asbestos impact (this comment excludes the asbestos dump area). Uncertainties remain at the site, and unexpected contamination issues may still exist despite a reasonable level of judgemental and systematic investigation, particularly given the inherent variability of fill material. Identified data gaps should be addressed if and when access constraints allow, and it is recommended that any future development should proceed under the guidance of an environmental management plan (EMP) with an unexpected finds protocol.

Any supplementary investigations (plans and results) or management plans addressing contamination at the site must be reviewed and endorsed by an accredited contaminated site auditor. Any remediation action plans prepared to address contamination issues at the site must also be submitted to ACT EPA for review and approval, following the auditor’s review and endorsement, prior to implementation.

4.0 LIMITATIONS

This advice has been prepared in accordance with the Department of Environment and Conservation (DEC) NSW (2006) Contaminated Sites: Guidelines for the NSW Site Auditor Scheme, 2nd Edition, and other relevant guidelines made or endorsed under the EP Act 1997.

The comments and opinions provided in this document were based on the auditor’s independent review of information prepared and provided by others. While applicable audit standards include a validation of reasonably verifiable information, not all of the information provided to the auditor can be reasonably verified. (For example, the accuracy of field logs, the location of samples, and the consistent compliance by third parties with applicable methodologies is not subject to reasonable verification.) The necessity to rely on third party

information results in an inherent level of uncertainty with respect to the audit that exists despite the auditor's compliance with appropriate professional standards of care. In addition, the documents supplied to the auditor for review as part of this audit may contain limitations statements. Accordingly, the opinions and advice developed on the basis of those documents is, by extension, subject to those same limitations.

It is also recognised that the guidelines regarding sampling design for site investigation and validation of remediation are statistically based, and it is possible for unidentified contamination to exist on a site where investigation and/or remedial validation has been performed despite compliance with applicable guidelines. The auditor accepts no responsibility for unidentified contamination encountered subsequent to investigation, remediation and validation that was performed in substantial compliance with the relevant guidelines made or endorsed under the EP Act 1997.

5.0 CLOSURE

Should you have any further queries please do not hesitate to contact the undersigned on 0447 249 250.

Sincerely,

Lange Jorstad, PhD, RPGeo
NSW EPA Accredited Site Auditor (No. 1001)